



# NOAA Nav-cast

*A webcast series featuring NOAA navigation service's topics, tools, & trends*

**How to obtain NOAA  
ENC-based paper  
nautical charts**  
*after NOAA ends  
production of traditional  
paper charts*

January 9, 2020 | 2 p.m. (EST)

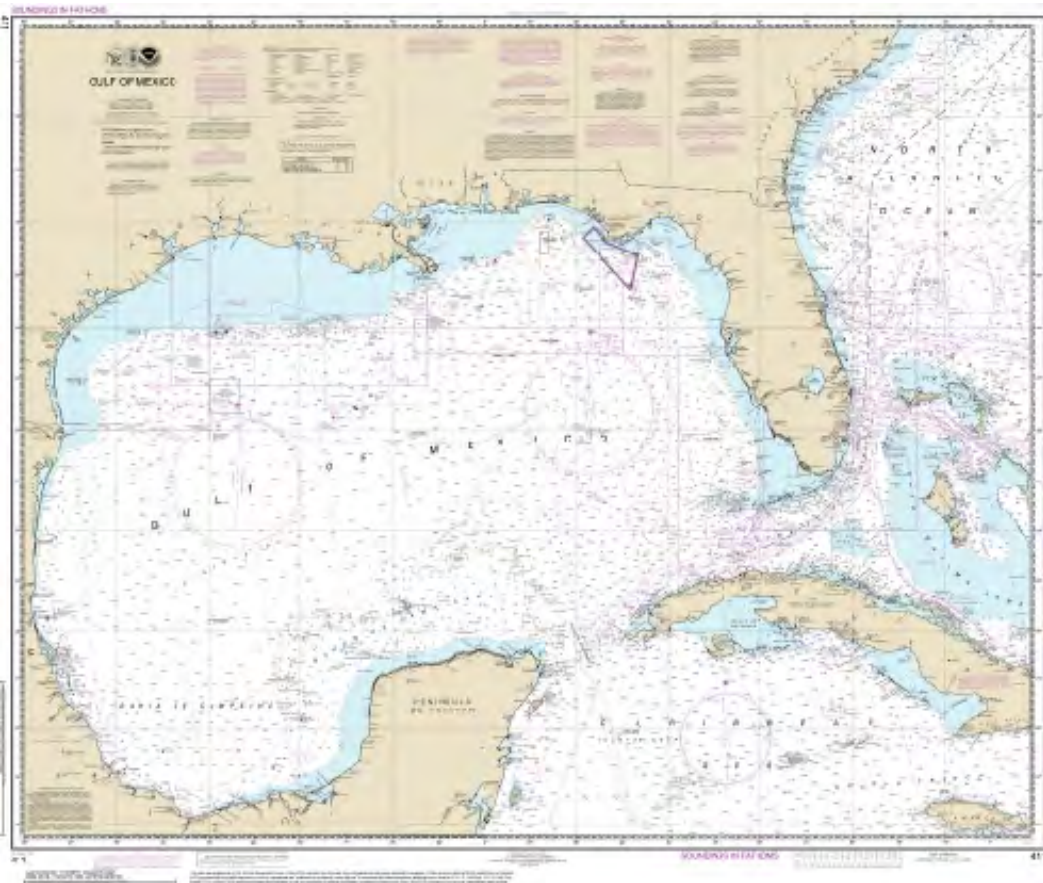


**Capt. Chris van Westendorp**  
*Chief  
Navigation Services Division  
NOAA's Office of Coast Survey*

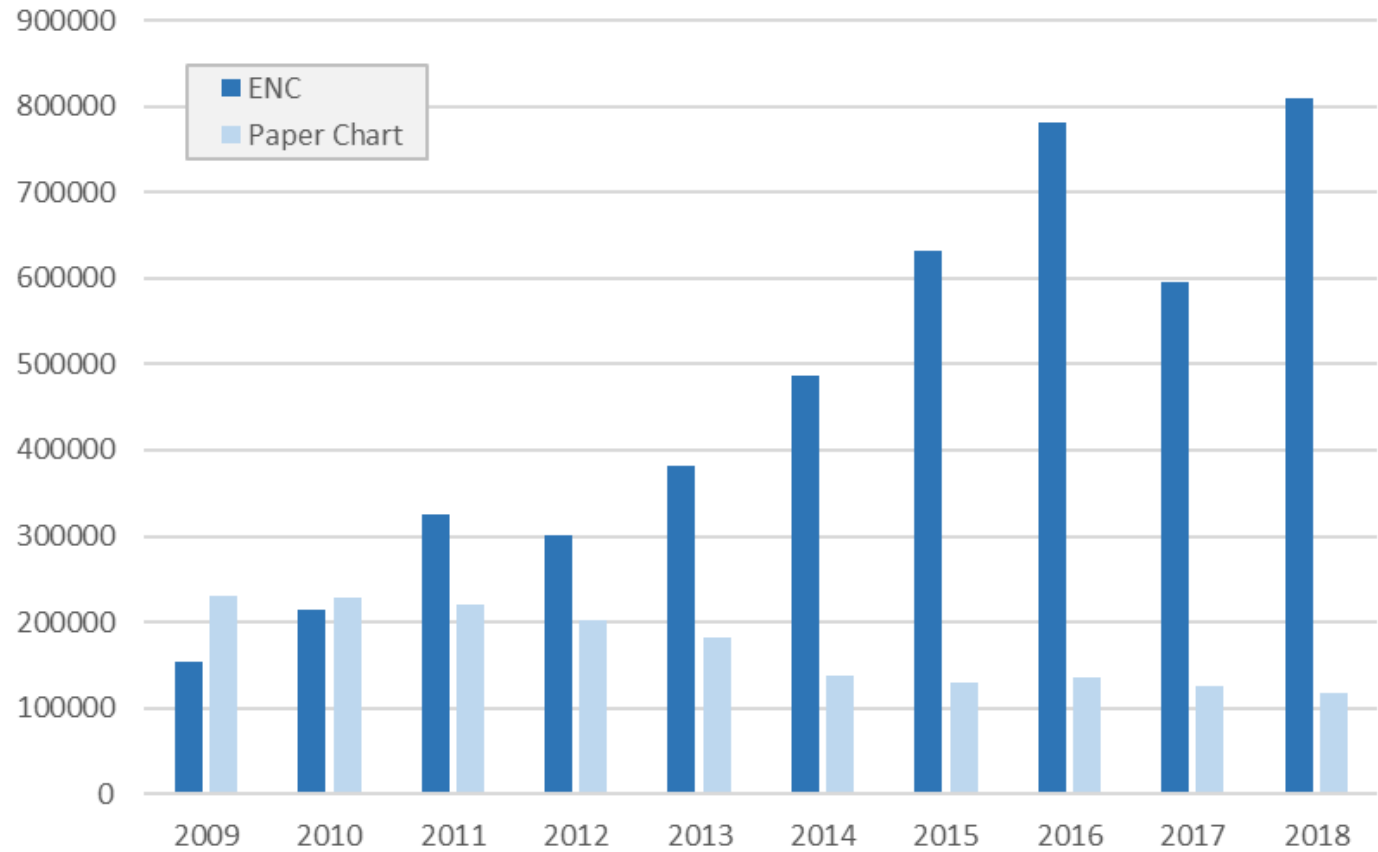


**Colby Harmon**  
*Cartographer / Project Manager  
Marine Chart Division  
NOAA's Office of Coast Survey*

# A Long Tradition in Transition



## U.S. ENC and Paper Nautical Chart Sales 2009-2018



# 5-year Process



- Improving data consistency and providing larger scale ENC coverage
- Providing access to paper chart products based on ENC data
- Shutting down all traditional paper and associated raster chart production



# Prior paper chart and ENC coverage

- Largest scale chart coverage between Thunder Bay and Duluth
- Paper chart 1:120,000
- ENC 1:120,000

Chart: 14967	
<b>Title:</b>	Beaver Bay to Pigeon Point; Silver Bay Harbor; Taconite Harbor; Grand Marais Harbor
<b>Type:</b>	Coastal Chart
<b>Scale:</b>	1:120,000
<b>Edition:</b>	24
<b>Published:</b>	11/1/2014

**Paper Charts (RNC & PDF)**   **Electronic Charts (ENC)**   **Coast Pilot**   **Help**

Place Name

**Available Product Information**

**NOAA RNCs (RNC):**  
Geo-referenced charts in BSB format.

**NOAA Paper Nautical Charts**  
**NOAA Certified Chart Agents:**  
Order Print-on-Demand (POD) charts

**NOAA Booklet Chart (BC):**  
8.5" x 11" printable panels of the charts.

**Notice to Mariner (NM):**  
Weekly corrections to the RNCs.  
[Goto Historical Charts](#)

**Map Selection Information**

Chart: 14967	
<b>Title:</b>	Beaver Bay to Pigeon Point; Silver Bay Harbor; Taconite Harbor; Grand Marais Harbor
<b>Type:</b>	Coastal Chart
<b>Scale:</b>	1:120,000
<b>Edition:</b>	24
<b>Published:</b>	11/1/2014

**Available Products**



# Improved larger scale ENC coverage

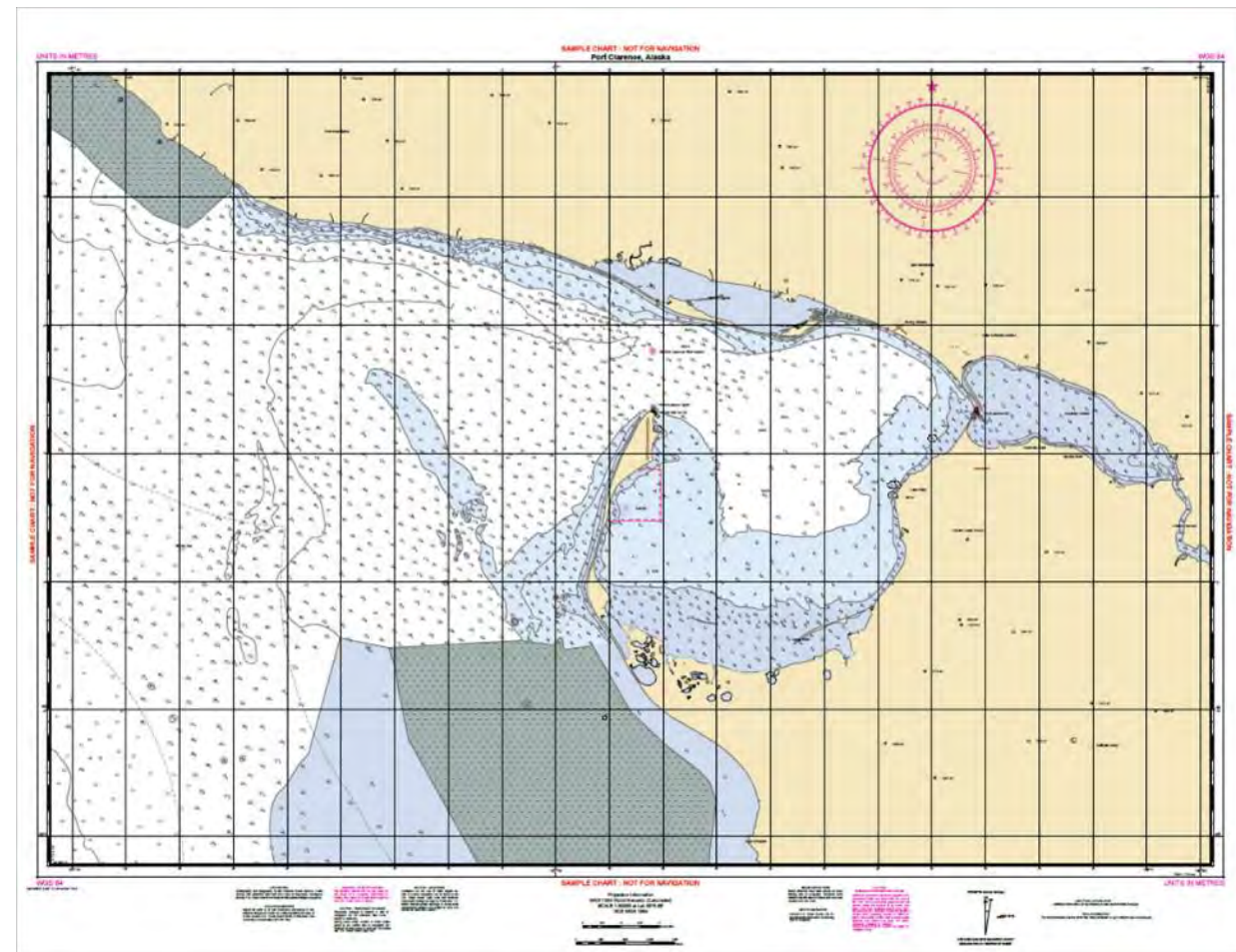
- 19 newly reschemed ENC cells in Lake Superior
- Largest scale chart coverage between Thunder Bay and Duluth
  - Paper chart 1:120,000
  - ENC 1:80,000

Chart: US4MN1EG	
Title:	Lake Superior
Scale:	1:80,000
Edition:	1.0
Published:	11/12/2019

The screenshot shows the NOAA ENC web interface. At the top, there are tabs for 'Paper Charts (RNC & PDF)', 'Electronic Charts (ENC)', 'Coast Pilot', and 'Help'. Below the tabs is a search bar labeled 'Place Name' with a 'Submit' button. The main map area displays a grid of ENC cells over Lake Superior. The cell US4MN1EG is highlighted in orange. Other cells shown include US4MN1GK, US4MN22M, US4MN1FH, US4MN1FI, US4MN1FJ, US4MN1FK, US4MN1EF, US4MN1EH, US4MN1EI, US4MN1EJ, US4MN1EK, US4MN1DD, US4MN1DE, US4MN1DF, US4MN1DG, US4MN1DH, US4MN1DI, US4MN1DJ, US4MN1DK, US4MN11M, US4MN12M, US4MN178M, US4MN179M, and US4MN170M. The map also shows the locations of Thunder Bay, Virginia, Duluth, Superior, and Ironwood. On the right side, there is a sidebar with 'Available Product Information' and 'Map Selection Information'. The 'Map Selection Information' section shows the selected chart: US4MN1EG, with details: Title: Lake Superior, Scale: 1:80,000, Edition: 1.0, Published: 11/12/2019. Below this, there is a section for 'Available Products' with a button for 'ENC'.



# Paper Charts from ENC Data with the NOAA Custom Chart (NCC) App



# Affected Products of Raster Chart Shutdown

- Print-on-demand (POD) paper nautical charts
- Full-size chart PDFs
- BookletChart™ PDFs
- NOAA raster navigational charts (NOAA RNC®)
- NOAA RNC tile service
- Online RNC viewer



# Inter-agency Coordination



## US Coast Guard – Prevention Directorate

- Marine Transportation Systems (CG-5PW)
- Office of Nav Systems (CG-NAV) & Navigation Center (NAVCEN)



**US Army Corps  
of Engineers**

## US Army – Corps of Engineers

- Directorate of Civil Works, Operations & Regulatory, Navigation



## National Geospatial-Intelligence Agency - Source Directorate

- Foundation GEOINT, Maritime Safety Office



## Committee on the Marine Transportation System

- Future of Navigation Integrated Action Team



Office of Coast Survey  
National Oceanic and Atmospheric Administration

**Sunset of Traditional Paper Chart Production**



# We Welcome Public Feedback



- **Federal Register Notice** published on November 15, 2019
- Comment period ends on February 1, 2020
- Submit comments through NOAA's online **ASSIST** feedback tool - <https://nauticalcharts.noaa.gov/customer-service/assist>



More Information at: [www.nauticalcharts.noaa.gov](http://www.nauticalcharts.noaa.gov)

**NOAA Office of Coast Survey**  
National Oceanic and Atmospheric Administration  
U.S. Department of Commerce

HOME CHARTS **PUBLICATIONS** DATA LEARN CUSTOMER SERVICE ABOUT US

- U.S. Coast Pilot®
- U.S. Chart No. 1 (Chart Symbols)
- Distances Between U.S. Ports
- National Charting Plan**
- Sunsetting Traditional NOAA Paper Charts**
- Transforming the ENC
- National Hydrographic Survey Priorities
- Standards and Requirements
- Coast Survey Technical Documents
  - Technical Memos
  - Technical Reports

**FIND NA**  
Chart Local  
Download Nautical Ch

**PRODUCTS & SERVICES**

- Certified Charts & Products**  
meets U.S. Coast Guard carriage requirements for commercial vessels
- General Use Charts**  
does not meet U.S. Coast Guard carriage requirements for commercial

**Sunsetting Traditional NOAA Paper Charts**  
End of Paper and Raster Nautical Chart Production  
Introduction of NOAA Custom Charts

**NOAA Office of Coast Survey**  
National Oceanic and Atmospheric Administration  
November 14, 2019

**Transforming the NOAA ENC®**  
Implementing the National Charting Plan

**NOAA Office of Coast Survey**  
National Oceanic and Atmospheric Administration  
November 7, 2019



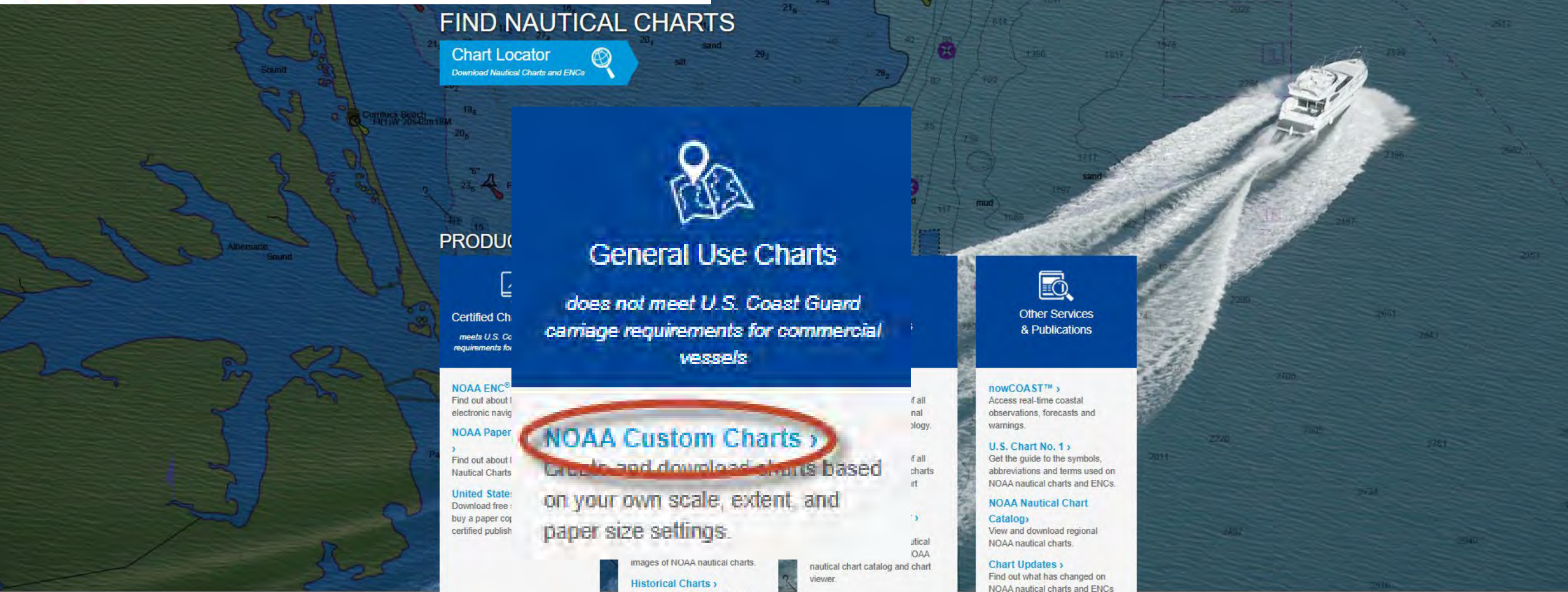
# NOAA Custom Chart (NCC)

- Providing feedback to NOAA
- Basics of creating a chart
- How to customize your chart
- How to get a paper copy
- Plans for NCC enhancements

***NOAA Custom Chart***

**Create Paper Charts  
from NOAA ENC<sup>®</sup> Data**





### FIND NAUTICAL CHARTS

Chart Locator  
Download Nautical Charts and ENC's

**General Use Charts**

*does not meet U.S. Coast Guard carriage requirements for commercial vessels*

PRODUCTS  
Certified Charts  
meets U.S. Coast Guard carriage requirements for commercial vessels

NOAA ENC®  
Find out about electronic nautical charts  
NOAA Paper Charts  
Find out about nautical charts  
United States  
Download free or buy a paper certified publication

**NOAA Custom Charts**

Creates and download charts based on your own scale, extent, and paper size settings.

Other Services & Publications

nowCOAST™  
Access real-time coastal observations, forecasts and warnings.  
U.S. Chart No. 1  
Get the guide to the symbols, abbreviations and terms used on NOAA nautical charts and ENC's.  
NOAA Nautical Chart Catalog  
View and download regional NOAA nautical charts.  
Chart Updates  
Find out what has changed on NOAA nautical charts and ENC's since the last new edition.

Historical Charts  
Download free images of maps and charts dating back to 1807.

nautical chart catalog and chart viewer.

# NOAA Custom Chart Prototype

**NOAA Custom Chart Prototype**  
Choose your own chart scale and location

Search for location

Quick Start Feedback Home Guide

**NOAA Custom Chart Prototype**

Welcome to the NOAA Custom Chart prototype demonstration site. Please try it out and tell us what you think.

Provide feedback on the prototype through:

[NOAA Nautical Inquiry and Comment System](#)

All products generated by this prototype service are for demonstration purposes only and are not to be used for navigation.

Click OK to agree to use this site for demonstration purposes only.

Click Quick Start Guide at the top of the page for instructions.

OK

POWERED BY GEBCO, IHO-IOC GEBCO, NGS, DeLorme esri

- NCC is still in development
- During the prototype phase:  
**“All products generated by this prototype service are for demonstration purposes only and are not to be used for navigation.”**



2019

# Raster Chart Sunset Timeline

2025

NOAA Custom Chart Prototyping

Raster Chart Sunset  
Federal Register Notice ◆ Nov 2019

Gather User Feedback

Complete NOAA Custom Chart Development ◆

Systematically Cancel Traditional Paper Charts

Complete Raster Sunset Program ◆  
Jan 2025

# NOAA wants to hear your suggestions for improving NCC

NOAA Custom Chart Prototype  
Choose your own chart scale and location

Search for location

Quick Start Feedback Home  
Guide

https://devgis.charttools.noaa.gov/pod/#

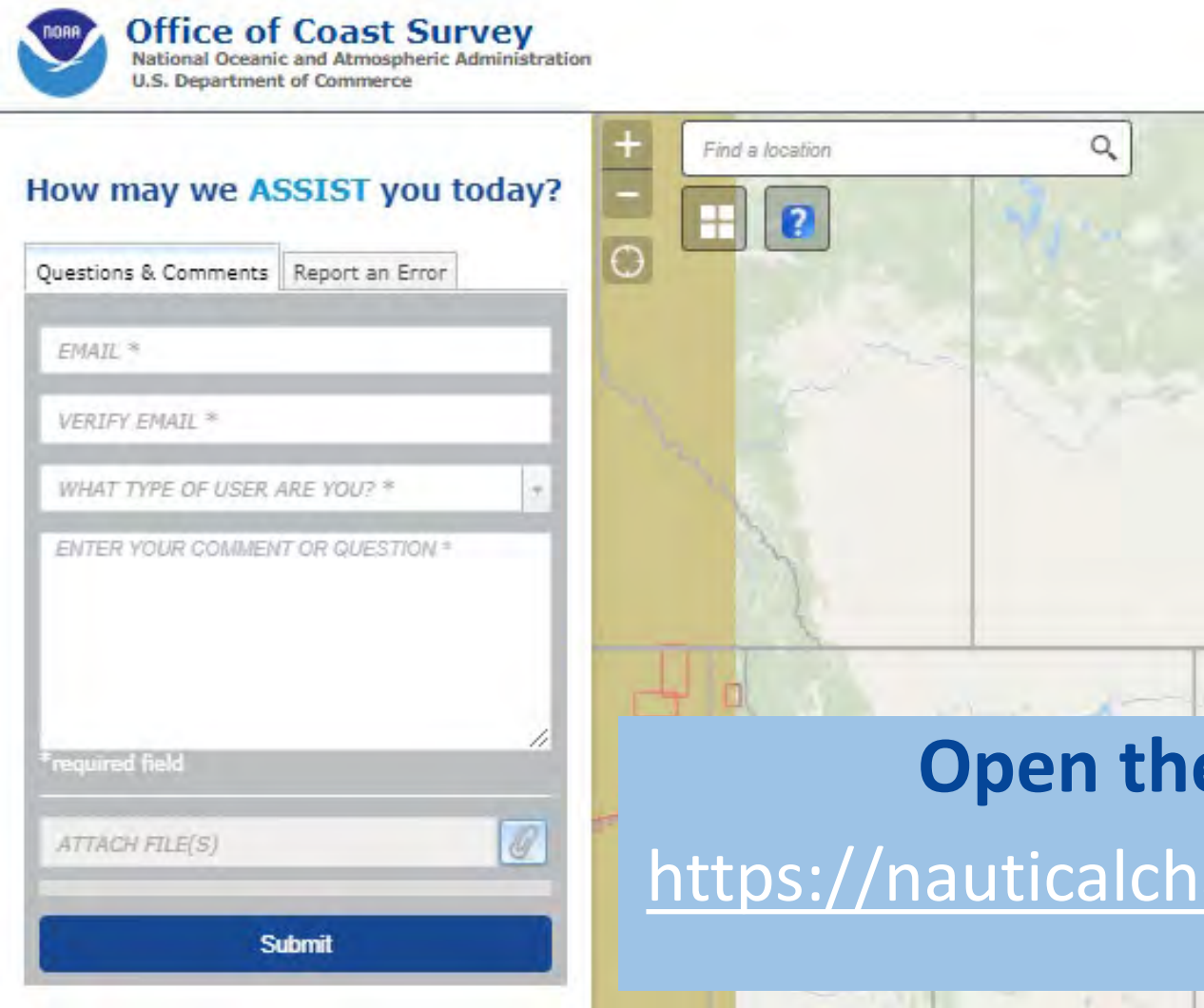
POWERED BY esri

GEBCO, IHO-IOC GEBCO, NGS, DeLorme

- Click the **feedback** link to submit comments through NOAA's online **ASSIST** form



# NOAA's online ASSIST form



The image shows a screenshot of the NOAA ASSIST form on the left and a nautical chart on the right. The form is titled "How may we ASSIST you today?" and includes fields for "EMAIL \*", "VERIFY EMAIL \*", "WHAT TYPE OF USER ARE YOU? \*", and "ENTER YOUR COMMENT OR QUESTION \*". There is also an "ATTACH FILE(S)" field and a "Submit" button. The nautical chart shows a coastal area with various navigational markers and a search bar at the top that says "Find a location".

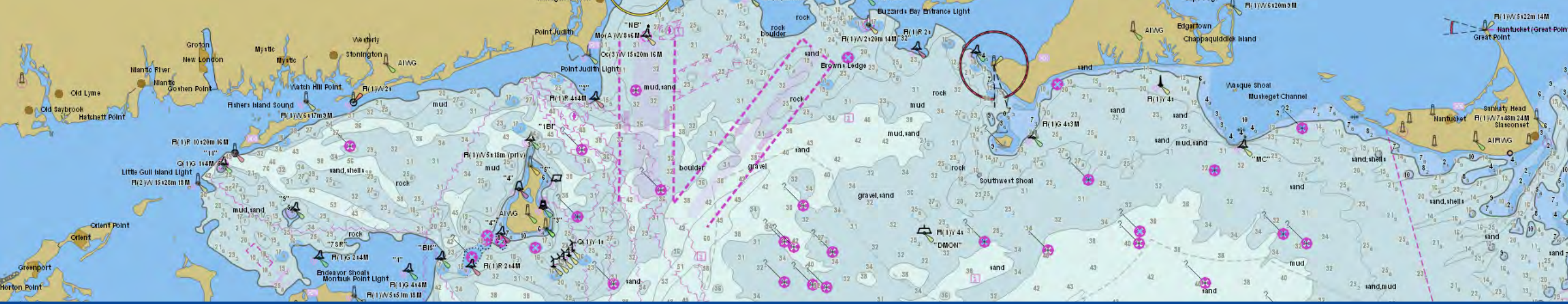
- Use NOAA's online ASSIST form to:
- Recommend improvements to the NOAA Custom Chart App
- Comment on the NOAA program to sunset traditional paper charts
- Report an error in any NOAA navigational product

Open the ASSIST comment from at:

<https://nauticalcharts.noaa.gov/customer-service/assist>







# *NOAA Custom Chart Web App*

## Create Paper Charts from NOAA ENC<sup>®</sup> Data

### - Basic Operation -



# Three easy steps to build a chart



## NOAA Custom Chart Prototype

Choose your own chart scale and location



Display Settings



Print Properties





Export Queue

- **Display Settings**
  - Define what a chart will look like
- **Print Properties**
  - Define size and scale of a chart
- **Export Queue**
  - Create and review a chart PDF

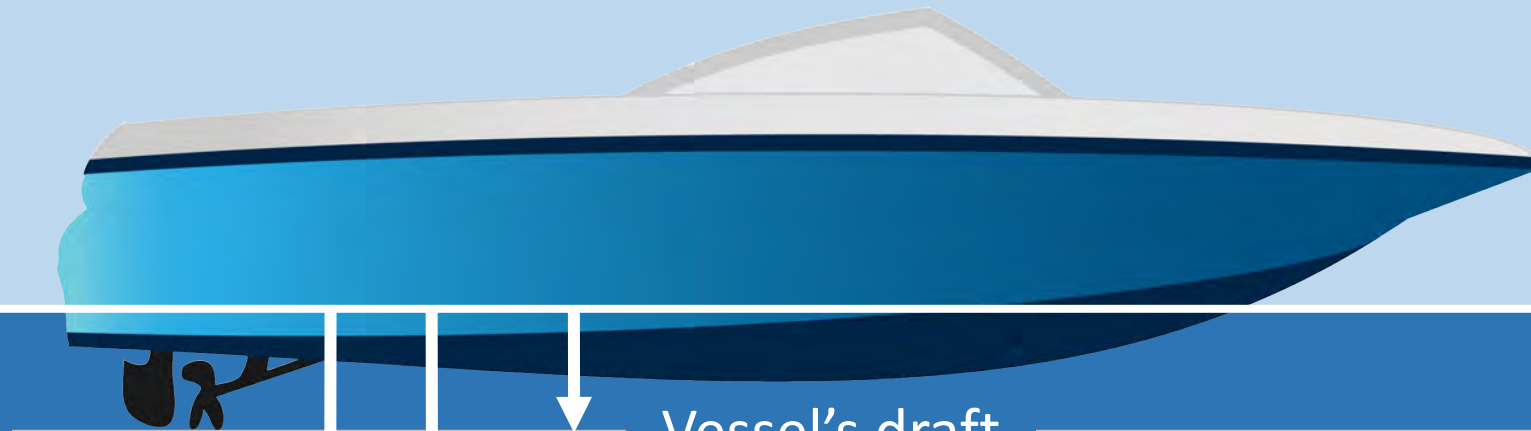


# Zoom into the area that you want a chart of

- Click the “Display Properties / Print Settings” icon 
- Zoom / pan to the area that you are interest in
- Click/hold left mouse button to pan
- Use  buttons or mouse wheel to zoom in and out



# How the “Safety Contour” is used in NOAA Custom Chart



Water line

Vessel's draft

NCC "Safety Contour" setting


Next deeper ENC depth contour

Safety factor added by user

Contour highlighted on chart



# Setting Depth Area Tints

 **NOAA Custom Chart Prototype**  
Choose your own chart scale and location

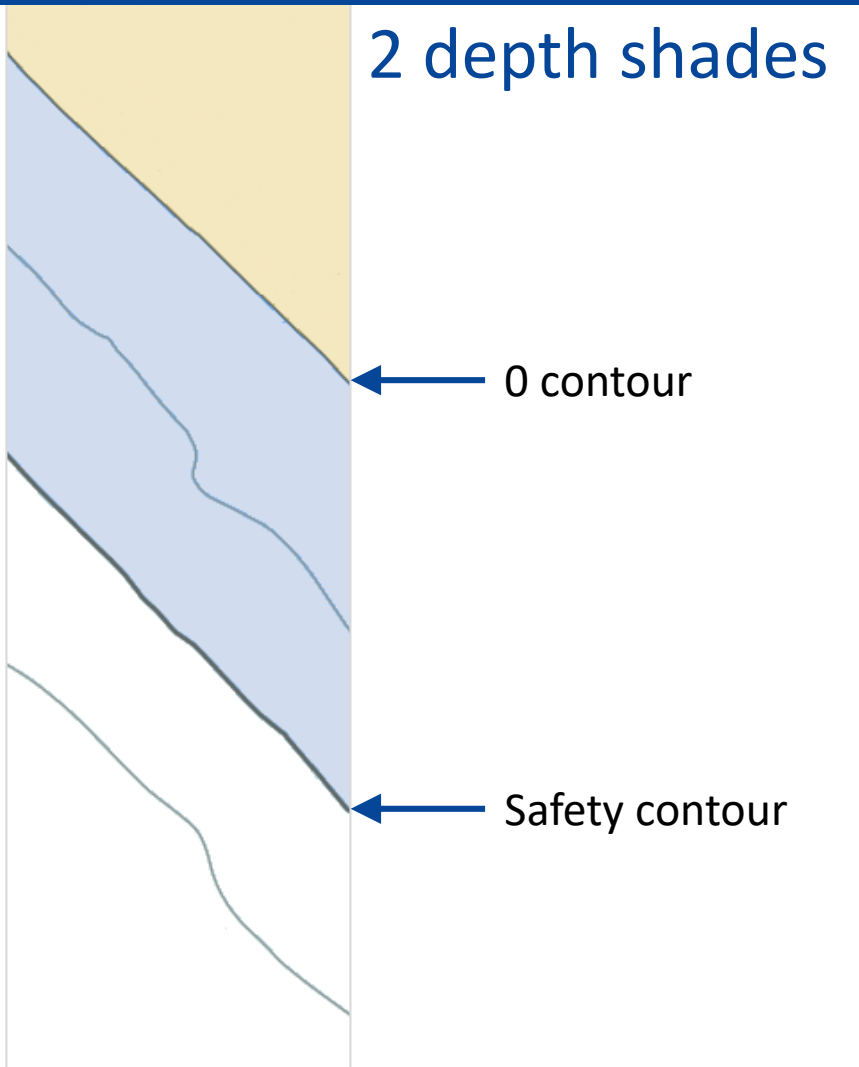
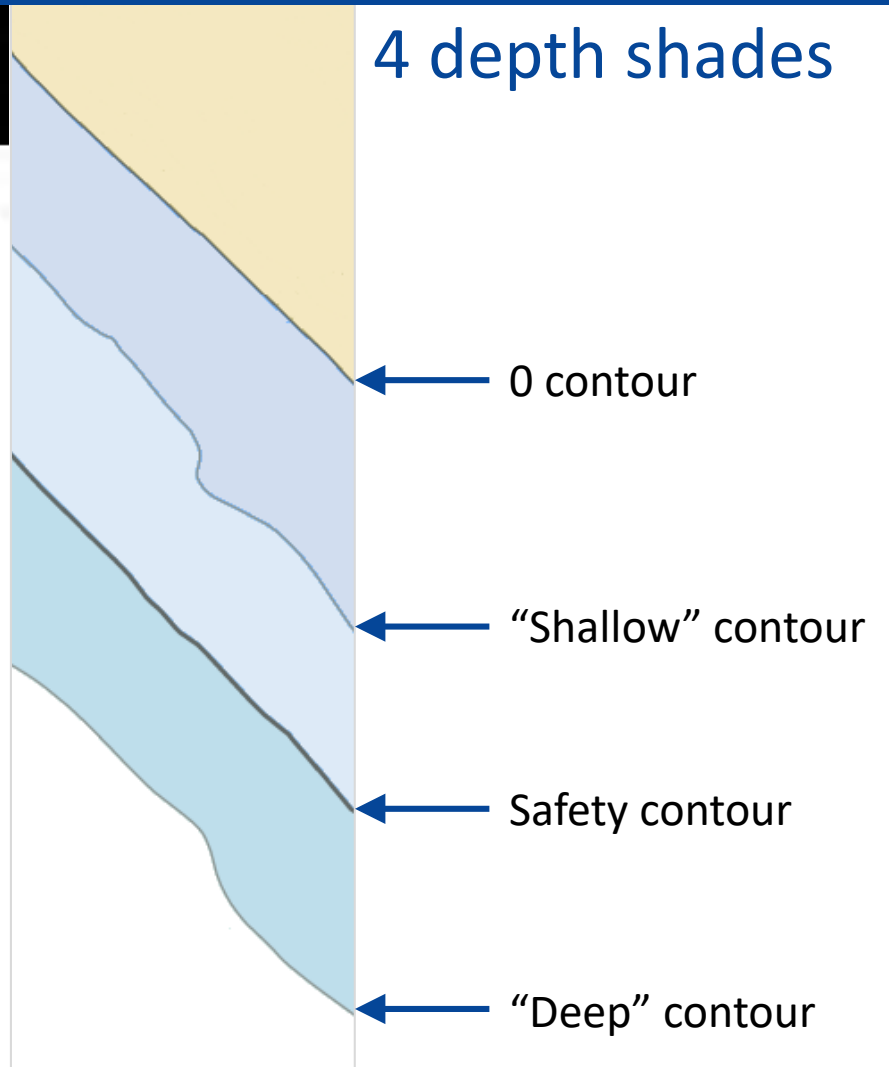
**Display Settings**

Depth Contour (Meters) Miscellaneous

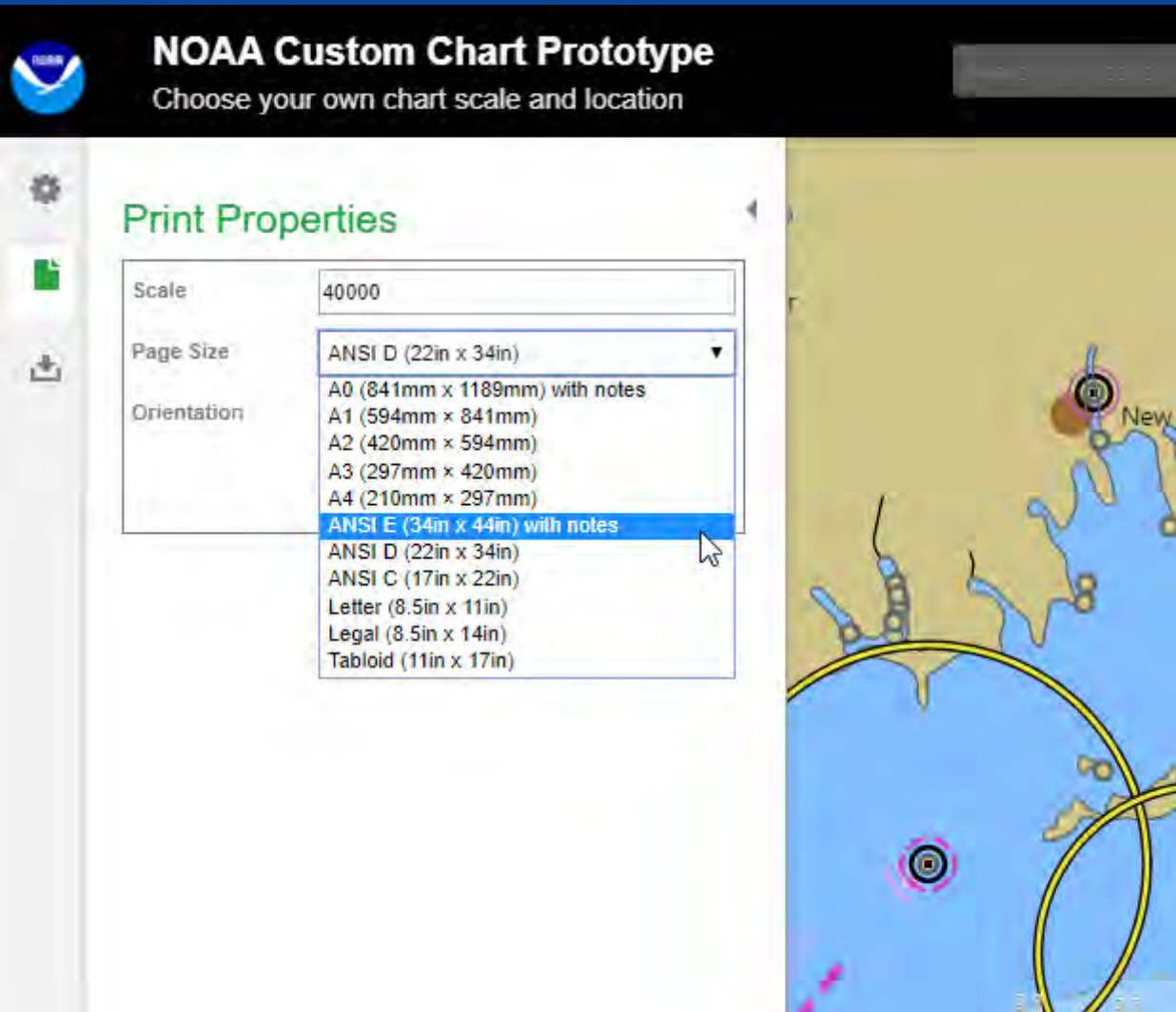
Shallow:

Safety:

Deep:



# Set Scale and Paper Size



**NOAA Custom Chart Prototype**  
Choose your own chart scale and location


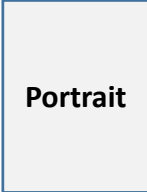


**Print Properties**

Scale: 40000

Page Size: ANSI D (22in x 34in)

Orientation: ANSI E (34in x 44in) with notes

ANSI D (22in x 34in)  
ANSI C (17in x 22in)  
Letter (8.5in x 11in)  
Legal (8.5in x 14in)  
Tabloid (11in x 17in)

- Click the “Define a Product / Print Properties” icon 
- Enter your chart scale without any commas. For example:  
for 1:40,000 enter “40000”
- Select a standard paper size from the “Page Size” list.
- Select either  or  from the “Orientation” list
- Click the  button



# Setting the chart location

NOAA Custom Chart Prototype  
Choose your own chart scale and location

Quick Start Feedback Home Guide

Print Properties



Scale: 40000

Page Size: ANSI E (34in x 44in) with notes

Orientation: Landscape

Apply


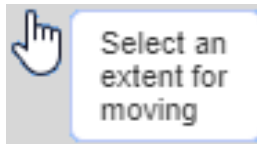
Click to add an extent

- Click the “Create a new extent” icon 
- Place the cross-hairs of the cursor  at the center of the area that you want a chart of
- Click the mouse to set the center and see the footprint of the chart that will be created
- Several chart extents can be set at a time and then exported later



# Adjusting a Chart Location

The screenshot displays the NOAA Custom Chart Prototype interface. On the left, the 'Print Properties' panel is open, showing settings for Scale (40000), Page Size (ANSI E (34in x 44in) with notes), and Orientation (Landscape). The main map area shows a coastal region with a red rectangle indicating the current chart extent. A mouse cursor is hovering over the top-left corner of this rectangle, with a tooltip that reads 'Select an extent for moving'. The map includes various navigational markers, soundings, and labels for locations like Cape Cod, Buzzards Bay, and Woods Hole.

- Click the “Move an extent” icon 
- Move the cursor  over the chart extent that you want to move, then click and drag the chart to the desired location



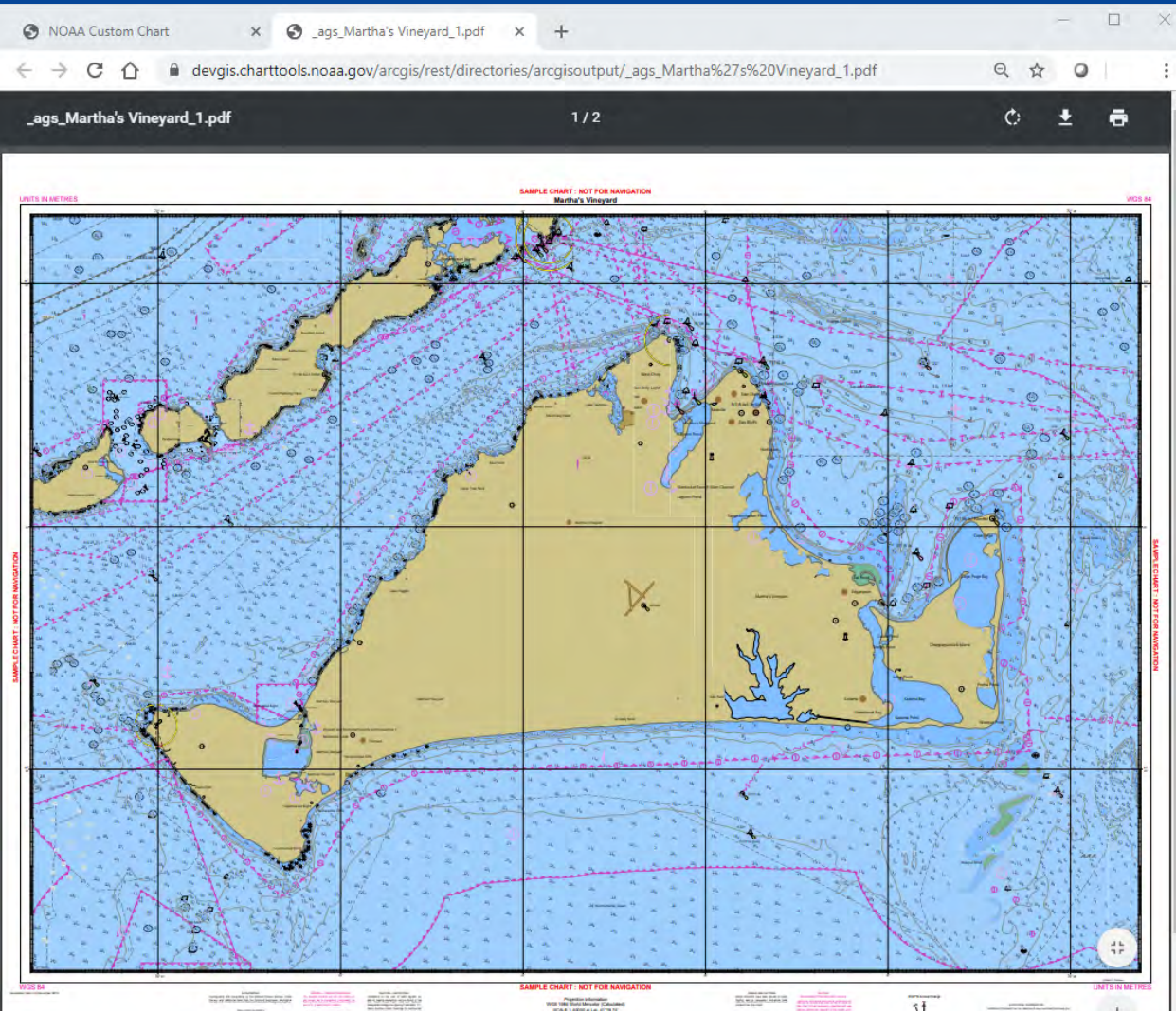


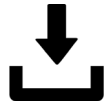

# Creating and Exporting a Chart

- Click the “Export Products / Export Queue” icon
- Click in the chart name field and replace “Chart\_1” text with an appropriate name for your chart
- Click on the “Export products” icon
- Progress bar will change to show an “Open” link when completed



# Saving the Chart PDF File



- Click the “download”  or “save”  icon, or select “save as ...” in your browser’s “file” menu to save the chart PDF to your computer.



# Deleting a Chart Extent

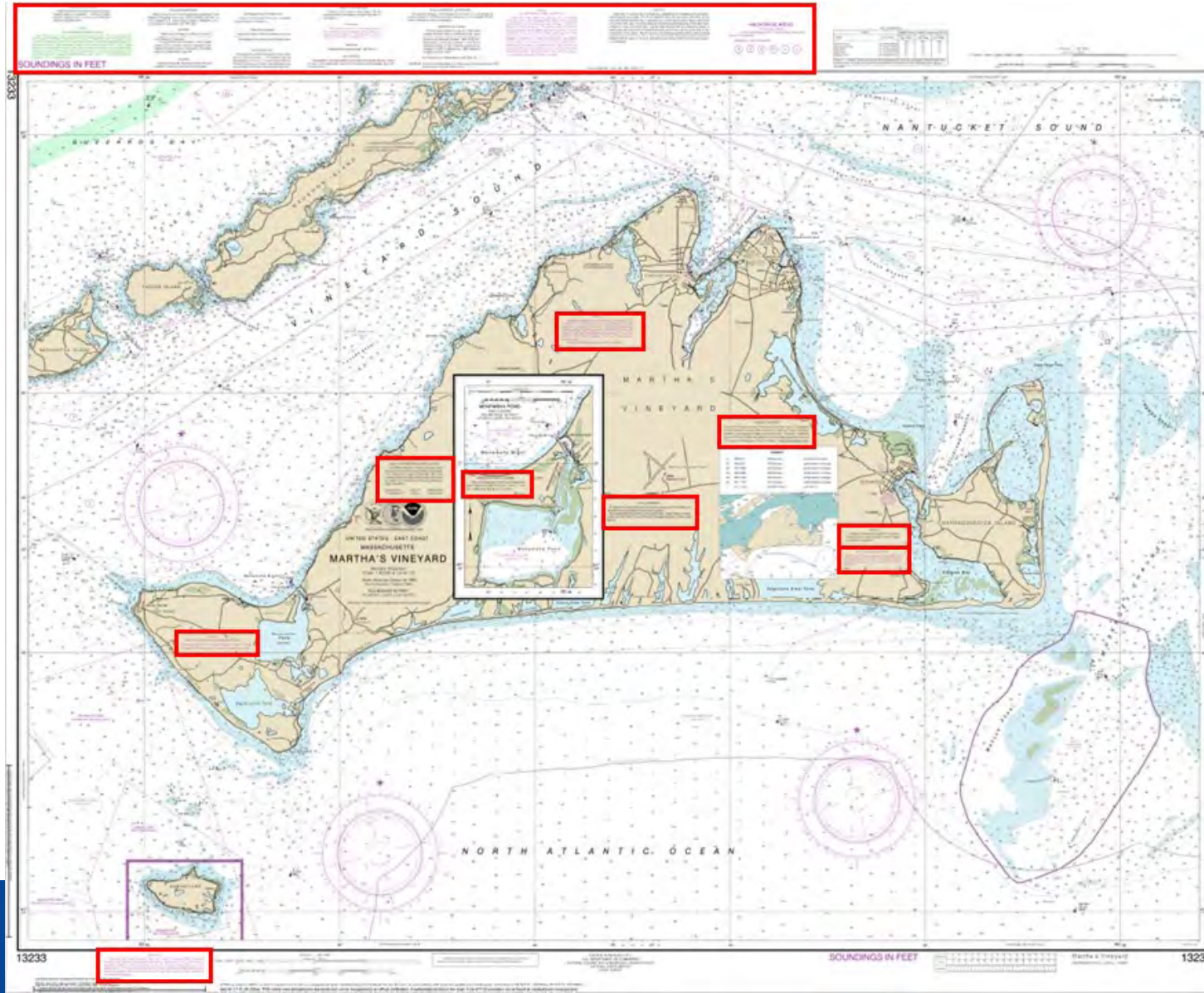
- Click on the “Export Products / Export Queue” icon 
- Click on one of chart extents shown in the Export Queue
- The chart will be highlighted in the map window
- Click on the “Delete” icon 
- Click “OK” to the “Are you sure you wish to delete selected products?” prompt.





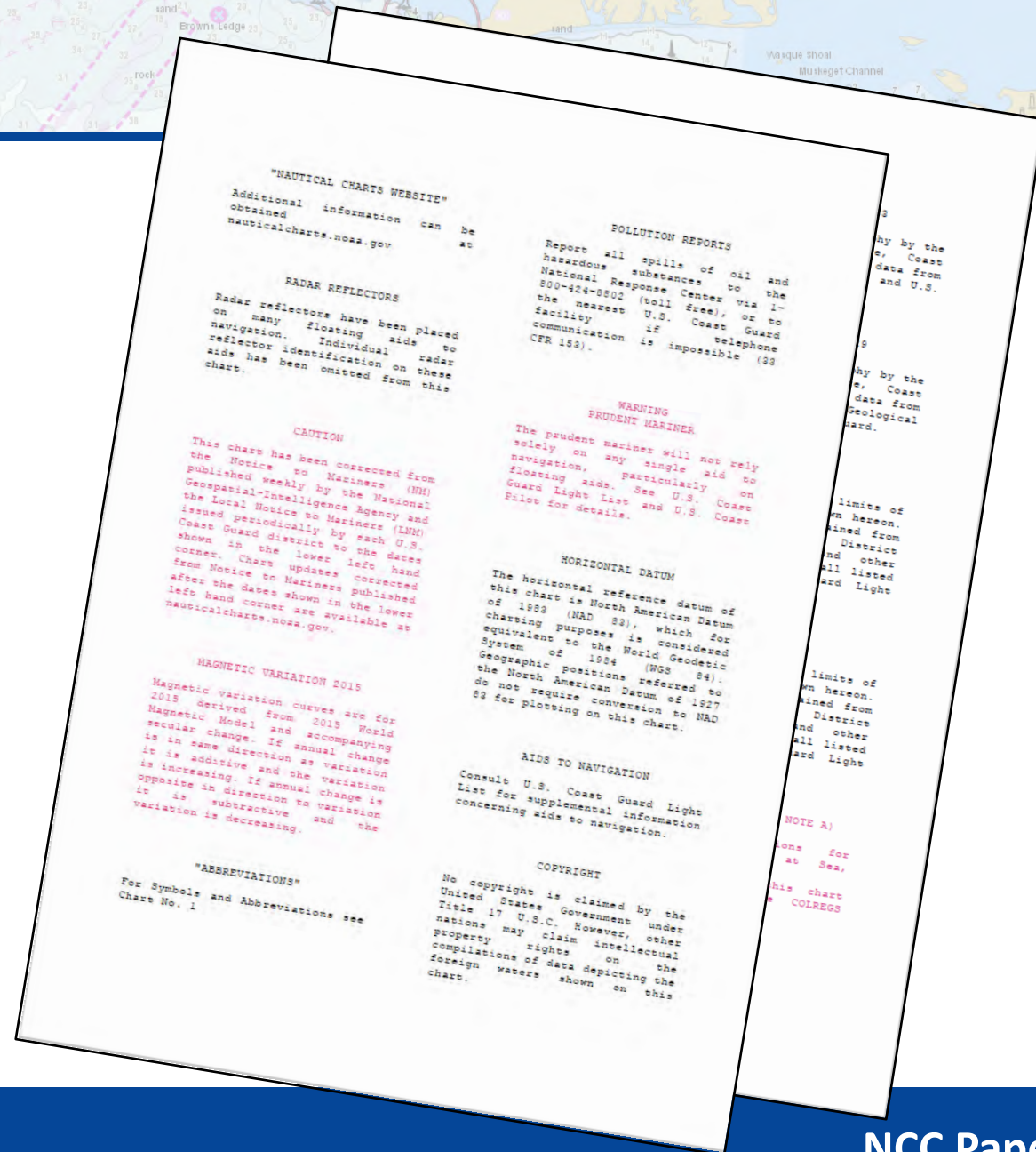
# Chart Notes on Traditional NOAA Paper Charts

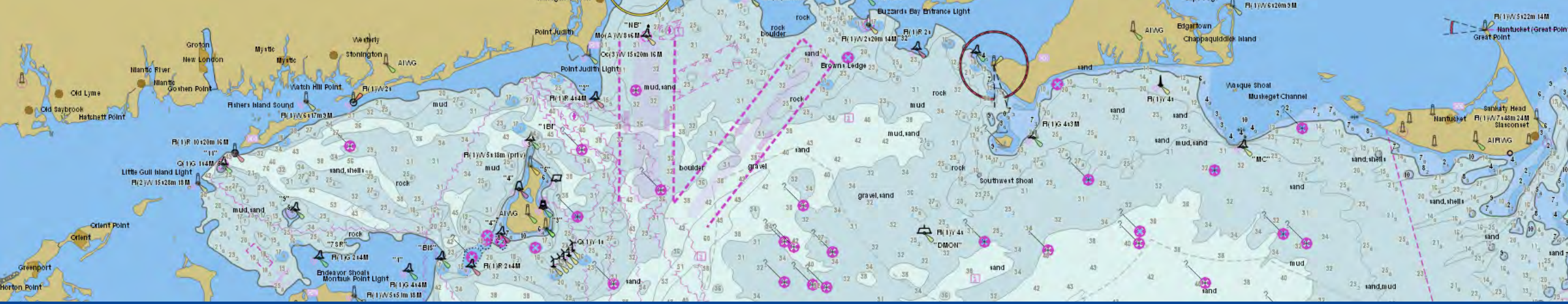
- On traditional NOAA paper nautical charts, notes are distributed throughout the chart image.



# Chart Notes on NCC Charts

- The NOAA Custom Chart app assembles all chart notes on a separate 8 ½” x 11” page after the chart image in the PDF file
- Other chart components, such as source diagrams, will also be placed on these “notes pages”





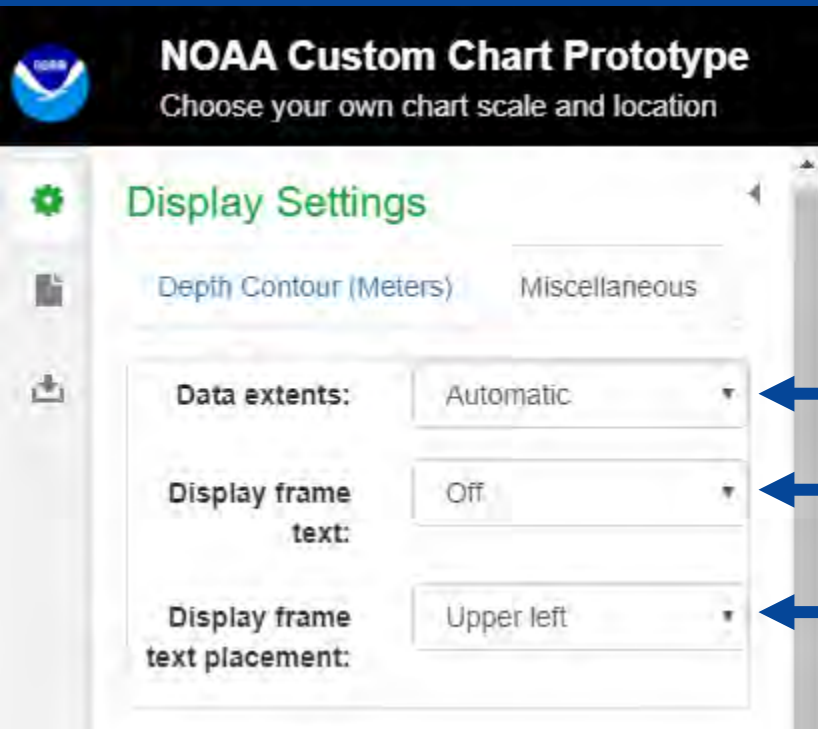
# *NOAA Custom Chart Web App*

## Create Paper Charts from NOAA ENC<sup>®</sup> Data

### - Advanced Settings -



# ENC Related Settings



The screenshot shows the NOAA Custom Chart Prototype interface. At the top, it says "NOAA Custom Chart Prototype" and "Choose your own chart scale and location". Below this, there are three tabs: "Depth Contour (Meters)", "Miscellaneous", and "ENC". The "ENC" tab is selected. Under the "ENC" tab, there are three settings:

- Data extents:** Set to "Automatic".
- Display frame text:** Set to "Off".
- Display frame text placement:** Set to "Upper left".

These settings will help you understand the underlying ENC data that the NCC charts are created from.

This information is not displayed on the finished NCC chart.

- ← Outlines the extent of individual ENC cells in magenta.
- ← Displays the Data Set Name (DSNM) of each ENC cell and its Compilation Scale (CSCL).
- ← Controls where the ENC name and scale are displayed within the magenta ENC outline.





# Determining the scale of available ENC data

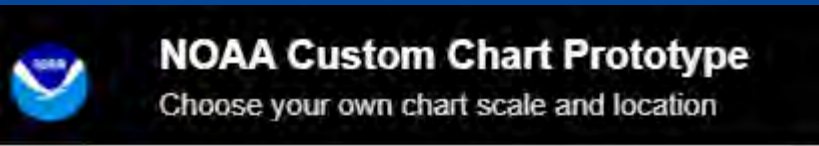
The screenshot shows the NOAA Custom Chart Prototype interface. The top navigation bar includes the NOAA logo, the title "NOAA Custom Chart Prototype", a search bar, and links for "Quick Start", "Feedback", and "Home". The "Display Settings" panel on the left is expanded, showing options for "Depth Contour (Meters)", "Miscellaneous", "Data extents", "Display frame text", and "Scale Bands". The main map area displays a coastal region with various ENC data overlays, including scale bands and chart footprints. Four callout boxes provide instructions: 1. "Set these to: 'On,' 'CSCL,' and 'Upper left'" points to the "Data extents", "Display frame text", and "Display frame text placement" dropdowns. 2. "Check the chart usage scale that you want to find" points to the "Scale Bands" list. 3. "Uncheck these boxes to turn off display of chart data" points to the "DISPLAYBASE", "STANDARD", and "OTHER" checkboxes. 4. "Scale of each ENC in the selected Scale Band is displayed in the top left corner the ENC footprint" points to a red circle around the "40000" scale band label on the map.

- NCC creates charts from ENC data.
- Scale of the NCC chart should be set to be close to the compilation scale of the available ENC data.

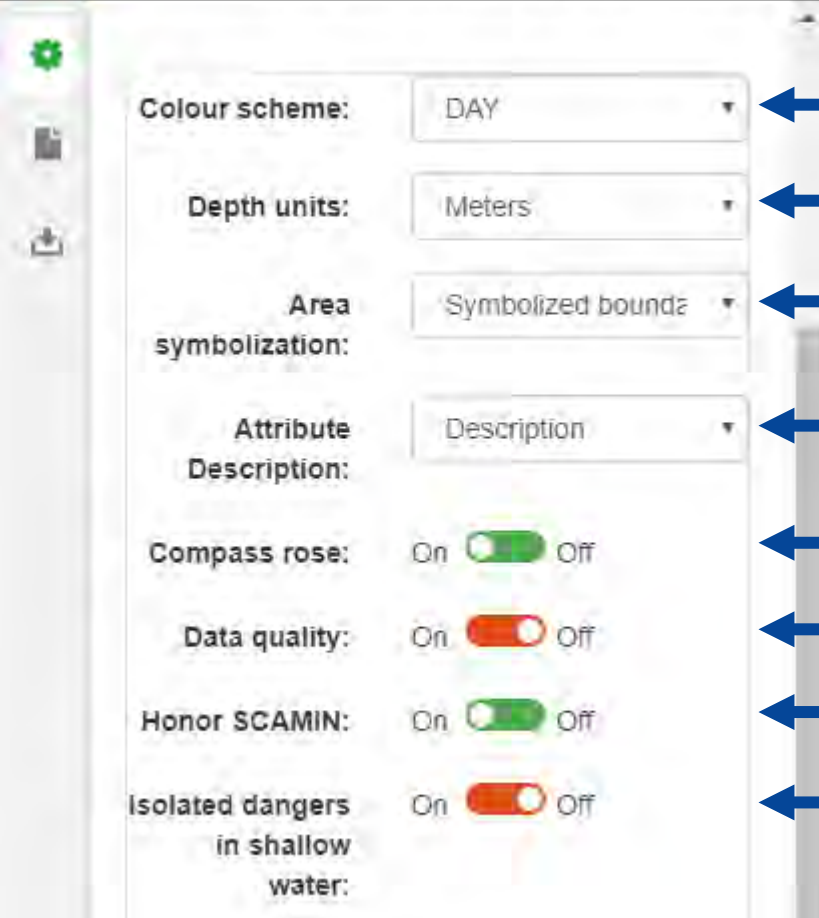
4 Scale of each ENC in the selected Scale Band is displayed in the top left corner the ENC footprint




# Symbolization Related Settings (1 of 2)



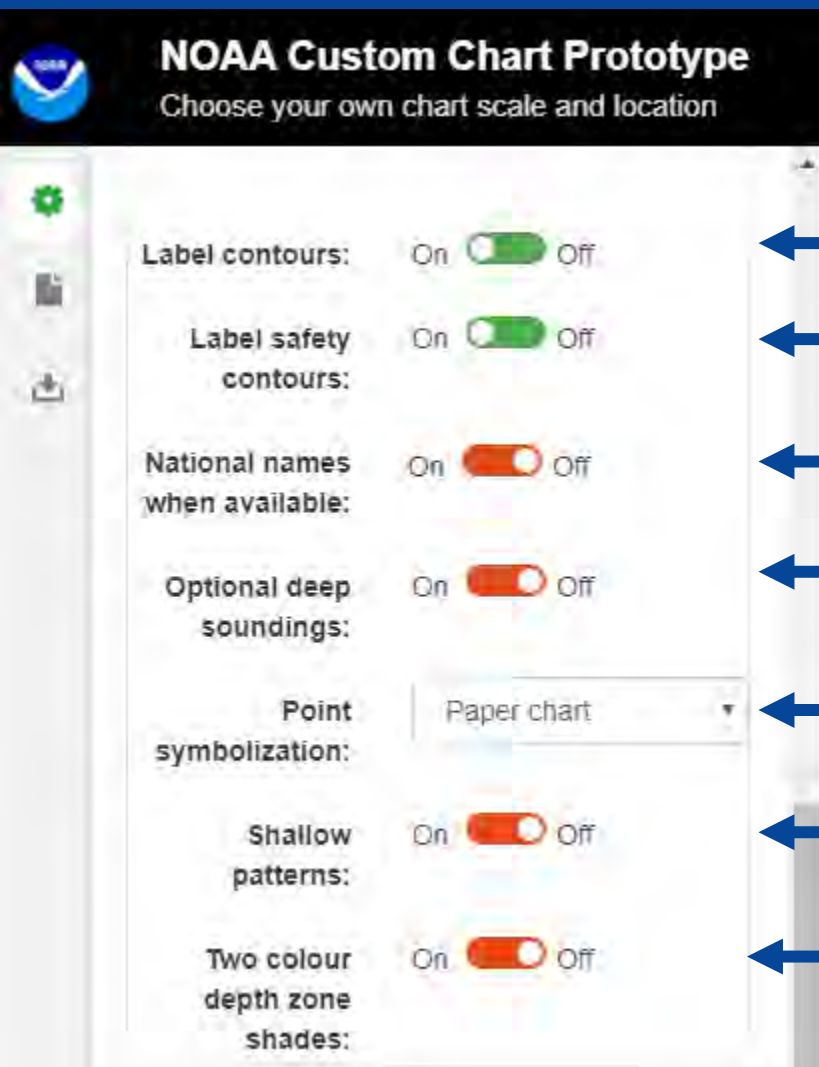
These settings change how features are shown on the chart. Some controls will change or be removed in future versions.



- ← ECDIS setting. Leave set to “Day.”
- ← Select how to display depths in meters, feet, or fathoms.
- ← Area features, such as anchorages, can be displayed “plain” or “symbolized” boundaries.
- ← ECDIS Setting. Leave set to “Description.”
- ← Set to “On” to show compass roses.
- ← ECDIS Setting. Leave set to “Off.”
- ← ECDIS Setting. Leave set to “On.”
- ← Toggles the display of the ECDIS “isolated danger” symbol  in shallow areas. This symbol will be removed in a future NCC version. Always set to “Off.”



# Symbolization Related Settings (2 of 2)



These settings change how features are shown on the chart. Some controls will change or be removed in future versions.

- ← Displays the value of each depth contour. Set to “On.”
- ← Displays the value of the darker Safety Contour. Set to “On.”
- ← ECDIS Setting. Leave set to “Off.”
- ← ECDIS Setting. Leave set to “Off.”
- ← Aids to navigation, such as buoys, may be displayed with “Paper chart” symbols or “Simplified” geometric shapes. Select “Paper Chart” for a more familiar representation of AtoNs.
- ← ECDIS Setting. Leave set to “Off.”
- ← Controls whether depth areas are displayed with two of four shades.



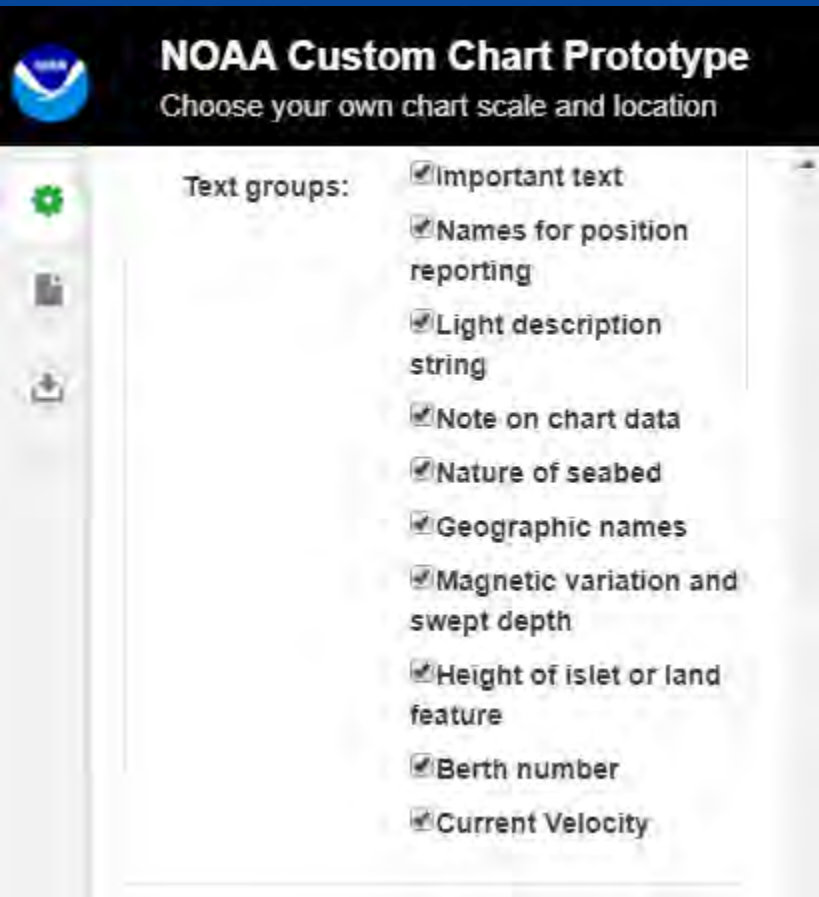
# Scale Bands and Display Categories



- As discussed earlier, the scale bands settings control which scales of ENC's are displayed in the NOAA Custom Chart map window
- The display categories settings control different sets of features that can be turned on and off in an ECDIS navigation system.
  - We recommend that these are all checked on whenever you create a custom chart.



# Text Related Settings



- These text group settings control various sets of text that can be displayed or suppressed when creating your custom chart
- You are encouraged to experiment with turning these on and off to see how the display is changed.





**Thank you for joining us!**

**Please submit any questions or comments  
through NOAA's online ASSIST tool at:**

**<https://nauticalcharts.noaa.gov/customer-service/assist>**



## How to obtain NOAA ENC-based paper nautical charts, January 9, 2020

**NOAA Nav-cast**  
A webcast series featuring NOAA navigation service's topics, tools, & trends

**Register Now!**  
<https://attendee.gotowebinar.com/register/7410207397804043779>

**How to obtain NOAA ENC-based paper nautical charts**  
after NOAA ends production of traditional paper charts

January 9, 2020 | 2 p.m. (EST)

Recently, [NOAA announced](#) the start of a five-year process to end traditional paper nautical chart production. While NOAA is sunsetting its traditional nautical chart products, it is undertaking a major effort to improve the data consistency and provide larger scale coverage within its electronic navigational chart ([NOAA ENC®](#)) product suite. Over the next five years, NOAA will work to ease the transition to ENC-based products, such as providing access to paper chart products based on ENC data. The online NOAA Custom Chart prototype application enables users to create their own charts from the latest NOAA ENC data. Users may define the scale and paper size of custom-made nautical charts centered on a position of their choosing. Users may then download, view, and print the output. The application is an easy way to create a paper or digital backup for electronic chart systems.

This webcast provides an overview of the sunsetting process and a live demonstration of the NOAA Custom Chart prototype, including a discussion of the improvements that are planned for the prototype. **Comments may be submitted through NOAA's online [ASSIST](#) feedback tool.**

### Presentation Materials

[Presentation Slides](#)

[Recorded Session](#)

[Transcript](#)

### About the Presenters



**Capt. Chris van Westendorp** is the chief of NOAA Office of Coast Survey's Navigation Services Division.



**Colby Harmon** is a cartographer and project manager in NOAA Office of Coast Survey's Marine Chart Division.

***Compilation***, The process by which cartographers take new data and use it to create or update an existing map or chart.

***ECDIS - Electronic Chart Display and Information System***, The navigation system used on large commercial vessels as required by the International Maritime Organization.

***ENC - Electronic Navigational Chart***, NOAA's premier, digital navigational chart product, used in ECDIS and several simpler chart display systems.

***SCAMIN - Scale Minimum***, A setting used in ECDIS systems to suppress the display of certain features when a chart display is zoomed out to a predetermined scale.