

# Visualizing Electronic Chart Data for Hard Copy Print: Advantages, Limitations, and Other Considerations

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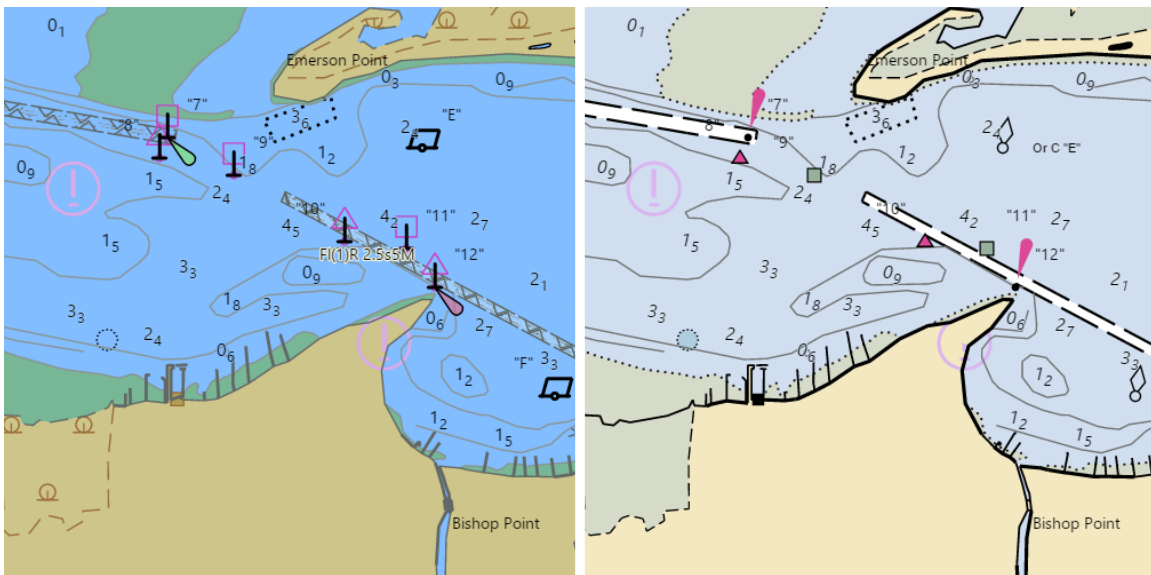
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The NOAA Custom Chart (NCC) is a web map application that depicts Electronic Navigational Chart (ENC) features with print-friendly paper chart symbology. Unlike traditional paper chart compilation, which allows cartographers to override symbol and label defaults when necessary, the NCC symbolization process is completely automated and has limited flexibility. This difference in the method can lead to dissimilar portrayals of the charted information. However, dissimilar is not equivalent to incorrect.

The ongoing process of customizing NCC symbology has led to many cartographic quandaries. A nautical chart must meet specific visual requirements. In addition to using familiar symbols, colors, and typefaces, all information must be legible at the intended scale. Fortunately, the NCC custom symbology project provides the opportunity to re-evaluate established specifications for an automated environment in a regimented way.

This presentation discusses the details of the NCC custom symbology project and how paper nautical chart symbology could evolve in response to an automated method. For example, the printed output is no longer limited to a five-color lithographic palette. Would adding colors or transparency improve the chart product? There will also be a need to mitigate problems introduced through automation. Such as, halos will be required for most text to allow overprints. Finally, the presentation will explore ways to enhance the automation script to reduce unwanted results, including determining drawing priorities and alternative label placements.

Translating a traditionally manual compilation of nautical charts that is oft dependent on the creativity and skill of the cartographer into an autonomous process is a daunting task. There will undoubtedly be compromises, but with the application of basic cartographic principles and some creative problem solving, the NCC will eventually produce a printable nautical chart with a matching quality as the traditional chart that mariners are familiar with.



Comparison of ENC symbology (left) and NOAA Custom Chart v1.3 symbology (right).