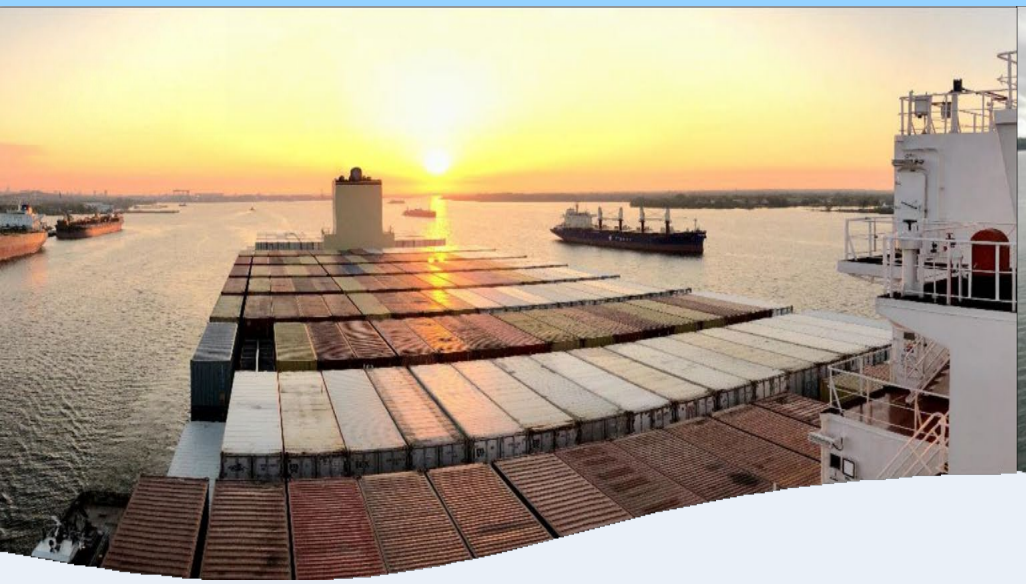
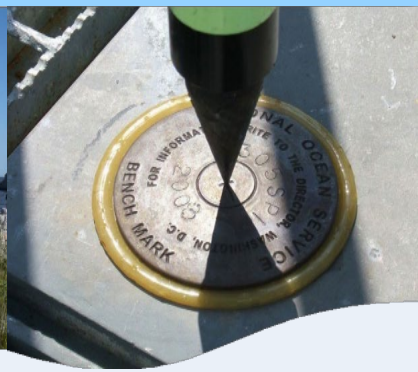


National Ocean Service

TRB Marine Board Update

Ms. Heather Gilbert,
Office of Coast Survey, NOS, NOAA
April 29, 2026

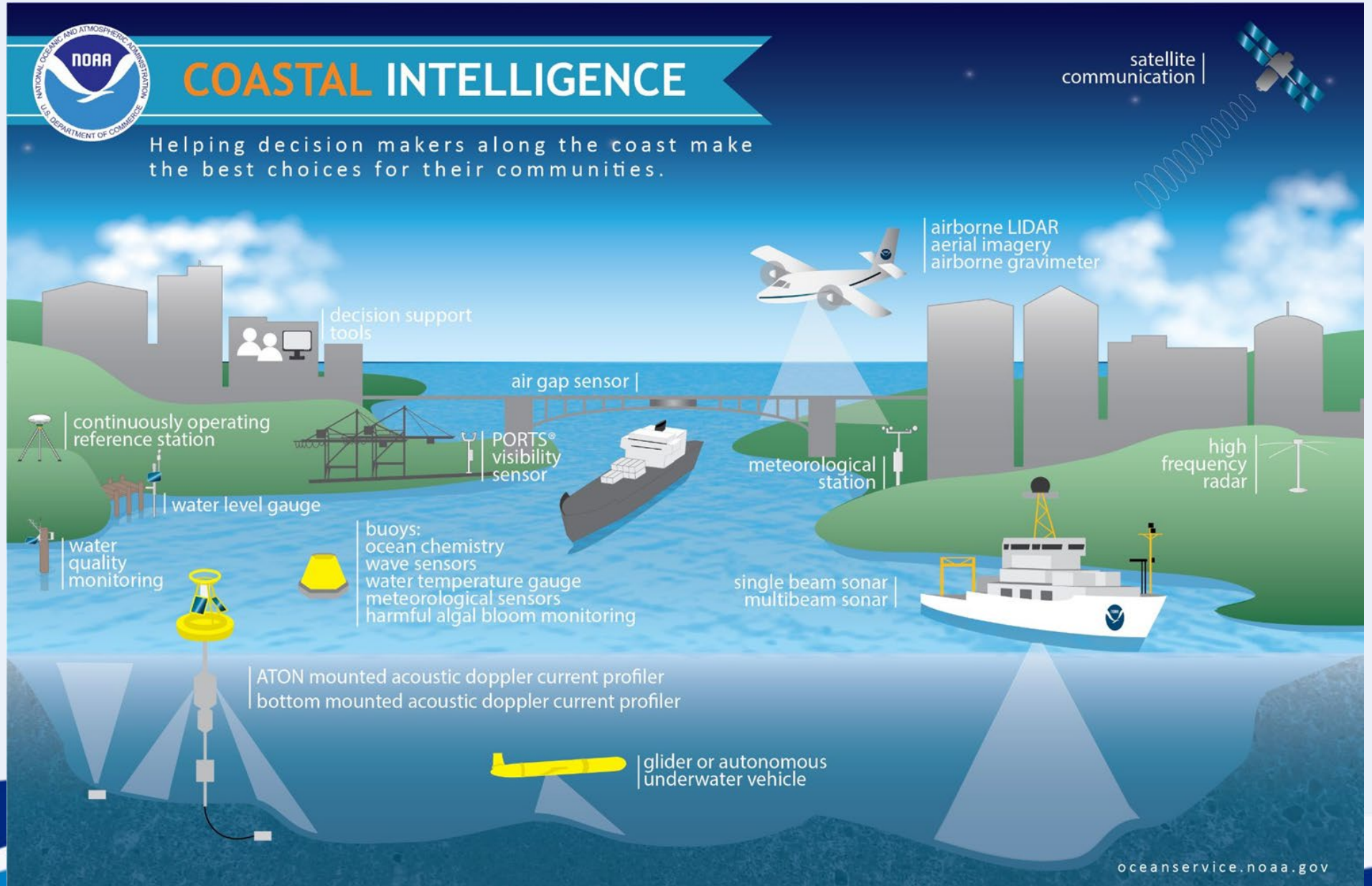
NOAA and the Maritime Action Plan

- Sec. 4 Ensure the Security and Resilience of the Maritime Industrial Base

- Sec. 13 Expand Mariner Training and Education: (iv) inventory existing educational and technical training grants and scholarships to colleges and vocational-technical training institutions for critical shipbuilding specialties and other maritime studies, and provide recommendations for enhancement

- Sec. 18 Ensure the Security and Leadership of Arctic Waterways

Adding Value to Coastal Intelligence through AI



AI Methods to Detect Rip Currents

- New AI methods detect rip currents in real time using surf zone video imagery
- Developed through NOAA IOOS-funded WebCOOS, in partnership with SECOORA and UC Santa Cruz
- Can be used to improve NOAA's rip current forecast model and inform NWS surf zone forecasts

de Silva, A., I. Mori, G. Dusek, J. Davis, and A. Pang, (2021). Automated Rip Current Detection with Region based Convolutional Neural Networks. *Coastal Engineering.*

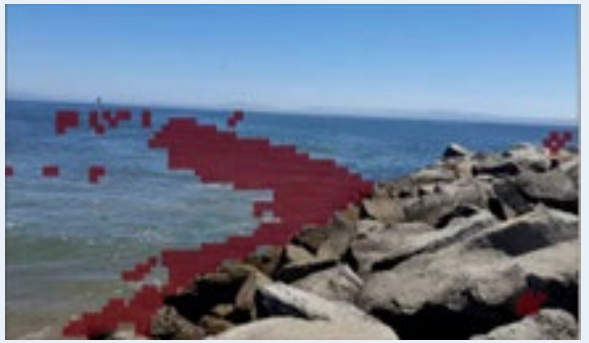
WebCOOS partners with communities to use webcams to:

Identify Rip Currents

Study Beach Erosion

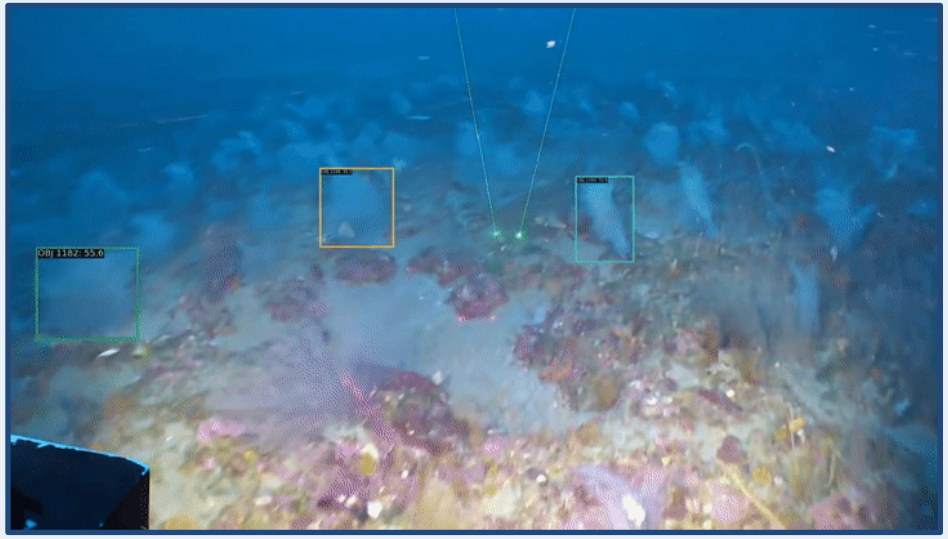
Monitor Beach Usage

Flood Monitoring

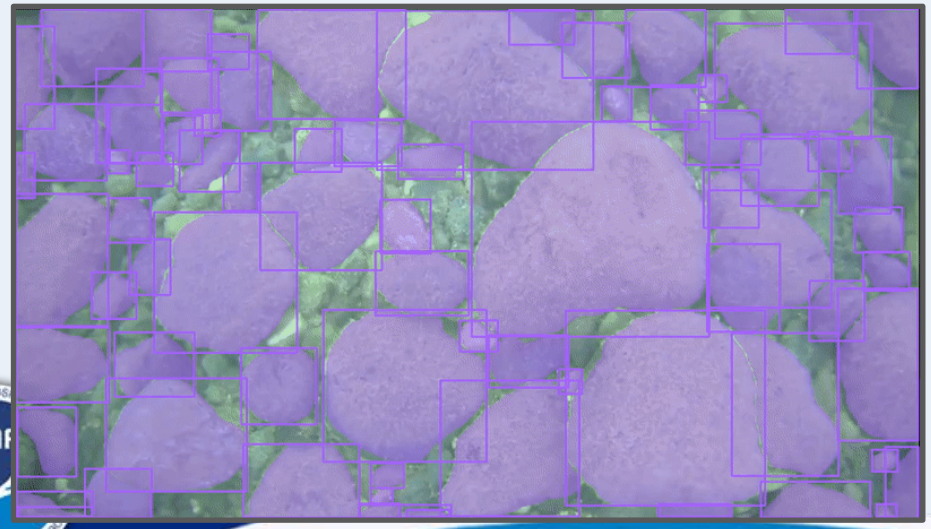


de Silva, A., M. Zhao, D. Stewart, F. Kahn, G. Dusek, J. Davis and A. Pang. (2023). RipViz: Finding Rip Currents by Learning Pathline Behavior. IEEE Transactions on Visualization and Computer Graphics.

AI Capabilities for Object Detection and Mapping



Coral tracking within MDBC ROV video, SALT 2
(POC: **Jordan Pierce, Tim Battista**)



Detection of rocks in Great Lakes
(POC: **Jordan Pierce, Tim Battista**)

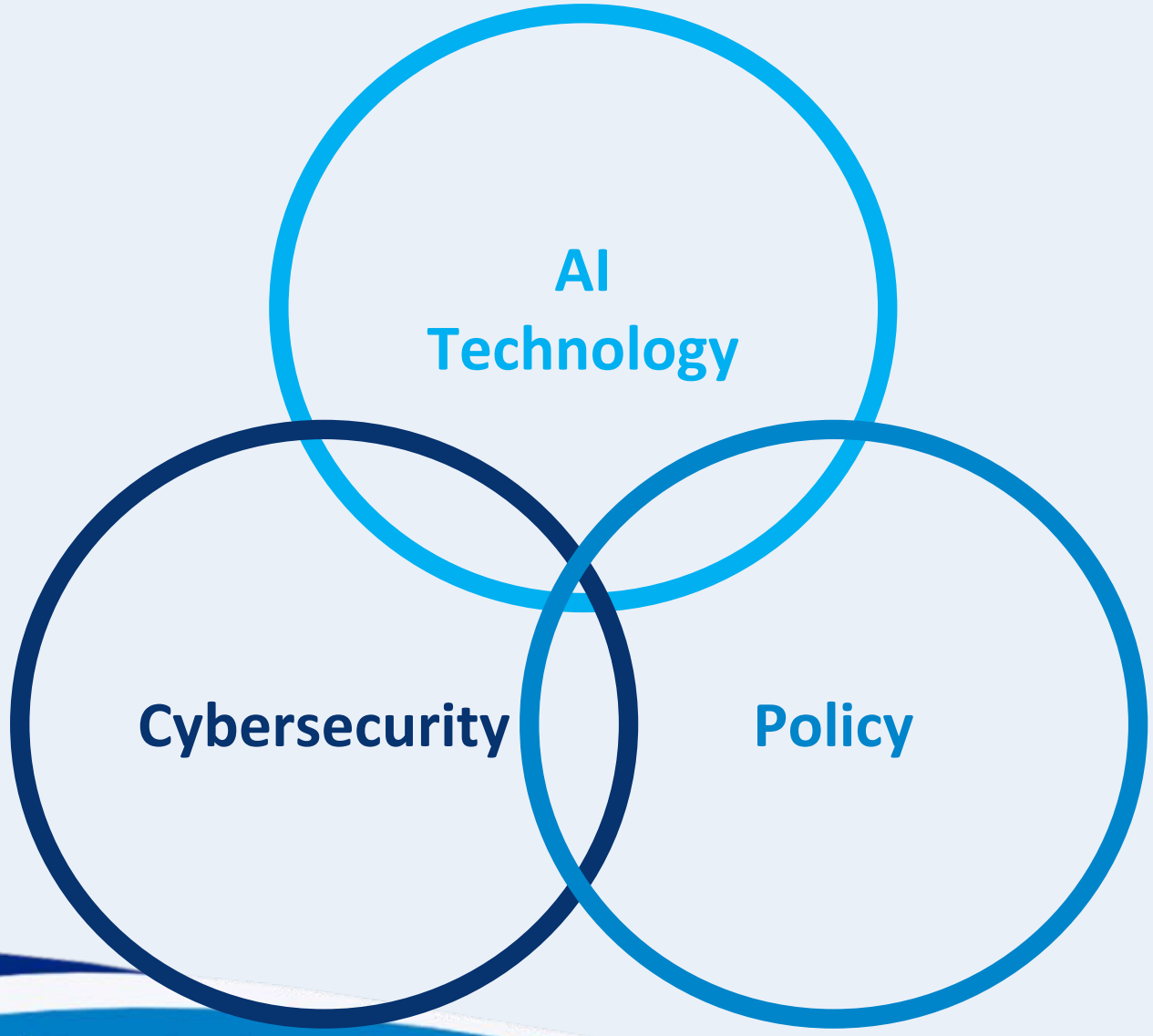
ROV Video Analysis for Coral Detection and Tracking

- ROVs capture video and images of seafloor habitats, enabling high-resolution mapping of corals over time.
- Deep learning is used to automatically identify, and track individual coral colonies within video transects.
- Automated labeling now processes 20 - 150 whole images per second, compared to the manual process of labeling individuals at ~4 seconds each per image.

Rock Detection and Seafloor Characterization

- Deep learning rapidly detects rocks and minerals in underwater videos from the Great Lakes and deep benthic zones.
- Computer vision builds detailed 3D models of the benthic to map distribution of rocks, minerals, and habitats.
- AI-assisted annotation enables efficient, precise labeling and environmental monitoring of detected features.

Challenge: Getting Into Alignment

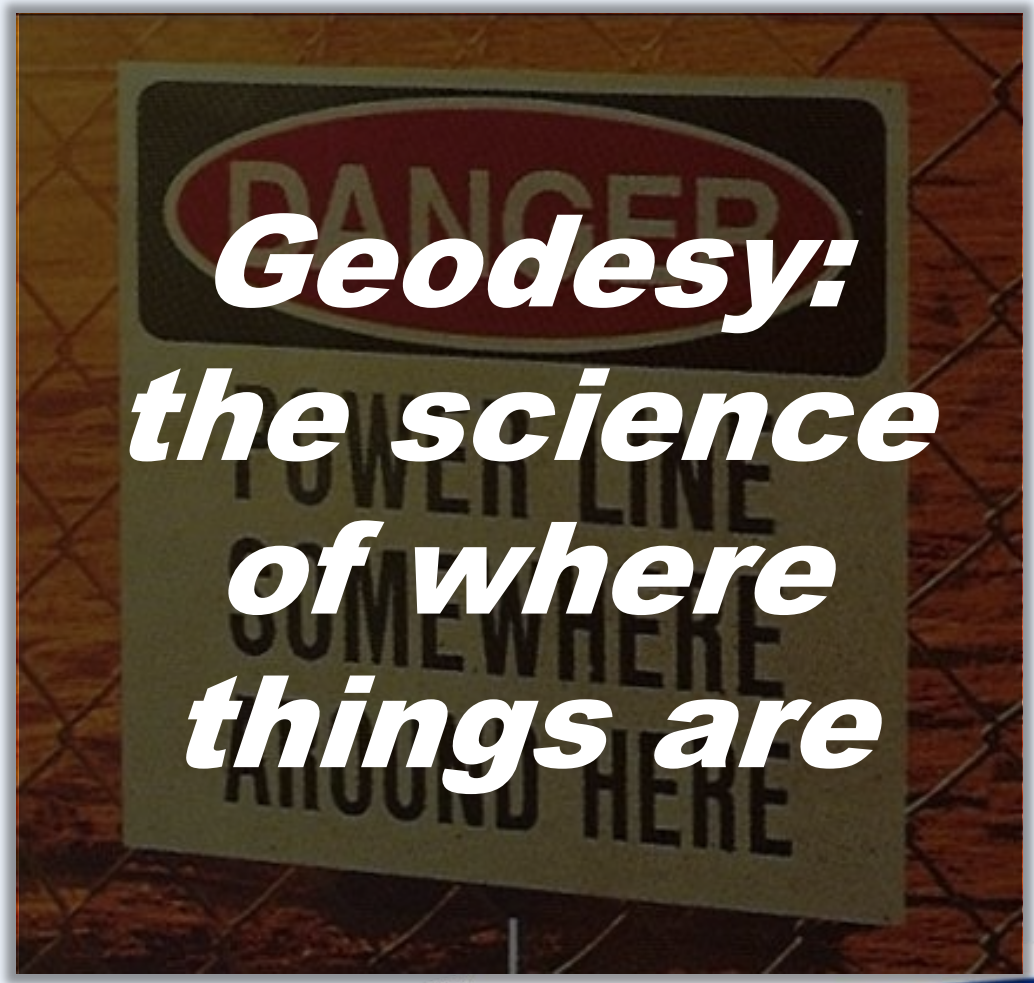


National Spatial Reference System

What is the National Spatial Reference System (NSRS)?

…and why should you care?

- A set of consistent nationwide coordinate systems
- Created in 1807 to support commerce and science
- Defined and maintained by **NOAA's National Geodetic Survey**



The NSRS is being "Modernized"

- ***All*** NSRS coordinates will change
- Modernized NSRS will be more ***accurate***, ***efficient***, and ***accessible***
- How do our customers and partners prepare?
  - Evaluate geospatial workflows
  - Assess dependencies on NGS products and services
  - Proactively identify challenges and opportunities
  - Address potential impacts early to reduce risks to operational efficiency
  - Act now to minimize costs and complexity
    (and reduce more costly changes later)
- Change is coming because Earth is dynamic

NSRS defines where "ZERO" is and how to measure from zero

NGS is working to make the transition as simple and painless as possible

NSRS Modernization is nearly done!

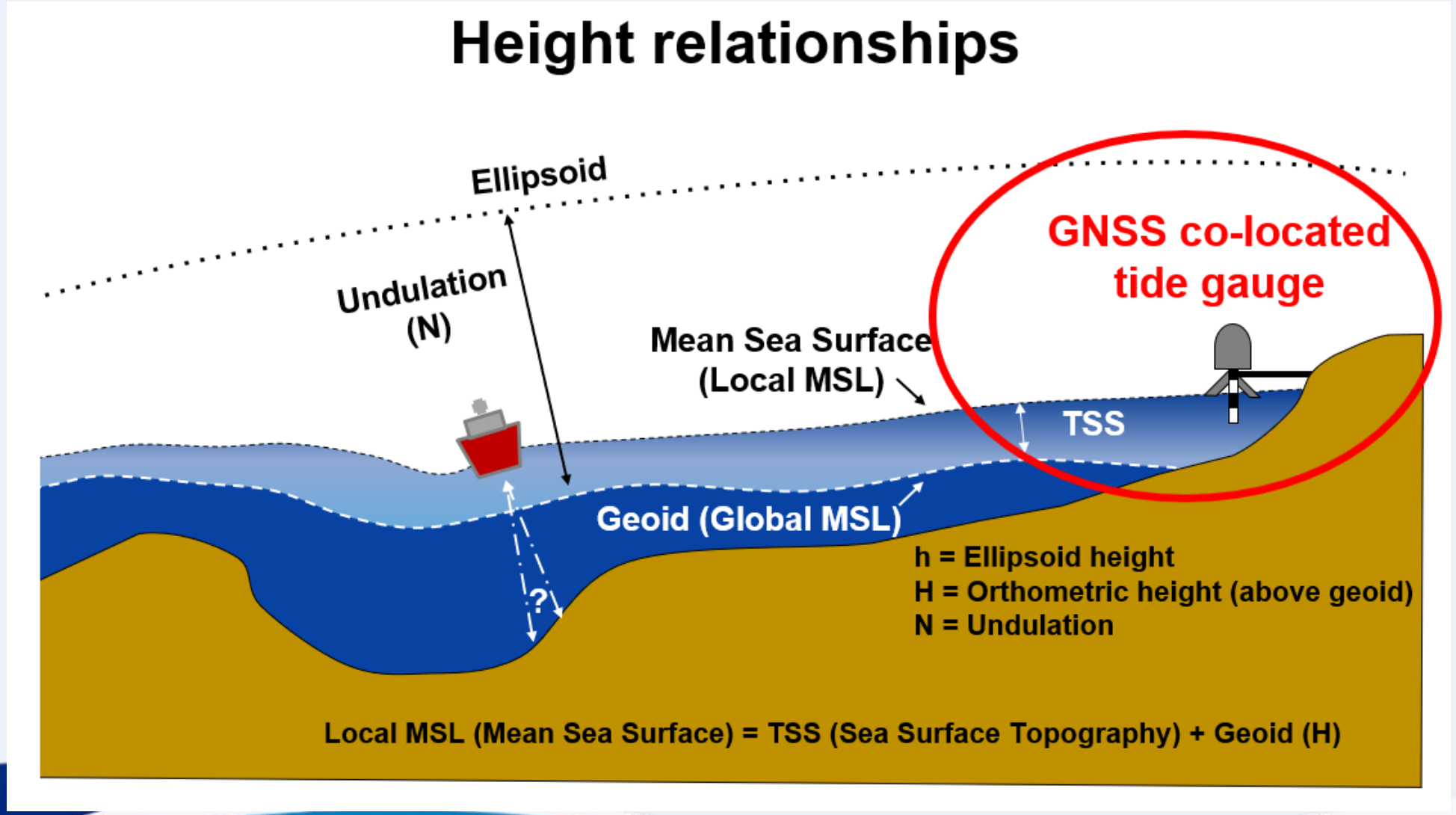
- ***All*** NSRS coordinates will change
- Modernized NSRS will be more ***accurate***, ***efficient***, and ***accessible***

- **Preliminary release in phases**
  - 2025 - Definitional products released for public testing
  - 2026 - Tools released for public testing (OPUS, Transformation tools, etc.)
  - ***All products and tools will be publicly tested for a minimum of 6 months.***

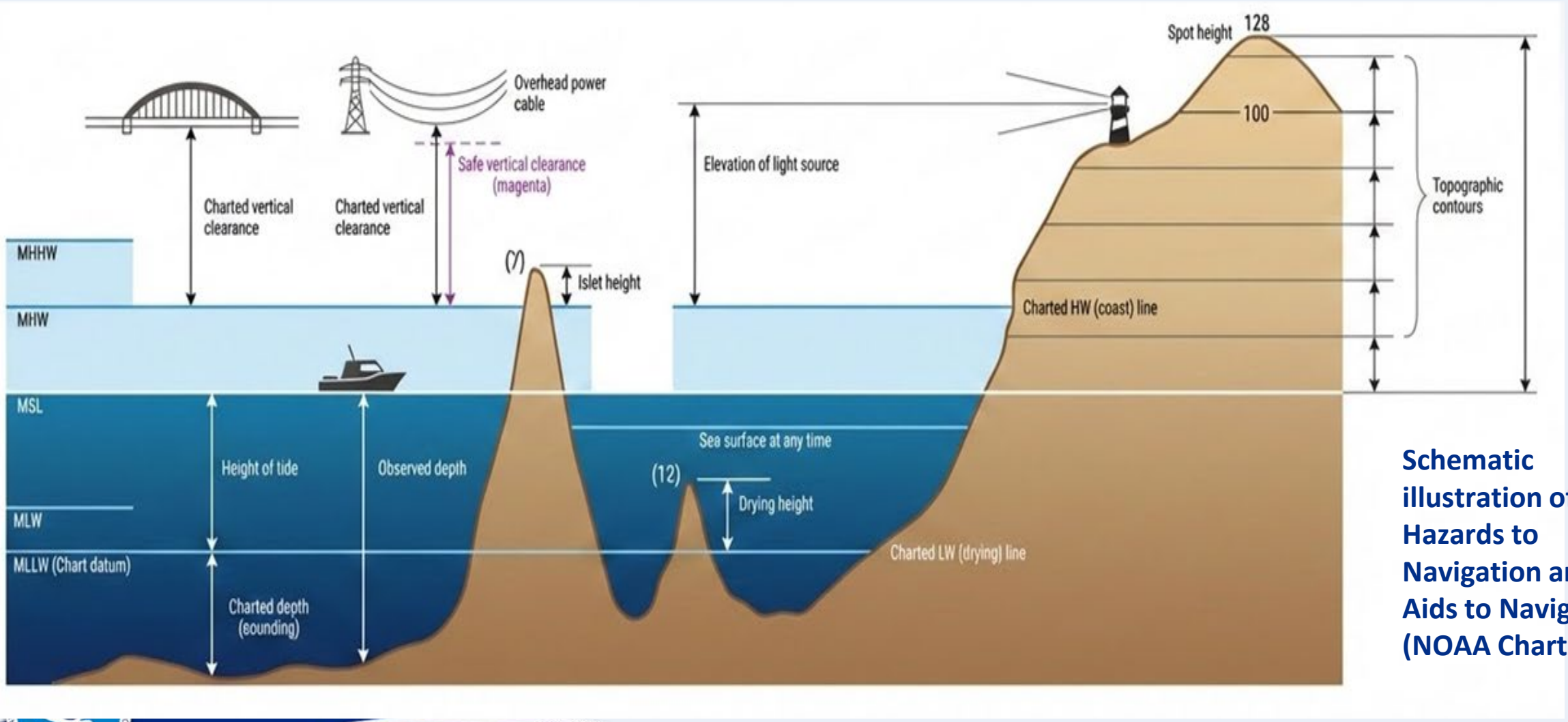
- **Will replace current datums in 2027**
  - After at least 6 months of public testing
  - Will include coordination with the Federal Geographic Data Committee (FGDC)

- ***NGS will continue supporting current NSRS through the rollout and testing of the modernized NSRS***

Connecting the tidal datum to the NSRS



Precision Marine Navigation



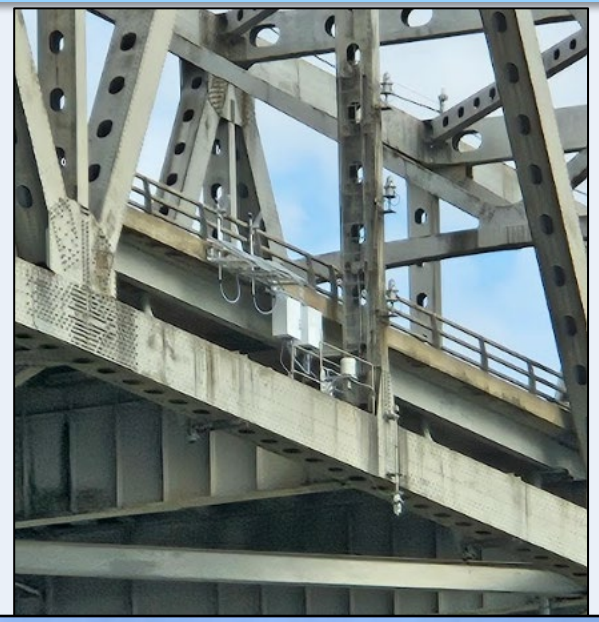
Schematic illustration of Hazards to Navigation and Aids to Navigation (NOAA Chart No. 1)

PROGRAM UPDATES

PORTS® Program Updates

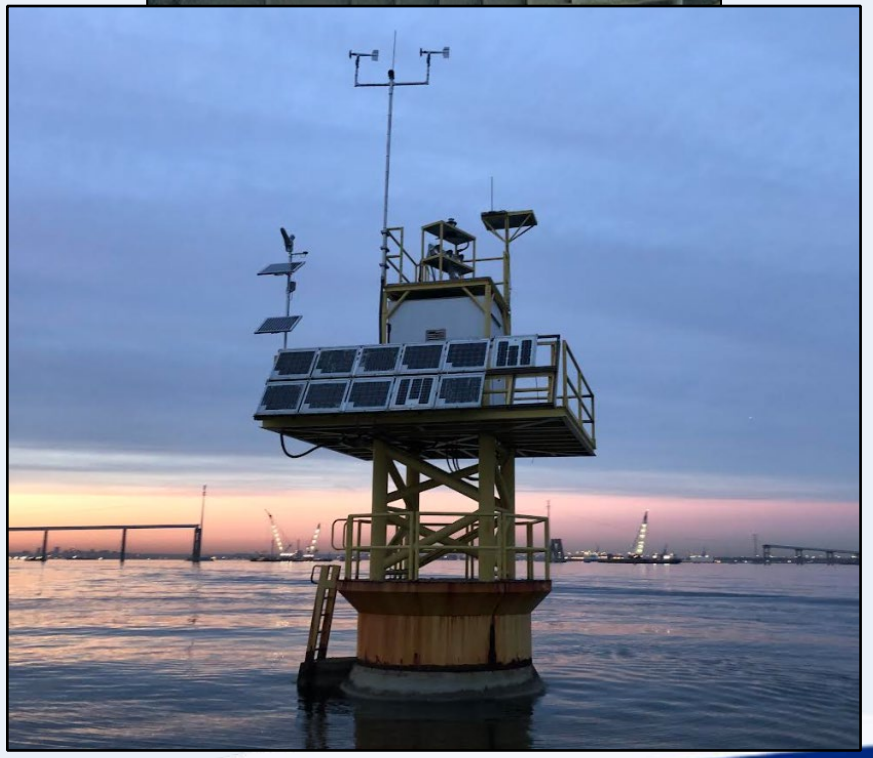
FY26 New PORTS®

- **Boston Harbor PORTS:** Established in February 2026 (incorporates a new current meter, one meteorological station, future air gap)
- **Seattle PORTS:** coming in FY27 (currents, meteorological)

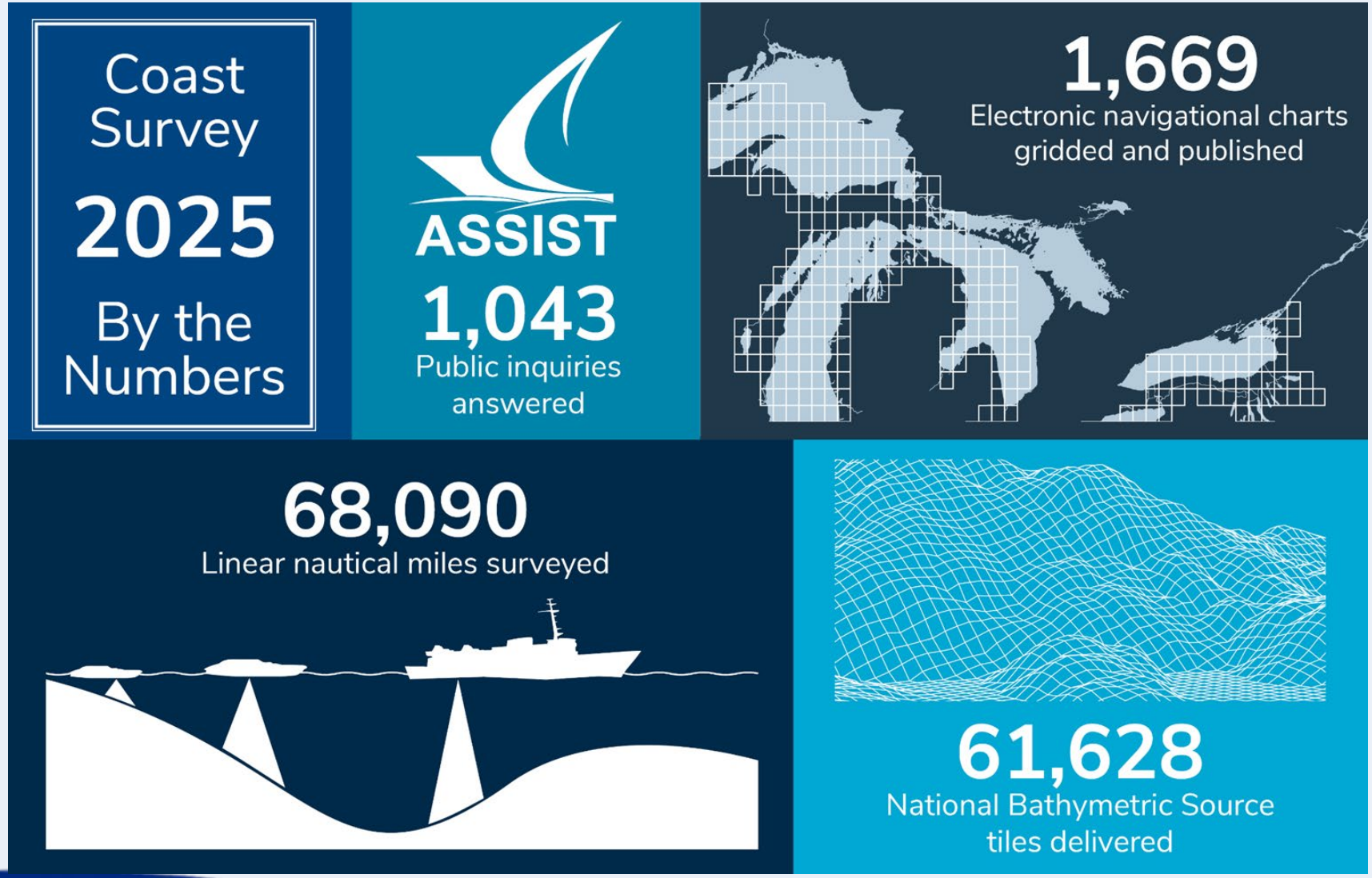


FY26 Enhancements

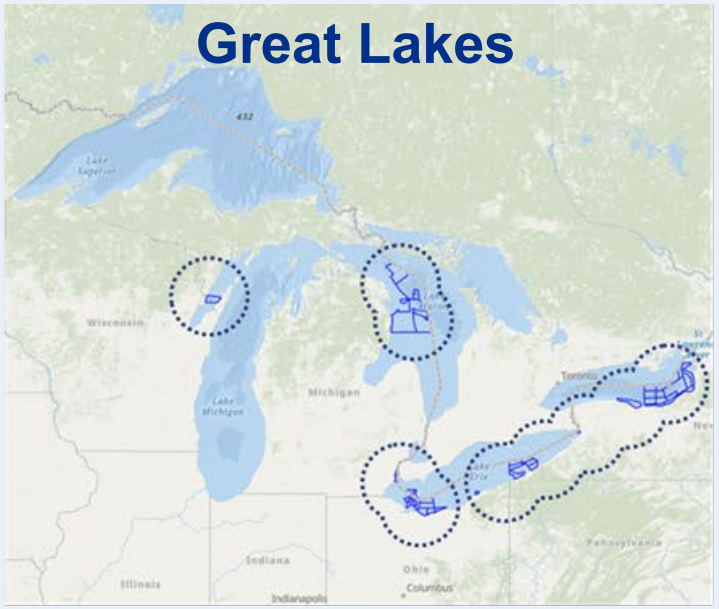
- **Lower Mississippi River PORTS:** Installed a new Air Gap System on I-10 Wilkinson Bridge at Baton Rouge Louisiana.
- **Chesapeake Bay North PORTS:** New Meteorological station at the entrance to Baltimore Harbor near the old FSK Bridge
- **Tampa Bay PORTS:** Added two new salinity observing sensors
- **Jacksonville PORTS:** Relocation of one buoy mounted current meter

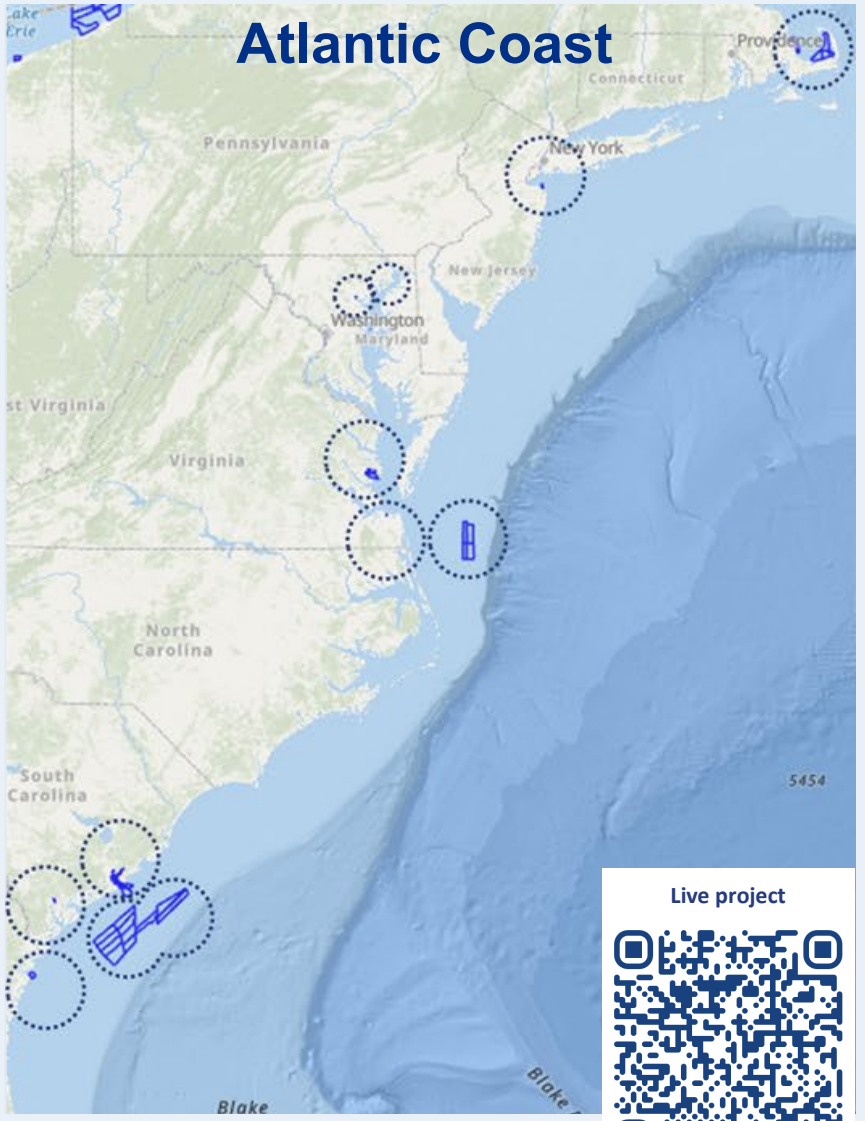


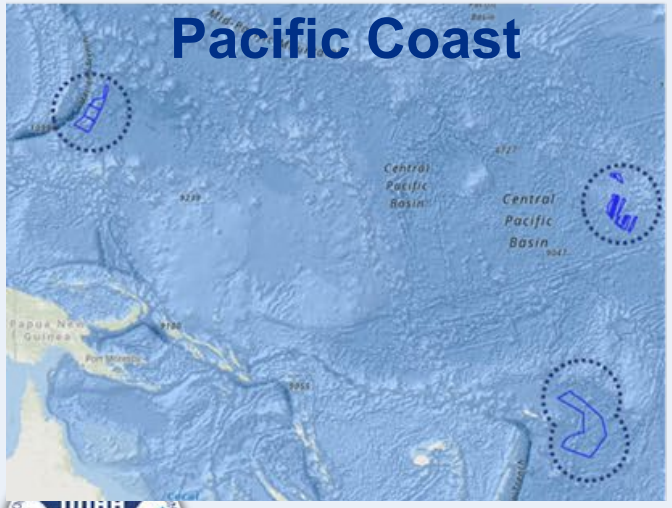
Office Coast Survey

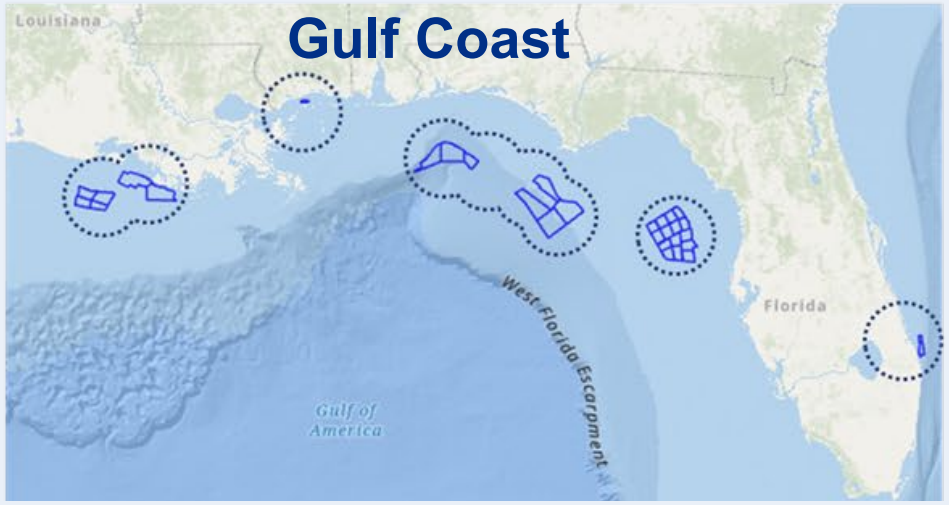


2026 Survey Season









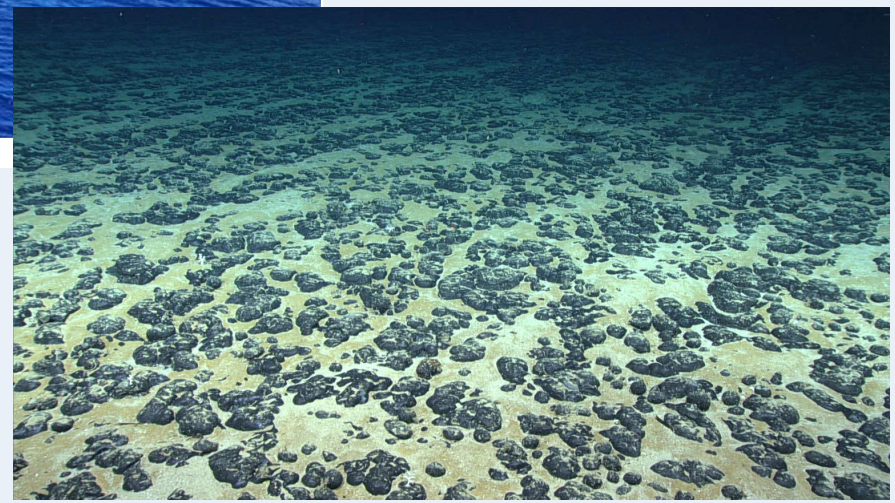
Live project

National Ocean Service

NOAA and Deep Sea Mining

In early April, part of the Department of Commerce's implementation of the U.S. Offshore Critical Minerals Mapping Plan, the NOAA Ship *Rainier* mapped and characterized more than 8,000 square nautical miles of federal waters off Kingman Reef and Palmyra Atoll in the Pacific Ocean.

The NOAA Ship Rainier conducts a seabed mapping exercise in the Pacific in 2022. (Image credit: NOAA)



For more information - https://oceanexplorer.noaa.gov/mineral-samples/2026-nv5-american-samoa/ and https://storymaps.arcgis.com/stories/8b08986f67104173a166660de8c8773e

NOAA OMAO Mariner Hiring 2026

Quality of Life Improvement Measures

- Rotational positions for all departments available on 11 of 15 ships.
  - Goal to have all ships rotational in FY27
- Shore leave eligibility increased earning to maximum of 4 days per pay period.
- Implementation of Mobile Duty worker status in January 2026.
  - Allows travel to/from ship to home of record vice duty station
- Starlink internet on all ships.

NOAA Fleet Recapitalization

Oceanographic Ships (Class A):

- The *Oceanographer*, Navy projects delivery in May 2027.
- The *Discoverer*, Navy projects delivery in November 2027.

Charting and Mapping (Class B):

- The *Surveyor*, TMC projects delivery in October 2028.
- The *Navigator*, TMC projects delivery in May 2029.
    - ***Uncrewed Maritime Systems (UMS):*** Award has been made but is under review. The UMS will be delivered ahead of the Class Bs.

Fisheries/Coastal Science (Class C):

- Milestone 1 and RFP documents in progress. Project to issue RFP FY26

U304 Keel
2 Keels, left is for SURVEYOR
right is for NAVAGTOR

Thoma-Sea Marine Constructors has the contract for both Class A and B vessels.

Thank You!

…. check out NOAA Heritage

National Ocean Service