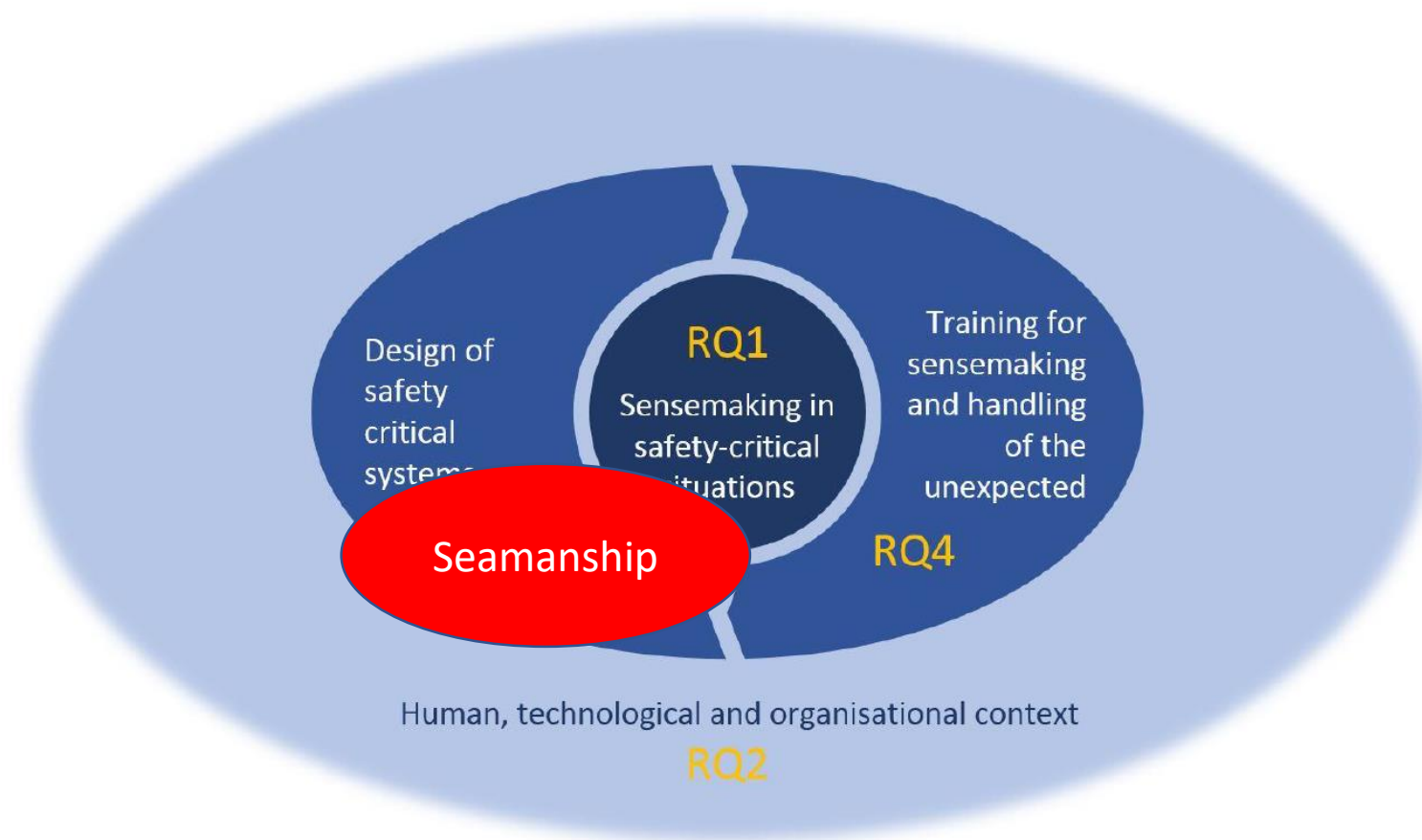


Making sense of bridge design

- how seamanship may challenge technology-as-designed

Brit-Eli Danielsen, NTNU
Gunnar Lamvik, SINTEF
ESREL 2019

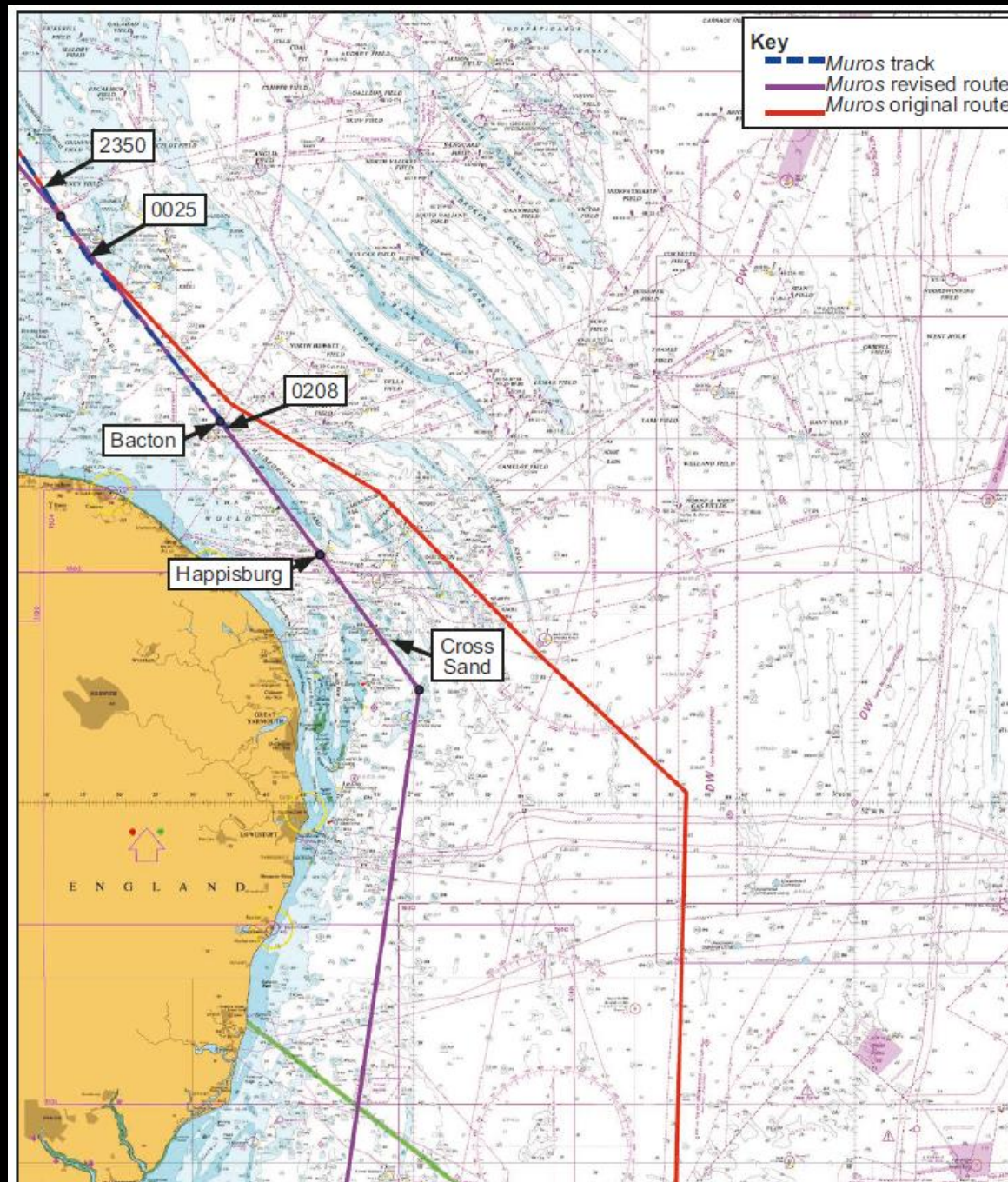
SMACS – Sensemaking in Safety-critical Situations



Muros grounding



Photo: MAIB



MAIB, 2017

Image courtesy of Maris/Red Ensign Training/UK Hydrographic Office

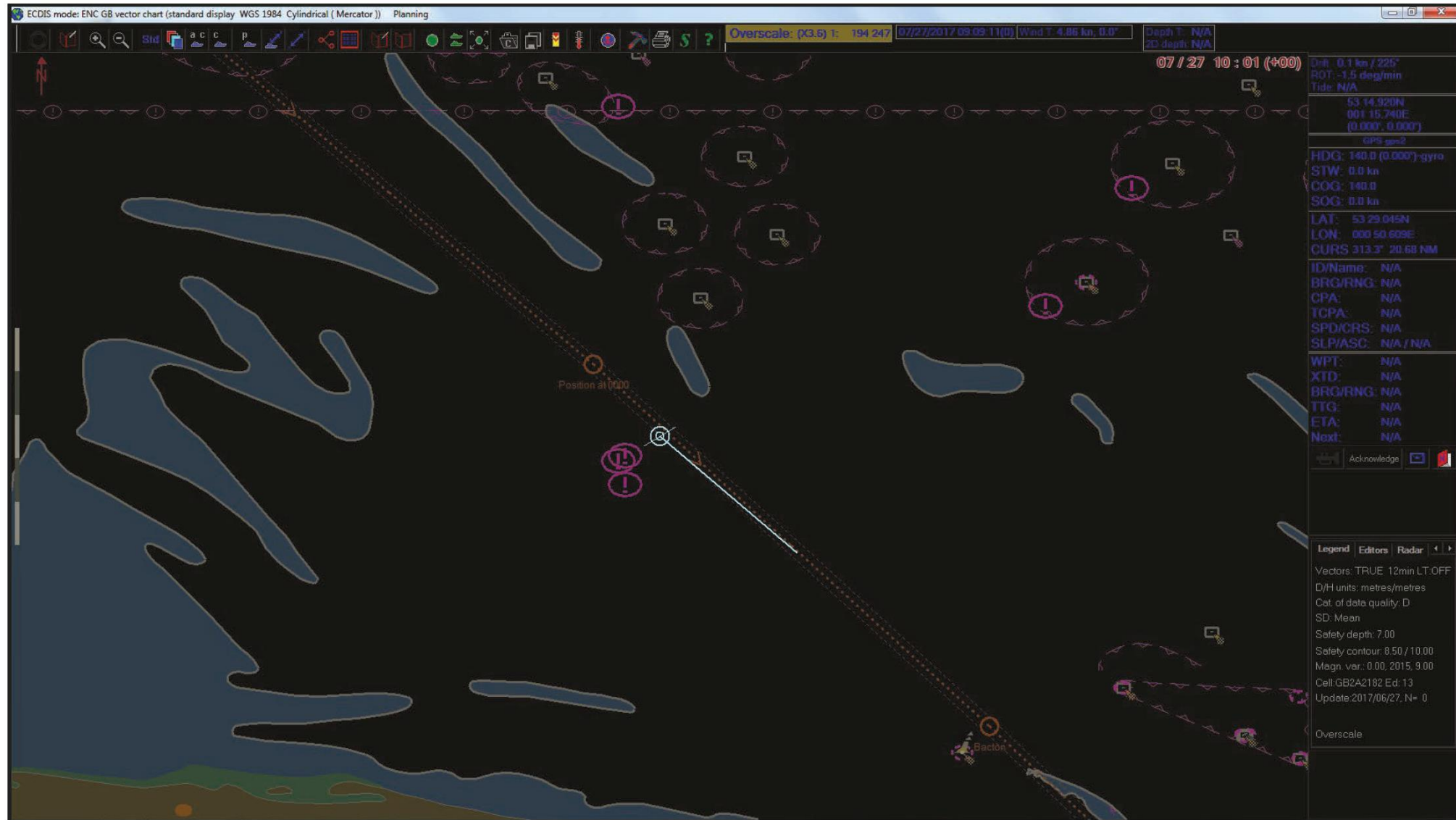


Figure 3: Reconstruction of ECDIS display at 0025

(MAIB, 2017)

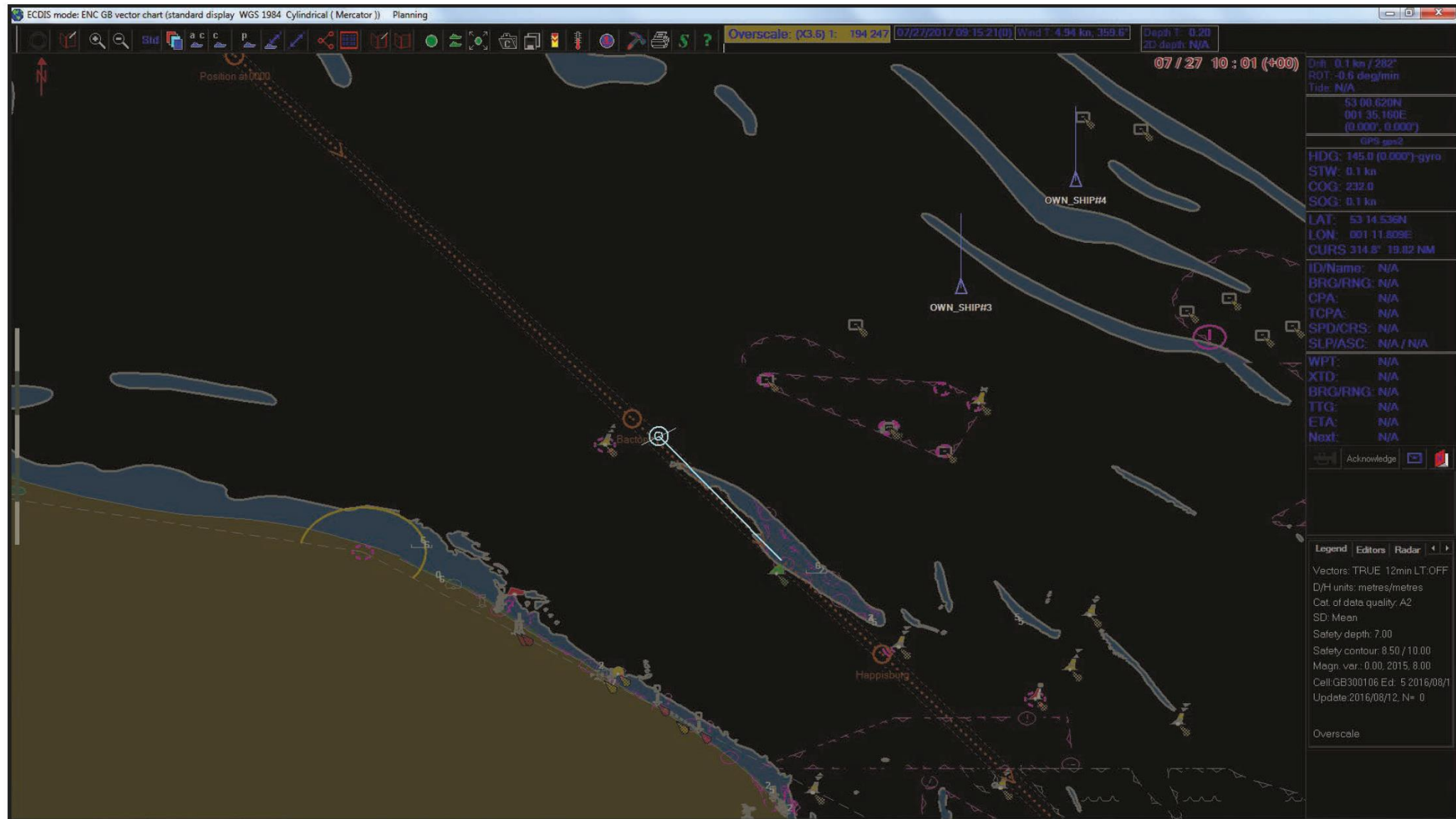


Figure 4: Reconstruction of ECDIS display at 0208

(MAIB, 2017)

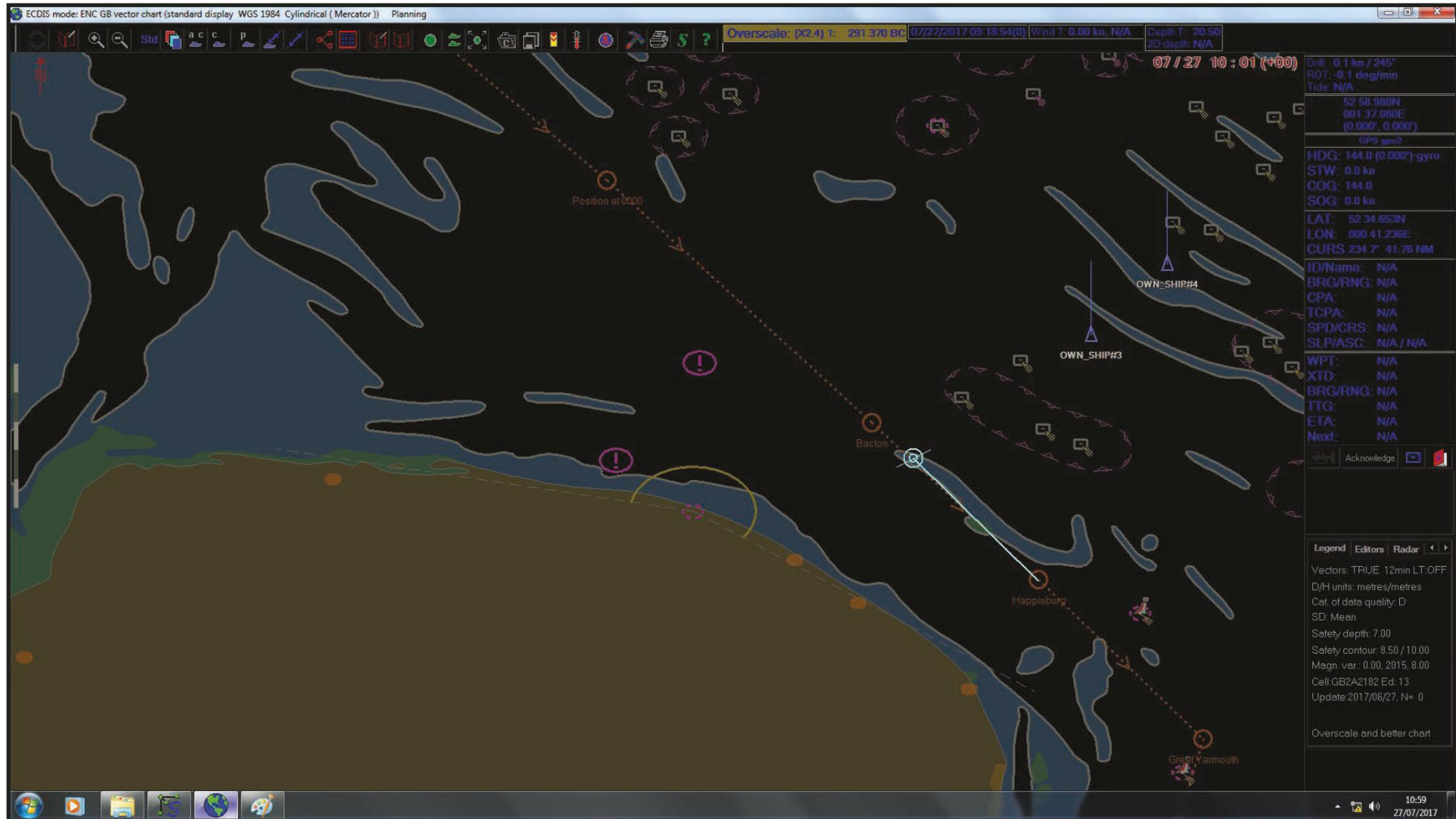


Figure 5: Reconstruction of ECDIS display at 0220

(MAIB, 2017)

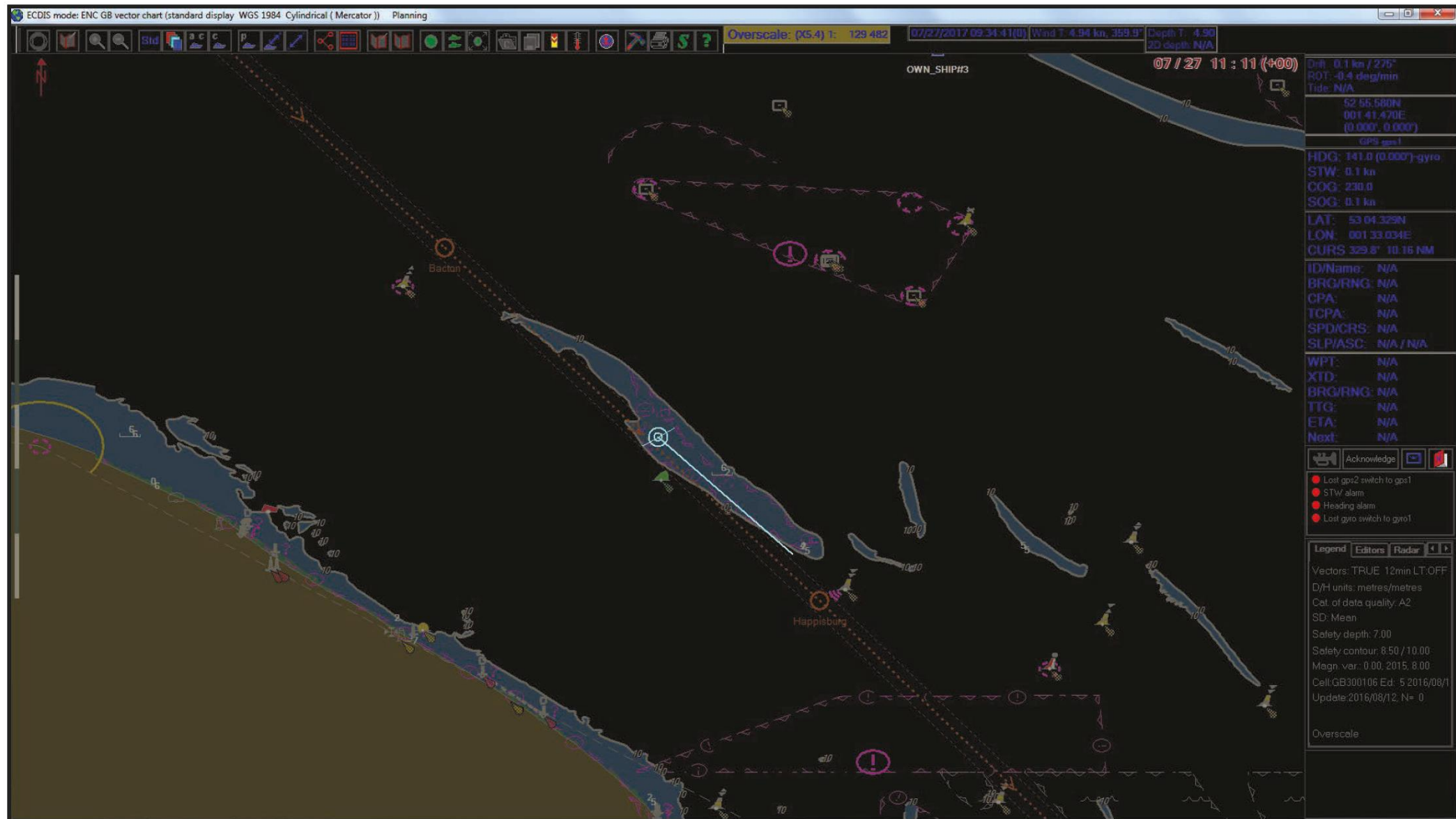


Figure 6: Reconstruction of ECDIS display at 0248 (standard)

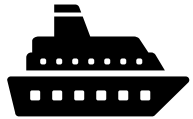
(MAIB, 2017)

«The ECDIS on board *Muros* had not been used as expected by the regulators or equipment manufacturers.»
(MAIB, 2017)

- CMA CGM Vasco de Gama (MAIB 23/2017)
- Lysblink Seaways (MAIB 25/2015)
- Commodore Clipper (MAIB 18/2015)
- Vectis Eagle (MAIB 15/2015)
- Lysblink Seaways (MAIB 25/2015)
- Ovit (MAIB 24/2014)
- Navigator Scorpio (MAIB 30/2014)
- CSL Thames (MAIB 2/2012)
- RMS Queen Mary 2 (MAIB 28/2011)
- Pride of Canterbury (MAIB 2/2009)
- CFL Performer (MAIB 21/2008)



Data collection ongoing



Three passenger ships



Two offshore supply vessels



Observation & semi-structured interviews with 16 officers



Semi-structured interviews with two employees of a maritime equipment manufacturer and two DP instructors

Retrofitted bridges

Equipment from several different manufacturers

Equipment not reachable from normal working position

Small and in-adjustable text on screens

Screens without dimming function

Very small handles or buttons

Handles without feedback

Non-functioning buttons

Many audible alarms with similar sounds

Adaptations



Photo: Brit-Eli Danielsen



Photo: Brit-Eli Danielsen



Photo: Brit-Eli Danielsen



Photo: Brit-Eli Danielsen

Seamanship

- a blend of professional knowledge, professional pride and experience-based common sense, as well as having a social and ethical dimension (Knudsen, 2009)

Seamanship



SS Oceanic 1914



Stril Luna 2014

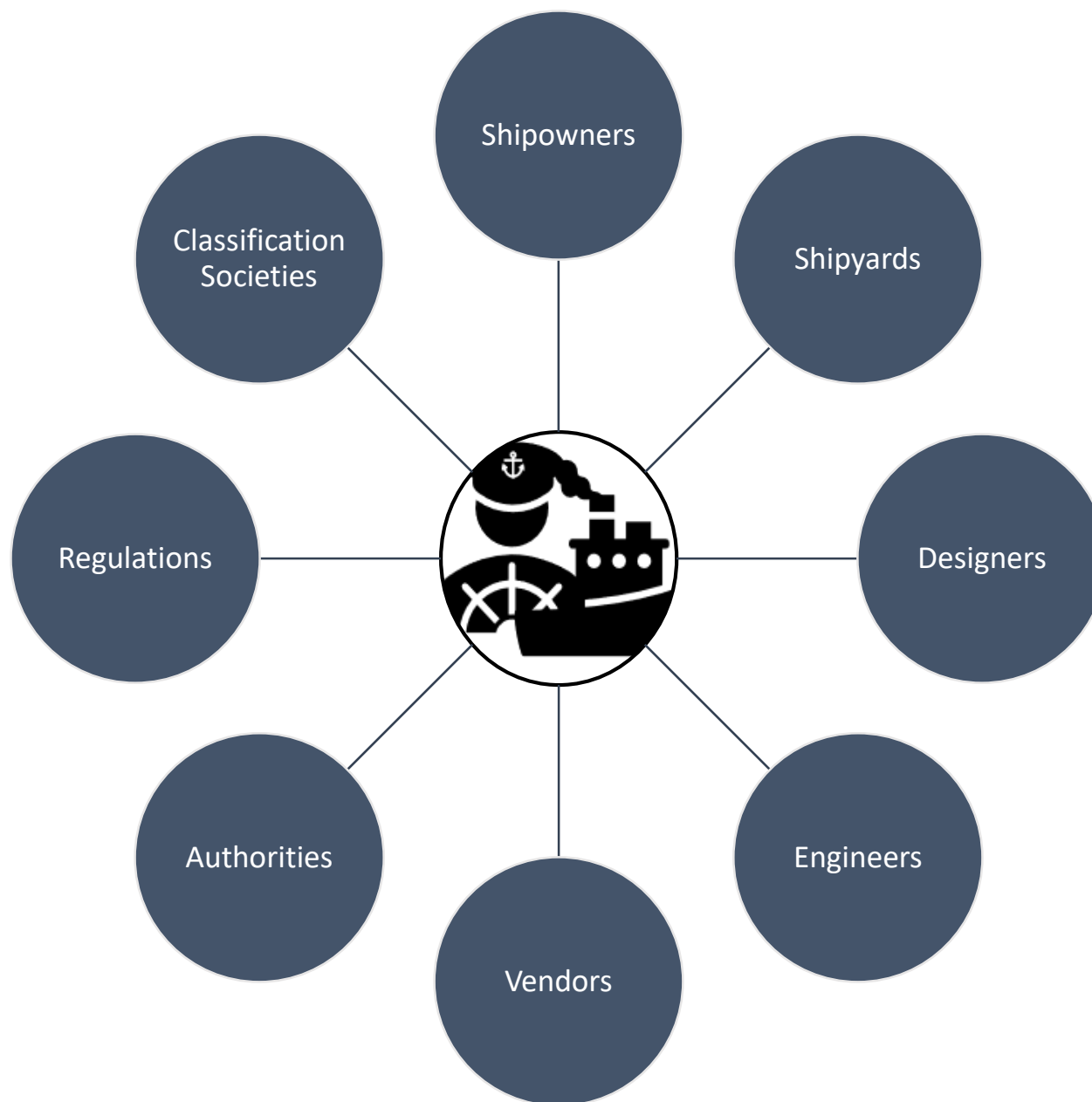
Seamanship

«this probably functioned very well in the office»

«we don't want design on a bridge, it should be functional!»



Photo: Colourbox



Thank you!

brit-eli.danielsen@ciris.no



Photo: Brit-Eli Danielsen