

The use of symbolization in ENC and ECDIS compared with paper charts

Introduction

The Danish Maritime Authority has informed KMS that some mariners could have problems with some of the symbols shown in ENC and ECDIS. More concrete the symbols in connection with roundabouts have been mentioned as the cause of confusion to the mariners and could potentially lead to accidents.

The Danish Maritime Authority has contributed with an example of how the symbolization of a round about in ENC/ECDIS eventually could have played a role of an accident. Based on this example, KMS have investigated the problem.

Some remarks on the current situation

Two ships coming from the north in the same lane in the TSS, ended up with, having some “problems” in the roundabout (see figure 1). The task was thus hereafter, to investigate whether:

- the symbolization in ENC/ECDIS could have had any influence on the incident
- if KMS had made a failure in encoding of the ENC
- Whether the ships might have misunderstood the symbolization of ENC/ ECDIS in relation to the symbolization used in paper charts.

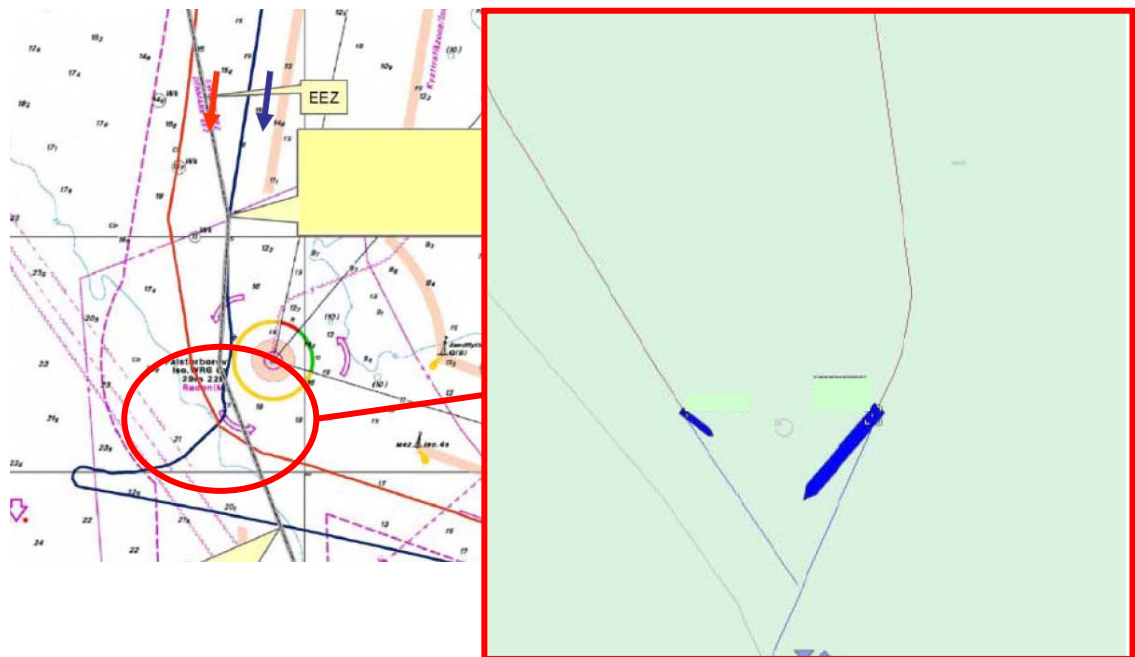


Figure 1.

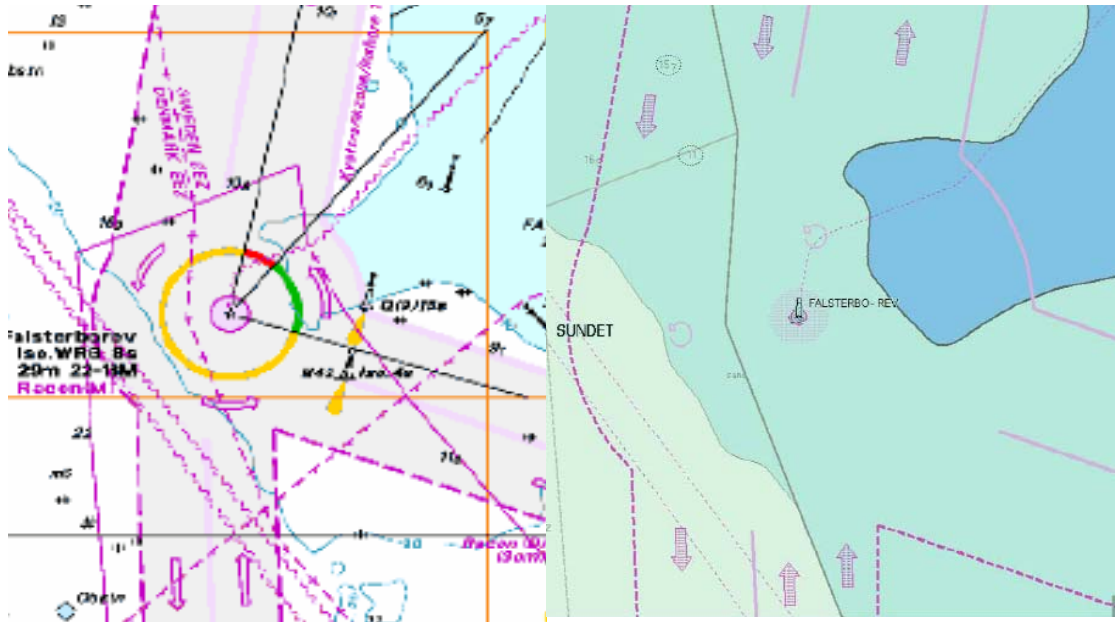
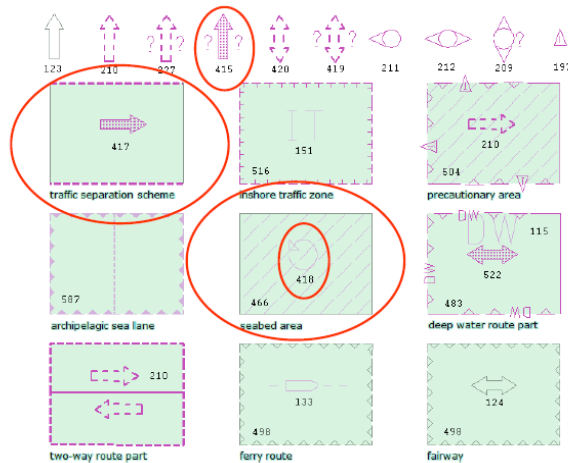


Figure 2.

Our investigation showed that KMS had coded the information correct and in accordance to the S57 specifications. In other words there was nothing wrong with our encoding.

Symbols in ENC/ECDIS



415.	SY(TSLDEF51)	TRFCD CHMGD	one way lane of a traffic separation scheme, with the direction not defined in the data
417.	SY(TSSLPT51)	TRFCD	traffic direction in a one way lane of a traffic separation scheme
418.	SY(TSSRON51)	TRFCF	traffic roundabout
466.	AP(TSSJCT02)	TRFCF	precautionary area or a traffic separation scheme crossing or roundabout

Figure 3.

The Traffic roundabout was display correctly in ECDIS, thus following the IHO publication IHO ECDIS PRESENTATION LIBRARY Edition 3.4, January 2008. The symbol/icon for a roundabout (the "pig tail") follows the IHO standard. 418. The roundabout follows the IHO standard 466 (As shown in figure 3).

If arrows as those shown in paper chart (figure2) should have been presented in ENC/ECDIS, the symbol as shown above in figure 3 should have been used.

417. TRFCD traffic direction in a one-way lane of a traffic separation scheme

415. TRFCD CHMGD one way lane of a traffic separation scheme, with direction not defined in the data

Using the symbolization for a roundabout (the "pig tail") indicates that there is a roundabout and the direction of rotation in the roundabout, but it is not an indication about the center of the roundabout. The center of a roundabout is shown as a "traffic separation area (TSEZNE).

The presentation of several "pig tail" in the roundabout and several arrows in the associated TSS is caused by the fact that the ENC covering the roundabout is produced respectively by Denmark and Sweden (see figure 4).

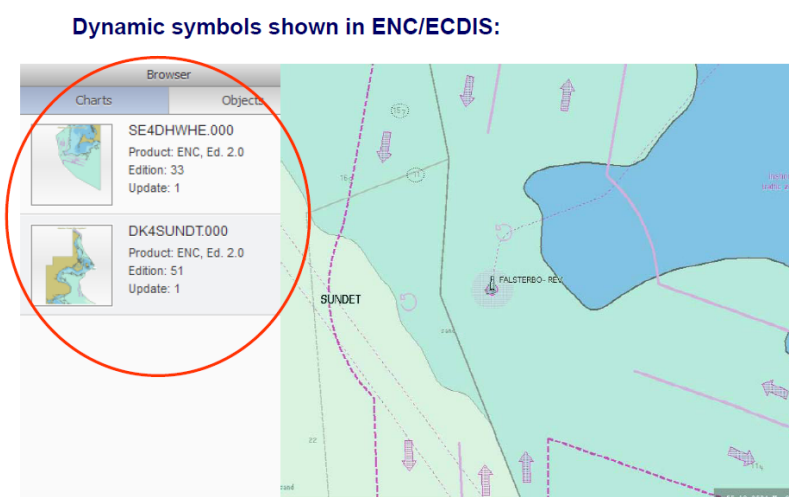


Figure 4.

KMS have not had direct contact to the vessels or access to other information about the incident. Due to the lack of it is not possible to indicate how or whether the symbolization has had an impact.

From a navigational point of view, it is important to emphasise that COLREQ applies to both vessels in this area.

We intend to inform IHO on the issue at its next TSMAD meeting in order to investigate the problem and if deemed appropriate to take necessary actions.

Recommendations:

Even though it seems difficult to estimate if the symbolization of roundabouts in ENC/ECDIS creates confusion to the mariners, we find it important order to enhance safety, to inform the mariners, suppliers and national authorities.

Actions required from the NHC 55th Conference:

The Conference is invited to take note of the information and if deemed necessary to take appropriate actions.