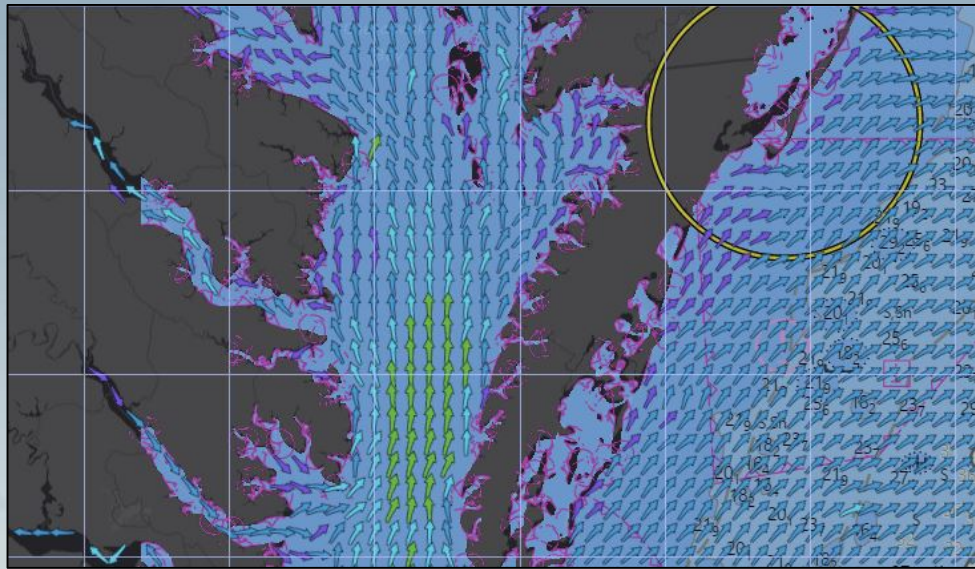


# S-104 (Water Level) and S-111 (Currents) Product Specifications and NOS Coastal Modeling

Peter Stone

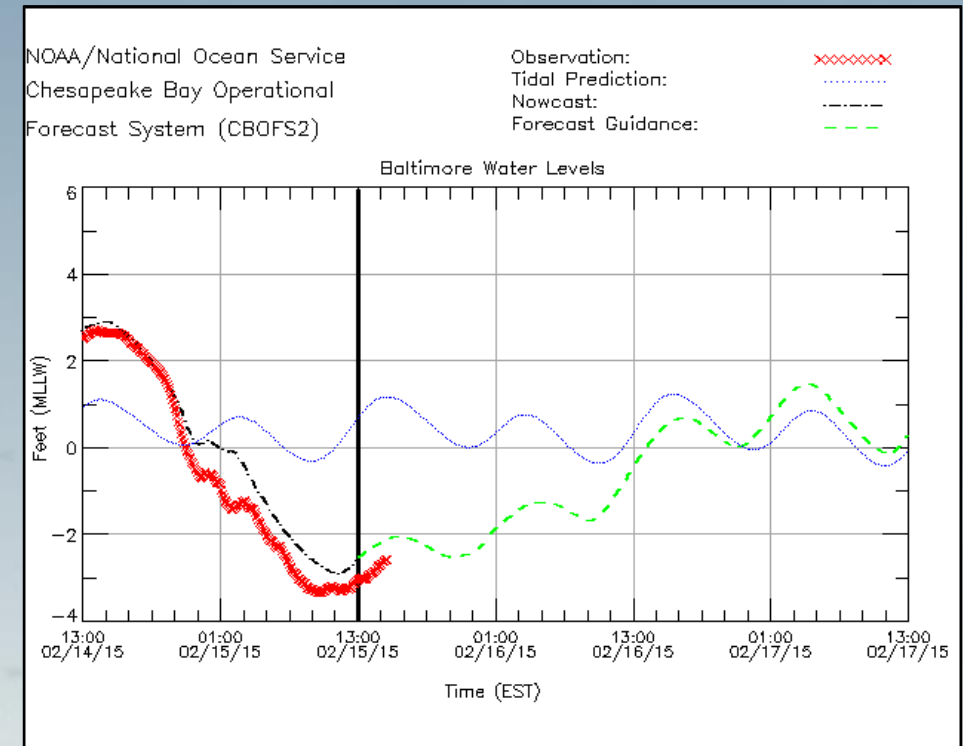
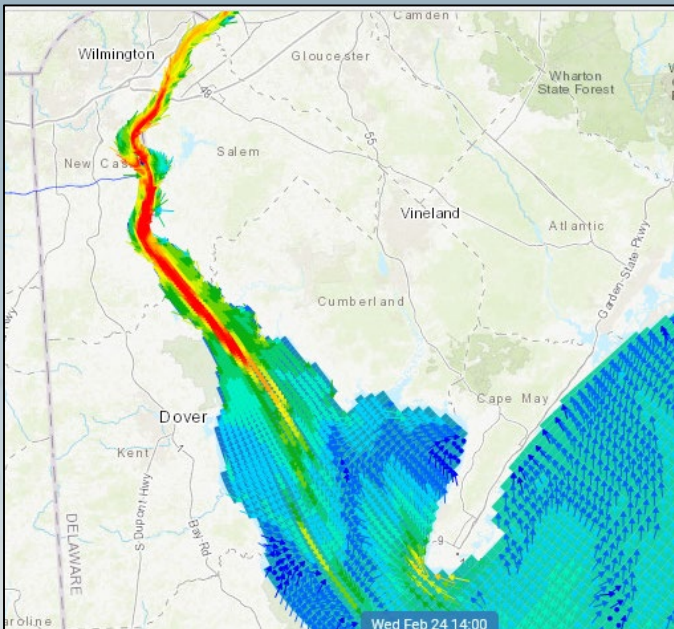
NOS/CO-OPS

Presentation to the  
Hydrographic Services  
Review Panel  
4 March 2021



# Purpose

- General Overview of NOS Operational Hydrodynamic Modeling
- Connections to NOAA and International Frameworks
- Dissemination Pathways



# NOAA Coastal Model Development Framework

NAO 216-105B: POLICY ON RESEARCH AND DEVELOPMENT TRANSITIONS

## Increasing the speed of R2O

**Weather and Climate  
Operational  
Supercomputing System  
(WCOSS)**

**CO-OPS Modeling  
Team**

**Coastal Survey  
Development Lab**

**Research Community**

TRL 9

•Actual system "flight proven" through successful mission operations

TRL 8

•Actual system completed and "flight qualified" through test and demonstration (ground or space)

TRL 7

•System prototype demonstration in a space environment

TRL 6

•System/subsystem model or prototype demonstration in a relevant environment (ground or space)

TRL 5

•Component and/or breadboard validation in relevant environment

TRL 4

•Component and/or breadboard validation in laboratory environment

TRL 3

•Analytical and experimental critical function and/or characteristic proof-of-concept

TRL 2

•Technology concept and/or application formulated

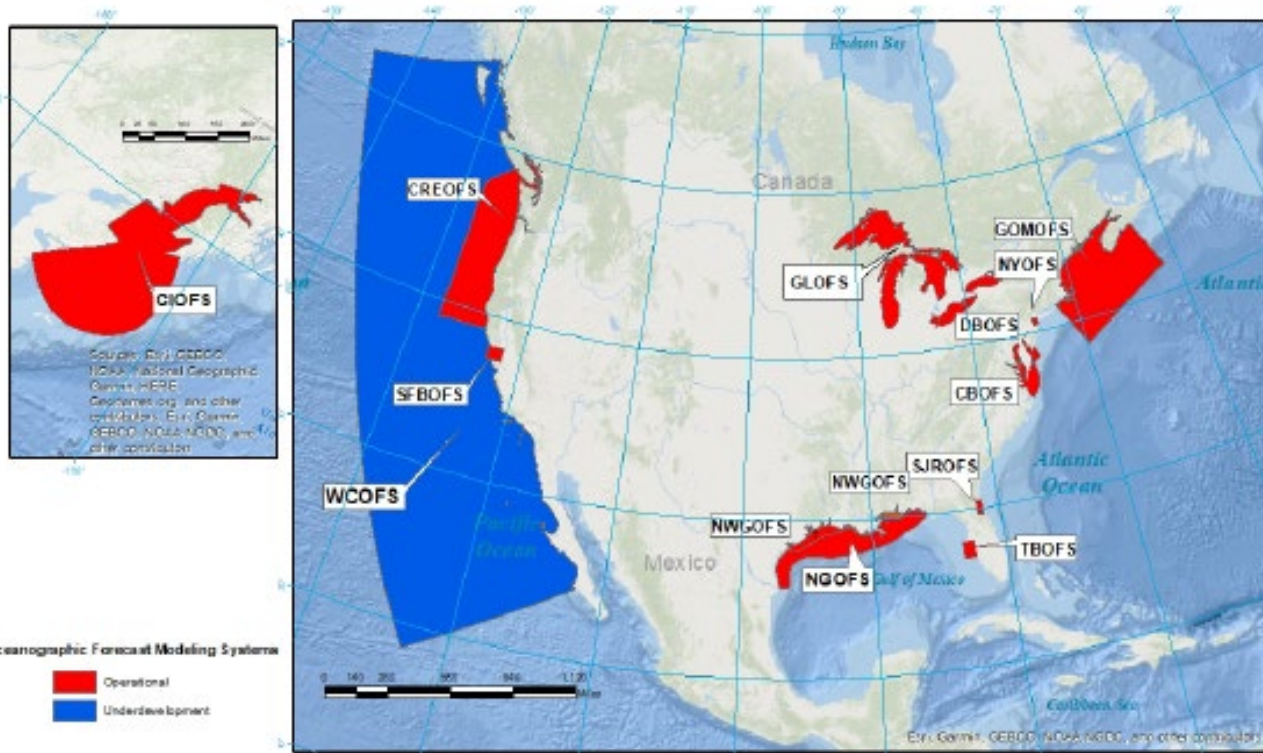
TRL 1

•Basic principles observed and reported

 **IOOS** | EYES ON THE OCEAN™

- IOOS is an important partner through R&D and COMT
- Partnership with NWS/NCEP and NESDIS/NCEI
- Follows Unified Modeling and Community Modeling standards
- Stakeholder engagement

# Operational Forecast Systems (OFS)



**NOAA/National Ocean Service**  
**Regional Approach for Operational Coastal Modeling Development & Implementation**

*Subject to Revision by NOS Management Based Upon Stakeholder Needs & Budget Opportunities,  
February 2021*

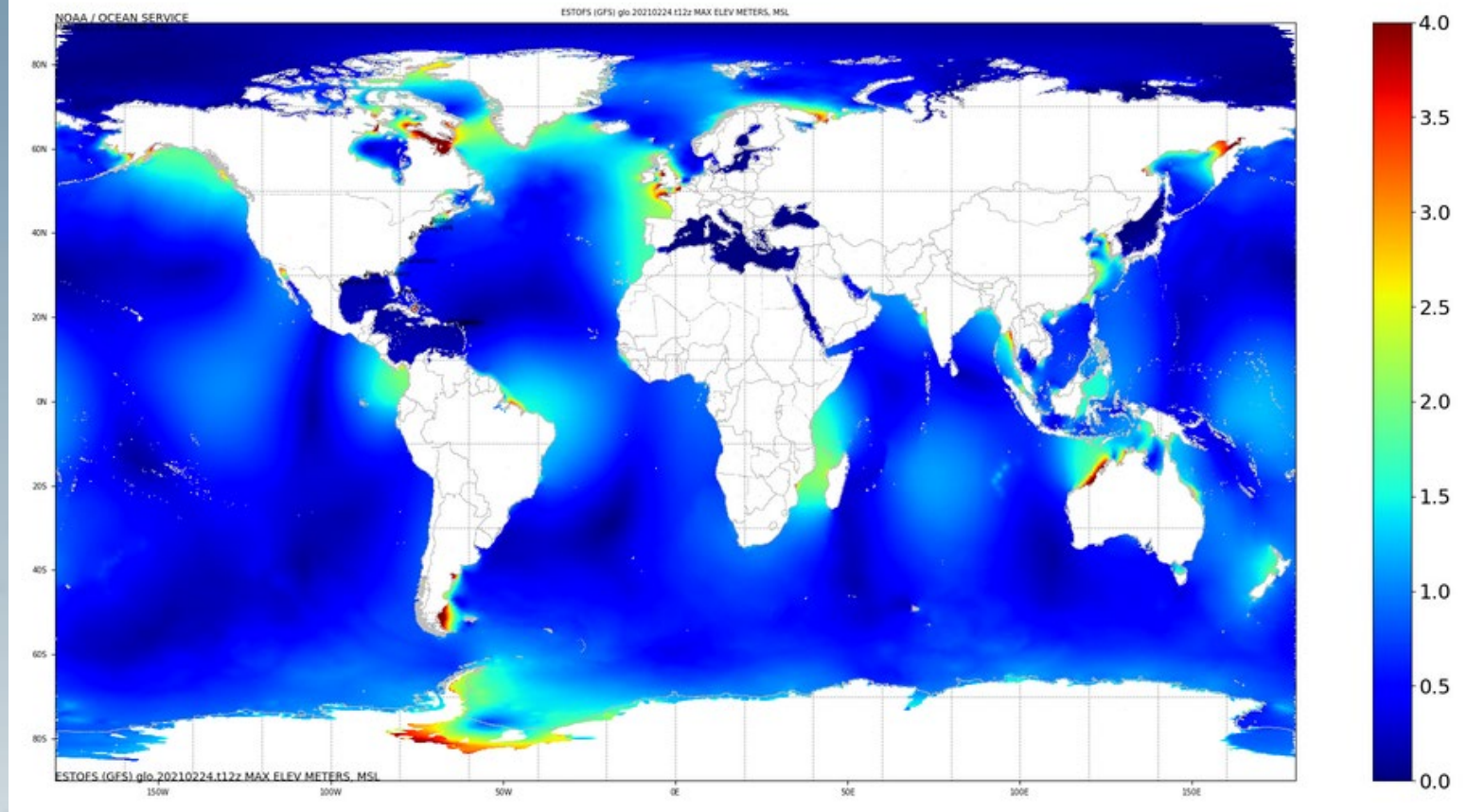
- FY20** West Coast OFS  
Integrated NGOFS
- FY21** NCEP Moratorium
- FY22** Lake Superior Upgrade  
Lake Ontario Upgrade  
Great Lakes OFS Ice Forecast
- FY23** Lake Huron Erie Corridor OFS  
New York Harbor OFS
- FY24** South East Atlantic OFS  
Puget Sound & Columbia River OFS



# Storm Surge + Tide Forecast Guidance Global ESTOFS

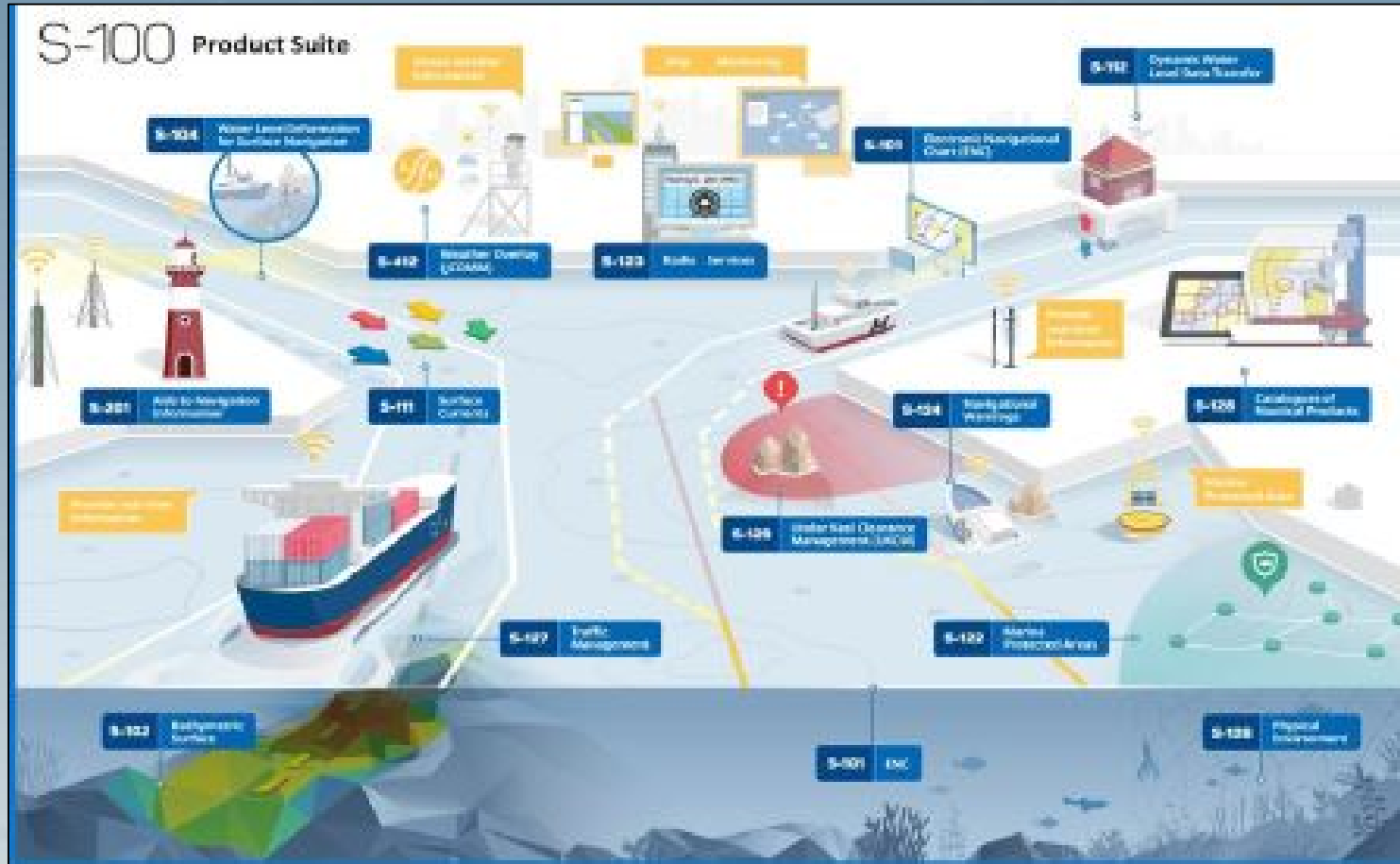
<https://polar.ncep.noaa.gov/estofs/>

Global ESTOFS Latest Forecast Cycle:



FY20	ESTOFS Bundled
FY21	NCEP Moratorium
FY22	ESTOFS Bundled HSOFS Upgrade
FY23	ESTOFS Bundled HSOFS Upgrade
FY24	ESTOFS Bundled HSOFS Upgrade

# International Framework: International Hydrographic Organization (IHO)



- Geospatial standard that supports a wide variety of data types
- Extensive Metadata specifications
- Standardized encoding formats
- Provides a consistent integration of hydrographic, meteorological, and oceanographic datasets that will enable precision marine navigation at major U.S. seaports

# S-100 Product Specification Time Line

	Data Provider	2021	2022	2023	2024	2025
S-101 Electronic Navigational Charts	OCS/MCD					
S-102 High Resolution Bathymetry	OCS/HSD					
S-104 Water Level Forecast Guidance	OCS/CO-OPs					
S-111 Surface Current Forecast Guidance	OCS/NSD					
S-411 Ice Forecast Guidance	NWS/NIC					
S-412 Wave and Weather Hazards	NWS/OPC					
S-413 Wave and Weather Conditions	NWS/OPC					
S-414 Wave and Weather Observations	NWS/OPC					
S-1XX Real Time Oceanographic Observations	CO-OPs					

Preliminary Service

Operational Service

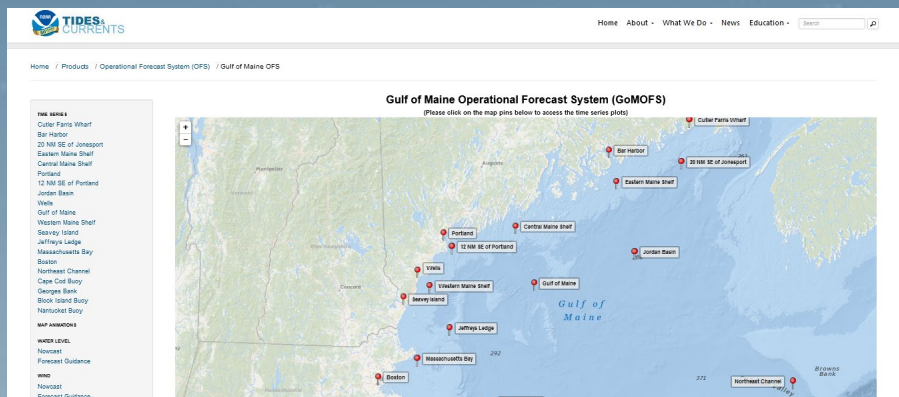
**Latest Versions**

**S-104: Version 0.0.8**

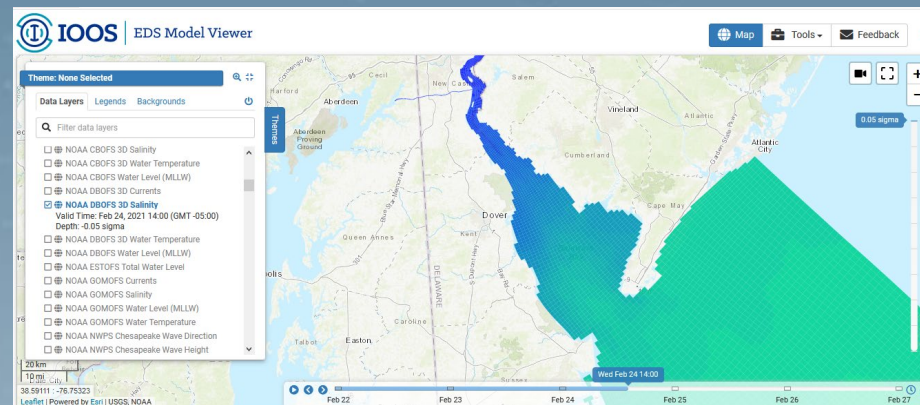
**S-111: Version 1.0.1**



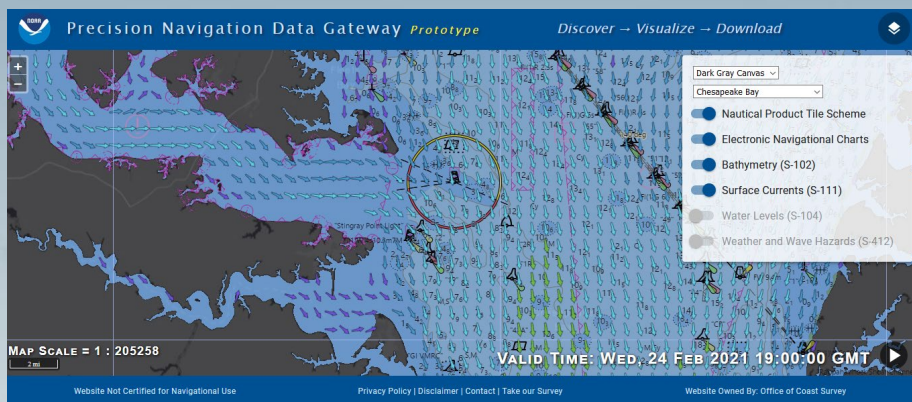
# NOS Model Dissemination Pathways



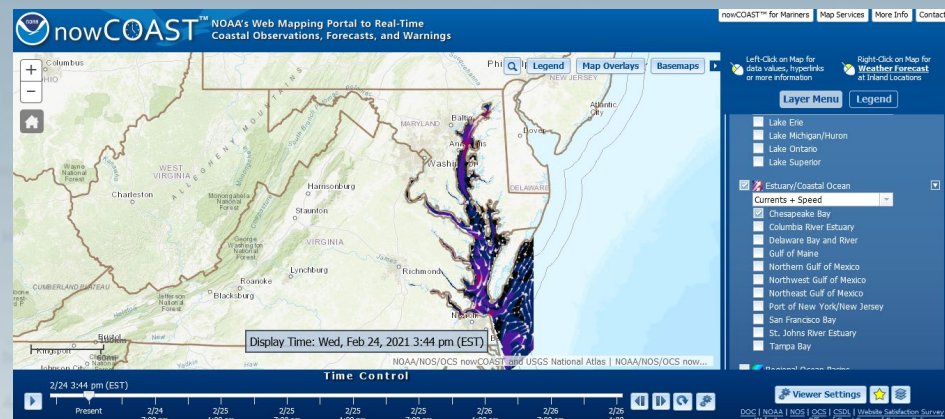
CO-OPS Tides and Current Website  
<https://tidesandcurrents.noaa.gov>



IOOS EDS Model Viewer  
<https://eds.ioos.us/map/>



Precision Marine Navigation Web Portal  
<https://beta.marinenavigation.noaa.gov/gateway/>



NOAA nowCOAST  
<https://nowcoast.noaa.gov/>





# NOS Model Dissemination Pathways

## Continued

- NOAA Big Data Project - <https://registry.opendata.aws/noaa-ofs/>
- NOAA/NCEI Model Archive - <https://www.ncei.noaa.gov/data/operational-nowcast-and-forecast-hydrodynamic-model-systems-co-ops/access/>



Thank You  
Questions?

