

# SETTING SAFETY DEPTH AND SAFETY CONTOURS IN ECDIS

## 1. Summary

<b>Executive summary:</b>	Replace ECDIS settings of Safety Depth and Safety Contour with one setting Own-Ship Safety Depth.
<b>Actions To be taken:</b>	IHO DIPWG and TSMAD are requested to discuss the proposal and make amendment/clarification to IHO S-52. Submit the paper to IMO for possible amendment of ECDIS PS
<b>Related documents:</b>	IHO S-52

## 2. Introduction

IMO MSC Resolution 232 ECDIS Performance Standard defines the following

**5.8 It should be possible for the mariner to select a safety contour from the depth contours provided by the SENC. ECDIS should emphasize the safety contour over other contours on the display**

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**5.9 It should be possible for the mariner to select a safety depth. ECDIS should emphasize soundings equal to or less than the safety depth whenever spot soundings are selected for display.**

IHO S-52 publication provides further details to the definition of Safety Depth

### 3.2.2.

*(1) The own-ship safety contour, selected by the mariner from among the contours in the SENC, is double-coded by a thick line and a prominent change in depth shade.*

*If the safety contour selected by the mariner is not available in the SENC, the ECDIS should default to next deeper contour and inform the mariner. If, when the ship moves onto a new chart, the safety contour previously in use is no longer available, the ECDIS should again select the next deeper contour, and inform the mariner.*

*(3) The own-ship safety depth is intended as an aid when no appropriate safety contour is available in the SENC. Soundings equal to or less than the safety depth selected by the mariner are made more conspicuous than deeper soundings. A separate set of sounding figures is provided in the Presentation Library.*

Currently none of the IMO and IHO ECDIS related standards provide clear instruction for the mariner how to set up Safety Contour and Safety Depth in ECDIS. This causes confusion of the mariner as well as different interpretation of ECDIS manufacturers who should follow ECDIS PS requirements and at the same time provide ECDIS users with clear and effective means providing safe navigation with use of ENC and ECDIS.

According to IMO ECDIS PS and IHO S-52 and its Appendix 2 of Annex A, Presentation Library, Safety Contour is the main parameter that is taken into account by ECDIS for presentation of unsafe water areas, detecting isolated dangers and generating anti-grounding alarms.

The Safety Depth selected by the mariner is considered as an aid only to provide more clear indication of unsafe spot soundings. According to the IHO Presentation library all spot soundings belong to display category "Other Display" and therefore it is possible to switch them off even if soundings are less than Safety Contour selected by the mariner.

Based on the above, it is logically to assume that mariner should set Safety Contour based on his vessel draught and safety margin. It is also logically to select Safety Depth equal to Safety Contour. In this case, SENC safety contour will be set to the depth contour equal or deeper than the parameter selected by the mariner. The ECDIS will emphasize the depth contour equal or deeper than the selected and will also emphasize spot soundings lying within unsafe water, shallower than value, selected by the mariner.

At the same time it seems to be unsafe to select Safety Depth shallower than Safety Contour since part of the spot soundings less than the selected Safety Contour in this case will not be emphasized and will not trigger anti-grounding alarm in ECDIS.

### **3. Proposed change to S-52**

To make ECDIS settings more clear and safe it is proposed to make the following change in IHO publication S-52.

ECDIS should provide the mariner with possibility to select only one ECDIS safety parameter – the Own-Ship Safety Depth that is calculated by the mariner as Vessel draught + dynamic draught + Safety margin.

The ECDIS Safety Contour should be calculated by ECDIS i.e. SENC depth contour equal or next deeper to the Own-Ship Safety Depth

The ECDIS Safety Depth is taken from Own-Ship Safety Depth, i.e. ECDIS should emphasize spot soundings less than the Own-Ship Safety Depth.

The spot soundings less than or equal to the Own-Ship Safety Depth should be displayed in ECDIS in route monitoring mode i.e. such spot soundings are to be moved to Standard Base, independently if they lay in safe or unsafe water.

### **4. Affected IHO documents**

- 1.** IHO S-52. Specifications for chart content and display aspects of ECDIS
- 2.** IHO S-52 Annex A. ECDIS Colors and Symbols Specification
- 3.** IHO S-52 Annex A. Appendix 2. IHO ECDIS Presentation Library