

Applicability of the S-102 PS for data producers

BSH comments on current S-102 draft 1.1.0



The present S-102 version 1.1.0 draft is an impressive work for the exchange and provision of bathymetric data, which we acknowledge.

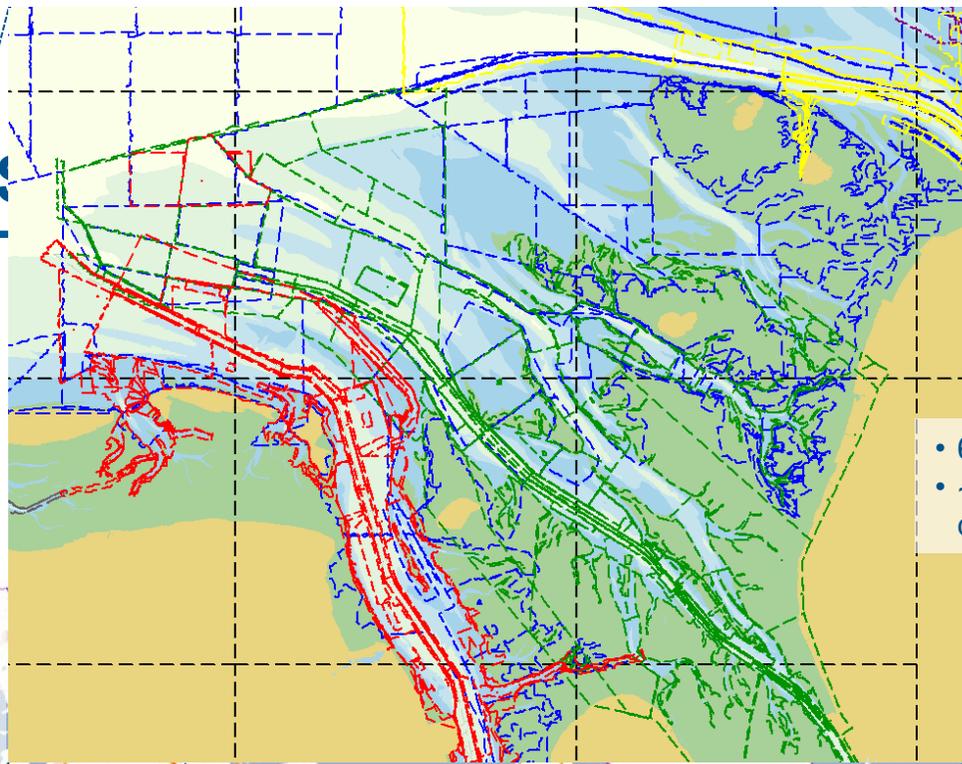
For the production of harmonized S-102 data products that can be used in IMO defined e-Navigation systems we need

1. a common understanding of terms and definitions,
2. common requirements for a safe navigation,
3. a clear separation between data capturing, data processing aspects and end-user aspects

Here we still see potential of improvement.

Data situation at BSH

- Complete coverage with current data
- Continuous and systematic surveys by different authorities
- Different surveying methods (SBES, MBES, laser) depending on efficiency, terrain structure and political requirements
- Surveying intervals depending on the dynamic of the sea area, e.g. nearly two-week rhythm in confined, highly frequented and rapidly changing waterways in the North Sea
- 2000 new surveying data sets per year, in the future 3000 estimated



- 6 different data providers
- ~ 850 blended surveying data sets

NORTH SEA – German Bight

- Very dynamic sea area
- Tidal flats, strong tidal streams
- Confined and busy waterways
- Different chart datum

BALTIC SEA

- Nearly unchanging sea area
- Seaweed and silting areas
- Stone fields
- Confined and busy waterways
- Uniform chart datum



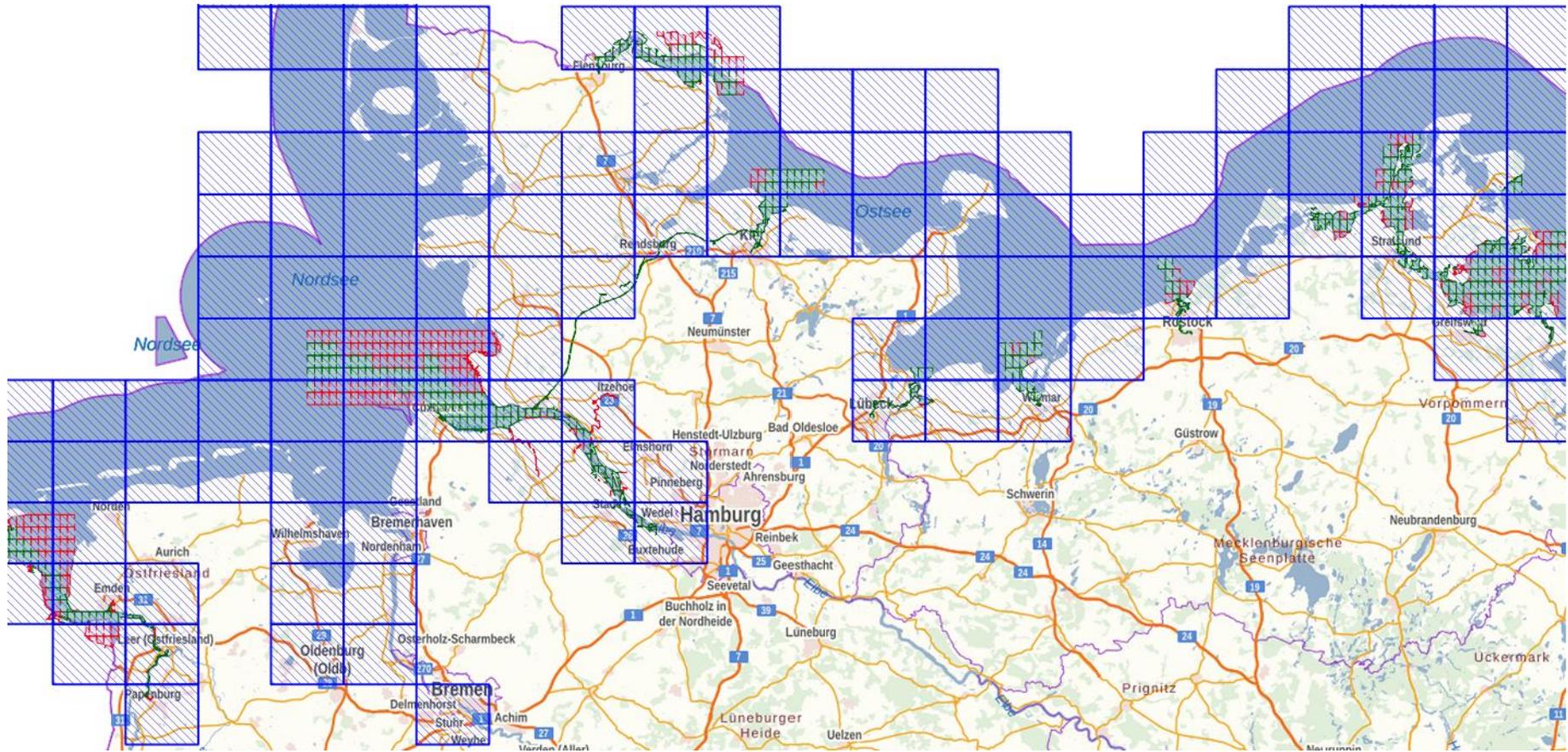
Tiling schemes at BSH



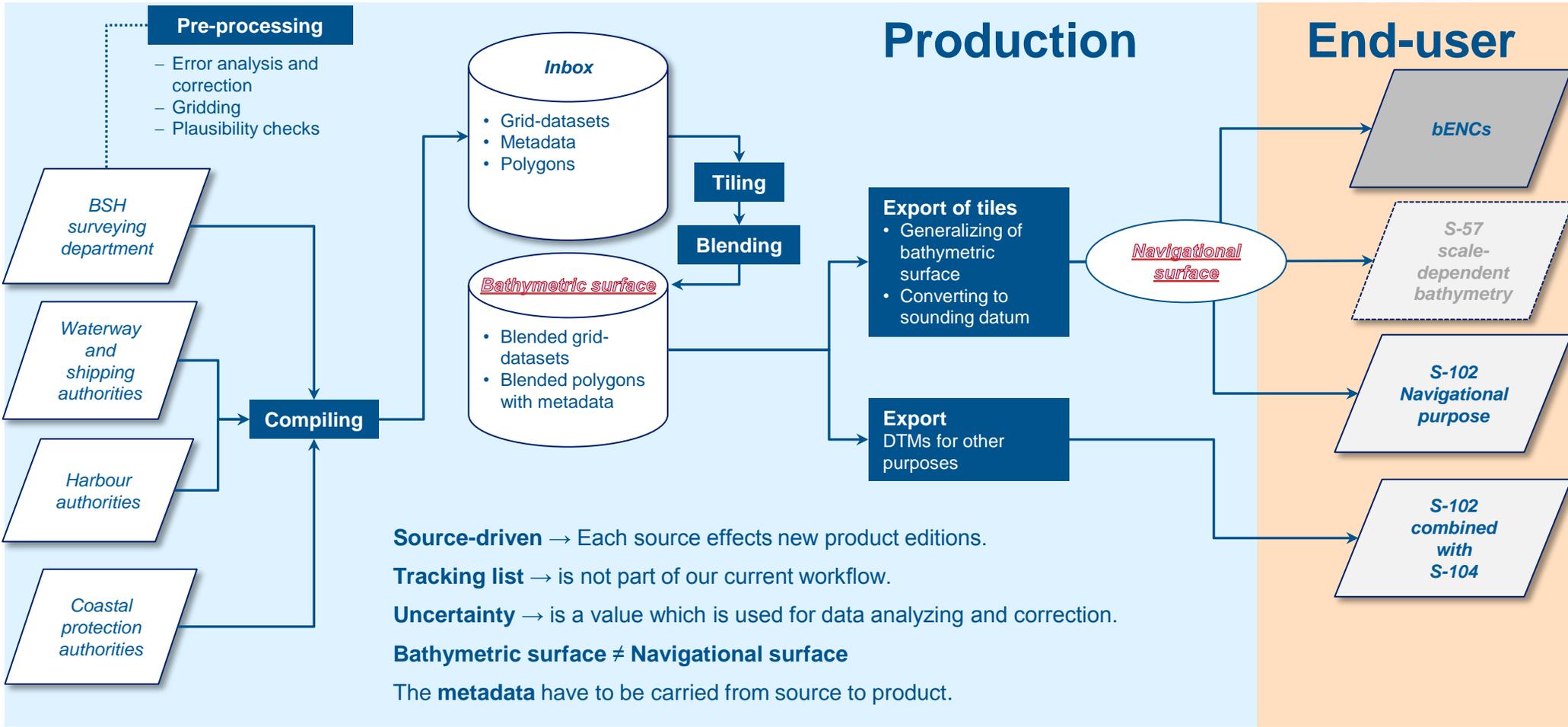
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HYDROGRAPHIE

ENCs (approach): size of tiles 20' x 10' minutes

bENCs: size of tiles 2' x 2' minutes



Workflow at BSH



Workflow at BSH – Metadata



Vector metadata

Boundary polygons blended on the basis of the latest surveying data set with SORDAT and SORIND

Conclusions

The production of bathymetric datasets comprises a complex workflow with many individual steps from data capturing via data analyzing, data processing up to data providing depending on:

- characteristics of the sea area
- current data situation
- capacities and technical pre-conditions
- organizational structure of a Hydrographic Office
- national requirements

Real challenge

The requirements for a safe navigation result from the interoperable use of ENC as basis and the S-102 data product as well as the needs for high-resolution bathymetric data of mariners.

Easy part

In a S-102 PS we should consider the diversity of approaches and the uniform requirements for a safe navigation.

Conclusions

Uncertainty

- The uncertainty could serve as a basis for the derivation of data quality.
- It is not compatible yet with the metadata in an ENC.
- The data structure for the purpose of safe navigation should only comprise the necessary information for the mariner but not all information which we use during the production process or for other purposes.

Tracking list

- We see the tracking list with its current meaning as a special and optional component of a national workflow.
- It could have a benefit for the mariner if we use it e.g. as coverage for the least depth over significant and classified features (under water obstructions).

Bathymetric surface vs. navigational surface

- We should find a clear and general definition for both terms.

Questions for discussion

- Which information are really relevant for the mariner and a safe navigation? (Mariners trust the data on the screen.)
- How can we limit the data structure to the minimum required for navigation in order to reduce data volume and information overload on board?
- What do we need to make the S-102 and S-101 interoperable?
- Which terms have to be necessarily reviewed for a common understanding?
- How can we design the next S-102 in order to make a clear distinction between the production components and the components for a safe navigation?

Thank you!



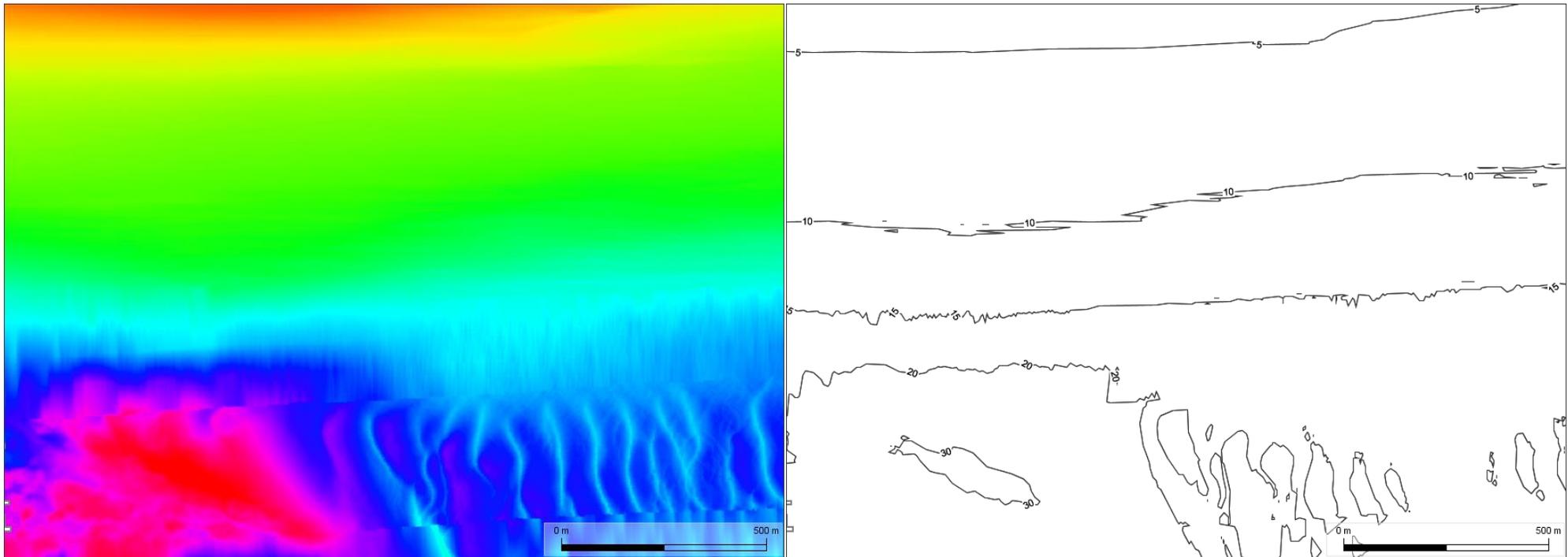
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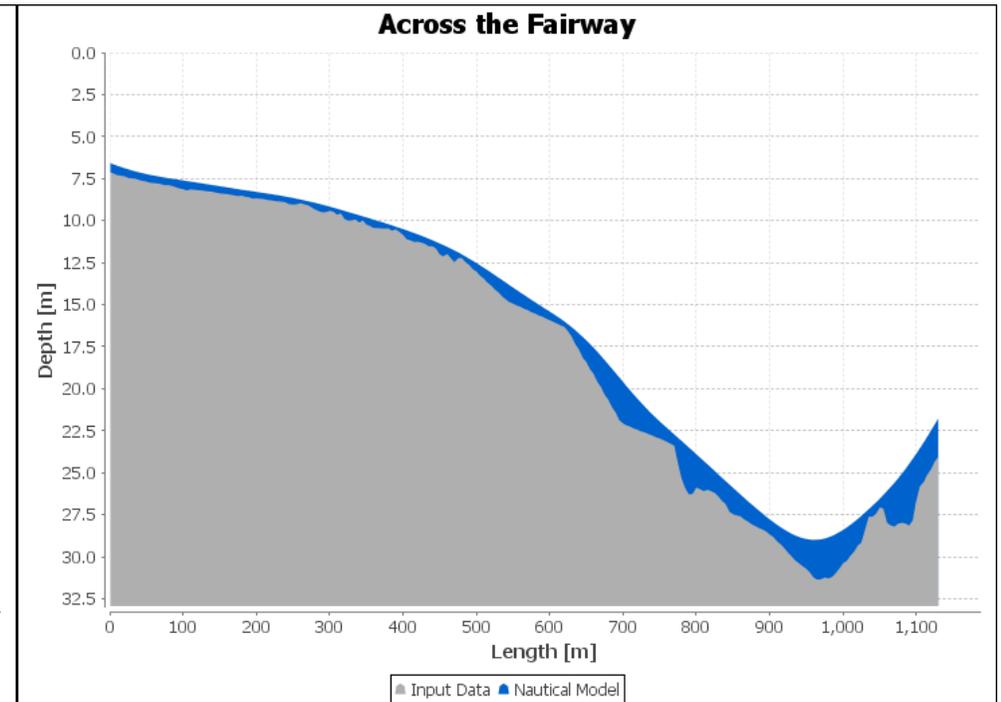
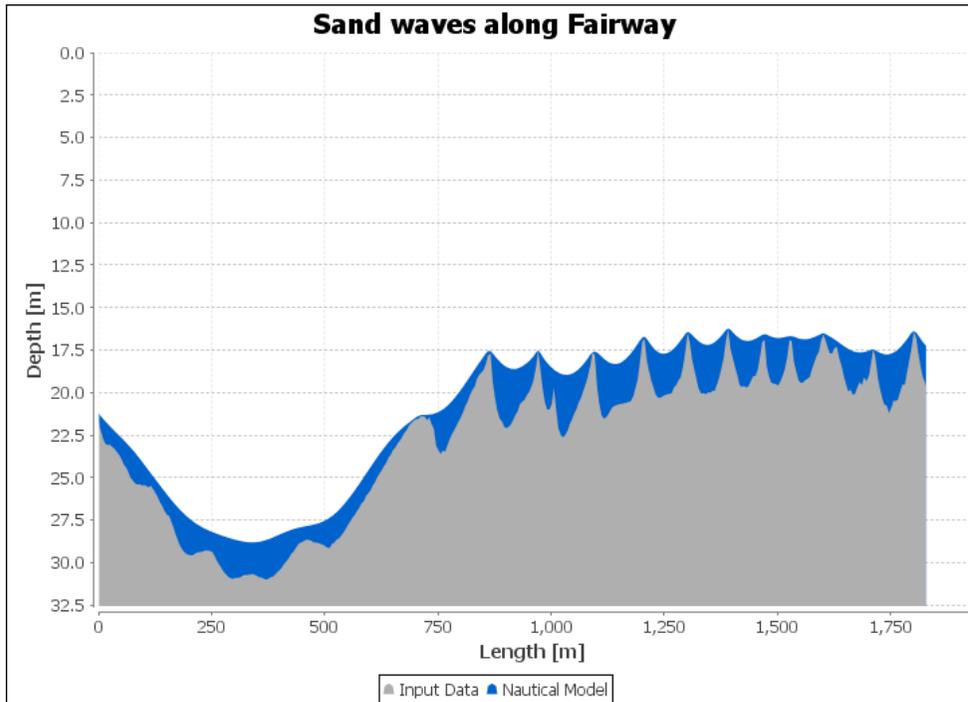
Bathymetric Surface & Contours



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Bathymetric & Navigational Surface



Navigational Surface & Contours

