Panel 3

Observations Supporting Community Resilience

Moderator: Dr. Chrissy Wiederwohl

Panelists: Dr. Brian Dzwonkowski, Dr. Catherine Hancock, Dr. Jason Rider

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USA and DISL are GCOOS members

Help Guide GCOOS Priorities

What is the primary mission of your organization?

USA/DISL missions are similar: Serve the general public, all levels of government, and the academic community by advancing ocean literacy and providing the best available science for coastal policy

- **Transformative Research:** Producing and disseminating knowledge regarding world oceans, coastal zones, and watersheds, with a strong focus on the northern Gulf of Mexico.
- **Education & Training:** Training future generations of oceanic and coastal scientists by supporting marine science education across Alabama's 22 four-year colleges and universities (via University Programs) as well as K-12 students and teachers (via Discovery Hall Programs).
- **Public Stewardship:** Enhancing public understanding and stewardship of oceanic and coastal resources, notably through the Alabama Aquarium at the Dauphin Island Sea Lab

What is **your** project focus?

Coastal physical oceanography - estuarine and shelf hydrodynamics and air-sea interaction.

Lead Scientsits for Alabama Real-Time Coastal Observing System (ARCOS) - mission is to collect and distribute continuous, real-time meteorological and hydrographic (water quality) data across coastal Alabama

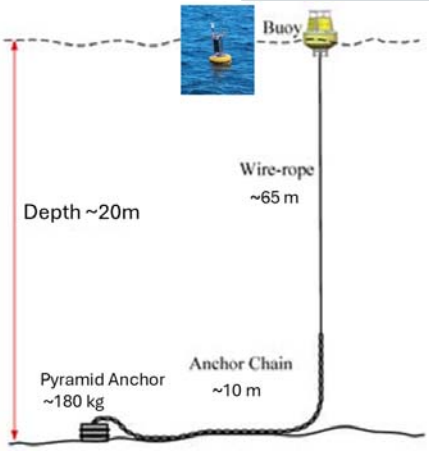
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https://www.disl.edu/arcos/

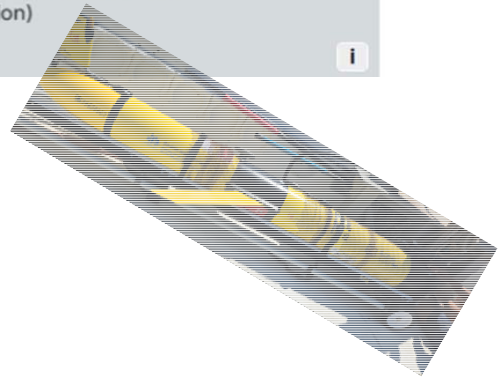
What type(s) of data does your team generate?

- Atmospheric
- Hydrographic
- Ocean currents
- Waves







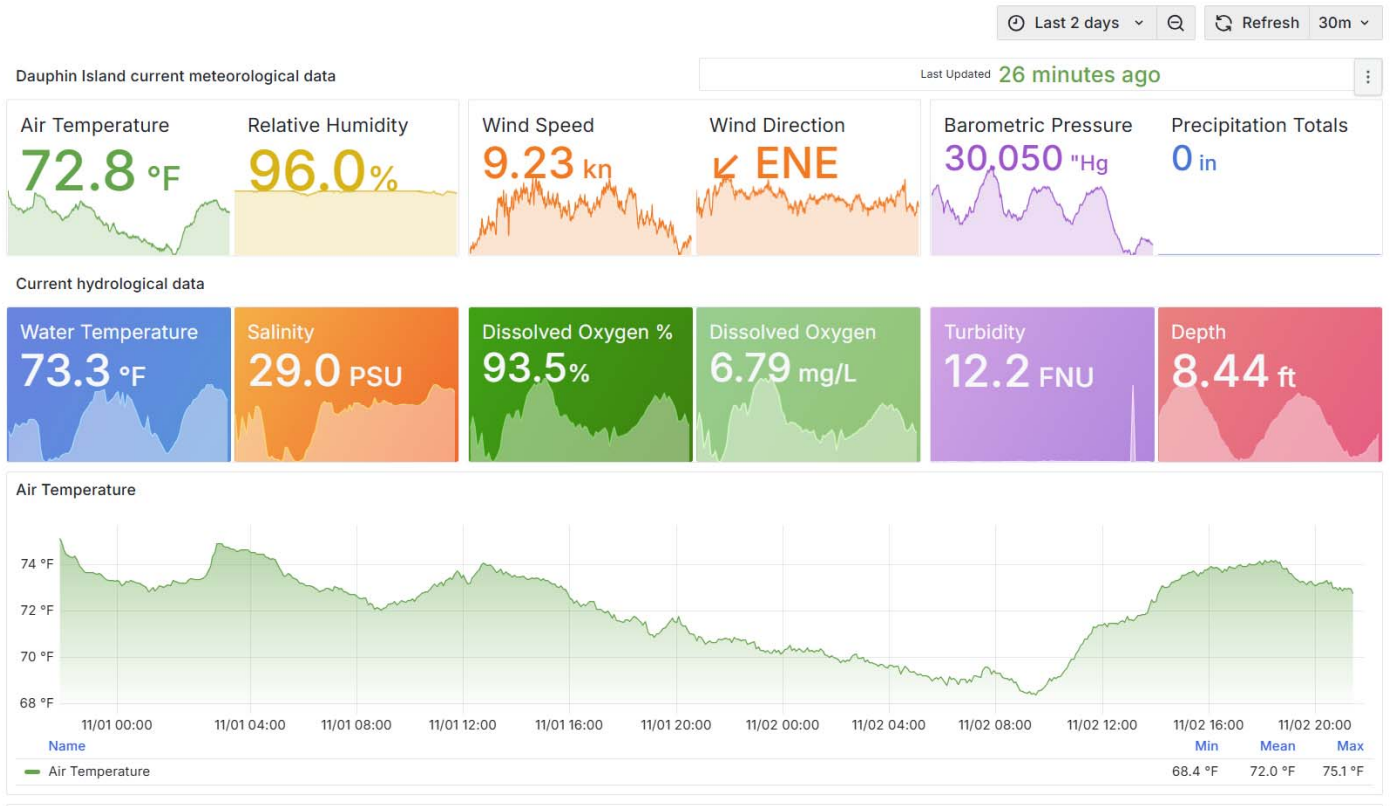


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https://www.disl.edu/arcos/

What type(s) of data does your team generate?

- Atmospheric
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Help Guide GCOOS Priorities

- How are the data applied/who are the primary users of the information?
  - NOAA National Weather Service – Mobile Sector
  - NOAA National Weather Service – Meteorological Development Laboratory
  - NOAA NOS Center for Operational Oceanographic Products and Services (CO-OPS)
  - Aquaculture operators (e.g., Navy Cove Oysters)
  - Mobile Bay Bar Pilots
  - Alabama Department of Public Health
  - Naval Research Laboratories
  - Coastal and Estuarine Science Work
  - Commercial fishing Charts
  - NOAA Mobile Bay National Estuaries Program
  - Consulting Firms (e.g. Moffatt and Nichol)
  - General Public

- Do you have an example you can share of a measurable outcome from use of the information you provide?
  - Weather prediction – NWS stated in letters of support that "***These data undoubtedly save lives by assisting in routine marine forecasts, marine forecast updates, and Special Marine Warning"***
  - Seafood safety - Oyster season closures (ADPH)
  - Modeling validation
    - Circulation models (NOAA, Universities, Consulting firms)
    - Rip current modeling (NOAA MDL)
  - Long term trend in water quality (MBNEP)
  - General Public – fishing, boating, beach going

Data Products and Information

What are your top two current or emerging information needs to implement your organization's (Healthy Ecosystems, Public Health, Coastal Resilience) priorities in the near-term (1-2 yrs)?

- Using AI – Testing AI to improve workflows and building tool to improve data accessibility/apps
- Connections - Get information to where needs to go to maximize benefits

What are your top two current or emerging information needs to implement your organization's (Healthy Ecosystems, Public Health, Coastal Resilience) priorities in the longer term (3-5 yrs)?

- These are fundamental the same at the 1-2 yrs
-

How does/can collaboration with GCOOS help you achieve your organization's mission?

- Funding support (e.g., resources from ARCOS that can be leveraged with other funding sources)

- Data distribution (e.g., Gandalf)

- Fostering communities of best practices (e.g., Wave buoy working groups)

- Stakeholder engagement (e.g., Girl Scout merit badge)

Cathrine Hancock
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GCOOS member

GCOOS Members Meeting, November 5, 2026

Help Guide GCOOS Priorities

- What is the primary mission of your organization?

Department of Earth, Ocean and Atmospheric Science
- Offer excellent education in earth, ocean and atmospheric science
- Contribute to scientific knowledge through world-class research
- Source of information for the public and decision makers

FSU Coastal & Marine Laboratory
- Conduct innovative, pioneering, interdisciplinary research on coastal and marine ecosystems
- Mentor the next generation of problem solvers
- Leverage scientific outcomes and expertise
- Engage stakeholders to optimize marine management and conservation

Resilient Infrastructure & Disaster Response Center
- Improving infrastructure
- Minimize negative impacts of natural disasters
- Develop new methods for economic efficiency and environmental management

- What is **your** project focus?
  - Increase offshore and inshore coastal ocean data in the Florida Panhandle
    - High-frequency radar – surface currents
    - Wave statistics – SOFAR Spotter buoys
    - Nearshore water monitoring systems – YSI EXO3 water quality sonde

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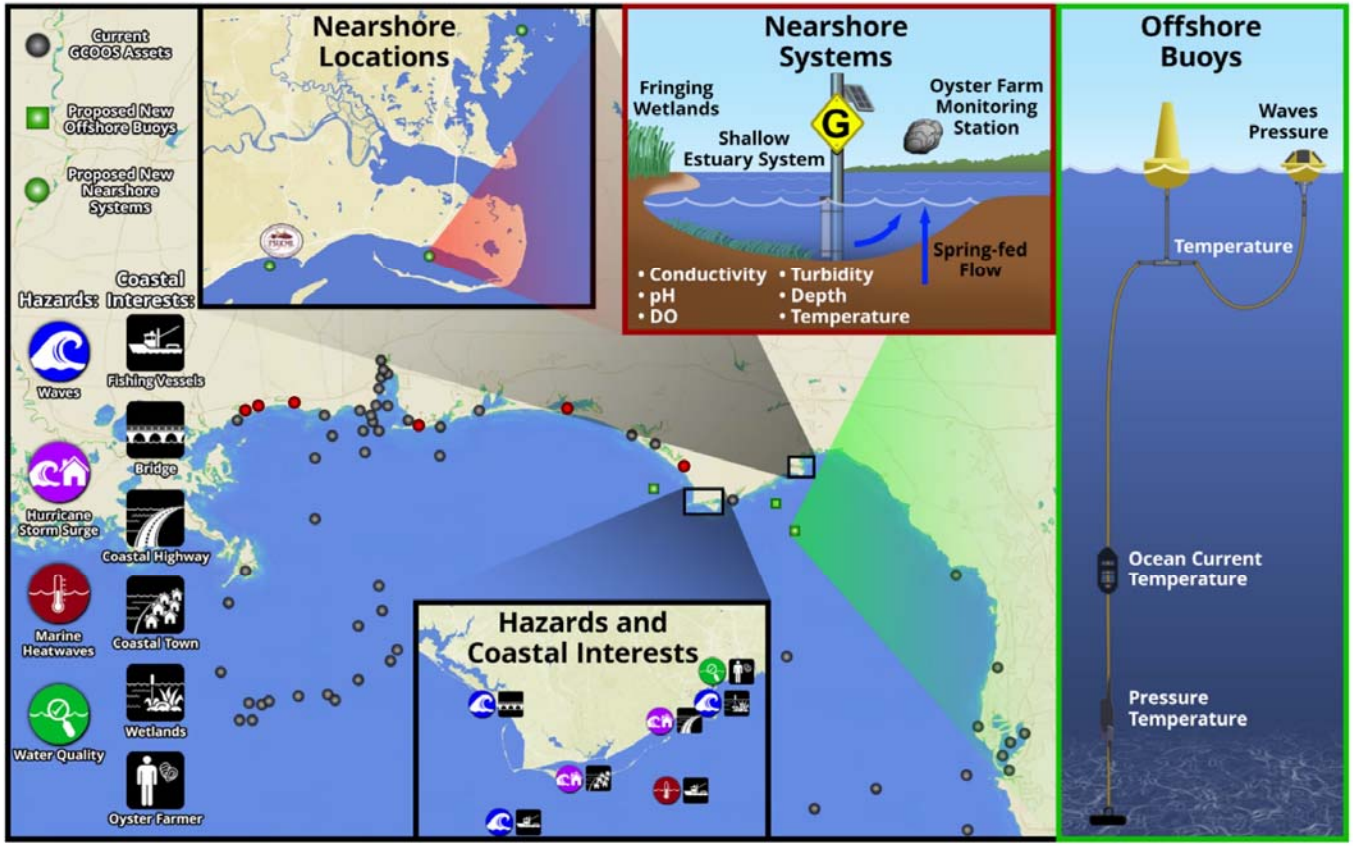
What type(s) of data does your team generate?

<u>Current data:</u>

- Water quality data (nearshore and offshore)
  - Temperature
  - Salinity
  - Dissolved Oxygen
  - Turbidity
  - pH
  - Bottom pressure

<u>Future data:</u>

- Wave statistics (offshore)
  - Significant wave height
  - Mean wave direction
  - Mean wave period
- Surface currents



Help Guide GCOOS Priorities

How are the data applied/who are the primary users of the information?

Research initiatives:

- Apalachicola Bay System Initiative (ABSI) - Oyster restoration and hatchery operations in Apalachicola Bay and surrounding estuaries
- Long-term monitoring of fish communities for improved predictive models
- Biogeochemical cycling in intertidal and coastal systems – baselines and long-term variability
- Environmental influence on fitness of seagrass and oyster/marsh habitats – early detection of harmful water quality conditions

Community initiatives:

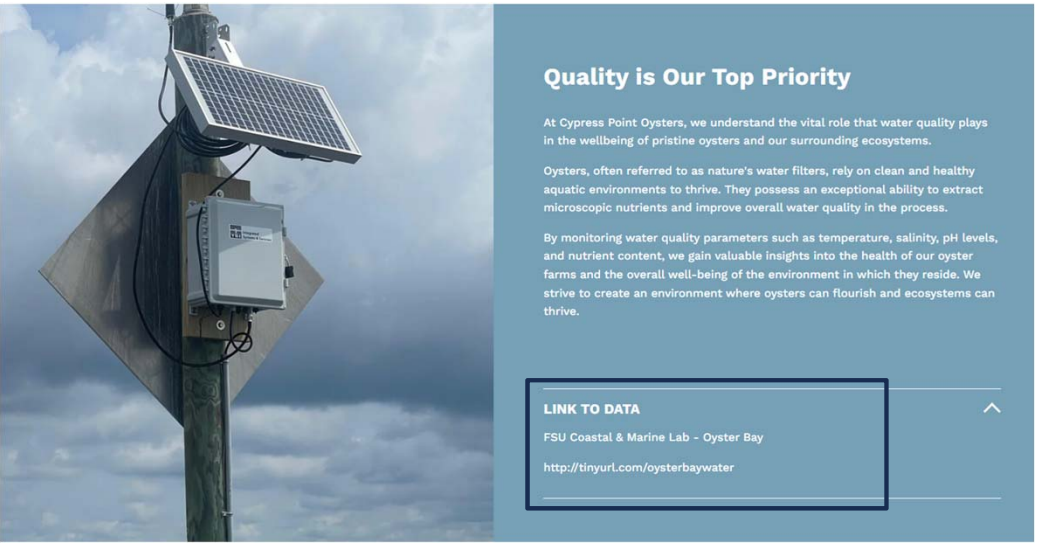
- Aquaculture stakeholders – capacity planning, efficient harvests
- Florida Department of Environmental Protection - coastal erosion modeling and living shorelines
- Commercial and recreational boaters - Real time ocean conditions

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Do you have an example you can share of a measurable outcome from use of the information you provide?

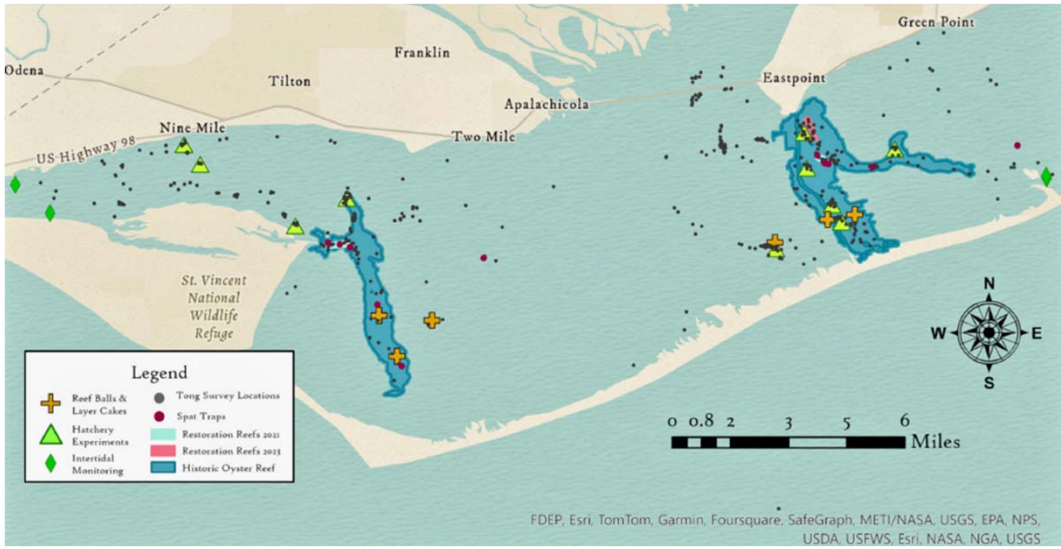
Cypress Point Oysters

- use water quality data to plan oyster capacity and efficient harvest



Apalachicola Bay System Initiative

- implementation of the adaptive management and restoration plan for Apalachicola Bay



Data Products and Information

What are your top two current or emerging information needs to implement your organization's (Healthy Ecosystems, Public Health, Coastal Resilience) priorities in the near-term (1-2 yrs)?

- Wave information
  - Improve marine forecasts
  - Improve modeling (coastal erosion models, coastal surge models)
- Water quality information
  - Successful aquaculture management
  - Successful restoration of Apalachicola Bay and surrounding estuaries

What are your top two current or emerging information needs to implement your organization's (Healthy Ecosystems, Public Health, Coastal Resilience) priorities in the longer term (3-5 yrs)?

- Water level, wave and temperature information
  - Hydrodynamic loading of coastal infrastructure
- Water quality information
  - Successful aquaculture management

How does/can collaboration with GCOOS help you achieve your organization's mission?

- Near-real time nearshore and offshore water quality data
- Near-real time wave information
- Near-real time surface current data

Jason Rider

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Mississippi Department of Marine Resources

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Help Guide GCOOS Priorities

What is the primary mission of your organization?

- MDMR enhances, protects, and conserves Mississippi's marine resources for commercial, recreational, and educational use.
- The Shellfish Bureau regulates private and public oyster reefs, opens and closes harvest areas, restores reefs, and supports on bottom and off bottom oyster aquaculture.

What is your project focus?

- Gulf Coast Water Quality Monitoring Network: continuous stations across Mississippi, Louisiana, and Alabama.
- Real time water quality data to support harvest management, reef restoration, and public health.



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What type(s) of data does your team generate?

- Continuous sonde data (Aqua TROLLs): salinity, temperature, dissolved oxygen, pH, and depth
- Telemetry to HydroVu, shown on MDMR's Hydrological Monitoring station pages
- Rainfall and river stage tracking that triggers harvest area closures
- Water samples for NSSP growing area classification
- Oyster reef assessments: density, size, spat set, and mortality
- Harvest data from check stations: sacks landed and effort



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How are the data applied / who are the primary users?

- MDMR: harvest openings and closures, and picking cultch sites
- Oyster harvesters, tongers, and dealers: when and where they can work
- Oyster farmers: grow out conditions and mortality risk
- LDWF, ADCNR, FDA/ISSC, and university partners

Measurable outcome

- Restoration: it guides where we plant cultch and restore reefs, so restoration dollars go where oysters will survive.
- Public health: it supports the Vibrio time and temperature controls that keep Gulf oysters safe for consumers.
- Market access: it backs up our NSSP growing area classifications, which keeps Mississippi oysters in interstate commerce.



Data Products and Information

Near term needs (1 to 2 years)

- Get the stations network installed and reporting by June 2027, with reliable telemetry and data shared across all three states.
- Real time salinity and temperature during freshwater events and storms, so closures, reopenings, and reef protection happen at the right time.

Longer term needs (3 to 5 years)

- Steady funding to keep the stations running past 2030 and move toward permanent stations.
- Forecast tools that tie water quality to oyster health: HAB's, Vibrio risk, low dissolved oxygen, and mortality warnings for harvesters and farmers.



How does/can collaboration with GCOOS help you achieve your organization's mission?

- Ties our stations into a Gulf wide network, so Mississippi, Louisiana, and Alabama data work together
- Hosts the data, handles QA/QC, and makes it public through the GCOOS portal
- Gives state shellfish programs a voice with IOOS and Congress for long term observing funding
- Connects shellfish managers with modelers and researchers who can turn our data into forecasts

