

National Charting Plan A strategy to transform nautical charting



A Changing World

Ships are growing, requirements are changing, technology is advancing



Container ship size has increased four-fold in 30 years. Use of electronic charts and ECDIS will soon be mandatory for all large commercial vessels. Electronic chart display use is rising among recreational boaters.



IMO Mandate for use of ECDIS

2012: International Maritime Organization (IMO) starts phasing in requirement for ECDIS use by commercial vessels on international voyages





U.S. Coast Guard Carriage Requirements

- 2016 USCG authorizes use of ENC for navigation by commercial vessels on domestic voyages in US waters
- Simpler, cheaper Electronic Charting Systems (ECS) may be used to display ENC data
- Paper nautical charts may still be used, but will not be required if an ECS with ENCs is being employed

USCG NVIC 16-1, "Use of Electronic Charts and Publications In Lieu of Paper Charts" is at: <u>https://www.navcen.uscg.gov/pdf/electronic_charting/NVIC_01-</u> <u>16_electronic_charts_and_publications.pdf</u>



Coast Survey's Marine Chart Division



Key Differences Between Raster and ENC Charts

RASTER



Raster Navigational Chart

- All information is symbolized on the chart. Some portions will be cluttered with symbols and text.
- RNC systems do not provide automated alarms or other indications.
- Symbolization is fixed when the data is compiled and cannot be changed.
- Although similar, RNCs and paper nautical charts produced by different countries will have variations in colors and some symbols.
- RNC symbols become pixelated when zooming.
- Features displayed are fixed at compilation.
- Most RNCs are oriented as "north-up." RNCs can be rotated to "course-up," but the symbols and text will become tilted as the chart is rotated.

VECTOR

Electronic Navigational Chart

- ENC data may "queried" for more information. Thus, simpler symbolization can be used.
- ECDIS uses ENCs and ship info, such as draft, speed, direction, to initiate visual and auditory alarms when dangerous conditions exist.
- Rendered in real-time by ECDIS. "Paper chart" or "simplified" symbology may be selected. Non-ECDIS displays may use other symbology.
- Any ECDIS will portray all ENC data with the same colors and symbols, regardless of which country produced the ENC.
- ECDIS symbols stay the same size when zooming.
- Certain features may be turned on or off.
- ENCs have no inherent orientation. Symbols and text displayed in an ECDIS will always face up correctly, regardless of the display's orientation.



National Charting Plan highlights



National Charting Plan A Strategy to Transform Nautical Charting

February 28, 2017



Office of Coast Survey Marine Chart Division

- Part I: Present State of Nautical Chart Production
- Part II: The Transformation of Nautical Chart Production
 - Changes to chart formats, scales, data compilation, and symbology
 - ENC Rescheming
 - RNC Channel Project Depths
 - Import USCG AtoN Data
 - Resolve Charted Discrepancies
 - Estimate and Populate NULL Wreck Depths
 - Compile ENC Depth Contours in Meters
 - Small Craft Chart Coverage Migration



National Charting Plan Overview

Purpose Improve NOAA nautical chart coverage, products, and distribution



Outcome Ease of access to more precise, higher-resolution charts that deliver the most up-to-date navigation information possible

Public comment period for Feb 2017 draft ended June 30, 2017 Updated final version was released Oct 2017



Transforming Nautical Charting

Actions to improve charting and marine navigation

- Improving Chart Updates
- Improving Chart Content
- Improving Chart Schemes
- Improving Chart Production Efficiency
- MSDI and Open Data



Improving Chart Updates











Reduce unwarranted alarms & isolated danger symbolization



ECDIS display of wrecks with an "isolated danger" symbol



"Normal" ECDIS display of the same two "nondangerous" and one "dangerous" wrecks





Provide timelier data

Standardization of USACE data formats







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Data Consistency and general ENC clean-up





Improving Chart Schemes



Improve chart coverage



Chart 18445, Puget Sound-Possession Sound to Olympia including Hood Canal



Improving Chart Schemes



Create an orderly layout for ENCs





New Chart for Recreational Boaters

Merrimack River ENC (US5MA1AM)





Improving Chart Schemes



Standardize Scales









Commitment to Paper Charts

- NOAA will continue making both raster (paper, RNC and PDF) and vector (ENC) nautical chart formats
- Coast Survey is always exploring options that will put resources to the best use updating products that have the greatest impact on safety of navigation for mariners and recreational boaters
- If use of paper nautical charts continue to fall, NOAA may re-evaluate the paper chart suite to make it better suited for:
 - Paper chart back up,
 - Recreational navigation, and
 - Small scale overview charts for voyage planning.
- Paper nautical charts may eventually look a little different to better support these purposes



