



IHO

International  
Hydrographic  
Organization

ARHC13



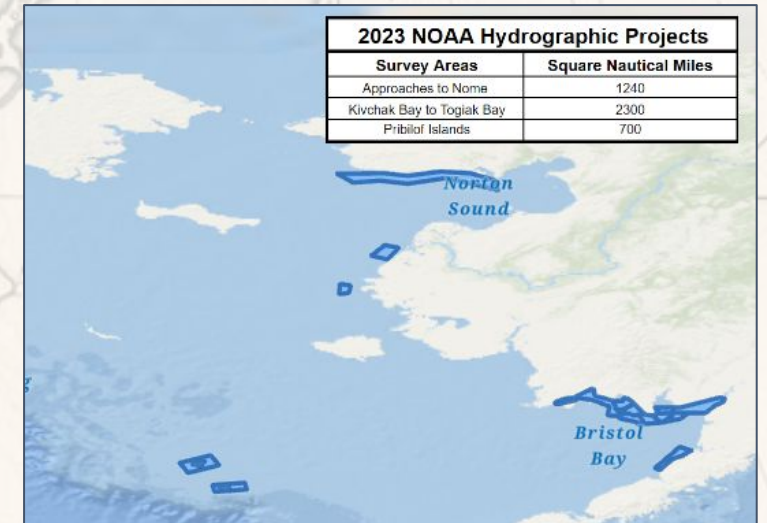
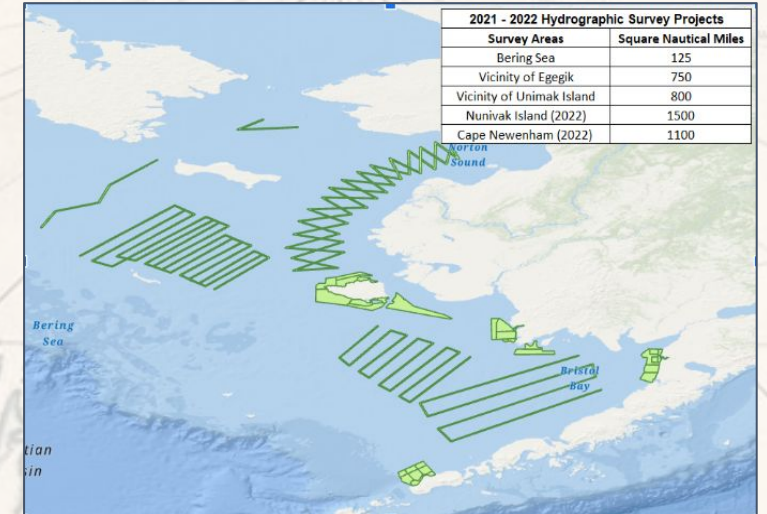
# 13<sup>th</sup> Meeting of the Arctic Regional Hydrographic Commission

National Report by  
United States of America

Nuuk Greenland | 5-7 September 2023

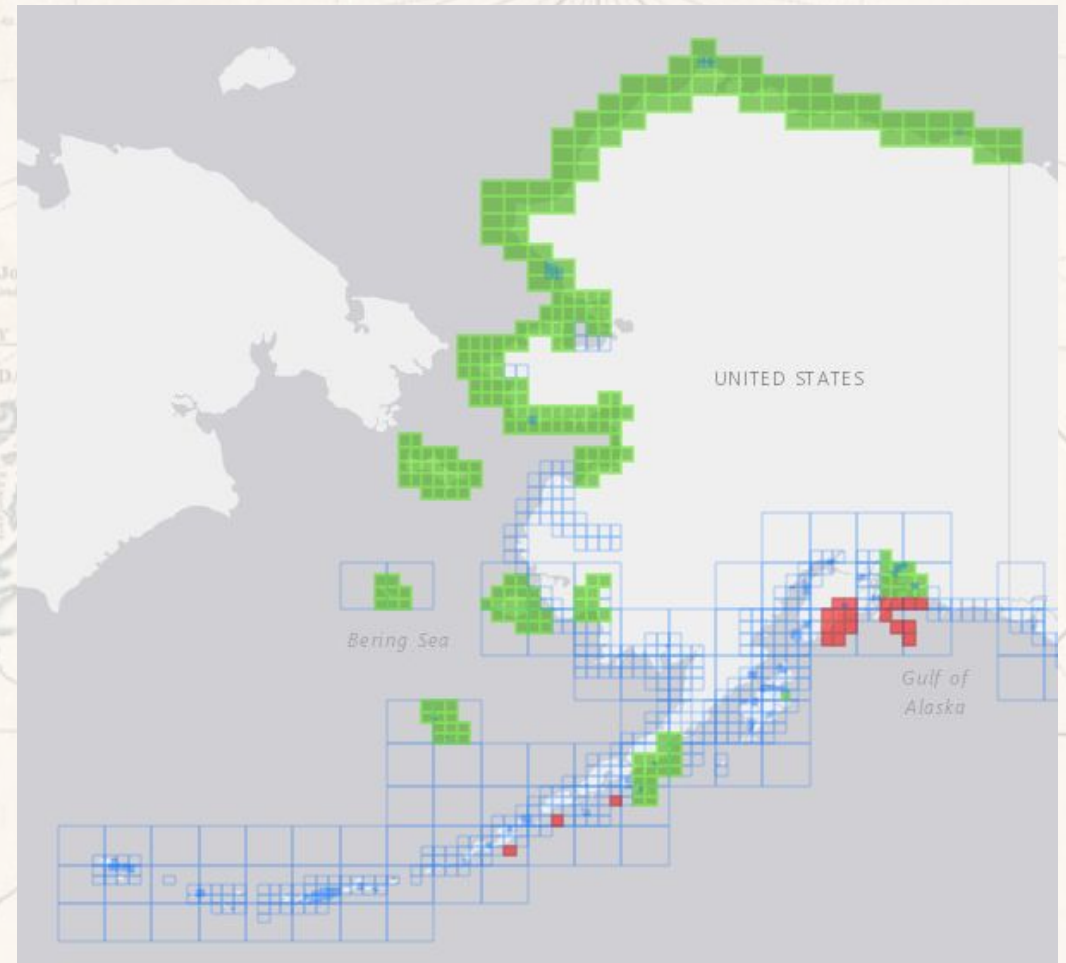
## Progress on Surveys

- As of July 2023, [NOAA has surveyed](#) approximately 2800 square nautical miles (SNM) of Arctic seafloor across four separate projects during the 2023 field season
- In 2023, three Arctic hydrographic surveys are planned to provide updated bathymetry in over 4200 SNM of Arctic waters
- Continued investigation into operationalizing Uncrewed Systems (UxS) and Autonomous Surface Vehicles (ASVs)
  - Approaches to Nome, Alaska
  - To date, UxS have been employed to collect over 1,000 LNM of Arctic survey data so far this year
- NGA's Satellite Computed Bathymetry Assessment (SCuBA) is currently being evaluated for use in enhancing other forms of satellite derived bathymetry and as a primary source for some safety of navigation products



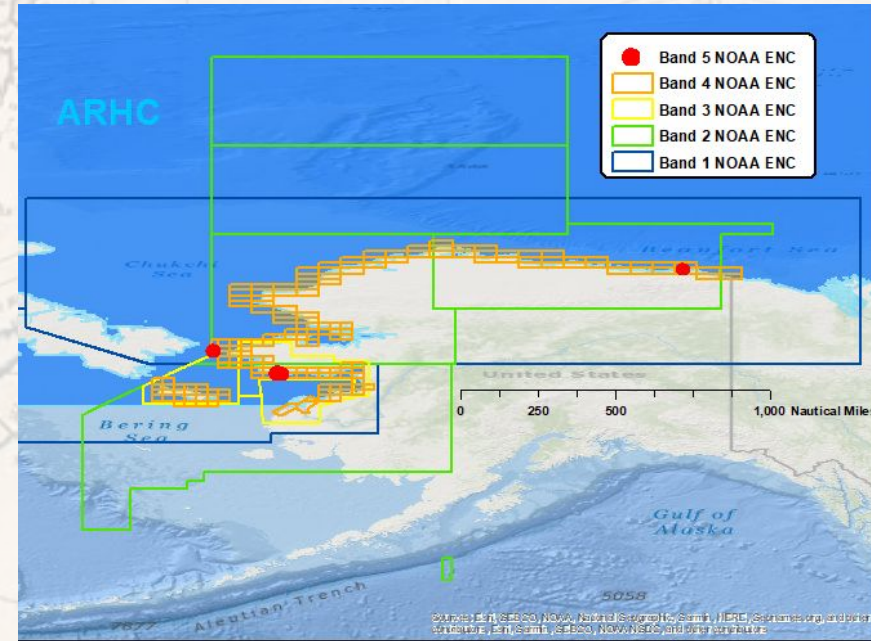
## Progress on Charting

- NOAA rescheming will create 7230 new ENC cells, about 1400 over Alaska
- NOAA has canceled 80 paper charts in Alaska. All NOAA paper charts will be canceled by Jan 2025
- NOAA now maintains 510 ENCs and 74 remaining paper charts over Alaska
- NOAA [Custom Chart Tool ver 2.0](#) has been released
- NOAA is starting to refine the details of a high-level S-101 transition plan
- NGA's Maritime Safety Office has begun its transition of Vector Product Format (VPF) Digital Nautical Charts (DNC) to S-57 ENCs
- NGA is creating a Worldwide ENC grid for use in building a future ENC portfolio, and assisting with S-100 transition



# NOAA ENC “Adequacy”

- What does “Adequacy” mean in the ARHC?
- The US National Report includes an exercise analyzing CATZOC coverage of NOAA ENC’s in IHO Region N (ARHC)
- 27% of Band 4 ENC CATZOCs are attributed as “A1”, “A2”, or “B”



**NOAA Band 4 ENC M\_QUAL CATZOC in Region N (ARHC)**

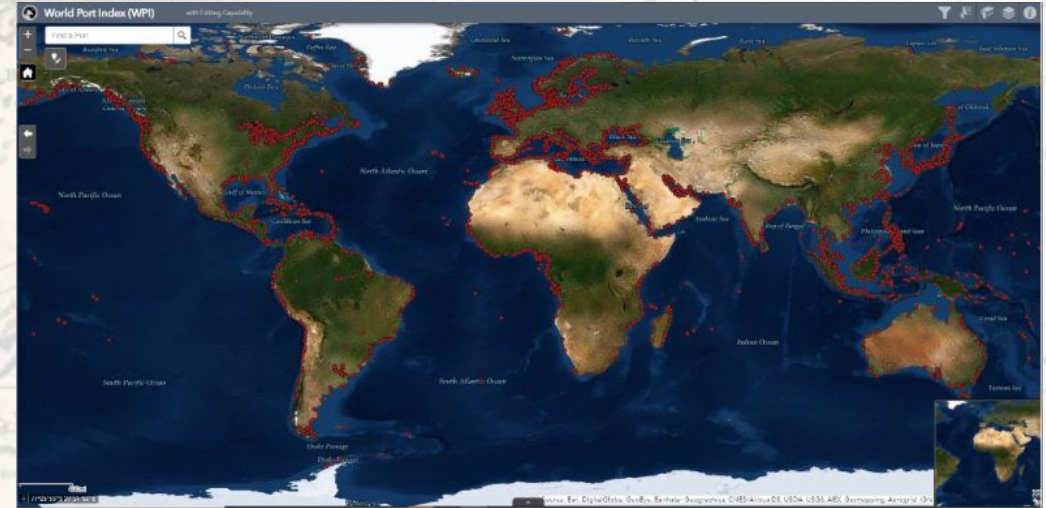
M_QUAL CATZOC	Area (Sq Km)	Percentages
1 A1	4,789.48	3.54%
2 A2	409.08	0.30%
3 B	31,756.61	23.49%
4 C	24,917.88	18.43%
5 D	70,767.65	52.35%
6 - Unassessed	2,534.51	1.87%
<b>Total Area =</b>	<b>135,175.21</b>	
<b>Adequate Area =</b>	<b>36,955.17</b>	<b>27.34%</b>

## World Port Index

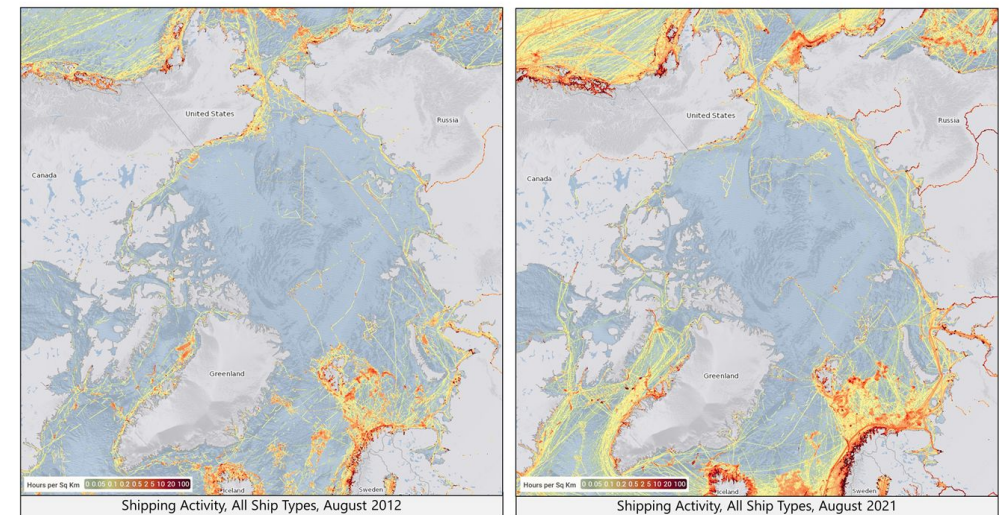
- WPI data also appears on IHO's [INToGIS](#)

## Global Maritime Traffic Density Service (GMTDS)

- The GMTDS was used in the Arctic hydrographic risk assessment 2023 update reported by the OTWG
- Publicly available for view, download, and API access via: <https://msi.nga.mil/MiscProducts>



Circumpolar Shipping, All Ship Types, August 2012 & August 2021

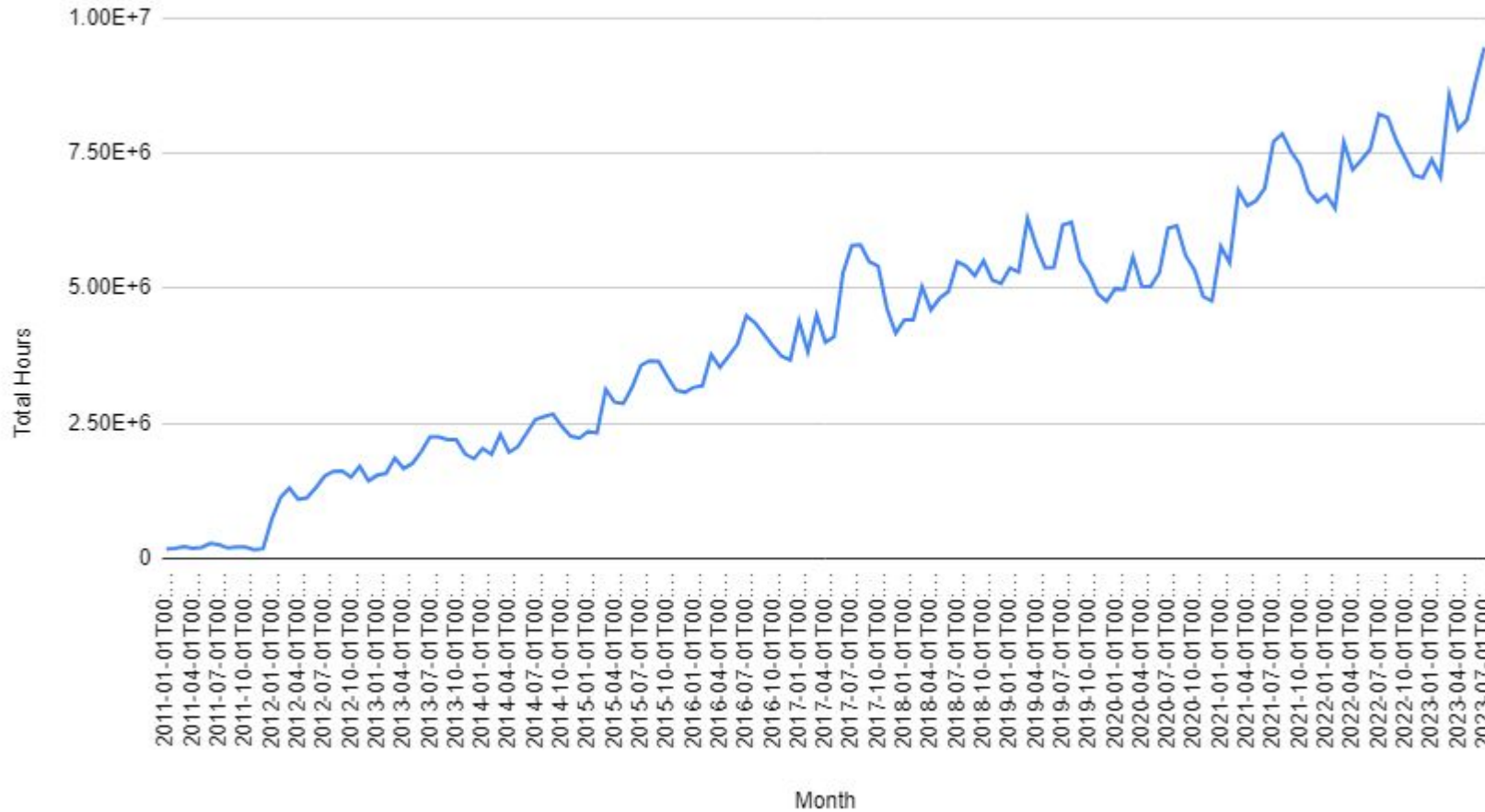


Map visualization depicts total ship hours (ShHr) of activity per square kilometer (km<sup>2</sup>), not absolute ship numbers or counts. The increase in ShHr/km<sup>2</sup>, as well as geographic distribution of ship activity, is clearly identifiable between the circumpolar map from August 2012 compared to August 2021.



# Global Maritime Traffic Density Service (GMTDS) Arctic

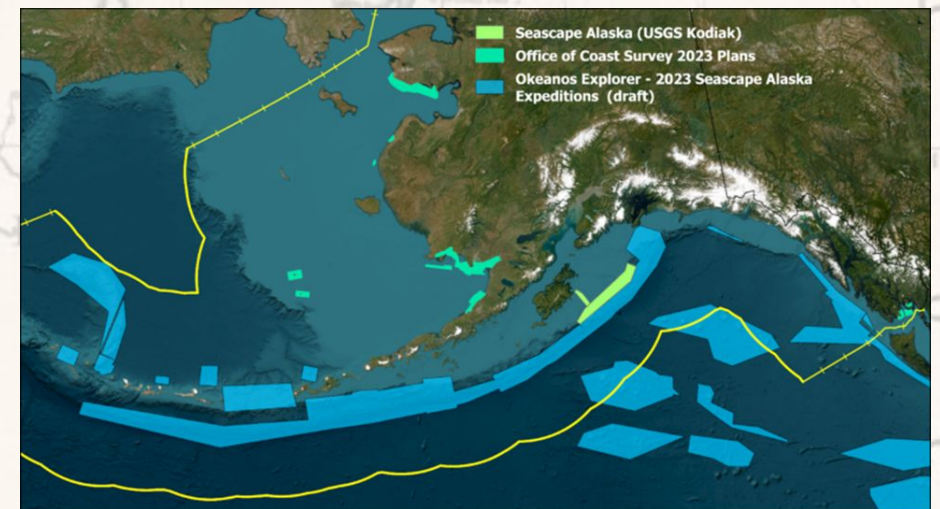
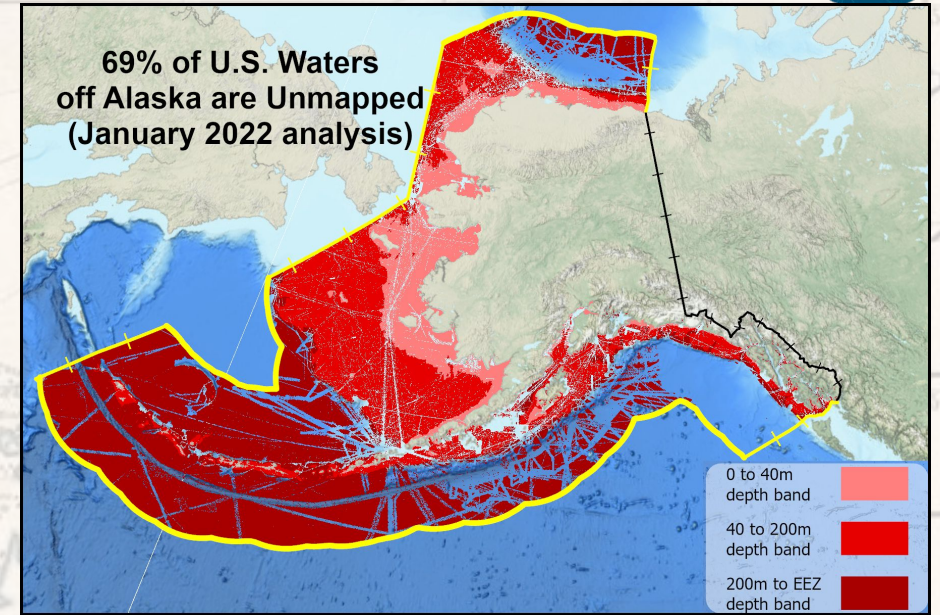
USARC Arctic Boundary GMTDS Hours



YEAR	TOTAL GMTDS HOURS
2011	2,564,889
2012	16,169,655
2013	23,093,235
2014	27,467,087
2015	37,200,673
2016	45,765,711
2017	57,399,384
2018	60,091,427
2019	66,311,009
2020	63,725,739
2021	81,792,122
2022	81,925,826
2023 (Proj)	98,259,303

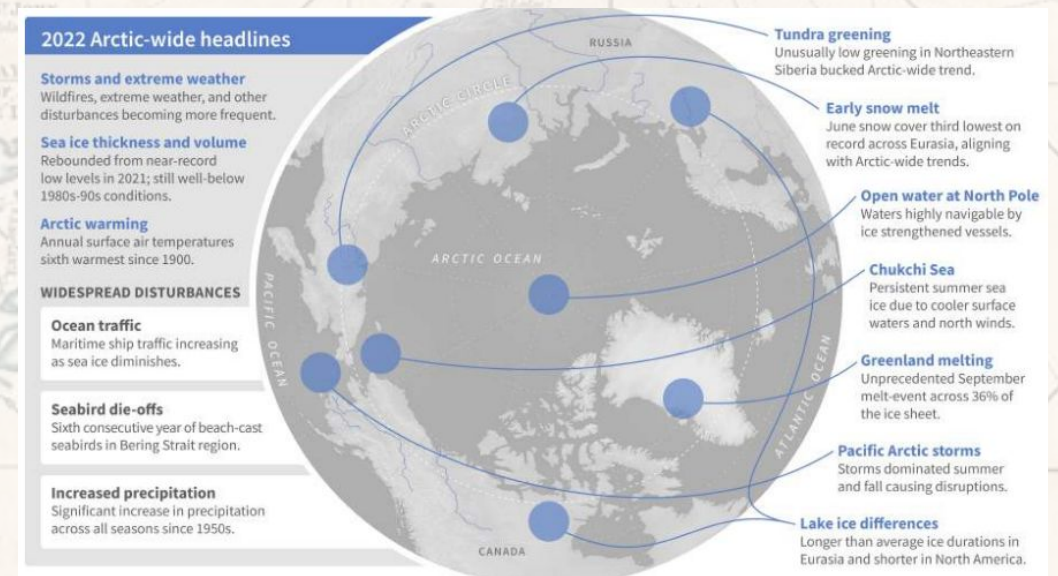
## Mapping Alaska Adjacent Waters

- Seascope Alaska initiative launched in 2021
  - Regional campaign supporting NOMEAC to fully map the U.S. waters off Alaska, focused on accessible, high quality modern seabed data through collaboration
  - [The UN's IOC endorsed Seascope Alaska as a new Ocean Decade Action in August 2023](#)
- Alaska Coastal and Ocean Mapping Summit (November 16-17 2022)
- 66% of coastal and ocean waters adjacent to Alaska are unmapped to modern standard
  - Improved from 69% in 2022



# Arctic Report Card

- The 2022 [Arctic Report Card](#) shows *rapid and pronounced warming continuing to drive the evolution of the Arctic environment*
- Arctic Navigation - multi-year ice disappearing, vessel traffic increasing, new concerns
- Arctic Report Card 2023 expected in December



2022 Arctic Wide Highlights (Arctic Report Card)



## GEBCO

- NOAA Assistant Administrator for Ocean Services is now US Permanent Rep to IOC
  - Nicole LeBoeuf
- NOAA Deputy Asst. Administrator Rachael Dempsey attended GEBCO alumni event

## Empowering Women in Hydrography

- Six international female hydrographers have been hosted on NOAA vessels in 2022 and 2023
- Call for applicants will be posted in January / February 2024 timeframe to the [IHO's Empowering Women in Hydrography webpage](#)



Rachael Dempsey meets Victoria Obura,  
EWH Candidate from Kenya

## Main Challenges and/or Obstructions

- Operational limitations related to COVID-19 persist
  - Reviving arrangements made before COVID - Thank you CHS & CCGC Henry Larson
- Continued partnership building to increase data availability
- Effective engagement with indigenous communities
- Workforce Development
- Unique challenges of mapping the Arctic
  - Limited operational window
  - Limited infrastructure
  - Seasonable accessibility





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OFFICE OF COAST SURVEY FY23-27 STRATEGIC GOALS SUMMARY

### MISSION

Provide the nation with navigation services that support ocean-going commerce and coastal economies, keep people safe and secure, and protect coastal environments.

### VISION

The nation's economy is stronger, vessel navigation is safer, and coasts are more resilient.

### TAGLINE

Navigate with confidence.

### GOALS

1 Expand and strengthen U.S. capabilities to acquire high-value ocean and coastal geospatial data



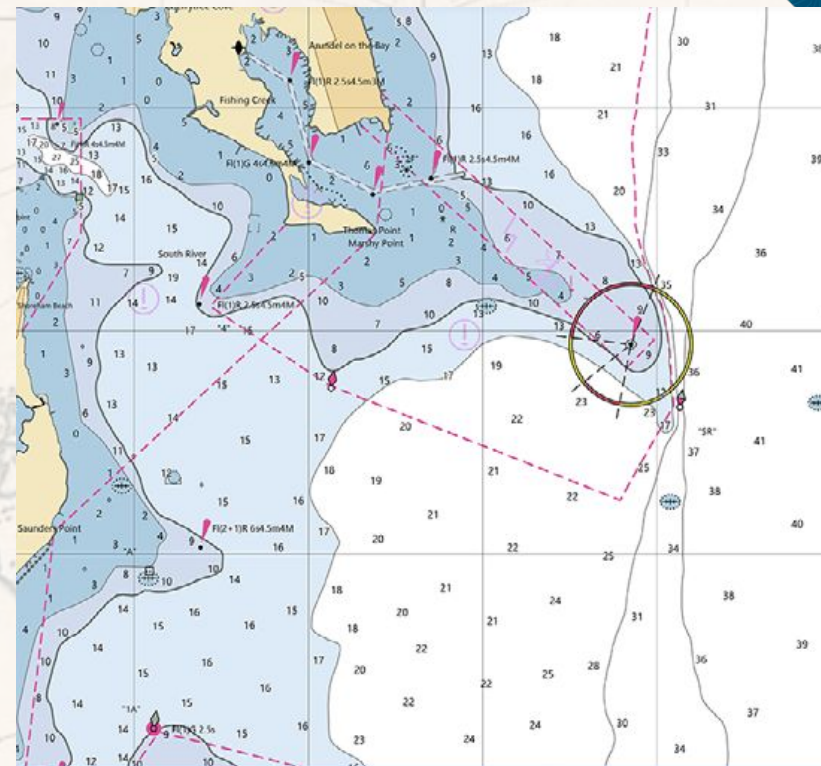
2 Deliver products and services that advance safe navigation, increase coastal resilience, and support data-driven decision making



3 Enhance and sustain a highly skilled, diverse, and thriving workforce



4 Evolve Coast Survey's systems and processes to improve timely product development and delivery



## Nautical Charting Plan

Office of Coast Survey | Marine Chart Division

August 2023

# NOAA Center of Excellence for Operational Ocean & Great Lakes Mapping

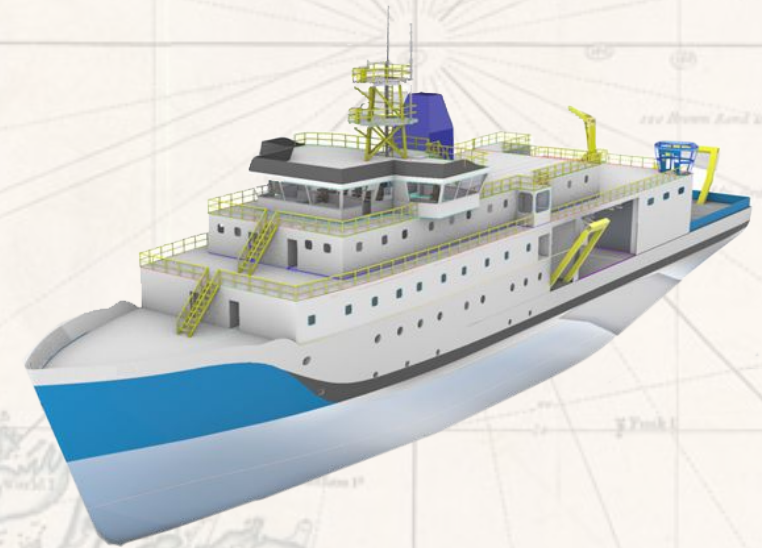
- **Four pillars**
  - Provide technical systems support to the full range of crewed and uncrewed NOAA mapping vessels
  - Develop and provide practical training for NOAA and the entire ocean mapping community including private sector personnel and aspiring entrants to the workforce.
  - Drive transition of research to operations
  - Foster public-private partnerships in the ocean mapping community
- **Work in unison with the Joint Hydrographic Center at the University of New Hampshire**



*NOAA ship Fairweather navigating through Alaska's coastal waters.*

# NOAA Mapping and Charting Vessel Contract Awarded

- July 2023: [Contract awarded to build two new vessels](#)
- Will replace NOAA Ships *Rainier* and *Fairweather*
- Optimized for flexible blend of crewed and uncrewed systems
- Expected delivery: 2027 & 2028





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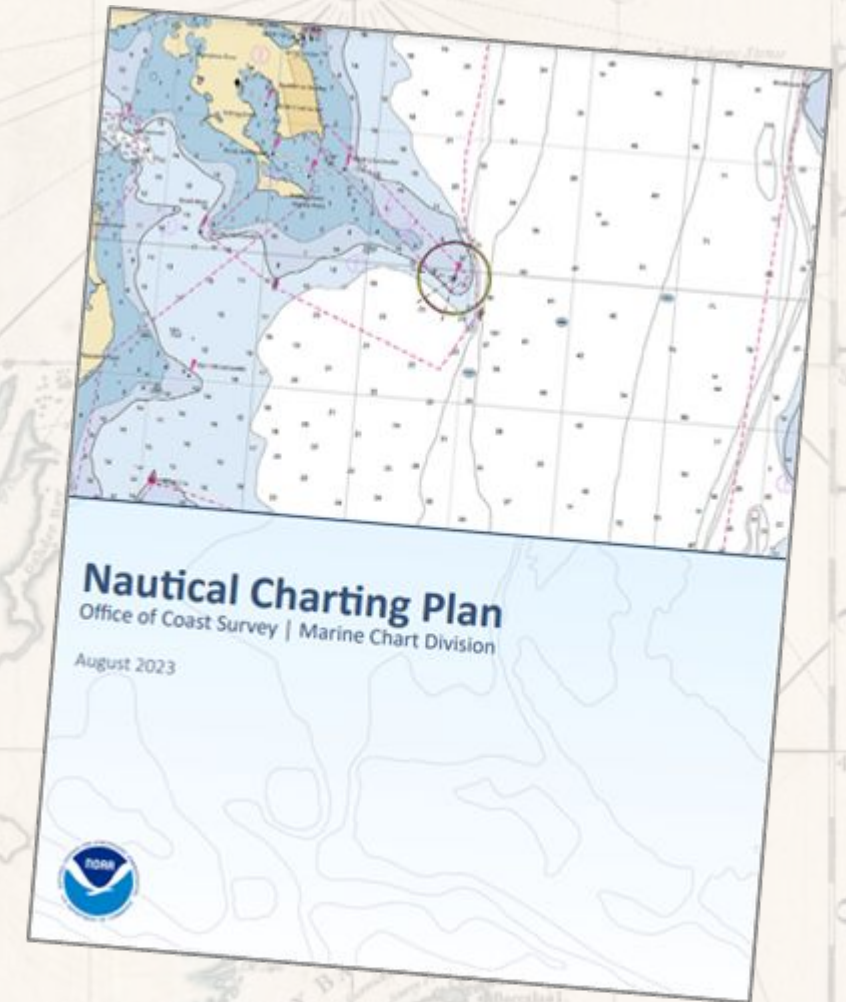


**Thank you!**

Nuuk Greenland | 5-7 September 2023

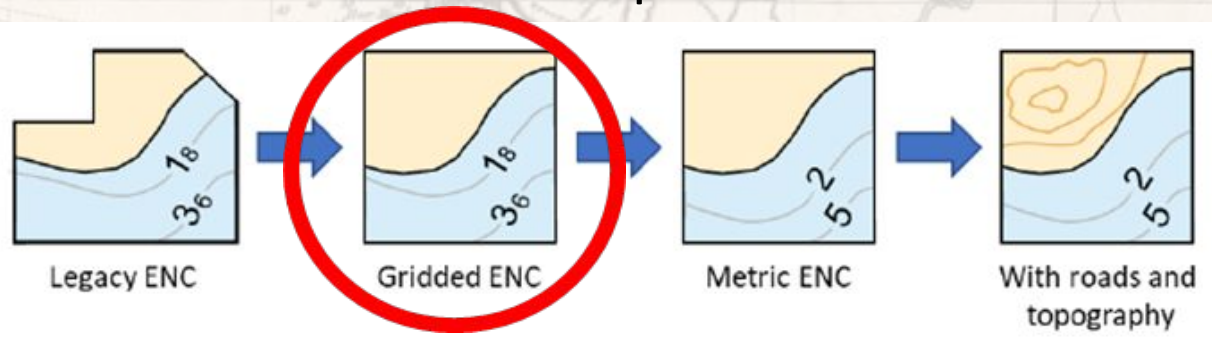
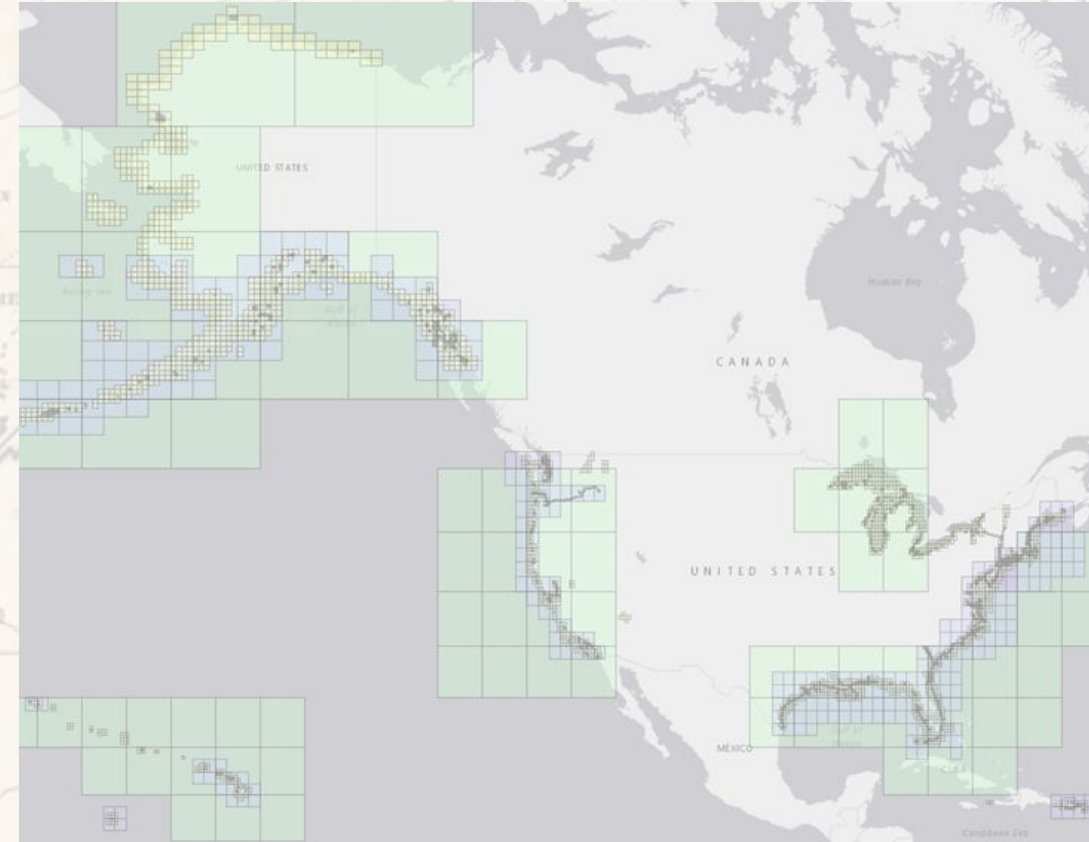
# Nautical Charting Plan

- The new [Nautical Charting Plan](#) released in August 2023 consolidates & updates information from three retiring documents:
  - 2017 National Charting Plan
  - 2019 Sunsetting Traditional NOAA Paper Charts
  - 2019 Transforming the NOAA ENC
- [Companion Handbook](#) provides reschemed ENC cell design details



# Initial ENC Rescheming focuses on Rectangular Grid

- Goal to complete gridded layout in 2026
- Currently recompiling depth contours in meters in larger ports
- Ultimately complete metrification in all ENC's
- Will add topographic contours and roads to some ENC's as resources permit

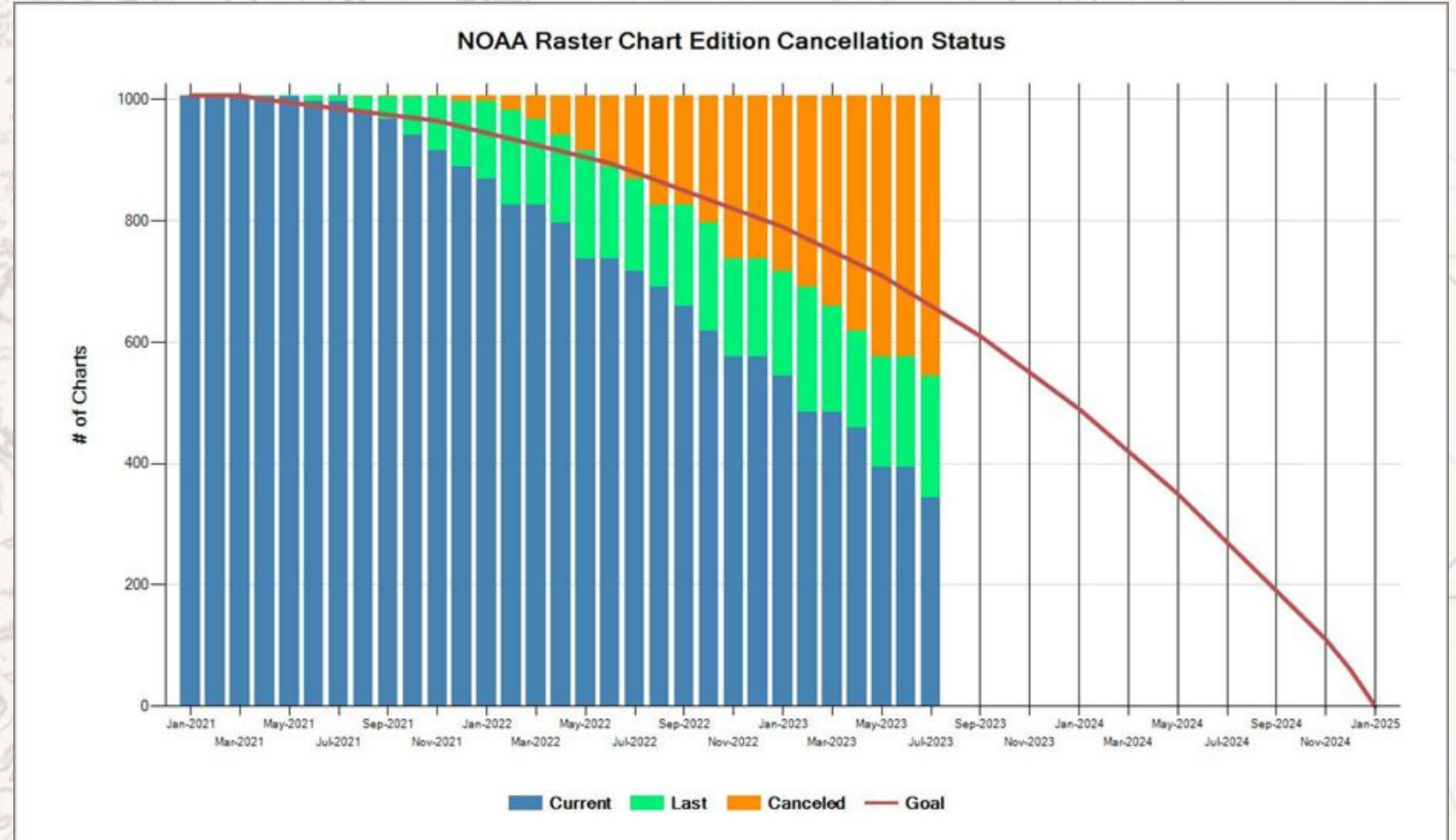
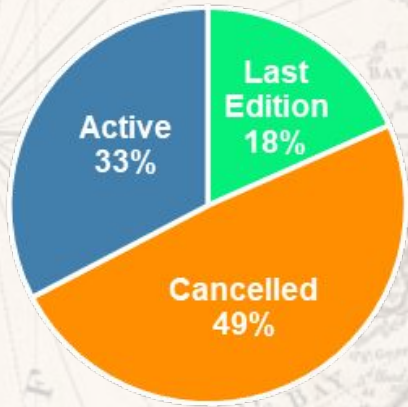






# Raster Chart Sunset Status as of August 2023

Canceled 493  
 Last Edition + 185  
 Subtotal 678  
 Active Charts + 329  
**Total 1007**



329 charts / 10 months = 33 last editions per month through June 2024 to complete sunset by Jan 2025.