SECOORA

STAKEHOLDER MEETING

Annual Meeting • May 21, 2026

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COASTAL SCIENCE & ENGINEERING

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AGENDA

8:15 – 9:00 AM	**Registration**
9:00 – 9:10 AM	**Welcome & Overview of Day 2**
9:10 – 10:00 AM	**Updates from U.S. IOOS and the IOOS Association** Speakers (confirmed): •Kristen Yarincik, IOOS Association (virtual) •Krisa Arzayus, IOOS Program Office (recorded) •Susan Fox, IOOS Program Office (virtual) •Emily Patrolia, ESP Advisors (virtual)
10:05 – 10:15 AM	**BREAK**
10:15 – 11:15 AM	**Water Level Impacts on Infrastructure in the Southeast** *Objective: Examine the ways water level impacts various infrastructure systems in coastal communities, discuss how water level data is being collected in the Southeast, and ways to improve coastal infrastructure planning.* Moderator: Jennifer Dorton, SECOORA Speakers (confirmed): •Frank Lopez, NC Sea Grant •Miyuki Hino, UNC Chapel Hill •Lynn Davis, Town of Belhaven •Meredith Hovis, University of North Carolina Wilmington
11:20 – 12:15 PM	**Practical Applications of AI to Ocean Science & Resilience** *Objective: Address how the field of oceanography and coastal resilience is evolving to incorporate the use of AI, and how coastal researchers and practitioners can take advantage of advances in AI in their work moving forward.* Speakers (confirmed): •Taylor Shropshire, Fathom Science •Greg Dusek, Dusek Coastal Science & Consulting •Kelly Knee, Tetra Tech
12:15 – 1:00 PM	**Lunch (provided)**
1:15 – 2:00 PM	**Lightning Talks**
2:00 – 3:00 PM	**Beach and Dune Restoration and Renourishment** *Objective: Survey subject matter experts in different types of beach-dune work for ways buoy data can be used to augment projects/studies in nearshore/onshore environments.* Speakers (confirmed): •Patrick Barrineau, Coastal Science & Engineering •Christy Swann, RCOAST •Reide Corbett, Coastal Studies Institute

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UPDATES FROM U.S. IOOS AND THE IOOS ASSOCIATION

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BREAK

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WATER LEVEL IMPACTS ON INFRASTRUCTURE IN THE SOUTHEAST

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DELIVERING DATA FOR DECISIONS

South East Water Level Network

Cotie J. Alsbrooks

Previous 5 Year Overview

- Fill geographic data gaps
  - Total: 137
  - SECOORA Funded: 118
  - Partner Stations Shared on SECOORA Data Portal: 19
- Work with flooding vulnerable communities.
- Contribute to state and local decision-support applications and alert systems

Previous 5 Year Operations

asbpa
American Shore & Beach Preservation Association
Advocating for healthy coastlines

Hohonu

Georgia Tech

FIU | Sea Level Solutions Center
Florida International University

Burroughs & Chapin Center for Marine & Wetland Studies
Coastal Carolina University

FAU I-SENSE
Division of Research
Florida Atlantic University

National Ocean Service
NOAA
Center for Operational Oceanographic Products & Services
CO-OPS

Sea Grant
Florida • North Carolina
South Carolina • Georgia

Goals of the Next 5 Years

Technology

- Streamlining infrastructure by integrating water level, weather, and camera data at single-site locations.

Installation Contractors

- Scalable Deployment: Leveraging a diverse pool of qualified contractors to accelerate regional installation.
- Enhanced site selection and sensor placement through direct project oversight.

Cross Regional Standardization

- Leveraging National IRA Funding to accelerate back-end development and scale water level products to meet growing federal and regional needs across IOOS Regional Associations.

Community Engagement

- Expanding community engagement through local station stewardship to maximize sensor utility and long-term site sustainability.
- Establish and foster new relationships in the Southeast around flood monitoring.

Work Towards New Goals

- Re-evaluating currently deployed SECOORA sensors
- New Products
  - Tidal Datum Converter
  - Co-location with WebCOOS
- Exploration of New Sensors and Technologies
- Building New Relationships in the Region

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NC STATE UNIVERSITY

THE UNIVERSITY of NORTH CAROLINA at CHAPEL HILL

Incidence and impacts of chronic coastal flooding in North Carolina

SUNNY DAY FLOODING PROJECT

(Photo credit: Natalie Nelson)

Miyuki Hino, Associate Professor, City & Regional Planning, UNC-Chapel Hill
Katherine Anarde, Assistant Professor, Civil, Construction, and Environmental Engineering, NC State

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION NOAA U.S. DEPARTMENT OF COMMERCE

NSF

NASA

NC Policy Collaboratory

N*C DPS DEPARTMENT OF PUBLIC SAFETY

Sea Grant NORTH CAROLINA

COASTAL RESILIENCE CENTER
A U.S. Department of Homeland Security Center of Excellence

Incidence and impacts of chronic coastal flooding in North Carolina

NC STATE UNIVERSITY

THE UNIVERSITY of NORTH CAROLINA at CHAPEL HILL

SUNNY DAY FLOODING PROJECT

Miyuki Hino (UNC)
Anthony Whipple (UNC IMS)
Adam Gold (EDF)
Elizabeth Frankenberg (UNC)
Chao Wang (UNC)
Tamlin Pavelsky (UNC)
Isabel Kwass-Mason (UNC)

Evan Goldstein (Sediment LLC)

Phil Bresnahan (UNCW)

Max Cawley (Museum of Life & Science)

Katherine Anarde (NCSU)
Casey Dietrich (NCSU)
Natalie Nelson (NCSU)
Angela Harris (NCSU)
Elizabeth Farquhar (NCSU)

Zena Grecni (University of Arizona)
Chris Shuler (UH Manoa)
Matthew Widlansky (UHSLC)

Graduate Students:
Ryan McCune (NCSU)
Thomas Thelen (NCSU)
Megan Carr (NCSU)
Kelly van Woesik (NCSU)
Jenna Kraemer (NCSU)
Julia Harrison (NCSU)
Nadia Karzouz(NCSU)
James Collins (UNC)
Alayna Smith (UNC)
Helena Garcia (UNC)
Lilia Davis (UH)
Brian Gorberg (UH)

Undergraduate Students:
Perri Woodard (NCSU)
Grace Ann Lower (UNC)

Daniel Keating – Town of Carolina Beach
Jeremy Hardison – Town of Carolina Beach

Karen Amspacher - Core Sound Waterfowl Museum & Heritage Center

Avery Smith – City of New Bern

Sam Bell – Town of Beaufort

Joseph Wat – KEY Project
Rainbow Uli'i – KEY Project

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

NOAA NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION U.S. DEPARTMENT OF COMMERCE

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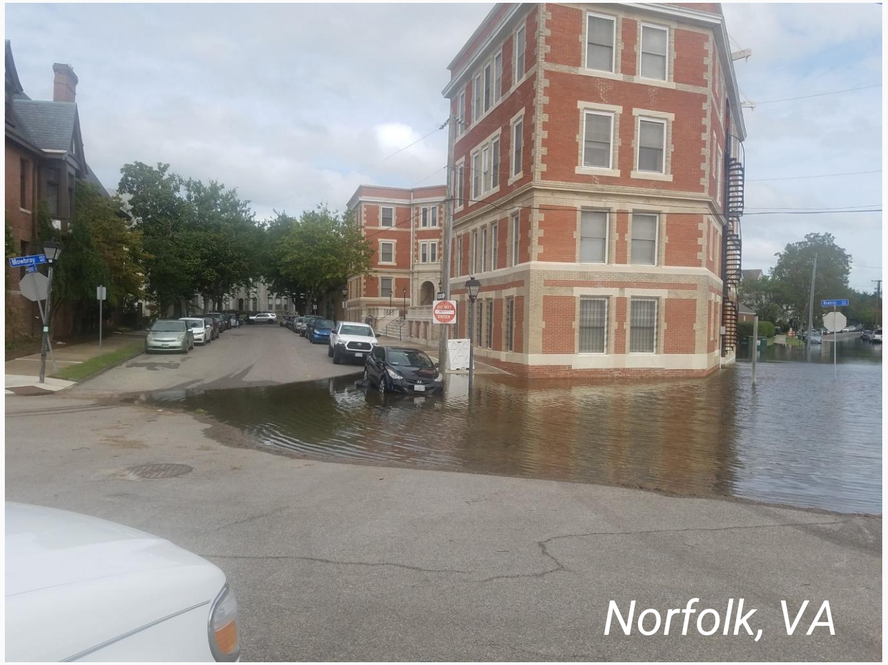
Coastal flooding is occurring in the absence of extreme events due to sea-level rise

Jamaica Bay, NYC


Hollywood, FL

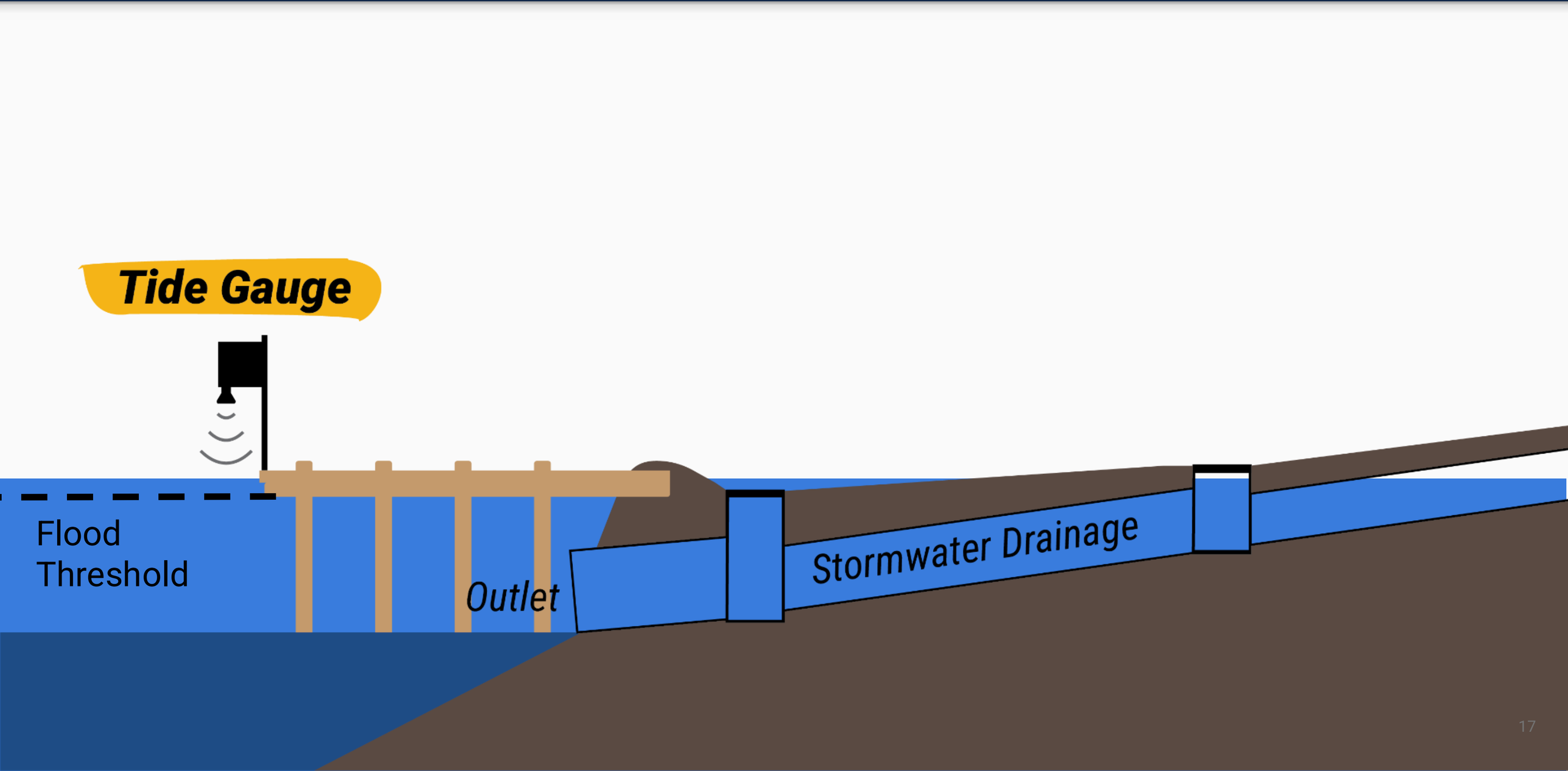

San Francisco, CA


Norfolk, VA

Honolulu, HI

(top left: NY Sea Grant
bottom left: WAVY 10 news,
bottom right: Circle of Blue,
top center and top right:
Business Insider)

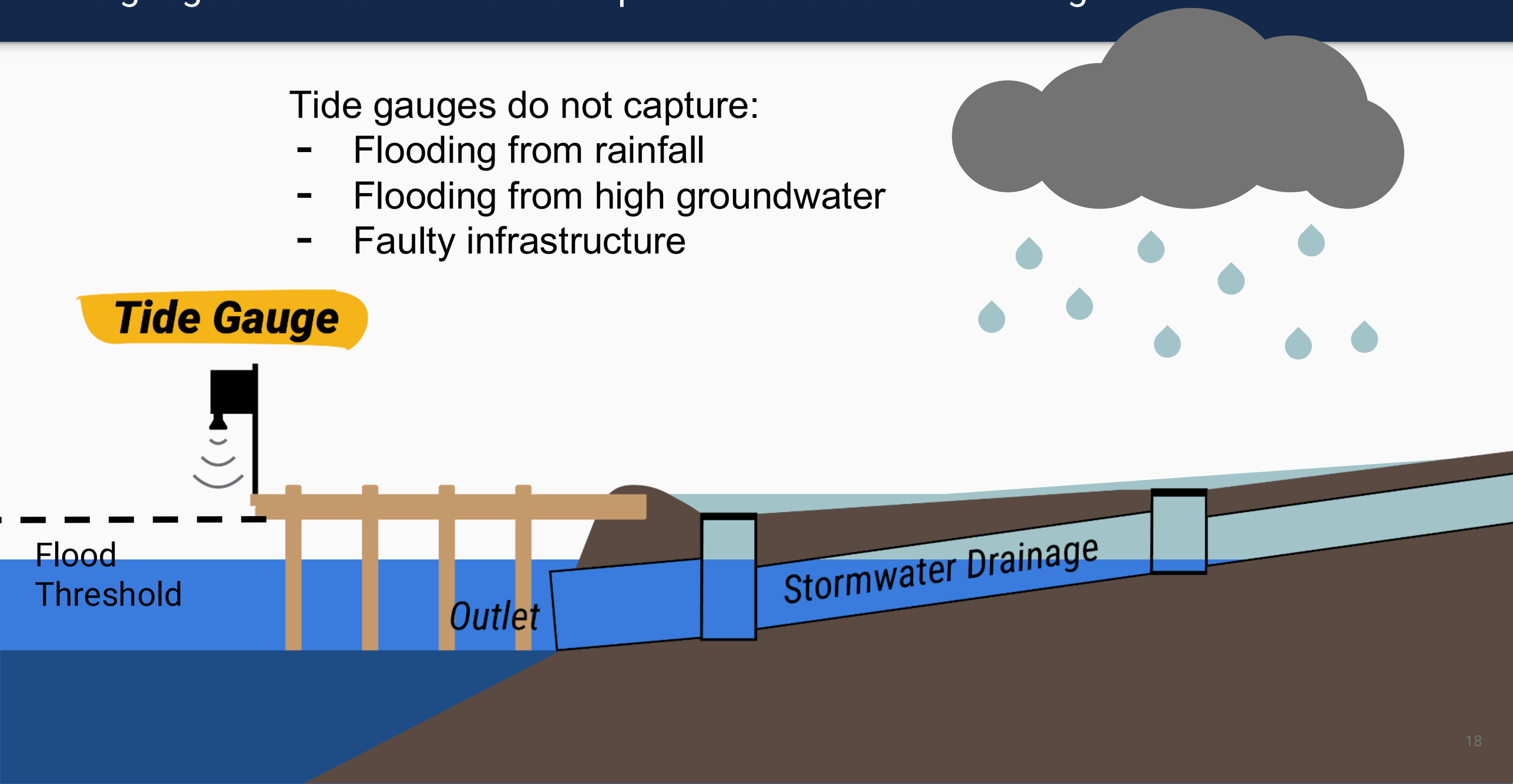
Tide gauge data are used to estimate flood frequency



Tide gauges are not intended to capture all sources of flooding

Tide gauges do not capture:

- Flooding from rainfall
- Flooding from high groundwater
- Faulty infrastructure

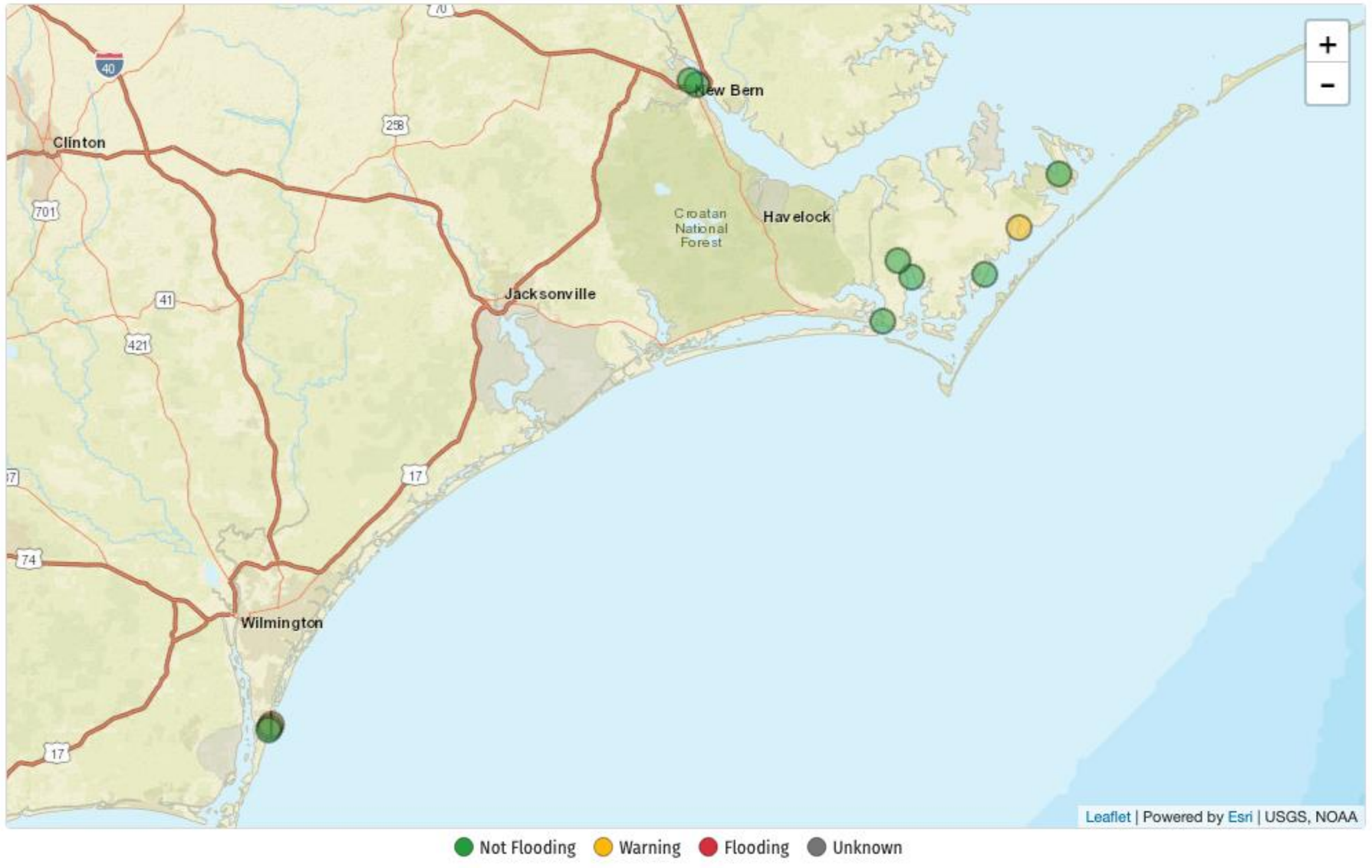


We deployed sensors and cameras to detect these types of floods

Real-time camera

Real-time water levels

Deployments across the North Carolina coast (some since 2021)

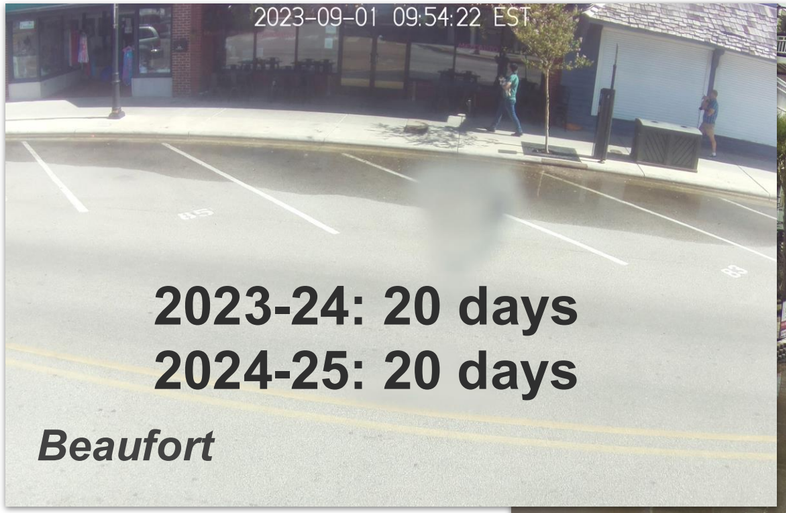


We capture floods of any size caused by tide, rain, wind, groundwater, etc.

Tidal flooding in Sea Level

Rain-on-tide flooding in Carolina Beach

How often is it flooding?

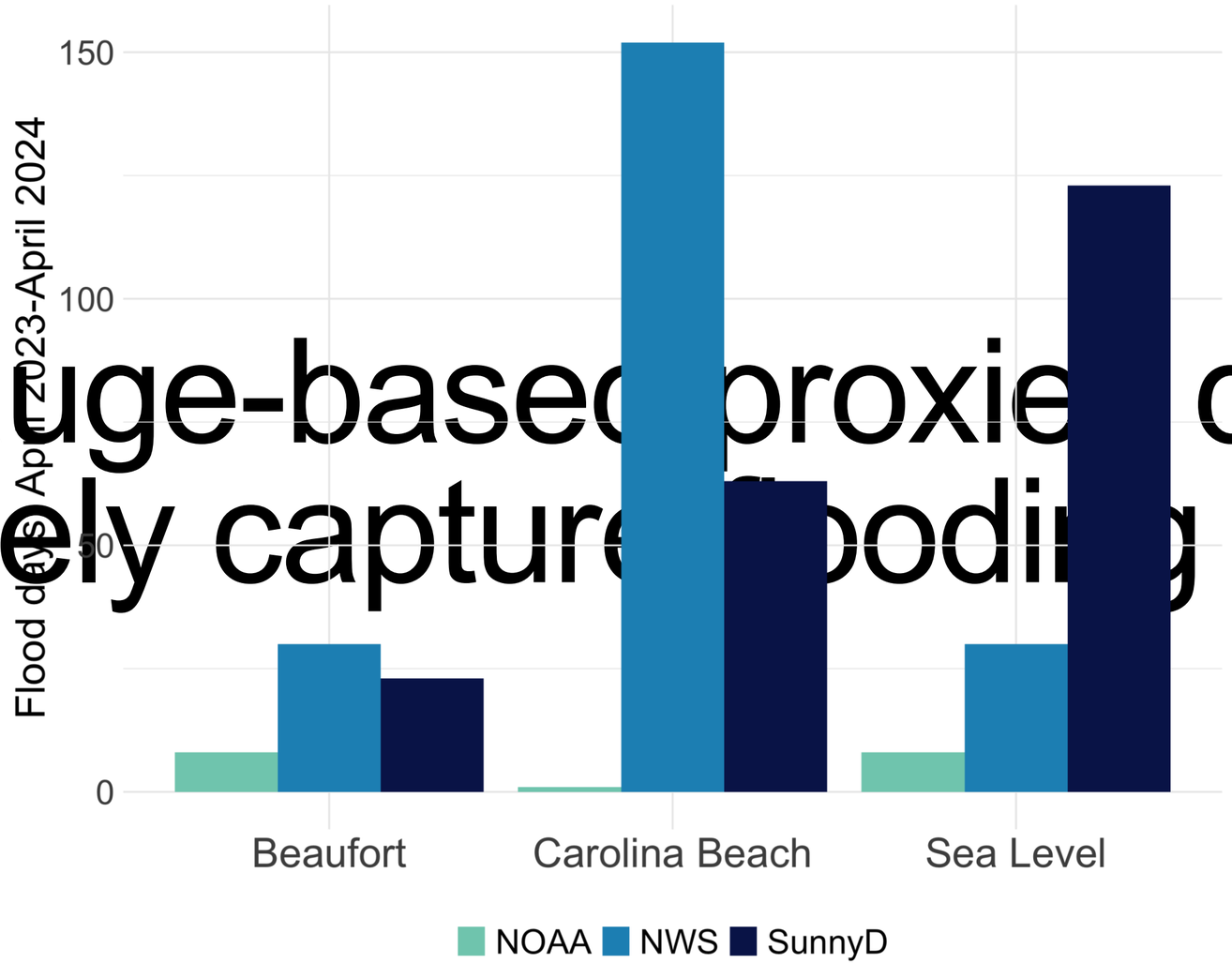


Flood: any amount of (salt) water on road outside of extreme storm event

* Sea Level sensor experienced an extended outage in 2024-25, making this estimate an undercount

(Source: flood cameras)

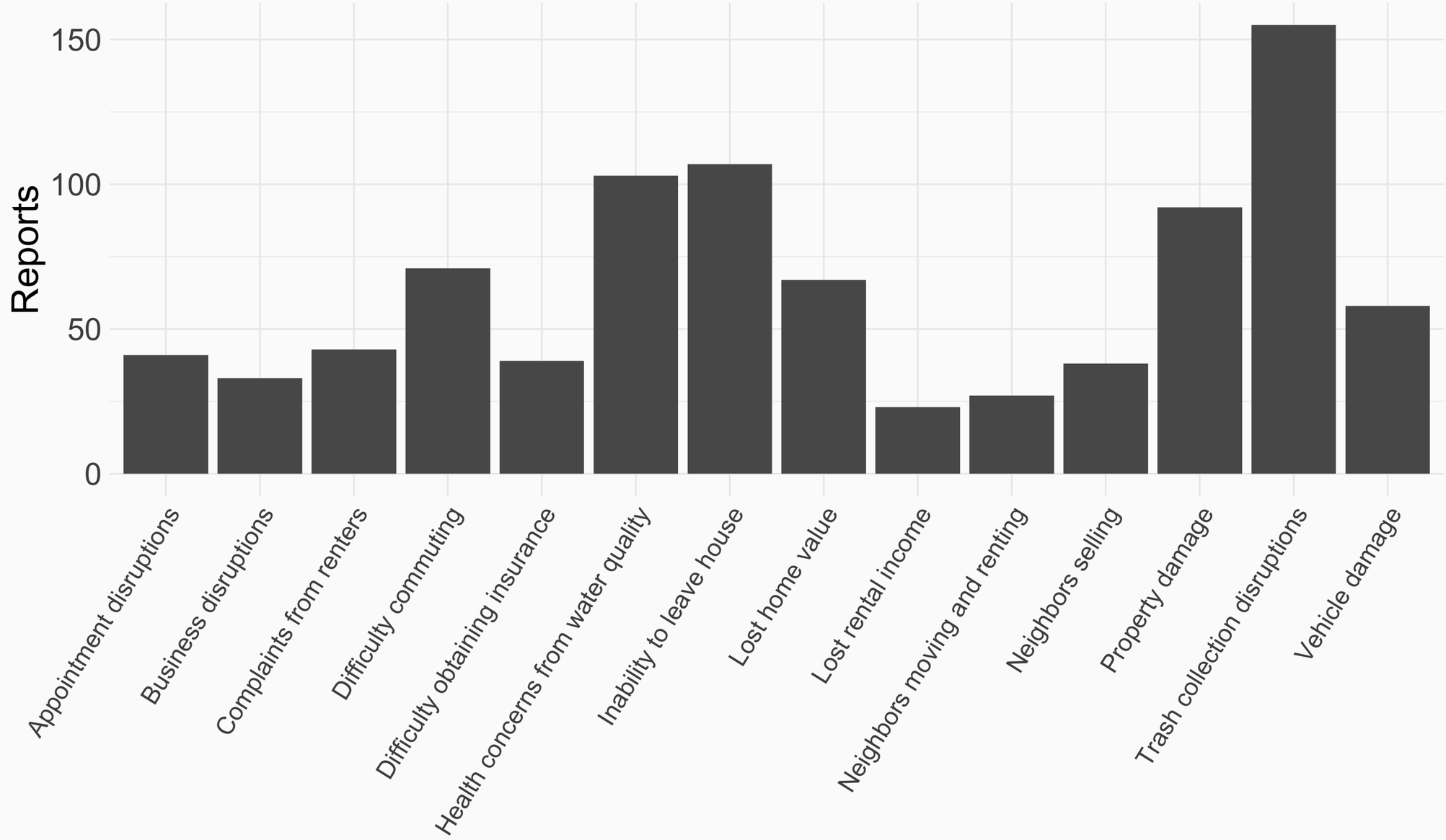
Tide gauge-based proxies do not accurately capture flooding on land



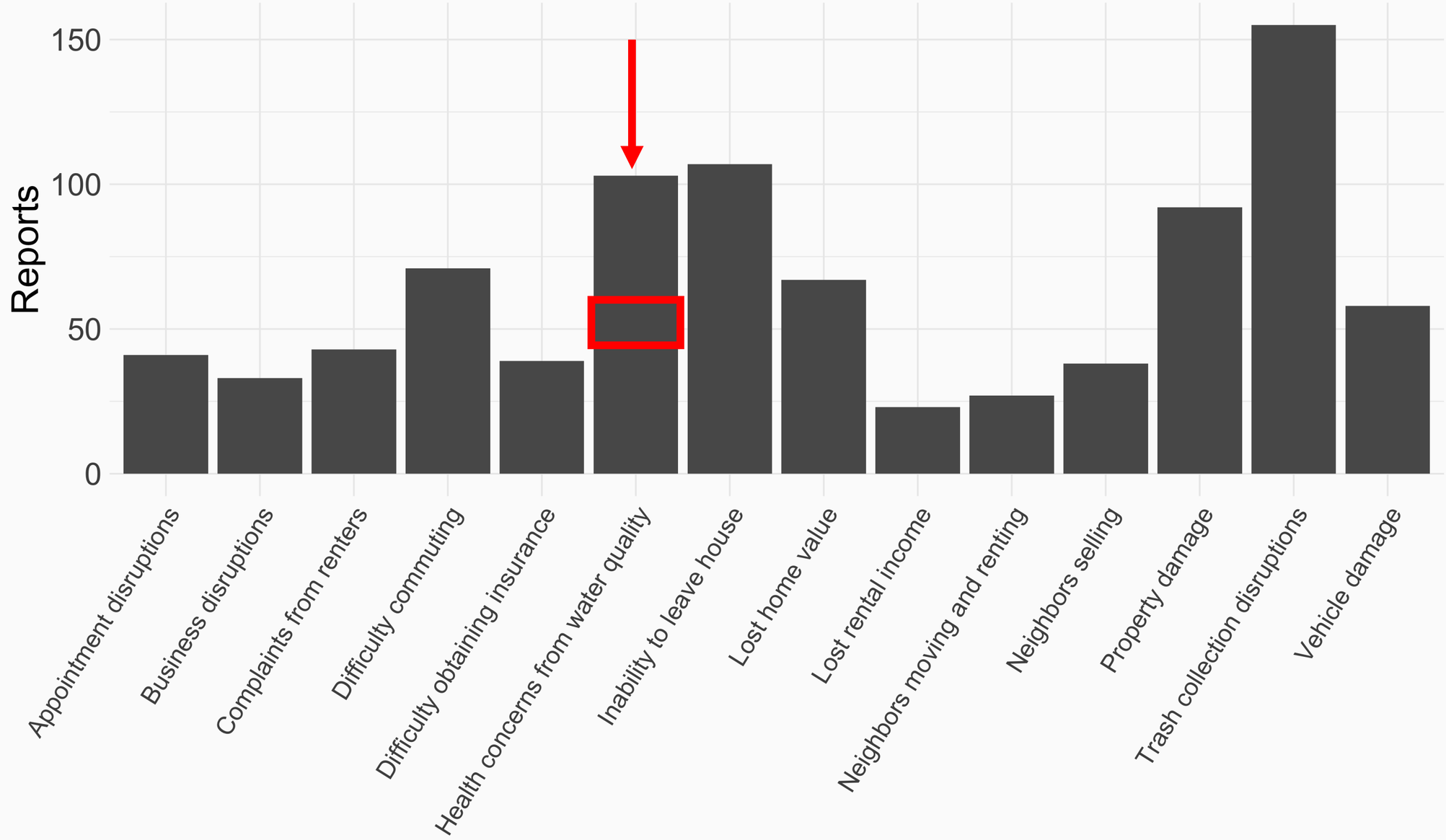
NOAA and NWS estimates are based on the NOAA Beaufort gauge for Beaufort and Sea Level, and the NOAA Wilmington gauge for Carolina Beach.

Hino et al., 2025

Flood disruptions are wide-ranging



Health concerns from water quality are widespread




Household and industrial pollutants, pet/wildlife feces
STOP
FOUR 1101 SEASONS
1103

What are the water quality and health risks posed by chronic coastal flooding?

Methods:

Contamination characterization

- Measure *Enterococcus* spp., a type of fecal indicator bacteria

*Source tracking**

- Modeling
- Microbial source tracking targets (DNA fingerprints) for human and dog feces

Future work: Health risks

- Quantitative microbial risk assessment

Roadway floodwaters often have high concentrations of contaminants

1,112-1,334 MPN 100 mL^{-1}

683-2,286 MPN 100 mL^{-1}

EPA single sample maximum for safe use of recreational waters: 104 MPN 100 mL^{-1}

Carr et al. (2024), *GeoHealth*; Carr et al., *in preparation*

Tidal floodwater contamination is not unique to North Carolina

Estuaries and Coasts (2023) 46:1756–1776
https://doi.org/10.1007/s12237-023-01245-3

Check for updates

Five Years Measuring the Muck: Evaluating Interannual Variability of Nutrient Loads From Tidal Flooding

Alfonso Macías-Tapia[1] · Margaret R. Mulholland[1] · Corday R. Selden[1,2] · J. Derek Loftis[3] · Peter W. Bernhardt[1]

Received: 29 December 2022 / Revised: 8 July 2023 / Accepted: 12 July 2023 / Published online: 19 August 2023

ORIGINAL RESEARCH article

Front. Water, 16 April 2024
Sec. Environmental Water Quality
Volume 6 - 2024 | https://doi.org/10.3389/frwa.2024.1359196

The presence of ampicillin-resistant coliforms in urban floodwaters of a coastal city in the southeastern United States

Kayla T. Squiggins[1] Heather Fullerton[2] Vijay M. Vulava[3]*

[1] Environmental and Sustainability Studies Graduate Program, The University of Charleston, College of Charleston, Charleston, SC, United States
[2] Department of Biology, College of Charleston, Charleston, SC, United States
[3] Department of Geology and Environmental Geosciences, College of Charleston, Charleston, SC, United States

NOAA Atlantic Oceanographic & Meteorological Laboratory
U.S. Department of Commerce

News Research Resc

On December 3, 2016 by AOML Communications to Events, Ocean Chemistry and Ecosystems, Oceans Influence on Climate & Weather

Study Focuses on Contaminants Lurking in Urban Tidal Flooding

It’s flooding a lot: what do we do about it?

We engaged Carolina Beach residents in a series of workshops to:

- Identify flood mitigation strategies that are in line with residents’ preferences and values
- Test the effectiveness of those strategies today and in the future

Workshop 1: June 2024

- What flood mitigation strategies are of interest?
- Where could they be implemented?

Long list of potential strategies

Workshop 2: Dec 2024

- How effective are the different strategies at mitigating flooding?
- How does that differ by flood driver (tidal, rain, etc.)?

Short list of potential strategies

Workshop 3: Feb 2025

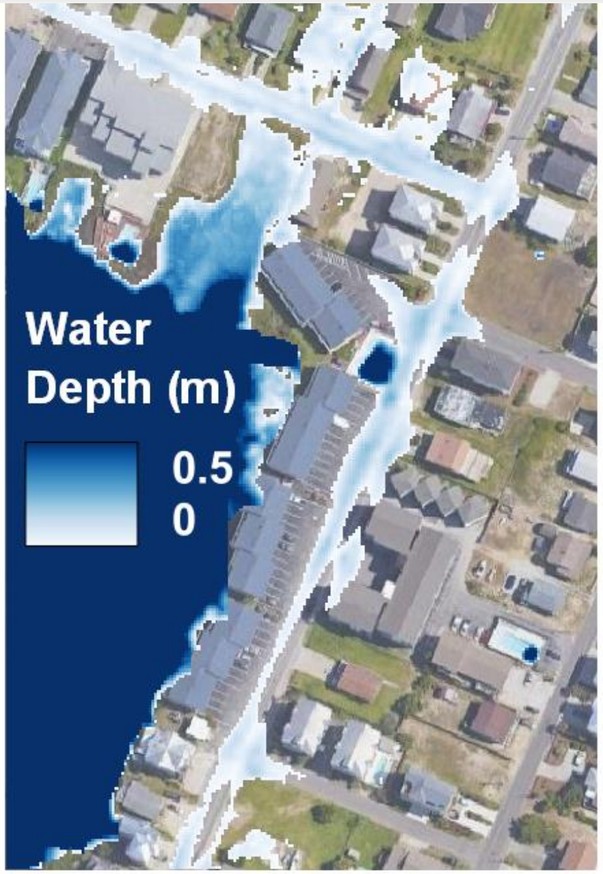
- How do the strategies perform under future sea levels?
- What other factors affect feasibility?

Preferred strategies and associated next steps

Workshop 4: June 2025

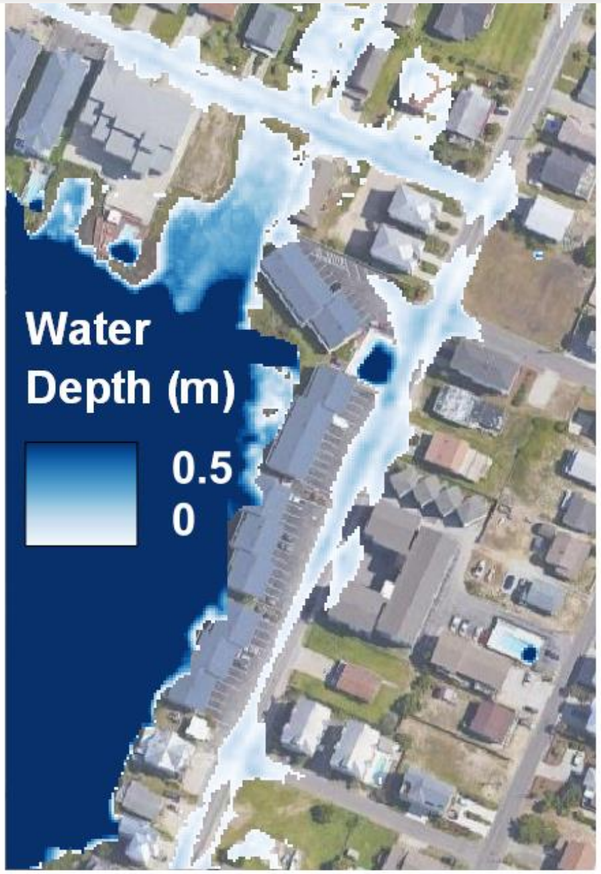
- Reflection on process and next steps
- Report back to broader community

We use the sensor data to calibrate highly localized models of flooding



Tides & atmospheric
Present-day sea levels

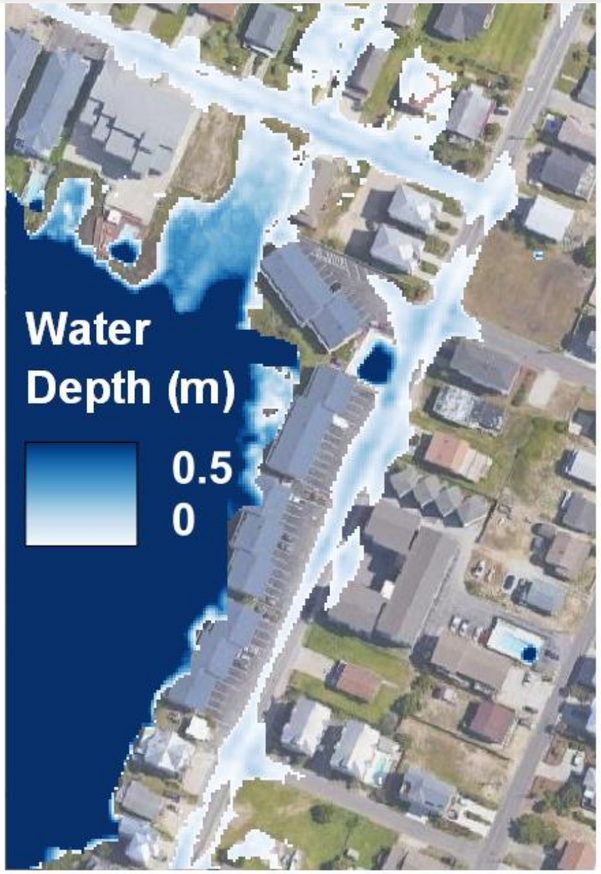
Higher bulkheads prevent flooding from overtopping at current sea levels



Tides & atmospheric
Present-day sea levels

Tides & atmospheric
Present-day sea levels
Higher bulkheads

At 2050 sea levels, flooding originates from north of the Yacht Basin



Tides & atmospheric
Present-day sea levels

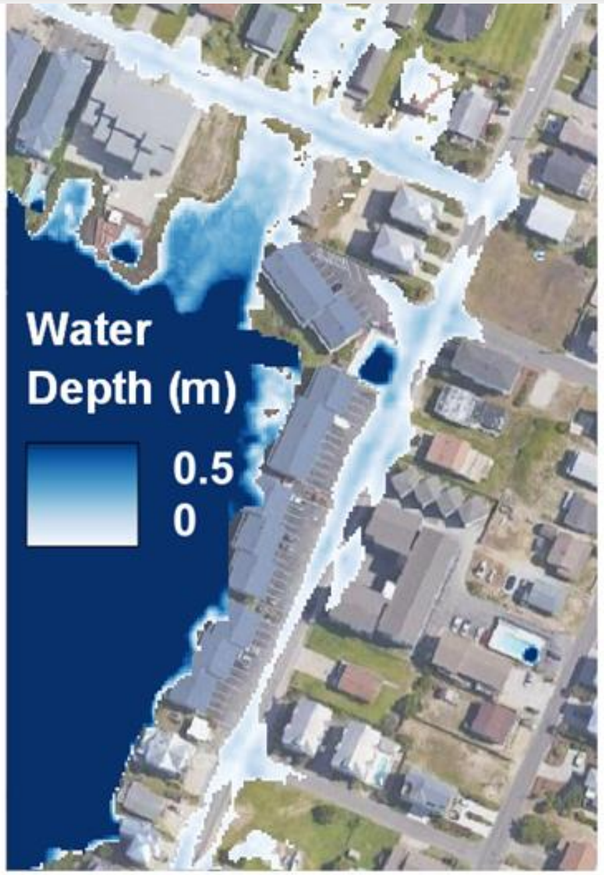
Tides & atmospheric
Present-day sea levels
Higher bulkheads

US Southeast 2020-2050:
0.25 m SLR (Sweet et al. 2022)

Flood propagation

Tides & atmospheric
2050 sea levels
Higher bulkheads

Even at present sea levels, higher bulkheads do not mitigate compound flooding



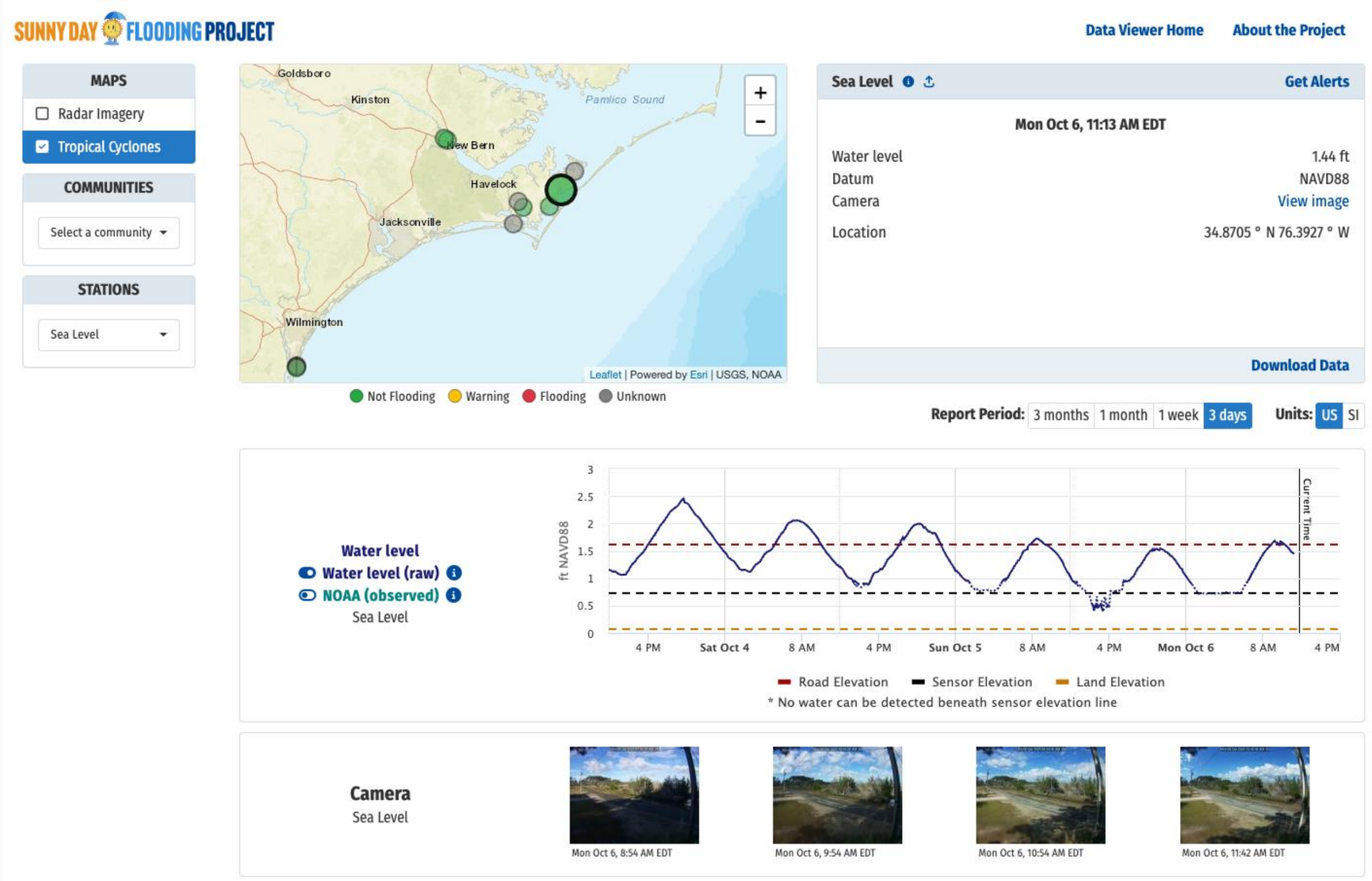
Tides & atmospheric
Present-day sea levels

Tides & atmospheric
Present-day sea levels
Higher bulkheads

Tides, atmospheric, ***rain***
Present-day sea levels
Higher bulkheads

Tides & atmospheric
2050 sea levels
Higher bulkheads

All of our data are publicly available in real time!



Scan Me

Research in Progress!

THE UNIVERSITY of NORTH CAROLINA at CHAPEL HILL

NC STATE UNIVERSITY

Data.sunnydayflooding.com

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PRACTICAL APPLICATIONS OF AI TO OCEAN SCIENCE & RESILIENCE

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LUNCH

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PI LIGHTNING TALKS

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Bluffton SC
SC Sea Grant
Consortium

Southeast Sea Grant Water Level Network

Frank Lopez, NC Sea Grant & Water Resources Research Institute

YEAR 5 OVERVIEW

Sea Grant Water Level Network

- Created in 2022 to increase water level and camera sensor deployment
  - Florida, Georgia, North Carolina, South Carolina
- Uses the extension network of Sea Grant, which puts SECOORA front and center with local communities
  - Understanding needs
  - Facilitating connections
- Allows Sea Grant to use the expertise of SECOORA to support local communities

ACCOMPLISHMENTS

Florida

- Installed an FAU water level sensor in Okaloosa County (City of Destin); aligned with UF Sea Grant to strategically map 8 new funded sensors
- Hosted targeted, in-person public meetings in Shalimar and Milton to educate residents on data access
- Launched comprehensive online and 1-on-1 community assessment surveys to gather feedback from mature, year-old sensor sites

ACCOMPLISHMENTS

Georgia

- Completed successful field recon visits with SECOORA in Darien and Brunswick (identifying key marsh, tidal ditch, and middle school sites)
- Assessed sensor locations in Chatham County, establishing an agreement for SECOORA to assume data storage and management
- Designed 1-pagers for community outreach and initiated collaborative WebCOOS camera/sensor planning with UGA Engineering

ACCOMPLISHMENTS

Florida

- Installed an FAU water level sensor in Okaloosa County (City of Destin); aligned with UF Sea Grant to strategically map 8 new funded sensors.
- Hosted targeted, in-person public meetings in Shalimar and Milton to educate residents on data access.
- Launched comprehensive online and 1-on-1 community assessment surveys to gather feedback from mature, year-old sensor sites.

ACCOMPLISHMENTS

South Carolina

- Completed field visits and successfully installed the Dorchester and Bluffton water level sensors
- Hosted a high-level stakeholder webinar (SCDOT, NWS, SCOR, COGs) to systematically map data gaps and prioritize future installations
- Installed temporary signage in Marlboro County (Crooked Creek) for community-driven flood threshold tracking; initiated station steward recruitment in Charleston

ACCOMPLISHMENTS

North Carolina

- Successfully deployed four sensors in Beaufort, Tyrrell, New Hanover, and Pamlico Counties via partnerships with AP NEP and NC DPS (FIMAN)
- Hosted a joint resilience event with SECOORA and the Boys & Girls Club; advancing plans for an educational sensor at Hatteras school
- Built out the team by establishing a yearlong graduate student internship focused on sensor placements

LOOKING AHEAD

- Develop and train local site stewards for sustainability of the sensors
- Coordinate explicit regional boundaries between overlapping state projects (e.g., Savannah vs. Anna in FL) to ensure resources target data-barren areas
- Standardize outreach
- Adapt to tightening environmental compliance windows by mapping future sites early and drafting research permits with maximum, long-term timeframes

THANK YOU

Questions?

fmlopez@ncsu.edu

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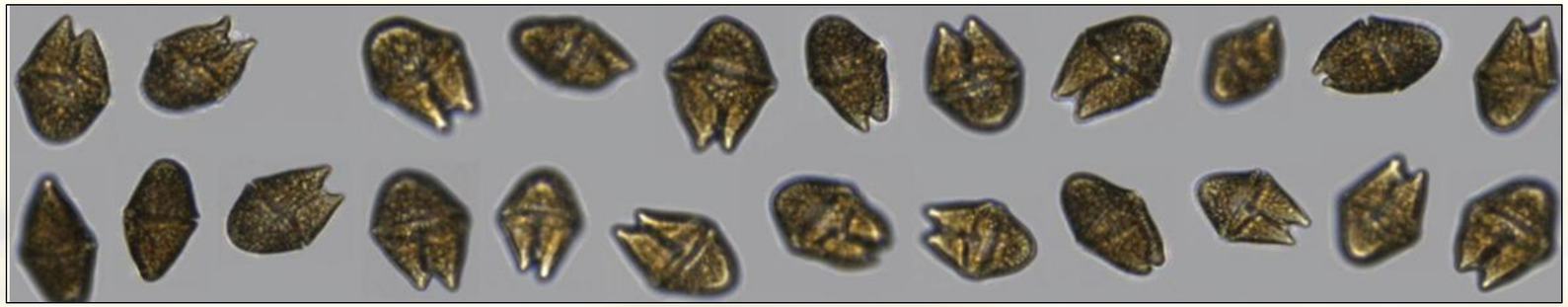
DELIVERING DATA FOR DECISIONS

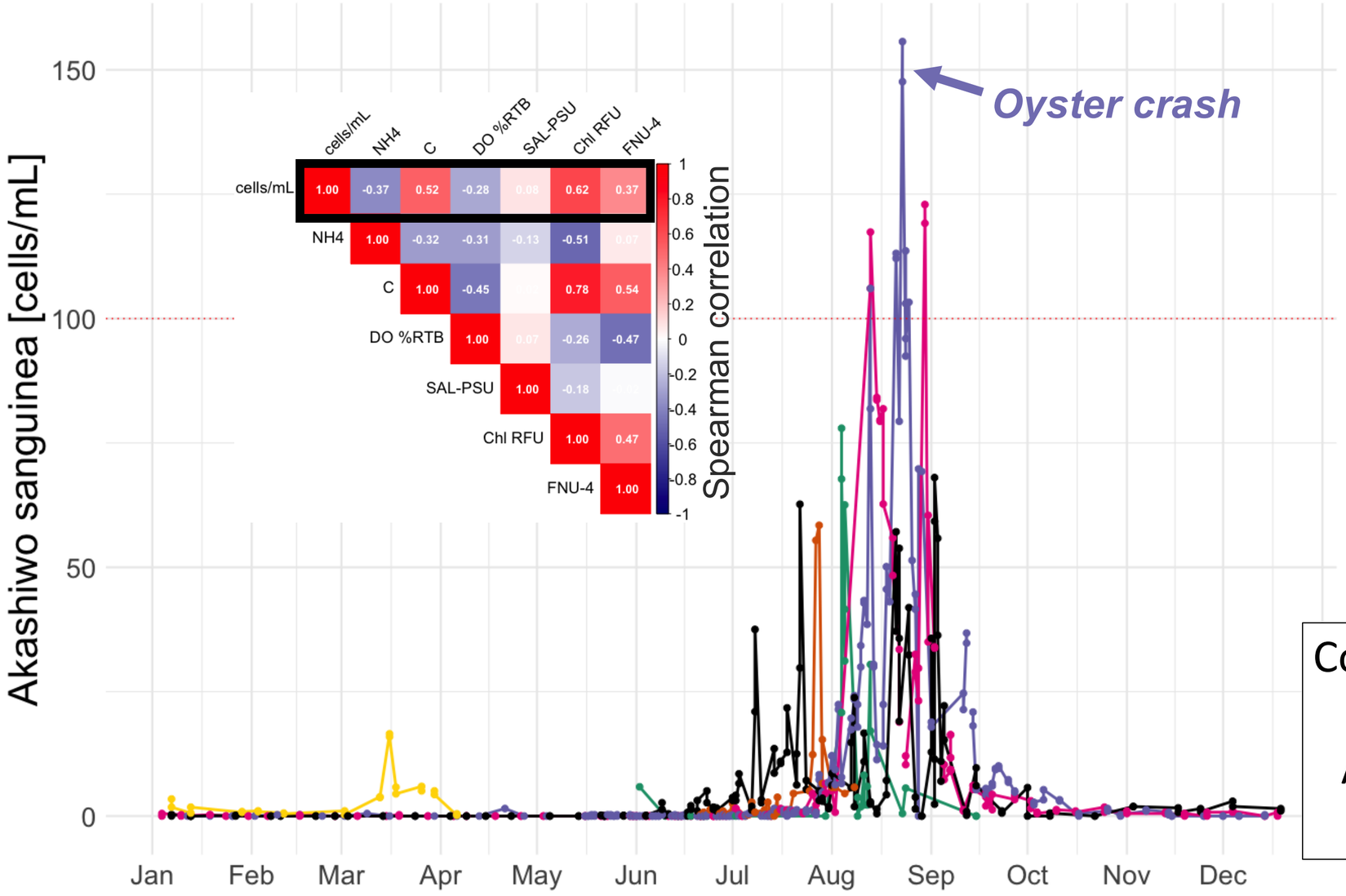


Tracking harmful algal blooms in coastal GA

Natalie Cohen
University of Georgia Skidaway Institute of Oceanography

YEAR 5 OVERVIEW

Skidaway River Estuary monitoring 2021-2026



Akashiwo associated with oyster mortality events in SRE

Year
- 2021
- 2022
- 2023
- 2024
- 2025
- 2026

When do HABs form?
What are the drivers of HABs?
Spatial distributions?
Ecological impacts?

Concentrated in the upper estuary

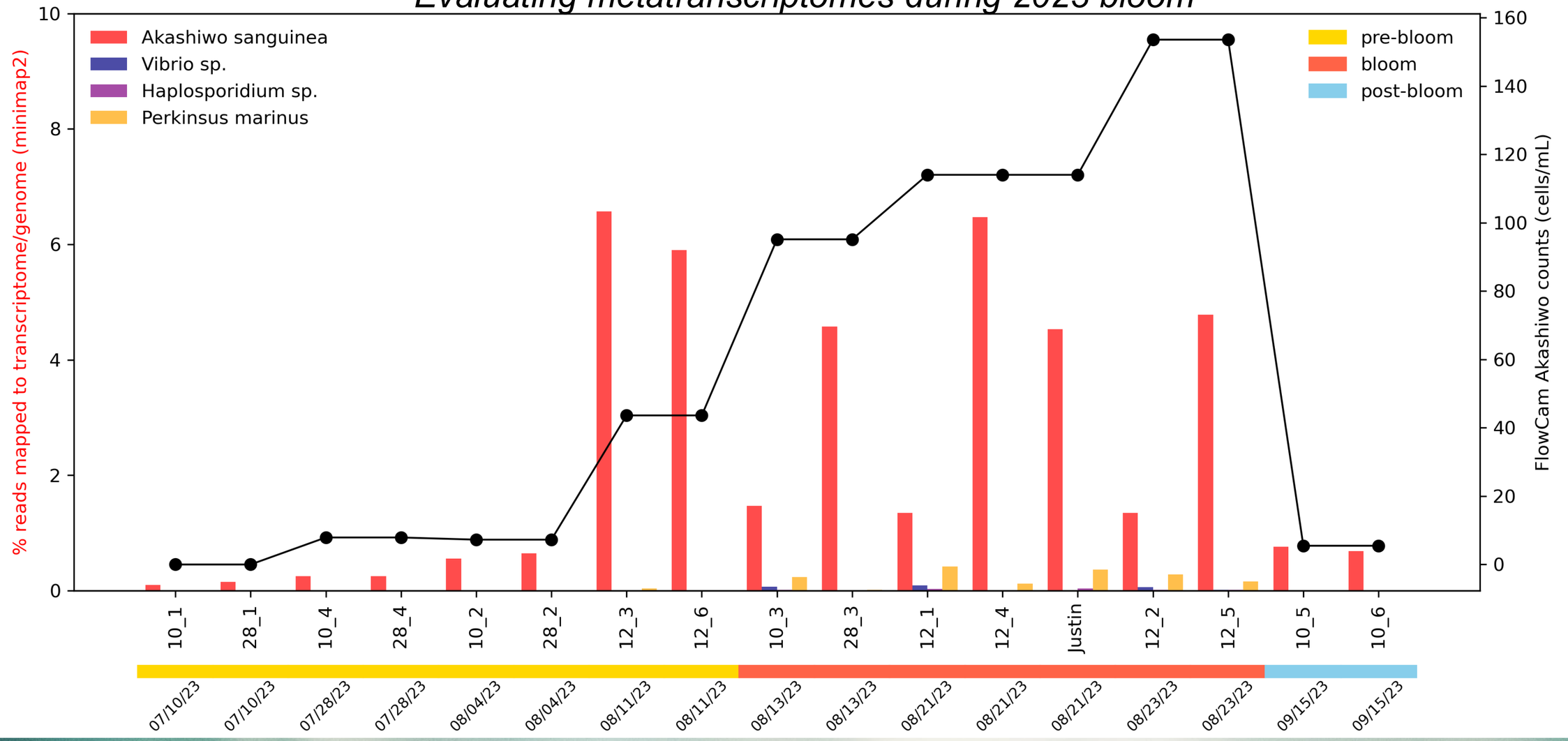
Associated with low nitrate and ammonium conditions

***Akashiwo* rapidly increase in the late summer**

ACCOMPLISHMENTS

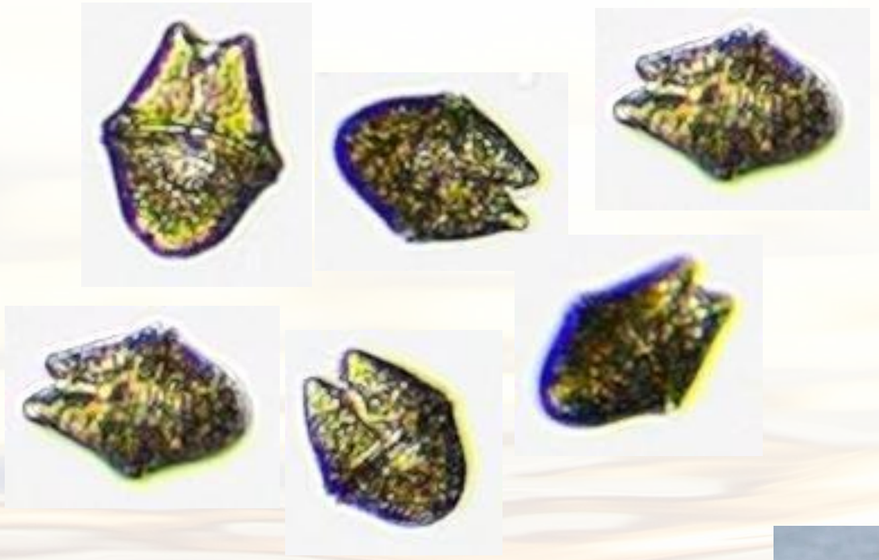
Could other pathogens be responsible for oyster mortality?

Evaluating metatranscriptomes during 2023 bloom



LOOKING AHEAD

Establishing long term trends in *Akashiwo sanguinea* blooms and impacts on oyster health in coastal Georgia



Co-PI Justin Manley (Marex)

Expose concentrated/cultured Akashiwo to oysters to determine direct impact

Transplant experiments: monitor oyster health at site of commercial lease & SRE

Savannah Morning News

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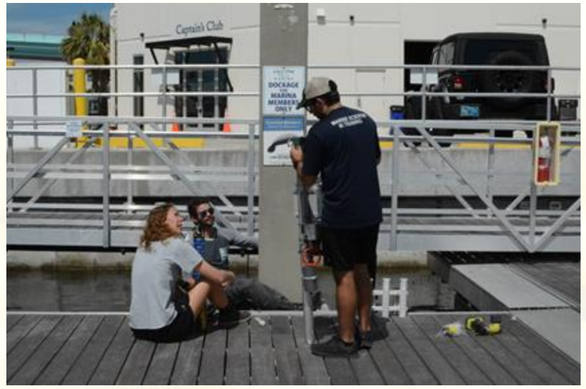


Expansion of the Estero Bay HAB Water Quality Monitoring Network

Michael Parsons, Florida Gulf Coast University

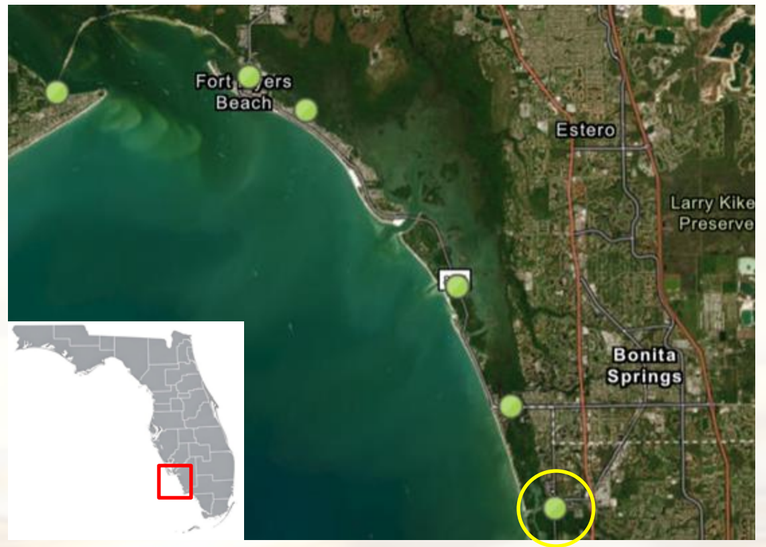
FGCU
THE WATER SCHOOL
Vester Field Station

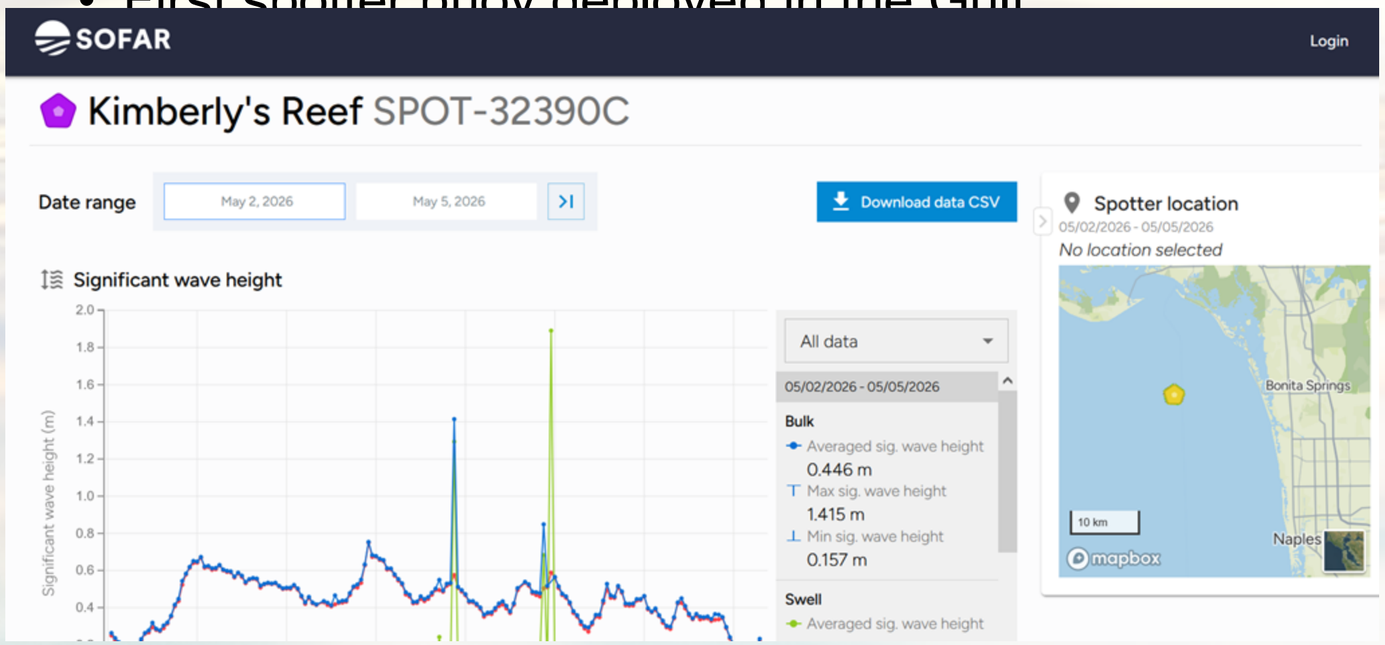
YEAR 5 OVERVIEW

- Project Goal and Objectives
  - The goal of this project is to expand the network of long-term water quality and HAB monitoring stations in southwest Florida to share data and information with the general public, policy makers, resource managers, and collaborative researchers.
- The primary objectives are to
  - (1) utilize this augmented sensor network as an early warning system for potential HABs and acute water quality events (e.g., run-off); and
  - (2) integrate EXO2 data streams with other tools (autosamplers, IFCB, FlowCam) to quickly sample, identify and assess potential risks to the coastal environments.

ACCOMPLISHMENTS

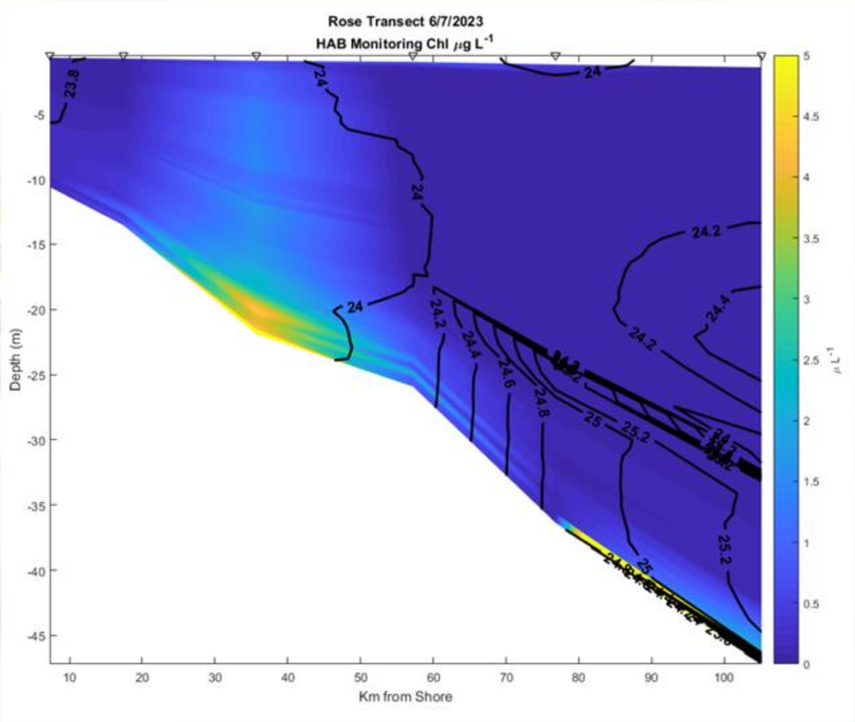
- SIX sondes are now connected and live-streaming
  - https://www.wqdatalive.com/public/1348
  - Cocohatchee River is newest location
- First spotter buoy deployed in the Gulf





LOOKING AHEAD

- We acquired more EXO2 sondes from the City of Naples
  - Three will be deployed in Naples Bay
  - Two will be deployed in Everglades City
- More spotter buoys are being purchased for deployment in shelf waters
  - Hurricane monitoring
  - Detect “benthic blooms” moving towards shore
    - Red tide initiation
- Acquisition of two Slocum gliders
- IFCB refinements
  - Live samples
  - Detritus signals



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Just the FACTs

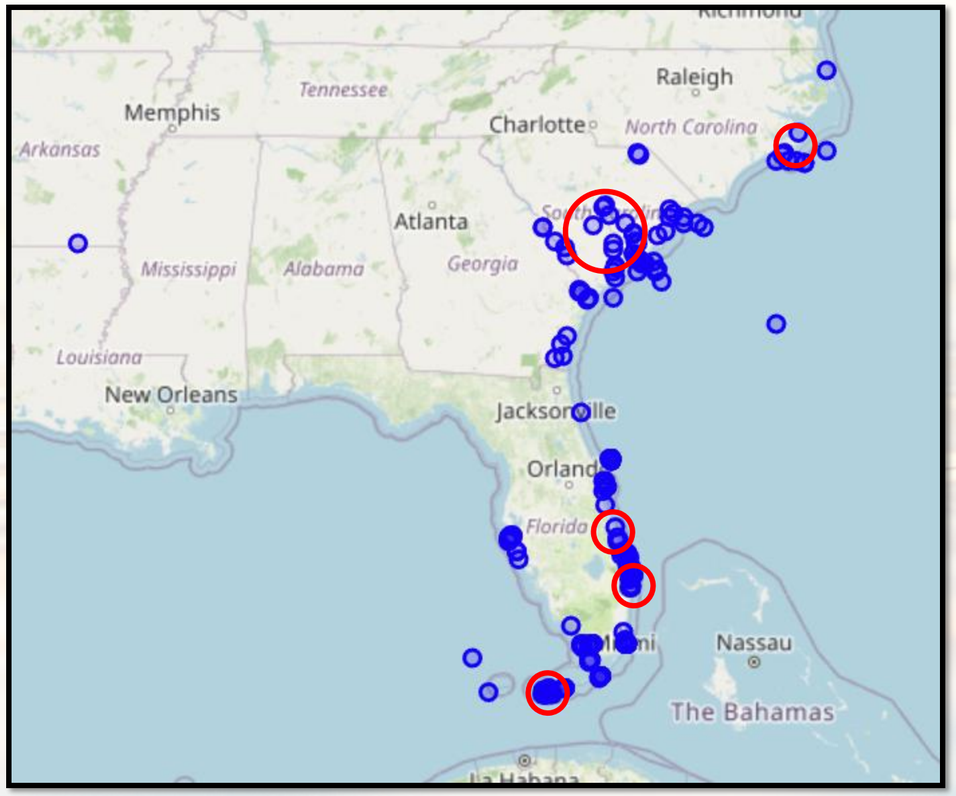
Scaling Regional Success to National Impact

Joy Young, PhD The FACT Network

FACT Fish Move.

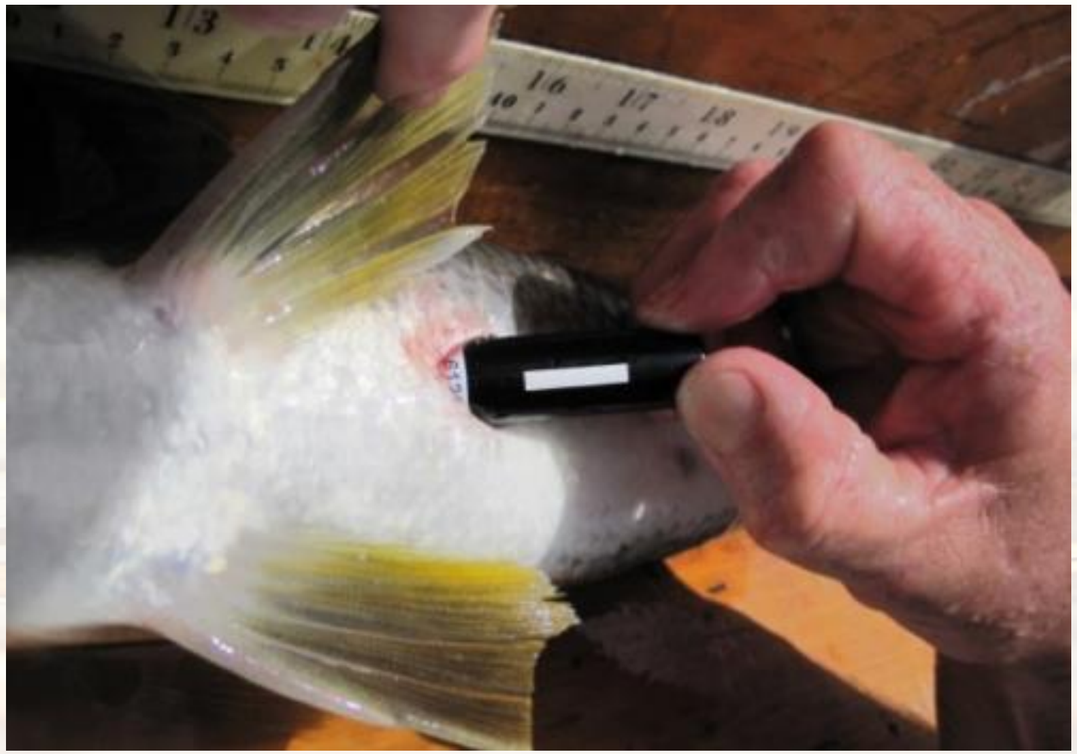
YEAR 5 OVERVIEW – Expanding the Network

- Operated a fully coordinated regional acoustic telemetry network
  - Conducted **3 detection-matching events**
  - Virtual meeting
  - Coordinated with all nodes, including iTAG
- Expanded and maintained receiver arrays across key coastal habitats
  - **1,239 stations maintained** from Virginia to east GOM
  - **86 new stations** in south Florida, inshore SC, nearshore NC
- Increased partner engagement and data contributions
  - **5 new projects and 13 partners**
- Enabled multi-species tracking at scale
  - **136 total species tracked (+4 new species)**



ACCOMPLISHMENTS – Just the highlights

- Delivered large-scale telemetry data products supporting aprox 133 projects
  - **3,119* detection extracts** distributed to partners (members, RWSC, BioTrack)
- Advanced open and interoperable data publishing
  - Published and updated **datasets in OBIS** (2 new, 2 updated projects
- Increased scientific output and downstream use of data
  - **17 publications** using FACT-supported datasets
  - Enabled expanded applications beyond movement ecology (e.g. **heatwave study**)



- Community engagement
  - Conducted **virtual membership meeting** focused on open data and infrastructure compatibility
  - Initiated **global open data survey** (results fall 2026)
- Established independent, scalable infrastructure
  - Transitioned database and GeosServer to **self managed Ocean Droplet environment**

LOOKING AHEAD –Impact and Delivering Products

- Advance user-driven visualization tools
  - Expand **DaViT** capabilities and scale toward national deployment (grant dependent)
- Expand and simplify data access
  - Redesign data policy to support more **open, timely, and discoverable data**
- Integrate environmental context with animal movement
  - Continue marine **heatwave analyses** and link telemetry data to oceanographic conditions
- Strengthen infrastructure compatibility and scalability
  - Improve **equipment interoperability** to support continued project size and scope despite rising costs
- Demonstrate and measure impact – tell the story
  - **Develop clear metrics** for data use, management application, and scientific output

I'm Looking Up!

Photo credit: GreenAnswers.com

USCB

SECOORA
DELIVERING DATA FOR DECISIONS

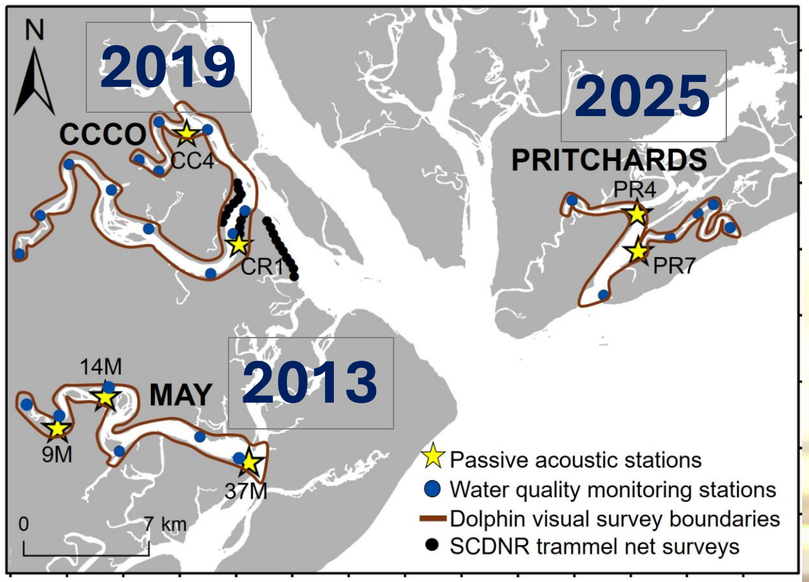
SOUTH CAROLINA DEPARTMENT OF NATURAL RESOURCES

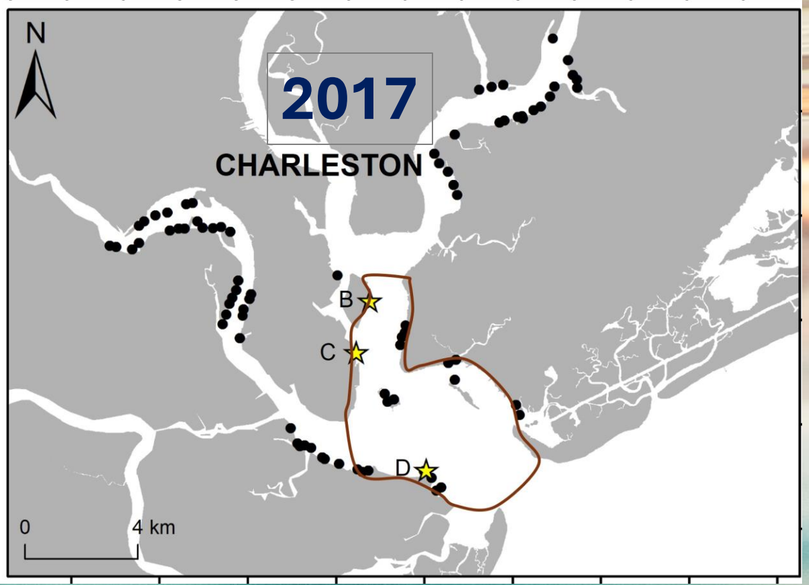
The Estuarine Soundscape Observatory Network in the Southeast (ESONS)

Eric W. Montie and Alyssa Marian

Marine Sensory and Neurobiology Lab, Department of Natural Sciences, University of South Carolina Beaufort

YEAR 5 OVERVIEW





- 4 estuaries, 10 stations, 24 files/day or 2-min on the hour
- Sound pressure levels of various bandwidths
- Snapping shrimp acoustic behavior
- Courtship sounds and spawning potential of fish
- Bottlenose dolphin vocalizations
- Anthropogenic noise
- Continuous water temp, depth
- Monthly salinity, pH, DO
- Correlations with biological data

ACCOMPLISHMENTS

BIG EARTH DATA
https://doi.org/10.1080/20964471.2025.2583505

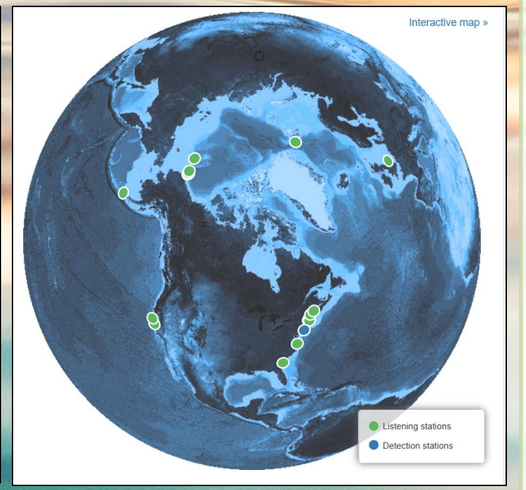
Taylor & Francis
Taylor & Francis Group

RESEARCH ARTICLE

OPEN ACCESS Check for updates

Big data, sound science, lasting impact: A framework for passive acoustic monitoring

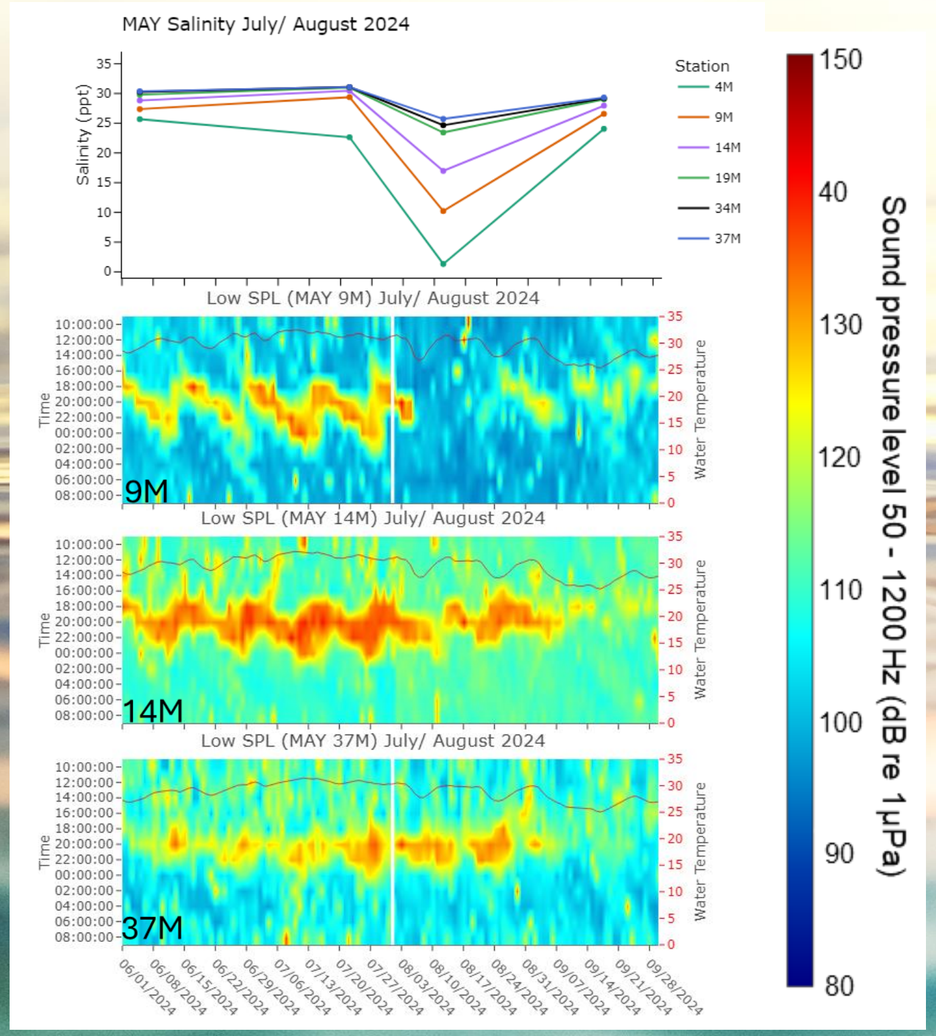
Carrie C. Wall[a,b], Megan F. McKenna[a,b], Leila T. Hatch[c], Sofie M. Van Parijs[d], Rob Bochenek[e], Peter Dugan[f,g], Clea Parcerisas[h,i], John Ryan[j], Charles D. Anderson[a,b], Kyle Becker[k], Catherine Berchok[l], Mathew Biddle[m], Olaf Boebel[n], Adrienne Canino[e], Gabrielle Canonico[m], Danelle Cline[j], Genevieve E. Davis[d], Kaitlin Frasier[o], Jason Gedamke[p], Samara M. Haver[q,r], Karina Khazmutdinova[e], Niels Kinneging[s], Anurag Kumar[t], Alyssa Marian[u], Jennifer L. Miksis-Olds[v], Eric W. Montie[u], Dimitri Ponirakis[g], Aaron N. Rice[g], Timothy J. Rowell[d,w], Carlos Rueda[j], Emily Shumchenia[x], Thomas Shyka[y], Erica Staaterman[z] and Karolin Thomisch[n]

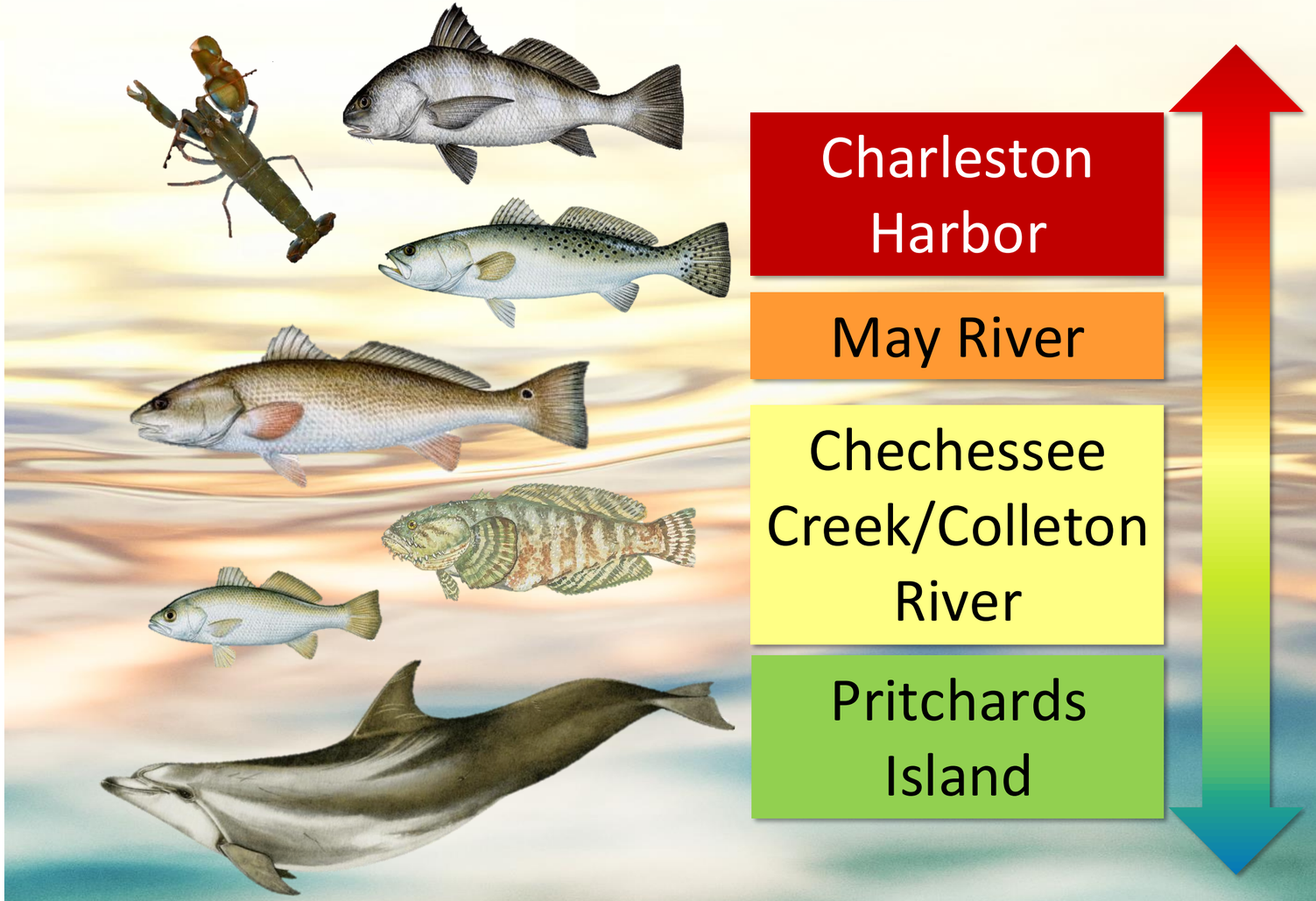


- 2013-2025 sound files archived with NCEI
- 10 recorders serviced successfully
- 87,600 sound files reviewed
- 11 undergraduates, 2 graduate students
- 3 talks at SCAFS
- 2 posters at USCB Research Day
- 5 talks at USCB's Weekly Seminar in Science
- SOUNDCOOP publication
- NOAA BIL/SECOORA. (2025-2027). ($70,000). Infrastructure Needs for ESONS.
- SC Aquarium. (2025-2027). ($40,000). Analyzing Historical Datasets to Understand the Impacts of Dredging & Commercial Vessel Noise on Bottlenose Dolphins & Their Prey in Charleston Harbor, SC.
- USC ASPIRE AI. (2025-2026). ($29,342). Applying AI to ESONS to Quantify Biological Sounds and Vessel Noise.
- Pritchards Island Research Program. (2026). ($27,500). Listening To and Remotely Sensing Marine Life Surrounding Pritchards Island, SC.

LOOKING AHEAD

Extreme Weather Events and Noisy Ports – Using Data from ESONS to Understand Impacts on Marine Life





Charleston Harbor

May River

Chechessee Creek/Colleton River

Pritchards Island

SECOORA
DELIVERING DATA FOR DECISIONS

2026 DMAC Update

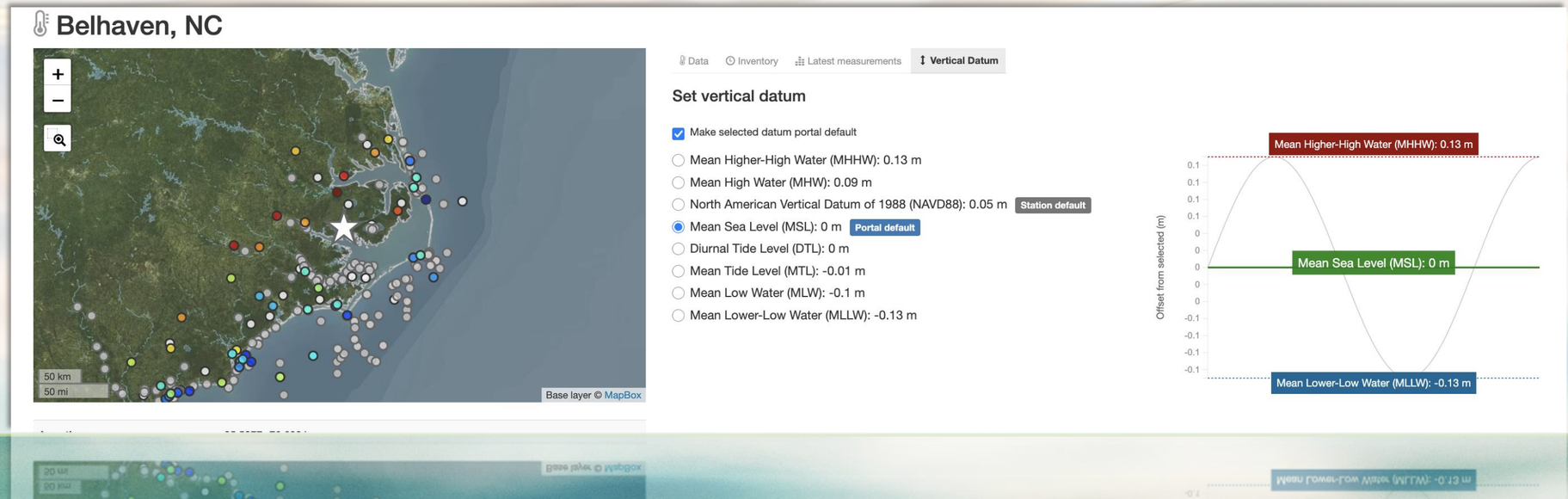
SECOORA Annual Meeting

Sheri Schwartz, Tetra Tech

Kelly Knee, Tetra Tech

YEAR 5 OVERVIEW

- The SECOORA DMAC team provides the cyberinfrastructure backbone for ocean observing in the Southeast
  - *In other words, we power data flows from sensors to stakeholders in alignment with IOOS DMAC guidelines.*
- In Year 5, we focused on:
  - Delivering new tools for accurate water level data integration and access.
  - Strengthening data pipelines and QC for SECOORA's growing network.
  - Responding rapidly to challenges and ensuring system reliability.
  - Fostering collaboration and feedback across the ocean data community.
- These efforts have ensured that SECOORA data remains a trusted resource for science, emergency response, and coastal management.



ACCOMPLISHMENTS

- **Ensured system resilience and reliability**: Rapid response to outages, infrastructure upgrades, enhanced monitoring, and enhanced cybersecurity.
- **Launched new tools to enhance data accessibility**: Deployed Sensors API for streamlined data integration and access; deployed the station datum converter, which computes datum conversions on-the-fly (also calculated initial datums and standardized SECOORA datums).
- **Expanded and standardized data pipelines**: Integrated new sensors and updated datasets.
- **Advanced automation and quality control:** Developed data ingestion forms/templates to streamline onboarding of new datasets, advanced quality control (QARTOD), and developed new metadata pipelines.
- **Supported partners and advanced collaboration**: Provided technical support, outreach, and engaged with SECOORA members, IOOS Program Office, and the broader community.
- **Powered innovation and special projects**: Advanced and launched the SECOORA AI Gateway site and supported ongoing product development for science and management.
- **Supported data archival and metadata management**: Archived physical, oceanographic, and meteorological data with NOAA's NCEI and supported archival pathways for different data.

LOOKING AHEAD

- **Continue to advance automation and efficiency**
  - Continue automating data ingestion, quality control, and metadata workflows; advance monitoring systems; and improve and enhance backend performance based on technical debt assessments.
- **Optimize Portal user experience**
  - Advance usage analytics for SECOORA Portal and cyberinfrastructure (e.g., THREDDS, ERDDAP) and optimize the user experience based on improved understanding of user needs.
- **Expand and enhance developed data tools**
  - Broaden adoption and foster cross-regional collaboration of the sensors API to further support the community and network.
- **Continue to support Core services**
  - Maintain system resilience and reliability for continuous data access; support data ingestion workflows for new sensors and streamline the onboarding process; enhance monitoring, alerting, and cybersecurity; foster collaborative product development with SECOORA, its partners, and the community; promote data quality and discoverability by advancing QARTOD and metadata standards.
- **Prepare for emerging priorities**
  - Position SECOORA DMAC to address emerging priorities and evolving regional needs, such as new water level product development, optimized SHEF encoding, enhanced data quality and metadata standards, expanded stakeholder engagement, and cross-regional tool innovation, all while maintaining flexibility to support new technologies, pilot projects, and future funding opportunities.

SECOORA
DELIVERING DATA FOR DECISIONS

SECOORA Regional Glider Observatory

Catherine R. Edwards, Skidaway Institute of Oceanography, UGA
Chad Lembke, University of South Florida
Harvey Seim, University of North Carolina at Chapel Hill

YEAR 5 ACCOMPLISHMENTS

5 missions during hurricane season, leveraged support for right whale monitoring mission (jointly funded by Broad Reach Fund), exceeded requirements for missions, glider-days

Supported deployment/recovery/operations for 3 Navy gliders

Repairs/maintenance of SECOORA, institutional fleets: Constant repair, recal, service schedule. Created electronic repository of service reports/maintenance.

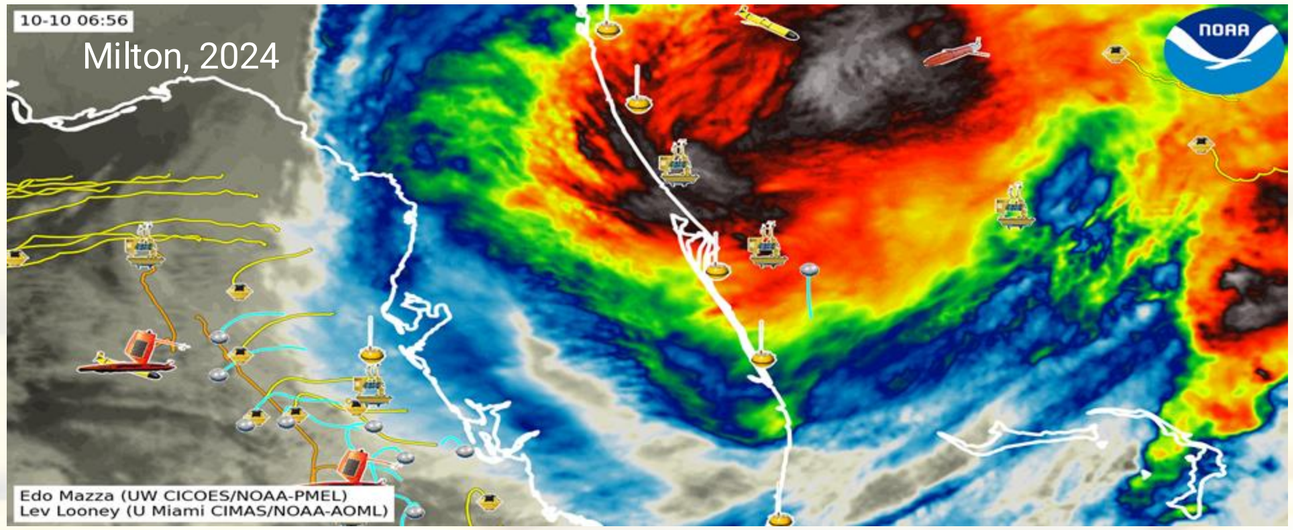
USF finagled procedure for required maintenance of G1s, no longer offered by manufacturer

Expanded SECOORA glider observatory monthly calls to include regional collaborators at BIOS, FAU, others

Outreach: K-12, undergrads, general public, news media, stakeholders

SECOORA

DELIVERING DATA FOR DECISIONS



SECOORA Hurricane Gliders

Catherine R. Edwards, Skidaway Institute of Oceanography, UGA

Chad Lembke, University of South Florida

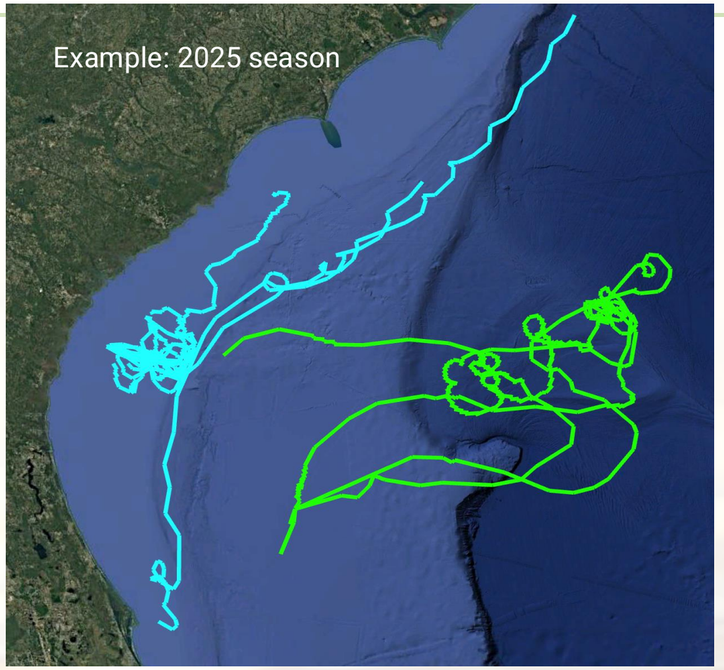
Harvey Seim, University of North Carolina at Chapel Hill

OVERVIEW

2025 hurricane season

5 SECOORA observatory missions (cyan)
- SECOORA glider observatory funds
- IRA funding will support 2026 obs

3 Navy glider missions (green)
- Focus on deep water on far side of Gulf Stream
- Coordinated Gulf Stream crossings



2018-2025

58 glider missions, 1918 glider-days, estimated 600k profiles during hurricane season

Funded by combination of SECOORA core observatory funds, disaster supplementals (2019-2020, 2021-2022, 2023-2025, IRA 2025-2029), and Navy glider

>$1.7M external/supplemental funding to SECOORA since 2020

ACCOMPLISHMENTS

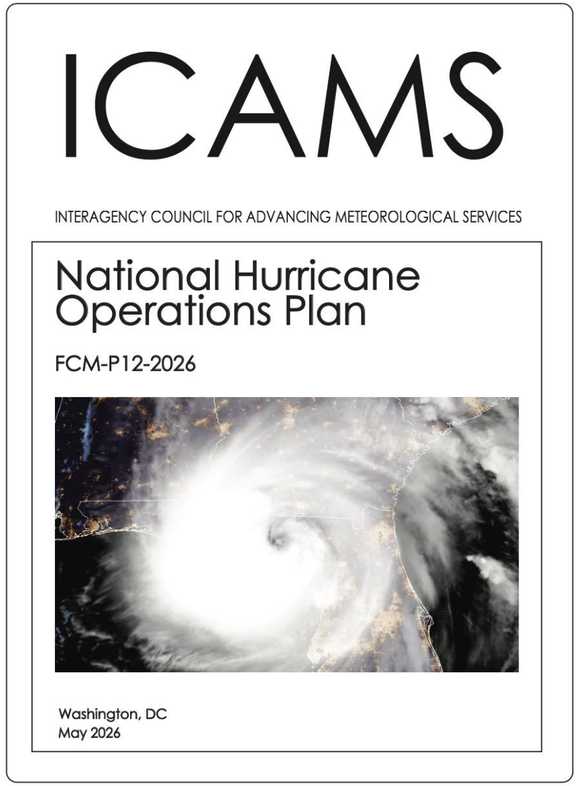
AI hurricane gliders purchased unit_1091

Current year activities for recently closed supplemental:

- Exceeded all requirements in terms of missions, glider-days; Real-time data submission, delayed mode submission.
- Maintained repaired SECOORA, institutional gliders, purchased spare rechargeable battery compatible with SECOORA, SkIO, USF fleet
- Participated in weekly hurricane glider coordination meetings

- Extra credit: hurricane glider science discussion meetings to discuss regional model-data comparisons, created weekly briefs for NOAA's Environmental Modeling Center (EMC)
- Extra credit: weekly coordination meetings with NOAA hurricane uncrewed surface vehicle (USV) team to co-locate gliders+USVs

ACCOMPLISHMENTS


ICAMS

INTERAGENCY COUNCIL FOR ADVANCING METEOROLOGICAL SERVICES

National Hurricane Operations Plan

FCM-P12-2026

Washington, DC
May 2026

We're officially operational!! 🎉 🎉

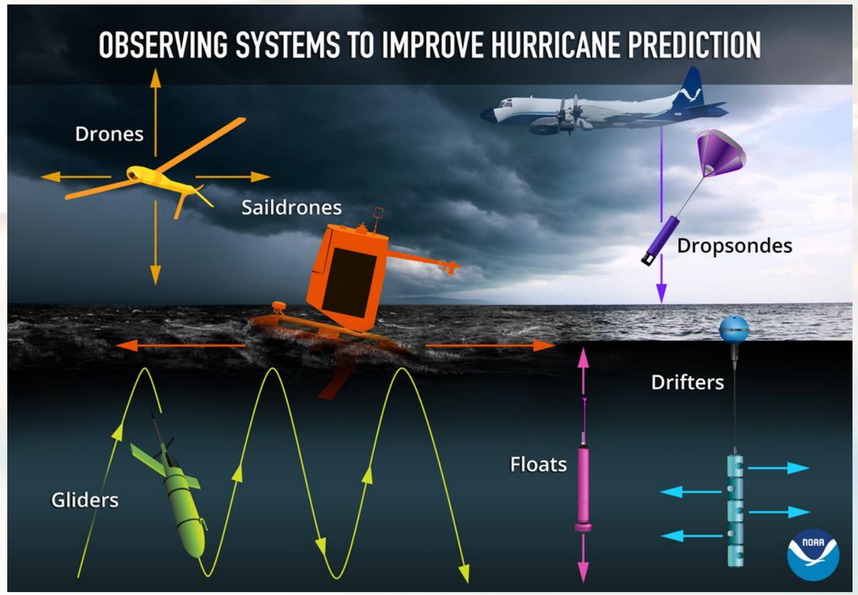
9.6. Upper Ocean Observations.

Subsurface ocean observations are required to quantify critical ocean features relevant for tropical cyclone intensification, such as barrier layers and regions of high ocean heat content. The continuous monitoring of the upper ocean's thermal and salinity structure has been requested by NOAA/NWS/EMC to address the dearth of subsurface ocean data and improve operations by accurately constraining and validating coupled ocean-atmosphere models.

9.6.1. Ocean Gliders.

The NOS Integrated Ocean Observing System (IOOS) Office coordinates a community of multi-institutional, multi-regional glider operators (i.e., IOOS Regional Associations, NOAA, and academic partners) conducting missions during the Atlantic and Pacific hurricane seasons. Further, the U.S. Navy Commander, Naval Meteorology and Oceanography Command (CNMOC), and its operational command, NAVOCEANO, contribute ~10 Navy Littoral Battlespace Sensing gliders (LBS-G) each hurricane season to advance these efforts. Throughout the hurricane season, gliders are ideally positioned to continuously monitor and track ocean features linked to tropical cyclone intensity changes.

Observations from these gliders are assimilated into NOAA's operational forecasting models to help provide oceanic initial conditions, correct modeled processes and dynamics, and contribute to a more realistic ocean simulation.



Hurricane gliders 2026 likely to be instrumental in NOAA transition to GFSv17 and RTOFS3.0

LOOKING AHEAD

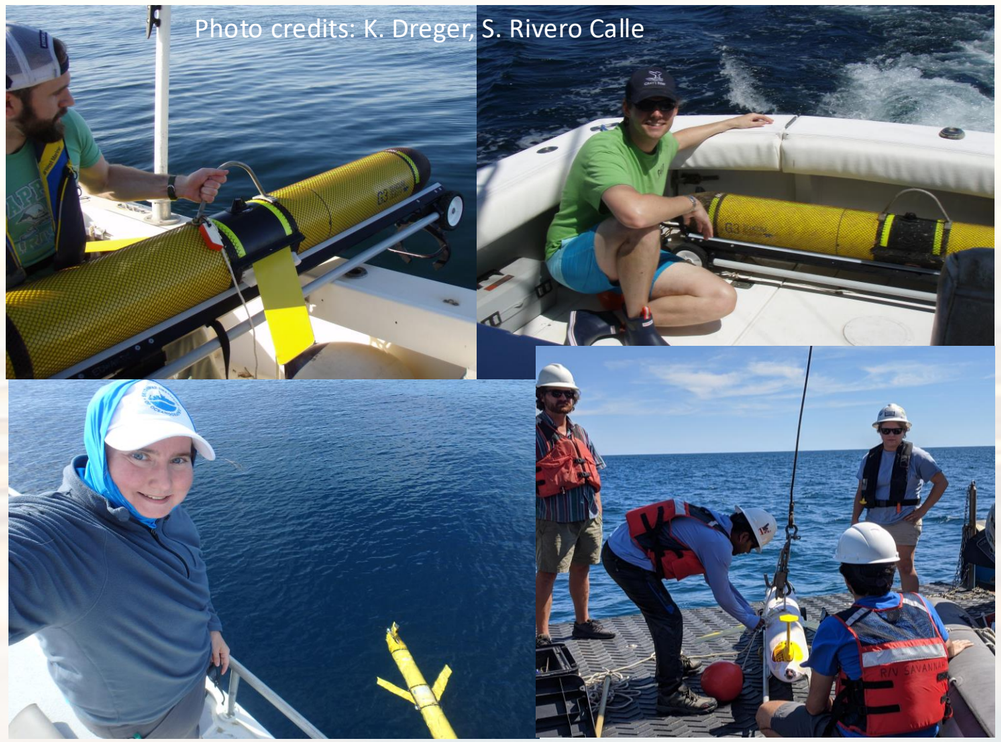
Surviving the summer

- IRA funds to cover 5 glider missions during hurricane season 2026
- Exploring full merge of operations as hippie commune for the season

Modernizing the fleet: starting upgrade process for persistor-based G3 gliders (sold through 2018) to be processor-based G3S gliders

- Huge jump in software versions, capabilities (compression, etc.)
- Lessens risk to equipment

What to do about G1s?



SECOORA

DELIVERING DATA FOR DECISIONS

BIL: Real time monitoring of North Atlantic right whales using gliders

Catherine R. Edwards, Skidaway Institute of Oceanography, UGA

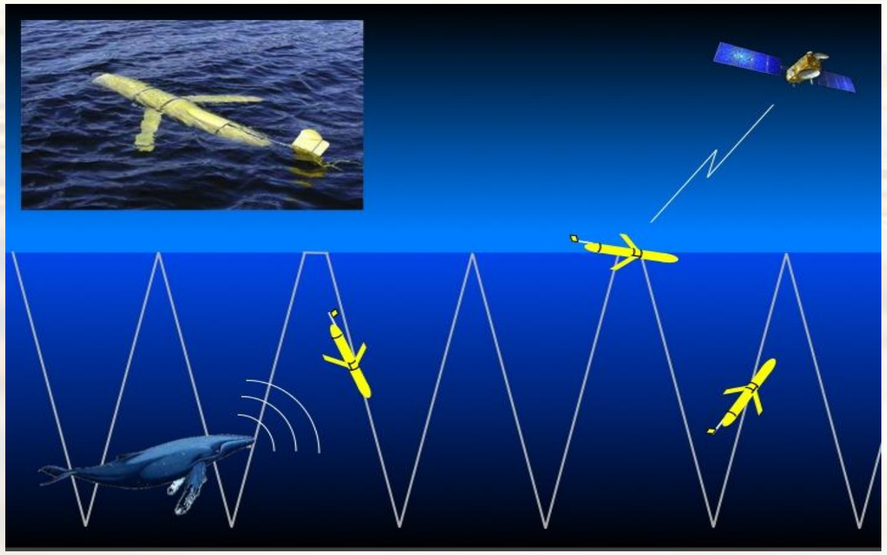
Erin Meyer-Gutbrod, University of South Carolina

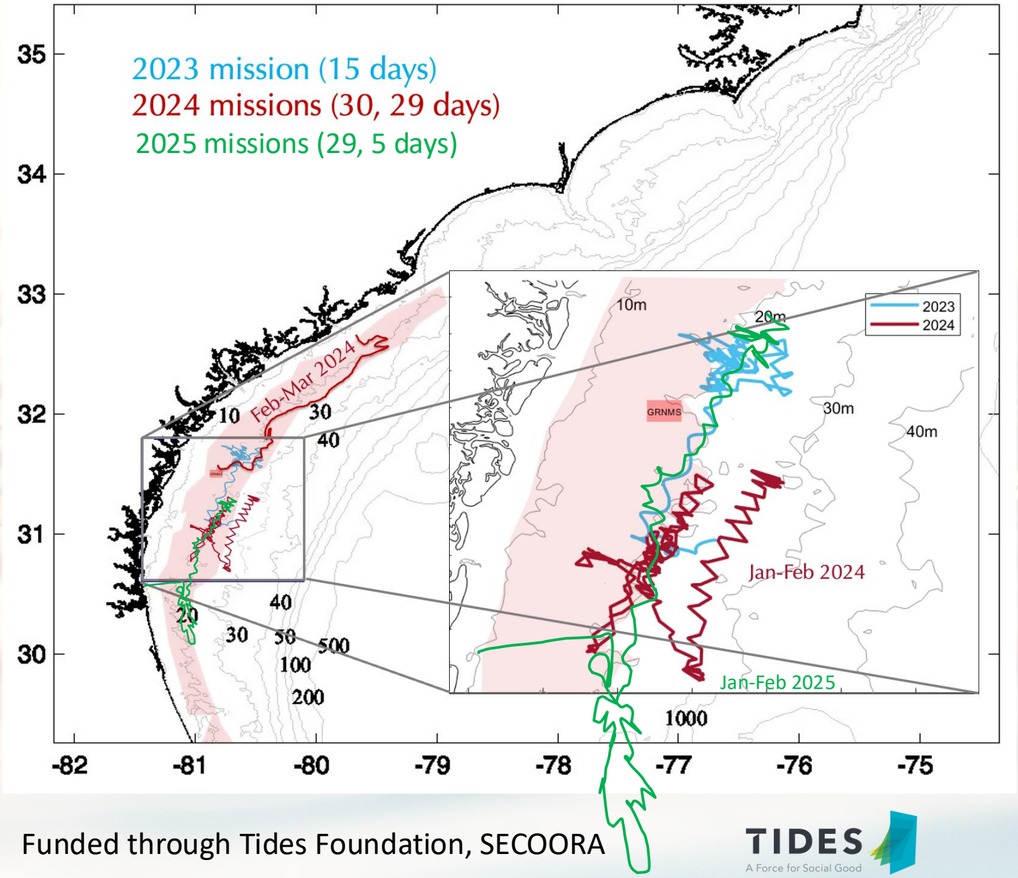
OVERVIEW

Goal: build on prior work, increase capacity for and to conduct monitoring of critically endangered North Atlantic right whales in the winter calving grounds in SECOORA footprint

Year 1 focus: expand monitoring fleet

Year 2 focus: conduct glider missions in GA/FL/SC waters, develop best practices for extremely shallow water operations





Funded through Tides Foundation, SECOORA

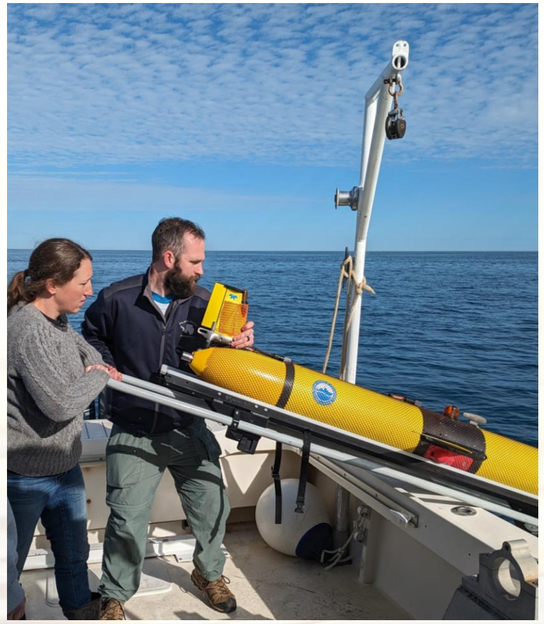
ACCOMPLISHMENTS

Purchased new DMON2 science bay, gearbox to expand capability

Started fleet modernization of SECOORA, SkIO gliders Franklin, Angus -> 3 G3S gliders (2 SECOORA, 1 SkIO), 2 DMON2 bays for ultra shallow monitoring in year 2 and beyond

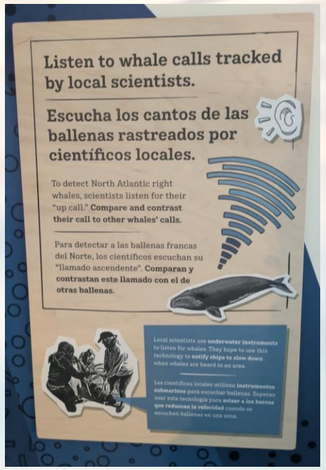
Outreach with regulatory, pilot/maritime sector, scientific, and general public audiences

5+ presentations, 2 publications, 1 masters thesis, 1 PhD thesis completed, 2 more in progress



Navtech
Presented by TRELLEBORG
Navigational Technology for the Modern Mariner.

Right whale exhibit at EdVenture Children's Museum, Columbia, SC



LOOKING AHEAD

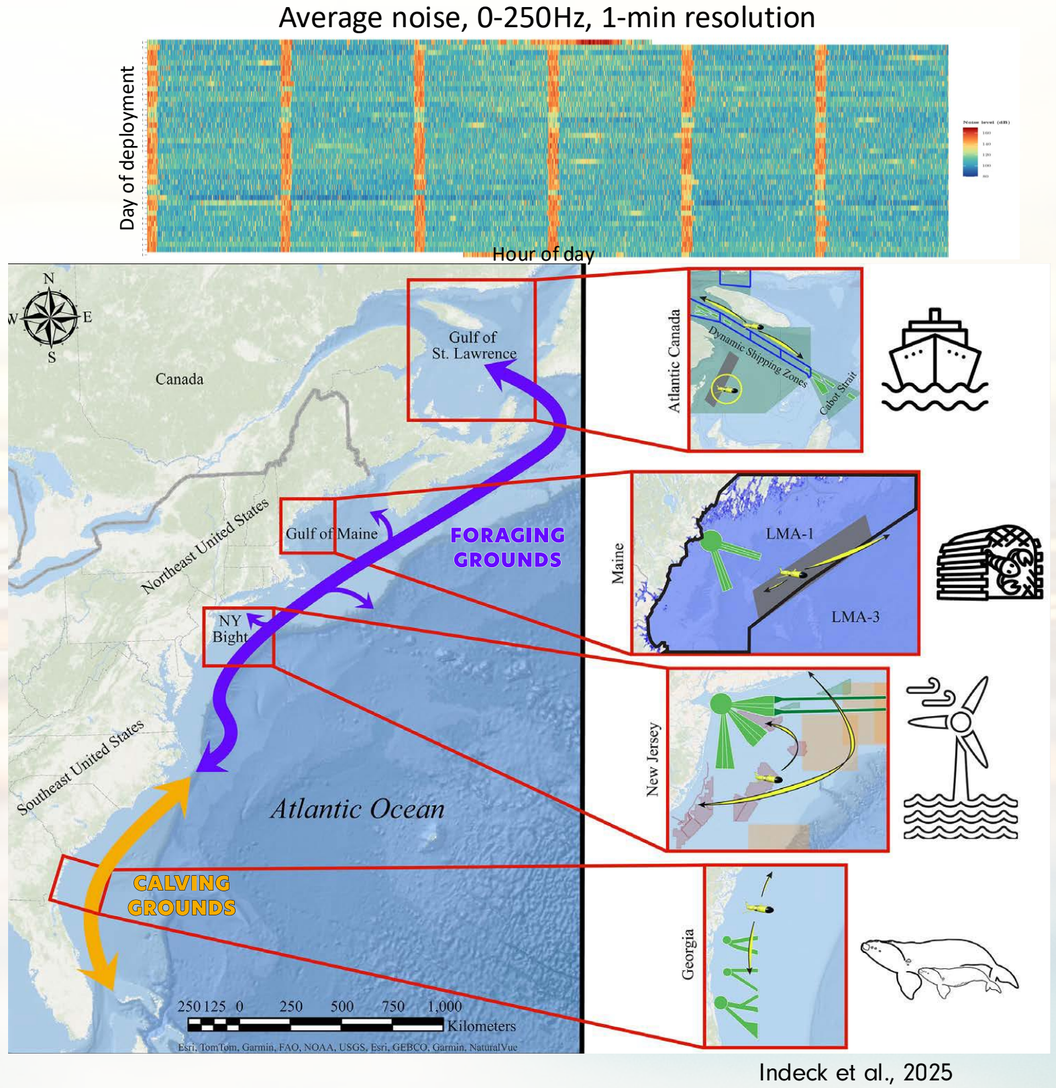
2026-2027 season: 2 monitoring missions, with 2 science bays compatible with 3 gliders

Continued work to diagnose platform self-noise

Proposals pending for 2026-2028 (Broad Reach) and 2028-2031 (SECOORA/IOOS)

To comment: go to https://www.regulations.gov

Search for "NOAA-NMFS-2026-0364"



Indeck et al., 2025

SECOORA

SOUTHEAST & CARIBBEAN DISASTER RESILIENCE PARTNERSHIP

Southeast & Caribbean Disaster Resilience Partnership

Claire McGrath

Year 5 Overview

SCDRP is regional collaboration network that brings together resilience and emergency management professionals from across sectors, disciplines, and geographies to work together to build a more resilient Southeast & Caribbean.

Connect: Practitioners across sectors and geographies

- Mentorship Program in collaboration with RCE Greater Atlanta
- Emergency Management (EM) Roundtable
- Advisory Board & Committees

Coordinate: Virtual and in-person gatherings

- Monthly Webinars
- 10th Annual Meeting, hosted alongside the Southeastern Center for Agricultural Health and Safety's State of the Science Meeting
- Florida Climate Week Virtual Panel

Communicate: Funding opportunities, jobs, and resources

- Newsletter, website, and social media

Accomplishments

“The SCDRP provides singular convening of a diversity of our coastal partners in one place. It is one of the best venues to meet up, listen to and network with the invaluable input from those that live and work the closest on the SE/C coasts. Bringing together local, county, university, and NGO communities in one location is exceptional. A one stop shop for us to gather with multiple perspectives and hear successes and challenges that need sharing and addressing.” -Aranzazu Lascurain, NOAA OCM

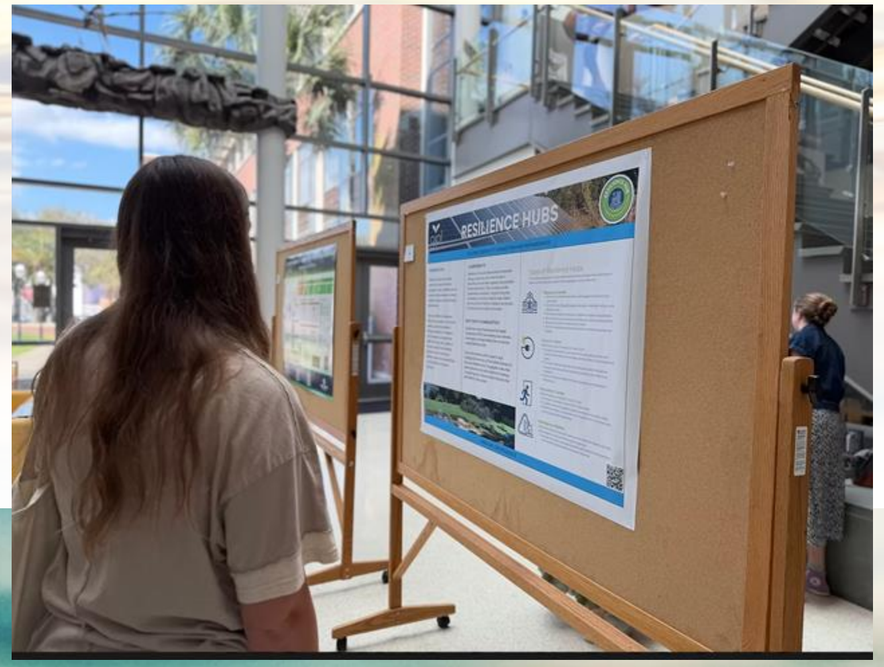
By the Numbers

8,500+ unique website visitors
1,500+ followers on LinkedIn
777 Newsletter Subscribers
64 Mentorship Program Participants
140 Annual Meeting attendees
27 EM Roundtable attendees

- SCDRP 10th Annual Meeting: March 4-5, 2026, Charleston, SC
- CO2 Foundation Award for Annual Meeting & Roundtable
- Expanded our reach, engaged with new audiences

Looking Ahead

- Connecting EMs and resilience practitioners
- Releasing a report and action plan resulting from EM Roundtable on how to enhance local EM capacity through cross-sector partnerships
- Aligning our work with SECOORA: Supporting data translation and implementation
- 2027 Annual Meeting
- Cohort #3 of the Mentorship Program



SECOORA

BEACH AND DUNE RESTORATION AND RENOURISHMENT

Annual Meeting • May 21, 2026

SECOORA

THANK YOU

QUESTIONS?