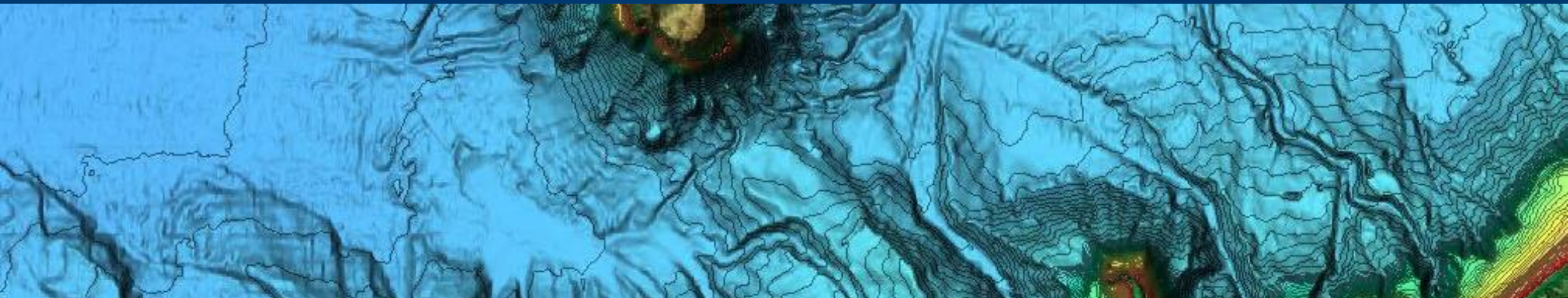
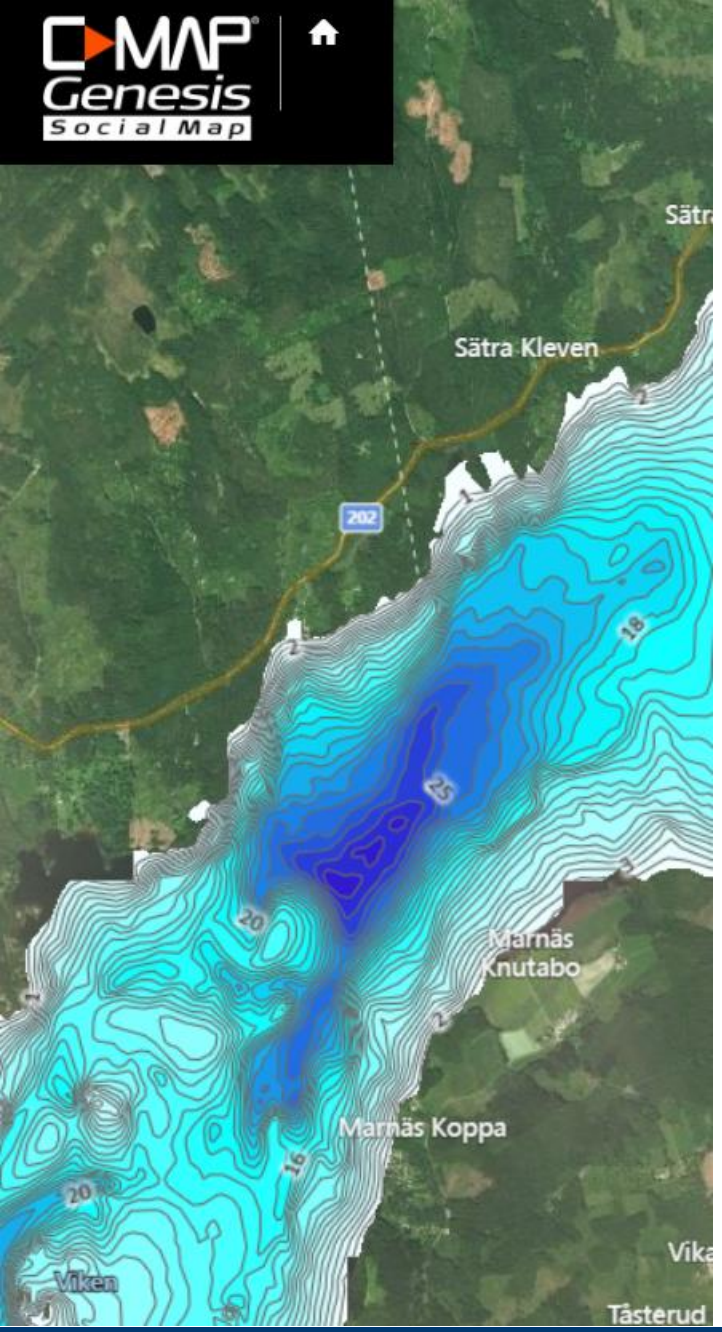
GENESIS and C-MAP contribution to CSB

IHO Crowdsourced Bathymetry Working Group 10 Meeting

30 March - 1 April 2021





Summary

- Brief reminder about what C-MAP Genesis is.
- Profile of the contributors to C-MAP Genesis.
- C-MAP first contribution to CSB: area and features.
- Discussion about available metadata.

Reminder: What is C-MAP Genesis?

- A crowdsourcing mapping system that allows Navico customers to create custom, high-definition bathymetric maps from sonar data recorded with their devices (chart-plotters, GPS and sonar).
- Sonar logs are uploaded to a cloud-based C-MAP system, where they are processed and combined with data from a community of boaters and anglers to create a contour map freely available for download (Social Map).
- C-MAP is using the Social Map sonar logs to improve the bathymetric detail in selected areas (High Resolution Bathymetry).

GENESIS by Numbers

- Total Social Map Contributors: 25K
- Total Sonar Log Count: 0.9M
- Total Sonar Log Length: 4M km (100 x circumference of the Earth)

Profile of the C-MAP Genesis Contributor

Who is contributing?

- Recreational boaters, mainly anglers (>90%).

Why they are contributing?

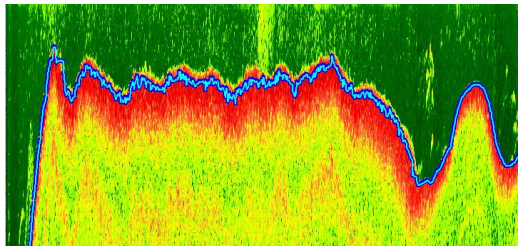
- They have the opportunity to create bathymetric maps from scratch, often with a much higher level of detail than official charts.
- For anglers, it is really important to know the morphology of the sea bottom, to find the best fishing spots.

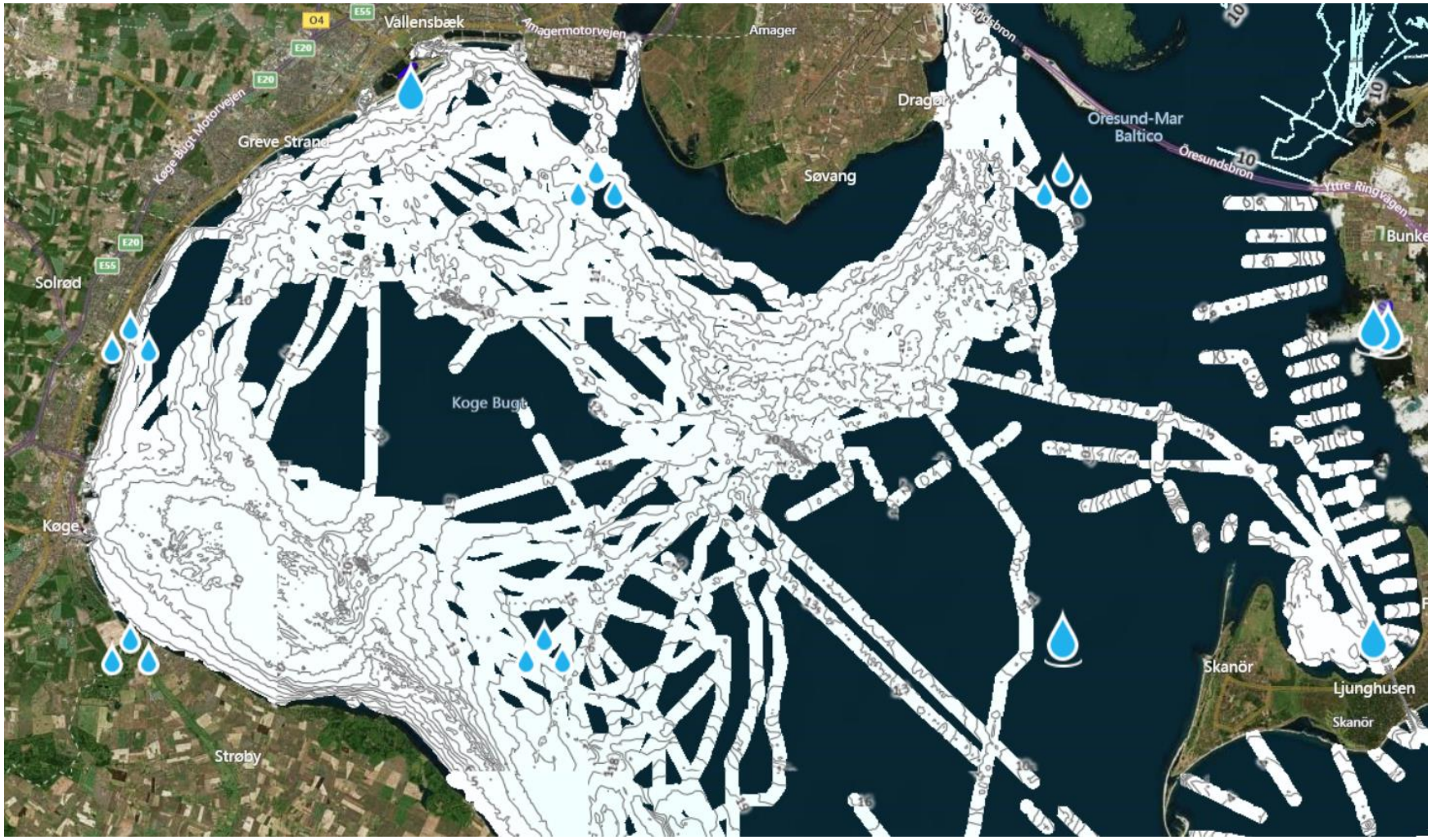
What is their typical boat and equipment?

- Length: from 5 to 7 m
- Draft: from 1 to 2 ft
- Sonar: single beam, often with side-scan

C-MAP first contribution to CSB

- **Identifed Area:** between Denmark and Sweden, near the Oresund bridge.
- **Sonar logs:**
  - 361 trip records
  - 1.2M (x,y,z,t) points
  - Timestamp from GPS
  - Raw data, no tide correction
- **Cleansing:**
  data have been cleansed through an analysis of the sonar scan records.





Metadata available in Genesis Sonar Logs

In Genesis, there is a limited knowledge about metadata: some of them can be estimated with a good level of confidence, taking into account the boat and the equipment of a typical contributor.

Metadata Field	Value/Notes
Vessel Type	Private
Offset/Correction applied to depth values	None
Vessel name/ID number	Not available
Vessel length	Not available, but typical case is in the range 5-7m
Sounder draft	0.4 ± 0.2 m (typical case)
Sound Speed Applied	False
Horizontal Position Accuracy (GPS)	3 m
Lateral Offset Uncertainty	<1 m (typical case)
Longitudinal Offset Uncertainty	<3 m (typical case)
Unique Vessel ID	Available as Customer ID (*)

(*) Valid as long as a customer is using the same boat.