

Paper for Consideration by S-101PT

Portrayal Considerations

Submitted by:	IHO Secretariat
Executive Summary:	The S-101PT has outstanding action items to address gaps in symbology between S-57 and S-101. However there are other considerations that should be considered regarding S-101 portrayal.
Related Documents:	-
Related Projects:	S-101 Portrayal Catalogue; S-100 interoperability.

Introduction / Background

1. The S-101 Portrayal Catalogue is currently based substantively on the S-52 Presentation Library. The symbols, line styles and area fills developed for S-52 were developed for implementation on ECDIS platforms built using 1990's technology (screen size, screen resolution, ...). With the advent of S-100 and the new ENC Product Specification S-101, an opportunity exists to consider a complete review of the symbology to be used in current (and possibly future) ECDIS and other end-user platforms.
2. This paper is aimed at promoting discussion on possible additional portrayal considerations only; it does not discuss portrayal related initiatives in progress, such as the S-52 to S-101 gap analysis and enhanced portrayal of quality of bathymetric data information. However, the topics raised in this paper may be considered in parallel with the work currently being conducted by the ENCWG/NCWG ECDIS Portrayal Sub-Working Group.

Analysis/Discussion

3. Since the development of S-52 in the 1990's, there have been significant advancements in computer screen technology (screen resolution, screen format and size, "flat screen" technology, etc). During this time, there has not been a complete review conducted of the S-52 Presentation Library so as to refine the symbols, line styles and area pattern fills in order to adapt to these advancements in technology.
4. The size of symbols (point (including soundings) and area pattern), text display and line thickness contributes significantly to screen clutter, which is a significant issue that has been identified with ECDIS. Up to now, screen clutter has been largely addressed by additional encoding guidance such as reduction in land topographic detail compared with what is shown in many paper chart portfolios; data generalization when moving through the ENC Navigational Purposes; and enhanced guidance on the application of the SCAMIN attribute. With the development of S-101 and the proposed roadmap to full implementation and operational release for 2022, an opportunity exists to investigate how S-101 ENC portrayal may be improved from the current S-52 Presentation Library. Such investigations may also be considered to be important as the S-101 ENC will be required to be interoperable with other S-100 based products; and portrayal considerations for such products will be based on modern digital data display technology – not the technology as it existed in the 1990s.
5. Some aspects of S-101 ENC portrayal that may be considered include:
 - Symbol size and shape (is digital display technology sufficiently advanced such that symbols that equate more to paper chart INT1 symbols can be implemented?);
 - Line weight;
 - Sounding structure (is digital text font development advanced to a stage where a text font can be used to symbolize soundings (including decimetre subscript) rather than having individual "symbols" for each digit in a displayed sounding?);
 - Colour (including day, dusk and night palettes);
 - Feedback from ECDIS users (for example dissatisfaction with the magenta "isolated danger" symbol).
6. Investigations would need to include rigorous testing, particularly simulation in various ship bridge operational conditions, similar to the testing that was conducted during the development of the S-52 Presentation Library.
7. Consideration should also be given to obtaining the opinion of ECDIS users as to the impact of substantive changes to ENC portrayal, for instance whether major changes in presentation are likely to cause confusion amongst end-users. Further consideration will need to be given to the impact of major changes to ENC portrayal

during the transition period from S-57/S-52 to S-101, where it is anticipated that there will be a period where both S-57 and S-101 ENC's will be in use.

Recommendations

8. The S-101PT is requested to consider the creation of a Sub-Team to begin investigating additional improvements that can be made to S-101 portrayal from the base S-52 Presentation Library. This work should be brought to the attention of the NCWG for their input. Consideration should be given to leveraging off (or perhaps utilizing) the work being done by the ENCWG/NCWG ECDIS Portrayal Sub-Working Group. The work should be preceded by an investigation (perhaps a survey) of current ECDIS users as to any perceived impacts of significant changes to ENC portrayal.

Justification and Impacts

9. A complete review of the presentation of ENC's in ECDIS is long overdue, and needs to be conducted as soon as possible. The time period during the evaluation and testing of S-101 prior to full implementation should be utilized so as to conduct such a review. This would require resources from Hydrographic Offices and Industry to participate in the Sub-Team; and the establishment of a testing environment.

Action Required of S-101PT

10. The S-101PT is invited to:
 - a. **Discuss** this paper;
 - b. **Establish** a Sub-Team under the S-101PT to begin a complete review of current ENC portrayal for S-101;
 - c. **Recommend** any further action.