IHO Worldwide ENC Database Working Group (WENDWG)

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WEND Task Group Discussion document

Introduction

The following extracts from S-57 define the rules concerning overlaps between ENC data sets.

S-57 Appendix B.1 – 2.2 Cells states that:

*Cells with the same navigational purpose may overlap. However, data within the cells **must not overlap**. Therefore, in the area of overlap only one cell may contain data, all other cells must have a meta object M_COVR with CATCOV = 2 covering the overlap area. **This rule applies even if several producers are involved.***

S-57 Appendix B.1 - Annex A (Use of the Object) – 2.1.8 Seamless ENC coverage states that:

There must be no gaps in data between adjoining cells of the same Navigational Purpose. Similarly, there must be no overlapping data between cells of the same Navigational Purpose (see S-57 Appendix B.1 – ENC Product Specification, clause 2.2), except at the agreed adjoining national data limits, where, if it is difficult to achieve a perfect join, a 5 metre overlapping buffer zone may be used.

Large overlaps cause significant issues in the display of such data in ECDIS. OEMs do not have any right to manipulate any data, therefore cutting data at an arbitrary vector is not an option. The only options currently available is to either display one of the sets of data in the overlap (this is most often based on the order of data loading) or to display both sets of information. The latter is the rarer case, but has been witnessed in some ECDIS. The ECDIS, quite obviously, cannot take account of the currency or quality of data in these overlaps.

What does this all mean to the mariner? It potentially creates a confused display and yet another reason for a lack of confidence in this emerging technology.

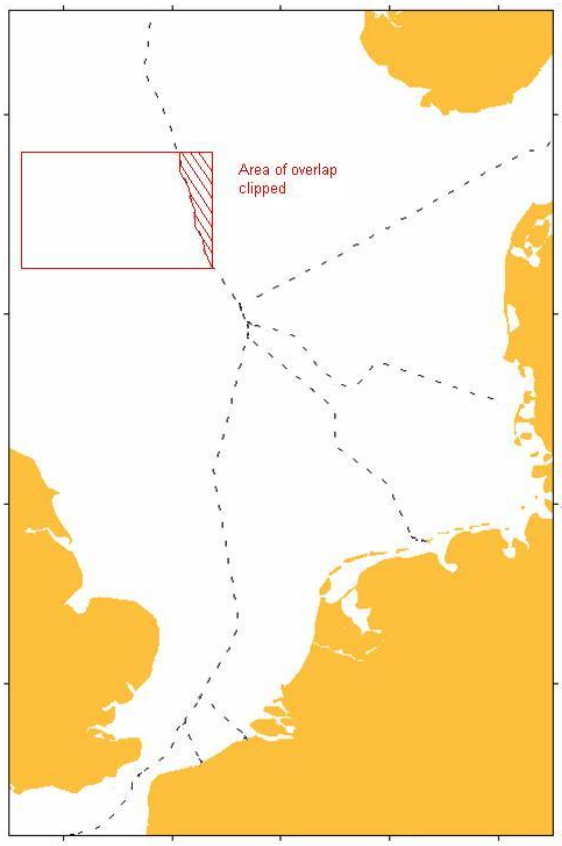
Possible solutions

- One option would be to allow the user to choose which data has priority on loading, but on what criteria would this decision be made. What is the provenance of the data, how can a user determine the currency or quality of the data.

- Another option would be to load the data based on its edition date. However this could lead to a plethora of new editions being produced in order to ensure that a particular

data set is always loaded. This also does not cater for updates whereby an older edition may be updated with a significant amount of new changes.

- Another option would be to consider the policy adopted with the INT series of paper charts where the world is partitioned into agreed, arbitrary areas managed by Regional Hydrographic Commissions. Similarly ENCs could be cropped at agreed national data limits rather than political boundaries. A dataset containing geometry emulating the limits would be used by ECDIS during the loading process to cut the data. The 5 meter buffer zone would have to be used to ensure topological consistency, but this would not cause any major issue.



Example of a clipped cell

Note: This diagram is for illustrative purpose only and is not intended to portray definitive political boundaries.

Conclusion

The WG is invited to discuss the issue.