PRIMAR S-100 development

Hans Chr. Lauritzen, Director PRIMAR

Operated by the Norwegian Mapping Authority, Hydrographic Service

FREEDOM TO CHOOSE

PRIMAR's Vision

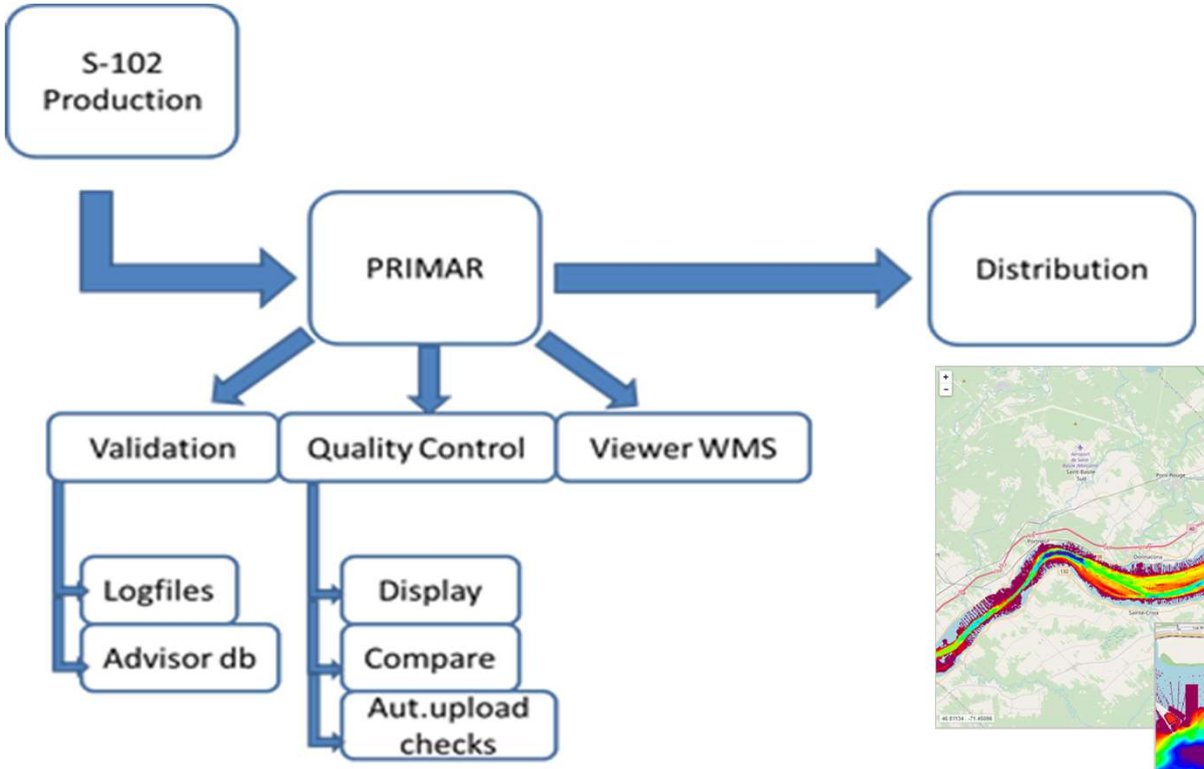
IN ORDER TO ENHANCE SAFETY AT SEA AND PROTECT THE MARITIME ENVIRONMENT, PRIMAR'S VISION IS TO BE THE MOST EFFICIENT MODEL FOR THE PROVISION OF ENC SERVICES AND MARITIME GEOSPATIAL DATA WORLDWIDE.

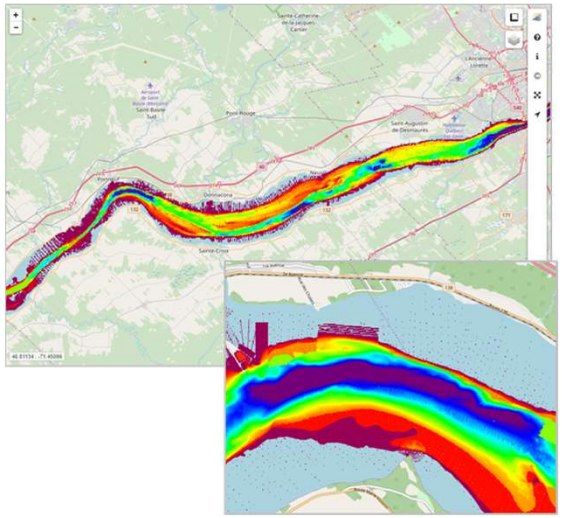
PRIMAR S-100 Projects

- S-102 data upload, validation and distribution.
- S-102 in an operational environment.
  - Project supported by The Research Council of Norway
- S-100 Data as a Service.
  - Project in cooperation with CARIS and CHS
- S-101 data upload, validation and distribution.
- S-100 part 15 Data Protection (new S-63).
- Research project - IHO S-100 portfolio (S-101, S-102, S-104, S-111, S-129).
  - Project supported by The Research Council of Norway

PRIMAR S-102 Project

- Expand the PRIMAR service to encompass S-102 data.
- S-102 data upload, validation, viewer and distribution.

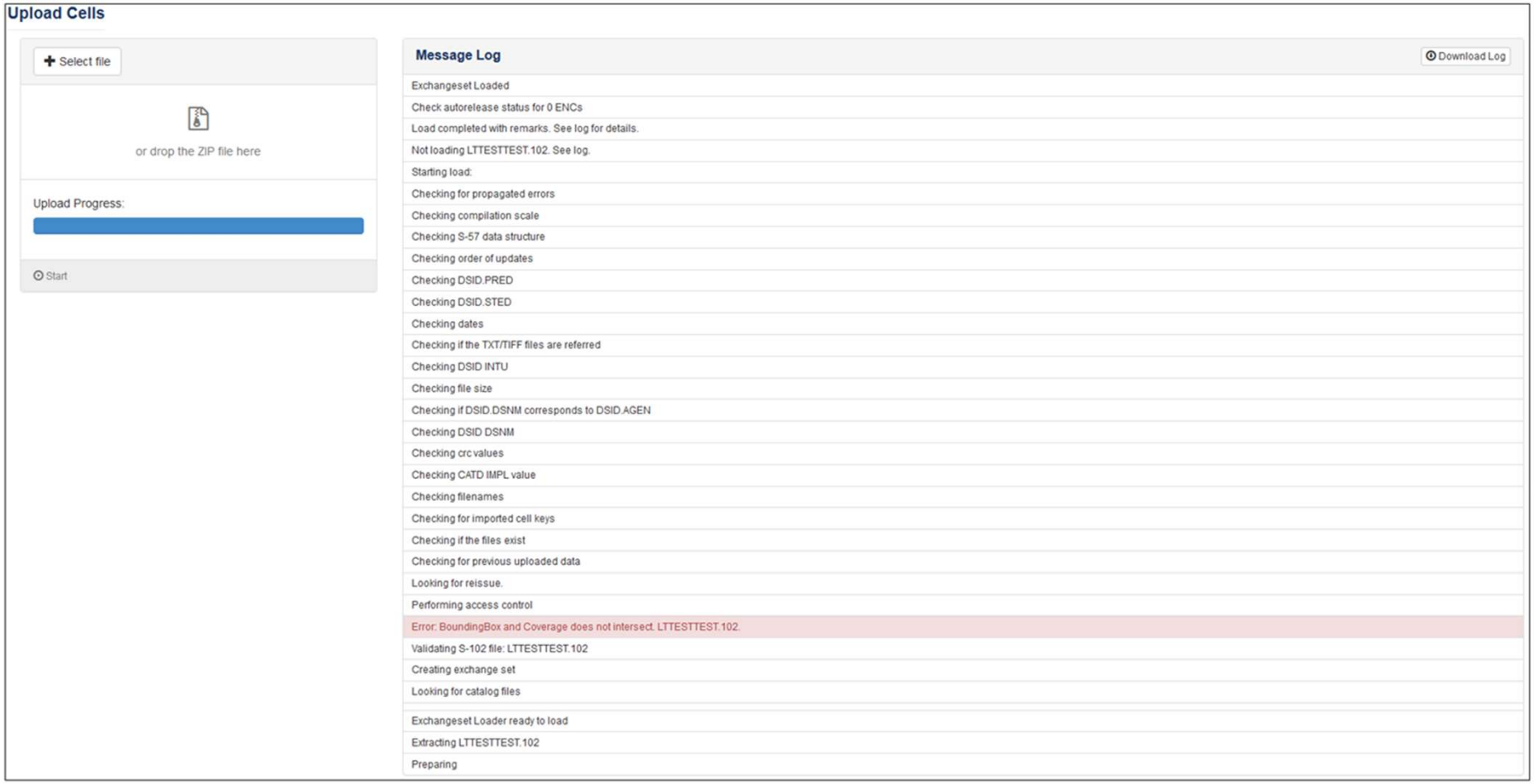




PRIMAR S-102 viewer

PRIMAR S-102 Project

- S-102 upload interface, validation and error reports.



PRIMAR S-102 Project

- S-102 upload interface, validation and error reports.

Upload Report: 101201

Uploaded By: skjeves

Uploaded Date: 2017-02-16T11:36:56

Loaded

Cell ID	Edition	Update	Reissue	Loaded	Released	Type	Prod Spec
No data loaded							

Not Loaded

Cell ID	Edition	Update	File	Type

Upload Messages

Level	Message	Check Name
Error	BoundingBox and Coverage does not intersect. NO_TEST001.102	s102-coverage
Warning	Ignoring unsupported CRS WKT EXTENSION. NO_TEST001.102	s102-crs
Error	Coordinate values does not define a proper bounding box. wlon=10.3729, elon=10.0000, slat=59.2469, nlat=59.2732. NO_TEST001.102	s102-bbox

PRIMAR S-102 Project - Validation

Filename inconsistency:

- Error: Invalid character in filename.
- Error: Invalid filename
- Error: Missing file name
- Error: File name to short
- Error: File name to long
- Error Unknown country code

Coverage inconsistency:

- Error: BoundingBox and Coverage does not intersect
- Error: Could not extract BoundingBox
- Warning: BoundingBox is to large for Covergae
- Error: Could not extract Coverage
- Error: Empty Coverage

Coordinate Reference System inconsistency:

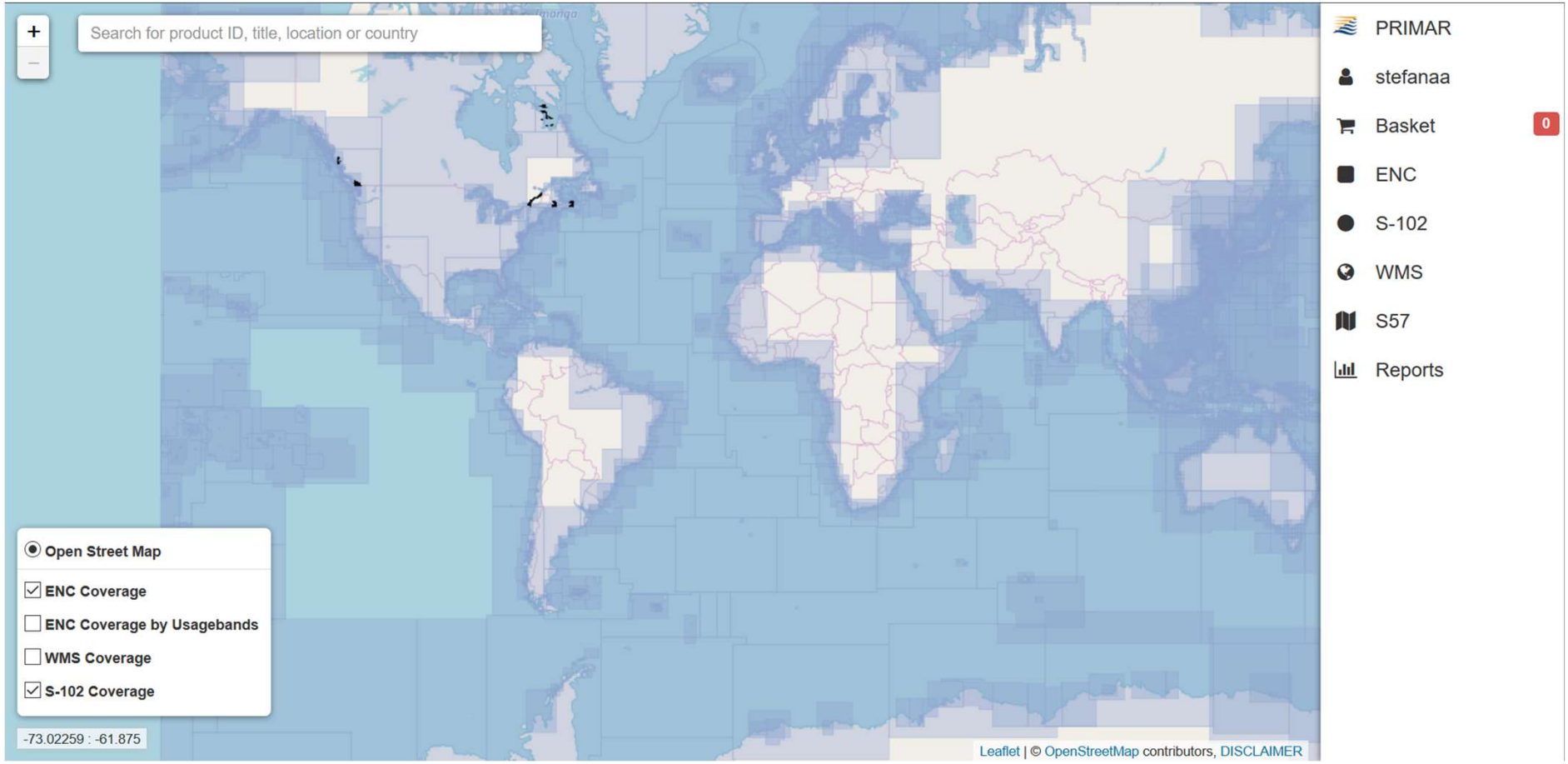
- Error: Unknown CRS
- Warning: Ignoring unsuspected CRS WKT EXTENSION

Others:

- Warning: Dataset greater than size limit 10MB.
- Error: S-102 dataset already in database.

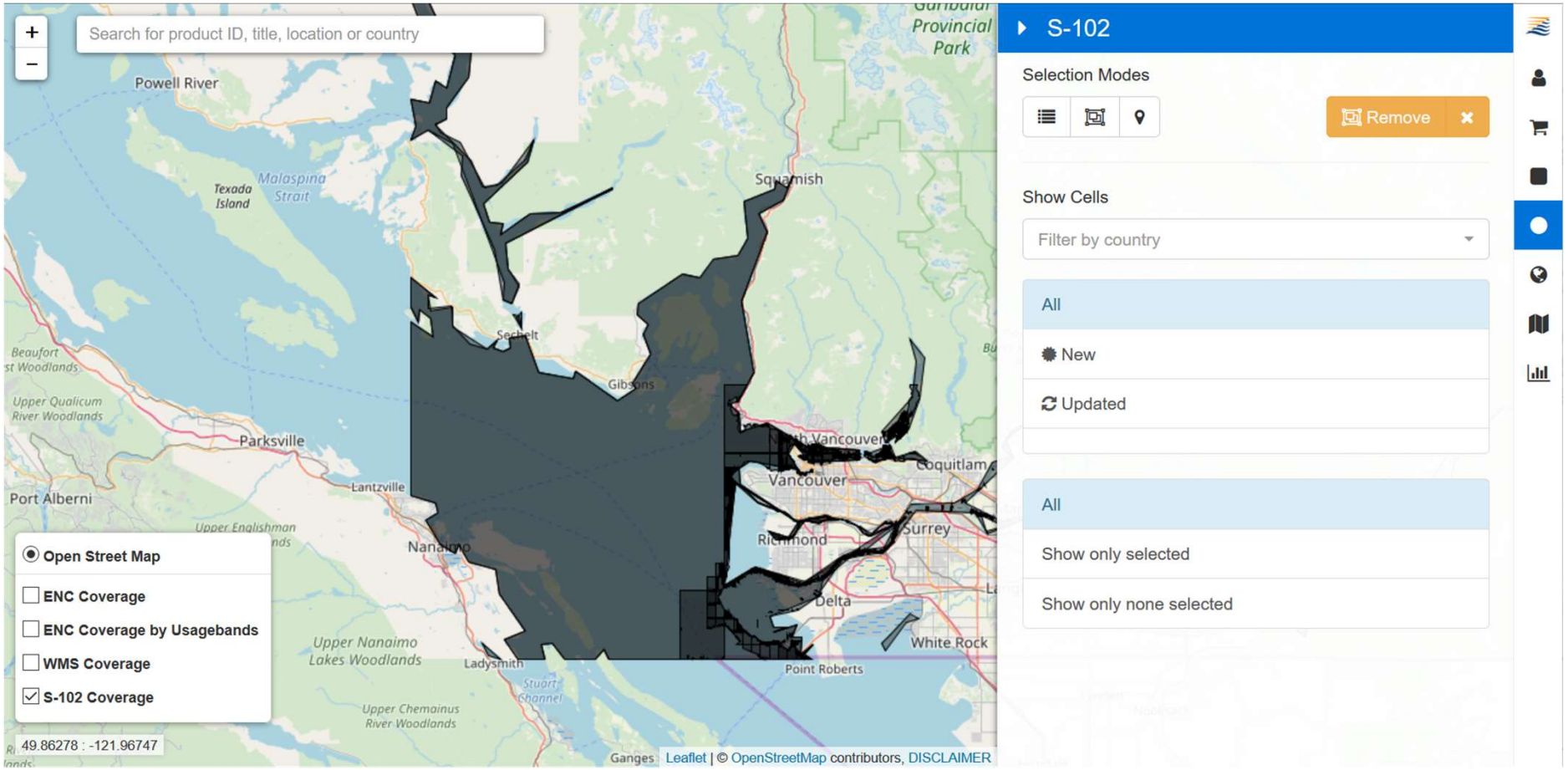
PRIMAR S-102 Project

- S-102 data in the PRIMAR Chart Catalogue.



PRIMAR S-102 Project

- S-102 data selection in the PRIMAR Chart Catalogue.



S-102 Demonstrator Project

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

The Project Team

ELECTRONIC CHART CENTRE

KONGSBERG

Partners & Operational Test Team

KYSTVERKET
NORWEGIAN COASTAL ADMINISTRATION

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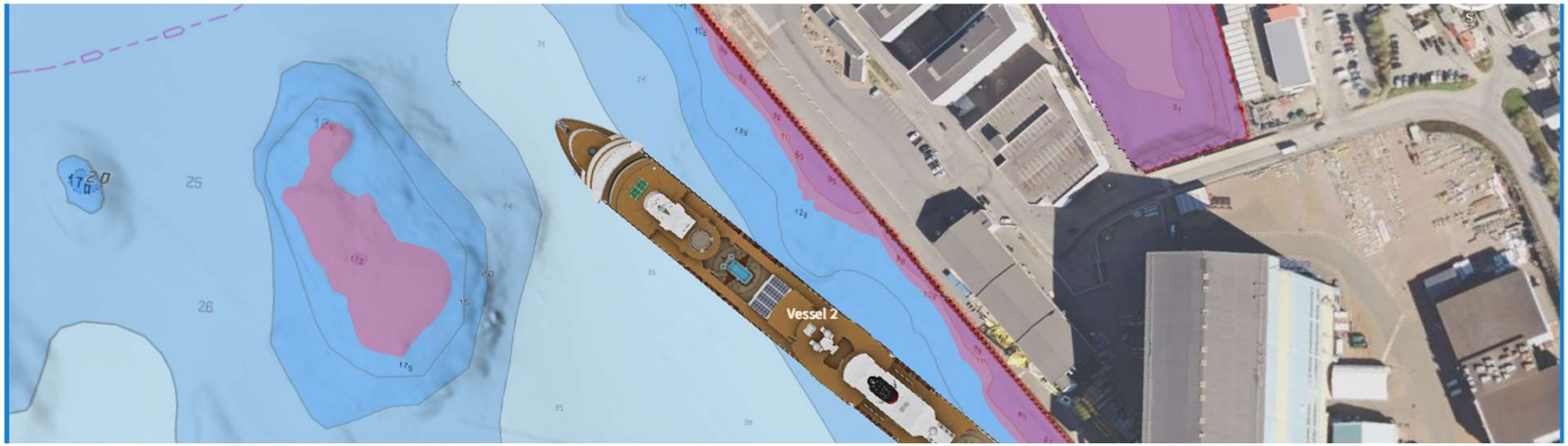
Financial Support

With funding from
The Research Council of Norway



S-102 Demonstrator Project

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Expected value from the project:

To better understand how the S-102 data type can be utilized to provide a better basis for decision making regarding:

- Resource planning
- Environmental impact
- Cost reductions
- Increased safety
- Accidents, Disasters and SAR operations
- Scientific purposes

www.s-102.no

Kvitsøy VTS watching MS Queen Victoria leaving harbor live video and via the S-102 Demonstrator

Comparing the S-102 data with ECDIS S-57 data onboard a patrol vessel from the Royal Norwegian Navy

S-102 Demonstrator Project

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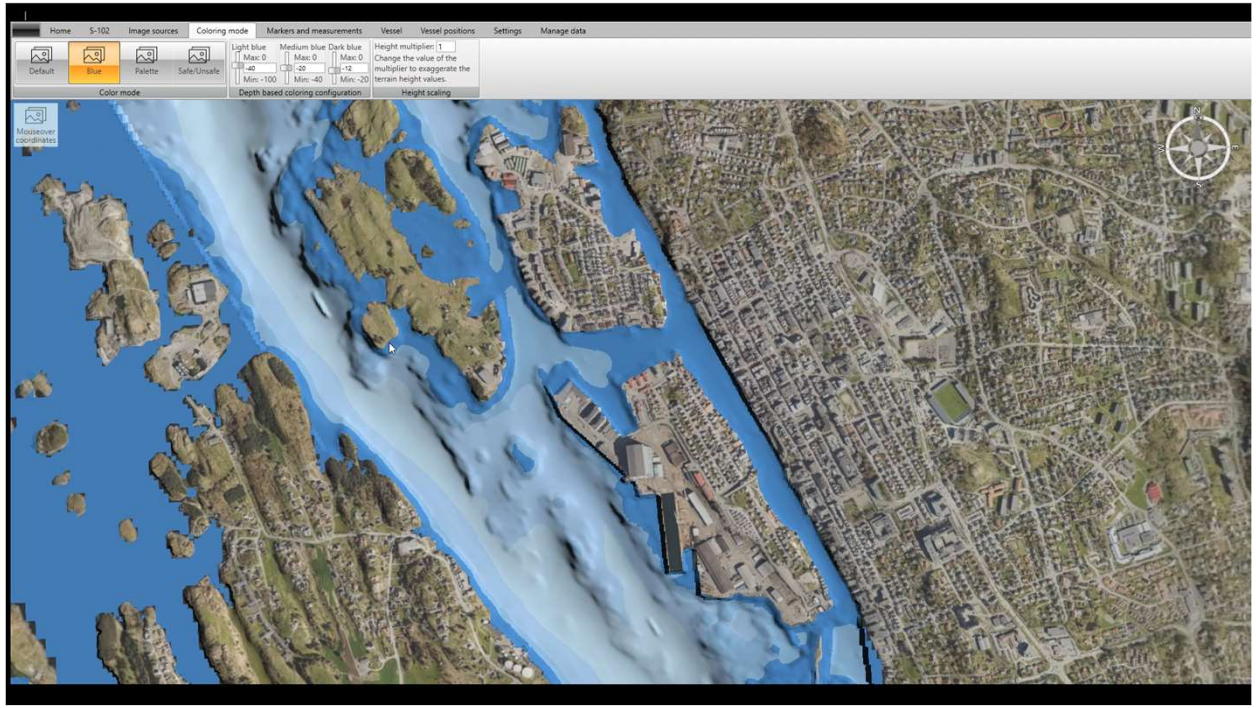
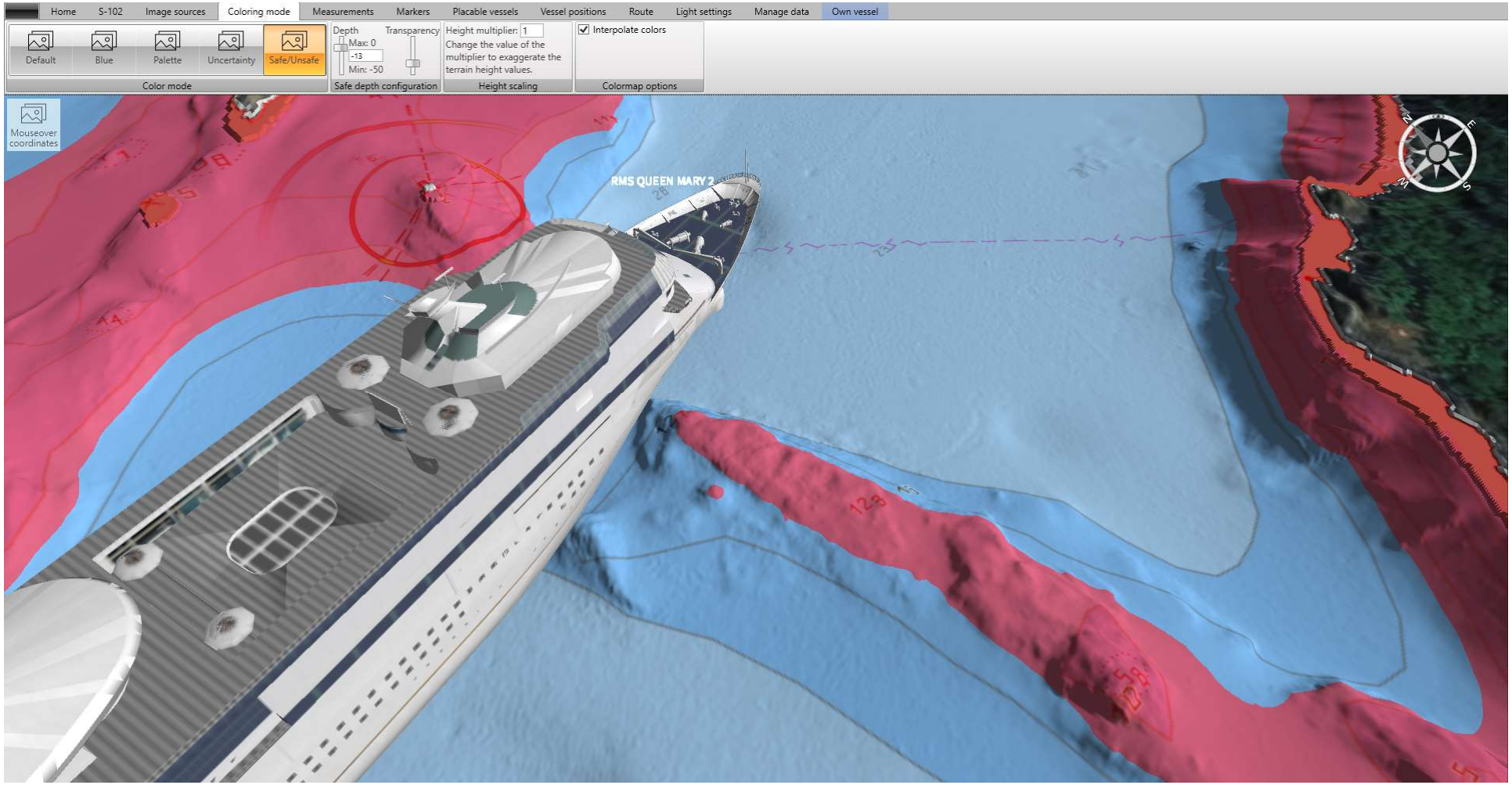
Basic functionality in the Kongsberg S-102 Demonstrator:

- Show various map layers in one view:
  - Bathymetry
  - Terrain
  - S-57 ENC
  - Orthophoto
- Switch between layers
- Navigation in chart
- Compass



S-102 Demonstrator Project

- Queen Mary 2 voyage to the Port of Oslo



S-100 Data as a Service

A Dream Team:

Proponent	Technology Partner	Technology Partner	Channel to Market
			NHS
Progressive Hydrographic Office	Hydrographic Processing and Production Software	ENC Distribution Software	RENC

Investment Partners

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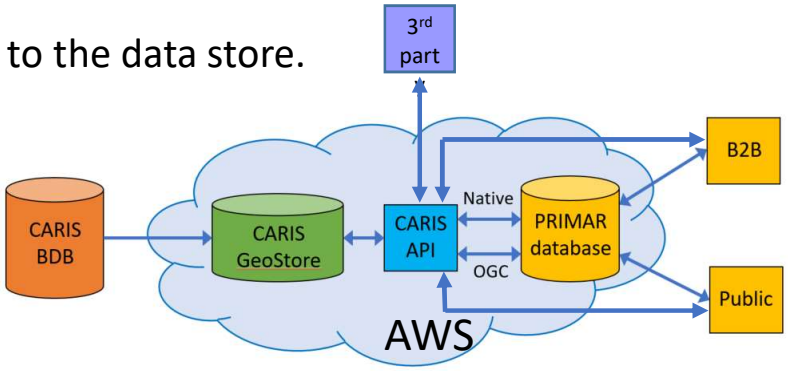
S-100 Data as a Service

Pilot Project Overview:

- This pilot will allow CHS, Teledyne CARIS and PRIMAR to demonstrate its ability to provide a service that consumers of bathymetry data can subscribe to.
- Data will be available in pre-determined geographic areas of interest.
- By bathymetry data we mean coverages, vector features and S-102 products.
- CARIS will develop a cloud hosted datastore located outside of the CHS infrastructure.
- CARIS will develop a rich API providing 3rd party access to the data store.
- PRIMAR will expand its existing database and web applications to provide a store front to subscribe to the latest available S-102 bathymetry data and access OGC services.



S-100 Data as a Service

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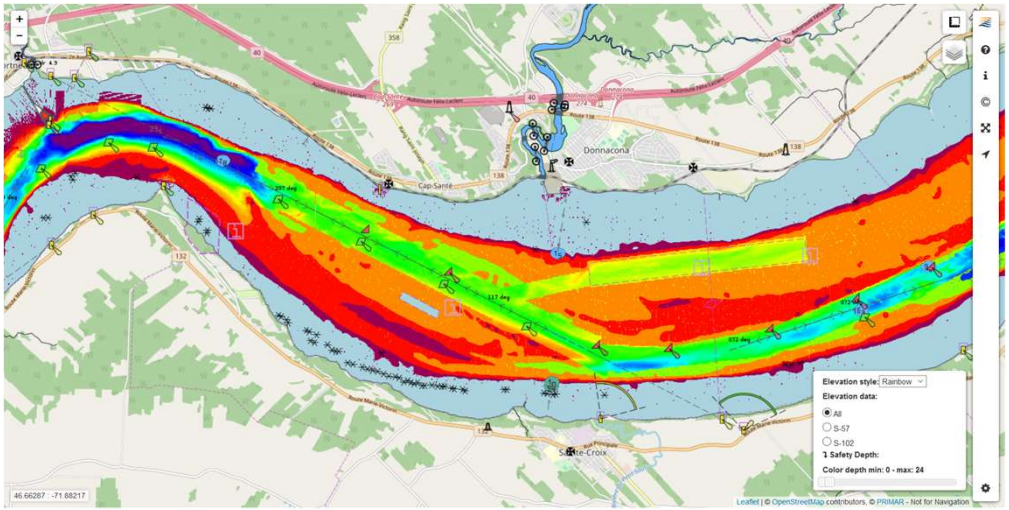
Pilot Project Objectives:

- Garner support from potential stakeholder groups e.g. hydrographic offices, ports, pilots, other government agencies, global mapping initiatives (Seabed 2030).
- Expose the hydrographic community to these capabilities to foster support for the potential benefits of S-102 and bathymetry as a service.
- Explore potential for use of S-104 and S-111 standard for supplementary services.
- Refine the cloud and service technology to work towards a robust and commercially viable service.
- Determine the costs involved in offering cloud based storage and services.
- Develop innovative business models to ensure customer adoption by providing value added benefits for stakeholders.

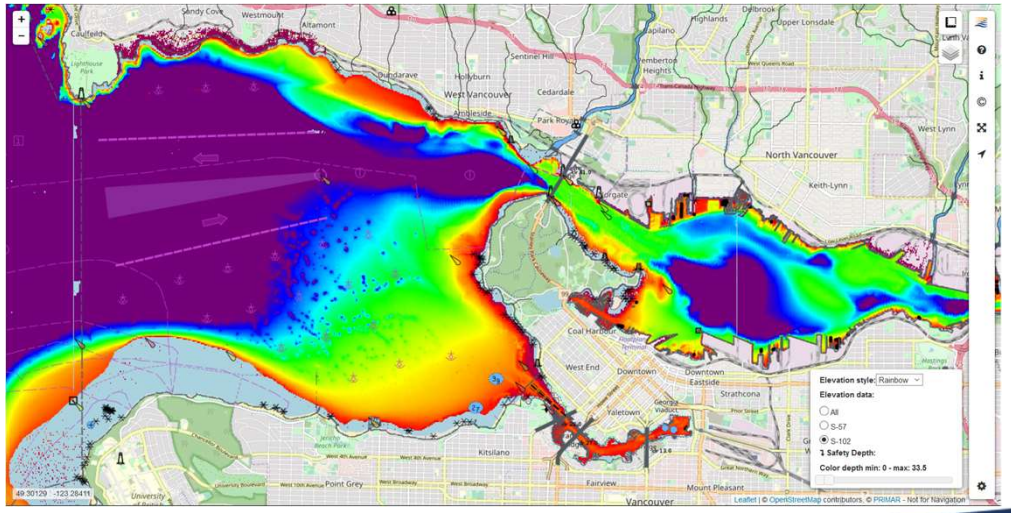
S-100 Data as a Service

CHS S-102 data in PRIMAR Viewer:



St. Lawrence River

Vancouver



S-100 Data as a Service

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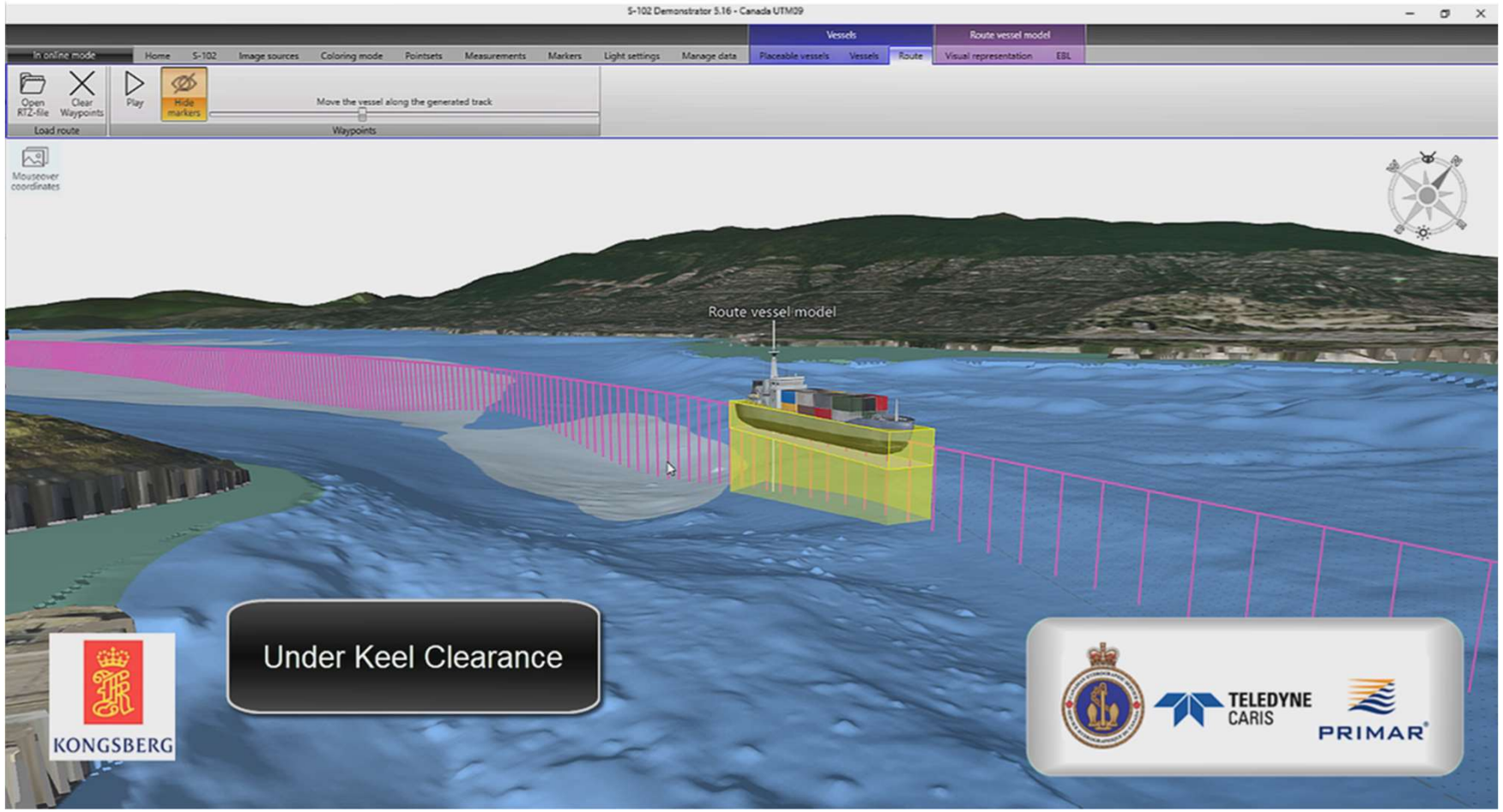
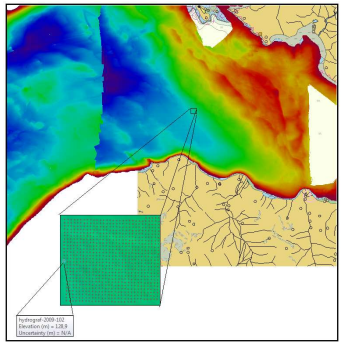
Vancouver

CHS S-102 data in Kongsberg S-102 demo:



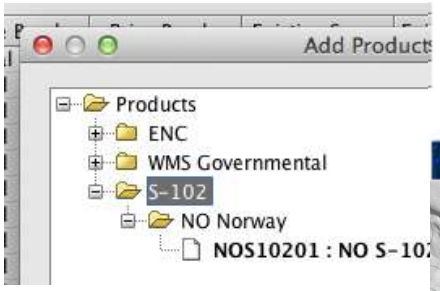
S-100 Data as a Service – Value Chain

Data collection by HO or Contractor



Data processing &
S-102 production in
CARIS software

PRIMAR provide channel to market



Commercial and National Distributors

Sales

End-users

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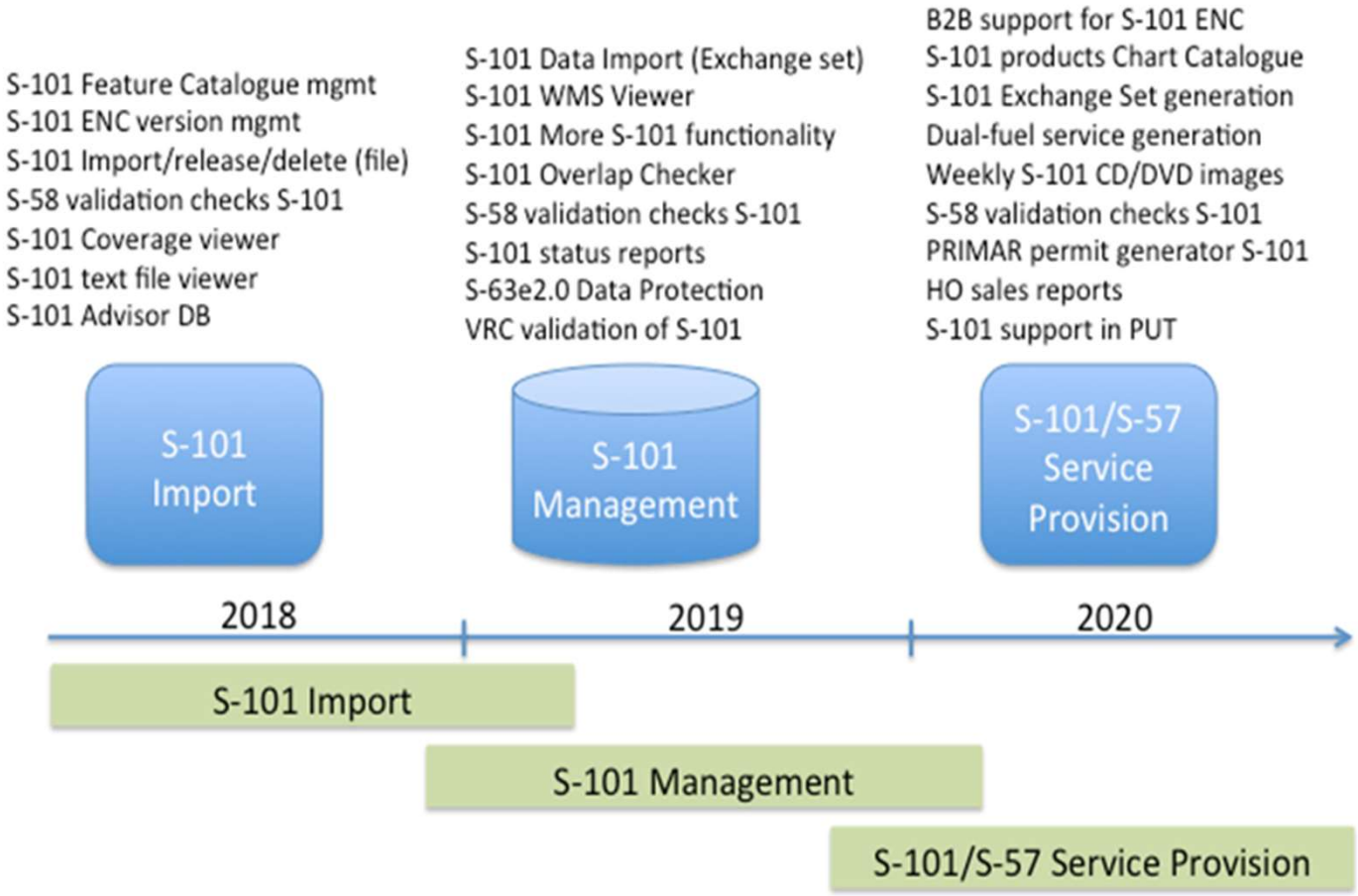
PRIMAR S-101 Development

- PAC 24 approved S-101 development



PRIMAR S-101 Development 2018

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- Focus for 2018 has been on implementing support for the new S-100 data model in the PRIMAR database and core technologies.
- Challenge has been to obtain complete S-101 exchange sets for testing.
  - Only converted S-101 dataset files available.
- Expanded database design to support S-101 in co-existence with existing S-57 design and services to support dual-fuel.
- Developed functionality for importing S-101 datasets.
- Populate S-101 metadata based on information available in datasets.
- Started to build automatic S-101 validation tests.
- Started to build S-101 user interface for VPN functionality for import, manage/release, export.
- Started to develop support for S-100 (part 15) data protection applied to S-101 exchange sets.

PRIMAR S-101 Development 2019

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- Empower IHO to operate as protection scheme administrator for S-10x products.
- Complete VPN User Interface to import, manage and release S-101 datasets.
- Develop support for IHO Feature and Portrayal Catalogues.
- Develop S-101 Viewer.
- Develop S-101 Overlap Checker.
- Develop S-57/S-101 Comparison Viewer.
- Additional S-101 validation tests.
- Start development on Chart Catalogue with functionality to support S-101.
- Approach OEMs with PRIMAR plans and interfaces for providing S-57/S-101 dual fuel services.

Research project - IHO S-100 portfolio

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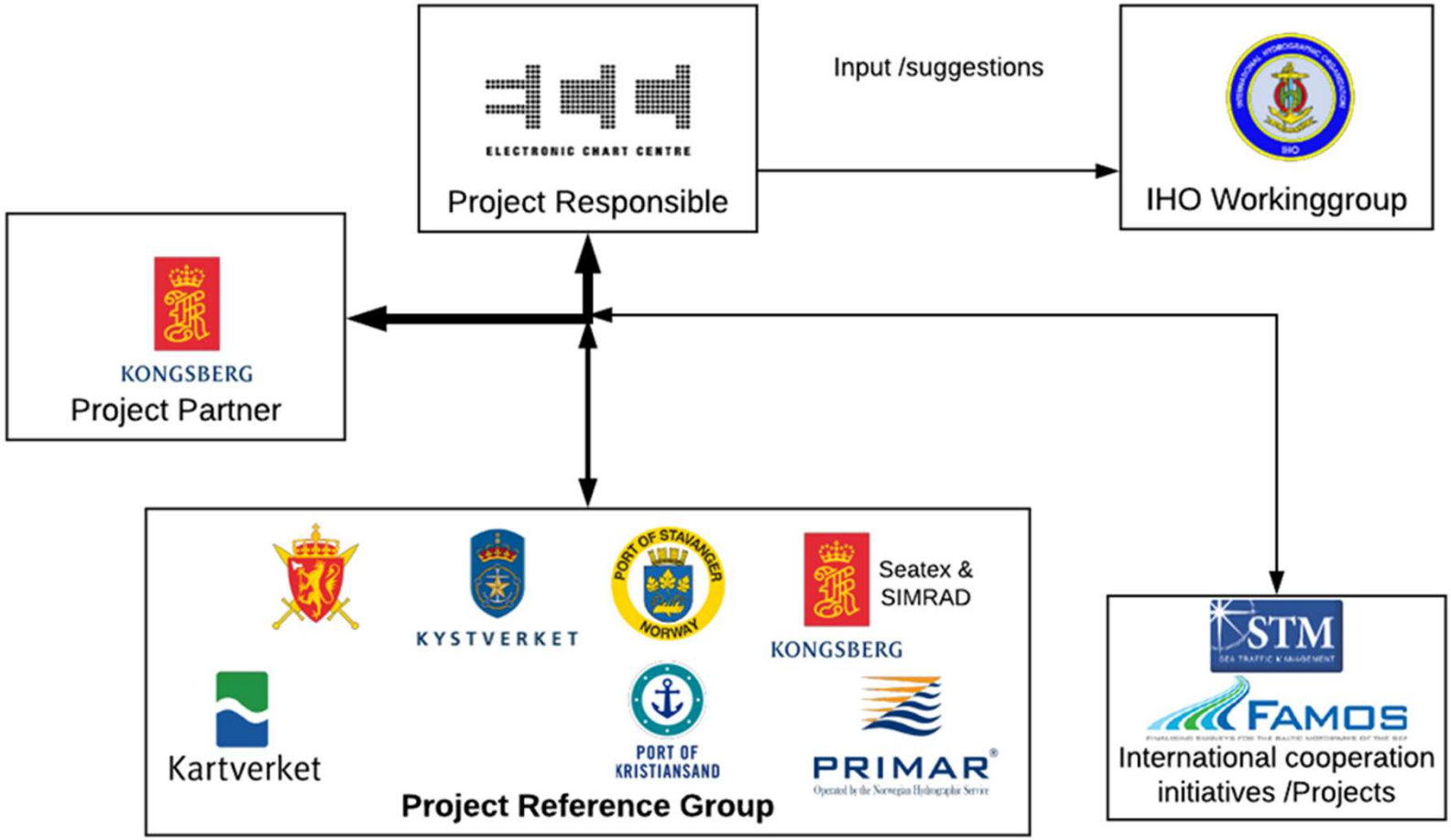
Feasibility study for the IHO S-100 portfolio.



Research project - IHO S-100 portfolio

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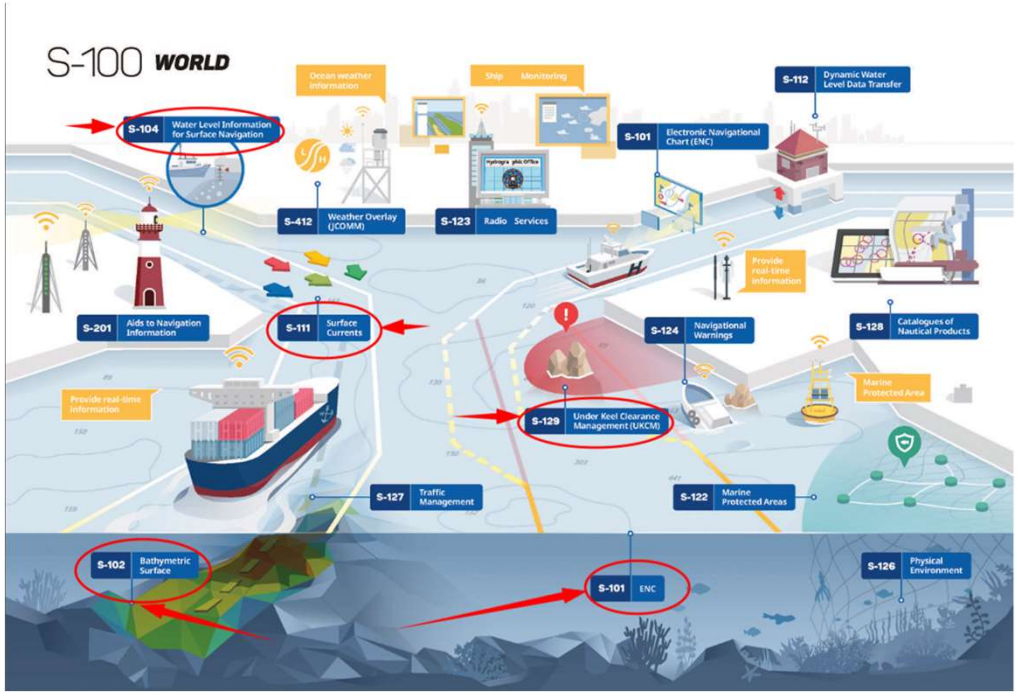
The S-100 standards scope for the project:

- S-101 (ENC)
- S-102 (Bathymetri)
- S-104 (Water Level information)
- S-111 (Surface Currents)
- S-129 (Under Keel Clearance)



Project timeline: 3 years
Project startup: April 2019

Research project - IHO S-100 portfolio

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Project objectives:

- To define how the new standards, combined, can create value for the maritime industry and how new & improved products and business opportunities can be designed & developed based on the new standards.

Expected outcome:

- In-depth knowledge on ownership, accessibility, quality and challenges related to the selected data types.
- Increased knowledge related to the value of combining data types.
- Competitive advantage.
- Valuable input and ability to impact final IHO S-100 standards.
- Contribute to product improvement and new products.


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Questions?
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