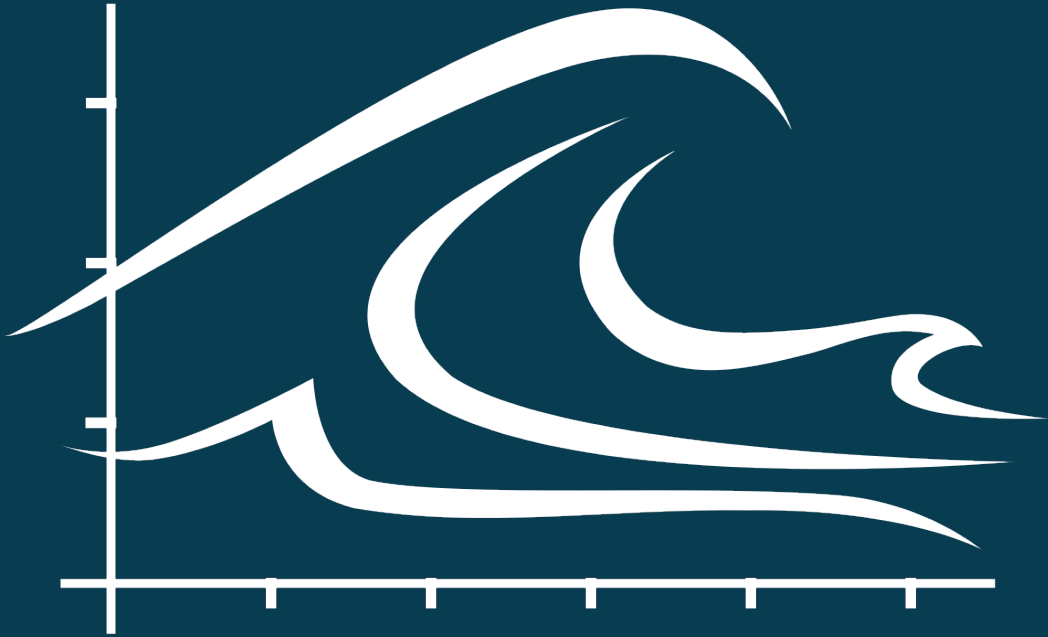


NERACOOOS



NORTHEASTERN REGIONAL ASSOCIATION
OF COASTAL OCEAN OBSERVING SYSTEMS

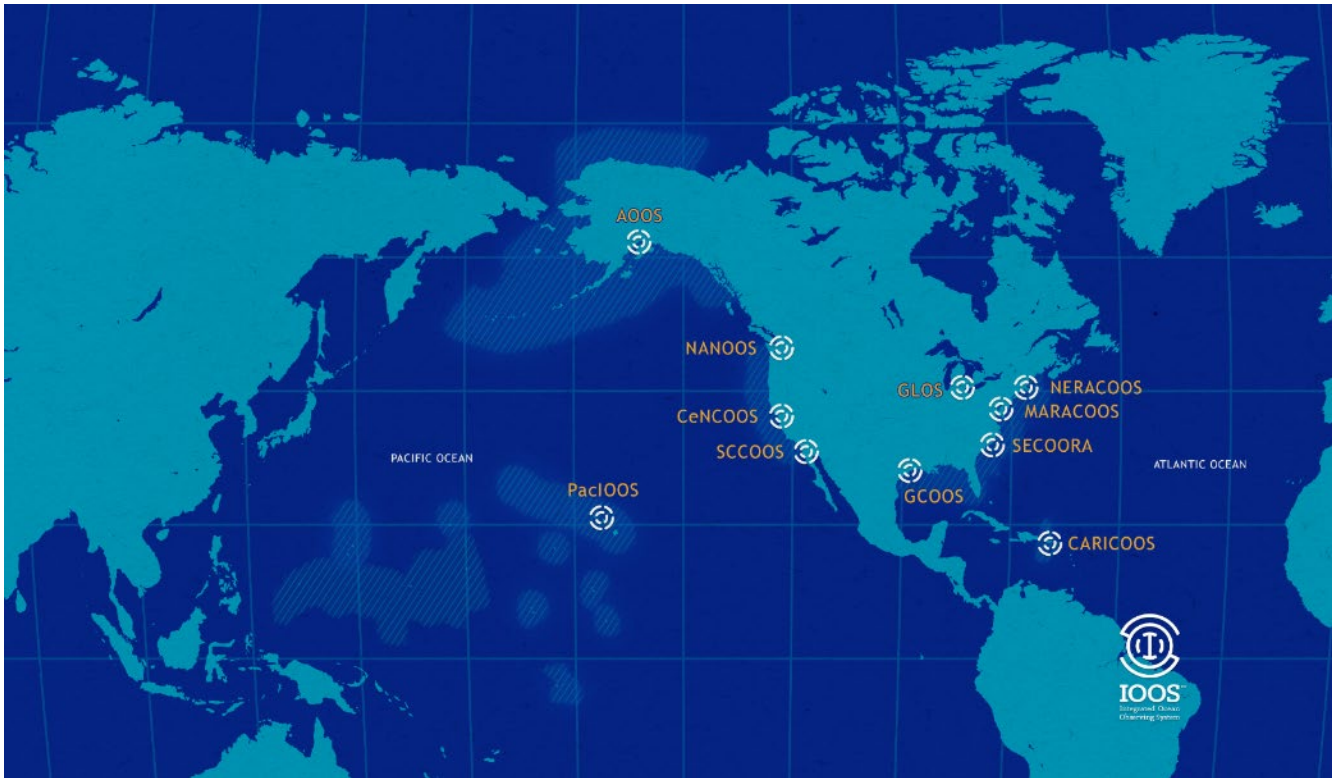
Coastal Resilience Tools within the U.S. Integrated Ocean Observing System

Anna Simpson, Tom Shyka,
Jake Kritzer*

Gulf of Maine Council Meeting
St. Andrews, New Brunswick
May 28, 2026

U.S. Integrated Ocean Observing System (IOOS)

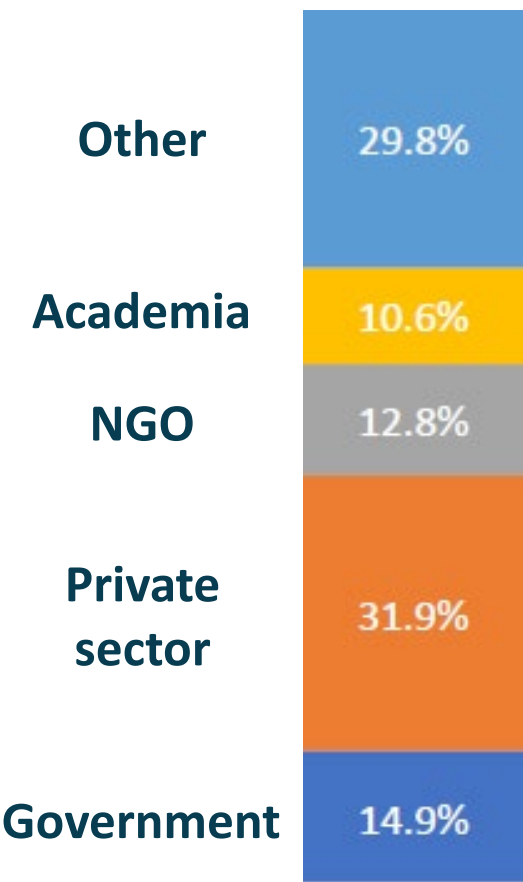
IOOS is our eyes on the ocean, coasts, and Great Lakes. We are an integrated network of people and technology gathering observing data and developing tracking and predictive tools to benefit the economy, the environment, and public safety at home, across the nation, and around the globe.



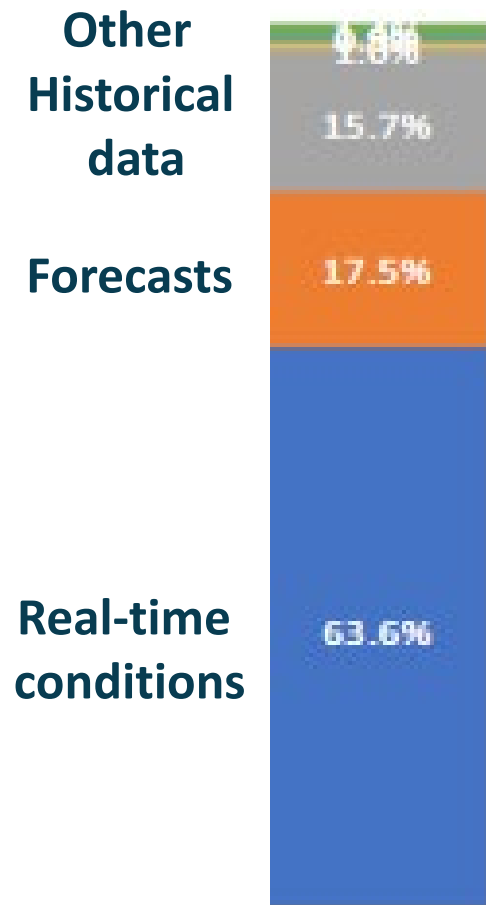
- 17 federal partners
- 11 regions
- 34 core variables
- Buoys, gliders, HFR, satellites, ship-based surveys, coastal stations, etc.
- Variety of models
- Federally-certified data management

NERACOOS Users & Uses

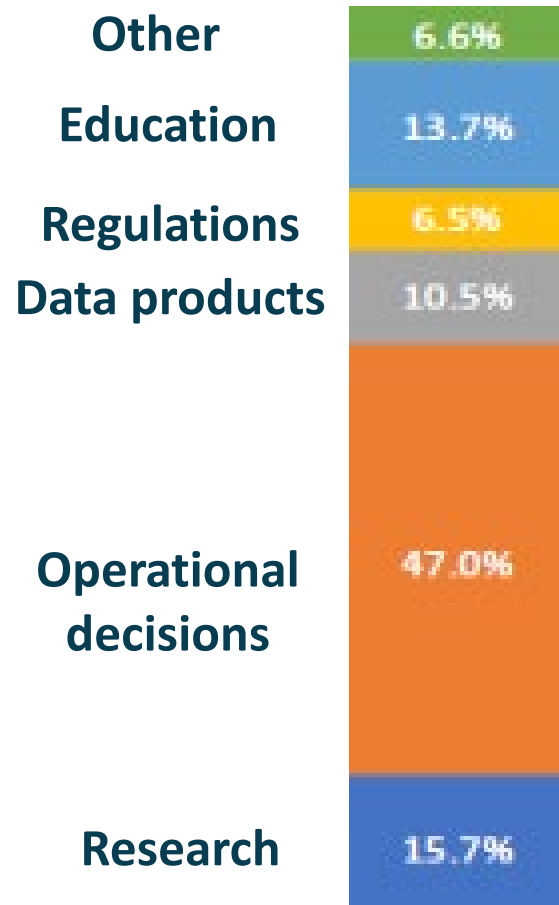
Users



Data

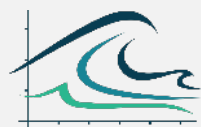


Uses



There is no typical NERACOOS user – we provide services to a wide range of actors.

The most common user is in the private sector accessing real-time data for operational decisions.



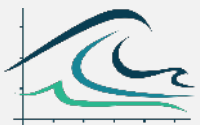
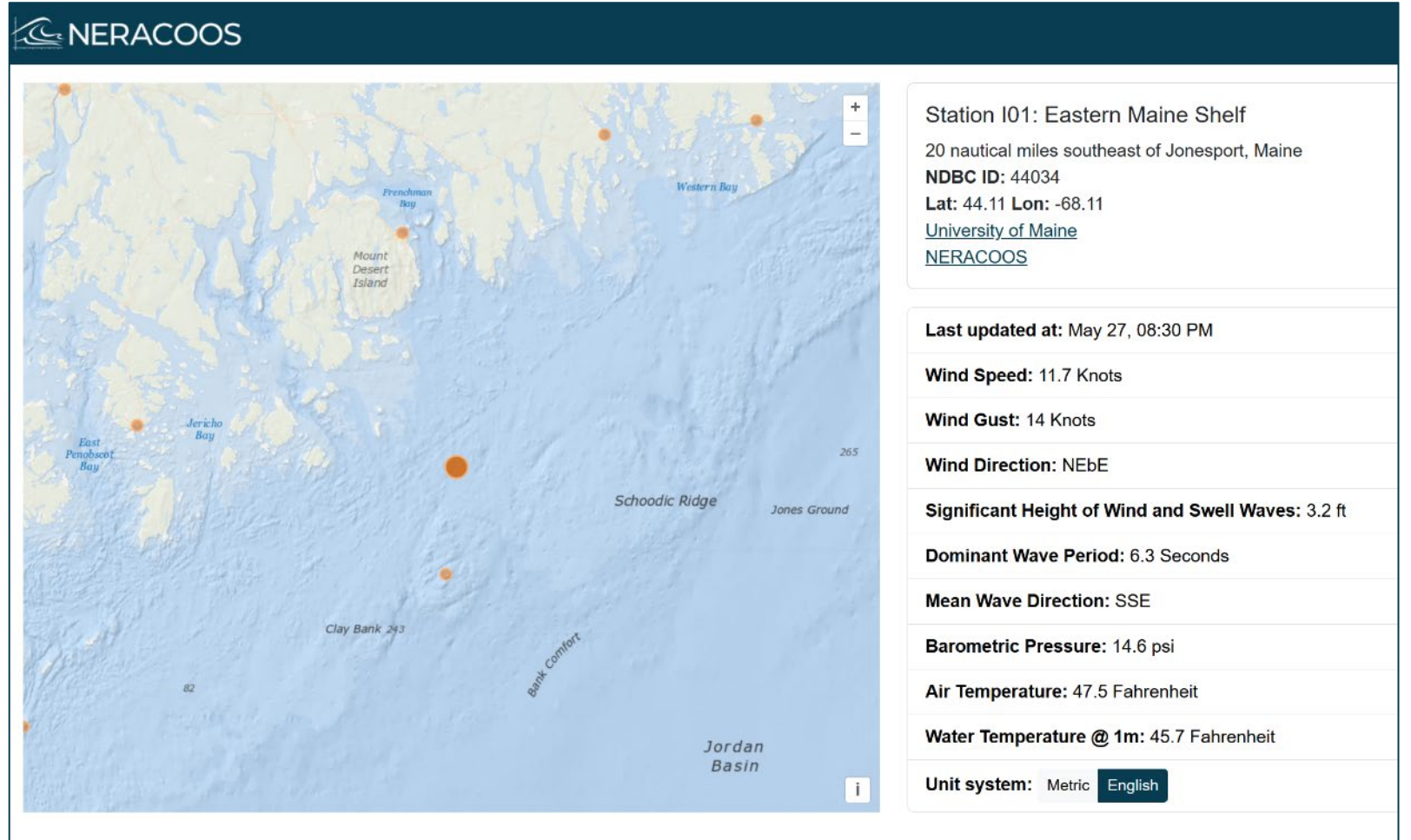
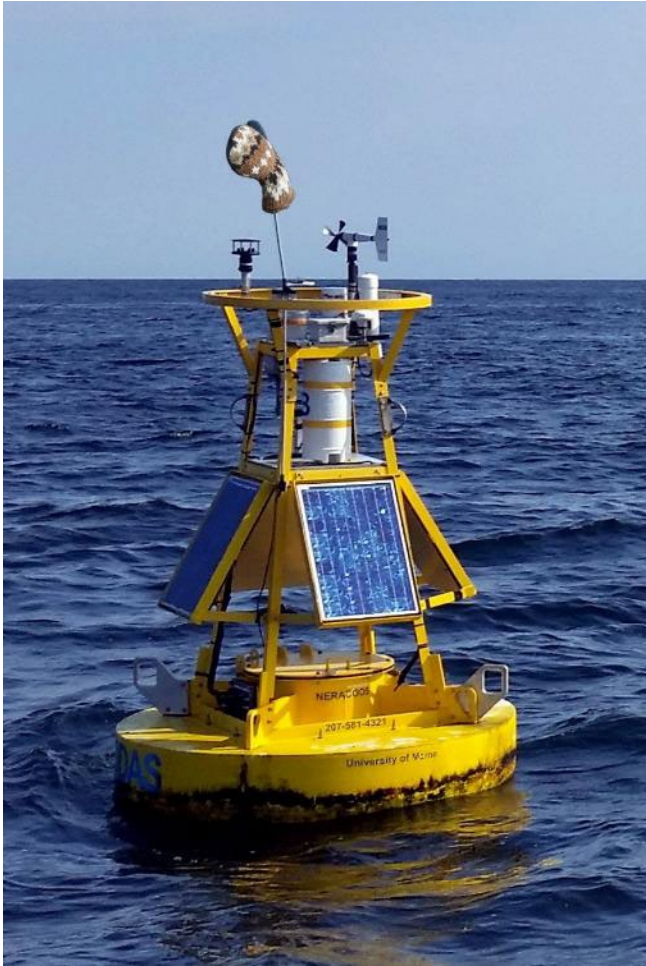
NERACOOS



Middlebury Institute of
International Studies at Monterey
Center for the Blue Economy

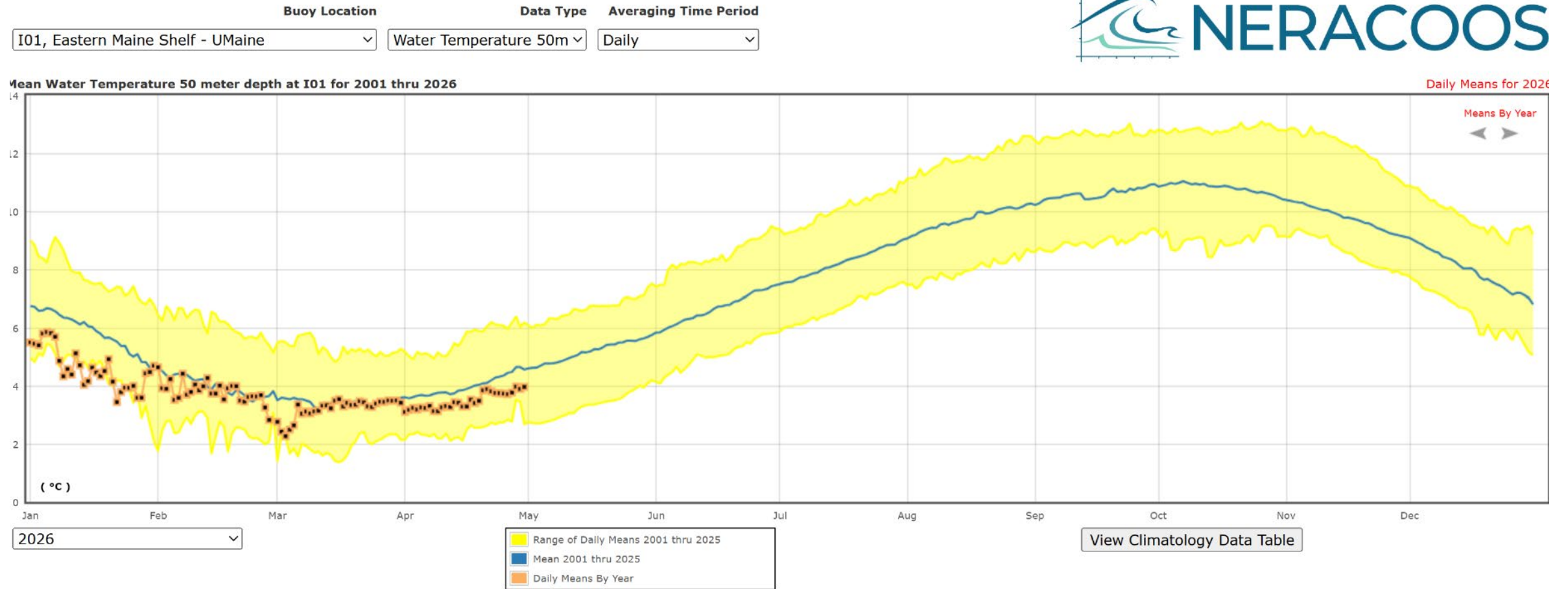


Real-Time Data



NERACOOS

Long-Term Time Series



Coastal Resilience At Risk

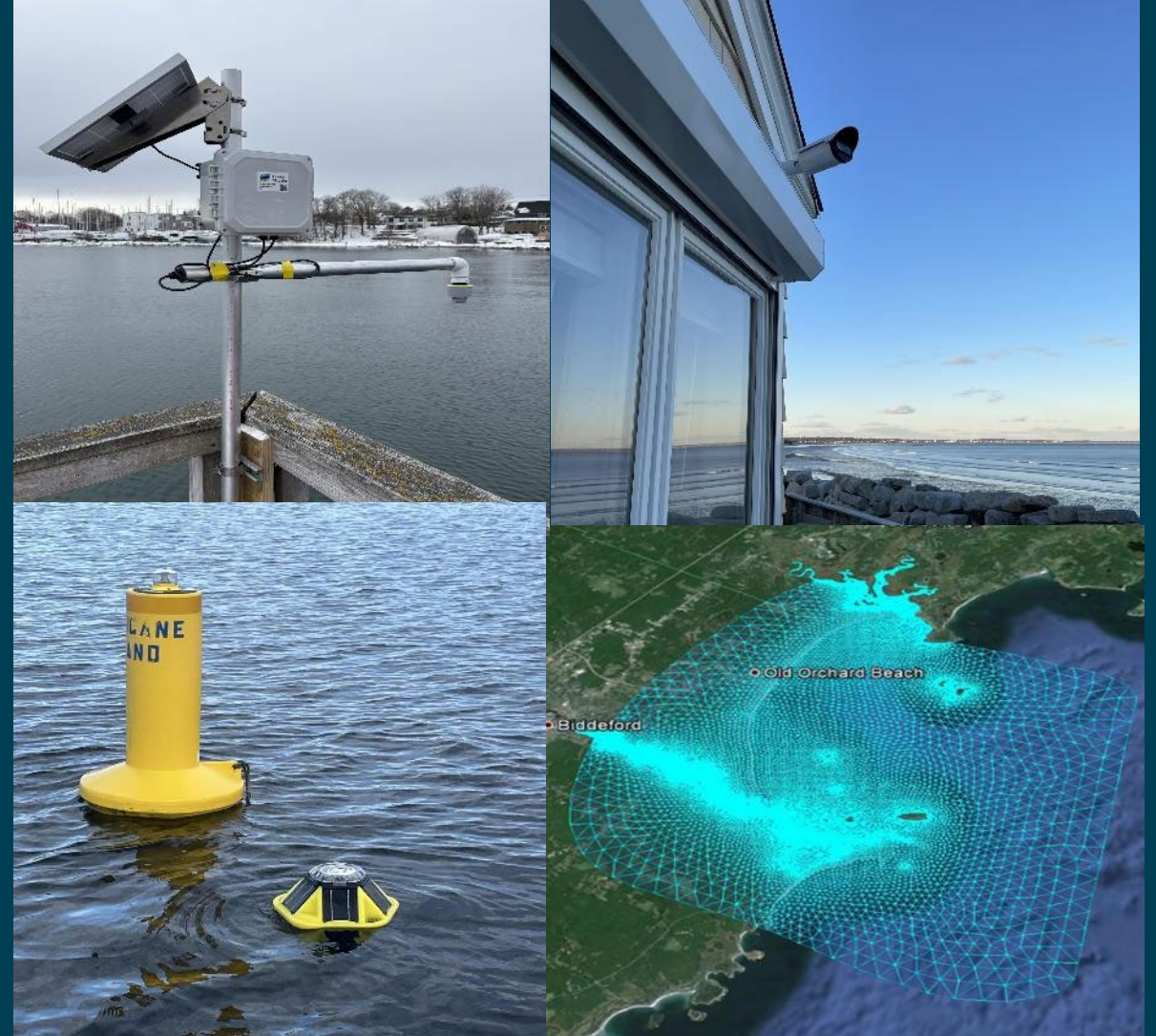
The interface between land and ocean is experiencing increased flooding due to tides, storm surge, waves; erosion and shoreline change



Photo Credit: John Cannon

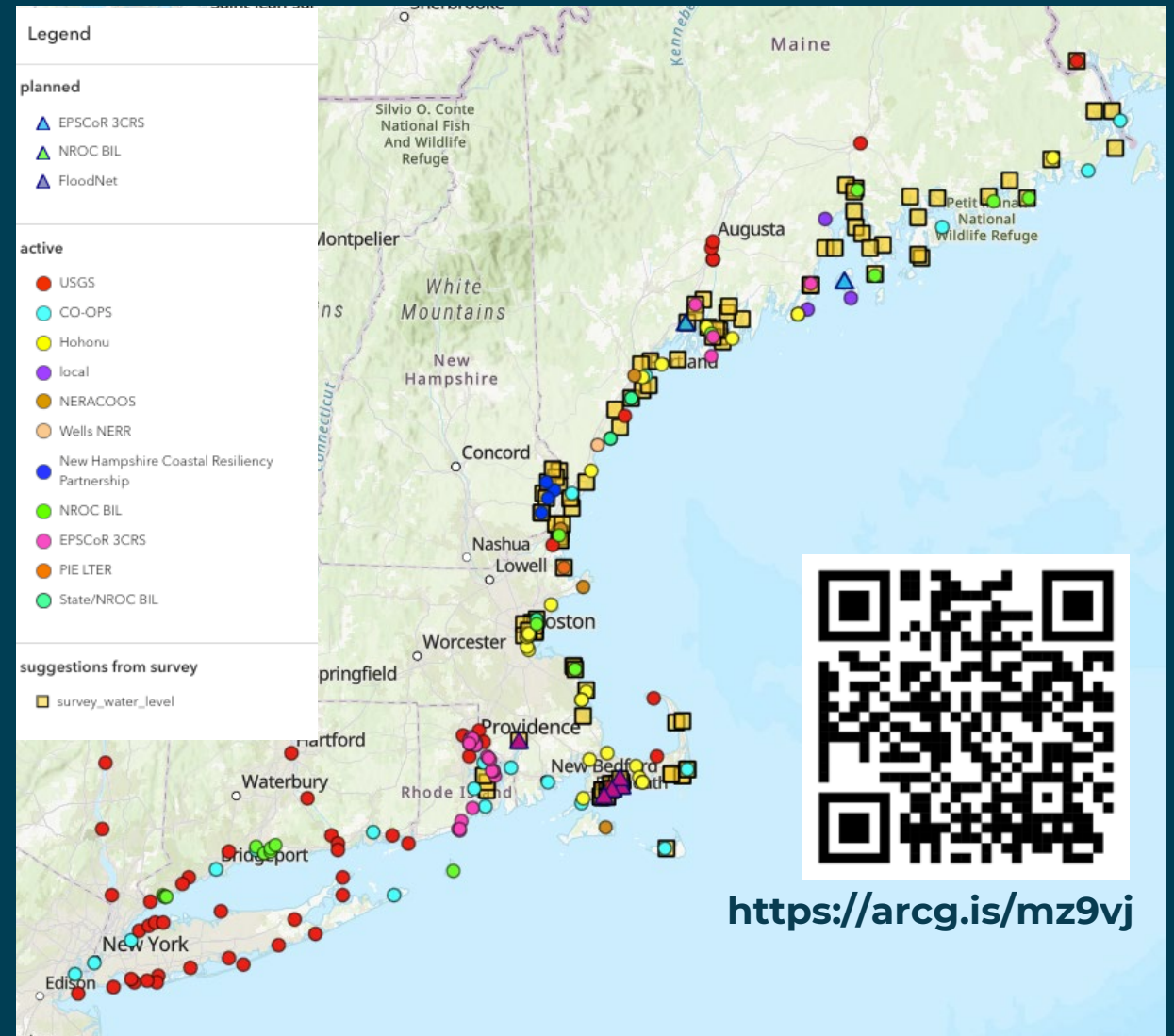
Coastal Resilience Toolkit

- Tide gauges/water level sensors
→ Water height
- Low-cost wave buoys
→ Water movement and run-up
- Webcams
→ Visualizing impacts
- Forecast models
→ Predicting conditions



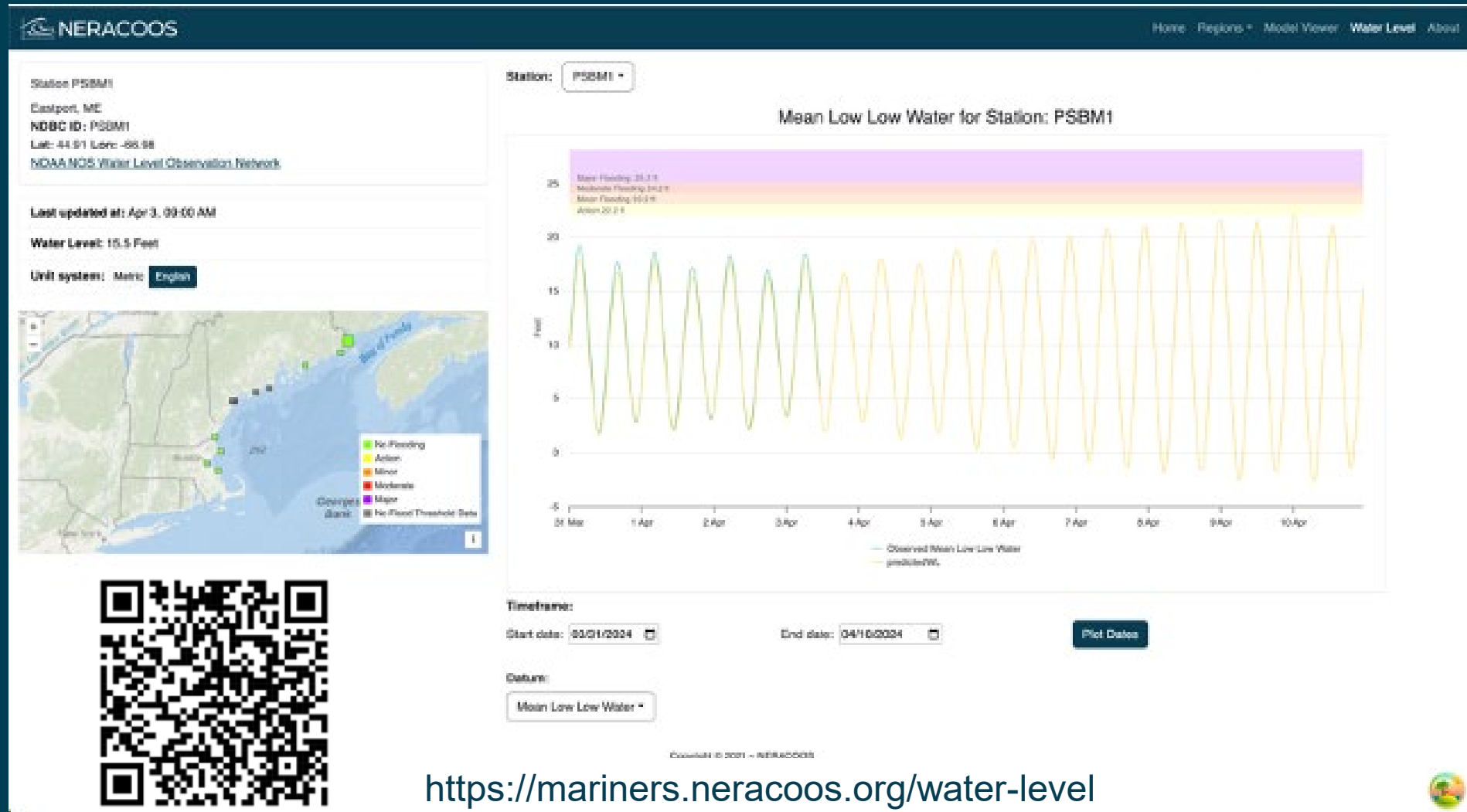
Northeast Water Level Network

- Formerly a handful of high-cost USGS and NOAA stations.
- Now 50 stations and counting thanks to new low-cost sensors and a wide variety of funders and partners.
- Work in the region is informing a broader community of practice.



<https://arcg.is/mz9vj>

Data Integration and Delivery

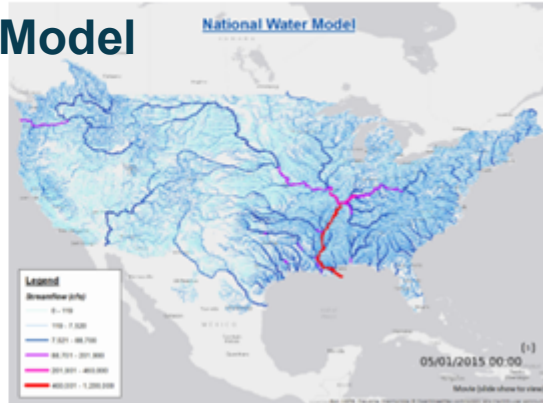


Forecast Modeling Framework

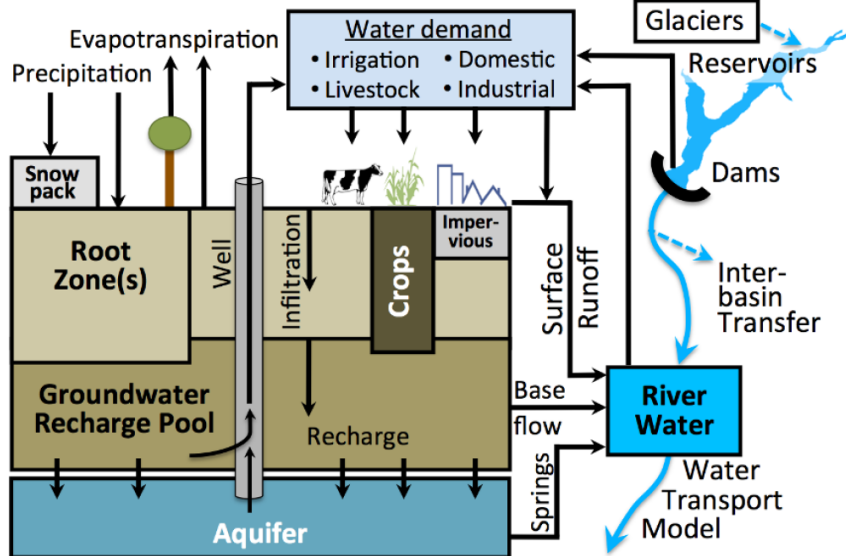
Current River Forecast Points (~3,600)

NWM Streamflow Output Points (~2.7 mil)

National Water Model

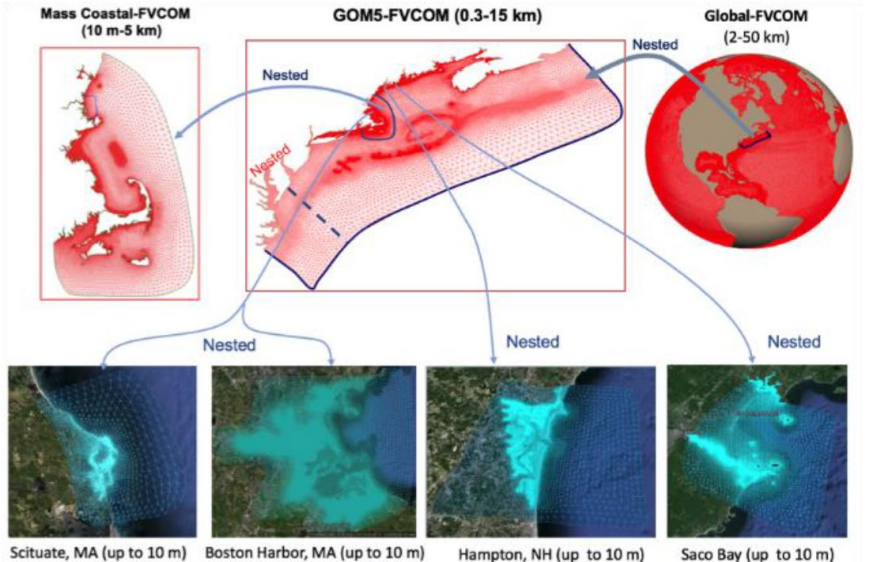
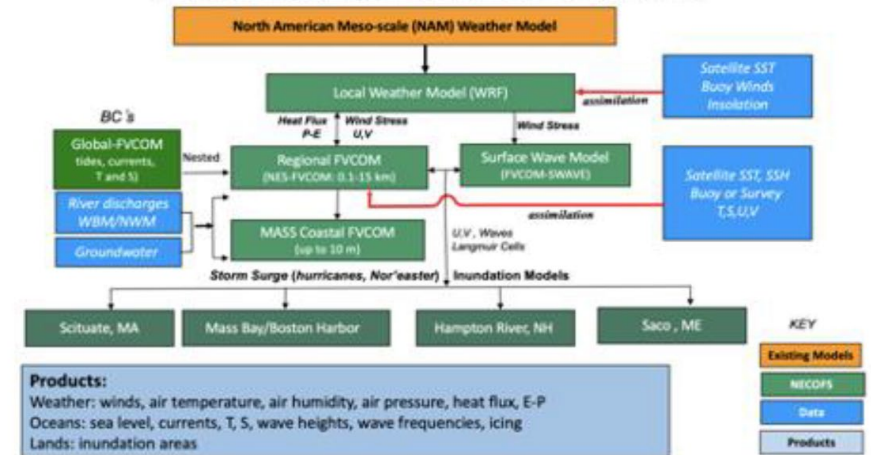


Water Balance Model



Coupling
Oceanographic &
Hydrodynamic
Models to Improve
Fine-Scale
Flooding &
Inundation
Forecasts

Northeast Coastal Ocean Forecast System (NECOFS)



Camp Ellis Webcam: South View

- Monitor wave patterns around the existing jetty and waves that overtop the sea wall during storms.
- Monitor changes resulting from a spur jetty to be constructed as part of an erosion mitigation project.

**SECOORA**
SOUTHEAST
COASTAL OCEAN OBSERVING
REGIONAL ASSOCIATION

WebCOOS

Get Involved Cameras Products Documentation About Feedback

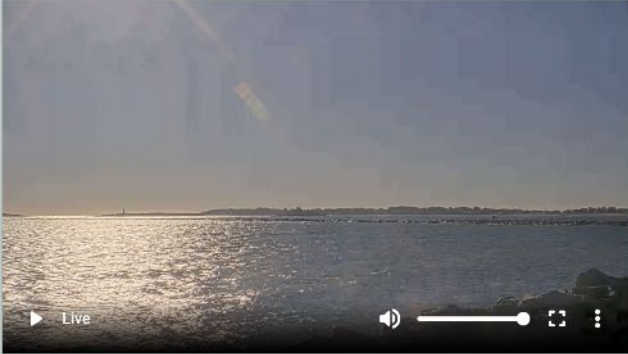
Cameras | Camp Ellis Beach at Saco, ME - South view

Camp Ellis Beach at Saco, ME - South view

This camera at Camp Ellis beach is being used to monitor coastal change and wave patterns.

Partners:

- NERACOOS
- NOAA - National Weather Service
- Maine Geological Survey
- Surfline
- Local community members



▶ Live



–70.382 43.467
Biddeford
Mapbox © OpenStreetMap



10/2/2025 ▾

 ONE-MINUTE-STILLS

 VIDEO-ARCHIVE



https://webcoos.org/cameras/campellis_south/

Camp Ellis Webcam: North View

- Monitor storm impacts and changes to Ferry Beach, incl. trends in beach width.
- Validate the National Weather Service's wave run-up model.

**WebCOOS**

Get Involved Cameras Products Documentation About Feedback

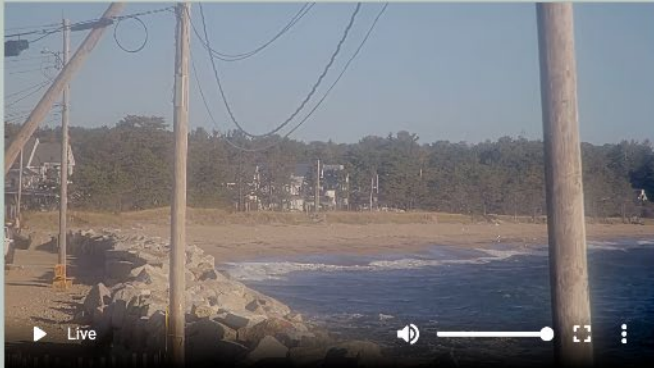
Cameras | Ferry Beach at Saco, ME - North view

Ferry Beach at Saco, ME - North view

This camera at Camp Ellis beach is being used to monitor coastal change and wave patterns.

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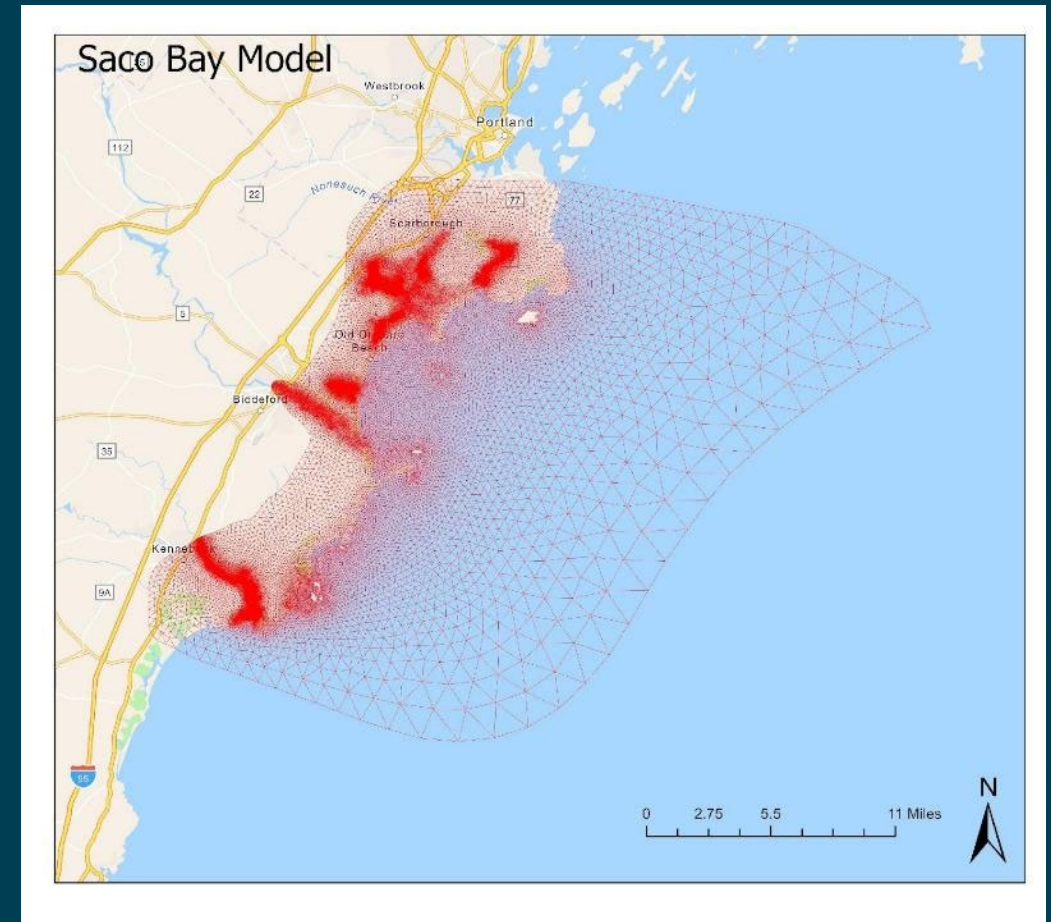
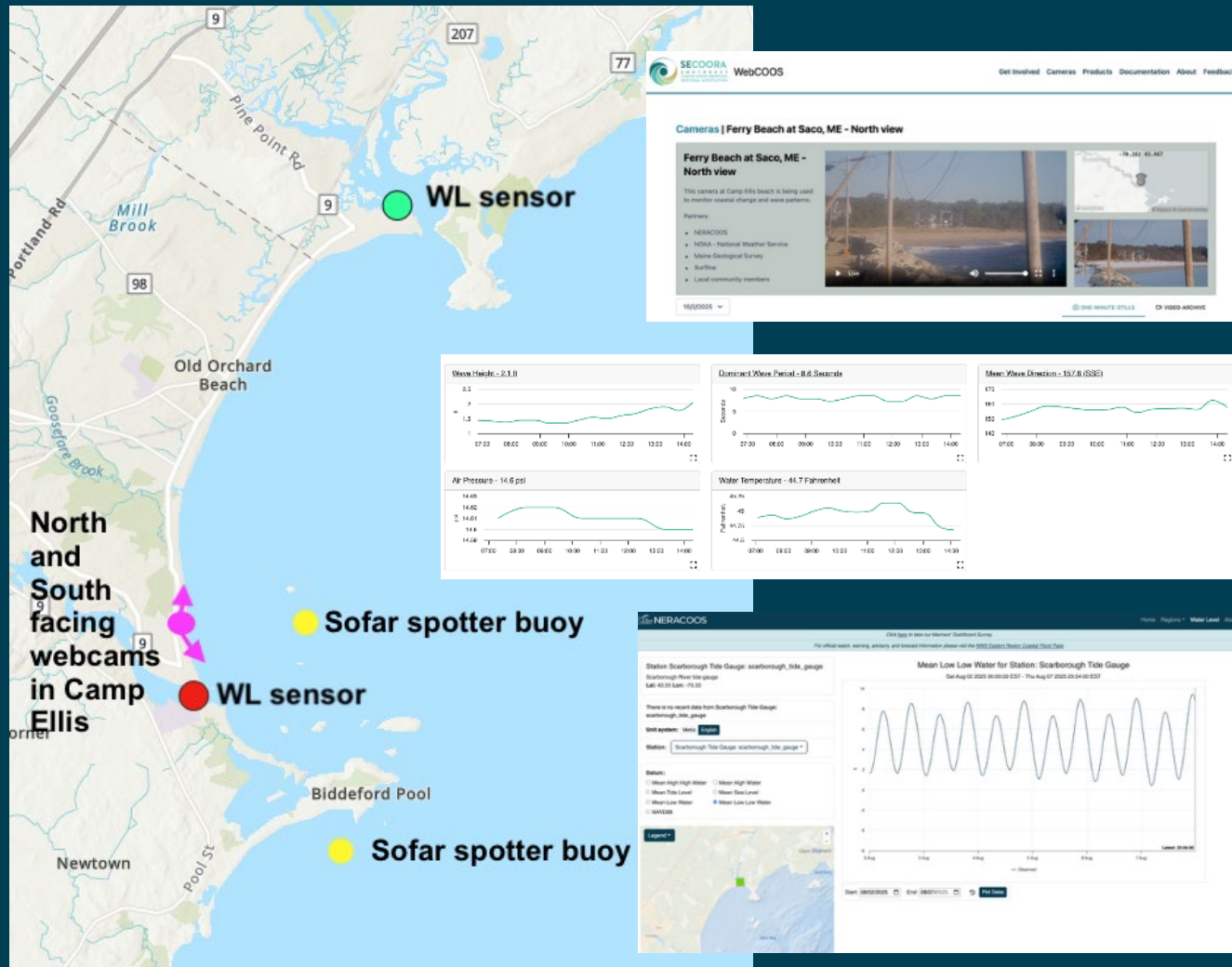
10/2/2025 ▾

[ONE-MINUTE-STILLS](#) [VIDEO-ARCHIVE](#)



https://webcoos.org/cameras/ferrybeach_north/

Putting It All Together: Saco Bay, Maine



The Power of Partnerships



Partners & Funders



BROWN



MARACOOS

Ocean Information for a Changing World

TOWN OF
NEW SHOREHAM
RHODE ISLAND



NSF EPSCoR

ADVANCING GEOGRAPHIC DIVERSITY IN STEM



Gulf of Maine
Research Institute



University of
New Hampshire

UConn

UNIVERSITY OF CONNECTICUT



IOOS

Integrated Ocean
Observing System

USGS
science for a changing world



CHARYBDIS GROUP



NEW HAMPSHIRE
DEPARTMENT OF
**Environmental
Services**



IMass Dartmouth



1865 THE UNIVERSITY OF
MAINE



OFFICE FOR
**COASTAL
MANAGEMENT**

WOODS HOLE GROUP
A CLS COMPANY



1930



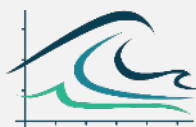
GREAT BAY
NATIONAL
ESTUARINE
RESEARCH
RESERVE



SECOORA
Southeast Coastal Ocean Observing
Regional Association



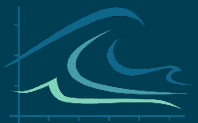
wellsreserve
at laudholm



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Thanks! Questions?

jake@neracoos.org



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