

Paper for Consideration by TSMAD**Discussion paper on ENC and ECDIS in the Arctic area**

<i>Submitted by:</i>	Denmark
<i>Executive Summary:</i>	A discussion paper on the use of ENC and ECDIS north of 84° N
<i>Related Documents:</i>	S-101
<i>Related Projects:</i>	

Introduction / Background

At the last TSMAD meeting in Victoria, it was brought up that future S-101 ENCs should be limited to 88° N to prevent ENC data from crossing the poles. It was decided that this was not necessary.

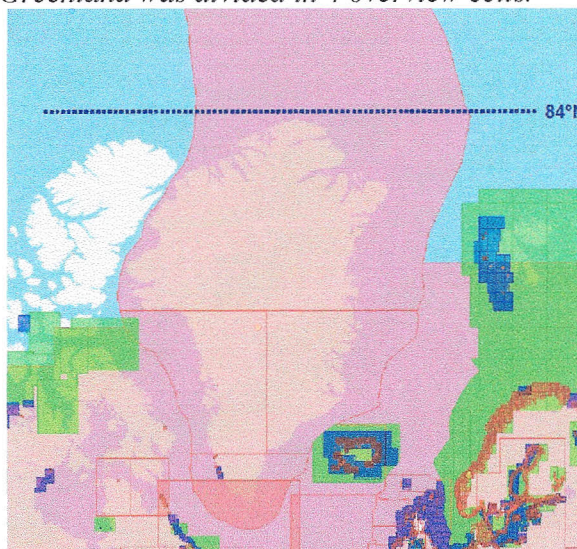
KMS has been producing ENC for the waters of Greenland for some years. In connection with the release of overview cells covering Greenland, KMS has experienced some problems with cells covering the area north of 84°N. From a Danish point of view and in relationship to the development of navigation in the Arctic area and in order to enhance safety, we find it important to investigate this further in order to find a solution.

Analysis/Discussion

KMS has been informed that some ECDIS have problems displaying ENC north of 84° N

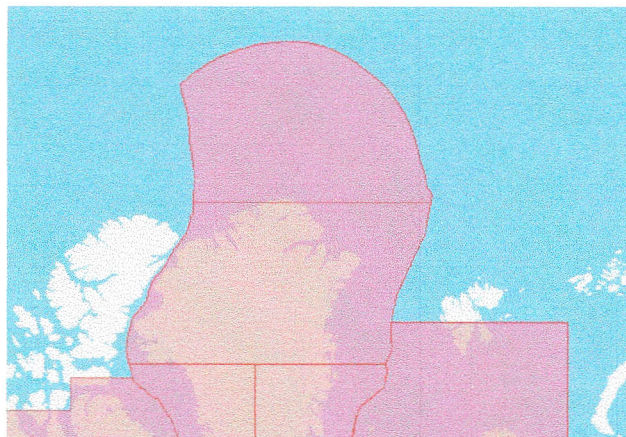
Vendors who have systems that can display both the gnomonic and the polar stereographic projection show our cell DK1GNORT in a correct manner. Their ECDIS is prepared for navigation in the northern area. Vendors, who have ECDIS with out the ability of using these gnomonic and the polar stereographic projection, can't be sure that their ECDIS will present the ENC as expected.

*The screen dump showed below shows our overview cells..
Greenland was divided in 4 overview cells.*



As a consequence KMS has divided our northern ENC in 2 new ENC, 1 north of 83,5° N. (DK1NORN) and 1 south of 83,5° N. (DK1NORT).

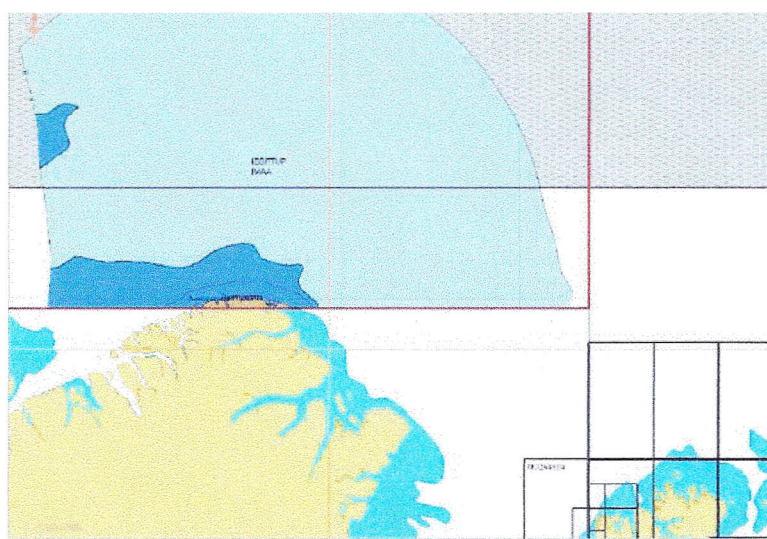
The screen dump showed below shows how we had to split our northern overview cell.



To solve the problem we have initiated an inquiry together with PRIMAR and the ECDIS suppliers, Transas, Adveto and Furuno. At the moment we await feedback from PRIMAR and the suppliers about the results of the inquiry

It is possible to load ENC for the area north of 84° N into an ECDIS system, but for some systems there are limitations and as a consequence data can not be used optimally.

The screen dump shown below shows our cell in an ECDIS. Using a system like this, it will not be possible/safe to travel farther north than 84° N.



Displaying ENC in area north of 84° N will require a different type of projection, for example a polar stereographic projection. The challenge is that these are not defined by the current IMO ECDIS performance standards.

Information from some of the suppliers confirms that their systems can't use data covering the polar area, if the data can't be displayed in a Mercator projection.

A way to solve the problem for the northern area could be that ECDIS have the ability to switch over to for example a polar stereographic projection. To secure that these projections will be supported by the ECDIS suppliers the IMO ECDIS performance standard has to be updated in order to include these different types of projections.

Until a solution is found, and in order to enhance safety, we find it important to inform the mariners, suppliers and other with an interest in navigating in the Arctic area.

Conclusions

Displaying ENC in area north of 84° N will require a different type of projection, for example a polar stereographic projection. The challenge is that these are not defined by the current IMO ECDIS performance standards.

Recommendations

In this context, and in order to enhance safety at sea it is propose that TSMAD take the following items into consideration:

- To investigate if other HO have ore foreseen the same problems and how they will manage this challenge.
- To discuss if there is a need, to establish a principal approach on how to deal with this issue, and how IHO and national HO can participating solving this and in that way enhancing safety at sea.
- To discuss if there is a general need, to inform the mariners, suppliers and other with an interest in navigating in the Arctic area.

TSMAD is invited to:

- a. consider this proposal
- b. and to take appropriate actions.