MERCURY-RELATED RESEARCH/MONITORING ACTIVITIES
GRAND BAY NATIONAL ESTUARINE RESEARCH RESERVE, MISSISSIPPI

Projects

- Long-Term Monitoring of Atmospheric Mercury in the Gulf of Mexico Region – NOAA Air Resources Laboratory, NOAA National Centers for Coastal Ocean Science, Grand Bay NERR, U.S. Fish and Wildlife Service, and Mississippi State University (2006-present)
  - *Station measures levels of gaseous elemental mercury, reactive gaseous mercury, and particulate-phase mercury; also monitors meteorological parameters and trace gases including sulfur dioxide, carbon monoxide, ozone, and nitrogen oxides*

- Ecotoxicology and Risk Assessment of Mercury in the Grand Bay National Estuarine Research Reserve - Jackson State University, Grand Bay NERR, and Mississippi State University (2007-present)
  - *Assess mercury levels in water column, sediments, benthic invertebrates, and fishes*

- Mercury Contamination in Benthic Algal Assemblages: Source of Methyl-mercury from the Sediment – Dauphin Island Sea Lab (2007-present)
  - *Test methods for the separation of micro-algae from sediment and assess mercury levels in the water-column, algae, phytoplankton, and benthic populations.*

- Health of Seagrass Beds at the Grand Bay NERR - University of South Alabama (2008-present)
  - *Assess baseline mercury levels in sediments and mixed submerged aquatic vegetation communities*

- Effects of Non-point Source Pollution on Gulf Pipefish in and around Weeks Bay NERR, Alabama – University of South Alabama (2007-present)
  - *Assess baseline mercury levels in water column and Gulf Pipefish (Syngnathus scovelli)*

- Ecology of Diamondback Terrapins in the Grand Bay Estuary of Mississippi – Florida A&M University, Mississippi State University, and Grand Bay NERR (2007-present)
  - *Assess baseline mercury levels in diamondback terrapins (*Malaclemys terrapin*) using blood and scute samples*

- Marsh Bird Ecology along the Mississippi Gulf Coast – Mississippi State University, University of Georgia, University of Windsor, and Grand Bay NERR (2005-present)

  - *Assess baseline mercury levels in a variety of organisms as part of a trophic dynamics study; baseline Hg data from marsh snails (*Littorina spp.*), salt marsh fishes (*Fundulus spp.*), saltmarsh grasshoppers (*Orchelimum spp.*), Tricolored Heron (*Egretta tricolor*) Snowy Egret (*Egretta thula*), Clapper Rail (*Rallus longirostris*), Seaside Sparrow (*Ammodramus maritimus*), Red-winged Blackbird (*Agelaius phoeniceus*)*

- Conceptual Modeling for Ecological Risk Assessment of the Grand Bay NERR – Jackson State University, Grand Bay NERR, Mississippi State University, Florida A&M University, and Bethune-Cookman University (2003-present)
  - *Developed a conceptual risk assessment model in which mercury was identified as a potential major driver/stressor in the grand Bay system; model hypothesized linkages with valued ecosystem components (i.e., endpoints) which should be monitored within Grand Bay*

Cooperators/Collaborators

- Dr. Winston Luke, Dr. Mark Cohen – Air Resources Laboratory, NOAA, Silver Spring, MD
- Dr. Paul Tchounwou, Dr. Ibrahim Farah – Department of Biology, Jackson State University, Jackson, MS
- Dr. Hugh McIntyre, Ms. Lucie Novoveska (Ph.D. Candidate), Dr. Céline Lafabrie - Dauphin Island Sea Lab, Dauphin Island, AL
- Dr. Anne Boettcher, Department of Marine Science, University of South Alabama, Mobile, AL
- Dr. Larry Robinson, Ms. Christina Watters (Research Technician) - Environmental Cooperative Science Center, Florida A&M University, Tallahassee, FL
- Dr. Bob Cooper, Mr. Scott Rush (Ph.D. Candidate) - Warnell School of Forestry and Natural Resources, University of Georgia, Athens, GA
- Dr. Aaron Fisk, Great Lakes Institute for Environmental Research, University of Windsor, Windsor, Ontario, Canada
- Dr. Mike Reiter, Department of Biology - Bethune-Cookman University, Daytona Beach, FL
- Dr. Mark Harwell, Harwell & Associates, Inc., Jacksonville, FL
- Ms. Barbara Viskup, Ms. Becky Comyns – Mississippi Department of Environmental Quality, Biloxi, MS
- Mr. Dave Ruple (Manager), Mr. Chris May (Stewardship Coordinator) - Grand Bay National Estuarine Research Reserve, Moss Point, MS
- Mr. Durwin Carter (Manager) - Grand Bay National Wildlife Refuge, Moss Point, MS

Infrastructure

- Grand Bay NERR Facilities:
  - *Building: 16,000 sq. ft.*
  - *Chemistry Lab: 768 sq. ft.; Biological Lab: 768 sq. ft.; Microbiology Lab: 135 sq. ft.*
  - *Office Space: offices for visiting research scientists*
  - *Dormitory: 20 person capacity; two private rooms for visiting scientists*
- Trucks, Boats: *available to visiting scientists for field studies*
- System-wide monitoring Program:
  - *Four water quality data loggers deployed – continuous monitoring of abiotic & biotic water conditions*
  - *One Meteorological Station – continuous data collections of weather conditions at reserve*
  - *Nutrient Sampling – monthly nutrient samples collected at the four water quality monitoring sites*

For more information, contact:

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