



Center for Operational Oceanographic Products and Services
NATIONAL OCEAN SERVICE



Data-Driven Climate Readiness

Tigist Jima

IOOS DMAC Annual Meeting, Silver Spring, MD
May 1, 2025

Introduction

- Why Climate Ready Nation initiative?
- What Are the Key Mission Areas?
- What was my assignment?



Drought



Heat



Floods



Wildfire



Coasts



Marine Resources



Why Coasts as Key Mission Area?

- Population: 40% (127 million people) of the United States population
- Jobs: sustain 54.6 million jobs annually
- Economy: generate more than \$10 trillion in goods and services
- National Security: maritime security, economic security & environmental protection
- Natural Resources: marine life, minerals, and energy resources
- coastal ecosystems: estuaries, marshes, coral reefs, rocky shores, & mangroves



America's Coasts

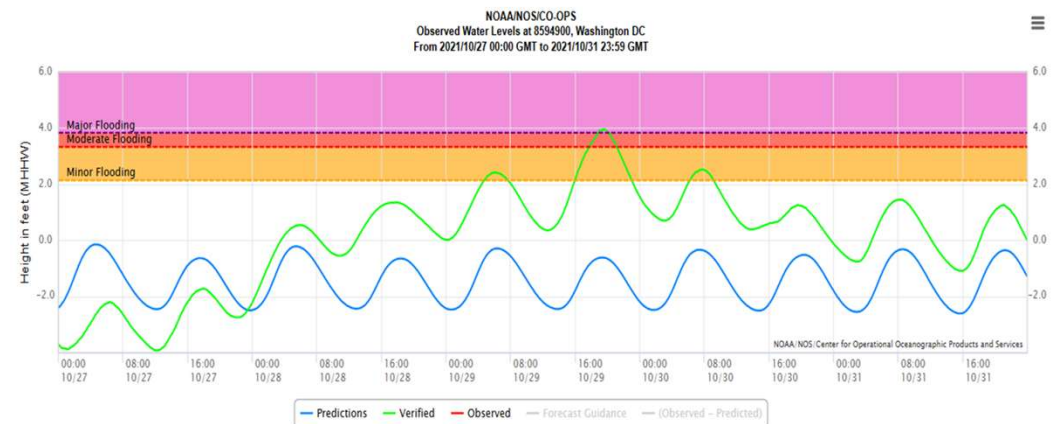
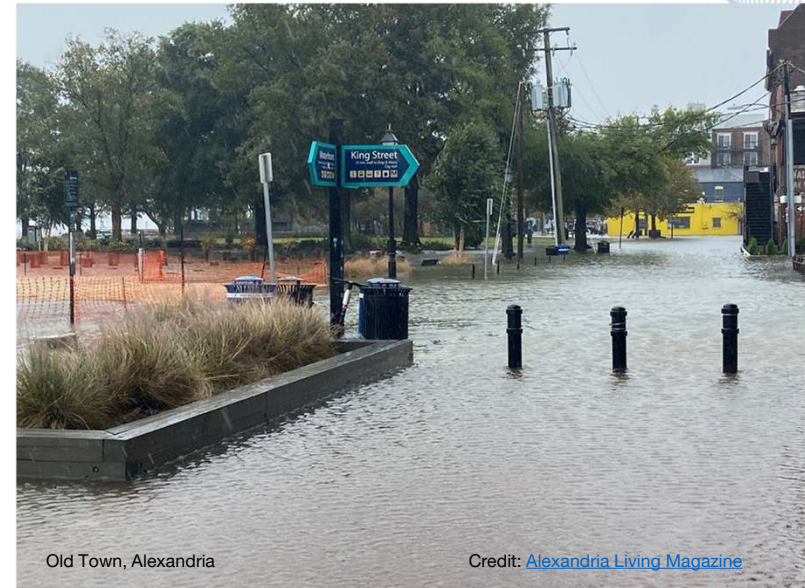
Almost **40%** of the population, **10%** of the land mass*
\$10 trillion in goods and services annually
\$54.6 million employed
\$4 trillion in wages annually

*Excluding Alaska

Sources: U.S. Census Bureau; Total Economy for U.S. Coastal Shoreline Counties (NOAA)

Coastal Risks

- Sea Level Rise
- High Tide Flooding



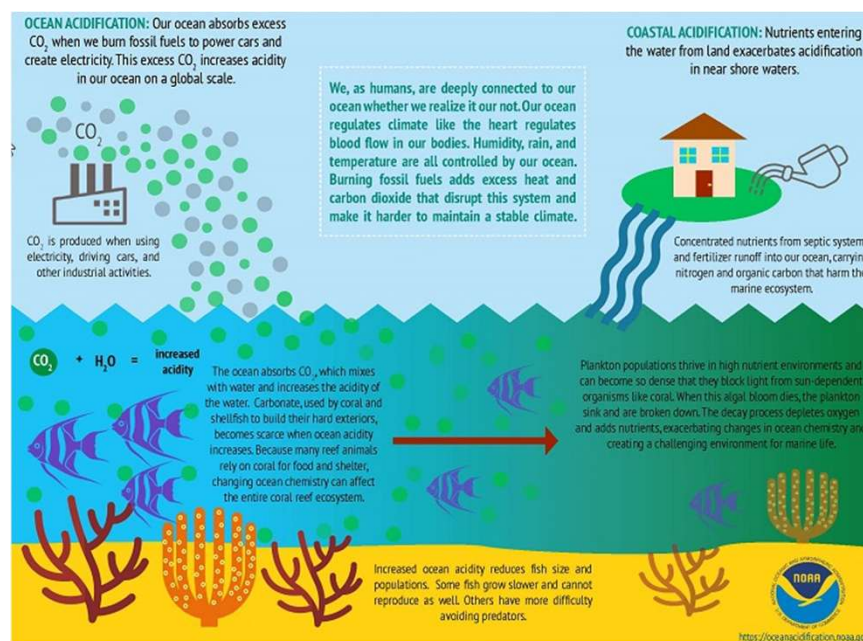
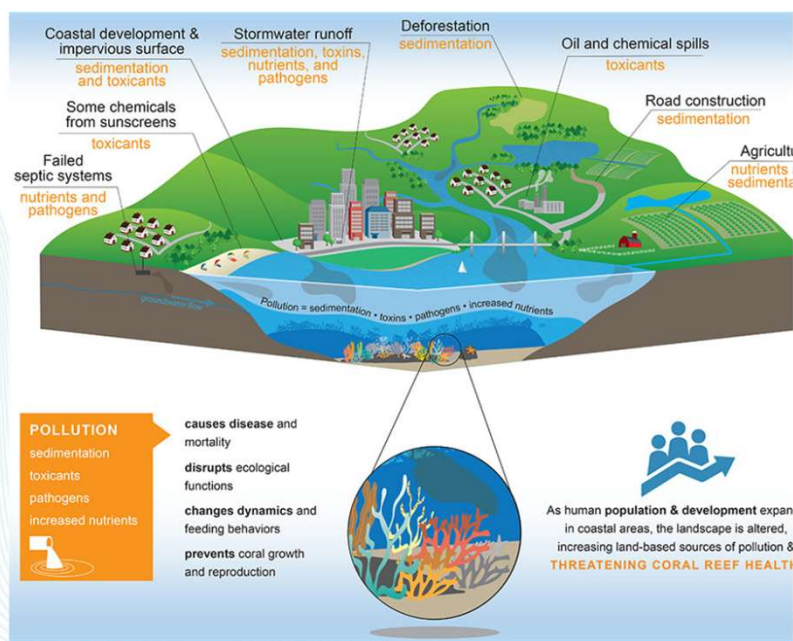
US Coasts hazards

- Tropical Storms,
- Winter Storms,
- tsunamis, and
- other extreme weathers



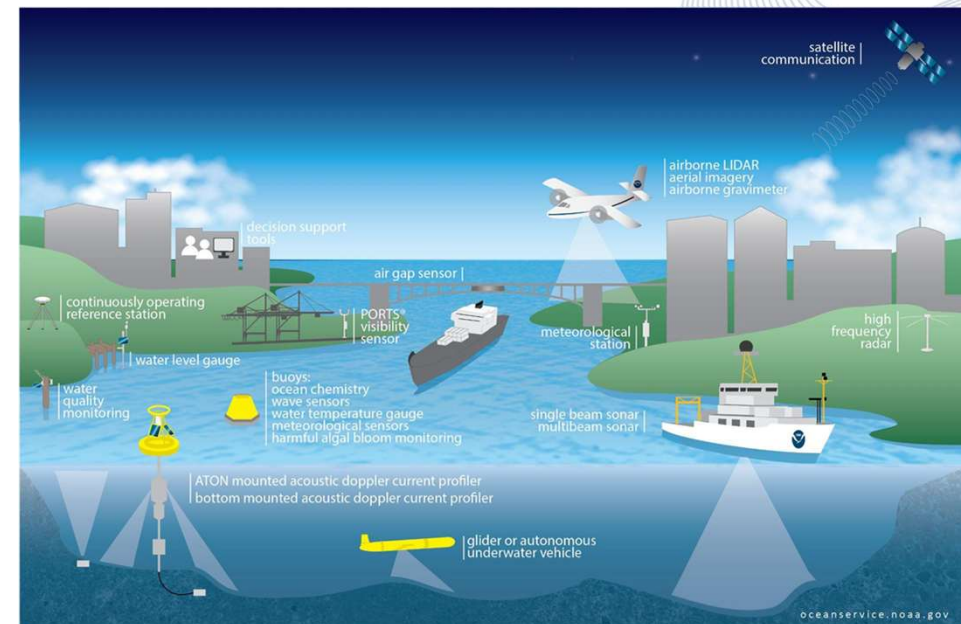
US Coasts hazards

- Pollution from land-based sources
- Coastal Acidification and nutrient influx



Critical Ongoing Projects: Observations

- deliver real-time data critical for port operations, navigation and emergency response
- observe changes in sea level and shoreline, coastal erosion
- delineate wetlands, ocean currents, SST temperature, and wave heights
- provide vital information for planning, hazard assessment, disaster preparedness, and decision making



Critical Ongoing Projects: Modeling

- deliver critical forecast and nowcast information to support US ports, harbors, estuaries, Great Lakes and coastal waters
- provide prediction and forecast for early warnings and evacuations
- fill gaps in observations and historical records
- improve assessment of long-term changes

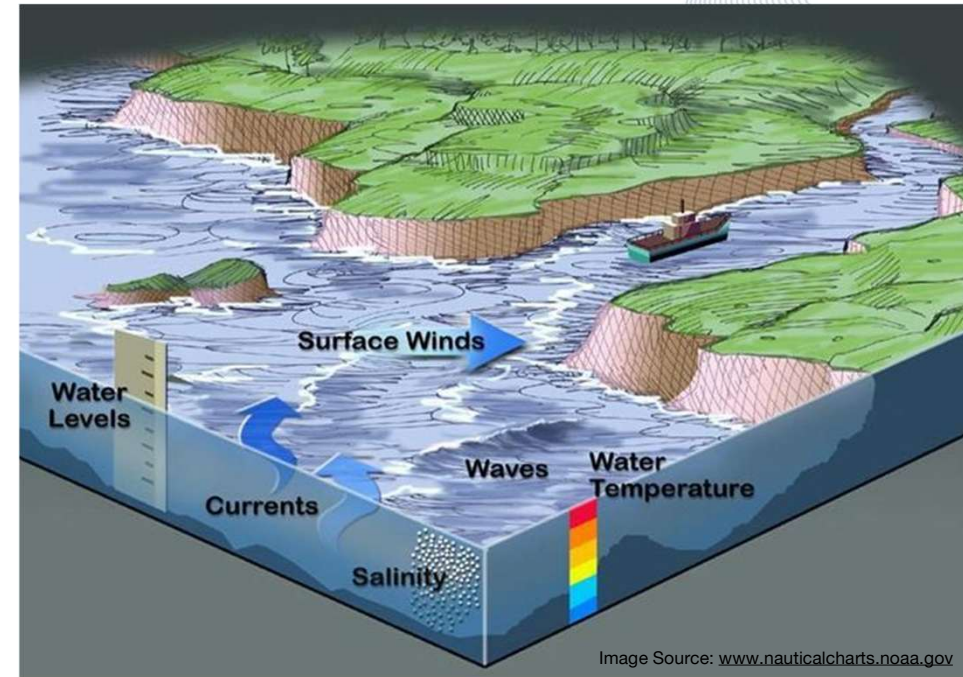


Image Source: www.nauticalcharts.noaa.gov

Critical Ongoing Projects: Research

- improve accuracy and precision of existing science
- integrate hydrological and hydrodynamics modelling
- advance knowledge and application of coastal marsh predictions

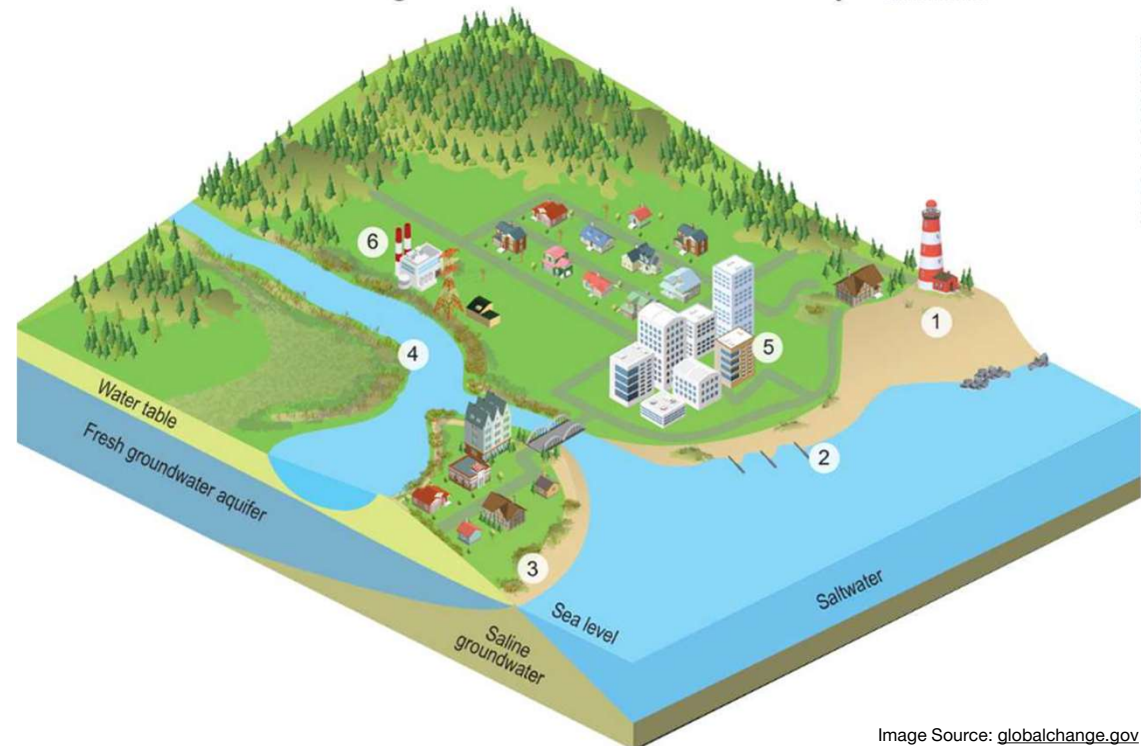


Image Source: globalchange.gov

Internal Collaboration and Efficiencies

- Coastal Inundation at Climate Timescales (CICT)
- Climate, Ecosystems, and Fisheries Initiative (CEFI)
- Cross-line office multi-stressor research
- Coastal Flood Risk Prediction



Expanding Investments and Capabilities



- upgrade observing systems to withstand increasingly extreme weather
 - How can NOAA leverage existing platforms for multiple uses?
- sustain a comprehensive enterprise-level cloud infrastructure for
 - ease of data sharing, storage, dissemination, and archiving
 - fulfillment of the high computational demand of coupled models
- strengthen and expand existing collaborations to enhance resource sharing and service delivery

A serene landscape featuring a calm body of water, likely a bay or estuary, with marshland on the left and a wooden dock in the foreground. The sky is overcast with soft, grey clouds. The text "Thank you" is centered in the middle of the image.

Thank you