

**PROPOSAL TO ADDRESS POLAR NAVIGATION ISSUES RELATED TO ECDIS**

Consideration by: Arctic Regional Hydrographic Commission (Canada, Denmark, Norway, Russia and the United States of America)

**PROPOSAL**

**Denmark submitted a work item to TSMAD for consideration of the electronic charting issues related to Arctic navigation (attached file). It seems to the U.S. that ARHC, as the Producer Nations, should consider the Danish submission and additional policy issues related to charting and ECDIS navigation in the Arctic region in that ENC does not extend to the North Pole and an Arctic display North of the current ENC coverage will not be in the Mercator projection due to distortions. IHO should eventually bring such navigation issues to the attention of the International Maritime Organization and the International Electro-technical Commission after consideration by the HSSC/TSMAD. The U.S. considers that ARHC should provide some guidance to HSSC/TSMAD.**

**EXPLANATORY NOTE**

The Electronic Navigational Chart (ENC) data collected by Hydrographic Offices in support of ECDIS has no dependence on projection so data collection is not an issue. However, the approval of ECDIS navigation to date has simply assumed use of the Mercator projection, since that projection is applicable for the current area of ENC coverage. As a result, all ECDIS and ECS manufacturers have developed systems, particularly software, that uses the Mercator projection and it is this display capability that has been given approval by the Type Approval authorities.

As Arctic navigation becomes a reality due to the progressive melting of the Polar Ice Cap, there is the possibility of system manufacturers using any of a number of possible polar projections. To ensure commonality of display and simplify the task of both the user and the Type Approval authorities, the ARHC should consider proposing that IHO recommend standardization of the display through use of a projection such as the Polar Stereographic Projection for Arctic navigation. Does ARHC agree with standardization of ECDIS display in this format?

There will be no need for overlapping data in that a ship may display the ENC data in either projection anywhere it desires, but there may be issues related to radar integration with ENC displayed in a polar projection. Other issues of possible concern are: Will there be display issues related to ships navigating with different projections in proximity of one another (there should be none, but if so, is there need for a recommended transition latitude for shift from use of Mercator to the Polar projection); is there need for an Arctic IHO Test Data set for manufacturers and Type Approval authorities to test ENC functionality where longitude lines and datelines converge; and is there any need for specification of a plane at some parallel to reduce scale variation? Use of a standard projection becomes essential if there are users who have need for grid directions in that on the same projection with the same standard parallels, a single grid direction will exist between any two points. Are there other issues?