

**DNR Coastal Resources Division**  
**Coastal Management Research Needs (Not Prioritized)**  
**Updated July 2017**

**Coastal Hazards:**

- Economic cost of action vs. inaction related to coastal hazards
- Effects of Ocean Acidification in Coastal Georgia Waters
- Local Model Ordinances to address Climate Change Impacts
- Reference tide stations to orthometric datum for enhanced accuracy of calculations in reference to land elevations

**Coastal Habitats:**

- Role/effectiveness of wetland buffers (buffering salt marshes and wetlands)
- Tidal marsh restoration (ecological lift versus economics, analysis of existing restoration, i.e. does it work/is it successful)
- Ecosystem services (value of saltmarshes)
- Economic value of salt marshes via wave attenuation during storm surge
- Innovative technologies /methodologies for dredge material disposal (thin layer placement in salt marshes, tracing sediment movement after disposal)
- Innovative materials and techniques for implementing Living shoreline projects that aim to recruit oysters and stabilize shorelines, considerate of sea level rise (new materials, materials of opportunity vs. traditional cultch materials)
- Marsh dieback (mapping, monitoring tools, citizen science)
- Environmental and biological data related to health and/or status of Georgia's river drainage systems. Specific needs related to habitat requirements during early life stages of marine organisms
- Carrying capacity of docks in small creeks and tributaries - Can a carrying capacity model for creeks and small tributaries be developed?
- Geo-referenced mapping of all known Crown, Georgia State Grant, Georgia Legislative Easements, and Heritage Preserve Wetlands
- Marsh vegetation classification
- Measuring how artificial reefs/oyster restoration/living shorelines affect adjacent habitats (versus bulkheads, revetments)
- Reach of tide in major riverine systems. Annual averages to determine where tidal amplitude is greater than 0.02 feet
- Marsh contribution to nutrients (fluxes)

**Water and sediment quality/quantity:**

- Bacterial transport – hydrology studies; what are the bacterial sources? (Transport and time-of-travel studies to estimate when a pollution plume would reach a coastal swimming beach)
- How harmful to human health is enterococcus bacteria in beach waters?
  - Epidemiology studies of recreational waterborn illness.
  - Quantitative Microbial Risk Assessment (QMRA) studies for specific beaches
- Bacterial issues in and around Georgia coastal marinas
- How can we better detect pathogens in beach waters?

- Predictive modeling to correlate environmental factors to elevated levels of bacteria
  - How best to implement enterococcus qPCR method
- Correlations between DO levels and tannins in Georgia coastal rivers
- Impacts of decreased fresh water inflow to estuaries
- Effects of wetlands and land use practices on instream flows (at multiple scales from site to regional)
- Direct and indirect influences various coastal and near coast forestry activities have on the coastal waters of the state - Effects on nutrient loads
- Sand budget studies for Georgia sea islands, including shoreline erosion and accretion history and trends
- Beachfront shoreline change modeling/predictive ability considerate of natural and anthropogenic inputs
- Similar to predictive modeling as above in beach water pathogens but focused on point source discharges and accidental releases
- Appropriate DO criteria that is protective of aquatic species present

### **Marine Fisheries:**

- Estimates and impact of recreational crabbing and shrimping in Georgia
- Assessment of Georgia's artificial reefs in terms of productivity, habitat, species utilization, and recreational usage
- Impact of disease on commercially and recreationally important species – specifically black gill disease in shrimp and *Hematodinium* in blue crabs
- Status and trends in emerging/declining fisheries (cannonball jellyfish and whelk, respectively) as they relate to harvest, abundance, participation and ecological impact
- Estimates of hooking mortality in the catch-and-release recreational fisheries
- Complete knowledge of the life history of exploited estuarine and marine fishes indigenous to coastal Georgia
- Characterization of bycatch in commercially and recreationally important fisheries
- Evaluate the role of instream flow (and drought) as it relates to species abundance, estuarine productivity, and overall health of coastal ecosystems
- Improve fishery assessments, with increased/coordinated fishery-dependent and fishery-independent monitoring/surveys region-wide
- Identify critical habitats (spawning, nursery, etc.) for commercially and recreationally important species (shrimp, blue crabs, red drum, spotted seatrout, Southern kingfish, sheepshead, Southern flounder, tripletail, etc.)
- Characterization/quantification of impacts to Essential and Critical Fish habitats and fisheries and ecosystem productivity
- Assessment of Georgia's artificial reefs in terms of productivity, habitat, species utilization, and recreational usage
- Improvement in artificial reef technology (eg. designed units, siting, deployment, configuration, and monitoring)
- Boating and fishing access needs for coastal Georgia
- Economic impacts of saltwater fishing tournaments, artificial reefs, and for-hire charter businesses

- Georgia's fishing fleet, what is the condition of the current fleet and future forecast with the reduction in working shorelines? Average age of vessel, sea worthiness, and where are the vessels originating from?
- Monitor the abundance and distribution of introduced species and evaluation their impacts on native fauna

**Green Growth/Stormwater Management:**

- Pre and post construction monitoring of effectiveness of LID BMP installations (including water quality and quantity impacts)
- Inventory of specific codes, ordinances, and/or individual practices that are hindering green development in coastal counties, including solutions to alleviate these roadblocks
- Economic analysis of LID versus traditional grey infrastructure using coastal Georgia specific markets and installation examples to include design plans, capital costs and long term maintenance costs over the lifespan of a BMP compared to grey infrastructure alternative
- Detailed maintenance guidance for LID BMPS in *coastal Georgia specific environments*
- Future buildout analysis for coastal counties to demonstrate stormwater and flooding impacts with increasing impervious cover (including water quantity and quality impacts)