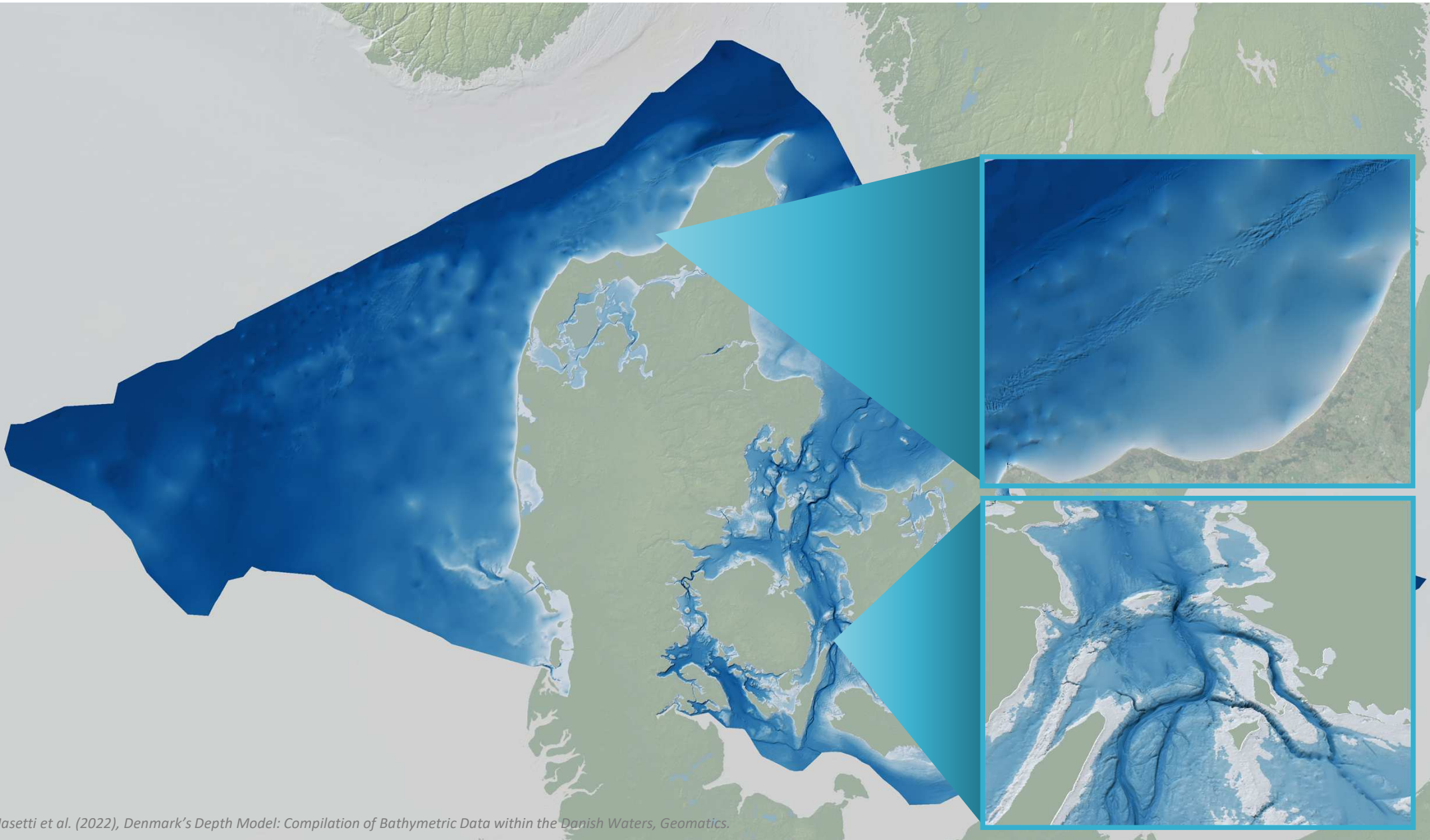




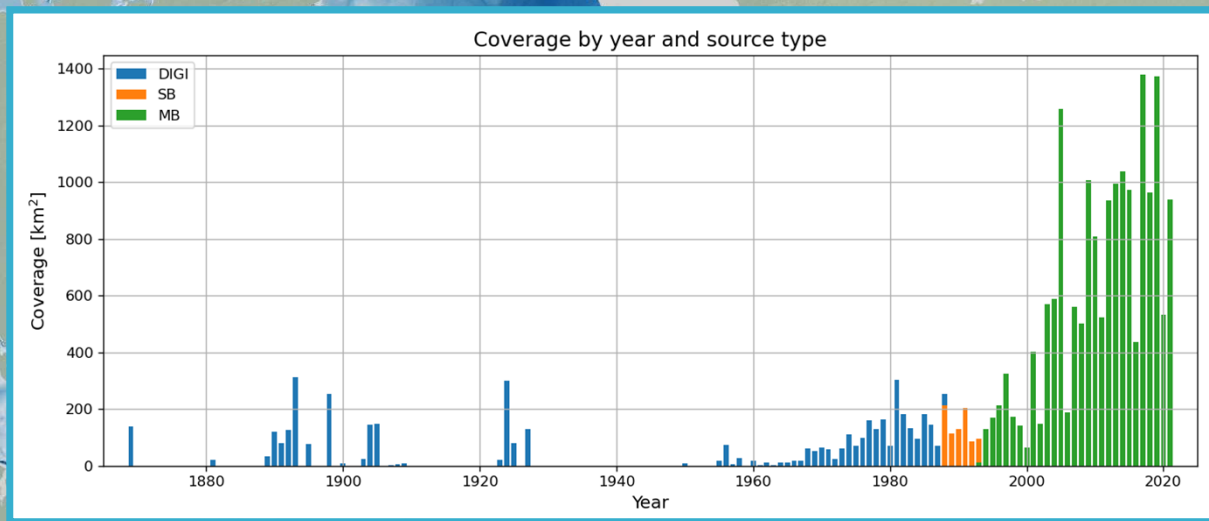
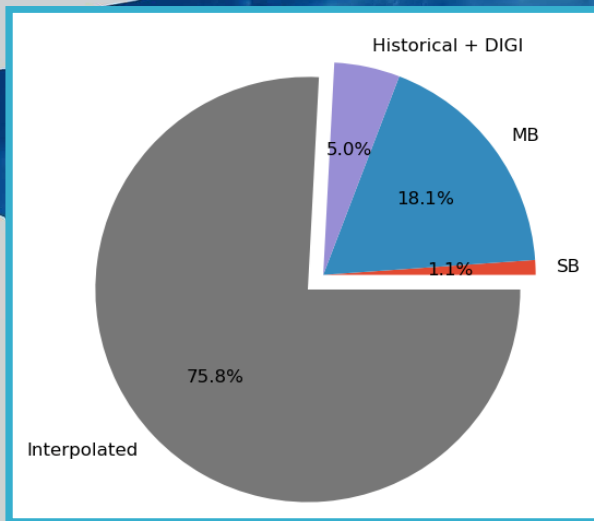
# GAVIAN PROJECT

Development of a Trusted Crowd-Sourced Bathymetry Framework

DANISH GEODATA AGENCY / Juho Salmia  
66th Nordic Hydrographic Commission Meeting  
21. March 2023 / Aalborg, Denmark



\*Masetti et al. (2022), Denmark's Depth Model: Compilation of Bathymetric Data within the Danish Waters, Geomatics.

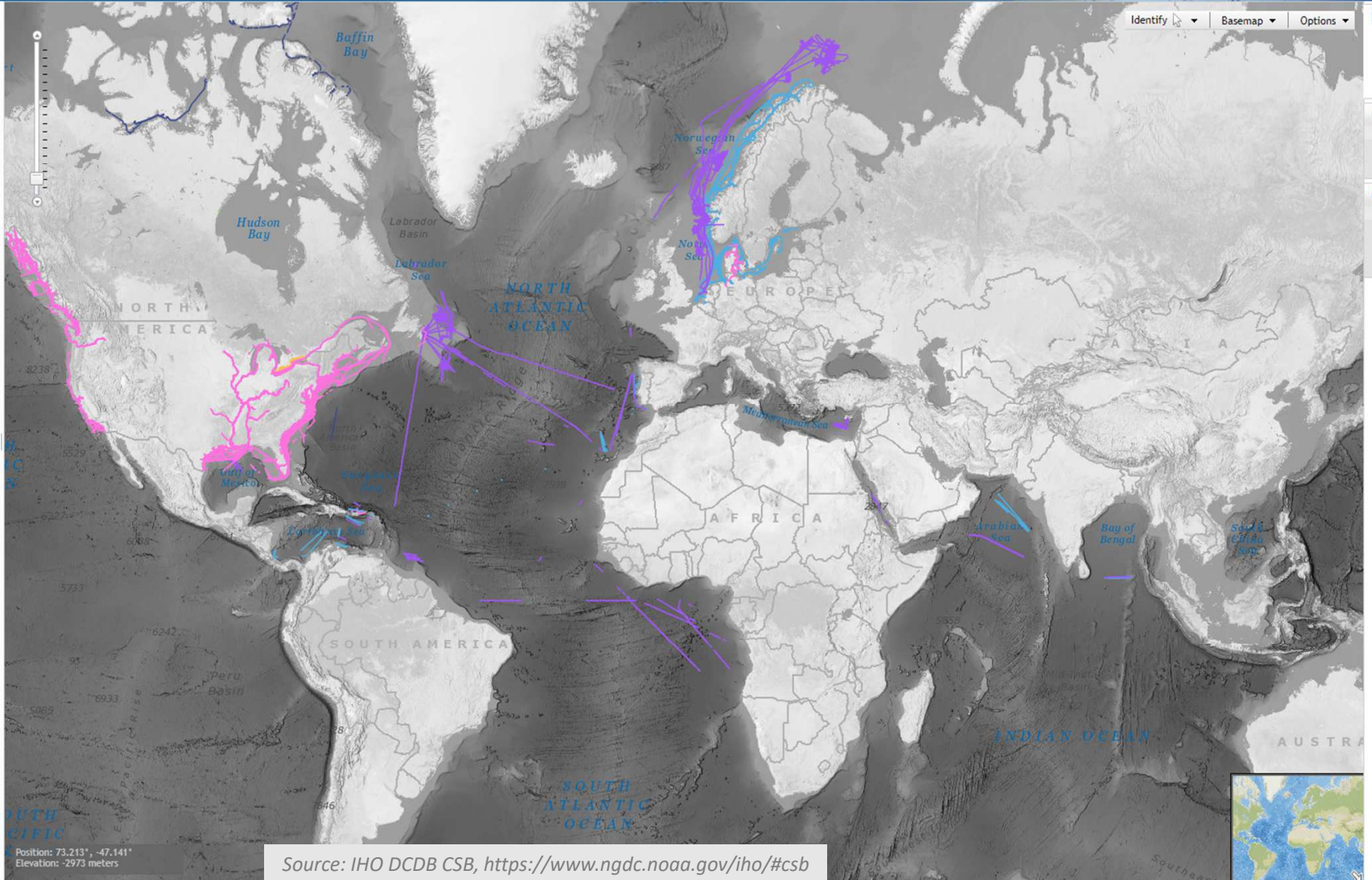


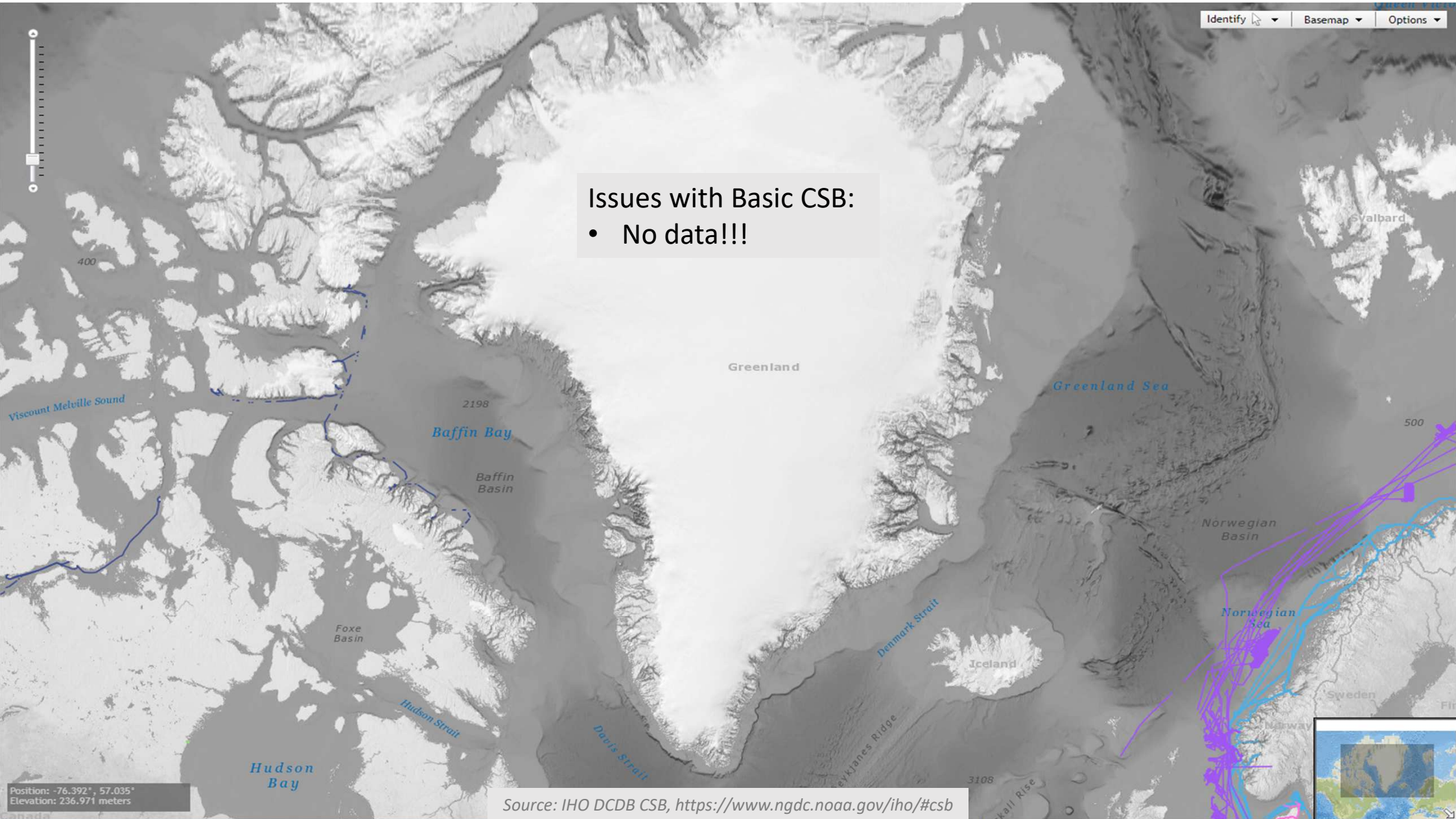
Need of more data for both chart discrepancies and chart updates

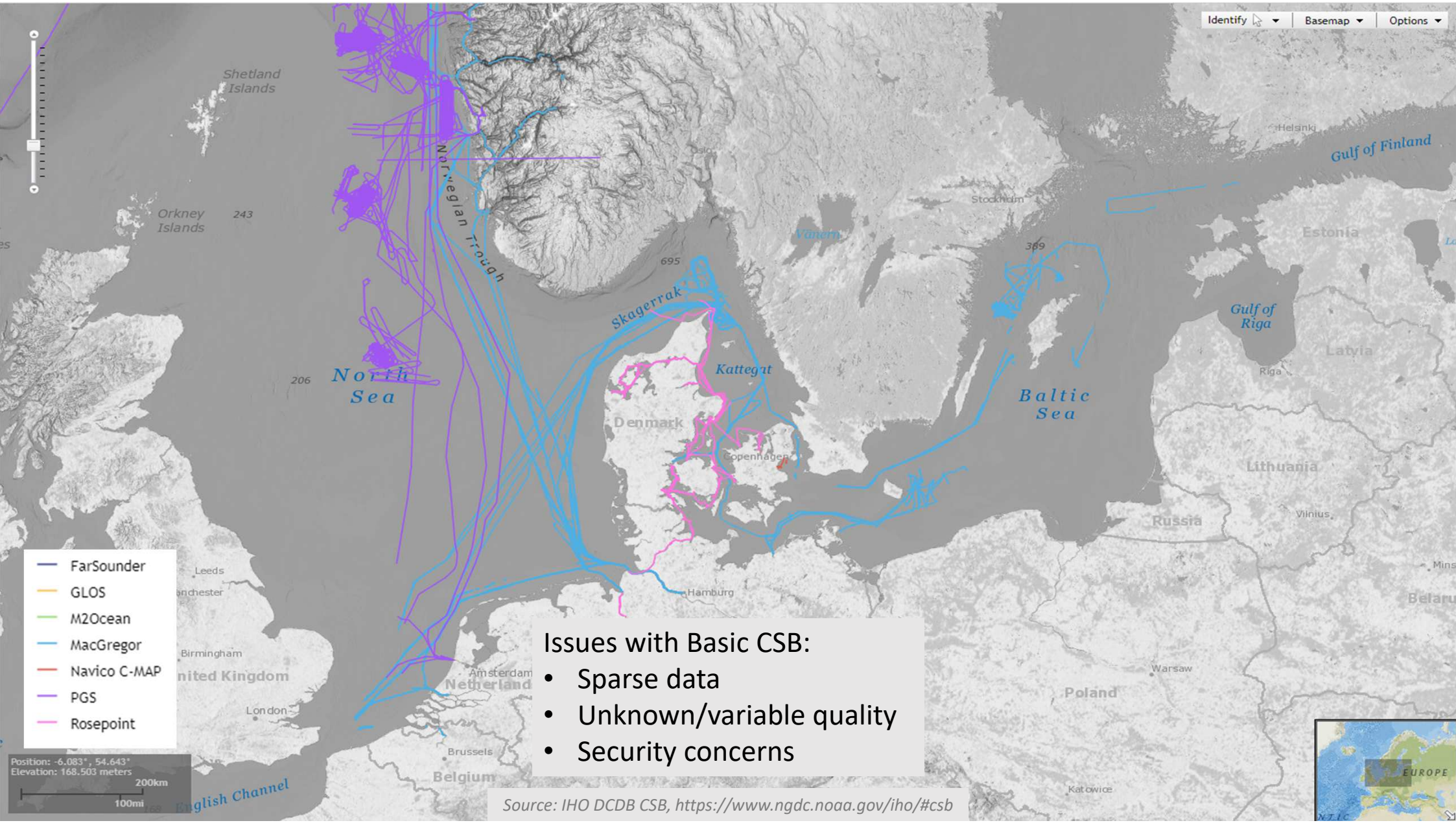
\*Masetti et al. (2022), Denmark's Depth Model: Compilation of Bathymetric Data within the Danish Waters, Geomatics.

**Layers**

- IHO DCDB/NOAA NCEI
  - Multibeam Surveys
  - Multibeam Survey Footprints
  - Multibeam Bathymetry Mosaic
  - Single-Beam Surveys
  - Single-Beam Sounding Density
  - NOAA Hydrographic Surveys:
    - All Surveys with Digital Data
    - Surveys with BAGs
  - BAG Shaded Relief Imagery
- Search NCEI/DCDB Surveys
- Crowdsourced Bathymetry Files
  - Search CSB Files
  - U.S. Bathymetry Coverage and Gap Analysis
- EMODnet
  - Australia
  - Canada
  - France
  - Germany
  - Japan
  - Netherlands
  - New Zealand
  - Portugal
  - United Kingdom
  - Other Data Sources
  - Known Non-Public Data
  - Bathymetric Coverage Maps
- Grid Extract
- More Information
- Help







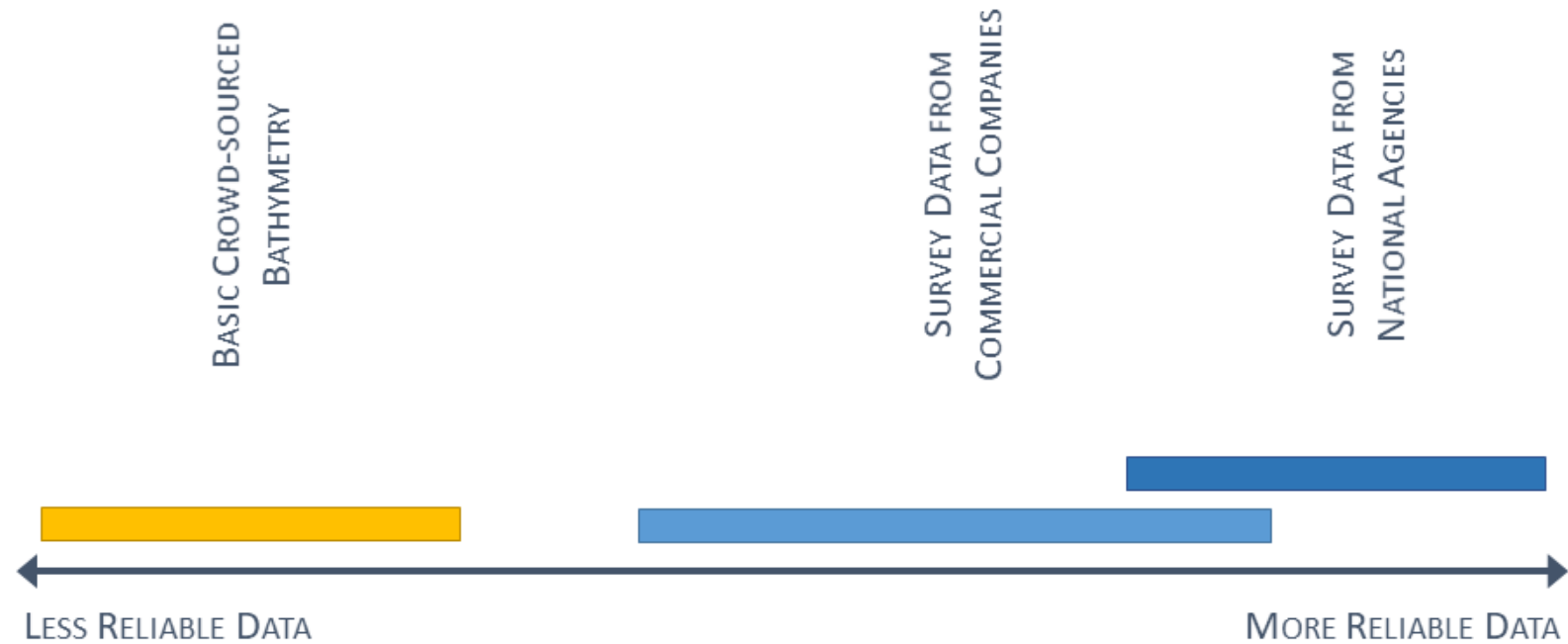
- FarSounder
- GLOS
- M2Ocean
- MacGregor
- Navico C-MAP
- PGS
- Rosepoint

Issues with Basic CSB:

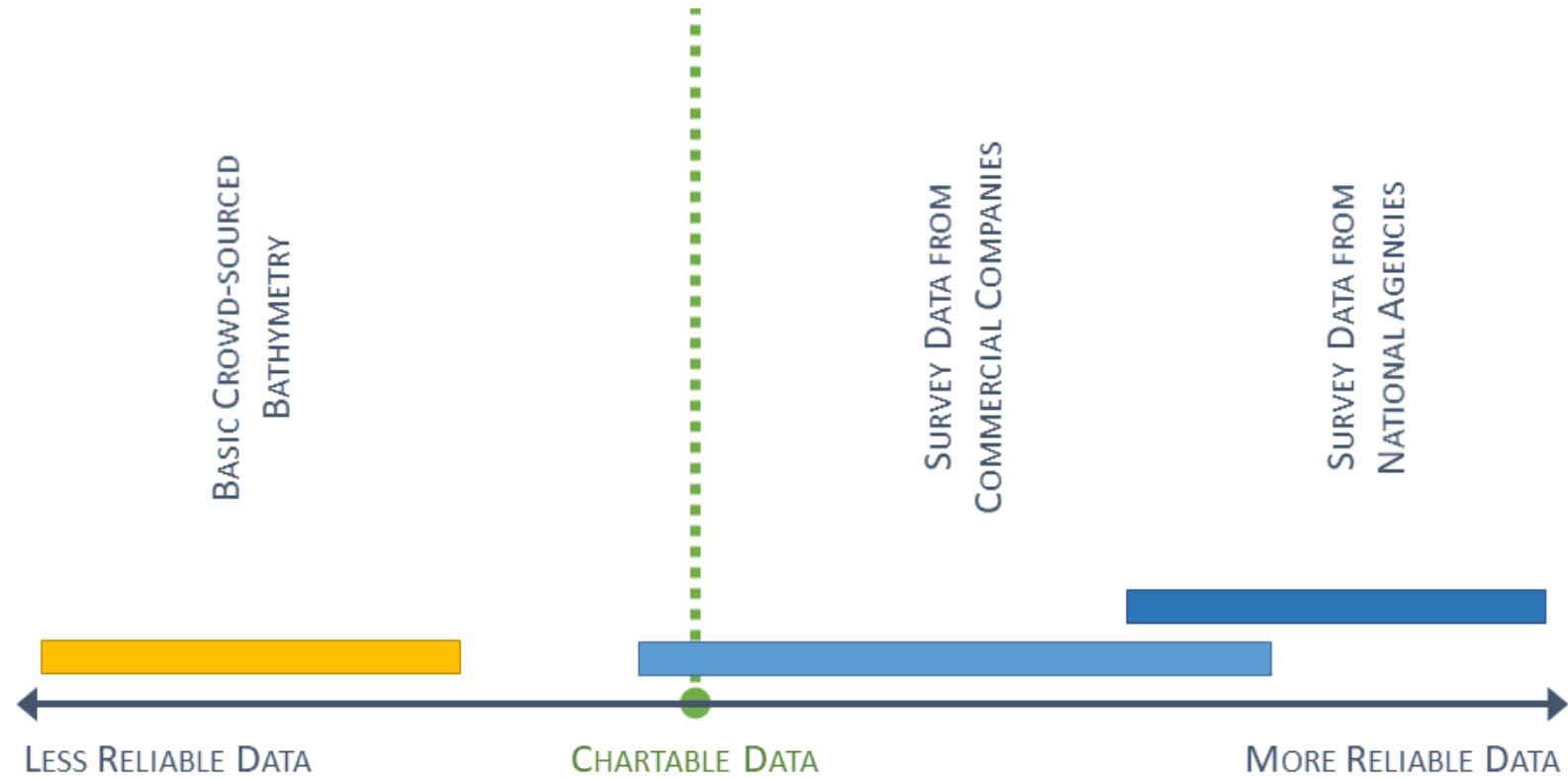
- Sparse data
- Unknown/variable quality
- Security concerns

Source: IHO DCDB CSB, <https://www.ngdc.noaa.gov/iho/#csb>

# NEED FOR MORE RELIABLE CSB DATA!

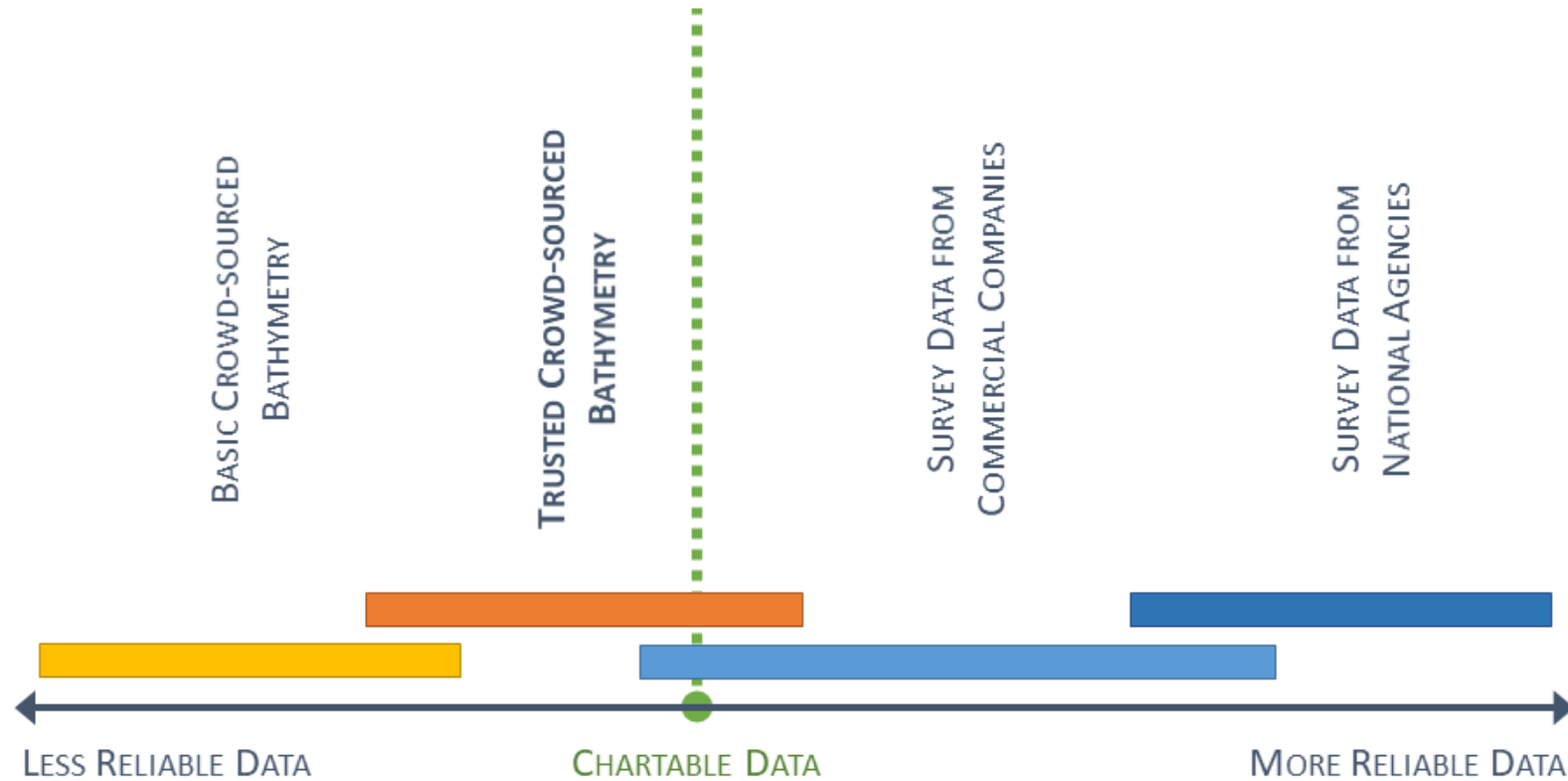


# NEED FOR MORE RELIABLE CSB DATA!



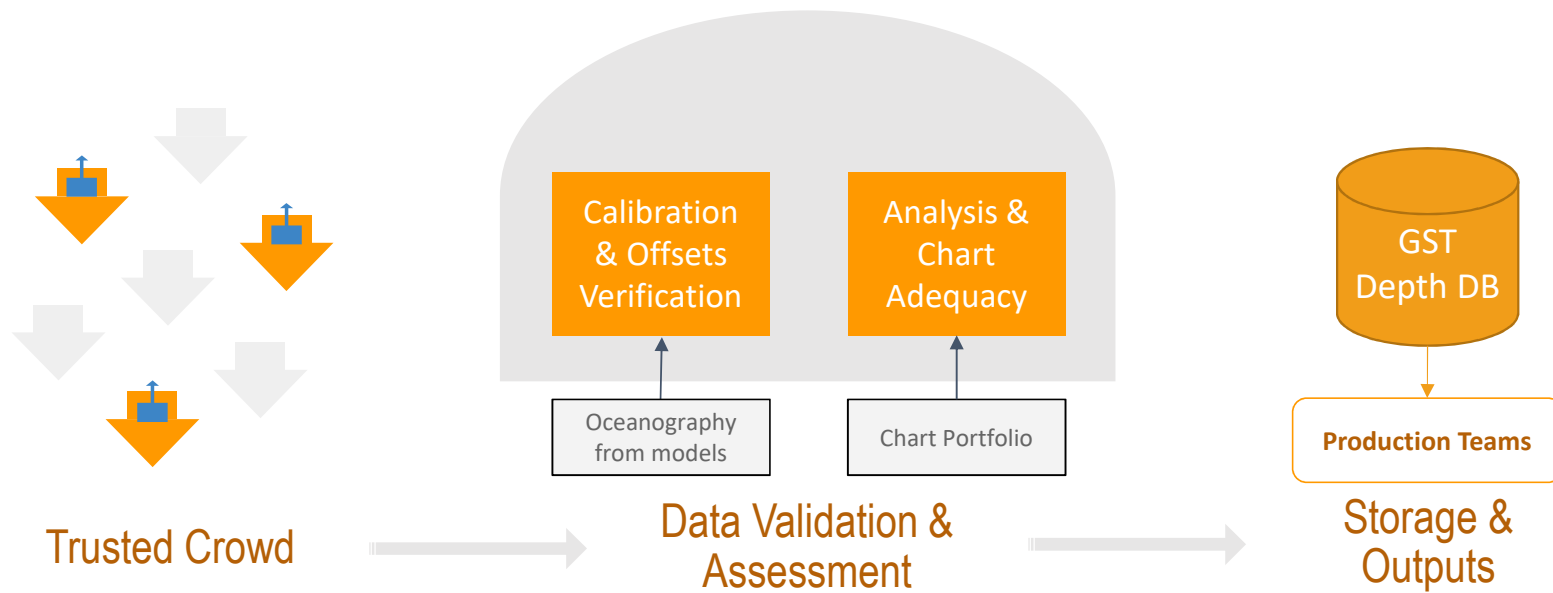


# NEED FOR MORE RELIABLE CSB DATA!




**Trusted CSB** → “CSB where relevant efforts are dedicated to support the collectors, as well as in monitoring the quality of the collected data, by comparison with other collectors and more credible sources.”

# TRUSTED CSB CONCEPT



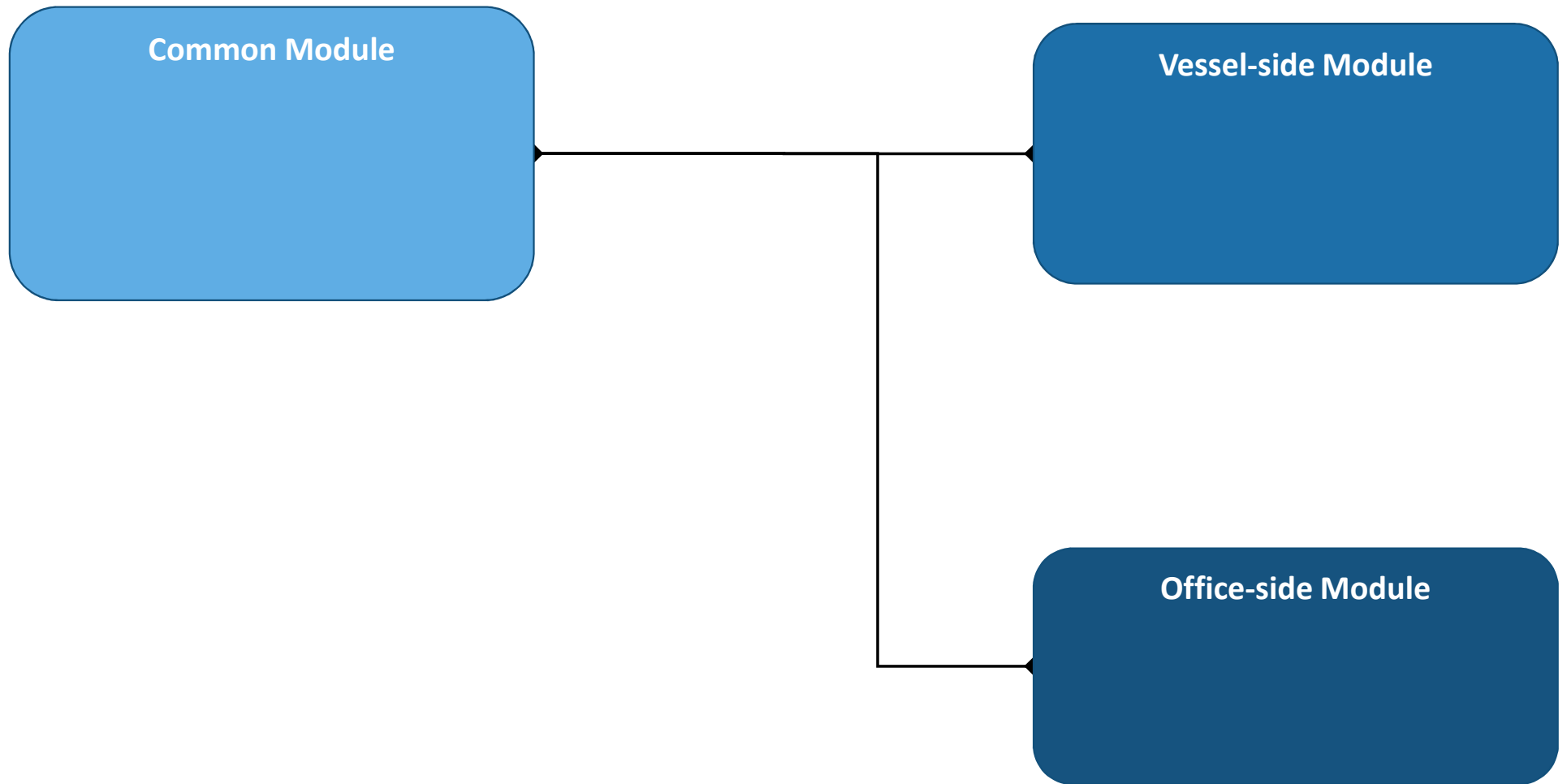
# TRUSTED CSB CONCEPT → GAVIAN PROJECT



- **Geodata Agency's Vessel Information Analytic Network**
- Technical Partner:  sternula
- Project started on 4/2022
- Phase 1 ended on 10/2022 → Box Prototype



# GAVIAN → SOFTWARE COMPONENTS



# GAVIAN → SOFTWARE COMPONENTS

## Common Module

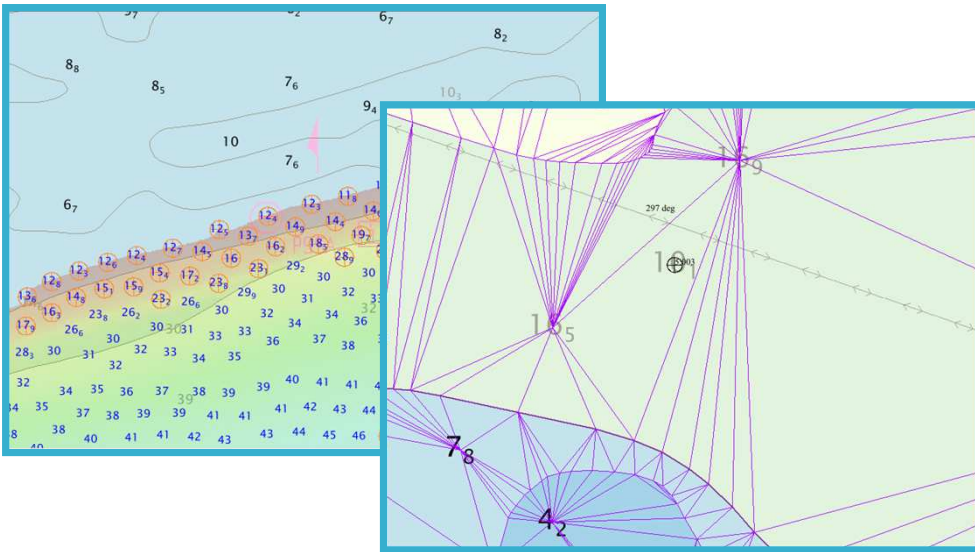
- Format to store raw and processed data



- Comparison against survey products and ENCs
  - Stats based on survey grid
  - Chart discrepancies

## Vessel-side Module

## Office-side Module



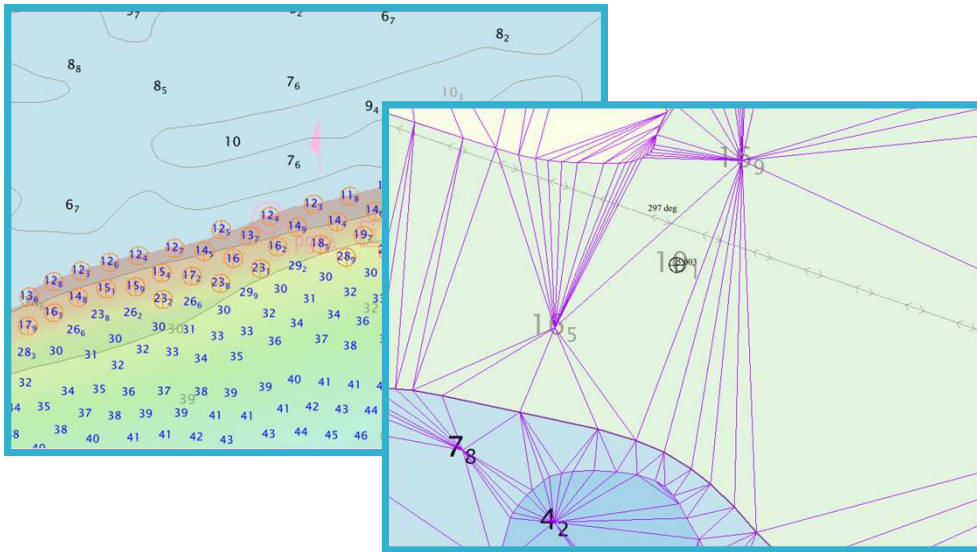
# GAVIAN → SOFTWARE COMPONENTS

## Common Module

- Format to store raw and processed data



- Comparison against survey products and ENCs
  - Stats based on survey grid
  - Chart discrepancies



## Vessel-side Module

- App on Sternula MMS Proxy
- Connection to vessel sensors
- Transmission to shore
- Prioritization of collected info



## Office-side Module

- Data retrieval from Gavian boxes
- Storage on DYBDB
- Calibration & Offsets Verification
- Quality Assessment (CATZOC)
- Contribution to IHO initiatives

# GAVIAN → ONGOING WORK & FUTURE PLANS

- Prototype Testing

- Dry tests → 2022-Q4
- Sea trials → 2023-Q2



- Operationalization of the Concept

- Lake Volta project (data collection) → 2023/2024
- EU MobiSpace project (edge computing) → 2023/2024

- Co-operation with Sternula

- Planning for phase 2





QUESTIONS?