

3rd NCWG MEETING
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Paper for Consideration by the Nautical Cartography Working Group (NCWG)
Contour lines discrepancies between ENC's of different usage bands
covering the same area

Submitted by:	IHO Secretariat
Executive Summary:	Based on a mariner's report complaining on the discrepancies between contour lines in two ENC's (UB4 and UB5) covering the same area, this paper invites the working group to consider whether the current regulations and chart specifications of the IHO in S-4 and any other documents are sufficient or not, And, if yes, if they are well applied.
Related Documents:	NSHC32-G9.1 ; HSSC8-05.3C; S-4.
Related Projects:	ENCWG Work Plan, Task L.

Introduction / Background

1. The IHO is well aware of the requirement expressed by mariners for increasing depth contour line density in ENC's. A number of recent presentations (presentation by INTERTANKO at NCSR3; presentations made at WENDWG6, NSHC32 and HSSC8) raised the need for higher depth contour density so mariners can plan their voyage and sail "safer" when setting up safety contour values in their ECDIS. This issue is to be addressed by the ENCWG (See ENCWG Work Plan 2017-18, Task L).
2. The other issue reported quite recently to the IHO Secretariat is that significant discrepancies may exist between contour lines when using ENC's in different usage bands covering the same area. When these discrepancies exist, the subsequent differences between displayed safety contour portrayals can confuse and possibly mislead the mariner.

Analysis / Discussion

3. The case reported to the IHO Secretariat concerns two ENC's, one in UB (Usage Band) 4 (approach scale), the second in UB5 (harbour scale).



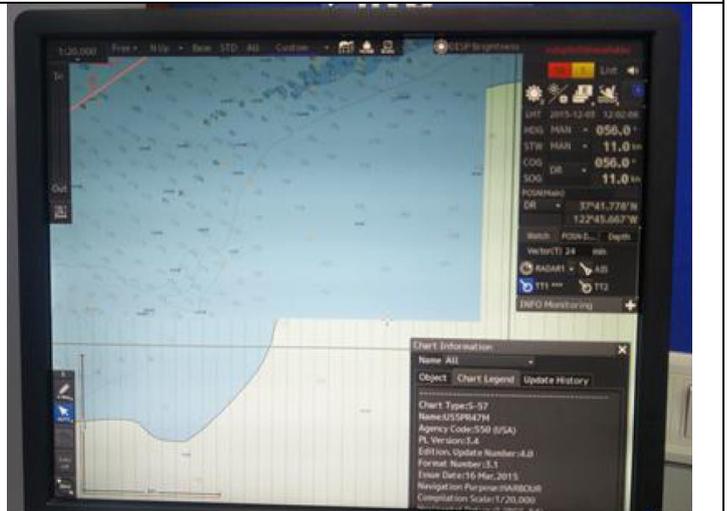
← UB4 ENC

This screenshot shows the contour line of 182.8 m separating the light blue (indicating vessel “no go” area)* and white tints, derived from a paper chart/raster chart contour line of 600 ft.

*Safety depth set to depth deeper than 18.2 m.

UB5 ENC →

This screenshot shows the effect of setting any safety depth with a value greater than 18.2 m: the entire sea coverage gets light blue.



4. Due to the quality of the information provided, it is not clear whether the 100 ft contour line, which exists on the equivalent paper/raster chart, has been encoded in the UB5 ENC or not. However, it is the opinion of the IHO Secretariat that a single outer depth area has been encoded on the UB5 ENC from the 18.2 m contour to the edge of the cell. This would result in the area being coloured blue (“no go” area) as the interpolation of the safety depth is based on the value populated for the DRVAL1 attribute for encoded depth areas (DEPARE), in this case the DRVAL1 of the outer depth area will be 18.2 m, corresponding to the bounding 18.2 m depth contour.

5. The mariner also claims that the 600 ft contour line in UB5 is close, but does not match accurately the same depth contour on the UB4.

6. The HO responsible for the production of these ENCs received an inquiry from the mariner and

responded that decision was made in the ENC charting process to not include the 600 ft contour line in the UB5 ENC. The reason given by the HO for that is that the UB5 ENC is intended for inshore navigation, while the UB4 ENC is for offshore navigation.

7. S-4 specifies that for approximate contours, fine dash lines may be used (S-4, B-351.4 and B-411.2 refers). For ENCs, spatial objects associated with approximate contours should be encoded using the attribute QUAPOS = 4 (approximate) on the spatial (line) object. However, it is the understanding of the IHO Secretariat that the display of the contour line is independent of the value of QUAPOS and therefore should not affect the ECDIS display.

8. In this case, the Secretariat is of the view that the cartographer should have encoded the entire contour line 182.8 m in the UB5 ENC, using the attribute QUAPOS = 4. The interruption of this contour line is likely not to be the best solution as far as safety of navigation is concerned.

Recommendations

9. In order to avoid such situations, it is recommended to review the appropriate sections of the IHO documentation (S-4, encoding bulletins) and to provide the cartographers with amended/additional guidelines, if appropriate.

10. Hydrographic Offices (HO) should, where possible, conduct systematic “vertical consistency” checks between UBs of ENCs covering the same area. Where possible, such checks should be supported by loading ENCs in ECDIS and systematic display checks (zoom-in, zoom-out between UBs and their effects on safety depth display).

Justification and Impacts

11. Safety of navigation when using ECDIS.

Action required of NCWG

12. The NCWG is invited to:

- a. **Discuss** this paper and consider the recommendations given in paragraphs 9 and 10.