



Current Coastal & Ocean Challenges and Implications for Marine Mammals

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Marine Mammal Commission
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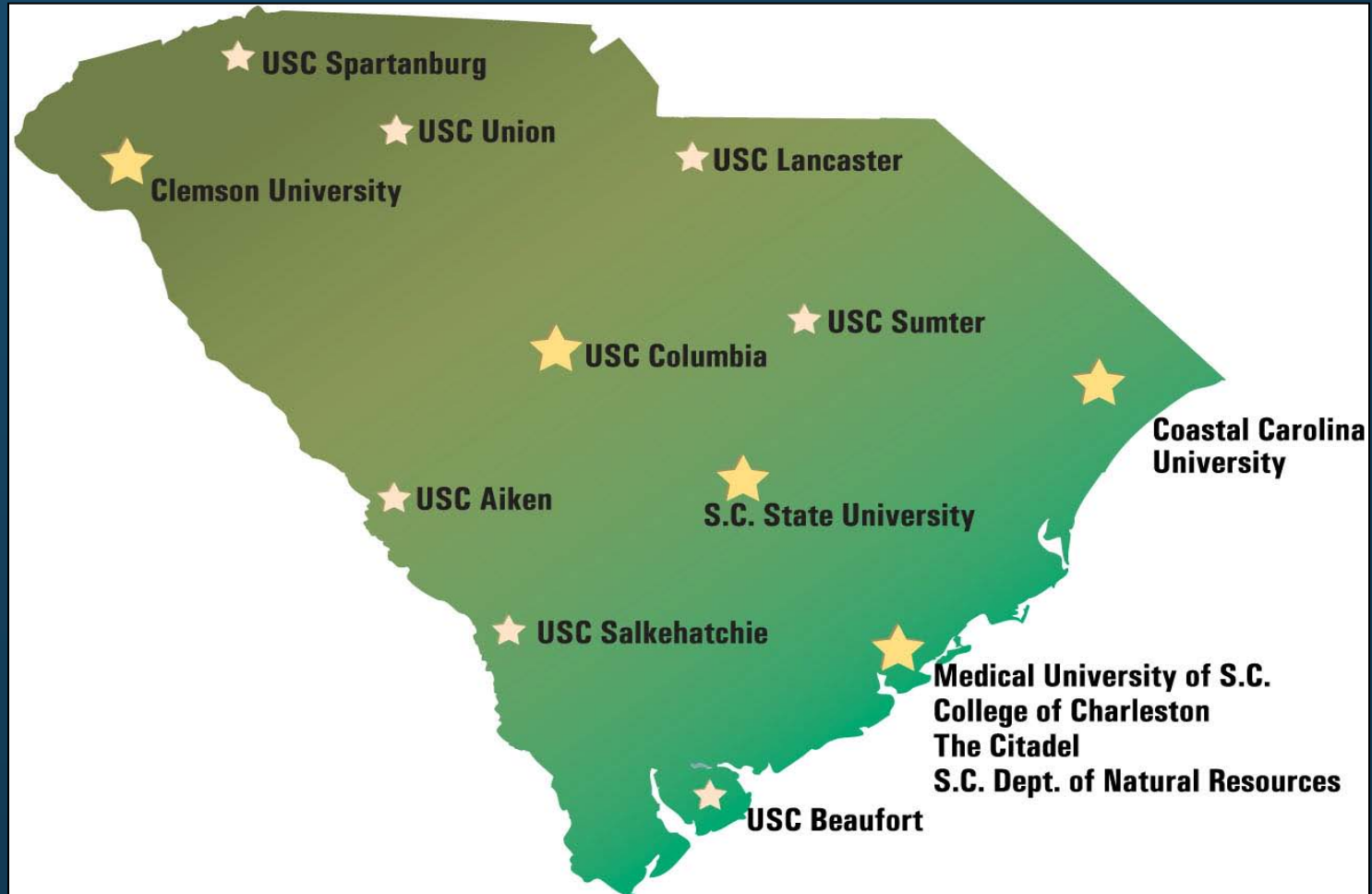
S.C. Sea Grant Consortium Mission



Generate and provide science-based information to enhance the practical use and conservation of coastal and marine resources that fosters a sustainable economy and environment.



Consortium Member Institutions



NOAA National Sea Grant College Program



<http://seagrant.noaa.gov/Home.aspx>



S.C. Sea Grant Consortium - Functions

- **Serve as a Broker and Catalyst**
 - Information to inform decision-making
 - Funding to support stakeholder-driven needs
- **Work in Partnership with Others**
 - Work with stakeholders and constituencies
 - Leverage scarce resources towards common goals
 - Contribute expertise and knowledge
- **Support Research, Extension, Education, and Communications**
 - Secures funding to support user-driven research at the universities
 - Employs an outreach team to identify info needs and deliver science-based information



Consortium programs...

- Support coastal and water-dependent economic opportunities (business and jobs)
- Ensure wise use and development of the state's marine and coastal natural resources, and
- Improve the social well-being of those who live, visit and depend upon South Carolina's coastal and ocean resources.



The Changing Face of Coastal South Carolina

- Population Growth and Land Use Change
 - War of "northern desertion"
 - Where do we put everyone?
- Environmental Quality
 - The "golden goose"
 - What you cannot see...
- Weather and Climate
 - Living on the "edge"
 - Sooner or later...
- Coastal Ocean Uses
 - What is going on offshore?
 - Where do we put it?

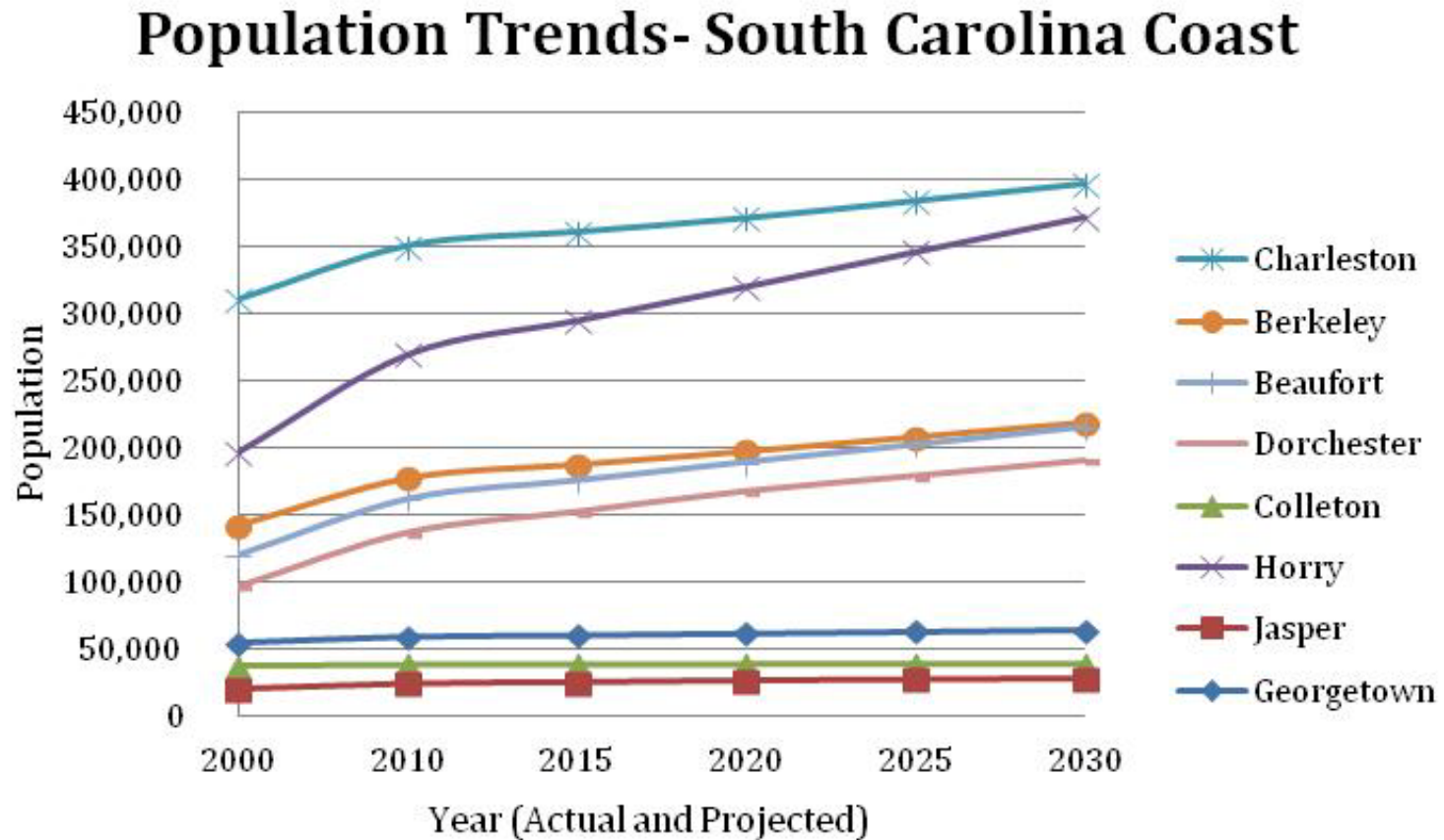


The South Carolina Coast

- 8 coastal counties
- 1.3 million residents
- By 2025, state's coastal population will increase by 700,000 to 2 million
- Property value in SC's coastal counties = ~\$229.6B
- 20 million tourists annually
- Coastal tourism – \$7B; 38,301 jobs
- Charleston was named the #1 tourist destination in the US by Conde Nast Traveler
- Commercial fishing – ~\$33 million
- Recreational fishing – \$300 million

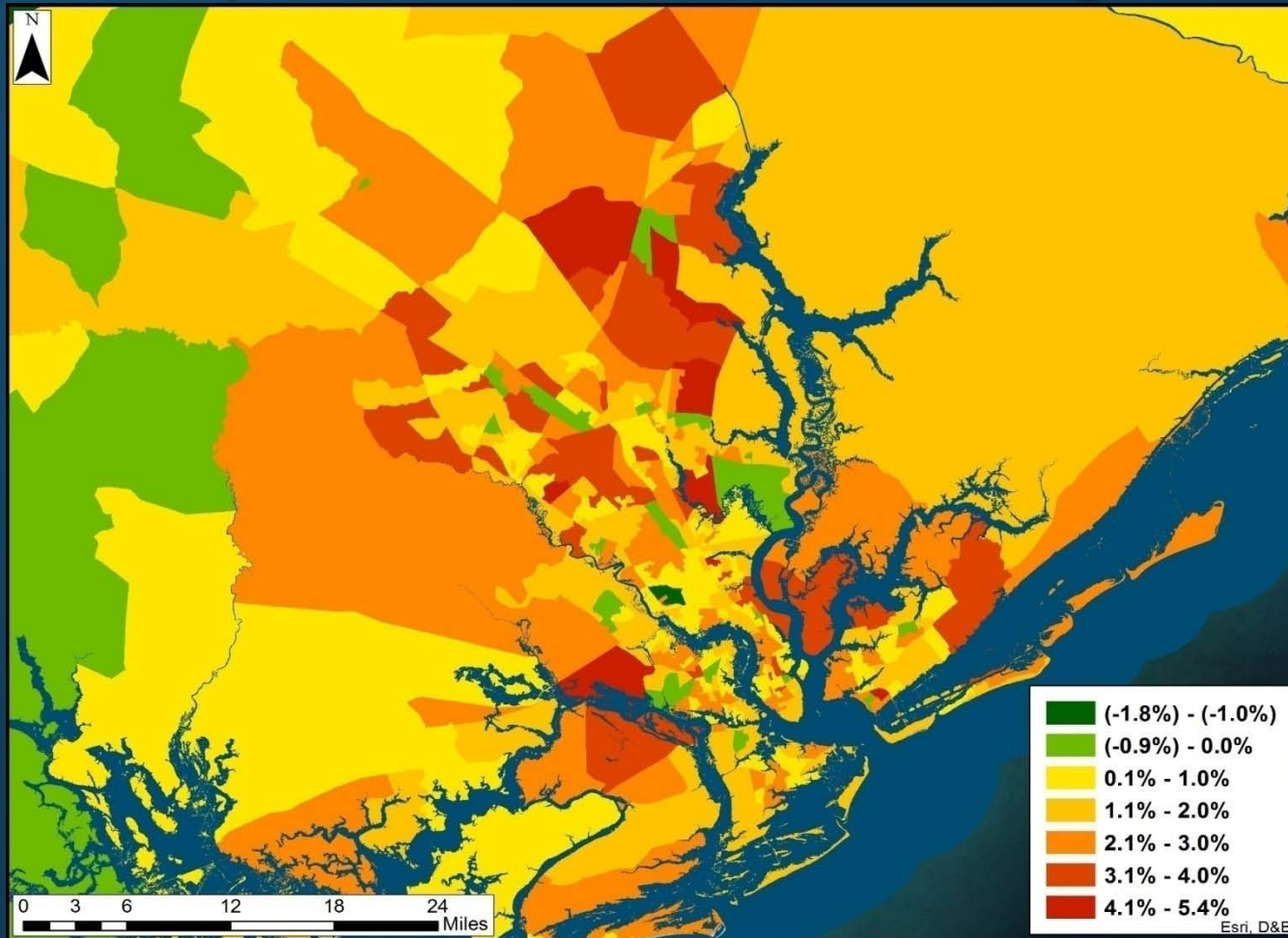


South Carolina Coastal Population Trends



U.S. Census Bureau; S.C. Office of Research and Statistics

Predicted Population Growth Charleston Region, 2014-19



Environmental Quality



S.C. Sea Grant Consortium

Macroplastics in the Environment

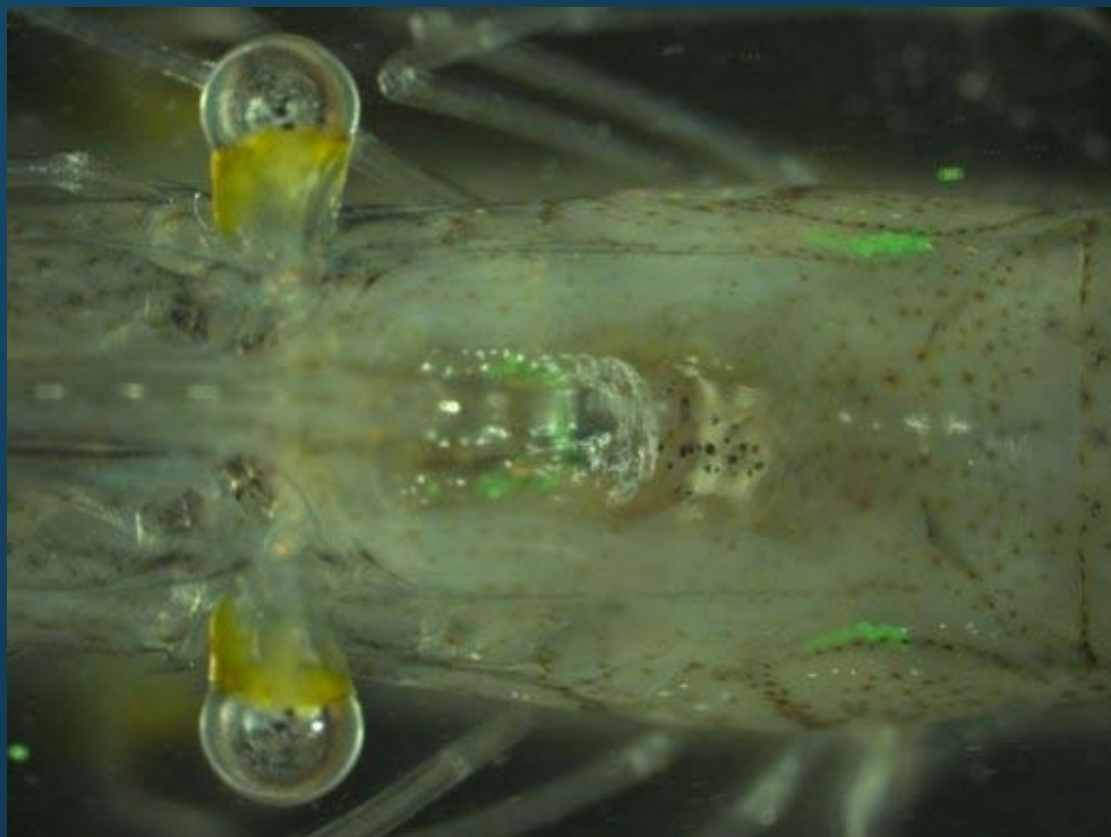


"460,900 macro-plastic debris items weighing 15,260 lbs. along the entire shoreline in Charleston Harbor equating to one plastic item for every two steps."

The Citadel; in the Post and Courier

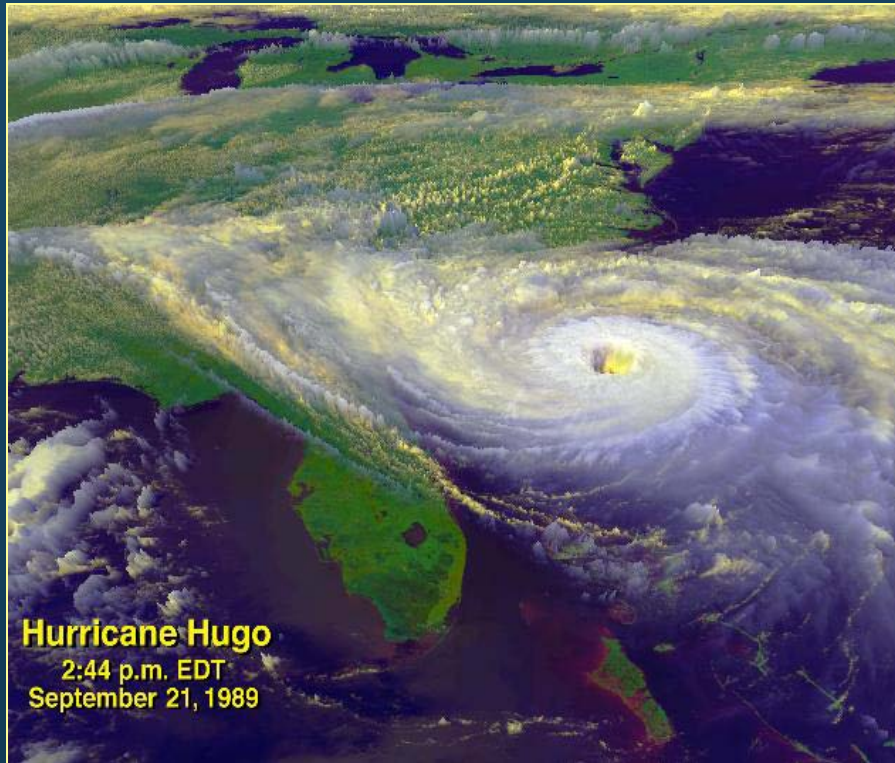
Microplastics in the Environment

"A grass shrimp with microsphere plastics in its gut and gills."



John Weinstein, The Citadel; in the Post & Courier

Weather and Climate



Charleston, SC
September 21, 1989

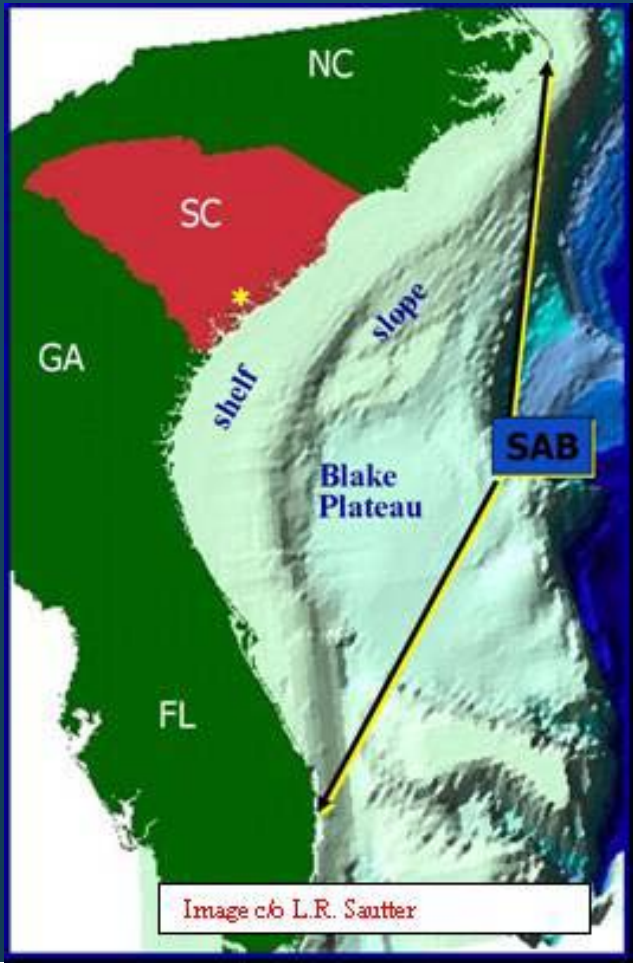
Precipitation Trends

- Rainfall continues to be more variable
 - More frequent floods
 - More frequent droughts



- Impacts/Effects
 - Water quality & quantity
 - Salinity/DO changes
 - Public health implications

Our next frontier – SC's Coastal Ocean



- Fisheries
 - Commercial
 - Recreational
- Marine Protected Areas (MPAs)
- Energy
 - Oil and gas
 - Alternative sources (e.g., wind)
- Sand and Gravel
 - Renourishment
- Aquaculture
 - Net pens

SAB = South Atlantic Bight

Offshore Development

What might be in store?



- Wind Energy Facilities
- Oil and Gas Production?
- Hydrates
- Phosphates
- Sea Floor Mining
- Other Resources?



Managing SC's Coastal Ocean Resources

- Resource Issues –
 - Identify **critical fisheries habitat**, including documentation of hard bottom areas and other important habitats
 - Locate sources of **high quality sand** resources for beach nourishment projects
 - Prepare for renewed interest in exploring for **offshore energy sources**, including natural gas
- Information and Policy Needs –
 - A **comprehensive mapping and research program** to document these important state resources offshore.
 - The development of a **SC Ocean Research and Management Plan**
- Development Issues –
 - All offshore uses will require an **onshore base** of operations
 - Will **impact** coastal communities and governments



Mapping Marine Resources

- Presently, <5% of the coastal ocean region of the southeastern United States (SAB) has been mapped
- No comprehensive regional map which identifies
 - Existing ocean infrastructure (e.g., pipelines, cables, channels, etc.)
 - Sources/quality of sand resources for beach nourishment projects
 - Critical fisheries habitat, including documentation of hard bottom areas and other important habitats
 - Potential offshore energy sources, including natural gas
- Existing data and information sources are disconnected and have not allowed for comprehensive regional planning for an expanding range of ocean activities
- South Carolina is lacking same for its coastal ocean region, although some work is underway to address this need





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