

Paper for Consideration by DIPWG

CATZOC, Simplified Symbols and Colour Palettes
Report of NOAA's user outreach in regards to ECDIS portrayal

Submitted by:	United States (NOAA)
Executive Summary:	The development of S-101 is allowing for DIPWG to revisit aspects of ECDIS portrayal. This report summarizes user outreach performed by NOAA in relation to several question on portrayal.
Related Documents:	N/A
Related Projects:	S-101 Portrayal

Introduction / Background

It was agreed at the joint TSMAD/DIPWG meeting in 2008 (South Africa) that the S-101 development should consider looking at the existing symbology for use in S-101 ECDIS. The following is an excerpt from the minutes in regards to symbology:

Stakeholders stated that the concept of simplified symbols for buoys and beacons has very little acceptance. ECDIS display should concentrate on symbols as aids to navigation and shaped in the traditional manner but coloured.

CSMWG18-05.6A suggests the following options:

- Option a) delete simplified symbols
- Option b) delete simplified symbols and redefine traditional symbols as coloured
- Option c) declare simplified symbols as a voluntary option

OW supported option a (delete simplified symbols) the removal of simplified symbols and added that this would make the PL simpler. HP agreed.

MB said that if we agree with the above comment then b is the preferred option, i.e. delete the simplified symbols and colour the traditional ones.

MJ said that this proposal will be added to the CSMWG work plan with an action to redesign a set of symbols for size, shape and colour.

SO stated that the SA Navy do not like or use the simplified symbols as they have no documentation to reference them to see what they are.

HP replied by saying that simplified symbols display better with a lower intensity backlight as the contrast is better.

It was proposed that option (b) was preferred. As a major change of a core element of PL, this action requires review of the existent traditional symbol set and should take effect together with future portrayal of S-101 based ENCs.

Other discussion also revolved around the use of colour palettes. The following is an excerpt from the minutes in regards to colour palettes:

Stakeholders had commented that they were more interested in what was being displayed (data) rather than how. Although they thought that it would be a good idea if there was a standard default palette defined by the IHO, this would still leave manufacturers freedom to implement additional ones.

MJ stated that the mandatory use of colour tokens was revoked in 1998 by CSMWG.

HP mentioned that some standards set rules that allow OEMs to use as many colours as they want.

MJ enquired about liability?

KI stated that mariners should be consulted over what colour palettes they prefer.

MJ stated that all previous attempts to come up with an answer to this had resulted in two different opinions (black background/white background).

HP felt that the IHO needs to give clarification on day, day/dusk and night palettes, when they should be used and under what conditions.

HA asked if there was anything that mandates when the palettes are used?

MJ then asked the question: what can we do? Delete one of the palettes, rename them, allow alternatives or make new ones.

EM mentioned that he had some colleagues in the aeronautical world carrying out a similar study.

KI stated that the whole thing was based on background colours 5 & 6.

NOAA conducts a user survey every year that is directed towards both recreational and commercial boaters. In trying to understand the user needs in regards to ECDIS portrayal, NOAA included several questions in relation to the above issues. In addition, it also included a question in regards to the portrayal of survey quality indicators, in an attempt to understand what the end user would like to see.

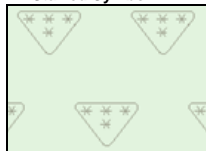
Analysis/Discussion

The NOAA survey reaches approximately 8000 commercial and recreational mariners, with a response rate of around 30%. The following are the questions that were used in the NOAA survey.

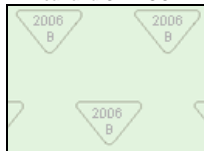
Q.19. If Hydrographic survey quality areas could be portrayed with the Starred Symbol (as shown in A) or the Year of the survey and the Zone of Confidence level (CATZOC) (as shown in B). Which of these would you prefer?

- A Starred Symbol 1(63)
B Year and CATZOC 2
C No opinion 3

A: Starred Symbol



B: Year and CATZOC



Q.20. There are two types of ECDIS Buoy symbology-- Traditional as in A and Simplified as in B. Which do you prefer?

- A Traditional 1(64)
B Simplified 2
C No opinion 3

A: Traditional

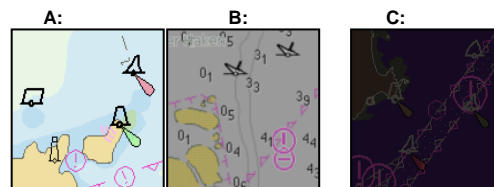


B: Simplified



Q.20a) Which ECDIS color palette do you prefer to use to navigate at night?

- A 1 (65)
B 2
C 3



Q.20b) How often do you navigate at night?

- Regularly 1(66)
Sometimes 2
Never 3

The following summarizes the results of the survey.

For the question regarding the portrayal of CATZOC, 80% of the responders preferred to see the year of the survey and the zone of confidence displayed, rather than the current portrayal.

For the question regarding the use of traditional versus simplified symbology, the responses were as follows:

- 72% preferred the traditional symbology
- 22% preferred the simplified symbology
- 8% had no opinion

For the question regarding the use of ECDIS colour palettes during night time navigation the responses were as follows:

- 21% preferred the Day Palette
- 49% preferred the Dusk Palette
- 30% preferred the Night Palette

As a follow on question, NOAA asked how often the mariners navigated at night, the responses were as follows:

- 92% regularly navigated at night
- 7% sometimes navigated at night
- 1% never navigated at night

Conclusions

For the most part the results of this survey will enable DIPWG to make informed decisions regarding portrayal in S-101. For example, mariners strongly preferred a different portrayal to CATZOC. This was also discussed at the recent S-101 stakeholders workshop, where the mariners present wanted a simple approach that would indicate where it was safe to navigate based on survey quality that did not overwhelm the presentation on the display.

In regards to symbology, the commercial mariner overwhelmingly preferred traditional symbols. However, at the recent S-101 stakeholders workshop, the mariners present indicated that they preferred simplified symbols. Further analysis is required for S-101 concerning the removal of these symbols. For example, is the larger issue for the simplified symbology the lack of recognition, and can that be resolved by improved training?

The results for the removal of the Night palette proved inconclusive, so further analysis is required, including what would be the ultimate benefit to removing the Night palette from S-101?

Recommendations

This paper is intended to promote discussion that will result in a way forward in regards to S-101 portrayal of CATZOC, simplified symbology, and the use of Night palettes.

Action Required of DIPWG

The DIPWG is invited to:

- endorse the work done by the United States
- agree to further analysis regarding S-101 portrayal and make further recommendations