

GEORGIA COASTAL RESEARCH COUNCIL: A FORUM FOR SCIENTISTS AND MANAGERS

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Abstract. The Georgia Coastal Research Council is a newly-formed organization established to provide mechanisms for improved scientific exchange between coastal scientists and decision makers in the State of Georgia and to promote the incorporation of best-available scientific information into State and local resource management. The Council is not a policy organization, but rather seeks to provide unbiased, objective information about scientific issues through informal consultation and the development of white papers and management tools. In September 2002, the Council hosted the first Coastal Georgia Colloquium, which was attended by coastal scientists representing many of the Universities in the State as well as scientists and managers from both federal and state agencies. As of November 2002, coastal scientists from throughout the State have started meeting on a regular basis with representatives from the Coastal Resources Division of the Georgia Department of Natural Resources. This ongoing partnership among coastal scientists and managers may be a useful model for other water resource efforts in Georgia.

BACKGROUND

Good coastal zone management requires good coastal science. However, managers and other decision makers do not always have timely access to scientific information. This problem drew the attention of the National Research Council (NRC), and in 1995 they did a study entitled "Science, Policy, and the Coast: Improving Decisionmaking" to examine interactions between coastal scientists and policymakers (broadly defined as both policymakers and managers). The report concluded that "A continuous exchange of information between scientists and managers who focus on coastal areas is necessary to develop and use scientific results effectively and to address emerging environmental problems in coastal areas," and made a number of suggestions as to how that might be accomplished (Box 1).

Box 1. Recommendations from the National Research Council (NRC 1995)

- Mechanisms be put into place or enhanced for scientific review of coastal programs
- Regional problem-solving task forces be created to address coastal problems
- Scientists be encouraged to develop syntheses on important coastal problems
- Barriers be removed that prevent information exchange between government agencies and scientists
- Policymakers clearly identify their research needs
- The results of policy-relevant scientific research be summarized and disseminated

Other reports in recent years also cite the need for better communications between coastal scientists and policymakers. Another NRC report, "Oceanography in the next decade: building new partnerships" states: "Policy decisions concerning...interactions of the ocean with everyday life rest upon a sound scientific understanding of the ocean...Both the government and the scientific community as a whole must ensure that what is known about the ocean is made available to policy makers, that what is not known is clearly stated, and that progress in furthering our basic understanding continues" (NRC, 1992). Schubel (1996) suggested that bringing people with knowledge regarding the latest research findings and management challenges together can result in real advances in both arenas, but that it takes time to build trust between the parties.

In response to these types of recommendations, the Georgia Coastal Research Council (GCRC) was formed as a way to improve the relationship between scientists and decision makers in Georgia with regard to coastal issues. Both groups can benefit from an increased exchange of information: managers seek to use the best available scientific information to make decisions, and scientists can stay up-to-date on coastal issues and be in

a better position to respond to requests for proposals. In addition, scientists are increasingly asked by their funding agencies to demonstrate how their results will be communicated to managers. This paper describes the establishment of the GCRC and our initial activities. We hope that the GCRC can serve as a model for other water resource efforts in Georgia.

GEORGIA COASTAL RESEARCH COUNCIL

The goals of the Georgia Coastal Research Council are: 1) to provide mechanisms for improved scientific exchange between coastal scientists and decision makers in the State of Georgia, and 2) to promote the incorporation of best-available scientific information into State and local resource management. We work at an informal level to facilitate interactions among scientists and managers, and more formally to synthesize background information, develop management tools, and bring together relevant experts to address specific coastal issues. We are not a policy organization, but rather seek to provide unbiased, objective information about scientific issues. GCRC staff are located in the School of Marine Programs at the Univ. of Georgia, and are supported with funding from the National Oceanic and Atmospheric Administration (NOAA) through the Coastal Resources Division (CRD) of the Georgia Department of Natural Resources (DNR) and the Georgia Sea Grant College Program.

Coastal Georgia Colloquium

A critical step for launching the GCRC was to bring scientists and managers together so they could get to know each other and have an opportunity to describe what they do. One of our initial activities was therefore to organize the first Coastal Georgia Colloquium, which was held on 9/30/02 at the Coastal Georgia Center in Savannah and included both scientists and managers actively working on the Georgia coast. The Colloquium was focused on the scientific work (biology, chemistry, geology, and physics) being carried out in coastal Georgia, rather than outreach or advocacy work. Scientists were asked to briefly describe their research with an emphasis towards how their work might be applied to management, whereas managers were asked to talk about the kinds of decisions they make and describe what type of information would be useful in this regard.

There were approximately 50 attendees at the meeting, with coastal scientists from many of the units in the University system (Clark Atlanta Univ., Georgia

Tech, Georgia Sea Grant, Georgia Southern Univ., Marine Extension Service, Savannah State Univ., Skidaway Inst. of Oceanography, Univ. of Georgia) as well as scientists and managers from federal, (NOAA, Sapelo Island Nat'l Estuarine Research Reserve, US Army Corps of Engineers, US Dept. of Agriculture, US Fish and Wildlife Service, US Geol. Survey) state (DNR, Georgia Forestry Commission) and regional (Coastal Georgia Regional Development Center, Soil and Water Conservation Districts) agencies. The Colloquium allowed the participants to meet one another and to learn about the tremendous expertise that exists across the state with regard to coastal issues. It also provided an opportunity to discuss sharing resources (equipment, ship time, etc.) and to make contacts for future collaboration. One of the outcomes of the meeting was to set up a listserv among the attendees, which is being used to communicate directly with all participants.

In addition to the networking aspects of the meeting, we had a general discussion concerning research needs and the possibility of holding regular meetings with the CRD. CRD staff presented a list of current issues that require technical input (Box 2) and were able to use the meeting to identify specific scientists who could help them with various aspects of these issues. The group scheduled a follow-up meeting in November to further discuss marsh dieback, which was one of the issues presented at the meeting.

Feedback from the Colloquium was extremely positive. From scientists: "Many thanks for organizing the conference. It was very useful."; "I think this meeting was a very good idea and it was very successful. I am looking forward to participating in the others that you will organize for this purpose."; "The

Box 2. Issues Identified by Coastal Resources Division of DNR

- Better delineation of fish habitat
- Cumulative impacts of docks
- Stock assessments and evolution of models
- Marsh balding / dead marsh - causes?
- Blue crab decline
- Instream flow
- Buffers adjacent to tidal marshes, particularly important to hammocks
- Black gill disease - is it fatal in shrimp?
- Understanding the interface of ground and surface waters

feedback I have received from the administrative participants was beyond my expectations. It seems that what we are doing...will be very useful to many administrative groups and their managers in Coastal Georgia.” From managers: “I’m very excited about the GCRC and look forward to the productive collaboration that is sure to be a result of the colloquium”; “I ... hope you are able to get a council up and running. I can see how it would benefit GADNR-CRD.”

Focus Areas

The GCRC also works to provide management with scientific information on emerging coastal issues. Our role in these activities varies. In some cases we act as facilitators, helping to match managers with those scientists with the expertise to address an issue; in some cases we work to synthesize background information on an issue; in some cases we are specifically funded to develop management tools. Below we describe our activities with regard to two current topics: freshwater inflow and marsh dieback.

Freshwater Inflow. The initial research focus of the GCRC was the impact of freshwater withdrawal on estuaries. This issue was chosen because there is great concern on the Georgia coast about water resources, especially given current problems of salt water intrusion into the Floridan aquifer coupled with anticipated increases in development (the population of Georgia’s coastal counties were projected to increase 10 - 47% between 1995 and 2015, Turner 1999).

The GCRC completed a white paper on the issue, “The Effects of Changing Freshwater Inflow to Estuaries: A Georgia Perspective” in September 2002. The paper is in three parts: Part One is an overview of the scientific information available regarding the connections between freshwater inflow, estuarine conditions, and resources; Part Two presents a conceptual model for inflow management in terms of the types of regulation available and the societal values that must be considered; and Part Three describes the inflow policy currently in place in Georgia’s rivers and summarizes the scientific efforts being undertaken to understand the impact of changing inflow to Georgia’s estuaries. The paper is available on our web site.

In order to understand how changes in river flow can affect an estuary it is important to understand how long it takes river water to move through an estuary and also how changes in river discharge affect the distribution of materials in the system. The GCRC has also developed a computer program, called SqueezeBox, that can produce simple models to evaluate the effects of

different discharge scenarios on estuaries. Model output includes information about salinity and residence time in an estuary, and it can be used to simulate transient conditions such as that following a pulse input of dissolved substances. We have already developed an application of Squeezebox for the Altamaha River Estuary (Sheldon and Alber 2002, 2003) and are now in the process of developing a module for the Ogeechee River Estuary. In addition to running the model ourselves, we are also packaging it as a desktop tool for broad distribution to coastal managers.

Marsh Dieback. Reports of marsh dieback in and around Liberty County were reported to CRD in the spring of 2002. These are areas of salt marsh with little or no live above-ground vegetation. Both *Spartina alterniflora* and *Juncus roemerianus* have been affected along the Georgia coast, and in some areas the bare mud is beginning to slough into the water. Although marsh dieback has also been reported in other states (most notably Louisiana), it is not clear if the die-off that Georgia is experiencing has the same causes. CRD is eager to understand the scope of the areas affected, the potential causes of the problem, and how remediation might be accomplished.

The GCRC prepared a background report for CRD that described the research that had been undertaken on similar problems in other states, reviewed evidence for and against different potential causes of marsh dieback, and described the results of transplant studies. We were also able to arrange for a team of scientists from the Georgia Coastal Ecosystems Long Term Ecosystem Research (LTER) project to work with CRD to take samples of dead marsh sites along the coast.

In November 2002 we sponsored a meeting at the Marine Extension Service in Brunswick to discuss the issue with the affiliated scientists and managers of the GCRC. The meeting was attended by approximately 28 people (some via GSAMS). CRD personnel presented background information on the extent of the die back in Georgia, the GCRC provided an overview on work that had been carried out in other states, and a team from the Georgia Coastal Ecosystems LTER project described their initial sampling.

The group discussed several potential causes of the current marsh dieback and agreed that a focused research effort on the extent and characteristics of the problem is necessary. But, they also suggested that there is some basic information that could be collected with a minimum of effort that would be useful. One of the outcomes of the meeting was the establishment of a committee to develop a standardized sampling protocol

that could be used by volunteer and student groups to monitor marsh dieback areas. The committee has representatives from Savannah State Univ., Sapelo Island Nat'l Estuarine Research Reserve, Univ. of Georgia, and CRD, and has just completed a draft monitoring protocol.

Web Site

The GCRC web site can be found at: <http://www.marsci.uga.edu/coastalcouncil/> (Box 3). One of the primary objectives for the GCRC web site is to serve as an entrée into coastal science in Georgia (that is, to make it easy to find out who is doing what). We have approached this in two ways. First, those scientists and managers that have expressed an interest in being officially affiliated with the GCRC are listed under "Affiliated Scientists and Managers." These pages contain information on an affiliate's area of expertise, coastal issues of interest, current projects, the location of their studies (specific estuaries, marshes, etc.), and links to specific projects and their agency or home page. Second, the section called "Georgia Coastal Research" provides summaries of scientific research projects on the Georgia coast. These were initially compiled from final reports submitted to the Coastal Management Program and the Georgia Sea Grant College Program, although other research activities are included when information is available. These projects link back to the "Affiliated Scientists and Managers," enabling the user to find out more about a project investigator and to view other projects being conducted by that individual.

The other information contained on the web page focuses on specific activities, such as freshwater inflow and marsh dieback.

Box 3. Index for the GCRC website

GCRC Organization
 Coastal Georgia Colloquium
 GCRC Staff
 Affiliated Scientists and Managers
 Meetings
GCRC Focus Areas
 Freshwater Inflow
 Marsh Dieback
 Marsh Hammocks
Georgia Coastal Research (project summaries)
Links

CONCLUSIONS

This project requires true collaboration between scientists and managers to succeed. We think we have made real progress in this area over the past few years. The GCRC works closely with CRD and we have seen unprecedented cooperation among the various institutions that work on the Georgia coast. The affiliated scientists of the GCRC are now in a position to learn about emerging issues, and the managers can stay up-to-date regarding current research activity. By providing a bridge between scientists and managers, we hope the GCRC can facilitate State and local entities in their efforts to use the best-available scientific information to ensure that our coastal waters remain safe and productive.

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