

Real-Time Observing in Coastal Alabama

Renee Collini, Brian Dzwonkowski, Jeff Coogan

Hypoxia Working Group Meeting

August 11th, 2017

Mississippi State University Long Beach Campus



Where are we heading today?

- Alabama Real Time Coastal Observing System – what & where?
- Upcoming expansion
- Research questions – Hypoxia in the Mississippi Bight

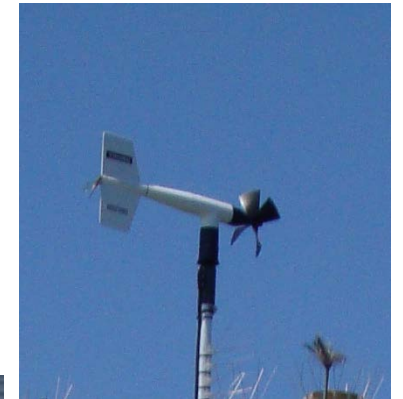


Alabama Real-time Coastal Observing System



Meteorological Data

- Temperature
- Relative Humidity
- Photosynthetically Active Radiation
- Solar Radiation
- Wind Speed
- Wind Direction
- Barometric Pressure
- Precipitation
- Point sampling
- Every minute



Water Quality Data

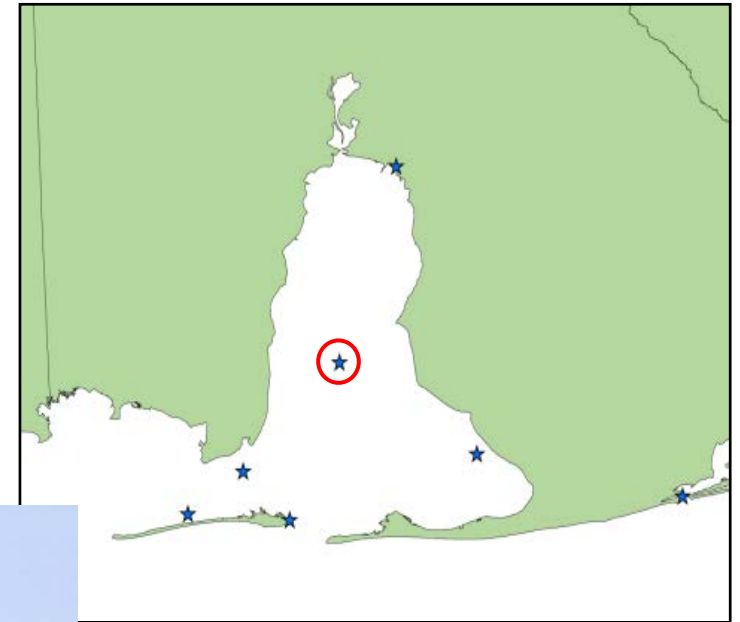
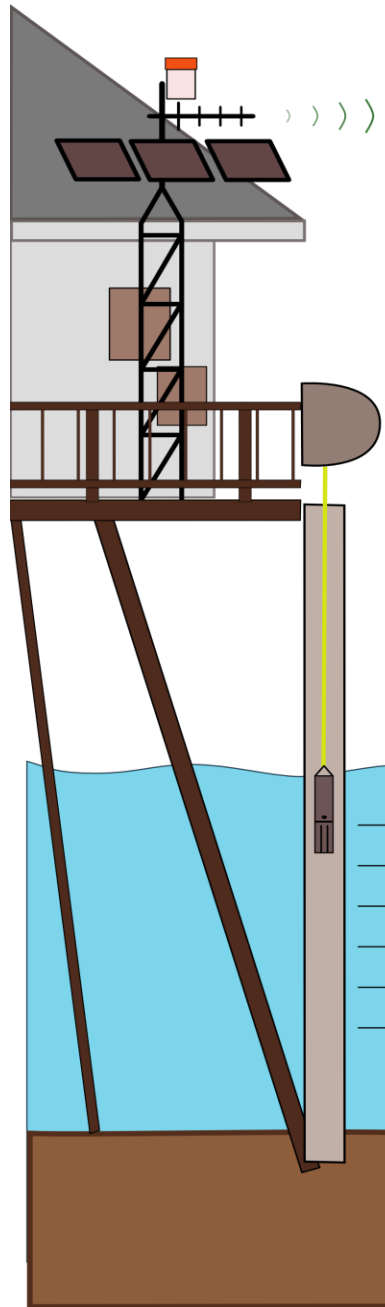
- Temperature
- Salinity
- Dissolved Oxygen
- Water Height
- Water Level – Dauphin Island only
- 0.5 m off the bottom

- Every 30 min
- Point sampling



Middle Bay Lighthouse

- Hourly
- Water column profile



Data access

www.mymobilebay.com

MY MOBILE BAY - LOCAL ENVIRONMENTAL CONDITIONS

Please Click on a location to get current environmental conditions.



This website is funded in part with qualified outer continental shelf oil and gas revenues by the Coastal Impact Assistance Program, Bureau of Ocean Energy Management, Regulation, and Enforcement, U.S. Department of the Interior.

Environmental Monitoring

- Bon Secour
- Cedar Point
- Dauphin Island
- Grand Bay
- Katrina Cut
- Meaher Park
- Middle Bay Light
- Perdido Pass
- Weeks Bay

Metadata

- Download Data

Station Information

- Marine Forecast
- Dr. Bill's Marine Weather
- Beach Monitoring
- National Data Buoy Center
- USGS Water Data
- Tides
- Air Monitoring Program
- Rip Currents
- Webcams

- MBNEP Home
- DISL Home
- Disclaimer
- Contact Us

- View graphically
 - Timescales
 - Parameters
 - Definitions
- Download
 - Meteorological Data
 - Hydrographic Data
- Flags
 - QA/QC – no data removed

Current Data Uses

- Research
- Fishing/boating/ecotourism
 - Recreational
 - Commercial
 - Coast Guard
- Shipping
- Forecasting/Nowcasting
- Restoration
- Fisheries Management
- Environmental Management
- Strategic/comprehensive planning
- Education

*Unique visitors each month: 7,000+

Upcoming Expansion



“Hire good people, give them what they need, and get the hell out of their way...”
– M. Dardeau



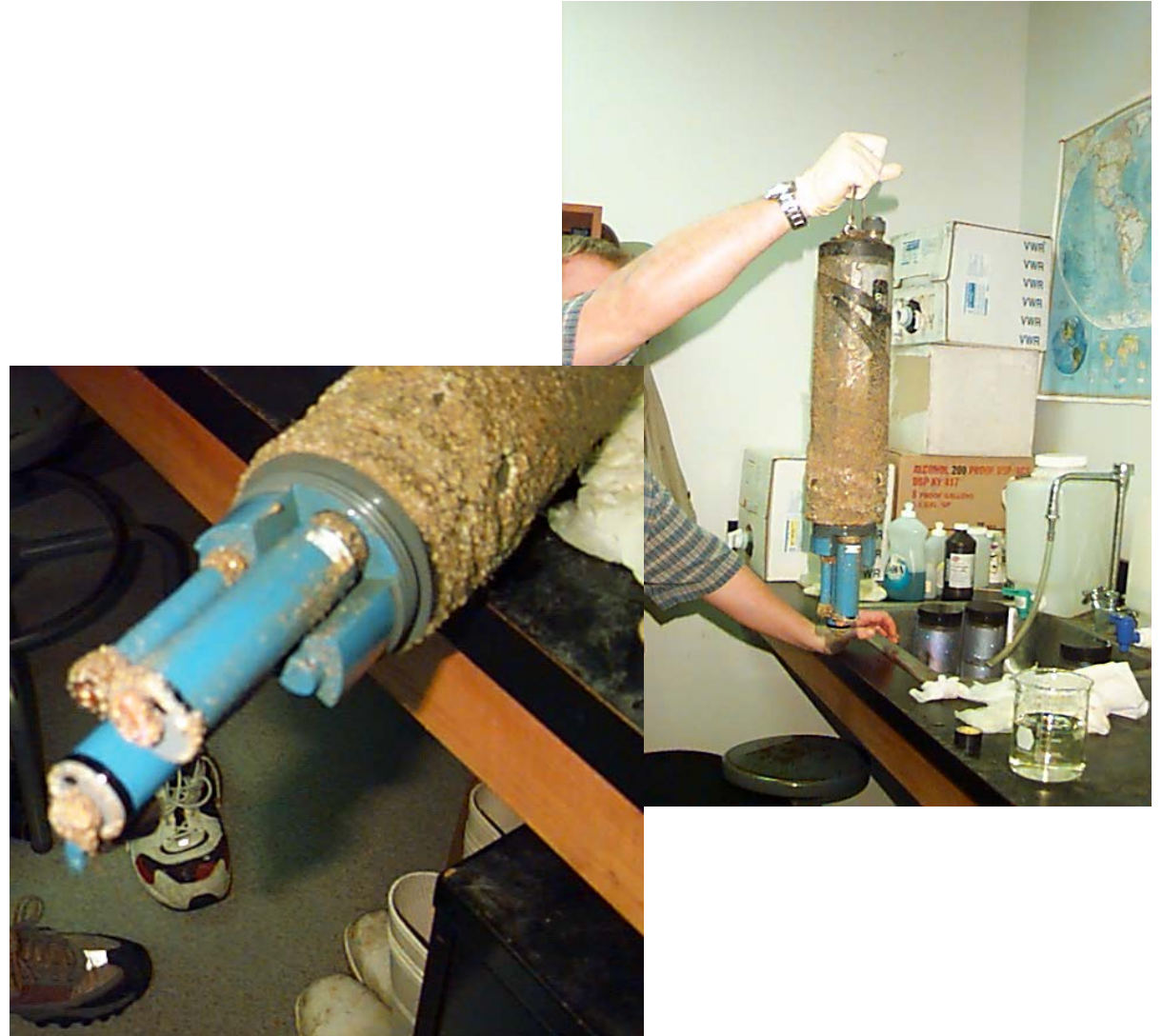
ARCOS Spatial Expansion



- Existing monitoring station (est.2004)
- 20 m isobath
- Site of extensive biological research
- Currently collect
 - Bottom & 5m sal & temp
 - Column temp
 - Currents (?? m bins)
- Will add
 - Bottom & surface DO
 - Move sal & temp to surface
 - Real-time capabilities
 - Historical data at www.mymobilebay.com

ARCOS Parameter Addition

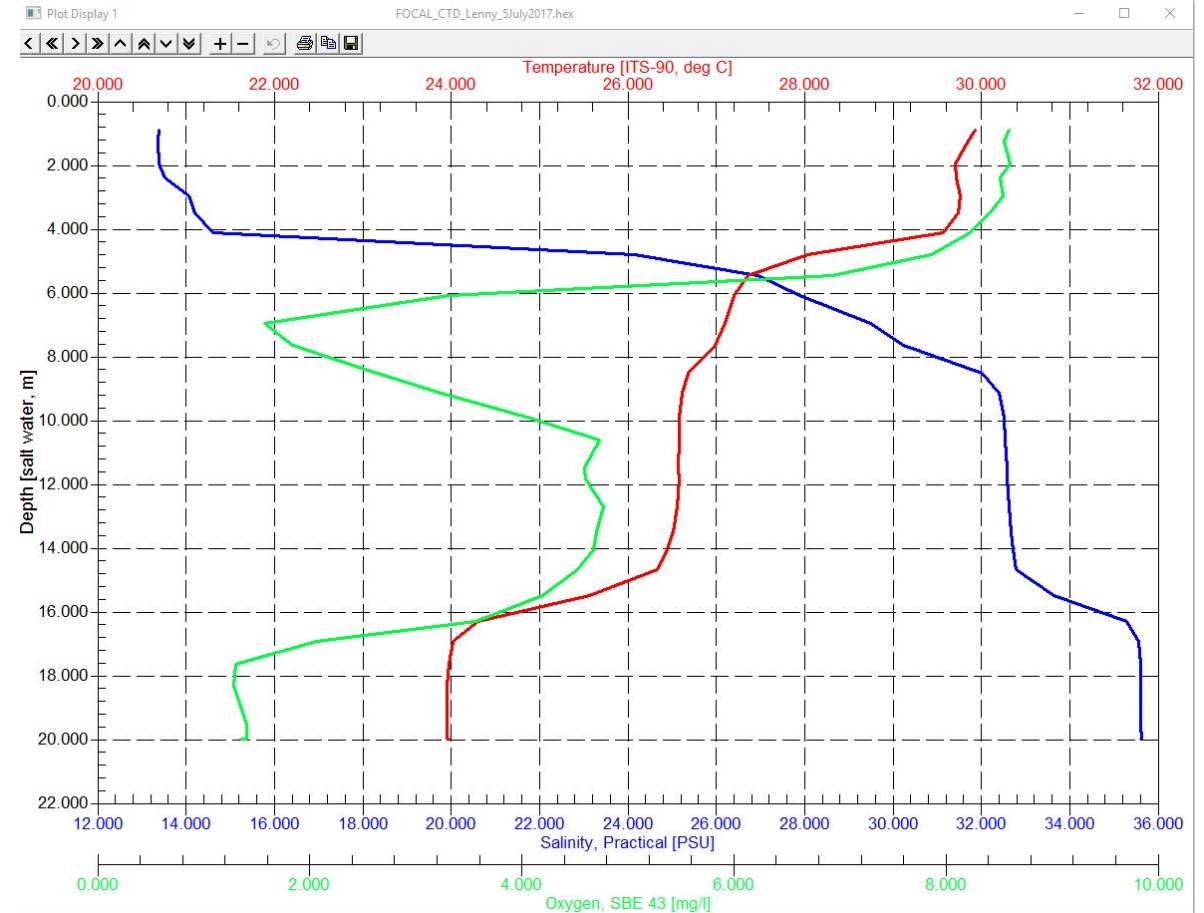
- Temperature
- Salinity
- Dissolved Oxygen
- Water Height
- Water Level – Dauphin Island only
- **Turbidity – four stations**
- **TSS – four stations**



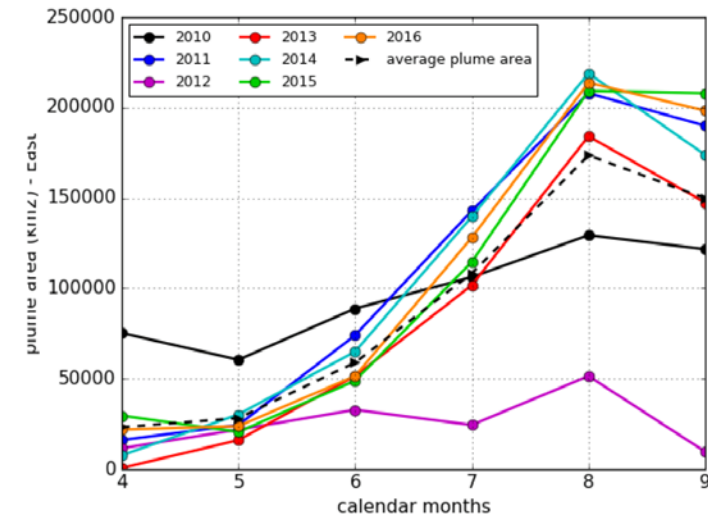
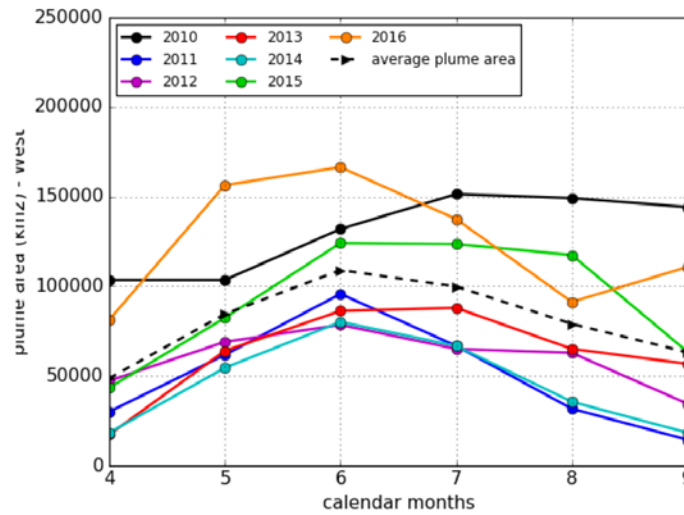
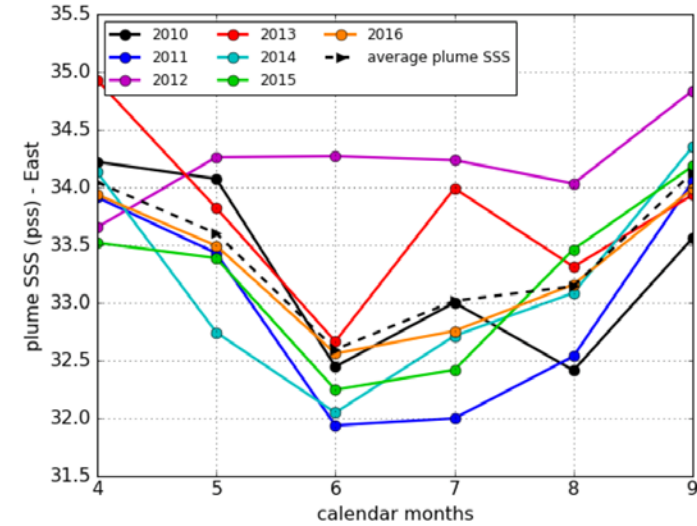
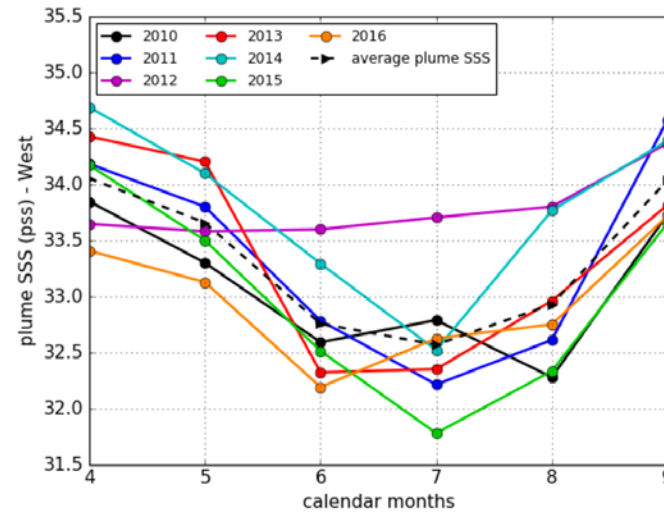
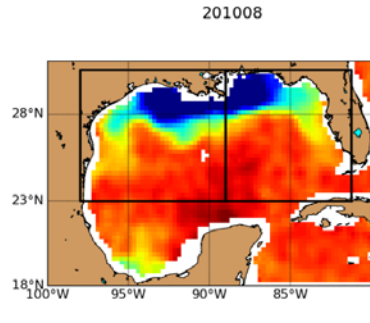
Research Questions
&
Hypoxia in the Mississippi Bight

Understanding Hypoxia in Mississippi Bight

- Known conditions:
 - Recurrent bottom hypoxia under a variety of conditions
 - Subsurface minimum
 - Similar intensity freshwater lens
- Supporting data
 - SSS
 - Individual research cruises
 - Historical monthly casts



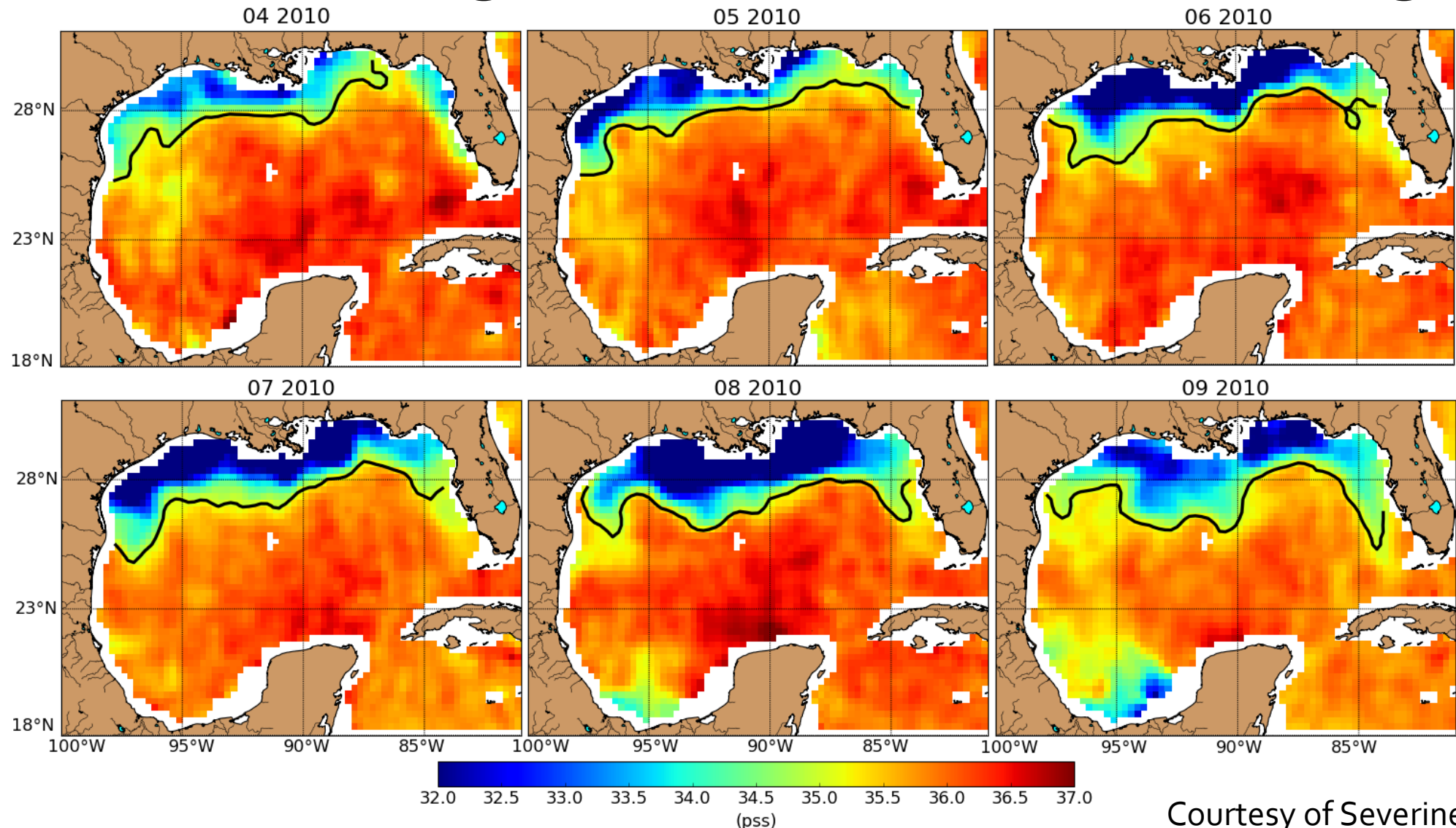
Understanding Hypoxia in Mississippi Bight



Courtesy of Severine Fournier

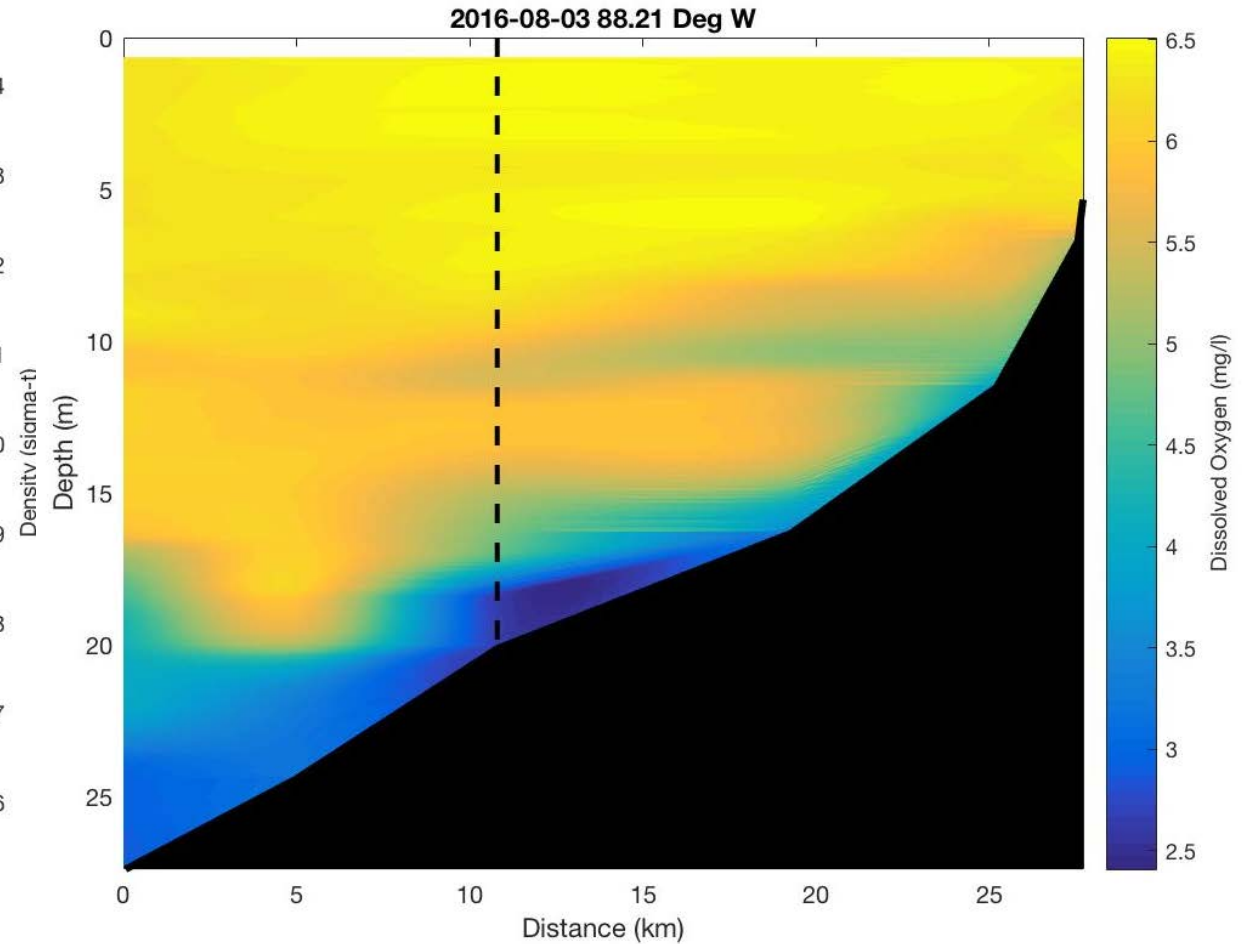
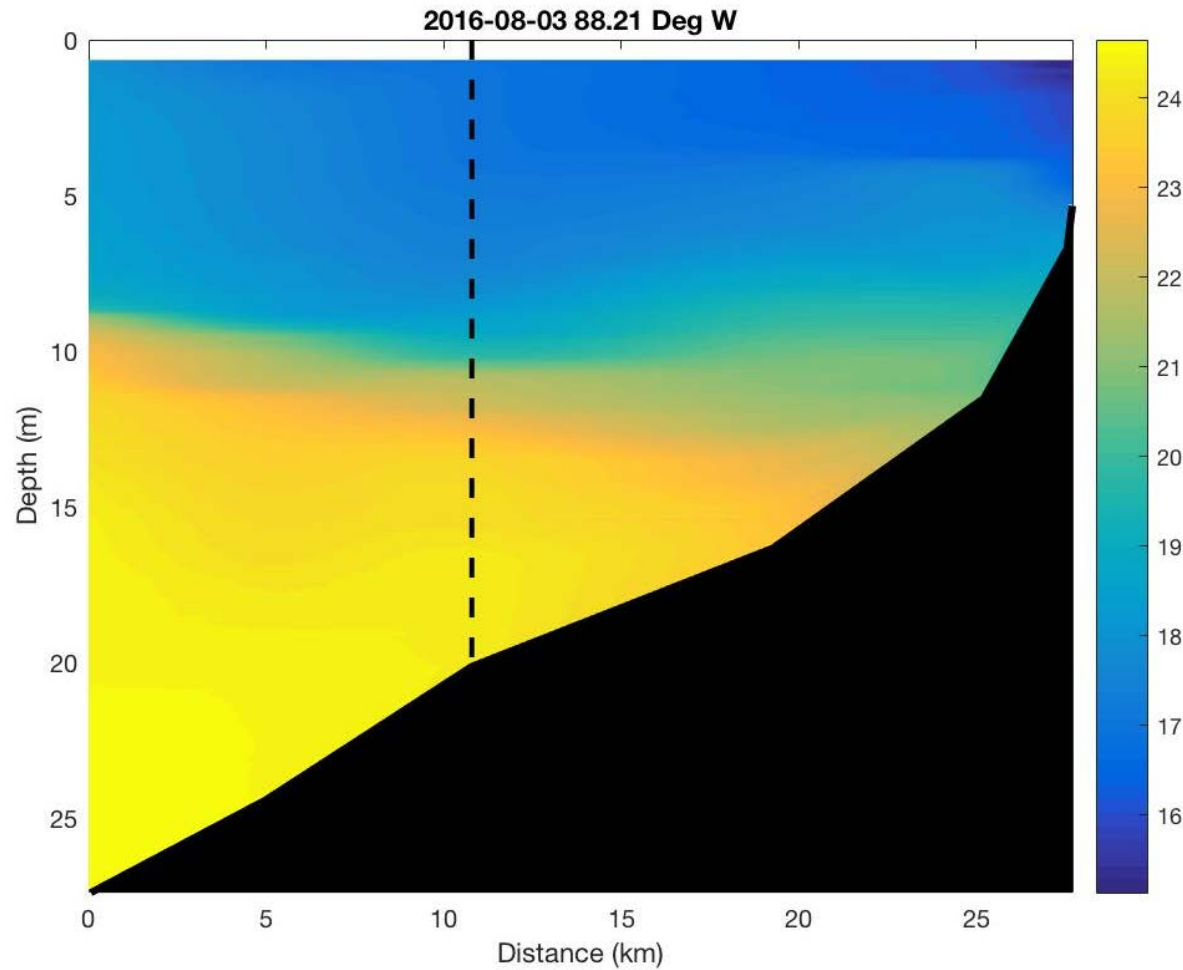


Understanding Hypoxia in Mississippi Bight



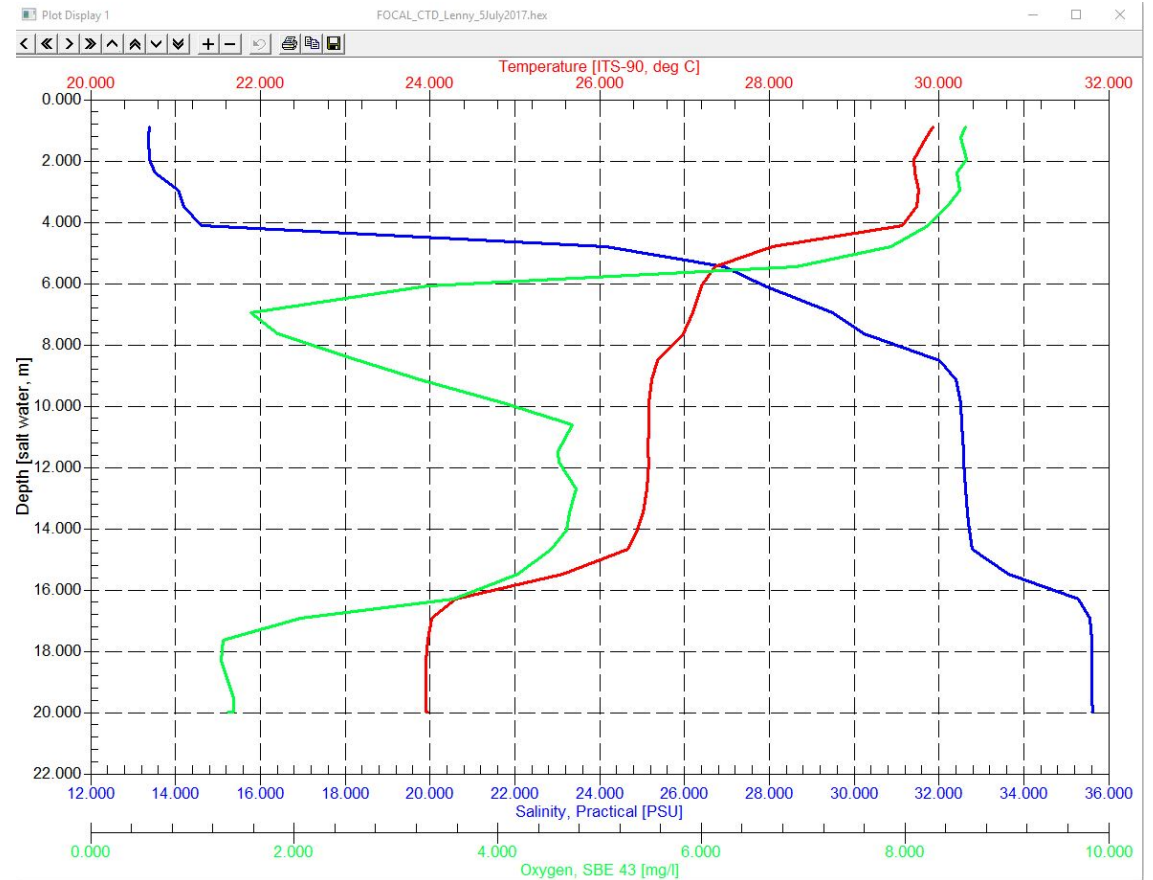
Courtesy of Severine Fournier

Understanding Hypoxia in Mississippi Bight



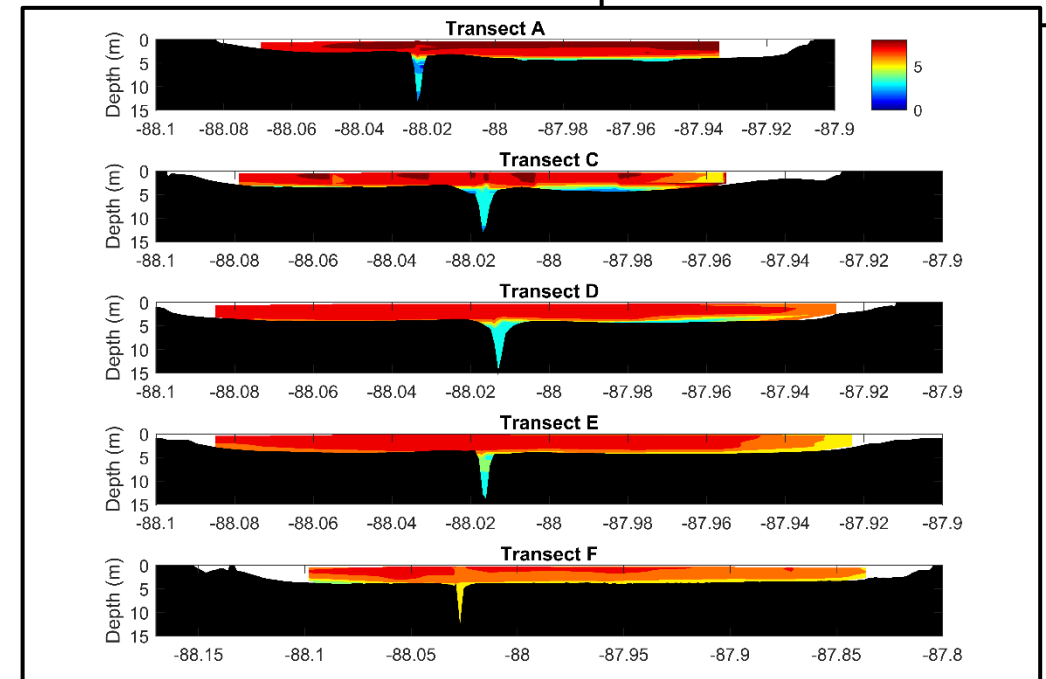
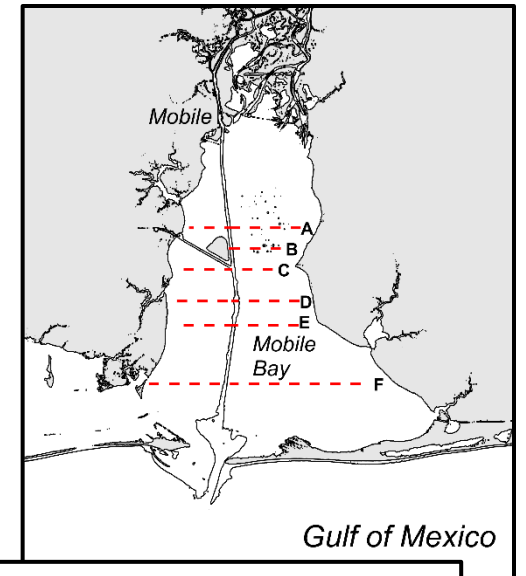
Understanding Hypoxia in Mississippi Bight

- Known conditions:
 - Recurrent bottom hypoxia under a variety of conditions
 - Subsurface minimum
 - Similar intensity freshwater lens
- Supporting data
 - SSS
 - Individual research cruises
 - Historical monthly casts
- Research needs – better understanding of:
 - Frequency & duration
 - Interaction of biogeochemical processes with physical processes



Other DO research interests

- Long-term trends in net ecosystem metabolism at individual stations and regionally
 - Have: method & data
 - Need: manpower to clean and analyze
 - Want: additional data from across the region for a northern Gulf analysis
- Physical forcing variability on DO dynamics in Mobile Bay
 - Using data from Summer 2016
- Lots of available data



Opportunities to Collaborate

- Better understanding hypoxia in the Mississippi Bight
 - Historical systematic transects (e.g. FOCAL transects)
 - Upcoming continuous data at FOCAL (benthic/surface)
 - Collaborating w/GRIDCC contributors
- Net ecosystem metabolism across NGOM estuaries
 - Collaboration for data analysis
 - Combining data for a broader region-wide analysis
 - Historical trends
- Historical data from Mobile Bay & offshore sites
- Coordination across monitoring & messaging to increase attention and funding to understanding hypoxia in the eastern shelf

Questions???

- Renee Collini, Program Manager ARCOS; rcollini@disl.org
- Brian Dzwonkowski, Assistant Professor University of South Alabama; briandz@disl.org

*Upcoming expansion funded by – NOAA RESTORE Act Science Program