

AT THE TIPPING POINT

A Comprehensive Assessment and Conservation Action Plan
for the Georgia Coast

A REPORT BY



Southern
Environmental
Law Center

This report was made possible thanks to a grant from the R. Howard Dobbs, Jr. Foundation.

In addition, the Southern Environmental Law Center would like to thank the 70⁺ individuals we interviewed as part of this report, including staff members of our coastal conservation partner groups in Georgia, South Carolina, and North Carolina; state and local officials; regulatory agency representatives; scientists; and business leaders.

At the Tipping Point was prepared by Christopher K. DeScherer, L.P. Fabrizio, William W. Sapp, David A. Lewis, and Adam M. Kron. For more information on SELC or these individuals, see Appendix A and B, visit our website at SouthernEnvironment.org, or contact our Atlanta office at (404) 521-9900.

Cover photo by Craig Tanner: Evening light on live oak trees on beach at Blackbeard National Wildlife Refuge, Georgia.

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An Excerpt from “The Marshes of Glynn”
–Sidney Lanier, 1878

. . . I stand
On the firm-packed sand
Free
By a world of marsh that borders a world of sea.
Sinuous southward and sinuous northward the shimmering band
Of the sand-beach fastens the fringe of the marsh to the folds of the land.
Inward and outward to northward and southward the beach-lines linger and curl
As a silver-wrought garment that clings to and follows the firm sweet limbs of a girl.
Vanishing, swerving, evermore curving again into sight,
Softly the sand-beach wavers away to a dim gray looping of light.
And what if behind me to westward the wall of the woods stands high?
The world lies east: how ample, the marsh and the sea and the sky!
A league and a league of marsh-grass, waist-high, broad in the blade,
Green, and all of a height, and unflecked with a light or a shade,
Stretch leisurely off, in a pleasant plain,
To the terminal blue of the main.
Oh, what is abroad in the marsh and the terminal sea?
Somehow my soul seems suddenly free
From the weighing of fate and the sad discussion of sin,
By the length and the breadth and the sweep of the marshes of Glynn.

Harris Neck, McIntosh County, Georgia



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INTRODUCTION

Nothing characterizes Georgia's coast more than its marshes. Vast and sweeping, these landscapes still inspire visitors today just as they inspired Sidney Lanier over a hundred years ago.¹ These lush expanses of seemingly endless marsh grass lie between Georgia's mainland and its barrier islands. Watery pathways of tidal creeks meander through this quiet, almost mysterious landscape. Dotting the marsh are more than 1,650 islands, called "marsh hammocks," that provide a secluded sanctuary for wildlife away from the coastal mainland that has become congested with development, traffic, and noise. Hammocks serve as roosting grounds for birds as they rest while feeding in the marsh. They also serve as nesting grounds for colonies of ibises, herons, wood storks and other colonial nesters. Along the eastern seaboard, few places retain such a vast and wild character. Many Georgians consider this great landscape to be an important part of their natural heritage.

Unfortunately, this heritage is in jeopardy. Developers are heading to the Georgia coast with a "gold rush mentality." Sprawling mansions are being built on tiny marsh hammocks; wetlands are being filled; and precious maritime forests are being leveled for subdivisions. If this trend continues, the marshes and coast that Sidney Lanier held so dear will be unrecognizable within a decade. Admired worldwide for their beauty and rich biological diversity, Georgia's salt marshes, beaches, and barrier islands have largely escaped the ravages of massive resort development that have blighted so much of America's coastline. Protecting the ecological integrity of the Georgia coast must be one of the conservation community's highest priorities. Many Georgians feel a sense of urgency to protect this extraordinary region. They worry that the current wave of development will permanently change this magnificent place and source of solace—its final stronghold along the southeastern seaboard.

Looking at the ominous threats to the Georgia coast, the Southern Environmental Law Center (SELC) has recognized two pressing needs:

- 1) To bring local environmental groups and other interested citizens together to form a strong, unified front to counter powerful and well-financed development interests; and
- 2) To plant the seeds for a comprehensive conservation plan for preserving the Georgia coast for future generations.

To begin fulfilling these needs, SELC has undertaken a broad Assessment of the region, with generous support from the R. Howard Dobbs, Jr. Foundation. This Assessment looks at the challenges the region faces and the resources needed to address those challenges. This process has revealed poorly planned development to be the biggest threat to the coast, and this report attempts to determine what can be done to temper the effects of poorly planned

coastal development. SELC and its conservation partners recognize that growth will continue on the coast and that such growth, in many cases, can be beneficial to those who live in the region already. We also realize that, if this growth is not managed correctly, the coast will be transformed and those people now living in the region stand to lose the most.

SELC has actively worked to protect the Georgia coast for more than twenty years. In 1987, we successfully fought to protect Cumberland Island National Seashore from an ill-conceived dredging project. More recently, in 2000, SELC conducted an evaluation of the Georgia coast to determine the threats that were facing the coast as the new millennium began. Based on the findings made in 2000, SELC began to focus its efforts on protecting Georgia's marshlands and hammocks under Georgia's Coastal Marshlands Protection Act and ensuring that the Corps of Engineers lived up to its obligations to protect freshwater wetlands and streams under the federal Clean Water Act. Since that time, SELC, working closely with coastal advocates, has continued to address these issues as well as others. A more complete description of SELC and its history of protecting the South's coastal resources is found at Appendix A.

As a regional organization, our experiences in South Carolina and North Carolina have provided a framework for conducting this Assessment. SELC has worked closely with coastal organizations in neighboring states, including the Coastal Conservation League in South Carolina and the North Carolina Coastal Federation. Both of these organizations have been effective in protecting their respective coastlines. As part of this Assessment, SELC has interviewed staff at both of these organizations and their partner groups to gain further insights into how Georgia's environmental community could bolster efforts to address the waves of poorly planned development that are transforming the coast.

We also recognize our own limits and have depended on our coastal partners in Georgia to provide invaluable input into this process. As a result of the insights these organizations have shared with us, SELC has developed a much deeper understanding of the situation confronting the coastal region. We have also gathered and analyzed a wide range of data; evaluated numerous studies of the area; and conducted more than 70 interviews with scientists, state and local officials, and business leaders.

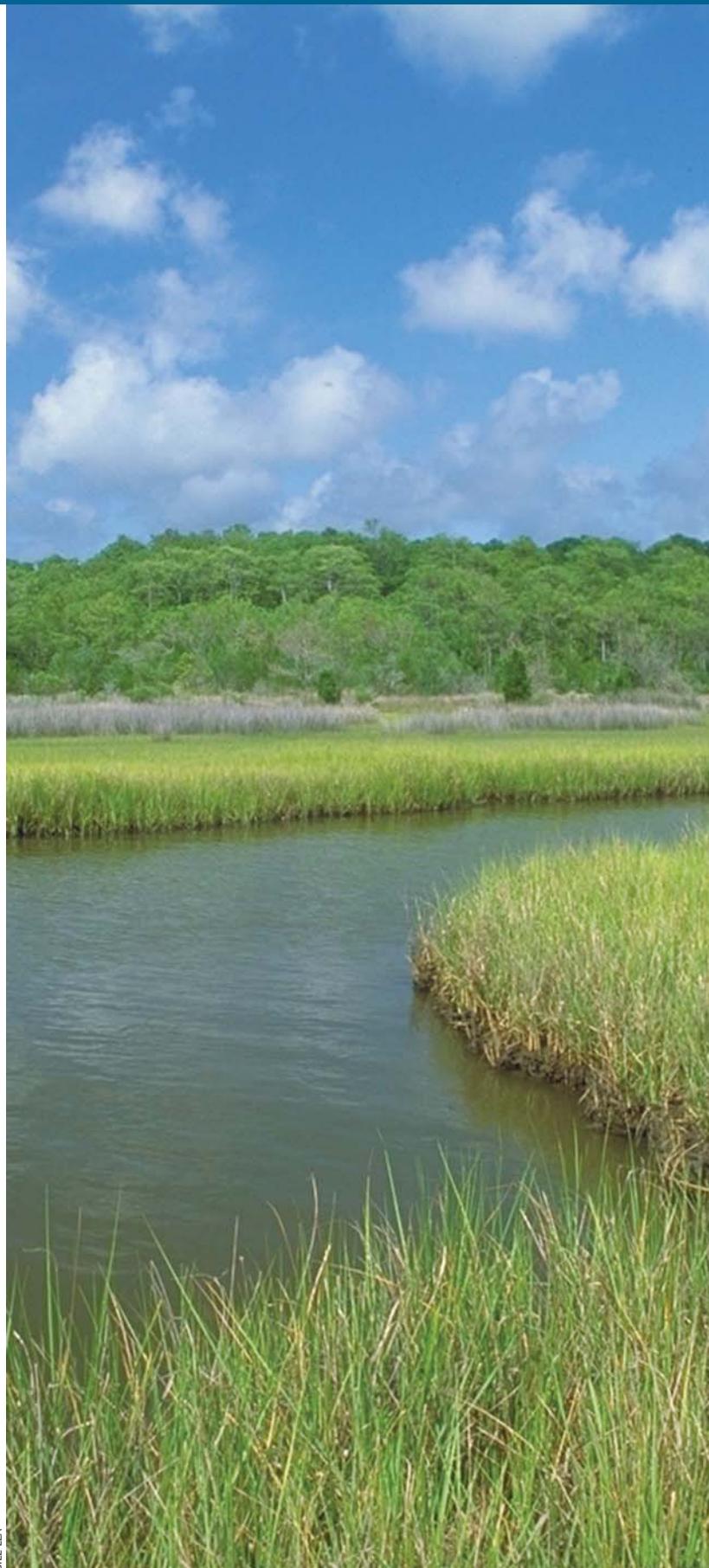
In addition to identifying poorly planned development as the most significant threat to the coast, this process has revealed to us that the Georgia coast is a study in contrasts. On the northernmost end of the coast, lies the historic city of Savannah. While this community retains the charm and grace of a well-preserved southern city, it also exudes the vibrant sophistication of a 21st century metrop-

olis. In stark contrast to Savannah, on the southernmost end of the coast is the Okefenokee Swamp, a National Wildlife Refuge that contains some of the wildest areas in the region. In this peat-filled swampland, time seems to stand still as alligators guard the dark, tea-colored waters and wood storks stalk the shallows for fish. We have also found that the capacity of local governments on the coast varies significantly. While Savannah and Chatham County have a metropolitan planning commission and a host of regulations governing local activities, some of the rural counties in the second row of counties back from the ocean, like Charlton and Long, have few regulations on the books and lack the resources to enforce what little they have. In short, this process has given us a deep appreciation for the different landscapes, communities, and issues across the region.

It was because of these differences and the challenges facing the region that we felt compelled to conduct a comprehensive Assessment of the present condition of the coast and the steps that can be taken to conserve the coast's natural resources and sense of place. In the following sections of this Assessment, we provide a summary of the report and then:

- Examine the coast's many exceptional resources, as well as the threats these resources are facing;
- Describe the government agencies and environmental groups that manage and protect the coast;
- Analyze how other organizations in South Carolina and North Carolina have become so effective at protecting coastal resources in those states;
- Outline a conservation plan with a menu of concrete next steps to address the threats to the Georgia coast; and
- Discuss whether environmental groups working to protect the coast, including SELC, need to realign into a powerful coalition or perhaps build a new entity.

We hope that this document will be used both as a source of information and also as a tool for future collaborative efforts by the conservation groups working to protect the coast.



BILL LEA

Tidal creek

REPORT SUMMARY



Palm trees on edge of dune, Cumberland Island

Exceptional Natural Resources

The Georgia coast, with its rich variety of ecosystems, is one of the most valuable ecological zones in the nation. It harbors a third of the salt marsh on the East Coast, sustains an extensive array of plant and wildlife species, and supports multi-million-dollar commercial and recreational fishing industries. With places like Cumberland Island National Seashore and the Altamaha delta and wildlife like the endangered right whale, Georgia's coastal zone is truly home to resources of worldwide ecological importance.

Due to a fortunate confluence of history, geography, economics, and legislation, much of the Georgia coast is still intact. However, it is at a "tipping point." The coast's natural resources and beauty could, ironically, lead to its own undoing. Unless greater emphasis is placed on protecting the coast, it could end up as congested as Florida. The Florida coast once inspired people the way the Georgia coast now does. It was this inspirational quality that caused so many to covet a piece of the Florida coast. Developers were more than willing to provide the coastal homes, condominiums, and resorts to meet the exploding demand and in the process dealt permanent damage to Florida's natural appeal.

The purpose of the Assessment is to put a plan in motion that will help lead to a more balanced form of development and conserve the qualities of the Georgia coast that make it so special. To date, our findings have been sobering and confirm the immediate need for action. They include the following:

Poorly Planned Development

Nearly all of the people we interviewed for this Assessment noted that poorly planned development is the single greatest threat to Georgia's coastal treasures. The damage inflicted by poorly planned development affects all aspects of the environment, including scenic vistas, surface water, groundwater, freshwater wetlands, salt marshes, estuaries, and wildlife. Development also brings with it traffic, light pollution, and noise pollution, as well as the problems of burgeoning landfills and failing septic systems.

Despite these drawbacks, development continues to march up and down the coast, spurred on by access to readily available land. Timber companies have already sold and continue to sell large tracts of land on the coast. These companies recognize that selling their properties to developers or developing the lands themselves brings greater profits than growing pine trees. Furthermore, development proposals continue to pile up in spite of the devastating 2005 hurricane season, which raised concerns about coastal development in other states and has rendered some seaside properties around the country uninsurable. Developers are touting the Georgia coast as "hurricane proof," a claim that is rash and irresponsible.

BILL LEA

Even if we wanted to, we could not halt escalating development pressure. The challenge is to moderate and direct development towards those areas that can sustain growth, while protecting the ecological gems that remain.

Insufficient Resources

The government agencies charged with protecting the coast appear to lack the will and resources to do so. The non-government organizations, while possessing abundant will, lack sufficient resources to meet the challenges posed by the intensity of development pressures.

GOVERNMENT AGENCIES

Federal, state, and local governments have an array of environmental laws and programs at their disposal to protect the coast. The federal Clean Water Act, the federal Endangered Species Act, the Georgia Coastal Marshlands Protection Act, and the Georgia Erosion and Sedimentation Act are just a few of the existing authorities that government agencies could use to protect the coast.

Unfortunately, the agencies have not lived up to their responsibilities to fully implement the laws that they administer. The government agents charged with implementing these laws lack the capacity or will to carry out their duties. Moreover, the government agencies are very conservative in interpreting the limits of the law and are unwilling to seek additional authorities where they are needed. A prime example is the state's unwillingness to develop a program to regulate freshwater wetlands left unprotected by recent rollbacks in federal authority under the Clean Water Act.

Even when environmental groups have won lawsuits against government agencies on the coast, the agencies have either ignored the court decisions or tried to rewrite their regulations. These management failures are described below in "Overall Assessment of Government Management of Coastal Resources." As determined as the environmental community is to protect the coast, the government agencies are just as determined to allow development to proceed.

ENVIRONMENTAL GROUPS

The environmental groups that are banding together to protect the coast have great determination but inadequate resources to stem the tide of rapid development. In order to meet the challenges ahead to protect special places and require more balanced forms of development across the region, the environmental community needs to fortify its organizational structure and deepen its technical, legal, and communication abilities. Moreover, as explained below, additional financial resources are needed to sustain enhanced coastal protection efforts, and an effective plan is required to deploy them.

Effective Models

The coastal conservation community should adapt for use in Georgia the strategies that have been effective in other states. Having worked with model organizations in South and North Carolina, we know that we must work at all levels of government—local, state, and federal—to shape law and policy to protect our coastal resources, and, when all other avenues are exhausted, we must go to court to ensure proper implementation of the laws on the books. Both South Carolina and North Carolina have strong coastal organizations. They are well staffed, well funded, and well organized. Through our interactions with each of them over the years and by interviewing their staff and partners, we have gained insights into how efforts to protect the Georgia coast can be strengthened. In this report, we describe ideas for how we could develop a stronger coastal presence here in Georgia.

Immediate Actions and Comprehensive Initiatives

This report proposes a series of Immediate Actions and Comprehensive Initiatives to protect the coast, as described in the "Actions and Initiatives Needed on the Coast" section below.

The Immediate Actions are those that are needed now to address an urgent resource conservation need, will have an impact on the problem within three years, and can be achieved by the existing conservation groups with additional resources. These Immediate Actions include protecting salt marshes and estuaries by requiring proper implementation of the Coastal Marshlands Protection Act, protecting coastal waters by enforcing the 25-foot buffer under the Erosion and Sedimentation Act, protecting freshwater wetlands and streams by reviewing and challenging illegal jurisdictional determinations, and permanently protecting sensitive lands across the region. These Immediate Actions must be launched and successfully implemented quickly to protect the coast in this new era of fast-paced land conversion and development.

Based upon lessons learned from the Coastal Conservation League, SELC proposes as the final Immediate Action that the conservation groups, including advocacy groups, land trusts, and sportsmen's groups, convene to create an "eco-vision" for the coast. Using mapping technologies, the eco-vision would present a unified vision for protecting the coastal region. The eco-vision would identify high conservation value lands for permanent protection and areas that can accommodate balanced forms of growth. The development of an eco-vision for coastal Georgia would facilitate better coordination among environmental groups, increase the effectiveness of the entire community, and set the stage for the launching of proposed Comprehensive Initiatives.

REPORT SUMMARY

In order to create a shared vision, key data must be analyzed and depicted using geographic information systems. This information includes land ownership, protected areas, and important natural resources such as wetlands and threatened and endangered wildlife. For purposes of this Assessment, SELC gathered and analyzed much of this data. In addition, we conducted a survey of knowledgeable environmental professionals, including state and federal agency employees, scientists, environmentalists, environmental attorneys, and others regarding the most important areas for conservation on the coast. Through this survey, SELC identified: (1) specific high value conservation targets deserving permanent protection such as St. Catherines Island; (2) specific wetland systems meriting restoration; and (3) coast-wide resources needing additional regulatory protection. This information forms the foundation for the eco-vision.

In addition to Immediate Actions, including the development of an eco-vision, SELC recommends a series of Comprehensive Initiatives to address the most important threats to the region. Unlike the Immediate Actions, which are targeted in nature to address specific problems, the Initiatives adopt a broader approach by including a number of different strategies to protect the coast's most important resources over the long-term. The proposed Initiatives address: (1) Marshlands and Hammocks, (2) Wetlands, (3) Polluted Runoff, (4) Special Places, (5) Planning, and (6) Climate Change. Although aspects of these Initiatives are already being worked on by environmental groups, including SELC, this work needs a much more robust, coordinated plan over the long haul to be successful.

Resources, Actions, and Initiatives

In order to be effective and to successfully implement the Immediate Actions and Comprehensive Initiatives described above, the environmental community needs additional resources. Based on the models in South Carolina and North Carolina, it is clear that there are not enough advocates focusing on coastal protection in Georgia and that the environmental community must be substantially strengthened in technical, legal, and communication capacities. SELC believes that smart investments to strengthen these three capacities are fundamental to overcoming challenges in coastal Georgia. Because development and industrial interests will always be better funded than the environmental community, it is important for groups working in the region to maximize their effectiveness by making wise investments in tools that can enhance their abilities.

In order to successfully undertake the Immediate Actions and Comprehensive Initiatives listed above, SELC proposes the following Short and Long-Term Plans.

SHORT-TERM PLAN

The Short-Term Plan includes the Immediate Actions listed above and the development of an eco-vision to guide long-range conservation efforts on the coast. The Short-Term Plan also involves substantially strengthening key technical, legal, and communication capacities in order to successfully implement these actions.

Technical Capacity. The current groups working to protect coastal Georgia simply do not have adequate technical expertise on staff nor the financial resources to hire consultants when needed. To ensure that the coastal environmental community has the scientific and technological resources it needs to be effective, a scientist or environmental management professional with experience in a relevant coastal discipline, such as ecology, biology, or environmental planning, should be hired to serve the organizations working in the region.

Increased Legal Capacity. Many of the proposed Immediate Action items—implementation of the Coastal Marshlands Protection Act, enforcement of buffer requirements to protect coastal waters, and ensuring maximum federal protection for wetlands and streams—require substantial legal resources. Given the current political climate in Georgia, legal approaches are sometimes the only forms of advocacy that can effectively defend coastal resources. Considering the challenges addressed by the proposed Immediate Actions, it is imperative that more legal resources be deployed as part of the Short-Term Plan.

Increased Communications Capacity. The ability to communicate effectively about important issues in the region is a key attribute of an effective conservation plan. For this reason, in addition to increasing overall capacity for technical and legal resources, the Short-Term Plan includes funding to hire communication consultants and to fund important campaigns.

In order to launch the Short-Term Plan, SELC proposes a series of meetings with organizations working to protect the coast, including advocacy groups, land trusts, and sportsmen's organizations. These meetings will serve to further refine the Short-Term Plan, including the development of the eco-vision, which will help build the foundation for the implementation of an effective, coordinated, long-term strategy to protect the Georgia coast.

LONG-TERM PLAN

In order to be effective and to successfully carry out the Comprehensive Initiatives, substantial additional resources are needed. It is clear that there are not enough advocates in Georgia focusing on coastal protection. In light of the growing development pressures on the coast, the conservation groups, in addition to the Short-Term Plan outlined above, must begin laying the groundwork for a dramatic increase in resources, including a minimum of five additional advocates, to protect the coastal environment.

SELC recommends that a new organization, modeled after the Coastal Conservation League and the North Carolina Coastal Federation, be established. Because there are a number of groups currently working to protect the coast, such an organization should be smaller in size than these model organizations and complement ongoing conservation efforts by filling areas of need. With a mission to protect the entire coast, this new organization could bring people together and focus state and national attention on the importance of protecting the region. By providing a central location for deployment of additional resources, this organization would also be the most efficient and effective vehicle for enhancing conservation efforts. Finally, such an organization would have the important attribute of being able to use legal advocacy, wherever necessary on the coast, to address threats to important resources.

Regardless of how resources are organized on the coast, the Assessment has revealed that Georgia's conservation groups need more of them. Just as importantly, the community needs to use them effectively and collaboratively. If the conservation community is not able to attract substantial new funding and to deploy these resources effectively and collaboratively, much of the coast will be lost forever. SELC has seen the scenario play out so many times before: a magical place naturally inspires people to covet a piece of it; developers rush in to meet this demand and begin a flurry of building; in time, sprawl stretches out over the landscape, and the magic of the setting—the very thing that made it so desirable in the first instance—is gone or greatly diminished. Due to a fortunate confluence of history, geography, economics, and good legislation in the form of the Coastal Marshlands Protection Act, most of the Georgia coast has escaped such a fate. The conservation community must act swiftly and strategically to preserve this incomparable setting.

The obstacles that lie ahead are formidable. It will be difficult to reverse the current trends that are transforming the region. Correcting the failures of government agencies to properly implement the law and ensuring more balanced and sensitive forms of development are daunting challenges. Nevertheless, SELC believes that by working together to implement the Short and Long-Term Plans, the conservation community can, and will, protect this national treasure for future generations.



ALAN CRESSLER

Brown pelicans and shorebirds on beach

THREATS FACING THE COAST



DAVE LEWIS

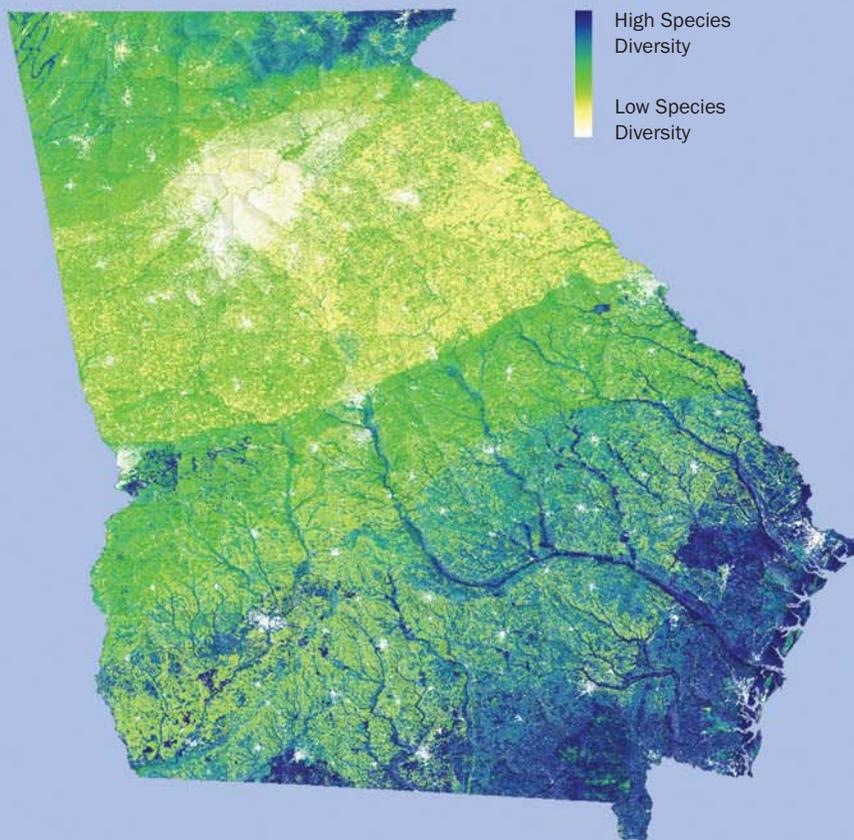
THREATS FACING THE COAST

For purposes of this Assessment, we chose to focus on the eleven counties nearest the Georgia coast. They are Brantley, Bryan, Camden, Charlton, Chatham, Effingham, Glynn, Liberty, Long, McIntosh, and Wayne.² These are the same eleven counties that comprise Georgia's coastal area for the purposes of the Georgia Coastal Management Program. A map depicting this area of focus is shown in Figure 1. These counties contain five diverse river systems that feed and nourish a myriad of freshwater wetlands, estuarine waters, expansive salt marshes, unrivaled barrier islands and beaches, and extraordinary assemblages of wildlife and marine life.

From an economic perspective, Georgia's coastal resources are significant. These resources support tourism, commercial fishing, forestry, recreation, shipping, and other industries. Tourism provides two billion dollars annually to the coastal Georgia economy.³ Commercial fisheries are valued at \$44 million annually,⁴ while recreational fishing attracts more than 500,000 anglers and contributes \$363.5 million annually to the state's economy.⁵ Georgia's port sector activities collectively support 275,968 full and part-time jobs, account for \$35.4 billion in sales, \$17.1 billion in gross state product, and \$10.8 billion in income.⁶



Figure 1. **Georgia's Coastal Region:** The eleven-county coastal area of Georgia showing the locations of major rivers and barrier islands.



From an ecological perspective, Georgia's coastal region is significant on a state and national level. It contains one-third of the remaining salt marsh on the East Coast, and as shown in Figure 2, the majority of the state's freshwater wetlands are found within the coastal region. According to The Nature Conservancy, Georgia also has the largest area of tidal freshwater wetlands on the East Coast. In addition, as shown in Figure 3, the Georgia coast supports greater species diversity than anywhere else in the state. This high level of diversity is significant from a national perspective as well. In a nationwide report analyzing species data for each state, Georgia ranked second in the nation in its diversity of amphibian species and third in diversity of fish.⁷ Many of these species are located in the coastal region. Alarming, however, Georgia ranked near the top—fifth nationally—in the number of species already lost to extinction, and many more species in Georgia are threatened with extinction. These species are concentrated in the coastal counties, which contain more threatened and endangered species than any other region of the state. These species include right whales, manatees, wood storks, sea turtles, flatwood salamanders, eastern indigo snakes, shortnose sturgeons, and others.

In addition to its ecological value, the Georgia coast is also known for its unparalleled vistas. Whether one is beachcombing on Blackbeard Island, kayaking through a cypress forest on the Altamaha River, or spying fiddler crabs in the salt marshes behind Ossabaw Island, the surrounding beauty of the coastal region does not disappoint. Whether these landscapes, and the flora and fauna they support, survive long-term depends largely on what is done to manage the rapid influx of people coming to enjoy the coast.

Figure 2 (top). **Georgia's Wetlands:** The majority of Georgia's freshwater forested wetlands are concentrated in the coastal region.

Figure 3 (bottom). **Georgia's Species Diversity:** The coastal region contains a greater diversity of wildlife than anywhere else in the state.

THREATS FACING THE COAST

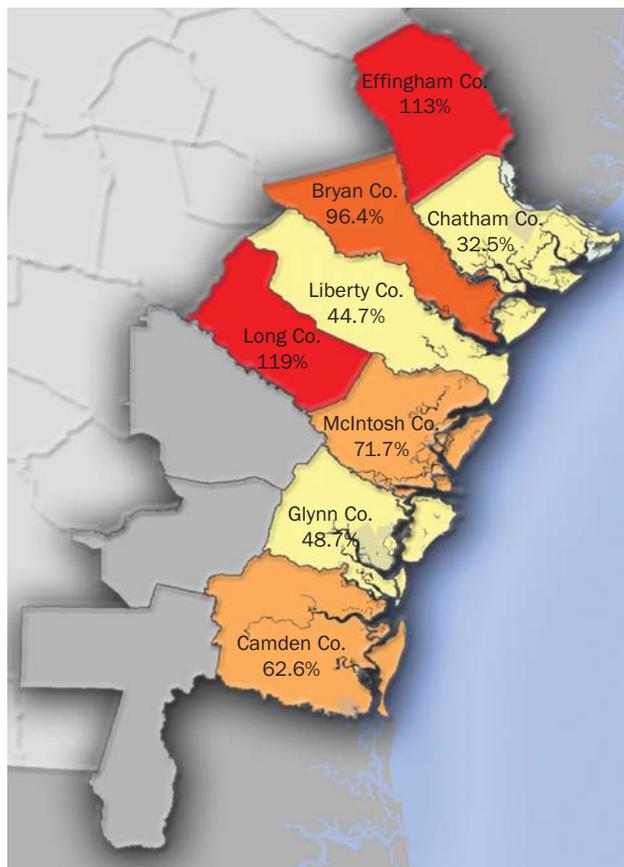


Figure 4. **Coastal Population Growth:** A 2006 report by the Coastal Georgia Regional Development Center estimates population growth for 10 coastal counties through 2030. Projected increases in population are shown by percentage for each county.

Growth and Development

It is undisputed that the coast's population is destined to balloon. In 2006, the Coastal Georgia Regional Development Center (CGRDC) contracted with Georgia Tech to make population projections through the year 2030 for a ten-county area in the coastal region.⁸ The study found that the ten-county area jumped in population by 62 percent between 1970 and 2000⁹ and will increase another 51 percent by 2030.¹⁰ Explosive growth is predicted for individual counties, such as Long County (119 percent), Effingham County (113 percent), and Bryan County (96.4 percent). Figure 4 depicts the results of the CGRDC's study and shows projected population growth for eight of the coastal counties. Figure 5, which is based on past and projected housing density, shows where the coast has experienced growth since 1950 and predicts where additional development will occur up to 2030.¹¹

Some local leaders have suggested that these population projections, which already forecast tremendous growth, actually understate its true extent. County commissioners have predicted that growth in their coastal counties will likely exceed the estimates made in the Georgia Tech study.¹² Other experienced on-lookers and commentators,

like David Kyler, executive director of the Center for a Sustainable Coast, have also predicted greater increases in population in the years to come.¹³ The feeling among the region's leaders and populace is that coastal Georgia has been "discovered." Soon after the Georgia Tech study was released, Dan Coty, the chair of the board of directors for the CGRDC explained that "[t]he area between Charleston, South Carolina, and Jacksonville, Florida, is the least developed along the East Coast."¹⁴ It is no surprise that developers have painted a bullseye on the Georgia coast.¹⁵

Catherine Ross, director of the Georgia Institute of Technology Center for Quality Growth and Regional Development, has noted that overdevelopment in Florida helps explain why Georgia's coastal counties are poised to explode, especially in the second-home market.¹⁶ Other planners speculate that people who have suffered through recent hurricane seasons in Florida and other coastal areas are attracted to Georgia's coast because there is a perception that Georgia's coast is protected from damaging hurricanes.¹⁷

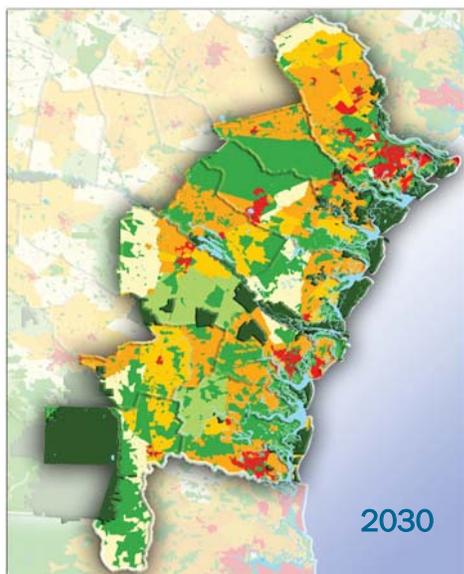
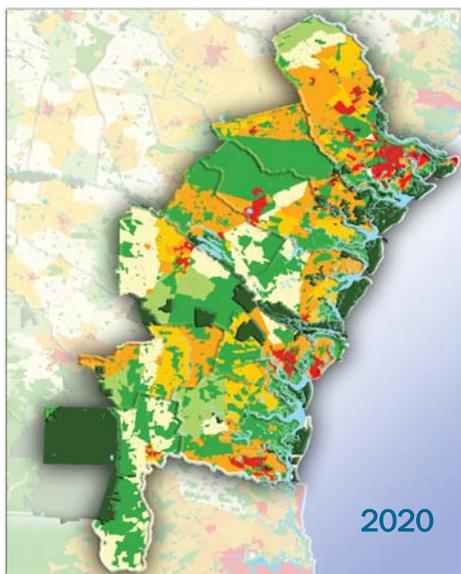
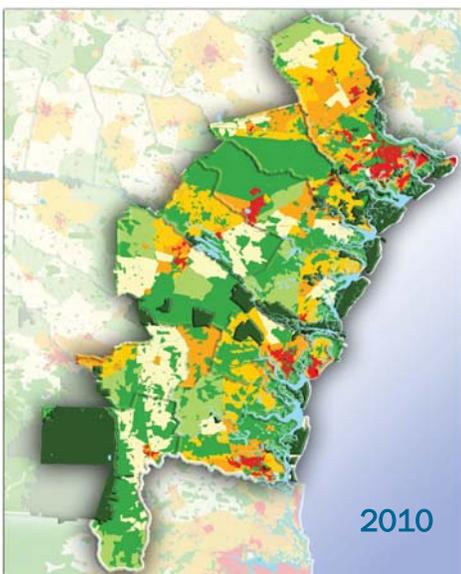
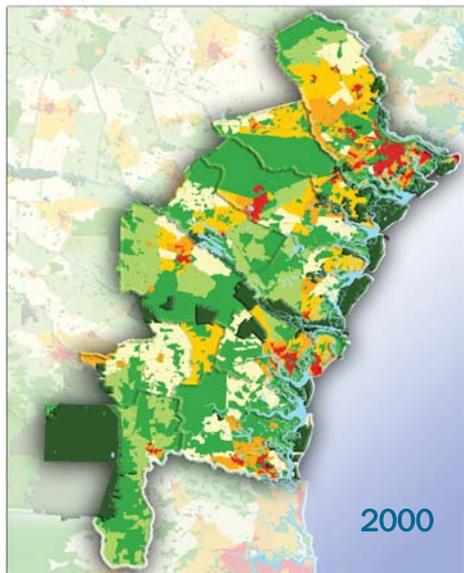
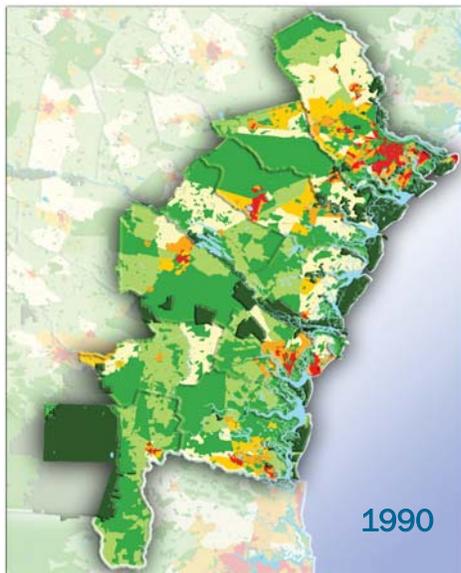
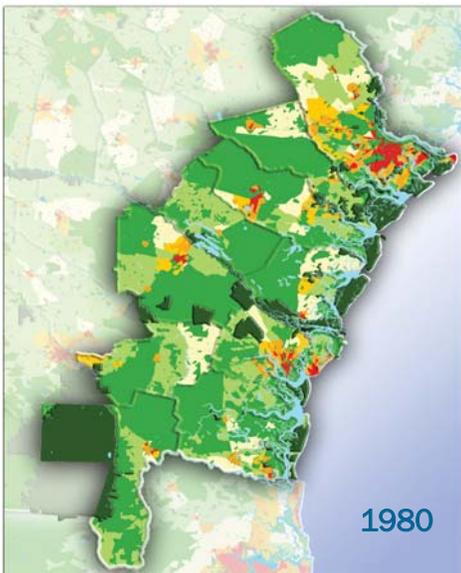
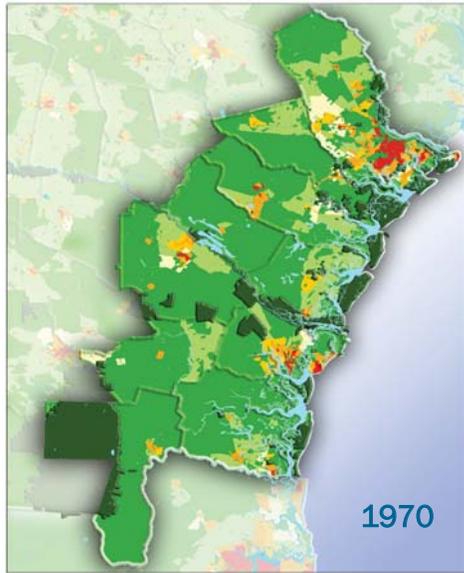
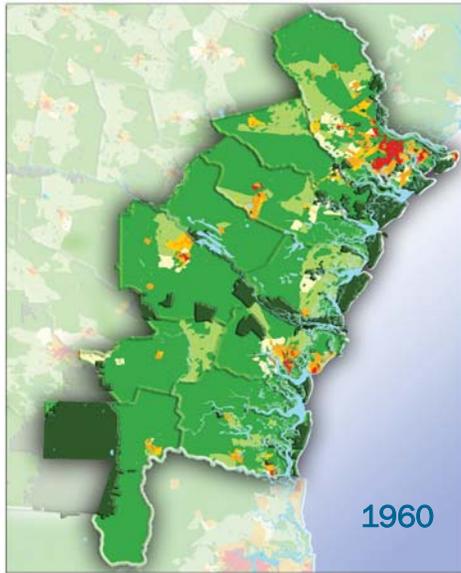
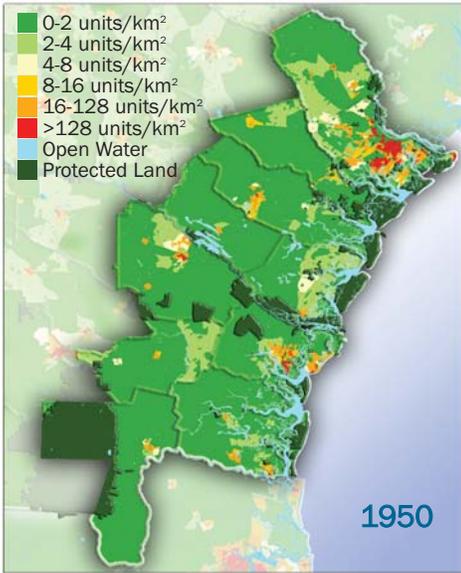
In many ways, increased growth is a double-edged sword. On the one hand, well-planned development can provide economic opportunities for people now living in the region. On the other hand, poorly planned development can impact important natural resources and negatively affect the lifestyle of the region's current inhabitants. Almost all of those we interviewed agreed on this point.¹⁸

Developers are now capitalizing on significant land acquisition opportunities available in coastal Georgia. Much of this land is coming from timber companies that are divesting large land holdings, a great deal of which are wetlands. Instead of gearing up to protect coastal resources from this wave of development, regulatory agencies have made the coast more accessible to development. As explained in the next section, the U.S. Army Corps of Engineers, for example, has interpreted recent court decisions to make it even easier to fill and develop wetland areas. As a result, developers are constructing subdivisions in freshwater wetlands at an alarming rate.

The results of this rapid development can be seen all along the six ocean-facing counties, as well as in the second row of counties. Chatham County, which is home to Savannah, is the coast's most populous and highly developed county. It is expected to grow in population by 32.5 percent between 2000 and 2030. Figure 4. These trends are bolstered by *Inc.* magazine's ranking of Savannah as number 10 in midsize cities on its "Boomtowns 2007" list of the nation's "hottest business towns."¹⁹

The current and anticipated development does not end in Chatham. Indeed, Chatham County is the driving force for much of the rapid growth in neighboring counties. In Effingham County, former pine tree farms on large swaths

Figure 5 (*opposite*). **Past and Projected Housing Density:** Since 1950, housing density in the coastal region has been concentrated in a few areas. Growth projections indicate that housing density will increase as development spreads out across the region through 2030.



THREATS FACING THE COAST



Setting sun through bald cypress

DERRICK HAMRICK

of land are being clear-cut and replaced by sprawling cookie cutter subdivisions. Chatham's burgeoning population is spilling over into other adjacent counties as well. Some now characterize Effingham County as a "bedroom community"—the result of increasing numbers of workers from Chatham County that are moving farther away from the city to find cheaper, suburban housing. In Bryan County, for example, Richmond Hill's population increased 137 percent between 1990 and 2000. This growth is due in large part to its proximity to Chatham County, Fort Stewart (one of the U.S. Army's largest bases), and the I-95 corridor.²⁰

Other surrounding coastal counties are experiencing similar trends. Growth in Jacksonville, Florida, is affecting Georgia's rural counties on the southern end of the coast. In Camden County, sleepy little towns like St. Marys have experienced tremendous growth in the past decade. This growth is expected to continue between 2000 and 2030, with an estimated increase in population of 62.6 percent. Figure 4. Similar to trends near Savannah, workers in Jacksonville are moving into southern coastal Georgia in search of cheaper housing and a more rural landscape. In addition, resort-style developments are springing up in areas adjacent to the marshes and water. For example, the proposed Cumberland Harbour development, a 1200-unit development with the largest proposed marina complex in the history of the region is proposed to be constructed on about 650 acres of upland on a peninsula located between the town of St. Marys and Cumberland Island National Seashore.²¹ Figure 17(c) depicts the general vicinity of the proposed Cumberland Harbour development. Further, just across a tidal creek from Cumberland Harbour is the site of the former Durango Paper Company, where developers plan to build a massive new community with high-rise hotels and marinas.

At this rate, the Georgia coast will be transformed within a decade.

Threats to Specific Resources

In this section, we examine specific coastal resources, including everything from inland wetlands to the ocean, and the threats they face.

WETLANDS

The wetlands in the coastal region are a vital resource for people and wildlife alike. They improve water quality, maintain water levels, and provide wildlife habitat. Wetlands improve water quality by filtering and removing pollutants from stormwater, rainwater, and floodwaters. By holding floodwaters and recharging groundwater, they play a critical role in maintaining the water levels of river basins and protecting developed areas. When wetlands are converted to other land uses, increases in flooding and decreases in water quality are a common outcome. In addition, there are a multitude of birds, mammals, fish, rep-

tiles, and amphibians that depend upon wetlands. Indeed, the concentration of wildlife diversity found within the coastal region is largely attributable to the large number of wetlands located there.

Distributed throughout the inland region of the coast are important freshwater wetland ecosystems like bottomland hardwood forests. These wetlands provide invaluable habitat for many native and rare bird species, like the endangered wood stork. According to a new report by the American Bird Conservancy—Top 20 Most Threatened Bird Habitats in the United States—mixed longleaf pine/bottomland hardwood forest is one of the most vulnerable bird habitats in the nation.²²

Cypress forests, found in the meandering floodplains of the region's coastal rivers, are beautiful treasures that are an important part of the coast's natural heritage. Cypress trees can live up to 1,500 years and can grow up to 150 feet tall and 25 feet in girth. In addition to serving the usual functions of wetlands, such as removing pollutants and reducing flooding, cypress swamps support the Georgia economy by attracting tourists. Thousands of wildlife enthusiasts flock to the Okefenokee Swamp—the largest swamp in North America—each year to see the alligators, sand hill cranes, and ibises living among the majestic cypress.

Freshwater wetlands are being hit especially hard by coastal development. In general, these wetlands are being filled in to construct housing subdivisions and commercial centers. Wetland parcels are less expensive than their upland counterparts, and in some places the upland areas are already developed. Aside from the direct impacts of filling and draining, wetlands are also suffering many indirect impacts. Many cypress forests have been flooded by impoundments constructed to create industrial and agricultural water sources. Although the flooding from impoundments typically does not kill the cypress trees, inundation stunts growth and prevents regeneration. Despite regeneration problems, these cypress trees are being harvested.

In 2004, a commission studying cypress harvests in Louisiana found that up to 80 percent of harvested cypress stands will not regenerate because of increased water levels. Without seasonal fluctuations in water level, cypress seedlings are unable to survive. Perhaps of greater concern, the number of water impoundments affecting the region is expected to multiply with increased development. Moreover, regeneration failure is particularly acute given that cypress harvesting is on the rise.

Before the 1990s, landscaping mulch was produced from timber byproducts, such as pine tree bark. Recently, however, there has been a sudden surge in demand for mulch made from cypress. To meet this demand, timber companies are harvesting whole cypress trees solely for mulch. In

addition, scientists at the University of Florida Extension Service have found that timber companies are harvesting younger and younger trees—some as small as a foot in diameter. As a result of these practices, it has been shown that harvesting is outpacing the growth of cypress in both Florida and Louisiana. SELC is currently conducting a separate study for the U.S. Environmental Protection Agency to examine whether the same unsustainable harvest practices are occurring in Georgia.

Another wetlands problem on the coast is that timber companies are using improper practices to drain wetlands. Timber companies are accomplishing this feat by using techniques such as bedding and ditching to slowly dry out whole forests. After decades of improperly draining these areas, many of these forests begin to resemble uplands. When changes in market prices make it profitable, timberlands are developed or sold to developers. Since these former wetlands have dried out, they are often developed as subdivisions or shopping malls without wetland permits. Even if the pine plantation that was once a bottomland hardwood forest never dries out enough to actually become an upland, the previous habitat is lost, and the diversity of indigenous species is severely reduced. Pine plantation stands are less diverse than natural wetland communities, and, due to short harvest schedules, do not support species that depend upon old growth forests. In some areas, where sufficient site wetness remains for the area to meet federal jurisdiction, their degraded condition often means greater ease in obtaining development permits and fewer, if any, mitigation requirements.

MARSHLANDS AND HAMMOCKS

Georgia's coast has approximately 378,000 acres of marshlands.²³ These large expanses of marshland, which so typify the Georgia coast, are as beautiful as they are economically and ecologically valuable. Marshes provide food energy to estuarine organisms such as small fish, plankton, oysters, shrimp, clams, and crabs. By providing food and shelter, the marshes serve as important nursery grounds for young fish, shellfish, and crustaceans—many of the species that make up Georgia's commercial seafood harvest. In addition to being highly ecologically productive, Georgia's salt marshes act as invaluable buffers against storms by dissipating the wind and waves of hurricanes and northeasters. Coastal communities such as Darien are safer from storms because of the marshes that surround them.

Georgia's marshes are a complex habitat ecosystem, comprised of not just marsh grasses but also tidal creeks and hammocks. Hammocks are areas of upland embedded in the marshes that range in size from less than one acre to over 1,000 acres. Approximately 1,655 hammocks comprising over 49,687 acres have been identified along the coast.²⁴

THREATS FACING THE COAST

Most marsh hammocks support important maritime forests, a disappearing natural community. The Partners in Flight program, a U.S. Fish and Wildlife Service bird conservation initiative, has identified maritime forests as one of three priority habitats for the conservation of migratory songbirds in the South Atlantic coastal region. Many hammocks also provide roosting and nesting areas for wading birds, including the endangered wood stork, as well as habitat for diamondback terrapin and other wildlife.

The late Dr. Eugene P. Odum, Distinguished Professor Emeritus of the University of Georgia's Institute of Ecology, established that marsh hammocks are an integral part of the coastal marshland ecosystem. He found that the hammocks and surrounding marshes function as one continuous ecological system. Birds use the hammocks and marsh as a single habitat and continuously move back and forth between the grasses and islands to support their daily needs. The interconnection between hammocks and marshes means that hammock development has significant consequences for our marshlands. When hammocks are developed, marsh vistas, so important to coastal residents and visitors, are lost. In addition, polluted runoff from development goes directly into the surrounding marsh. Almost all hammock development includes bridges and bulkheads, structures that eliminate marsh habitat and reduce productivity.

A condition that is affecting the marshes, and indirectly the hammocks, is "marsh dieback." In areas afflicted by this phenomenon, the marsh vegetation dies, leaving the marsh soils bare and subject to increased erosion. This problem, reported for the first time in the state in 2002, has created a considerable amount of concern over the status of Georgia's marshes. Current estimates are that over 1,000 acres of Georgia's marshes have fallen prey to marsh dieback. A number of hypotheses on the cause of the dieback are being investigated, including drought, changes in salinity, and a fungal pathogen.²⁵ Each of these conditions can be exacerbated by stormwater runoff from development.

The rate of new construction of structures in the marshes is concerning. A review of state records revealed that from 1995 through 2002, the Georgia Coastal Resources Division issued permits for 1,688 private docks, eight new marinas, and fourteen new commercial docks.²⁶ A study of the dock structures on Wilmington Island documented a 90 percent increase in total dock area from 1970 to 2000.²⁷ Stem density of marsh plants directly beneath the docks was found to be 56 percent lower due to plant shading, as compared to adjacent areas. Using modest assumptions for dock build-out on the island, the study estimated that approximately 4 to 6 percent of the marshlands could be directly impacted. This amount is significant since research undertaken in South Carolina indicates that a 5 percent loss of marsh coverage results in a significant loss

of marsh productivity. Another type of structure, floating docks, has also been shown to have significant impacts. A recent study that evaluated the effects of floating docks on marshes in Georgia found primary production decreased 57 to 73 percent under these structures.²⁸ When the effects of new marinas and bridges are added to the mix, the impacts to marshes due to the construction of new structures are considerable.²⁹

A decrease in the amount of freshwater flowing into Georgia's estuarine waters can also impact the health of our marshlands. Decreases in freshwater flows to the coast can be attributed to the construction of drinking water impoundments and withdrawals in upstream areas. Atlanta officials, for example, have been eyeing coastal water resources to quench Atlanta's growing thirst for water.³⁰ According to reports, Atlanta officials have begun discussing the possibility of building a pipeline from the Savannah River to Atlanta.³¹ If less freshwater reaches the coast to mix with the ocean's saltwater, saline levels in the estuaries go up. On the other hand, excessive stormwater runoff from development can also disrupt estuarine salinities by decreasing salinity during periods of heavy rainfall and increasing salinity during low rainfall periods—a problem termed increased "flashiness" because the abnormal salinity peaks and lows fluctuate abruptly. Maintaining natural levels of salinity is important because salinity is a key factor that controls the structure and function of estuarine systems. Changing levels of salinity in estuaries impairs their function,³² impacts the species that live there, and promotes the growth of invasive reed species like *Phragmites australis*.³³

Another cause of decreased freshwater flows, which will affect both wetlands and marshlands alike, is the continued development or modification of water-hungry coal-fired and nuclear power plants. These plants consume large volumes of water and pose serious threats to downstream water quality. For example, Plant Vogtle, located on the Savannah River, already operates two nuclear reactors. These two reactors use massive amounts of water for cooling purposes, resulting in the evaporation of over 20,000 gallons of river water per minute from each cooling tower during peak power production.³⁴ In addition to using large volumes of water, these nuclear reactors affect downstream water quality by releasing pollutants, such as tritium. In spite of the water quantity and quality problems associated with Plant Vogtle, Georgia Power is seeking to construct two additional nuclear reactors at the plant. Should these new reactors be built, there will be additional consequences for the coast's marshes and estuarine ecosystems.

LONGLEAF PINE FORESTS

Longleaf pine forests were once commonplace within Georgia's coastal region. Throughout the Southeast, these beautiful ecosystems once covered over 90 million acres from Virginia to Texas. Today, less than 3 percent of these

biologically diverse habitats remain. Longleaf pine forests are ecological “treasure chests,” teeming with biodiversity rivaling that found in tropical rainforests. This diversity includes hundreds of plant species found nowhere else in the world. These forests are also home to numerous federal and state-listed endangered species, including the red cockaded woodpecker, eastern indigo snake, and gopher tortoise.

Historically, there were about 23.1 million acres of longleaf forests in Georgia. By the early 1990s that acreage had been slashed to just 520,300 acres or 2.25 percent of the former range. Longleaf pine forests are one of the most threatened ecosystems in the Southeast and have suffered more significant reductions than even wetlands. In fact, as shown in Figure 6, longleaf ranks among the most impacted ecosystems in the world, with greater losses than rainforests.

These unique habitats not only provide important support for wildlife, but their beauty makes them highly desirable from a purely aesthetic standpoint. Unlike other forests common in Georgia’s coastal region, longleaf pine forests are open, grassy, prairie-like systems that invite visitors to stroll through them and enjoy their stillness. Unfortunately, it is difficult today to find one of these forests to enjoy.

Longleaf pine forests suffer the effects of development in two ways—direct conversion of these systems to development and indirect impacts through the disruption of their natural fire regime. Longleaf forests are fire-dependent. Without natural fires periodically burning across these landscapes, the understory, so biologically rich in plant life, becomes overgrown with more common, woody species. The system then changes from an open, parklike forest to one choked with brushy, transitional forest inhabitants. Ultimately, the forest becomes filled with common trees and shrubs that out-compete the diverse fire-dependent plant species.

Fortunately, these ecosystems are not all gone. Fort Stewart is home to a large longleaf pine forest. And to its credit, the military does manage the Fort’s stands of longleaf with periodic burns to maintain biological diversity. Unfortunately, significant development in surrounding areas is quickly making Fort Stewart an island of biodiversity that may soon become so isolated that the continued viability of its wildlife will be jeopardized. Moreover, future military needs could change. Therefore, it is critically important to conserve as much longleaf acreage as possible outside of the base to provide a buffer around the base and to connect Fort Stewart’s stands of longleaf to other tracts throughout the region to provide corridors for wildlife.



KATIE STUBBLE

Longleaf pine forest

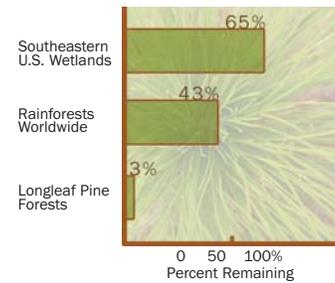
THREATS FACING THE COAST



Endangered wood stork

BILL LEA

Figure 6. Longleaf Pine Forest Decline: Longleaf pine forests have suffered greater losses than other imperiled habitats, including wetlands and rainforests. This graph shows the percentages remaining of each of these habitat types.



BARRIER ISLANDS

Georgia boasts fourteen barrier islands that have over 100 miles of white sandy beaches. These islands shelter marshes, hammocks, and developed areas on the mainland from storms. Natural areas on the barrier islands are dominated by maritime forests populated with majestic live oak trees. The islands from north to south are Tybee, Little Tybee, Wassaw, Ossabaw, St. Catherines, Blackbeard, Sapelo, Wolf, Little St. Simons, Sea, St. Simons, Jekyll, Little Cumberland, and Cumberland. Jekyll, Sea, St. Simons, and Tybee Islands are developed and connected to the mainland by bridges and causeways. Jekyll is state-owned but leases a third of its land area for residential and commercial purposes. The other barrier islands are accessible only by boat. Of these, Blackbeard, Wassaw, and Wolf Islands are National Wildlife Refuges. Little Tybee, Ossabaw, and Sapelo are owned by the state of Georgia. Sapelo Island is managed as a National Estuarine Research Reserve and is home to a University of Georgia Marine Institute research facility. The Cumberland Island National Seashore is managed by the National Park Service. Little Cumberland, Little St. Simons, and St. Catherines are privately owned.³⁵

To protect expensive beachfront real estate on Jekyll, Sea, St. Simons, and Tybee, the Army Corps of Engineers has erected extensive concrete sea walls and granite revetments.³⁶ Although these structures are sometimes successful in protecting the beachfront houses behind them, they tend to rob recreational beaches of sand. These structures disrupt the natural flow of sand along the coast, resulting in the loss of beach habitat beyond them. Beachfront homes remain protected from normal water levels, while tourism and wildlife suffer. Without a beach, shorebirds and loggerhead turtles are left without important habitat. The smaller beach biota, like tiny mole crabs and coquina clams, cannot survive at all. Without this vital food source, migratory birds en route to distant breeding grounds have difficulty fulfilling their energy needs. In addition, beachfront development modifies dune systems that protect wildlife as well as coastal houses.

Beachfront development also comes at another price: the cost of contaminated beaches too polluted with bacteria to be safe for swimmers. Beach advisories are not uncommon at a number of Georgia's beaches, including those on Tybee, St. Simons, and Jekyll Islands. Sixteen advisories were issued for Tybee's beaches between July

2004 and December 2005.³⁷ For St. Simons and Jekyll, there were 108 advisories between January 2004 and November 2005, a slightly longer period.³⁸

In addition to these threats, specific islands that have so far escaped the ravages of development are now in the developers' sights. For example, Jekyll Island is currently under a looming threat of development. The island, known as "Georgia's Jewel," is unique in that it is significantly less developed than other islands accessible by car in Georgia and throughout the Southeast. The potential for this island to be transformed has recently been the center of considerable controversy. Although much of the island is to remain undeveloped according to state law, the island's managing authority has recently solicited ideas from developers on how to "redevelop" the developable areas into upscale, high-priced beach resorts. As much as \$3 billion in luxury development is being proposed. The beaches at the south end of the island have become a key point in the controversy. These beaches are the most sensitive to development because they serve as important nesting grounds for sea turtles and numerous bird species. The south end also happens to be highly desirable for developers and is a focus for new development proposals.³⁹ One proposal labels the south end "an excellent opportunity for high-end luxury redevelopment."⁴⁰ If allowed to proceed, the impacts of this type of intense development will undoubtedly impact not only the beaches, but the surrounding marshes and coastal waters as well. Fortunately, in the 2007 legislative session, an effort to protect the fragile south end resulted in the passage of a bill that limits development in this area. Although many heralded the bill's passage as a victory to preserve the island, continued monitoring of this ongoing situation is required.

RIVERS

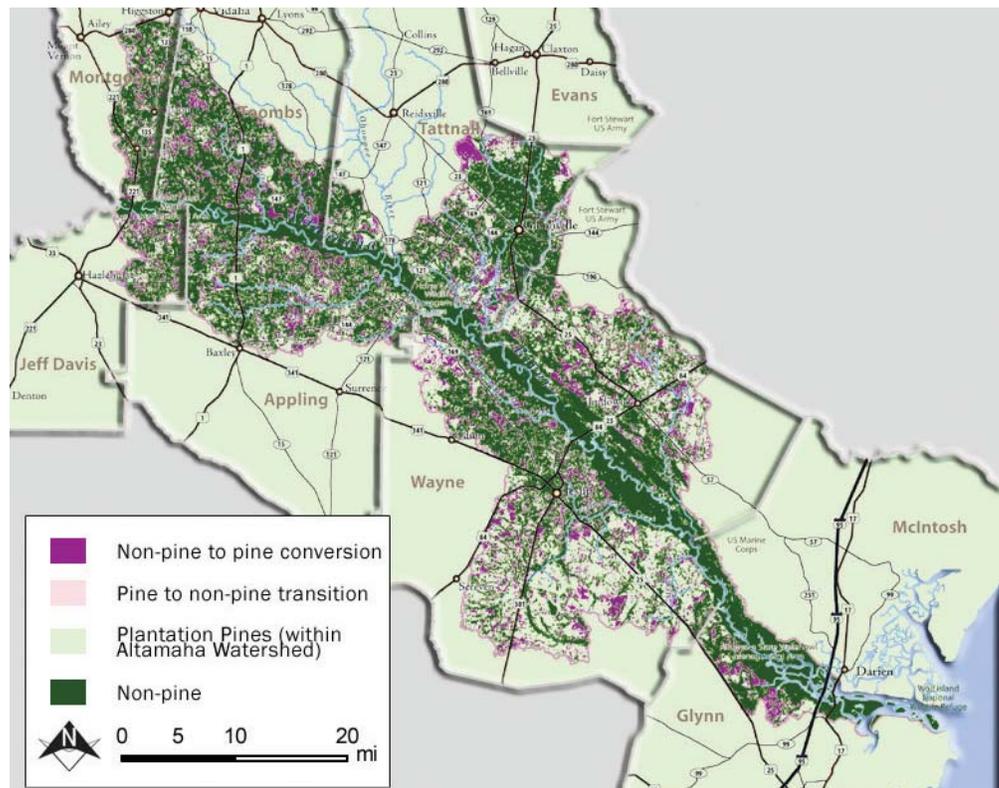
The health of our coastal rivers is critical to the well-being of our estuaries and coastal waters. Along with their freshwater, these river systems transport a number of pollutants to the estuaries, some from as far away as Atlanta. All five of the major rivers emptying into Georgia's estuaries have significant water quality problems and are listed by the state as impaired, meaning they do not support their uses due to

poor water quality. Although many of the coastal rivers suffer similar problems from development, some have unique issues. Below is a description of the major coastal rivers and some of the problems they face.

The Altamaha River's watershed is one of the three largest river basins on the Atlantic Seaboard, draining approximately one-quarter of the state of Georgia. Emptying about 100,000 gallons of freshwater into the Atlantic Ocean every second, the Altamaha is truly "Georgia's Mightiest River."⁴¹ The Altamaha River watershed ranks among the most biologically rich river systems on the East Coast and supports over 120 species of rare or endangered plants and animals, including seven species of imperiled mussels found nowhere else in the world. These characteristics have prompted The Nature Conservancy to identify it as one of "America's Last Great Places."⁴²

Unfortunately, the hydrologic regime of the Altamaha has changed for the worse over the last several decades. Bottomland hardwood forests have been drained and converted into pine plantations. An in-depth study performed by SELC found over 30,000 acres of forested wetlands in the basin were converted to pine plantations in the last twenty years. Figure 7. Without these wetlands to hold back floodwaters, freshwater reaches the coast more

Figure 7. **Wetlands Conversions in the Altamaha:** A study by SELC found that over 30,000 acres of forested wetlands were converted to pine plantations in the Altamaha watershed between 1985 and 2001. (Map based on U.S.G.S. LandSat TM Analysis by Polaris Cartography for SELC, 2003.)



THREATS FACING THE COAST

rapidly than in the past, and less water is available to the estuary during times of drought. This has impacted the coastal ecology of the lower Altamaha watershed.

The Savannah River forms most of the boundary between Georgia and South Carolina.⁴³ Two major cities are found along its course—Augusta and Savannah. The Nature Conservancy describes the Savannah River basin's abundant diversity of life as rivaling that of a South American rainforest. Ebenezer Creek, a tributary of the Savannah, is one of Georgia's four designated Wild and Scenic Rivers, and the only one on the coast. It is also designated a National Natural Landmark. Ebenezer's swamp consists of unusual virgin bald cypress, with huge swollen buttresses eight to twelve feet wide. Some of the trees are estimated to be more than a thousand years old.⁴⁴

Notwithstanding the river's scenic beauty and natural diversity, the ecological health of the Savannah River system is imperiled for various reasons, including upstream impoundments that have negatively altered the river's flow, dredging that has affected the freshwater-saltwater composition of the estuary, and industrial dischargers that have caused toxic and radioactive contamination.

The Savannah River Site and Plant Vogtle, which are both located on the Savannah River, release radionuclides such as cobalt and tritium, which contaminate fish.⁴⁵ Mercury from Georgia Power's coal-fired power plants and from Olin Corporation's chlor-alkali plant also pollute the river.⁴⁶ Both radionuclides and mercury can lead to significant human health problems. Another factor contributing to the mercury problem is the fact that fish in coastal Georgia contain about seven times as much mercury as other fish in the state because microbes that flourish in acidic coastal rivers make the mercury more bioavailable.⁴⁷

The Satilla River is a blackwater river that begins in riverine coastal plain swamps and empties into St. Andrew Sound on the Georgia coast. Blackwater rivers are naturally high in organic concentrations from decaying vegetation that produces tannic acids and gives the river a dark burgundy color called "blackwater." There are extensive adjoining swamplands and bottomland forests that buffer the course of the river.⁴⁸

The Satilla's watershed was covered at one time by extensive longleaf pine and bottomland hardwood forests. These areas were gradually converted to agriculture in the years prior to the twentieth century. Over the past 100 years, much of the land of the Satilla watershed has been converted from agriculture fields to pine plantations. As discussed above, silvicultural operations often drain wetlands. Such draining affects the downstream river and estuary. A number of ongoing studies are evaluating the effects of these land-use changes; however, the full impacts have not yet been adequately determined.⁴⁹

Another issue of concern for the Satilla River and other rivers and streams in the coastal zone is the recreational use of all-terrain vehicles and off-road vehicles. Driving these vehicles directly in the river bed has become a popular recreational activity. The Satilla's shallow depth for much of its length facilitates its use as a highway for hunters and joy riders.⁵⁰ Unfortunately, the results of this popular activity are damaged streambeds, banks, and buffers. Such impacts increase sedimentation and erosion problems for the river and negatively affect water quality. Although landowners along the river object to the trespassers, enforcement is lacking. Additionally, a large portion of the land along the river is owned by timber companies that do not monitor these activities.⁵¹

The Ogeechee River is a blackwater system that has been considered for inclusion as a component of the Georgia Scenic River system and was nominated as a potential National Wild and Scenic River due to its ecological and recreational value. The Ogeechee is relatively free from significant development except in the lower portions of the basin where there are significant growth pressures. Nevertheless, there have been intense development-related water quality problems from a number of sources. One of the biggest problems is excessive nutrient inputs from faulty septic systems and failing sewage treatment systems.⁵² These increased nutrient loads disturb the delicate balance in this blackwater river and cause algal blooms and increased aquatic vegetation. In some instances, the pH of the river is altered, upsetting a fundamental characteristic of this river system—its low pH. Mercury contamination in the river's fish is another prominent issue.⁵³ More studies are needed to determine the effects of residential and industrial development in the basin and to quantify changes in water quality resulting from development activities in the Ogeechee River estuarine system.

There is a distinct absence of information available about the St. Marys River by comparison to the other major rivers in the region. The St. Marys River forms the boundary between Georgia and Florida. It is also a blackwater river with very high dissolved organic carbon concentrations. A small area of the southeastern part of the Okefenokee swamp is drained by the St. Marys River. Its drainage area is the smallest of the five major coastal rivers. The St. Marys river estuary is experiencing many of the same problems from development as the other coastal river estuaries. In addition, because of increased development pressure spilling over from the Jacksonville, Florida, area significant changes are expected in the lower St. Marys watershed.

ESTUARINE WATERS

Estuaries are areas of moderate salinity (saltier than freshwater, but not as saline as sea water) that provide critical habitat for sea life. These waterbodies are found where rivers meet the ocean. It is here that Georgia's extensive

marshes are found as well as the critical nursery areas for so many species of fish and shellfish. More than 70 percent of Georgia's recreationally and commercially important fishes, crustaceans, and shellfish spend at least part of their lives in the estuaries.⁵⁴

In addition to providing essential habitat to important sport and commercial fish and shellfish species, these waters are also home to federally endangered manatees. Only 3,000 of these creatures remain in the United States. They reside primarily in Florida and southeastern Georgia.⁵⁵ The most significant problem presently facing manatees is death or serious injury from boat strikes.⁵⁶ As development increases along the coast, not only does boat traffic increase, but so does the number of docks and marinas.

Water quality impacts from docks and marinas include the release of toxins from treated woods and other construction materials. In addition, petroleum products and other harmful chemicals are released at these sites from boat fuel spills. Bacteria from human waste is another problem because many small recreational boats discharge untreated human waste directly into the water. This practice is particularly problematic in small tidal creeks where bacteria can foul water quality and contaminate shellfish resources.⁵⁷

Georgia's estuaries suffer from increased nutrient levels due to development. Nutrients stimulate the growth of phytoplankton. Then, when phytoplankton die, they are decomposed by bacteria that consume dissolved oxygen. Excessive consumption of oxygen jeopardizes other aquatic life that depend on higher dissolved oxygen levels.⁵⁸ A state report on estuarine water quality found that 93 percent of all estuarine waters in Georgia have elevated nutrient levels.⁵⁹ The study also found that 94 percent of estuaries have elevated potential for algal blooms. Low dissolved oxygen levels at bottom depths cause a condition known as eutrophication. A federal report found that ten of Georgia's estuaries are suffering from eutrophication, a condition that they predict will worsen due to rapid increases in development.⁶⁰

Even the mighty Altamaha's estuary has seen better days. A study examining microorganisms with tetracycline-resistant genes in the estuary's sediment found substantially higher concentrations of these microorganisms than in Savannah River estuary sediment. The study found that this abundance of tetracycline-resistant microorganisms was proportional to the degree of the river's biological contamination due to agricultural runoff. The study's authors noted that the level of contamination is indicative of a severe deterioration of the Altamaha River estuary.⁶¹

Georgia's estuaries also suffer from toxic contamination from substances such as polychlorinated biphenyls (PCBs), mercury, Dichloro-Diphenyl-Trichloroethane (DDT),



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Bald cypress swamp in autumn, Banks Lake National Wildlife Refuge, Georgia

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Shrimp boat at dock next to tidal mudflats, Jekyll Island, Georgia

toxaphene, chlordane, and dieldrin. Many of these compounds do not break down easily and remain in aquatic sediments for years. One estuarine area near Brunswick is adjacent to a site where toxaphene was once manufactured. Fish caught in these waters are often laced with toxaphene compounds. These toxic contaminants concentrate in fatty tissues of fish such as the liver and other organs. As a result, fish consumption advisories are widespread on the coast, with twenty-eight waterbodies having fish consumption advisories.⁶² Based on the high level of contaminants, the Georgia Environmental Protection Division recommends a limit of one meal per month of fish caught from coastal waters for children and women pregnant or nursing.⁶³

An additional threat to the estuaries is the recent spate of port expansion projects. The projects are the Savannah Harbor Expansion Project (SHEP), the Brunswick Harbor deepening project, and the Jasper County port project. The Savannah harbor was originally twelve feet deep. SHEP proposes to deepen the harbor from its current depth of forty-two feet to forty-eight feet. The project is contingent upon the completion of an Environmental Impact Statement, which will describe environmental impacts such as depleted dissolved oxygen, increased saltwater intrusion on wetlands and groundwater aquifers, impacted aquatic wildlife, and increased beach erosion.

With respect to the first impact, one determining factor of a waterbody's level of dissolved oxygen is the ratio of the water surface to the water column. Dredging causes a depletion in dissolved oxygen due to the fact that it deepens the water column without increasing its surface area. Such is the case with the Savannah River. Previous dredging has decreased dissolved oxygen levels. With the anticipated decreases from the proposed dredging, the Savannah Harbor would turn into a dead zone at some depths. The U.S. Environmental Protection Agency has recently issued a total maximum daily load (TMDL) for dissolved oxygen, calling for zero upstream discharges of organic, oxygen-depleting wastes. However, it is likely that this controversial limit will be changed in the future with input from South Carolina to allow some level of discharges. In order to mitigate the impacts of harbor deepening, the Army Corps of Engineers has called for a different solution, involving the construction of an oxygen-injection system for the affected area.

The second impact, saltwater intrusion, is a problem that threatens both freshwater wetlands and groundwater aquifers. Dredging in the harbor causes saltwater to advance upstream from the ocean into freshwater wetlands that depend on the presence of freshwater. Saltwater intrusion in groundwater aquifers—in this case, the Upper Floridan Aquifer—may occur if the dredging is deep enough to breach the aquifer's "confining layer," which is

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especially problematic since the aquifer is used for drinking water.

The third impact is to aquatic life. The North Atlantic right whale, as is further explained below, is an endangered species that is particularly vulnerable to ship strikes. The purpose of the expanded harbor is to attract more ships, which inevitably will lead to more ship strikes.

Finally, harbor deepening will make the Savannah Harbor even more of a sand “sink” than it already is. Based on a recent study by the SHEP’s Beach Erosion Committee, the new dredging is expected to increase the erosion rate of Tybee Island’s beaches by 4 percent, or 12,000 cubic yards of sand per year.

The Jasper County port project is a proposed joint Georgia/South Carolina port on the Savannah River. Ultimately, the two states will jointly own, operate, and develop the 1,800-acre port much like the way the Port Authority of New York and New Jersey operates New York Harbor.⁶⁴ In addition to these projects, another port expansion is being proposed for Charleston, South Carolina.

With so many port projects in the works, it is critical that the cumulative environmental impacts for all proposals be fully evaluated. In addition, the economics of undertaking multiple port projects in relatively close proximity to one another should be assessed. The Brunswick, Savannah, Jasper, and Charleston ports all come with significant environmental downsides. Therefore, it is important to eliminate any redundancy in planned facilities to ensure the environment does not suffer in vain due to overbuilding.

FISHERIES

Georgia’s commercial saltwater fisheries historically have consisted of four main species: shrimp, blue crab, clams, and oysters. In addition, there are less significant commercial harvests of whelks, snapper, grouper, and other assorted finfish. The 2005 catch included about \$9 million of shrimp, \$3 million of blue crab, \$658,000 of clams, and \$20,000 of oysters.⁶⁵ The annual combined catch for grouper and snapper is usually between \$400,000 and \$700,000.⁶⁶ In addition, hundreds of Georgians earn their livelihood processing and selling this bounty.

Georgia also enjoys a large recreational saltwater fishery, whose more than forty species include spotted sea trout, red drum, sheepshead, whiting (Southern kingfish), Atlantic croaker, tripletail, and tarpon. A 1994 survey estimated that over 400,000 anglers participate in saltwater fishing in the state. The National Oceanic and Atmospheric Administration has stated that the estimated total economic value of this recreational fishing, including support services and other commodities, is at over \$250 million annually.⁶⁷

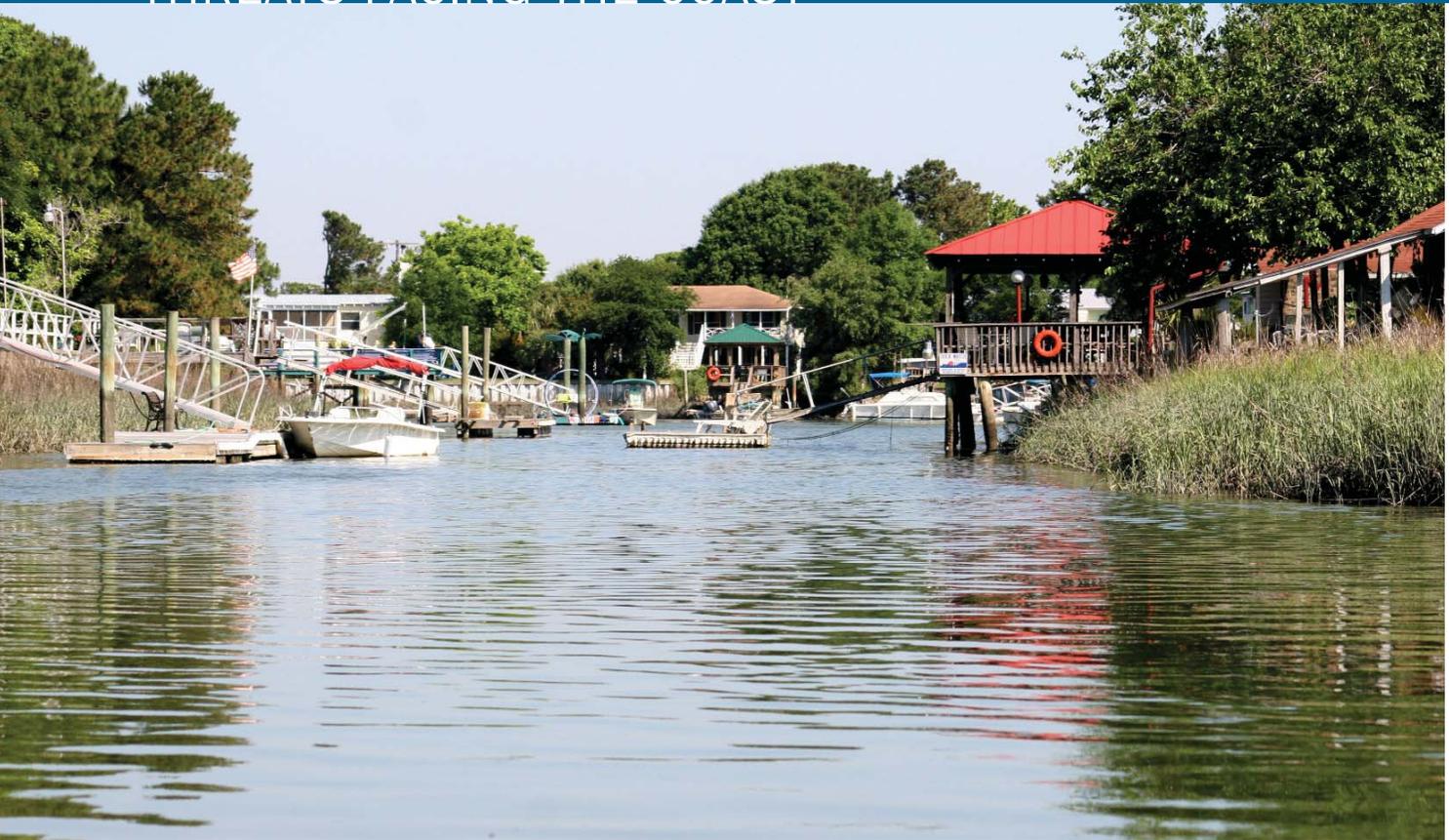
While both the commercial and recreational saltwater fisheries have been a large economic force for the state, they have faced significant threats in recent years. For example, the blue crab fishery has experienced a large decline in the annual harvest over the past decade. While 1995 saw a harvest of over 9 million pounds of hard blue crabs, less than 2 million pounds were harvested in 2003. This is especially stark considering there have only been five sub-4 million pound years since 1956, four of which have occurred since 1999.

This downward trend is most likely the result of two combined factors: a prolonged drought between 1998 and 2002, which resulted in adverse conditions for blue crab; and the crab blood parasite, *Hematodinium sp.*, which recently has reached epidemic levels. In January 2004, the Georgia Department of Natural Resources prohibited the harvest of all female crabs during March 2004 and suspended the commercial license lottery. Since then, the population has improved, with over 4 million pounds harvested in 2005.

The food shrimp harvest also has experienced declines, having dropped by 50 percent over the past decade, though it is not clear what has been the cause of this decline. The Georgia Coastal Resources Division (CRD) attributes part of this decline to non-environmental threats such as conflicts among user groups (e.g., commercial versus recreational, Georgian versus Floridian), the displacement of traditional fishing communities by residential development, and an increase in foreign shrimp imports.

The oyster harvest also has declined, but for different reasons. First, the oyster fishery has suffered from a lack of state funds for proper management of the full resource. As a resource, the oyster fishery—and, more broadly, the entire shellfish fishery—is particularly vulnerable to decreased water quality, given that oysters and clams are filter feeders and consequently retain the contaminants that they filter out of the water. Under the federal National Shellfish Sanitation Program (NSSP), in order to approve areas for commercial harvest, a state must meet certain surveying and monitoring requirements to ensure that harvest areas are not subject to contamination from fecal coliform bacteria and other contaminants. Because of the presence of such contaminants and the high costs of—and consequent lack of funds for—regular monitoring and water sampling, CRD currently has approved 145,760 acres of shellfish habitat under the NSSP requirements. In comparison, the National Oceanic and Atmospheric Administration has estimated that there are nearly 500,000 acres total of potentially productive shellfish habitat in Georgia. Furthermore, of the 145,760 acres approved under NSSP, only 25,364 are open to commercial harvest, and 15,509 are open to public harvest. The reason for this low number is a second step in the process that is somewhat

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Tidal Creek in Chatham County, Georgia crowded with private docks.

unique to Georgia. A significant percentage of water bottoms in Georgia were deeded through Crown grants and are privately owned. Therefore, CRD must work with private landowners to lease the water bottoms for harvest. Thus, even beyond NSSP approval, there still are hurdles for the oyster harvest in Georgia.

Second, economic concerns have caused Georgia to move away from the oyster harvest. While Georgia once led the nation in oyster production, the labor force that fueled this industry has dwindled over the years. Because of the physical demands of oyster harvest and the lack of recruitment into the industry, attrition has taken its toll. Further, although oysters on the Georgia coast and oysters in the Gulf of Mexico are the same species—*Crassostrea virginica*—their physical appearances are very different. While the Gulf oysters grow as large, single oysters, the Georgia coast oysters grow in clusters of smaller, sharper-edged oysters. Because of consumer tastes and ease of harvest, there has been a growing demand for the larger Gulf oysters. In order to buffer Georgia's shellfish industry from this decreasing demand, CRD has begun to promote increased seeding and harvesting of the hard clam, *Mercenaria mercenaria*, which has enjoyed a high and increasing demand.

With respect to recreational saltwater fisheries, CRD recently has undertaken a Marine Sportfish Population Health Study in response to two increasing threats: a three-fold increase in saltwater recreational fishing over the past

decade and the rampant increase in coastal development over recent years. It is hoped that this study will provide the necessary data to develop a plan to address these threats.

OCEAN WATERS

The Georgia coast is located in the center of the South Atlantic Bight—the long bend in the coastline that extends roughly from Cape Hatteras, North Carolina, to West Palm Beach, Florida. Waters off the Georgia coast provide habitat to marine mammals including endangered right whales, five species of threatened or endangered sea turtles, oceanic birds, crustaceans, and finfish. The continental shelf off the coast has a gentle slope extending ninety-five miles off the shoreline. The shelf supports many hard and soft bottom habitats, including Gray's Reef National Marine Sanctuary, which is located approximately fifteen miles east of Sapelo Island.⁶⁸

The ocean waters in and around the Georgia coast provide important habitat for right whales, which are listed as endangered under both the Endangered Species Act (ESA) and state law.⁶⁹ With their population hovering around 300-350 animals, these whales are among the rarest of all marine mammal species. The current status of the right whale is so tenuous that the National Oceanic and Atmospheric Administration (NOAA) has determined that the death of even one right whale in a given year from non-natural causes will prevent the species from recover-



Intense development pressures threaten Georgia's marsh system. This home is being constructed in close proximity to marshlands in Chatham County.

ing. According to leading scientists, the likelihood of extinction is imminent without proper management.⁷⁰

The right whale calving season occurs from December through March in the coastal waters off Georgia and northern Florida. These waters, from Georgia's Altamaha River to Florida's Sebastian Inlet, have been designated as critical habitat under the ESA. In addition, coastal Georgia and Florida have been designated as one of just five "high use" areas that provide key right whale habitat.

Ship collisions and entanglement in fishing gear are the most common human causes of serious injury and mortality of right whales. Additional threats include habitat degradation, contaminants, and climate and ecosystem change. Disturbance from such activities as whale watching and noise from industrial activities may also affect the population. To reduce disturbances from boats, NOAA published regulations in 1997 that prohibit vessels from approaching within 500 yards of right whales.⁷¹

Nonetheless, right whales were struck by boats off the Georgia coast during both the 2005 and 2006 calving seasons. Overall, 2006 proved to be an exceptionally bad year as six of these giant creatures were found dead. Four died from ship strikes and one became entangled in fishing gear. The cause of the sixth death is unknown.⁷² Four deaths were reported during the 2007 calving season.⁷³ One death was attributed to a ship strike this year, and two other deaths were caused by entanglements.

Georgia's coastal waters and beaches also provide habitat to five species of sea turtles that are protected under both federal and state law. Sea turtles primarily feed in estuarine waters and are vulnerable to decreases in the habitat and productivity in these areas. Boat strikes are a significant and growing threat to sea turtles. Even non-lethal strikes can cause severe debilitation. As development pressures in coastal Georgia have increased in recent years, so too has the threat of injury to sea turtles. According to the Georgia Department of Natural Resources, the percentage of stranded turtles with propeller or other boat-related injuries has increased significantly, from 6.1 percent in 2002 to 20.9 percent in 2004.⁷⁴ Loss of beach nesting habitat and disturbances on nesting beaches from development also contribute significantly to declines in sea turtle populations.

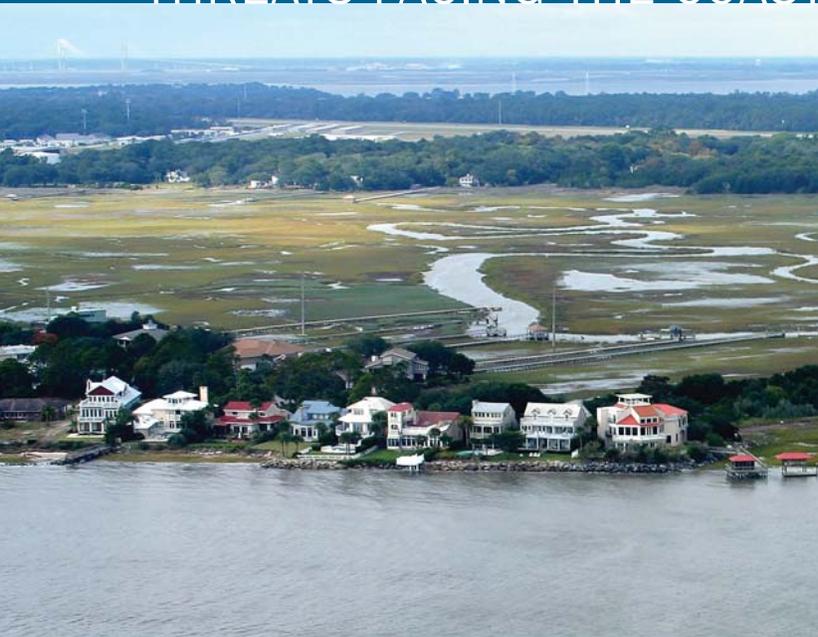
Threats that Affect All Resources

Some problems from poorly planned development and other types of threats impact many resources throughout the region. These cross-cutting issues include stormwater problems, the destruction of habitat, and climate change.

STORMWATER

Development results in an increase of impervious surfaces such as parking lots, rooftops, and roadways and a decrease in naturally vegetated land. Rainwater that would otherwise be held back by vegetation to infiltrate the

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Waterfront development in Glynn County, Georgia.

ground during storms hits impervious surfaces and is delivered in large quantities directly to rivers and estuaries. Coastal water quality and aquatic resources have been shown to suffer impacts from stormwater runoff in study after study when impervious surfaces cover 10 percent or more of coastal watersheds.⁷⁵ These studies are alarming when the growth rate of impervious surface construction is taken into account. A recent review of land-cover data for Chatham County found that the county gained almost three acres per day of impervious surfaces, resulting in a loss of over 41,000 acres of natural cover between 2001 and 2005.⁷⁶

Depending on the magnitude of changes to the land surface, the total runoff volume can increase dramatically. Increased peak discharges for a developed watershed can be two to five times higher than those for an undisturbed watershed. Development also increases the amount of pollutants carried by runoff. As it runs over rooftops and lawns, parking lots and industrial sites, stormwater picks up a variety of contaminants and delivers them to downstream waterbodies. Studies have shown that shellfish bed closures are common in watersheds with more than 10 percent impervious cover⁷⁷ and that critical dissolved oxygen levels were depleted at as little as 2 to 11 percent watershed impervious cover.⁷⁸ A study of the effects on bottom-dwelling organisms in Georgia indicated that negative impacts occur when the amount of developed shoreline exceeds 10 percent and developed watershed exceeds 12 percent.⁷⁹ Several studies of tidal creeks in South Carolina have shown that creeks draining areas with higher percentages of impervious cover are measurably impaired physically, chemically, and biologically when compared with creeks draining undeveloped areas.⁸⁰ These studies found that increased impervious cover resulted in the accumulation of toxins in oysters, higher salinity fluctua-

tuations and soil toxicity, and lower diversity, abundance, and health of numerous estuarine species.

Increased runoff volumes and peaks also increase the frequency, duration, and severity of flooding. This problem is compounded by building and filling in floodplain areas, which cause flood heights to rise even higher. Property and structures that had not previously been subject to flooding may become at risk. Increased runoff and higher stream flow velocities also erode streambanks. In fact, streambank scouring due to increased runoff and higher stream flow velocities can cause such rivers and streams to widen many times their original size. As stream banks are gradually undercut and slump into the channel, the trees that had protected the banks are exposed at the roots and collapse, leading to more erosion.

Another problem with runoff from development is the lack of groundwater recharge to aquifers as water runs off into surface waterbodies rather than infiltrating into the ground to recharge groundwater supplies. The decreased groundwater recharge can exacerbate saltwater intrusion into groundwater supplies—a problem made even worse by additional well water withdrawals for development. Restrictions on groundwater withdrawals are the subject of an ongoing debate between South Carolina and Georgia. The importance of addressing this problem was highlighted in a recently published groundwater plan. The plan was developed under the Coastal Sound Science Initiative, a scientific study of groundwater use in coastal Georgia. The plan restricts withdrawals from the Upper Floridan aquifer and sets out an aggressive water conservation program.⁸¹ The restrictions on withdrawals from the Upper Floridan aquifer prohibit additional pumping in three areas: (1) Chatham County and Effingham south of GA Highway 119, (2) Bryan and Liberty Counties, and (3) Glynn County.⁸² It is important to note that the state is now developing a Comprehensive Water Management Plan for the entire state, including the coast. The state's plan will likely overshadow the coastal plan, and there is concern the state's plan may lack the aggressive water conservation program that is needed to extend the life of current groundwater supplies.

Other problems related to stormwater are sedimentation and erosion. When land is disturbed at construction sites, runoff carries away large quantities of bare soil. Sediment that reaches streams and rivers as a result of stormwater mismanagement damages fish-spawning beds, clogs streams, fills in wetlands, and increases filtration costs for municipal water supplies. Suspended sediment, as measured by turbidity and total suspended solids, reduces in-stream photosynthesis and alters river ecology. Erosion from construction sites, bare soils, and stream banks are the primary sources of sediment in urban runoff.⁸³

Runoff from urban watersheds also contains excessive nutrients such as nitrogen and phosphorus that can pro-

mote weed and algae growth. In addition, the level of bacteria, viruses, and other microbes found in urban stormwater runoff often exceeds public health standards for water contact recreation such as swimming and wading. These microbes can also contaminate shellfish beds and increase purification costs of municipal water treatment. One important source of these contaminants is improperly maintained septic tanks.

Since 1986, a long-term water quality sampling study of the Skidaway River Estuary has recorded a significant upward trend in nutrient levels that are tied to storm events and increases in nutrients and bacteria.⁸⁴ Discussing the results, the study's author, Dr. Peter Verity, noted that "[p]arts of Coastal Georgia are heading in the direction of Chesapeake Bay and Boston Harbor. It may take a few more years to get there, but if it does, history shows that it will take many generations to get it back."⁸⁵

DESTRUCTION OF WILDLIFE AND HABITAT

One of the biggest threats already facing wildlife throughout the coastal region is habitat loss. Due to the concentration of threatened and endangered species within Georgia's coastal region, habitat loss has a disproportionate effect on such wildlife. Heavy development in the region is not limited to marsh-front or beach-front areas. Many areas, as far inland as Rincon, are experiencing significant growth.

As discussed previously, intense development pressure has already resulted in the loss or fragmentation of longleaf pine forests and wetlands.⁸⁶ As more land is converted to development, these impacts are expected to increase. Species whose numbers are already dwindling, especially those listed as threatened or endangered under federal or state law, are of greatest concern. Some of these species, like gopher tortoises and indigo snakes, are directly impacted by habitat loss. Other aquatic species, like shortnose sturgeon and freshwater mussels, suffer the indirect effects of habitat degradation as a result of water quality impairment.

New roads built to accommodate continued growth also take a toll on wildlife and the environment. For a number of species, such as the threatened indigo snake, roads are a major source of mortality. In addition, new roads and highways break up formerly contiguous tracts of forest and reduce the availability of undisturbed habitat. In addition to wildlife impacts, there are a number of important implications for water quality and flooding. At stream and river crossings, poorly designed roadways function as "road dams," trapping water and creating a back up of flow that exacerbates flooding during storms. In addition, roads that cross wetlands can disrupt natural water flow and cause large sections of the wetlands to die off from either too much or too little water.

Numerous bird species, such as the painted bunting, are declining as a result of habitat losses. Painted buntings exhibit extremely high nesting success in old growth maritime oak forests. Natural openings in these woods—created

by storms, fires, and dying trees—provide nesting and feeding habitat in adjacent marshes. Development has replaced much maritime forest habitat. In addition, increases in feral cat populations associated with increased development have decimated the painted bunting population and other bird species.⁸⁷ Unless measures are taken to restore habitat to these species, their numbers are sure to continue to decline.

Other habitat losses result from the introduction of exotic species to the region. The ambrosia beetle from Asia, for example, carries a fungus that kills redbay trees. Coastal Georgia's ambrosia beetle infestation has been traced to wood packaging materials from Asia that were deposited by a freighter at the Savannah port. This recent infestation is taking a vast toll on redbays, with some areas experiencing nearly complete mortality of the local redbay population in just two to three years' time.⁸⁸ Redbay is important to wildlife because its fruit, seed, and foliage are eaten by several species of songbirds, butterflies, wild turkeys, quail, deer, and black bear. Another exotic, released by anglers into the Satilla River, is the flathead catfish. Flatheads are now decimating natural populations of other fish. The Georgia Department of Natural Resources has found a 75 percent drop in the number of native fish such as the red-breasted sunfish in areas of the Satilla River where flatheads have increased dramatically.⁸⁹ Without considerable effort to contain and eliminate these invasives, they will continue to threaten our coastal heritage.

CLIMATE CHANGE

Global warming is the elevation in the temperature of the earth's surface and its atmosphere due to the increased release of certain greenhouse gases. Also referred to as "climate-forcing" gases, greenhouse gases absorb infrared radiation that otherwise would escape back into space. Due to this increased absorption, the earth radiates less energy than it absorbs from the sun, thereby resulting in a net warming of the earth. The most significant greenhouse gas is carbon dioxide, which comes mainly from the burning of fossil fuels (i.e., oil, gas, and coal). Other important contributors include chlorofluorocarbons (CFCs); the components of smog, such as methane and tropospheric ozone; and black carbon (or soot), which comes from the incomplete burning of fossil fuels and biofuels.

Global warming may impact the Georgia coast in two dramatic ways. First, scientists predict it will increase sea levels. Second, scientists predict it will increase the number of hurricanes that will strike coastal regions. Unless the coastal region takes global warming into account in its planning for the future, it could suffer serious repercussions.

Over the next century, the range of temperature increase is expected to be between 3.1 and 7.9 degrees Fahrenheit, under a moderate scenario.⁹⁰ With this temperature increase, sea level will rise due to the melting of sea ice.

THREATS FACING THE COAST

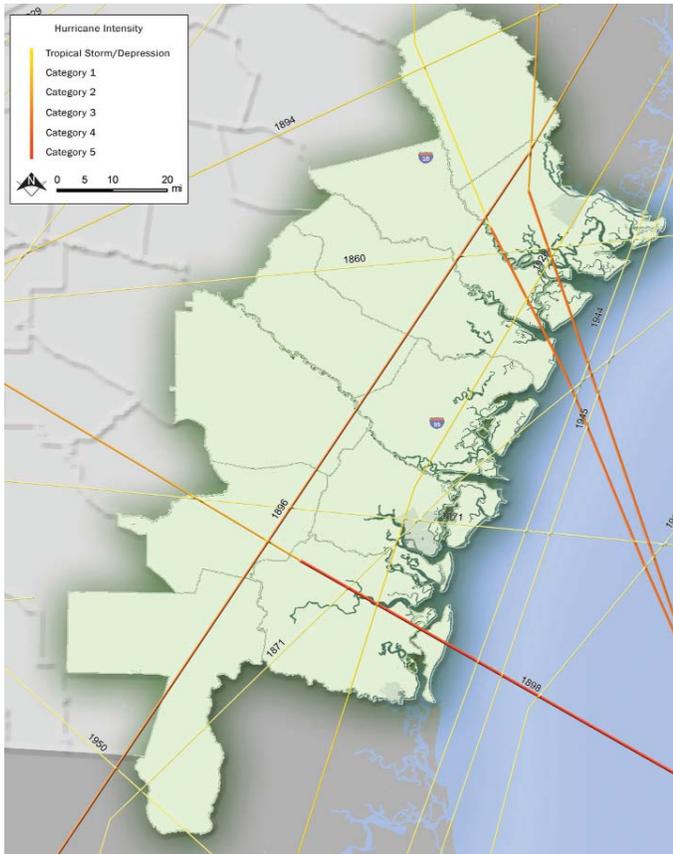


Figure 8. Hurricane Paths Across Coastal Georgia: The National Oceanic and Atmospheric Administration's records of hurricane paths across the state demonstrate that Georgia is not hurricane proof. Between 1851 and 2004, the agency recorded 20 hurricanes that hit the state.

The recent Intergovernmental Panel on Climate Change (IPCC) report conservatively estimates that the expected sea-level rise will be between 8.3 and 18.9 inches by the year 2100, under the same scenario.⁹¹ The IPCC report also concludes that global warming has resulted in more and stronger hurricanes and tropical storms.⁹² Indeed, hurricanes have doubled in intensity in the last thirty years.⁹³ Although the Georgia coast has not experienced the type of hurricane activity that has plagued other states in the region, such as Louisiana, Alabama, and Florida, pronouncements by developers and local officials that the Georgia coast is somehow "hurricane proof" are false.⁹⁴ The developer of Liberty Harbor, a recently proposed waterfront development in Brunswick, which includes a reported 1,600 condos and single-family houses, 100,000 square feet of retail space, a 210-room Hyatt Regency, and marina facilities, is claiming that the Georgia coast provides protection from hurricanes.⁹⁵ The mayor of Brunswick, Bryan Thompson, who supports the project, is quoted as saying that Georgia is "the westernmost part on the East Coast" and is, therefore, sheltered from hurricanes.⁹⁶

In the late 1800s, the Georgia coast was hit with a major wave of hurricanes.⁹⁷ The most significant of these, the

"Sea Islands Hurricane," made landfall near Savannah on August 27, 1893. According to scientists at the National Oceanic and Atmospheric Administration, this hurricane—estimated to have been a category three storm—was "accompanied by a tremendous storm surge that completely submerged many of the Sea Islands."⁹⁸ Estimates provide that 1,000-2,500 people died, mostly as a result of the storm surge that literally swept them off of the barrier islands.⁹⁹

That the Georgia coast was hit by a wave of hurricanes in the late 1800s is not unusual since hurricanes tend to be based on cyclical climate patterns.¹⁰⁰ Moreover, NOAA maintains a database that tracks the path of every hurricane to hit the state of Georgia, and these data clearly show that Georgia is not immune to hurricanes.¹⁰¹ Figure 8. In fact, a study just released in May 2007, identifies Chatham County, Georgia, as one of the places along the Atlantic and Gulf coasts with above-average risk for a hurricane strike this hurricane season—a more than 1-in-7 chance. The forecasters based their analysis on statistical models that incorporate the paths of storms from the past 155 years, along with models using the actual climate conditions for January through May 2007 to compute the expected day-to-day global climate conditions for the rest of the year.¹⁰²

Furthermore, according to a Savannah-based geophysical weather researcher, the Georgia coast is second only to the "Bay of Bengal" in the Indian Ocean for physical characteristics that exacerbate storm surges.¹⁰³ There are two primary factors that make this so. First, because Georgia's coastline is tucked in between the South Carolina and Florida coasts in a funnel-like shape, as shown in Figure 9, the Georgia coast acts to focus and increase tidal energy as storms approach. Second, due to the gradual slope of the ocean floor over the continental shelf off Georgia, coastal ocean waters are shallow for a longer distance than most coastlines. This large area of shallow water¹⁰⁴ has the potential to contribute to much higher storm surges should a hurricane strike.¹⁰⁵

Given the physical characteristics of the coast, the storm surge resulting from a hurricane could be devastating. Instead of marketing the Georgia coast as "hurricane-proof," steps need to be taken to incorporate the hurricane threat into land-use plans for the region.



Figure 9. The Shape of Georgia's Coastline

GOVERNMENT AGENCIES AND ENVIRONMENTAL GROUPS



CRAIG TANNER

GOVERNMENT AGENCIES AND ENVIRONMENTAL GROUPS



Great egret and federally endangered wood stork

There are a host of federal, state, and local government agencies that are responsible for protecting Georgia's coastal resources. There are also a host of environmental groups, including SELC, that work to protect the coast. This section discusses these government agencies and environmental groups.

Government Agencies

With few exceptions, the government agencies are not adequately protecting the coast. In many cases, they are facilitating its development. Below is a discussion of some of these key governmental agencies.

CORPS OF ENGINEERS

The Army Corps of Engineers (Corps) has both regulatory and public works components. The Corps builds and maintains water supply reservoirs, renourishes beaches, and deepens harbors. The Corps also regulates activities conducted in wetlands and other waters under the federal Clean Water Act (CWA). Although the Environmental Protection Agency is the agency responsible for overseeing implementation of the CWA, the Corps has been delegated the day-to-day responsibilities for implementing the wetlands program.¹⁰⁶

Section 404 of the Clean Water Act

One of the most important regulatory tools for protecting coastal resources is Section 404 of the CWA, which authorizes the Corps to issue permits for the discharge of dredged or fill materials into wetlands or other waters.¹⁰⁷ The 404 program is a vital regulatory tool for a number of reasons.

First, if implemented correctly, the regulations governing the 404 permitting program ought to steer development activities away from wetlands. The regulations should accomplish this purpose because the rules require the denial of permit applications where less damaging alternatives to wetlands destruction exists. If the Corps were living up to its responsibility to properly apply these rules, the 404 program would be working to keep development out of the coast's extensive wetland systems.

Second, the need to obtain a 404 permit also triggers other important regulatory reviews. For example, if a developer is required to obtain a 404 permit to construct a subdivision, additional review under the National Environmental Policy Act and the ESA is required. As described below, these two federal statutes require additional analysis by the Corps and other federal agencies, such as the U.S. Fish and Wildlife Service (FWS), to evaluate impacts to the surrounding environment. However, these additional reviews only come into play if a 404 permit is required.

Third, the 404 program is especially important in Georgia because there is no state program in place to protect freshwater wetlands. Without proper implementation of the 404 program by the Corps, it is not possible to pro-

DWIGHT DYKE

tect the state's extensive freshwater wetland resources, which conservative estimates place at more than four million acres.

Despite the importance of wetlands, the Corps has failed to live up to its responsibility to protect these resources in recent years. Since figures on the overall loss of wetlands on the coast are not available, SELC conducted a geographic information systems analysis using National Wetlands Inventory data prepared by the FWS and land cover data prepared by the Natural Resources Spatial Analysis Laboratory at the University of Georgia. This analysis indicates that Georgia's coastal area has lost approximately 97,890 acres of wetlands from the mid-1980s to 2001.¹⁰⁸

Failure to Regulate Wetlands and Streams under the Clean Water Act

The Solid Waste Agency of Northern Cook County v. U.S. Corps of Engineers Decision

For the first thirty years of its history, the CWA was interpreted to apply to virtually all wetlands, including so-called "isolated" wetlands. In 2001, however, in *Solid Waste Agency of Northern Cook County v. U.S. Corps of Engineers* (SWANCC),¹⁰⁹ the U.S. Supreme Court issued a decision that, at the time, seemed to call into question the ability of the federal government to protect isolated wetlands—those wetlands that lack an apparent surface water connection to navigable streams and rivers. Specifically, the Supreme Court held that the federal government cannot use the presence of migratory birds as the sole basis for asserting CWA jurisdiction over these non-navigable, intrastate, isolated waters.

Since the SWANCC decision was handed down, the overwhelming majority of lower federal court decisions have construed SWANCC to allow CWA jurisdiction to cover all but the most hydrologically remote wetlands. Despite these decisions, the Savannah District of the Corps has been unwilling to assert jurisdiction over wetlands that are clearly covered by the CWA. Based on its post-SWANCC jurisdictional calls, the Savannah District has emerged as the one of the worst Corps districts in the country.

This is of critical importance for wetlands protection because if a wetland is considered to be non-jurisdictional, a developer does not have to obtain a 404 permit before filling it. It also means that the developer does not have to make any attempt to avoid the wetland, minimize the impact to the wetland, or mitigate for the damage done to the wetland. Typically, mitigation projects involve the restoration, preservation, or creation of other wetlands to offset the losses caused by the project. Further, the protections provided by other laws such as the National Environmental Policy Act and the Endangered Species Act do not get triggered if a 404 permit is not required.

Usually, a developer hires an environmental consultant to identify wetlands as either non-jurisdictional or jurisdictional. The Corps then is supposed to review the environmental consultant's report to render a decision called a "jurisdictional determination." With the initial confusion surrounding the SWANCC decision, the developers on the Georgia coast, and their lawyers and environmental consultants, took advantage of the situation by convincing the Corps to remove federal protections for wetlands that were clearly jurisdictional. And, because there is no public comment requirement for a determination of no jurisdiction, the developers were able to eliminate federal protections for wetlands on their development sites without drawing any attention from the public.

Unlike Georgia, a number of other southern states, including North Carolina, Virginia, Tennessee, and Florida, have recognized the importance of wetland resources and have adopted their own programs to protect freshwater wetlands, including those no longer covered under the CWA. In Georgia, however, the state has been unwilling to protect wetlands deemed "isolated" by the Corps. Thus, when the Corps decides not to protect a wetland, there is no state program in place to fill the gap in federal protection. As a result, thousands of acres of Georgia's wetlands are left exposed to threats, including, but not limited to, mining and development. In the wake of the SWANCC decision, SELC believes thousands of acres of wetlands in Georgia were unlawfully destroyed. Without our review, analysis, and comment on these types of decisions, scores of additional wetlands would have been destroyed with no regulatory oversight or notice to the public.

The Rapanos v. United States Decision

In June 2006, federal wetland protections were again threatened when the U.S. Supreme Court issued the *Rapanos v. United States* decision.¹¹⁰ This decision, like SWANCC, has caused even more confusion with respect to the federal government's authority over wetlands and streams and has the potential to lead to crippling losses of water resources in coastal Georgia. In *Rapanos*, four Justices, led by Justice Antonin Scalia, found that if a stream lacks a permanent connection to navigable waters, that stream is not protected by the CWA. These same Justices stated further that the CWA did not cover wetlands that lacked a "continuous surface connection" to a navigable water.¹¹¹ Four other Justices, led by Justice John Stevens, held to the traditional interpretation of the thirty-four-year-old law, which reflects what Congress intended—that virtually all wetlands and waters are protected.¹¹²

Justice Anthony Kennedy authored his own opinion in which he disagreed with Justices Scalia and Stevens on the test that should be applied to determine jurisdiction. Justice Kennedy decided that for a water to be jurisdiction-

al, it must have a “significant nexus” or link to a downstream water that is “navigable in the traditional sense.”¹¹³

Immediately after the *Rapanos* decision was handed down, the EPA and the Corps instructed their field offices that the agencies were planning to distribute guidance interpreting the *Rapanos* decision within three weeks. The guidance was finally issued on June 5, 2007, close to a year later. How the guidance will be applied by the Savannah District holds tremendous implications for wetlands and streams throughout the coastal zone.

In the meantime, the environmental community cannot afford to sit back and simply wait to see how the Corps will apply the new guidance. The application of the *Rapanos* decision has huge ramifications for Georgia because of the abundance of wetland and stream resources facing increasing development pressures. These resources are especially vulnerable due to the Savannah District’s poor record of making jurisdictional decisions and the absence of a state wetland program to fill the gap created by any withdrawal of federal authority. Further, history has taught us that developers will be taking full advantage of this period of uncertainty, pressuring the Savannah District to remove CWA protections for wetlands throughout the coastal zone. Other developers will not even bother to pressure the Corps on these jurisdictional decisions; they will simply destroy wetlands that they believe are no longer protected under federal law.

To prevent this outcome, immediate steps must be taken to hold the line on federal protections for water resources. As discussed below in the section entitled “Actions and Initiatives Needed on the Coast,” the coastal advocates must implement strategies immediately to make sure that wetlands and streams in the coastal zone are fully afforded CWA protections. These actions include extensive monitoring of jurisdictional determinations and challenging any decisions that improperly remove federal protections.

Excluding Wetland Types through Improper Jurisdictional Determinations

Another problem contributing to the loss of wetlands in coastal Georgia is the Savannah District’s unwillingness to take jurisdiction over certain classes of wetlands. This problem existed even before SWANCC and *Rapanos*. Throughout the coast, the Corps has systematically eliminated an entire class of wetlands from their jurisdiction. These wetlands meet the federal criteria for wetlands, and, therefore, should fall within the Corps’ jurisdiction just as they do in other states such as South Carolina and North Carolina. However, according to consultant biologists we have interviewed for pur-

With Legal Action Imminent, Corps Withdraws Bad “Isolated” Wetland Decisions

In 2001, the Corps determined that about 112 acres of wetlands in the Savannah River watershed were isolated and not protected by federal law. SELC, working with several experts, flew over the site, photographed the area, and determined that the wetlands were connected to other waters. The aerial photographs from the flyover revealed that the wetlands were not isolated. As Figure 10 shows, the wetlands (gray area) extend past the development’s property line and connect to a creek that ultimately empties into the Savannah River. After writing several letters, sharing expert reports, and providing notice of our intent to sue, the Corps reversed its decision and recaptured jurisdiction over about 77 acres of wetlands.

At the same time, on the other end of the coast, the Corps advised a titanium mining company that more than 300 acres of forested wetlands on a proposed mining site in Brantley County were isolated and, therefore, not protected under the Clean Water Act. Based on this decision, the mining company was free to mine and destroy the wetlands without any permit. SELC investigated the determination and explained to the Corps that the wetlands at issue were actually hydrologically connected to the Satilla River and therefore covered under the Clean Water Act, as shown in Figure 11. After months of communicating with the Corps and the mining company and preparing for legal action, the Corps finally reversed its decision, claiming Clean Water Act jurisdiction over about 120 acres of the 300 acres that the Corps originally left unprotected.

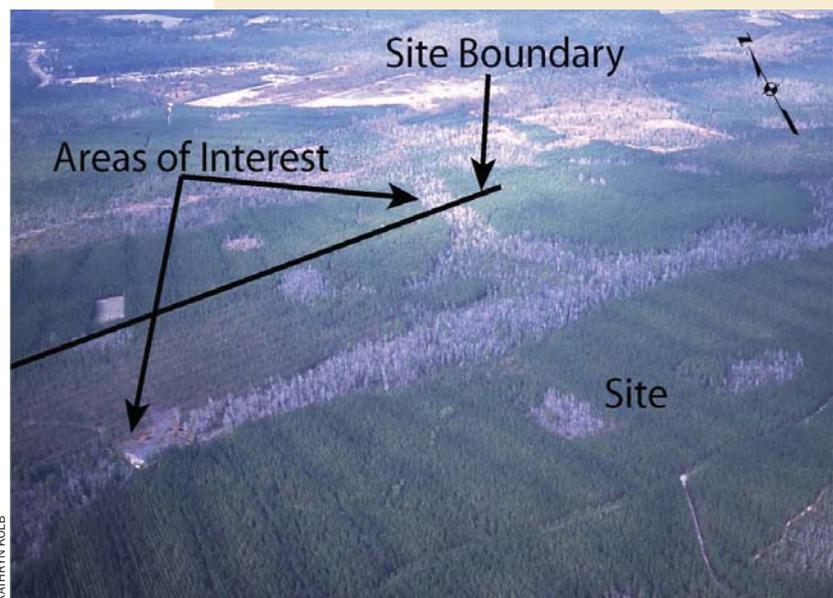


Figure 10. **Wetland Errors:** The Corps determined that 112 acres of wetlands were isolated and not protected by federal law. After SELC demonstrated that the wetlands were clearly connected to other waters, the Corps reversed its decision on 77 acres.



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Figure 11. **Improper Wetland Decisions:** An improper decision by the Corps in the Satilla River watershed left wetlands on the north side of a dirt road unprotected. SELC, with help from the Altamaha Riverkeeper, investigated and determined that the wetland on the north end of the road was hydrologically connected to the protected wetland on the south side. As a result, the Corps reversed its decision and reclassified 120 acres of wetlands as jurisdictional.



Blooming bladderwort in cypress swamp

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poses of this Assessment, the wetland class known as “wet flats,” which includes various kinds of saturated wetlands, is not being regulated. The reason supposedly given by the Corps for this renegade approach to jurisdiction is that too many wetlands would fall under their jurisdiction if this class of wetlands was included. For this reason, vast areas of wetlands have been completely removed from federal wetlands regulatory protection.

The Tree-Farming Exemption to the Clean Water Act

The Corps is also failing to apply the silvicultural (tree-farming) exemption properly under the CWA, and thus is allowing even greater numbers of wetlands to be altered improperly. Under the CWA, a timber company is not required to seek a permit if it is engaged in “normal” forestry operations, which do not convert wetlands into another kind of habitat, such as an upland.

To grow trees in wetlands on the coastal plain, timber companies like Plum Creek, International Paper, and Weyerhaeuser, sometimes plant trees in beds as much as eighteen to twenty-four inches above the surrounding soil. In addition, they often construct ditches, which, under the CWA, should only result in “minor drainage” of the site. However, these practices can dry out wetlands to the point where they become uplands. The timber companies can then expand operations into adjacent areas that are now dryer and more readily accessible. As has increasingly become the case, once market prices in an area become favorable for development, the growers sell off these dewatered parcels to developers or develop these areas themselves.

Figures 12 and 13 illustrate just how tree-farming activities can dewater areas over time. Figure 12 is an aerial photograph taken in 1953 of a parcel located in Glynn County, Georgia. Yellow lines are drawn around the wetlands that existed on the property at the time. The image shows that in 1953 nearly half of the property was comprised of wetlands. After 1953, this tract was used to grow pine trees. Figure 13 is a satellite image of the same tract taken in 1999. Again, lines are drawn around the wetland areas that remain in 1999. Because the tract has been dewatered for pine tree growth through ditching, houses can now be built on portions of the tract that used to be too wet. Since sites like this only retain some of their wetlands, they are typically sold and developed without going through the permitting process. What is worse, because these sites are former wetlands, homes built in these marginal areas are more prone to problems associated with flooding, mold, and moisture.

The misuse of the tree-farming exemption in this way is especially damaging when combined with the massive sell-off of land holdings by the timber industry. A spokeswoman for International Paper Company, which has large holdings in coastal Georgia, has been quoted as saying that

due to escalating land values, the company is “contemplating selling some or all” of its 6.8 million acres of forest lands in the United States.¹¹⁴ As of January 3, 2006, International Paper owned 571,000 acres in Georgia,¹¹⁵ and its website currently indicates that more than 31,824 acres are available for sale on the coast.¹¹⁶ Other timber companies have large land holdings in Georgia, too. Plum Creek owns about 876,000 acres,¹¹⁷ Rayonier owns about 817,000 acres,¹¹⁸ and MeadWestvaco owns another 205,769 acres in Georgia.¹¹⁹ As huge swaths of forestlands come on to the market, developers are swooping in and turning former wetlands into subdivisions and strip malls. As a result, there are widespread wetland losses throughout Georgia’s coast.

Failure of the Corps to Properly Implement the 404 Permitting Process

Under the 404 program, if a wetland is protected by the CWA and no exemptions, such as the forestry exemption, apply, applicants must obtain a 404 permit prior to impacting wetlands. Pursuant to regulations issued under the CWA, the Corps is prohibited from issuing a permit where there is a practicable alternative that would have less adverse effects on the aquatic ecosystem.¹²⁰ If a proposed activity does not need to occur in a wetland (i.e., is not “water dependent” like a marina), the regulations contain a presumption that practicable, less damaging alternatives are available, unless the developer clearly demonstrates otherwise.¹²¹

The Corps rarely requires the applicant for a permit to satisfy these requirements. All too often, an applicant seeking a permit to authorize the destruction of wetlands for a non-water-dependent activity, such as the construction of a subdivision or a mall, is issued a permit when other less damaging development sites exist or less damaging development plans could be devised. Steps must be taken to make sure that the Corps lives up to its obligations to properly administer the 404 program and require developers to avoid and minimize impacts to wetlands and streams.

Improper Use of Nationwide Permits

Nationwide permits (NWP) are expedited wetland permits for activities with minimal impacts on wetlands and other waters. According to agency staff at the Georgia Environmental Protection Division and the U.S. Fish and Wildlife Service, the Corps is misusing NWP 39 to “kick-start” large subdivision developments.¹²² NWP 39 was designed to be used to authorize wetland impacts caused by residential development when the total impact of the entire project involves half an acre or less of wetland fill or impacts less than 300 feet of

stream. Dividing projects into smaller pieces to minimize regulatory requirements is strictly impermissible. Nevertheless, the Corps, according to agency sources, is using NWP 39 to quickly authorize roads for new subdivisions and then allowing the builders to return to the Corps for other wetlands permits once the roads are in place.

The use of NWPs in this way results in a number of problems. First, by authorizing these housing developments under an NWP, the public does not receive notification as it would for an individual permit. Thus, the impact of development to wetlands in coastal Georgia can occur rapidly without public knowledge or review. Second, it is also unclear whether authorization is ever sought once

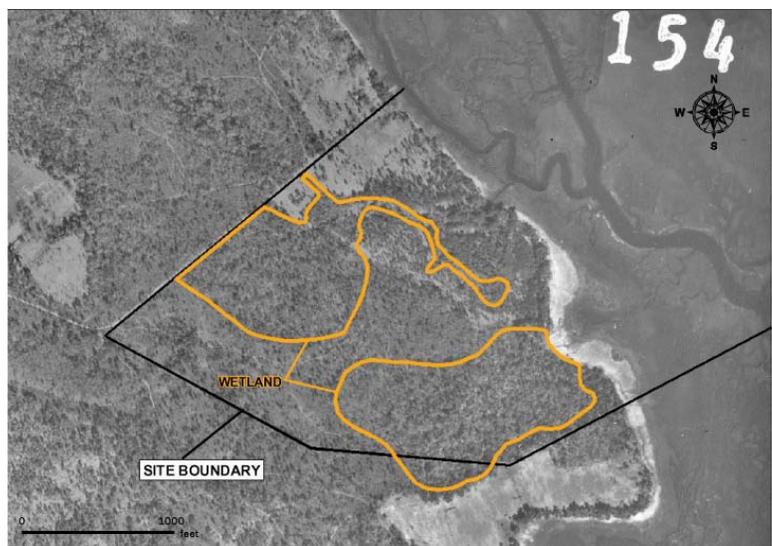


Figure 12. **Original Extent of Wetlands:** This 1953 aerial photograph shows wetlands (outlined in yellow) at a site in Glynn County, Georgia. After 1953, this tract was converted to a pine plantation.

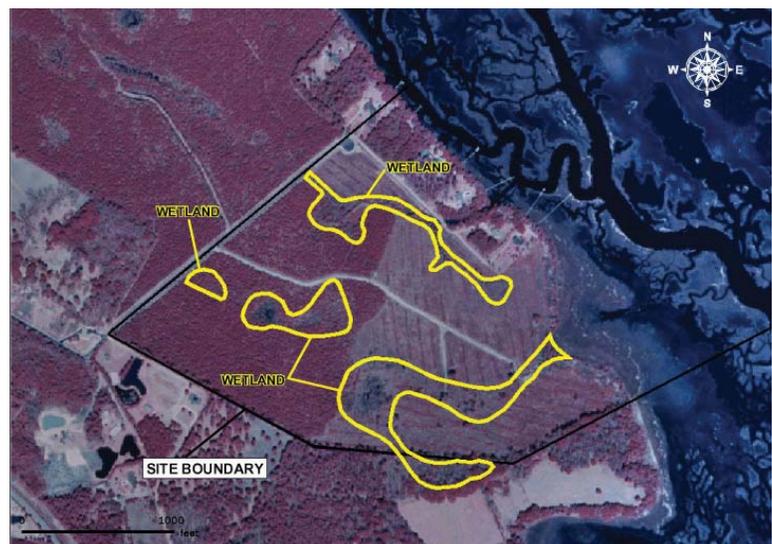


Figure 13. **Wetlands Decreased by Forestry Practices:** In 1999, an aerial photograph of the same site shows that wetland acreage has been reduced due to forestry practices.

individual lots in the subdivision are sold to others who then fill in these wetlands to construct their new homes. Third, even if permits are ultimately obtained for the rest of the subdivision, these smaller projects are most likely permitted without adequate mitigation for the total amount of wetlands lost due to the entire project. In this way, the national goal of “no net loss” is not being met. Fourth, because the Corps is limiting its review to a very small part of the overall development, the U.S. Fish and Wildlife Service is not able to evaluate the extent of harm to federally listed species, such as eastern indigo snakes, wood storks, and red cockaded woodpeckers, that may be impacted by the completed project.

The NWP regulations contain specific provisions that are intended to preclude this type of piecemeal permitting. For example, NWPs apply only to “single and complete projects,”¹²³ and NWPs may be combined with individual permits only where the portion of the project authorized by the NWP has independent utility.¹²⁴ A road crossing built with the express purpose of providing future access to a subdivision does not have independent utility.

National Environmental Policy Act

The Corps also receives authority and appropriations directly from Congress to undertake projects on the coast that can have significant impacts, such as beach renourishment projects. For a project that significantly affects the human environment, like the Savannah Harbor deepening project, the Corps must comply with the National Environmental Policy Act, by completing an Environmental Impact Statement (EIS).¹²⁵ In an EIS, the Corps is supposed to take a “hard look” at all the potential impacts of the project.¹²⁶ However, even if the Corps finds that the project will adversely impact the environment, the Corps is free to continue with the project as long as the EIS is completed. Thus, the EIS is no assurance that the environment will be protected. Making matters worse, the Savannah District rarely prepares an EIS, improperly finding that many projects do not have a significant effect on the environment.

U.S. Fish and Wildlife Service and National Oceanic and Atmospheric Administration

The U.S. Fish and Wildlife Service and the National Oceanic and Atmospheric Administration are the two federal agencies responsible for administering the Endangered Species Act on the coast. Because the Georgia coast provides habitat to a number of threatened and endangered animals, the ESA has significance in the region. Under Section 7 of this statute, each federal agency must “insure that any action authorized, funded or carried out by such agency ... is not likely to jeopardize the continued existence of any” listed species “or result in the destruction or adverse modification of” the species’ critical habitat.¹²⁷ Section 9 of the ESA makes it “unlawful for any person” to harm listed species. Both agencies are failing to live up

to their responsibilities to implement the ESA. Below are examples of these failures.

FWS and NOAA share responsibility for protecting marine life such as manatees, right whales, and sea turtles. As discussed above, increased boat traffic is the most serious threat to the survival of right whales and manatees and presents a growing risk to sea turtles. Nevertheless, very little has been done to address this threat. In June 2004, NOAA did publish an Advance Notice of Proposed Rulemaking for Right Whale Ship Strike Reduction, which includes measures for protecting right whales from commercial ships larger than sixty-five feet in length.¹²⁸ The rule represents a step in the right direction; however, it has not yet been adopted. In the meantime, boat traffic—both recreational and commercial—keeps increasing, as does the threat to each of these species.

The gopher tortoise—Georgia’s official state reptile—and the eastern indigo snake are two species that are suffering from a loss of habitat on the coast.¹²⁹ Although the indigo snake is federally listed, the gopher tortoise is not, despite its dwindling numbers. Both species are found in longleaf pine forests and other coastal habitats. Although these areas are being developed at a rapid rate and the snake’s numbers are continuing to decline, FWS has not designated critical habitat for the indigo. The failure to designate critical habitat for indigos and to list the gopher tortoise as federally threatened are significant regulatory problems that are leading to the demise of these species. These problems are emblematic of the failure to properly apply the ESA for many other species in the coastal zone.

SELC has reviewed a number of recent large-scale development proposals that illustrate these regulatory failures. Many development sites on Georgia’s coastal plain contain numerous gopher tortoise burrows. Because of the close relationship between gopher tortoises and indigo snakes (the snakes use the burrows for refuge, especially in winter), a high potential exists that these development sites also support indigo snakes. Although concerns are sometimes raised regarding potential impacts from these development proposals on indigo snakes, these concerns seldom result in meaningful modifications to the proposals.

One of the main reasons why indigos are not receiving adequate protection is because developers are allowed to use highly ineffective surveying methods—infrared camera scopes to probe gopher tortoise burrows—to prove that indigos do not exist on their sites. Despite the fact that the scientific literature concludes that this surveying method is not reliable for locating indigo snakes, developers are routinely allowed to use them to satisfy their obligations under the ESA. Not surprisingly, developers rarely identify the presence of indigos on their properties, and projects are permitted without any protective measures for the snakes that may, in fact, be present.



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The failure to establish critical habitat for indigo snakes is especially significant given the persistent failures by developers to identify the presence of these snakes on proposed project sites. If critical habitat were established, then developers would have to take steps to protect the snakes for developments proposed to be located in critical habitat areas regardless of whether the presence of a snake could be confirmed on the site. Further, by failing to list the gopher tortoise as a threatened species, developers are free to destroy their burrows without any regulatory oversight. The destruction of these burrows is particularly troubling in light of the fact that biologists consider gopher tortoises, whose burrows provide habitat to 360 other species of wildlife, to be a “keystone species.”

GOVERNMENT AGENCIES AND ENVIRONMENTAL GROUPS



Tidal creek and marshes

Georgia Department of Natural Resources

The Georgia Department of Natural Resources includes two divisions that are charged with managing coastal resources—the Coastal Resources Division and the Environmental Protection Division.

COASTAL RESOURCES DIVISION

CRD's responsibilities include resource management, ecological monitoring, permitting, technical assistance, and federal consistency review.¹³⁰ CRD also provides support to two key permitting committees in the coastal region: the Coastal Marshlands Protection Committee and the Shore Protection Committee.¹³¹ The CRD must carry out its responsibilities in accordance with the federal Coastal Zone Management Act.

Coastal Marshlands Protection Act

Another law that must be properly implemented to protect the coast is Georgia's Coastal Marshlands Protection Act (CMPA). The Coastal Marshlands Protection Committee (Marshlands Committee) is responsible for making permitting decisions under the CMPA, which was enacted in 1970 to protect Georgia's salt marshes. This statute provides that "[n]o person shall remove, fill, dredge, drain, or otherwise alter any marshlands or construct or locate any structure on or over marshlands in this state... without first obtaining a permit from the committee."¹³² To receive a permit to alter the state's marshlands, an applicant must demonstrate that the proposed alteration is not contrary to the "public interest."¹³³

In recent years, the Marshlands Committee and the development community have taken a narrow position regarding the application of the statute, which is undermining protections for the salt marsh. Their position is that under the CMPA, the Committee can only consider the effects of the portions of projects that are actually constructed in, on, or over the marsh when making a permit decision. In other words, if a developer seeks to build a subdivision on a hammock with a bridge from the mainland across publicly-owned marshlands, the Marshlands Committee's position is that the statute authorizes them only to consider the impact of the bridge, and does not authorize consideration of the impact to the marsh from the hammock development. By failing to consider the impact to the marshlands of the entire project, the Committee is ignoring many harmful impacts, including stormwater that is discharged from the upland components of developments to the marsh. As is further explained below in "Overall Assessment of Government Management of Coastal Resources," SELC and its partners have successfully challenged the state on this issue a number of times.

Shore Protection Act

The Shore Protection Act is intended to protect and manage Georgia's sand dunes, beaches, sandbars, and shoals. These features comprise what is called the "sand-

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sharing system,” because sand moves along the shore amongst these features.¹³⁴ The Shore Protection Act requires a permit for certain activities and structures on the beach. For example, construction activities in sand dunes are limited to temporary structures such as crosswalks, and then only by permit. With intense pressures to develop remaining available lands on barrier islands, proper implementation of the Shore Protection Act is necessary to protect Georgia’s 100 miles of sand beaches, which the General Assembly has designated as a vital area of the state. Given the pressure to develop (and redevelop) in areas adjacent to sand beaches, the CRD and the Shore Protection Committee often fail to live up to their obligation to apply the law in a manner that prevents damaging encroachment from development.

ENVIRONMENTAL PROTECTION DIVISION

Georgia’s Environmental Protection Division (EPD) is responsible for implementing Section 402 of the CWA as well as the Georgia Water Quality Control Act, the Georgia Erosion and Sedimentation Act (E&S Act), and other statutes. Implementation of the Georgia Water Quality Control Act and the E&S Act is plagued by significant problems.

Georgia Water Quality Control Act

Under the Georgia Water Quality Control Act, the EPD has authority to regulate point source discharges of water pollution from wastewater treatment plants, industrial dischargers, stormwater discharges, and other sources of water pollution. As discussed above, many water quality problems stem from the discharge of polluted stormwater. Although many of the impacts associated with the discharge of stormwater have been discussed above in “Threats Facing the Coast,” one aspect of stormwater is important to note here—the failure of EPD to adequately regulate stormwater that is discharged from development sites after construction activities are completed (post-construction stormwater).

Although it is true that EPD may regulate the discharge of stormwater from project sites during the construction phase under the E&S Act, the Georgia Water Quality Control Act, and the CWA, there is little regulation of stormwater once construction has been completed. After construction activities cease, developed areas discharge harmful runoff containing pollutants such as sediment and herbicides directly into rivers and streams.

The failure to adequately address the regulation of coastal stormwater is a concern to many. In fact, the National Oceanic and Atmospheric Administration has identified stormwater and watershed management measures to protect coastal waters as a deficiency in Georgia. In part to address these deficiencies, the state is in the process of developing a coastal supplement to the Georgia Stormwater Management Manual that provides technical stormwater design procedures for developers to use in the coastal region.

Georgia Erosion and Sedimentation Act

Under the E&S Act, developers must get an approved plan to control erosion and sedimentation from land-disturbing activities. The plan demonstrates how the developer will attempt to keep stormwater from washing soil from the site into state waters. This statute requires that every plan include a 25-foot buffer on all state waters, including coastal marshlands. The buffer under the E&S Act is measured “horizontally from the point where vegetation has been wrested by normal stream flow or wave action.”¹³⁵

EPD administers the E&S Act and is authorized to designate a local government as a “Local Issuing Authority.” If a local government meets certain requirements, including the adoption of certain stormwater ordinances, and is certified as a Local Issuing Authority, then the local government can enforce the requirements of the E&S Act, including its prohibition against land-disturbing activities in the buffer.

As discussed below, local governments in coastal Georgia have a terrible record of enforcing compliance with environmental laws. With respect to buffers, Chatham and Glynn Counties—the most populous counties in the coastal zone—simply refuse to enforce the buffer on the salt marsh. Pointing to the language in the E&S Act, which states that buffers begin at “the point where vegetation has been wrested by normal stream flow or wave action,” these counties argue that marshes do not have a point of wrested vegetation and therefore do not require a buffer. This argument directly contradicts the clear intent of the statute to apply a buffer to all state waters, and EPD and the Attorney General have plainly explained that the buffer provisions do apply to marshes. Even so, the state has not taken action to require these counties to comply with the law, such as stripping them of their status as Local Issuing Authorities.

In addition to EPD’s failure to require compliance with the buffer law in the coastal zone, EPD is also taking the erroneous position that buffers are not required for marshlands after bulkheads have been installed. A bulkhead is a retaining wall used to protect shorelines from erosion. In the coastal zone, marshfront landowners often seek to construct bulkheads at the marsh/upland interface in an effort to armor the shoreline from erosion. Unfortunately, there are many problems associated with bulkheads, including the loss of marsh habitat. Furthermore, once bulkheads are installed, the EPD no longer requires buffers in those areas. By taking this position, the Georgia Department of Natural Resources is essentially creating incentives for marshfront landowners to bulkhead their properties. In turn, this practice will have a significant cumulative effect on the state’s marshlands, tidal creeks, and adjacent uplands.

DEPARTMENT OF COMMUNITY AFFAIRS

The Georgia Department of Community Affairs (DCA) is charged with the responsibility of providing comprehensive planning in addition to technical and research assistance to local governments. As described below, DCA, for a variety of reasons, is failing to improve local planning efforts.

Georgia Planning Act of 1989

The Georgia Planning Act of 1989 requires cities and counties to prepare a comprehensive plan consistent with standards and procedures established by the state.¹³⁶ The statute gives the state the authority to develop minimum standards and procedures for the protection of natural resources, including, but not limited to, mountains, river corridors, public supply watersheds, groundwater, and wetlands.¹³⁷ These standards and procedures are intended to be used by local governments in developing and implementing their comprehensive plans.¹³⁸

Under the statute, DCA reviews locally developed plans for their consistency with planning standards, but the state is given no authority to disapprove of a plan, as long as all elements are included and sufficiently analyzed. DCA may deny a local government their status as a “qualified local government” due to failure to comply with planning standards, which would disqualify the city or county from receiving certain state grants and loans. However, this penalty is seldom exercised, and the state’s authority for requiring that local governments make decisions that conform to their respective locally adopted, state-approved comprehensive plans is extremely limited.

Likewise, the planning law creates a framework for reviewing “developments of regional impact,” which solicits the opinions of affected local governments and state agencies about the impacts of projects that exceed DCA-established thresholds of scale. The findings of such reviews are non-binding, and the whole process must be completed within 30 days. As a result, this review process serves an advisory function that, at best, improves the design and coordination of projects, but has little effect on evaluating or reducing environmental impacts.

Local Governments

In addition to federal and state laws, it is important to consider applicable local laws when examining the regulatory scheme for coastal Georgia, especially in light of the fact that the Georgia Constitution grants counties and municipalities “home rule.”¹³⁹ The central idea behind home rule is that local authorities have a certain level of freedom from control by the state.

Because of the importance of local regulations in Georgia, we have studied the conservation ordinances of the eleven coastal counties. In addition to typical subdivision ordinances, conservation ordinances in these counties

consist of two types: first, those specifically limiting development actions in vulnerable natural areas of the coast, such as marshlands; and, secondly, flood hazard districts, which place restrictions on the development in certain flood-prone areas.

Our Assessment found great variability among counties and other local governments. On the one hand, counties such as Chatham, Camden, and Glynn, and communities such as Savannah and now Darien, have developed systems of conservation ordinances that take account of stormwater and sensitive coastal areas. On the other hand, more rural counties, such as Charlton and Long, do not appear to have any noteworthy conservation-oriented ordinances. It is therefore important to recognize that local protections for the Georgia coast vary greatly.

Interviews with government officials, academics, and environmental professionals revealed that adoption of conservation ordinances is not the only indicator of a community’s achievements in addressing coastal management issues. Rather, our interviewees consistently noted that a community’s capacity—that is, its funding, resources, manpower, and technical knowledge—is much more important. The existence of ordinances may reflect a community interest in important coastal management issues, but the community’s capacity reveals its ability to actually address those issues. Without the funding and manpower, local communities simply are not able to enforce their ordinances, no matter how comprehensive.

Moreover, without sufficient funding to support enforcement of local laws, local governments are more likely to approve changes in zoning to accommodate new developments on the assumption that the new developments will lead to increased tax revenues. Local governments sometimes fail to recognize that approving poorly planned developments can have a higher cost for a community over the long-term by degrading important natural resources.

Overall Assessment of Government Management of Coastal Resources

The overall political climate for environmental protection in Georgia is troubling. In addition to the examples discussed above relating to specific governmental agencies and the laws they oversee, it is clear that matters relating to environmental protection and conservation are not a priority for the current administration. The story relating to efforts to protect an area known as “Oak Woods” helps illustrate the way in which Governor Perdue’s administration treats environmental matters.

Oak Woods, which is a 20,000-acre tract of land in middle Georgia, is one of the most valuable nature preserves and hunting grounds in the Southeast.¹⁴⁰ Since the 1960s, Oak Woods was owned by Weyerhaeuser Company and managed by the state of Georgia. In 2004,

Weyerhaeuser announced plans to sell off significant land holdings in Georgia, including Oaky Woods. The Nature Conservancy was willing to finance most of the purchase price of \$25 million if the state was willing to commit to purchasing the tract at an unspecified future date. Governor Perdue, however, would not commit to purchasing the land, and Weyerhaeuser sold it to developers for \$32.1 million. Now, the developers plan to build as many as 17,000 houses on the property.¹⁴¹

In defending his decision not to purchase Oaky Woods, the Governor claimed that the state could not afford the purchase price and that Weyerhaeuser was unwilling to give the state sufficient time to make a decision on whether or not to buy. However, during his successful bid for reelection, it was reported that Governor Perdue purchased a 100-acre tract of land adjacent to Oaky Woods in 2003 for about \$300,000. According to newspaper reports, the Governor's 100-acre tract has already appreciated in value to approximately \$750,000 due to its proximity to the proposed development.¹⁴²

Whether Governor's Perdue's reasons for deciding not to purchase Oaky Woods are legitimate is difficult to say. No matter the reason, what is clear is that the current administration lacks a commitment to conserving Georgia's environment, which has a cascading effect over the agencies responsible for implementing environmental laws in Georgia.

This lack of commitment is also evidenced by the amount of money that Georgia contributes to environmental protection. Georgia lags behind other southeastern states and other states in the nation in its commitment to funding natural resource conservation. Even though Georgia is the biggest state east of the Mississippi, Georgia ranks below all but ten states in the total acres owned as parks, forest, or other natural areas.¹⁴³ A 2001 report ranking southeastern states ranked Georgia twelfth of sixteen states in the Southeast in percentage of land under public ownership.¹⁴⁴ Unfortunately, Georgia falls behind most states in its overall conservation funding as well.¹⁴⁵ In 2004, Georgia ranked below the average of states nationally in spending for natural resources (ranking 32nd), and parks and recreation (ranking 33rd).¹⁴⁶

Not only is Georgia behind other states in terms of funding for conservation and protection of natural resources, but recent events relating to the implementation of the CMPA, and the removal of environmentally-sensitive members from Georgia's Board of Natural Resources (DNR Board), also illustrate Georgia's current political climate.

As mentioned above, beginning in 2001, SELC brought several appeals on behalf of a number of public interest organizations, including the Center for a Sustainable Coast, Altamaha Riverkeeper, Satilla Riverkeeper, Sierra

Club, Georgia River Network, and others, challenging permits issued under the CMPA. Beginning with the first case, "*Emerald Pointe*," which involved the construction of bridges across publicly-owned marshlands to three hammocks, the public interest groups have argued that the CMPA must be interpreted broadly to evaluate all of the impacts to the marsh of the proposed project, including the discharge of stormwater runoff from developed areas. The courts have, to date, unanimously upheld the broad interpretation of the statute and rejected the state's overly narrow reading of the law, which would only require the Committee to evaluate the impacts of activities that actually take place in the marsh.

The most recent case involving the scope of review under the CMPA is the "*Cumberland Harbour*" case. In February 2006, an administrative law judge held that when a project involves construction both within and adjacent to state marshlands, the entire development and its impact on the marsh must be considered.¹⁴⁷ On remand, the judge directed the Committee to "consider all features of the upland development that may alter the marsh, including, but not limited to, stormwater management, impervious surface coverage, and buffer design and maintenance."¹⁴⁸

Instead of embracing the judicial decisions interpreting the CMPA, which give the state wide latitude to protect marshlands, the state has unsuccessfully fought against the courts' interpretation of the law. The state was unsuccessful in convincing the Georgia Court of Appeals or the Georgia Supreme Court to overturn the *Emerald Pointe* decision, and recently, after losing an appeal in the Superior Court of Fulton County, the state (and the developer) appealed the *Cumberland Harbour* decision in the Court of Appeals.

In addition to exhausting its appeals in court, the state has adopted a pattern of using "stakeholder" groups in the wake of the court decisions to undermine important judicial rulings. Typically, the stakeholder groups convened by the state are dominated by development interests with only a couple of representatives from the environmental community. For example, in addition to appealing the *Cumberland Harbour* case, Georgia's Board of Natural Resources convened a stakeholder group to make recommendations for rules to regulate waterfront development. Based on the work of the stakeholder group, the DNR Board adopted rules on important items, such as stormwater treatment, which lower the hurdles for developers. The state uses this practice of responding to litigation by forming one-sided stakeholder groups to circumvent the law.

This recent rulemaking under the CMPA also reveals why the DNR Board has become such a difficult venue to advance environmental protections. The DNR Board has eighteen members, who are appointed by the Governor.

After raising substantial concerns over the new CMPA rules, two members of the DNR Board were dismissed by the Governor in the midst of the rulemaking process. A third Board member, Sally Bethea (the only representative of the conservation community), was removed from the DNR Board in April 2007 by the Georgia Senate. The DNR Board is now left without an environmental representative and is dominated by development, agricultural, and industrial interests.

Another ongoing stakeholder group established by the Governor requires close examination. On February 11, 2005, Governor Perdue directed the Georgia Department of Community Affairs (DCA) to complete a “Coastal Comprehensive Plan” by September 30, 2007. According to the executive order establishing the master development plan, the plan is to balance the interests of “tourism, economic development, housing, transportation, environmental management and other development issues that challenge Georgia’s coast.”¹⁴⁹ A fifty-person advisory council has been appointed to steer the development of the plan. Out of the fifty members selected, only two are from the environmental community. Given the current political climate and the manner in which the state has recently used stakeholder processes, this stakeholder undertaking must be monitored closely to ensure that the plan is not used to facilitate sprawl in the region.

Environmental Groups

The environmental groups protecting the coast are a diverse collection of organizations, which include, but are not limited to, Riverkeepers, coastal advocacy organizations, land trusts, and SELC. Despite the energy these organizations bring to their respective missions, efforts to protect the coast are being overwhelmed by rapid development. If the character and the beauty of the Georgia coast are to be preserved, the organizations working in coastal Georgia are going to need additional help.

ALTAMAHA RIVERKEEPER

Formed in 1999, the Altamaha Riverkeeper was the first Riverkeeper organization on the Georgia coast. The organization is based in Darien, Georgia, and covers the length of the Altamaha River as well as its tributaries, the Ocmulgee, the Oconee, and the Ohoopie. The Altamaha Riverkeeper is the largest of Georgia’s coastal Riverkeepers, with five employees, over 2000 members, and expenses totaling \$238,812 in 2005.

Deborah Sheppard has been the executive director of the Altamaha Riverkeeper since 1999. The “Riverkeeper” is James Holland, a former blue crab fisherman who set out to address the sources of water pollution that he believed were threatening Georgia’s commercial fisheries and his way of life. As an environmental activist, he has developed a strong following throughout the state. Recently, the Altamaha Riverkeeper hired Billie Jo Parker

as its “Coastkeeper” in order to increase the organization’s focus on protecting coastal resources within the lower Altamaha watershed. Her duties include investigating pollution problems in the watershed’s coastal zone and working with state and local regulatory agencies to enforce water quality laws.

CAMDEN COUNTY LAND TRUST

The Camden County Land Trust is an all-volunteer land trust that works to preserve natural areas, scenic lands, and historic and archaeological sites in the Camden County area, primarily through conservation easements.¹⁵⁰ The CCLT is partnering with the Satilla Riverkeeper to preserve a corridor of land along the Satilla and its tributaries. Another project is the protection of Grover Island, which contains over 400 acres of high ground and is located just four miles from Cumberland Island National Seashore.

CENTER FOR A SUSTAINABLE COAST

The Center for a Sustainable Coast, which was founded in 1997, is located on St. Simons Island. The Center’s mission is to promote the conservation and sustainable use of the Georgia coastal region’s environmental, economic, social, and cultural resources. The Center has about 350 members and one full-time employee—David Kyler, the Center’s executive director. In 2004, the Center had expenses totaling \$60,922.

Some in the Georgia environmental community have referred to the Center as a “think and do tank” because the Center not only provides critical thinking about coastal issues but also engages in legal and policy actions to achieve important policy goals. One of the Center’s primary goals is to enhance the region’s capacity to provide better environmental protection through collaboration. In working to achieve this goal, the Center has played a major role in helping to establish three other coastal environmental non-profits, including Altamaha Riverkeeper, McIntosh Sustainable Environment & Economic Development, and Satilla Riverkeeper.

THE CONSERVATION FUND

The Conservation Fund is a national organization, which describes itself as “dedicated to protecting America’s most important landscapes and waterways for future generations.”¹⁵¹ Since its founding in 1985, the Fund has helped its partners safeguard wildlife habitat, working farms and forests, community greenspace, and historic sites totaling more than 65,000 acres in Georgia. The Georgia office is located outside Atlanta and has four full-time staff people.

THE GEORGIA CONSERVANCY

Founded forty years ago, the Georgia Conservancy (GC) collaborates, advocates, and educates to protect Georgia’s natural environment. Jim Stokes is the GC President, and there are fifteen other staff positions in the Atlanta office.

In 2005, the GC had expenses totaling \$1,716,568. GC's coastal office in Savannah, which is thirty-five years old, is headed by Patty McIntosh. There are two other staff members in the coastal office. GC has played a major role in designating Cumberland Island as a National Seashore, protecting Georgia's vulnerable marsh hammocks, and, very recently, saving the south end of Jekyll Island. GC was among the groups initiating the coastal committee of the Georgia Water Coalition.¹⁵²

GC has adopted a Coastal Vision and Policy as well as a Coastal Strategy.¹⁵³ The two key objectives of GC's Coastal Strategy are to preserve critical coastal lands and to ensure sustainable development on lands most suitable for accommodating growth. Working with partner organizations, mapping of critical lands, establishing a regional land conservation network, promoting sustainable growth patterns and development practices, and mobilizing a grassroots network are essential components of the strategy's action plan.

GEORGIA CONSERVATION VOTERS

Georgia Conservation Voters (GCV), based in Atlanta, is led by executive director Jason Rooks. It was founded in 2000 and has three full-time staff members. GCV defines its goals as: advocating in the legislature and media, helping to elect conservation-minded leaders, and holding those elected officials accountable for their work to protect and restore Georgia's environment. At the end of every legislative session, GCV issues its Environmental Scorecard, which publicizes the key environmental votes of all state legislators.

THE GEORGIA LAND TRUST

The Georgia Land Trust's (GLT) coastal office in Savannah was formed in 1994 as the Coastal Georgia Land Trust. In 2003, it was merged into the Georgia Land Trust, which is itself a component of the Chattowah (a combination of the Chattahoochee and Etowah Rivers) Open Land Trust (COLT). COLT was also formed in 1994 by North Georgia citizens concerned with the loss of open and working lands and encroachment of sprawling development on the area from the Atlanta and Chattanooga metro areas. Now affiliated with the Alabama Land Trust and the Chattahoochee Valley Land Trust, the organization has over 60,000 acres under easements that it provides direct stewardship to and has helped protect over 70,000 acres in total. About 4,500 of those acres are in coastal Georgia. Frank McIntosh is the director of GLT's East Georgia office located in Savannah.

GEORGIA RIVER NETWORK

Georgia River Network (GRN) is a statewide organization dedicated to protecting and preserving Georgia's rivers and streams. GRN aims to help people and groups protect and restore rivers and watersheds by building local watershed group capacity and by providing statewide policy

analysis. Currently, GRN has three staff members. April Ingle is GRN's executive director and has served in that capacity since 2003. GRN also has a director of administration and outreach and a watershed support coordinator. GRN works "to ensure a clean water legacy by engaging and empowering Georgians to protect and restore our rivers from the mountains to the coast."¹⁵⁴

GEORGIA WATER COALITION

The Georgia Water Coalition (GWC) was formed in 2002 and works to protect water resources throughout Georgia. Originally comprised of SELC, the Georgia Conservancy, the Georgia Wildlife Federation, and Upper Chattahoochee Riverkeeper, GWC now consists of over 145 civic, recreational, evangelical, business, and conservation organizations. Since the group's inception, the four founding members have continued to manage GWC's efforts with the help of other groups such as the Georgia River Network and Georgia Conservation Voters.

Recently, GWC formed a coastal committee to address issues of special concern to coastal Georgia. As a result of working together in the GWC coastal committee, the participating groups developed the "Buy Dry Land" campaign. Buy Dry Land is a public education campaign to make homebuyers aware of the problems of building in wetlands and floodplains, such as flooding, mold, and allergies. This type of campaign provides an opportunity to discourage construction in wetlands and floodplains for common-sense reasons that have the potential of gaining traction with a wider audience than traditional environmental messages.

GEORGIA WILDLIFE FEDERATION

Formed in 1936, the Georgia Wildlife Federation (GWF) is the oldest and largest conservation organization in Georgia with approximately 50,000 members, of which 40,000 are recognized as hunters and anglers. GWF has long played an important role in advocating for conservation in Georgia, particularly with regard to wildlife and habitat. GWF's main offices are at its Alcovy Conservation Center in Covington, Georgia. GWF is also in the process of opening two more locations—the Mill Creek Nature Center in Buford and the Wharton Conservation Center at the headwaters of the Tallulah River. At this time, GWF has nineteen staff members.

One of GWF's staff members—Sarah Barmeyer, GWF's Water Issues Coordinator—recently moved to Savannah. Since then, GWF has become more active on coastal policy issues, including the recent rulemaking under the Coastal Marshlands Protection Act. GWF also has hired the former director of Georgia's Wildlife Resources Division to establish the "Camo Coalition," a statewide network of sportsmen, which currently has approximately 20,000 members.

GOVERNMENT AGENCIES AND ENVIRONMENTAL GROUPS

GLYNN ENVIRONMENTAL COALITION

The Glynn Environmental Coalition (GEC) is an organization based in Brunswick, Georgia, which was created to address hazardous waste contamination issues in Glynn County. Glynn County has numerous hazardous waste sites and polluting industries. Four of its hazardous waste sites are Superfund sites, which are considered the most hazardous sites in the nation and are national priorities for cleanup. Since many of these sites and industries are adjacent to residential neighborhoods, GEC's focus also includes public health and the protection of affected neighborhoods. In this respect, GEC works to raise community awareness of health risks associated with pollution and toxic waste sites and to preserve the public's right to information and input into the decisions that affect their lives. GEC has one employee, project manager Daniel Parshley. Total expenses for GEC were \$101,081 in 2005.

OGEECHEE-CANOOCHEE RIVERKEEPER

Ogeechee-Canoochee Riverkeeper (OCRK) was formed in 2005 from the merger of Friends of the Ogeechee River and the Canoochee Riverkeeper. OCRK is based in Statesboro and covers the length of the Ogeechee and Canoochee Rivers, as well as coastal rivers and streams in the Ogeechee Coastal watershed, such as the Vernon, Skidaway, Moon, Forest, Little Ogeechee, and Jerico Rivers. Together, the two rivers drain a 5,540 square-mile basin that includes the cities of Statesboro and Savannah. OCRK has two employees, over 800 members, and total expenses of \$102,245 in 2005. Chandra Brown, a native of Statesboro, is OCRK's Riverkeeper and managing director. OCRK's mission is to protect, preserve and improve the water quality of the Ogeechee and Canoochee River basins. To this end, OCRK "strives to amplify the voices of concerned citizens and to strengthen their efforts to protect their rivers and their communities."¹⁵⁵

THE NATURE CONSERVANCY

The Nature Conservancy (TNC) has worked in Georgia since 1969, with one of the first land conservation projects located in the Altamaha Sound. TNC's Georgia Chapter, consisting of 45 staff members, is based in Atlanta. Two coastal field offices, located in Darien and Savannah, house nine staff member with emphasis on the coast. Using a science-based approach, TNC works to prioritize and implement land and water conservation efforts. Recent TNC international assessments have identified Georgia's estuaries to be a global conservation priority. Successful conservation of these areas will include both land and water based activities. To date, TNC has worked with private, public, and corporate landowners and conservation partners to permanently protect more than 258,000 acres of land in Georgia. Acquired areas include portions of the lower Altamaha and Ogeechee rivers, barrier islands, marsh hammocks, and marshlands.

Though efforts along the coast have been underway since the late 1960s, The Nature Conservancy formally created its Altamaha River project in 1991. Since that time, more than 79,000 acres in the Altamaha River watershed have been preserved. In addition to its work on the Altamaha, there is an emphasis on the freshwater component of the Savannah River—primarily the restoration of ecological flows that directly impact Georgia's estuaries in terms of both freshwater input and connectivity for migrating species such as sturgeon

SAPELO FOUNDATION

For years, the Sapelo Foundation and its executive director, Phyllis Bowen, have played a crucial role in coastal Georgia by providing vital support to numerous conservation organizations. In addition, the Sapelo Foundation has played a key and active role in the conservation community and worked to facilitate collaboration through the establishment of the the Georgia Water Coalition and the coastal committee of the GWC.¹⁵⁶

The Sapelo Foundation was established in 1953 by Richard J. Reynolds Jr. as a research affiliate of the University of Georgia. The Foundation served as the vehicle for the development and operation of the Sapelo Island Marine Institute until 1976, when the University of Georgia took charge, and the foundation turned towards funding charitable activities. Through its grant-making program, the Sapelo Foundation is committed to promoting positive social change and natural resources protection for the benefit of all Georgians.

SATILLA RIVERKEEPER

Satilla Riverkeeper was founded in 2004 as a result of a collaboration between the Altamaha Riverkeeper, Center for a Sustainable Coast, Georgia Chapter of the Sierra Club, and an organization known as Save Our Satilla. Satilla Riverkeeper's goals are three-fold: (1) bring activities within the Satilla basin into compliance with applicable laws and regulations; (2) build a detailed base of knowledge of the watershed's ecological system; and (3) raise public awareness regarding the river and the threats to its health. Currently, the Satilla Riverkeeper has two and one-half employees, 626 members, and total expenses of \$92,125 in 2005. Gordon Rogers, a former biologist with the Coastal Resources Division, is the organization's executive director and Riverkeeper.

SAVANNAH RIVERKEEPER

The Savannah Riverkeeper (SRK) was founded in 2003, modeled on those Riverkeeper organizations already established for the Upper Chattahoochee, the Altamaha, and the Catawba Rivers. SRK is based in Augusta, Georgia. Its mission is "[t]o protect the water quality of the Savannah River and the integrity of its watershed, and to promote an enlightened stewardship of this unique heritage."¹⁵⁷ The Savannah River is approximately 300 miles long, flowing

from its start in Lake Hartwell, South Carolina, to its drainage into the Atlantic Ocean near Savannah. SRK's activities to protect the Savannah River include water quality monitoring, public education, cleanups, and advocacy. SRK currently has 110 members, total expenses of \$46,030 in 2004, and one employee—Frank Carl, its executive director and Riverkeeper.

SIERRA CLUB

The Sierra Club is a national environmental organization with a Georgia Chapter located in Atlanta. Patty Durand is the State Director of the Chapter and has a small staff in the Atlanta office. The Chapter has several volunteer-staffed conservation groups located in various places around the state. There is a coastal group in Savannah, and there has been a conservation group on St. Simons Island. There is also a Savannah River Group in Augusta. These groups have been instrumental in the creation of a number of Riverkeeper and Streamwatch organizations in the coastal area. The Chapter has a contract lobbyist who works at the General Assembly representing a number of coastal organizations, and who represents the Club in the Georgia Water Coalition. The Sierra Club was among the groups initiating the coastal committee of the Georgia Water Coalition.

THE SOUTHERN ALLIANCE FOR CLEAN ENERGY

The Southern Alliance for Clean Energy (SACE) is a non-profit organization that promotes responsible energy choices to address global warming problems and achieve cleaner and safer communities in the Southeast.¹⁵⁸ SACE advocates for clean air, clean water, and cleaner, safer energy technologies. SACE's projects include green power, global warming, energy efficiency, nuclear power, and other issues. SACE has two offices in Georgia, one in Atlanta and one in Savannah.

SOUTHERN ENVIRONMENTAL LAW CENTER

The Southern Environmental Law Center has been defending the health and environment of the Southeast for over twenty years. With offices across the region (core offices in Atlanta, GA; Chapel Hill, NC; and Charlottesville, VA; and satellite offices in Charleston, SC; Washington, DC; Sewanee, TN; and Asheville, NC), SELC is the only organization using law and policy expertise exclusively to protect the South's natural resources. SELC works in Congress and state legislatures to inform environmental law; in regulatory agencies to implement environmental laws and policies; and in the courts, when necessary, to stop the worst abuses of southern resources and set precedents to ensure their lasting protection. SELC works collaboratively with over 100 national, state, and local groups to enhance their efficacy and achieve common conservation goals. SELC has sixty-eight staff members and an annual budget of approximately \$8 million. It currently spends approximately \$500,000-\$600,000 on coastal conservation work in Georgia annually.

ST. SIMONS LAND TRUST

The St. Simons Land Trust (SSLT) is dedicated to preserving the natural and scenic character of St. Simons Island, as well as enhancing the quality of life of the island community for present and future generations.¹⁵⁹ Since the SSLT began in 2000, they have preserved seventy-two acres of property on St. Simons. This has been accomplished by working with landowners and the local government. The SSLT has a membership of more than 3,000 individuals. The SSLT has three staff members.

TRUST FOR PUBLIC LAND

Founded in 1972, the Trust for Public Land (TPL) is a national organization that maintains an office in Atlanta. TPL's stated mission is to "conserve land for people to enjoy as parks, gardens, and other natural places, ensuring livable communities for generations to come."¹⁶⁰ It has worked to accomplish this mission in Georgia through its Atlanta BeltLine, Chattahoochee Riverway, and Parks for People programs. Although TPL historically has not focused its efforts on coastal Georgia, TPL has worked in the coastal area with TNC as part of its Greenprints program to help the U.S. Department of Defense manage its buffer between Fort Stewart and encroaching development.

Summary of Environmental Groups

As mentioned above, although the environmental community is putting up an inspired fight to protect the coast, it is outgunned by developers. Driven by profit motives, developers have a strong self-interest to expend significant resources to hire technical and legal experts to achieve their goals, while conservation organizations have very limited budgets to address development proposals and other issues. In addition, the conservation groups have to dedicate an inordinate amount of time to prodding the government agencies to implement and enforce the law, which is often fruitless due to the current political climate and lack of adequate government funding. Without question, the environmental groups working on the coast need reinforcements.

The rising tide of uncontrolled development is already eroding the character and beauty of the Georgia coast. Without substantial help, the environmental groups will not be able to adequately protect the resources that make the coast special. Although it is challenging to determine what it will take to bolster present conservation efforts in coastal Georgia, it is instructive to take a close look at the environmental groups protecting the South and North Carolina coasts. In the "Potential Models" section below, we examine both the Coastal Conservation League in South Carolina and the North Carolina Coastal Federation. Examining these organizations provides a framework for evaluating the resources that are needed to protect the Georgia coast and the types of initiatives that should be undertaken.

POTENTIAL MODELS



BILL LEA

Coastal Conservation League

The Coastal Conservation League (Conservation League), founded in 1989, is a non-profit conservation organization headquartered in Charleston, South Carolina. At the time of its founding, development pressures had reached unprecedented levels in the Lowcountry of South Carolina. In the Charleston region, population had increased by 40 percent in the two previous decades.¹⁶¹ In that same timeframe, developed lands in coastal South Carolina, including strip malls, subdivisions, and office parks, grew by 240 percent—six times as fast as population growth. This unchecked growth was threatening to permanently transform coastal South Carolina's rural landscape. Polluted stormwater associated with sprawling growth led to the closures of shellfish beds; rural landscapes, including traditional family farms and communities, were fragmented by strip malls; and forests were clear cut and replaced by new, gated subdivisions.¹⁶² It was against this backdrop that the Conservation League was founded.

THE ACE BASIN

In order to understand the context within which the Conservation League was established and the factors that led it to become the most effective environmental organization in South Carolina, it is important to understand the effort to protect the Ashepoo-Combahee-Edisto basin (ACE Basin).

The ACE Basin is one of the largest undeveloped estuarine wetland complexes on the East Coast, comprising about 350,000 acres.¹⁶³ The basin is located about forty-five miles south of Charleston, where the Ashepoo, Combahee, and Edisto Rivers drain into St. Helena Sound.¹⁶⁴ Historically, landowners in the basin were engaged in cotton, rice, timber, and seafood production.¹⁶⁵ When the rice and timber industries declined in the early 1900s, many of the plantations that were used for rice and timber cultivation were turned into hunting preserves. These plantations, including the waters that were impounded to cultivate rice, were maintained by their owners, many of whom were avid sportsmen and sought to attract migratory waterfowl, deer, and other game animals to their properties for hunting.¹⁶⁶

With development sprawling in other areas of the Lowcountry in the mid-1980s, landowners within the ACE Basin began to take steps in the late 1980s to guard against the effects of unchecked growth and to maintain the natural and rural character of the ACE Basin. A proposal to construct a large marina and subdivision in the heart of the basin on the Edisto River further galvanized protection efforts, and the individuals that teamed up to defeat the proposal, including Dana Beach and others, would become key figures in the development of an effective conservation movement in the Lowcountry of South Carolina.

In the face of surrounding growth pressures and the development proposal on the Edisto River, a number of respected landowners decided to permanently protect their properties in the basin. The families that owned plantations within the ACE Basin had owned these tracts of land for a long time and had relationships with other landowners throughout the area. These relationships proved important, as a group of small landowners began reaching out to others about the importance of protecting their lands permanently through the granting of conservation easements. Moreover, the fact that the first group of landowners to protect their lands was widely respected within the community influenced other owners. Landowners who donated easements did not stop there; they became salesmen, in effect, lobbying their neighbors on the virtues of protecting their lands for future generations. Landowners that had not yet protected their holdings became subject to pressure from their friends who had already donated easements.

It was this same group of landowners that helped launch a coalition known as the ACE Basin Task Force in 1988. The Task Force included Ducks Unlimited, The Nature Conservancy, the South Carolina Department of Natural Resources, the U.S. Fish and Wildlife Service, and private landowners. Later, other entities joined, including Westvaco Corporation, the Lowcountry Open Land Trust, and Nemours Wildlife Foundation. These groups not only were successful in convincing private landowners to permanently protect their properties, but they were also able to secure significant amounts of federal funding through the North American Wetlands Conservation Act, the National Estuarine Research Reserve program, Forest Legacy programs, and other federal sources, such as the Clean Water Act's mitigation programs, to protect and manage lands in the basin. At this time, almost half of the 350,000-acre ACE Basin is owned by governmental or non-governmental organizations or is under conservation easements.¹⁶⁷ The South Carolina Department of Natural Resources manages the Donnelly and Bear Island Wildlife Management Areas as well as the ACE Basin National Estuarine Research Reserve. The U.S. Fish and Wildlife Service manages the ACE Basin National Wildlife Refuge. Together, these areas provide public access to some 50,000 acres.¹⁶⁸

The willingness of influential, well respected landowners to step forward and demonstrate leadership by permanently protecting their properties was a key factor leading to the successful protection of the ACE Basin. These individuals that helped lead efforts to protect the basin consider themselves to be conservationists in the Teddy Roosevelt tradition. They have a strong sense of place, considering themselves to be citizens of the Lowcountry, where outdoor activities, such as hunting and fishing, are part of the fabric of the culture. In their view, squandering the rural

POTENTIAL MODELS

landscapes of the Lowcountry would be immoral. They grew up hunting and fishing in large, open fields, and they want their children to have those same opportunities. They have no interest in seeing their holdings degraded by encroaching sprawl.

KEY INGREDIENTS TO EFFECTIVE CONSERVATION IN THE SOUTH CAROLINA LOWCOUNTRY

This was the setting in which Dana Beach decided to establish the Conservation League in 1989. During its first year of operation, the Conservation League had one office, three employees, and an annual budget of \$90,000. Since its founding, the Conservation League has grown into the most significant environmental organization in South Carolina, with four offices (Georgetown, Charleston, Beaufort, and Columbia) and an annual operating budget in 2007 of approximately \$2.7 million. Currently, the Conservation League has thirty-two funded staff positions, which include office directors; program directors to lead efforts in key areas, such as land and communities, clean water, forestry and wildlife, legislative, and the recently added climate change initiative; and project managers to oversee specific assignments. The staff is comprised of a diverse mix of people ranging from senior level policy advocates, including a former Chair of the Board of Commissioners of the South Carolina Department of Health and Environmental Control, to a core of recent college graduates.

As an advocacy organization, the Conservation League uses the full range of tools to accomplish its mission of protecting the Lowcountry of South Carolina. On one end of the spectrum, the Conservation League works in partnerships with land trusts to permanently protect important tracts of land, and, on the other end, the Conservation League is willing to take strong positions and to engage in legal advocacy to ensure proper enforcement of the law. The Conservation League's adeptness at utilizing a wide variety of advocacy tools has been, and continues to be, central to its success.

In addition to its willingness to do whatever it takes to get the job done, there are a number of factors—similar to those key ingredients that led to the protection of the ACE Basin—which help to further illustrate why the Conservation League is so effective. These factors are as follows: (1) a landscape-based approach to conservation, which effectively capitalizes on land-ownership patterns in coastal South Carolina; (2) key roles filled by participating organizations; (3) effective collaboration among key partners; (4) strong leadership, including the ability to be entrepreneurial; (5) sufficient funding to carry out the mission; and (6) the ability to communicate effectively with the public.

Landscape-Based Approach

The Conservation League and its partners have a landscape-based approach to conservation in coastal South

Carolina. From the Conservation League's inception, Dana Beach recognized the opportunity to work with influential land owners in coastal South Carolina that have a strong sense of place and an interest in hunting and permanently protecting their lands. At the time of the Conservation League's founding in 1989, there were a number of plantations and other large blocks of land not only in the ACE Basin, but throughout South Carolina's coastal plain. From the beginning, the Conservation League has grounded its approach to conservation by focusing on land and the opportunity to permanently protect tracts of ecologically valuable property. Over time, this approach has evolved into a very effective, vision-driven strategy that employs multiple tools and players.

The key to the Conservation League's approach is the creation of an eco-vision for important regions on the coast. In order to devise this vision, the Conservation League, working with its partners, has used geographic information systems and other means to gather data about the landscape in coastal South Carolina. This data includes land ownership information, protected areas, and the location of important natural resources, such as streams, wetlands, and threatened and endangered wildlife. Once a detailed understanding of the landscape is acquired, an eco-vision for the area's future is depicted. Such a vision includes designating areas in which development is not appropriate and other areas in which development makes sense. The Conservation League seeks not only to keep poorly planned development out of certain areas, but also seeks to pull development (or re-development) into those areas where it is needed. Attracting growth to the right areas is a win-win proposition because not only does that development reinvigorate downtrodden urban areas, but, in theory, attracting development to urban areas alleviates the pressure to develop in rural areas where future development should be limited. The Conservation League relies on these eco-vision maps with its partners to help develop organizational goals and to guide collective decision-making about where to invest institutional resources to attain the desired vision.

Key Roles Must Be Filled

Once the Conservation League and their partners develop a consensus position on the landscape for a particular region, critical roles must be filled to achieve the vision. In coastal South Carolina, certain roles have been fundamental to getting the job done. These include advocacy, legal, political, and land conservation.

The Conservation League fills the role of lead advocate in the region. As the lead advocacy organization, the Conservation League identifies issues of importance, articulates why these issues are significant, and charts an effective strategy for resolving issues in a sustainable manner. By having other key roles filled by effective partners, the Conservation League can devise the most effective strategy

for addressing a particular problem. For example, if the Conservation League determines that protecting an important wetland complex from a new development is important, the Conservation League might decide that the most effective strategy is to use legal advocacy to challenge an improperly granted wetlands permit. In another situation, it may be more effective to use a relationship with an influential ally to pressure an agency into making an environmentally responsible decision. With key legal, political, and land conservation roles filled, the Conservation League as the key advocate and quarterback in the region helps determine the best path to pursue.

The Conservation League must often employ legal tools to meet its objectives. The Conservation League has worked with SELC, the South Carolina Environmental Law Project, and local lawyers to provide needed legal capacity over the years. By covering the entire coast, the Conservation League has members throughout the area, which helps the organization establish standing to challenge ill-conceived projects no matter where in the coastal region they are proposed. Given the Conservation League's comprehensive coverage of the coastal area, SELC has represented the Conservation League on numerous projects throughout the region, including the construction of I-73 through the Francis Marion National Forest, the construction of the 701 Connector through the Waccamaw National Wildlife Refuge and the historic Bucksville Community, and the Carolina Bays Parkway, to name a few.

One example that captures how the combination of advocacy and legal work can achieve important results is the story behind the successful effort to protect Sandy Island, South Carolina. Sandy Island is the largest undeveloped freshwater island along the East Coast and is situated between the Waccamaw and Great Pee Dee Rivers. This area, which is known as the "Waccamaw Neck," is located about fifteen miles southwest of Myrtle Beach, and is one of the fastest growing areas in the nation.¹⁶⁹ Sandy Island is comprised of valuable cypress-dominant wetlands, maritime forests, and stands of longleaf pine. The island is also home to a Gullah community that has lived there since the end of the Civil War. Given the intense development pressure in this area of coastal South Carolina, the island would ultimately have been developed, and in 1994, the owners of Sandy Island proposed to construct a bridge from the mainland to the island.

The Conservation League understood the ecological value of Sandy Island and the threat posed by the construction of a bridge. The Conservation League moved quickly to establish relationships with local leaders and began working with SELC to devise a strategy for challenging the bridge construction project. Although the owners of the island claimed that the bridge was not intended to facilitate development of the island, the Conservation

League and SELC, working together, uncovered a proposed development plan for the island that told them otherwise. Understanding that the South Carolina Department of Transportation (SCDOT) had plans to construct new highways through coastal South Carolina that would have inevitably destroyed large areas of wetlands, the Conservation League and SELC knew that SCDOT would have to come up with a wetlands mitigation plan under the Clean Water Act to offset impacts to wetlands. The Conservation League and SELC convinced SCDOT to work with other agencies and non-profit groups to satisfy its mitigation requirements for constructing new highway projects, such as the Conway Bypass and the Carolina Bays Parkway, by purchasing a wetland mitigation bank to permanently protect 16,825 acres, consisting of 9,164 acres on Sandy Island and 7,661 acres on three adjoining tracts.¹⁷⁰ The total cost of purchasing the tracts was \$12.9 million.¹⁷¹ By combining advocacy and legal roles, the Conservation League and SELC were able to permanently protect more than 90 percent of the island, which is now owned as a nature preserve by the state and can be accessed by the public.

Developing political power has also been essential for the Conservation League. The Conservation League has helped foster a powerful land conservation ethic throughout the state, which has made the Conservation League and its allies very influential politically. The Conservation League has developed this following by establishing relationships with influential leaders in South Carolina who combine an appreciation for urban communities like Charleston, where support for historic preservation is strong, with the love of the land that so many plantation owners throughout the Lowcountry seem to share. With influential Charlestonians on board, the Conservation League has been able to make inroads with conservative leaders in South Carolina, like State Senator Chip Campsen. Even Governor Sanford, a plantation owner himself, has a strong conservation ethic. The Conservation League and its allies have made conservation almost trendy.

The key to building this political influence has been Dana Beach, who has been able to develop important relationships. Having worked as a special assistant for the environment to Congressman Arthur Ravenel, Beach had already developed important connections with politically influential people throughout the state, including state and federal officials. In addition to cultivating important friends, the Conservation League is the only organization on the coast with a full-time lobbyist. The Conservation League has had a lobbyist on staff since 1994, and recently the Conservation League helped to create the Conservation Voters of South Carolina to bolster political influence of conservationists on a statewide level. The Conservation League has also hired a Grassroots

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Coordinator to build a 20,000-member network across the state that will have the knowledge, tools, and critical mass to effect meaningful change in South Carolina.¹⁷² Last year, 27,000 messages were sent from this network to legislators and other key policy-makers.

In addition to legal and political roles, having a strong land conservation partner has been fundamental to effective conservation in South Carolina. Over the years, the Conservation League has worked closely with land trust organizations, such as Ducks Unlimited, The Nature Conservancy, the Trust for Public Lands, and the Lowcountry Open Land Trust, to permanently protect ecologically valuable lands. Effective collaboration between advocacy and land trust groups has not only resulted in permanent protection of key lands in South Carolina, but this dynamic has also been effective in accomplishing other land protection strategies as well. For example, the Conservation League has worked with its land trust partners to promote policies to incentivize land conservation agreements and public land purchases. Examples include the effort to ensure accountability and efficiency in distributing funds from a half-cent sales tax in Charleston County to fund land acquisition.

As the Conservation League has evolved over time, it has continued to develop the sophistication and breadth of the land protection strategies that it pursues with its partners. For example, the Conservation League now has the capacity to immerse itself in local planning issues in fast-growing counties, such as Charleston, Dorchester, and Berkeley Counties. After identifying areas of concern, the Conservation League intentionally and methodically begins to build a network in these communities by consistently showing up at local planning meetings, making friends with local government staff, and providing sound analysis of local development proposals. The employee responsible for working in a given area does not just show up for the controversial vote on a particular zoning decision; they consistently attend meetings to become a fixture in the local planning process.

By comprehensively engaging in local planning issues in counties of concern, the Conservation League has increased its ability to shape growth by successfully guiding public investments—like water and sewer projects—away from important rural areas to areas that can support new development. In Dorchester County, the Conservation League recently defeated a proposal to extend a sewer line by twenty-seven miles through largely undeveloped tracts of land to the northern portion of the county, which would have fueled sprawling development in this rural area.

In sum, the effectiveness of conservation efforts in South Carolina can be explained, in part, by the fact that key advocacy, legal, political, and land conservation roles

have been filled in a meaningful way. As the lead advocate, the Conservation League has been adept at knowing which tool to use in which situation.

Collaboration

In addition to making sure that the necessary roles are fulfilled, effective collaboration with key partners has been instrumental to the Conservation League's success. As discussed previously, the Conservation League works very closely with the land trusts. As an advocacy organization, the Conservation League can take strong positions on development projects that are proposed for valuable lands. If the proposed area to be developed is located in an important area, a land trust, which typically does not advocate for or against particular development proposals, can offer an alternate, more protective path for a developer, which may be more attractive than an adversarial regulatory process. Although the Conservation League and the land trusts do not publicly appear to be coordinating on specific development projects, often times they are collaborating closely behind the scenes to focus on particular areas of interest.

Recently, on behalf of the Conservation League, SELC submitted a letter to the Mayor of Awendaw, South Carolina, relating to the proposed development of four tracts of land that are adjacent to the Francis Marion National Forest and the Cape Romain National Wildlife Refuge. Both Francis Marion and Cape Romain are important natural resources, which include habitat for waterfowl, federally protected species, shellfish beds, wetlands, and longleaf pine forests, and development on adjacent lands poses a threat to these resources. As an advocate, the Conservation League, working with lawyers at SELC, can take an aggressive position on development proposals, such as those in Awendaw, and work with a land trust behind the scenes to devise an effective strategy to protect sensitive areas. While the Conservation League takes a public position in opposition to the development proposals and can threaten legal action to address projects that would violate the law, the land trust does not publicly advocate against the project. Instead, a land trust can approach the developer and present different, less damaging development options to the developer. Sometimes, by coordinating their approaches, the Conservation League and a partner land trust can persuade the developer to pursue a far less damaging project. By coordinating on projects and working in tandem, the Conservation League and the land trust community can be much more effective than if they were working on these projects by themselves.

Close collaboration among groups working in South Carolina has not only led to positive results on the ground, but it has also led to more funding for the groups working in the region. In particular, foundations have been interested in the benefits to be derived from coordi-

nated work and, as a result, have funded collaborating groups.

Entrepreneurial Leadership

By all accounts, the Conservation League has led the effort to protect the Lowcountry of South Carolina, and the organization has been a tremendous success story. Of all of the key ingredients described in this section, the most important of them all might be Dana Beach. Since the League's inception, Beach has been a strong and effective leader. Prior to founding the Conservation League, Beach worked in Congress and on Wall Street. His prior experiences and leadership abilities have given the Conservation League a vision-driven, entrepreneurial nature, which has served the Conservation League and the environmental community well over the years. Beach has built key relationships with influential people, effectively communicated the goals of the organization, and has guided the evolution of the Conservation League from a small, grassroots organization into the most powerful environmental organization in South Carolina. Without his leadership, it is fair to say that the Conservation League and many of its accomplishments would never have come to pass.

Funding

As previously noted, in its first year of operation, the Conservation League had a budget of \$90,000 and a staff of three people. Today, the Conservation League has an annual operating budget of approximately \$2.7 million. Part of the reason for this growth is that the Conservation League had enough seed money at the outset to give the organization a chance to be successful. When it was launched, the overwhelming amount of the Conservation League's funding came from national foundations that were convinced by Beach and others that the natural resources in coastal South Carolina were of national importance. With seed money, Beach was able to execute his vision and, in a short period of time, successfully develop a critical mass to build the organization into a powerful advocate. Continuing to do good work over time and achieving positive results throughout the region enabled the Conservation League to continue growing into the organization it is today.

Obviously, there are many benefits to be derived from successful fundraising. Effective fundraising, for example, has enabled the Conservation League to build a significant staff over time and to hire, when needed, a cadre of outside experts to amplify its advocacy work. Effective advocacy often requires working with technical experts to evaluate complicated development proposals, including ports, highways, and other large projects. By having the financial resources to hire experts such as planners, engineers, scientists, transportation experts, and economists, the Conservation League is able to deepen the sophistication

of its advocacy and, by doing so, achieve better results and influence in the region.

Communications

The Conservation League has also found that developing an engaged media to cover and explain important issues in the press is critical. Over the years, the Conservation League has received very favorable coverage in local newspapers, including the *Post and Courier* in Charleston and *The State* in Columbia. Over time, the Conservation League has discovered how important messaging is to their work and to convincing people of the correctness of their positions. Once the public supports its positions, the Conservation League's influence grows exponentially. To help in the fight against a recently proposed coal-fired power plant, the Conservation League and its allies have contracted with an outside firm to help develop messages opposing the plant. In fact, recently due to the importance of having strong messaging capabilities, the Conservation League and its partners, including The Nature Conservancy, SELC, and others, have hired a communications consultant to help develop a plan to increase the groups' effectiveness to communicate about conservation issues.

South Carolina is similar to Georgia in that development pressures are intense in the coastal zone. In both instances, this pressure is fueled by the fact that timber companies own large swaths of lands and have divested holdings and will likely continue doing so in the future. In May 2007, the MeadWestvaco Corporation announced that it intended to sell a 72,000-acre tract next to the ACE Basin.¹⁷³ Five years ago, MeadWestvaco would simply have sold the land to the highest bidder, as timber companies are currently doing in Georgia. In recent times, however, companies have been harshly criticized by important people in South Carolina for this practice. By championing a strong conservation ethic and developing political clout, the Conservation League and its partners have helped change the political dynamic in South Carolina. Due to this pressure, instead of dumping the property on the open market, MeadWestvaco has announced its plans to hold public meetings to help develop a master plan for the area it plans to sell.¹⁷⁴ Although this process certainly does not guarantee that the property will be developed in a sustainable way, it does present an opportunity for an environmentally friendly design and also reveals the type of influence that the conservation community in coastal South Carolina has over even the largest corporate landowners.

POTENTIAL MODELS



Duckweed, bald cypress, and water tupelos

North Carolina Coastal Federation

While the Coastal Conservation League focuses its conservation strategies on land protection, the North Carolina Coastal Federation (Coastal Federation) focuses on water protection. As discussed below, the Coastal Federation was founded to protect the North Carolina coast, which it achieves through its actions to protect water quality in North Carolina's estuaries and the commercial and recreational fisheries that the estuaries sustain.

The Coastal Federation was founded in 1982 by Todd Miller, a native coastal North Carolinian who saw the need to stem the tide of development. At the time, there were a number of small grassroots environmental and community groups scattered across North Carolina's twenty coastal counties. Most of these groups were not well-established and did not have paid staff. According to Miller, there was a need for a coast-wide group that could address coastal policy statewide and facilitate work on local issues.¹⁷⁵ No other group was filling this role at the time, so Miller worked with grassroots leaders concerned about the coast to form the organization. Since its inception, Miller has served as the executive director. Today, the Coastal Federation has over 8,000 members and an annual budget of \$1.3 to \$1.4 million. The main office of the organization is in Newport, North Carolina, and there are two field offices in Wilmington and Manteo. Currently, the Coastal Federation has a staff of seventeen full- and part-time employees.

The Coastal Federation is not a true "federation" in that member organizations do not direct the activities of the Coastal Federation or pay any dues beyond what an ordinary member is required to pay. That being said, from its founding, one of the Coastal Federation's main objectives has been to organize and coordinate efforts to protect the North Carolina coast. To these ends, the Coastal Federation has always had board members from other organizations to represent the interests of important partner groups. The Coastal Federation's board also includes members from different geographic regions of the North Carolina coast to ensure that the entire coast is represented within the Coastal Federation. To further facilitate coordination across the coastal region, the Coastal Federation hosts four, full-day meetings, called coastal caucuses, per year, to which it invites non-governmental organizations and community groups interested in protecting coastal North Carolina. Some of the Coastal Federation's key participating partners include SELC; other land trusts, such as The Nature Conservancy; the Conservation Network, which provides information on legislative and administrative issues; and Environmental Defense. Meetings are used to discuss and coordinate strategy and legislative priorities.

JIM WAITE

PROGRAM AREAS

The Coastal Federation has four key program areas: (1) Advocating for the Coastal Environment, (2) Encouraging Enforcement of Environmental Laws, (3) Restoring and Protecting Coastal Habitat and Water Quality, and (4) Educating Citizens, Students, and Community Leaders.¹⁷⁶ The overriding theme of the organization is to protect water quality.

Environmental Policy and Advocacy

Like the Conservation League in South Carolina, the Coastal Federation is the principal advocacy organization on the coast. Under its Environmental Policy and Advocacy program area, the Coastal Federation works with citizens, local governments, state environmental commissions, and legislators to advocate for effective land-use plans, water quality standards, and coastal shoreline development rules. The Coastal Federation's first major victory came in 1982, when the organization rallied fishermen, environmentalists, and scientists to oppose a proposal to strip-mine 120,000 acres of wetlands between the Albemarle and Pamlico Sounds. By 1984, the proposal was defeated. Thereafter, the Coastal Federation worked to achieve approval of new peat mining water quality rules that effectively prohibit large-scale peat mining in the state. Most of the areas that were formerly targeted for peat mining now have been permanently preserved within National Wildlife Refuges.¹⁷⁷

The Coastal Federation has achieved many other important policy objectives since its inception, including the establishment of new wetland and water quality standards; tighter regulation of wastewater discharges from phosphate mining; new marina-siting standards; designation of 10 percent of North Carolina's coastal waters as Outstanding Resource Waters; and a new federal law that earmarks approximately \$250 million for restoration of the nation's estuaries.¹⁷⁸ Today, the Coastal Federation's key policy issues include stormwater pollution, oyster restoration, and beach and inlet management. In addition, the Coastal Federation engages in local land-use planning on the coast.¹⁷⁹

With respect to oyster restoration, North Carolina's oyster fisheries have faced hardships similar to Georgia's. While the 1902 oyster harvest yielded 1.8 million bushels, current harvests only number around 40,000 bushels per year. In order to return oysters to North Carolina's coastal waters, the Coastal Federation has made oyster restoration a priority and is leading a coalition of environmental groups and government agencies. One of the coalition's important recent achievements was the development of the 2005 Oyster Legislative Priorities, which include recommendations for creating oyster hatcheries, doubling the number of oyster restorations and sanctuaries, creating pollution-free zones near oyster growing areas, and establish-

ing a research program fund and a professor of shellfish research.¹⁸⁰ Todd Miller has explained that, as the organization has evolved over the years, it has been increasingly helpful to take on positive activities, such as oyster restoration, as opposed to always being "against everything."

Enforcement of Environmental Laws

Like the Riverkeeper organizations in coastal Georgia, enforcement of the Clean Water Act and other environmental laws has been a central part of the Coastal Federation's mission since its inception. In November 2000, the Waterkeeper Alliance granted the Coastal Federation approval to license three Coastkeepers. This approval made the Coastal Federation the only organization licensed by the Waterkeeper Alliance to cover the entire coast of a state. The Coastkeepers represent the Coastal Federation in the three geographic areas of the North Carolina coast: Northeastern—Cape Hatteras, Central—Cape Lookout, and Southeastern—Cape Fear.

Over the years, the Coastal Federation has used legal tools to effectively advance their agenda. During the mid-1980s, the organization appealed a number of permits that forced the state to recognize that existing standards for protecting coastal waters from marinas and developed areas were not effective. As a result of these appeals and the designation of Albemarle and Pamlico Sounds as waters of national concern, the state helped to fund a multi-million-dollar planning effort to protect the sounds.

The Coastal Federation's willingness to enforce the CWA and other laws has been and continues to be an essential ingredient to the organization's effectiveness, but legal advocacy is not the only tool that the Coastal Federation or its Coastkeepers employ. The goals of the organization's Coastkeepers are diverse and include protecting the water quality and habitat of the coast by serving as a strong presence on the coastal waters; restoring habitat and water quality via citizen- and agency-led restoration projects; raising public awareness and understanding of the threats to the coast; leading education efforts; documenting, investigating, and reporting detrimental activities to the appropriate agency and media; supplementing the efforts of federal, state, and local agencies by serving as an additional "watchdog" for the coast; and organizing and strengthening citizen advocates for North Carolina's coast.

Restoring and Protecting Habitat and Water Quality

Under its habitat and water quality program area, the Coastal Federation operates two programs: the Habitat Restoration and Education Program and the Coastal Land Preservation program. Under the restoration program, the Coastal Federation has entered into numerous purchase and cooperative agreements with private landowners and has completed forty-seven restoration projects. In total, these actions have successfully restored more than 40,000

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estuarine acres. Currently, the Coastal Federation is conducting the largest wetland restoration project in the state's history at North River Farms. The project involves a 6,000-acre farm that is being returned back to wetlands with federal, state, and private funding.¹⁸¹ The project is the largest such restoration effort ever attempted in North Carolina. The goal is for the restored wetlands to cleanse stormwater and lead to the reopening of now-closed shellfish beds in the adjacent North River. Other project areas within the program include oyster habitat restoration, living shorelines (i.e., the development of natural erosion control measures as an alternative to the use of bulkheads), education, and stormwater projects.¹⁸²

Like the Conservation League, the Coastal Federation seeks to protect lands permanently via its land preservation program; however, the organization has a different approach to land protection than the Conservation League. The Coastal Federation operates like a land trust in that the Coastal Federation itself takes title to property and can hold conservation easements. Further, unlike the Conservation League, the Coastal Federation's land protection program is focused primarily on protecting lands that are needed to maintain or restore coastal water quality.¹⁸³

Innovative collaboration with diverse partnerships has helped fuel permanent protection and restoration of important coastal habitats in North Carolina. The Coastal Federation, like the Conservation League, works with a diverse group of partners to permanently protect important lands. One example is its work in an area of the North Carolina coast referred to as the Onslow Bight, an area that stretches from Cape Lookout to Cape Fear. The Coastal Federation is working with a wide range of partners, including TNC and the United States Marine Corps, as part of the Onslow Bight Conservation Forum, to identify areas that should be permanently protected and restored.¹⁸⁴

Educating Citizens and Community Leaders

The Coastal Federation's education program seeks to increase the public's appreciation for the value and beauty of North Carolina's coastal habitats. The Coastal Federation achieves this goal through workshops, conferences, publications (including its annual *State of the Coast* report), the Daland Nature Library, and a monthly cable show. Additionally, a strong component of the education program area is the involvement of students via integrated curriculum, field trips, and a variety of hands-on projects.¹⁸⁵

Technical and Communications Capacities and Funding

One of the biggest factors contributing to the organization's success has been its technical know-how on coastal issues, which at times leads it to have a better grasp of the issues than academics and regulatory agencies.¹⁸⁶ Charles

Jones, head of the North Carolina Division of Coastal Management, commented that "[t]he Coastal Federation is a very credible organization that does its homework."¹⁸⁷ As a result of its technical capacity, the Coastal Federation is very well-respected by members of the academic community and government agencies. Their opinions are not only highly regarded, but actively sought on all coastal issues.

The Coastal Federation's staff members provide expertise in a variety of areas, from science to advocacy to development. The staff of the Coastal Federation's main office consists of Todd Miller, a program director, a lobbyist, a communications professional, and two fundraisers.¹⁸⁸ In each of its other two offices, the Coastal Federation has aspired to employ at least one staff member in each of three disciplines—advocacy, education, and habitat restoration. The organization employs two scientists to lead the organization's restoration efforts. The Coastal Federation does not currently employ any legal staff, but instead relies on the legal expertise of SELC.

The Coastal Federation has also developed relationships with technical experts in North Carolina, which has benefited the organization greatly, beginning with its early battles with the peat mining industry in which key members of the academic community assisted the Coastal Federation. The Coastal Federation has established key alliances with Duke University, the University of North Carolina, and the National Oceanic and Atmospheric Administration, which all have marine science programs and/or labs in North Carolina.

In addition to technical ability, the Coastal Federation's capacity to communicate with the public was important in helping to establish the organization and remains an integral trait to this day. The Coastal Federation communicates with the public in a number of ways, including its *State of the Coast* report, its website, and a monthly television show. In its early years, the Coastal Federation's collaboration with a Raleigh television station on a "Save Our Sounds" program helped educate the public, generate support for water quality protection rules, and legitimize the organization.¹⁸⁹

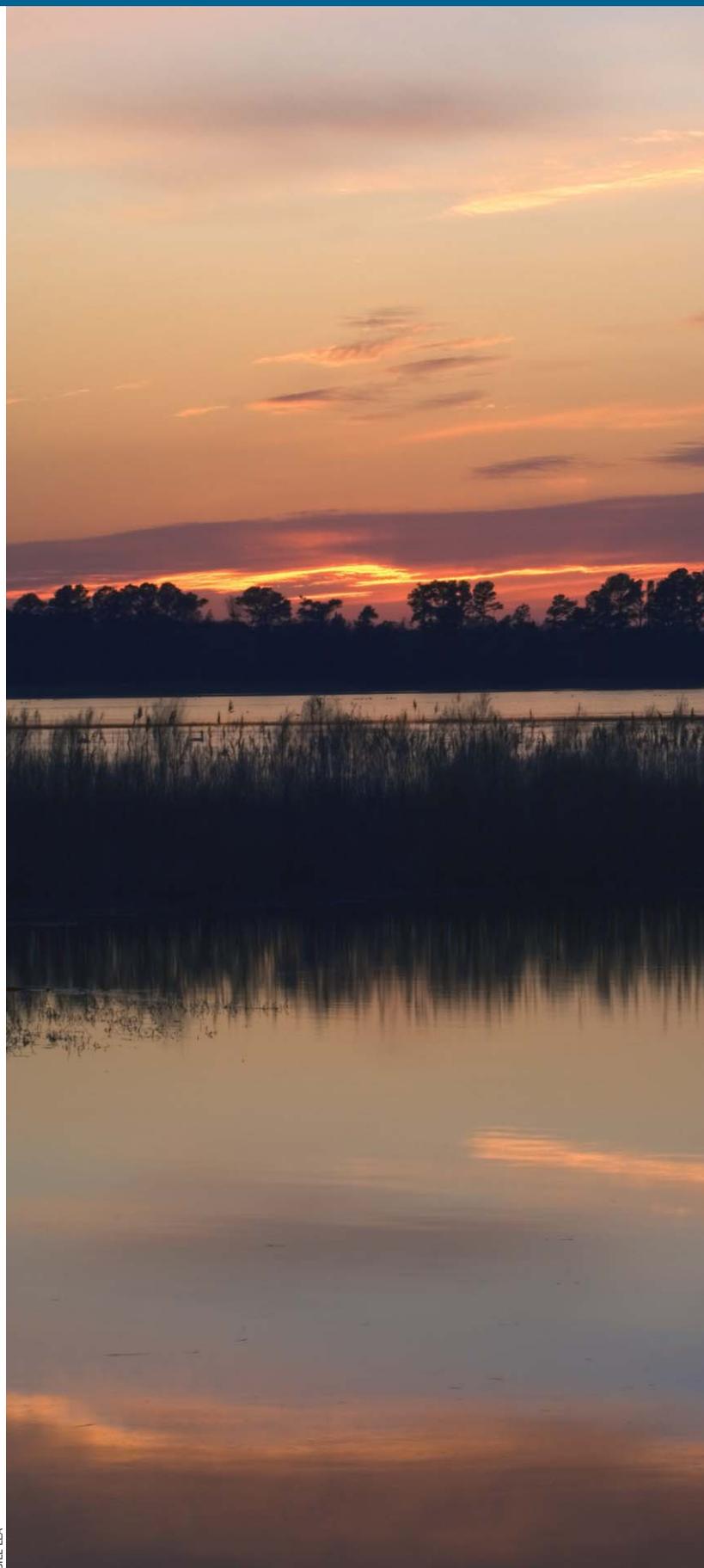
In order to sustain these capacities, the Coastal Federation has a current annual budget of \$1.3 to 1.4 million. The sources of these funds are the Coastal Federation's large membership base, other donations, grants, and government funding. Generally, the Coastal Federation's expenses are divided primarily between the Restoration/Education Program, Coastkeepers, and Special Projects.¹⁹⁰

To celebrate the Coastal Federation's twenty-five years of progress on the coast, several prominent North Carolina environmentalists commented on the organization's history and success. At its core, the organization made its mark and built its influence by taking tough stands and enforce-

ing the law against mining proposals that threatened the coast's tidal waters. Over time, the organization has been able to broaden its activities from strictly being a coastal advocate to one that now partners with state regulators and green developers.¹⁹¹ Rather than just highlighting problems in state policy, the Coastal Federation points the way for new policy. The Coastal Federation also partners with state agencies on topics as varied as protecting coastal habitats, promoting fisheries reforms, and devising better ways to share water quality information.¹⁹² It also works with coastal towns and counties on stormwater projects and land-use plans.¹⁹³ Through it all, however, even as the Coastal Federation has begun to rely on more than advocacy to accomplish its agenda, the key to the Coastal Federation's success has been its commitment to use legal advocacy to protect coastal resources. In fact, a recent action to enforce the CWA against developers that failed to obtain wetland permits sent a strong message to other developers in coastal North Carolina that the illegal destruction of coastal wetlands will not be tolerated.

Key Ingredients of the South and North Carolina Programs

Although the South Carolina and North Carolina programs are different in many ways, as discussed above, they both have certain key ingredients that have contributed to their success. In order for the environmental work on the Georgia coast to become more effective, the conservation community needs to incorporate these ingredients into ongoing efforts in Georgia. First, both organizations have clear visions that guide their work. Second, both the Conservation League and the Coastal Federation have effective leaders that have been able to unite the various groups along both coasts. Third, they have technical, legal, and communication capacity either on staff or the resources to contract with experts they need. Fourth, they are politically connected and very visible so that when they speak, people listen. Fifth, they comprehensively cover the entire coastal regions of their respective states and have large member bases so that when they have to file a lawsuit, members are able to provide standing. Finally, they have strong financial support for their programs. Although the environmental groups working to protect the Georgia coast have some of these ingredients already, the groups need to more fully develop these important attributes in order to effectively address the rapid development that is impacting the Georgia coast. There are many actions that need to be taken, and very little time to take them.



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To effectively address the threat of poorly planned development in coastal Georgia, it is imperative that the coastal conservation groups use their resources shrewdly and collaboratively. This includes developing a collective plan of action and then working together to accomplish that plan. Until we have an opportunity to collaborate more fully with all the conservation groups, SELC proposes a number of Immediate Actions and Comprehensive Initiatives to address pressing conservation needs. In the following discussion, SELC proposes items covering the full range of conservation tools from challenging legal interpretations of government agencies to acquiring land. We do not, however, pretend to have expertise in all of these areas. It is for this reason that we are hoping that all conservation groups will join in the effort to further refine the Immediate Actions and Comprehensive Initiatives that we propose below.

Because the Georgia coast is at a “tipping point,” the conservation groups need to act quickly and decisively to ensure that the coast “tips” in the direction of conservation, as opposed to rampant and uncontrolled development. Thus, the conservation groups must execute a set of immediate and achievable actions to protect the coast. These are items that could be initiated and largely completed within the next three years. At the same time, the conservation groups need to arrive at a flexible set of Comprehensive Initiatives. These Initiatives will include tasks that are fundamental to shaping the development of the Georgia coast over the next decade.

To tie the Immediate Actions and the Comprehensive Initiatives together, SELC recommends that all the coastal organizations join in the development of an eco-vision for the coast. This would entail the conservation groups meeting to identify the most important and vulnerable areas on the coast. From that exercise would emerge maps of the coast that all the conservation groups could use to guide the implementation of the Immediate Actions and Comprehensive Initiatives. On a yearly basis, the conservation groups could revisit the eco-vision to fine tune it and to take into account new conservation opportunities and development threats.

SELC developed the proposed Immediate Actions and Comprehensive Initiatives based on the more than seventy interviews we completed, the research we conducted, and the studies we reviewed to complete this Assessment, as well as on our own knowledge from the twenty years we have worked on the Georgia coast. Even so, we have every expectation that through further collaboration with the other conservation groups, these Actions and Initiatives will be refined.

Immediate Actions that Must Be Taken to Protect the Coast

In classifying measures as Immediate Actions, SELC applied three criteria. First, the proposed action item must

be critical to addressing an immediate resource preservation need on the coast. Second, it must have a noticeable impact on the problem within three years. And third, the action must be achievable by the existing conservation groups, assuming additional technical, legal, and communication resources can be developed. The Immediate Actions that SELC arrived at are as follows:

PROTECT SALT MARSHES AND ESTUARIES BY REQUIRING PROPER IMPLEMENTATION OF THE COASTAL MARSHLANDS PROTECTION ACT

This Immediate Action is vital to the overall health of the coast. The salt marshes comprise one of the most valuable and productive natural resources on the planet and give the Georgia coast its distinctive character. The coastal marshlands sustain the health of the estuaries and saltwater fisheries; provide the scenic vistas that give the coast its uniqueness and beauty; and help protect coastal communities from storms. The degradation of this natural resource would be devastating to the coastal region. Immediate Action is needed to maintain the coast’s marshes and hammocks.

Georgia’s Coastal Marshlands Protection Act of 1970 is one of the strongest laws of its type in the nation. In recent years, however, the state has chosen to reinterpret the Act to narrow its protections. SELC, working alongside key conservation groups, has won a number of cases, which require the state to consider the upland portion of a development and the polluted runoff that it contributes to the marsh before it grants a CMPA permit for any accompanying marina, bridge, or other structure in the water. Instead of following these court decisions, the state has unsuccessfully appealed each decision and is currently challenging the latest decision—the *Cumberland Harbour* case—in the Court of Appeals. In addition, the state has promulgated rules consistent with its narrow interpretation of the CMPA in an attempt to bolster its failing legal position. Win or lose, the conservation groups must continue to pursue this issue until the state provides complete and comprehensive protection of Georgia’s coastal marshes. This strategy includes challenging the new rules that the state has promulgated. If the new rules are allowed to stand and the state is allowed to continue applying its overly narrow interpretation of the law, polluted runoff will continue to run off the pavement and rooftops of these coast-side developments and dramatically impact the marshes.

PROTECT COASTAL WATERS BY REQUIRING ENFORCEMENT OF THE 25-FOOT BUFFER UNDER THE EROSION AND SEDIMENTATION ACT

Scientific research shows that buffers are needed to protect salt marshes and other coastal waters from polluted runoff. These buffers filter and trap pollutants before runoff reaches nearby waterbodies. Buffers of at least 100 feet are necessary to afford adequate protection; however, as discussed previously, the Georgia Erosion and Sedimentation Act only requires a 25-foot buffer. Despite

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Altamaha River, Georgia

CRAIG TANNER

the inadequate size of the buffer requirement, the conservation groups must take action to see that it is enforced.

Several counties in the coastal zone, including Glynn and Chatham Counties, are refusing to enforce this 25-foot buffer, based on an erroneous interpretation of the law. They are doing so despite the fact that the Director of the Georgia Environmental Protection Division and Georgia's Attorney General have stated unequivocally that the state's marshlands and tidal streams require a buffer. Nevertheless, the state has not required these coastal counties to implement the law properly. The failure of local coastal governments to enforce this basic requirement is a serious problem and emblematic of the failure of governments in this state to protect the ecological integrity of coastal Georgia. The conservation groups must act now to require the relevant authorities to fulfill their obligations to enforce what little buffer protections currently exist for our tidal waters. Without these buffers, the marshes will suffer irreversible damage.

PROTECT FRESHWATER WETLANDS BY REVIEWING AND CHALLENGING ILLEGAL JURISDICTIONAL DETERMINATIONS

The Georgia coast has some of the most extensive and ecologically important freshwater wetland resources in the nation. However, these important aquatic resources are in jeopardy due to: (1) the coast's intense development pressure; (2) Georgia's pro-development Corps district; and (3) the lack of a state wetlands protection program. Even before the *Rapanos* decision was issued, the Savannah District, as described above, was making questionable decisions about so-called "isolated" wetlands. After *Rapanos*, the state of wetlands protection looks even bleaker. Currently, it is not clear whether the Corps will continue to protect intermittent and ephemeral streams and their adjacent wetlands. This confusion has only been heightened by the EPA and Corps *Rapanos* guidance. Confusion often breeds mischief, or in this case, wetlands destruction. The *Rapanos* guidance gives substantial discretion to Corps districts to decide which waters are covered by the Clean Water Act. Thus, it is likely that the Savannah District will continue to make erroneous jurisdictional determinations, leaving large numbers of wetlands and streams vulnerable to unregulated destruction. Unless the conservation groups monitor and challenge the erroneous jurisdictional determinations that the Savannah District makes, the coastal region will suffer immeasurable losses of wetlands and streams in the very near future.

PERMANENTLY PROTECT SENSITIVE LANDS ACROSS THE REGION

With large tracts of former timberlands flooding the market in the coastal zone, conservation groups must act now to secure the permanent protection of the most ecologically valuable tracts. While such purchases over the long-term would be guided by the eco-vision discussed below, in the short-term the conservation groups need to be prepared to seize any viable opportunity to protect valu-

able lands in coastal Georgia. Such efforts have to be collaborative in nature with groups such as The Nature Conservancy taking the lead and collaborating with other conservation groups to achieve land purchases in the most efficient manner possible. The conservation community cannot lose any time in building the relationships that are needed among all the groups to ensure that we can capitalize on every opportunity. Once a parcel is sold to a developer, the option of permanent protection is most often gone forever. With so much land coming up for sale, the conservation groups have to work together to ensure that the jewels of the Georgia coast do not slip through our fingers.



CRAIG TANNER

Palmetto and live oak on Sapelo Island, Georgia

ACTIONS AND INITIATIVES NEEDED ON THE COAST

An Eco-Vision is Needed to Guide Actions on the Coast

Based on the Conservation League's work in South Carolina, it is apparent that developing a coast-wide eco-vision would stimulate collaboration among all the conservation groups and focus attention and resources on those actions that were most deserving. Although SELC recommends that the conservation groups start developing an eco-vision early next year as an Immediate Action, the eco-vision would be geared towards shaping the Comprehensive Initiatives over the long run.

The conservation groups' eco-vision maps would present a unified strategy for protecting coastal Georgia and could be used for a variety of purposes. For purposes of the Special Places Initiative described below, the eco-vision maps would identify high value lands to target for permanent protection as well as green corridors linking important habitats throughout the region. The maps would also help determine the best places to carry out the other Initiatives described below, such as the Wetlands Initiative. For example, if a certain wetland complex was identified on the eco-vision maps as being particularly valuable, the conservation groups could bring a wetlands enforcement case to protect that wetland system. In addition to halting a violation under the CWA, a successful legal action brought in such a location might have the added benefit of requiring the violator to contribute towards its permanent protection.

By using geographic information systems and other powerful technologies, the conservation groups could use the eco-vision in many different venues for many different purposes. For example, maps illustrating the eco-vision could be disseminated to the public to generate grassroots support to protect critical areas. The eco-vision could also be used to inform local land-use boards about the suitability of proposed developments. In addition, the eco-vision could be used to educate government officials during their own open space planning and land acquisition deliberations.

Further, there are a number of plans currently being developed by the state, such as the Governor's Coastal Comprehensive Plan and the Statewide Comprehensive Water Management Plan. In addition, the state has recently completed the State Energy Strategy for Georgia and the Comprehensive Wildlife Conservation Strategy. The eco-vision could be used both to influence government actions and to ensure that development and implementation of important plans such as these are consistent with ongoing conservation efforts.

Another state initiative that could be evaluated using the eco-vision is the state's aspiration to become a world leader in biofuel production. The majority of pine for biofuel generated within Georgia will come from plantations located within the coastal region. Although managed forests in the coastal region may be more desirable than development, a number of forestry practices, including wetland drainage and pesticide application, can have detrimental environmental effects. The cumulative impacts of these activities, particularly on sensitive aquatic resources, should be assessed in terms of the eco-vision and appropriate conservation positions articulated.

Moreover, the eco-vision maps would be living documents. On a yearly basis, the conservation groups would get together to update the vision to reflect newly protected areas and areas in which impacts to

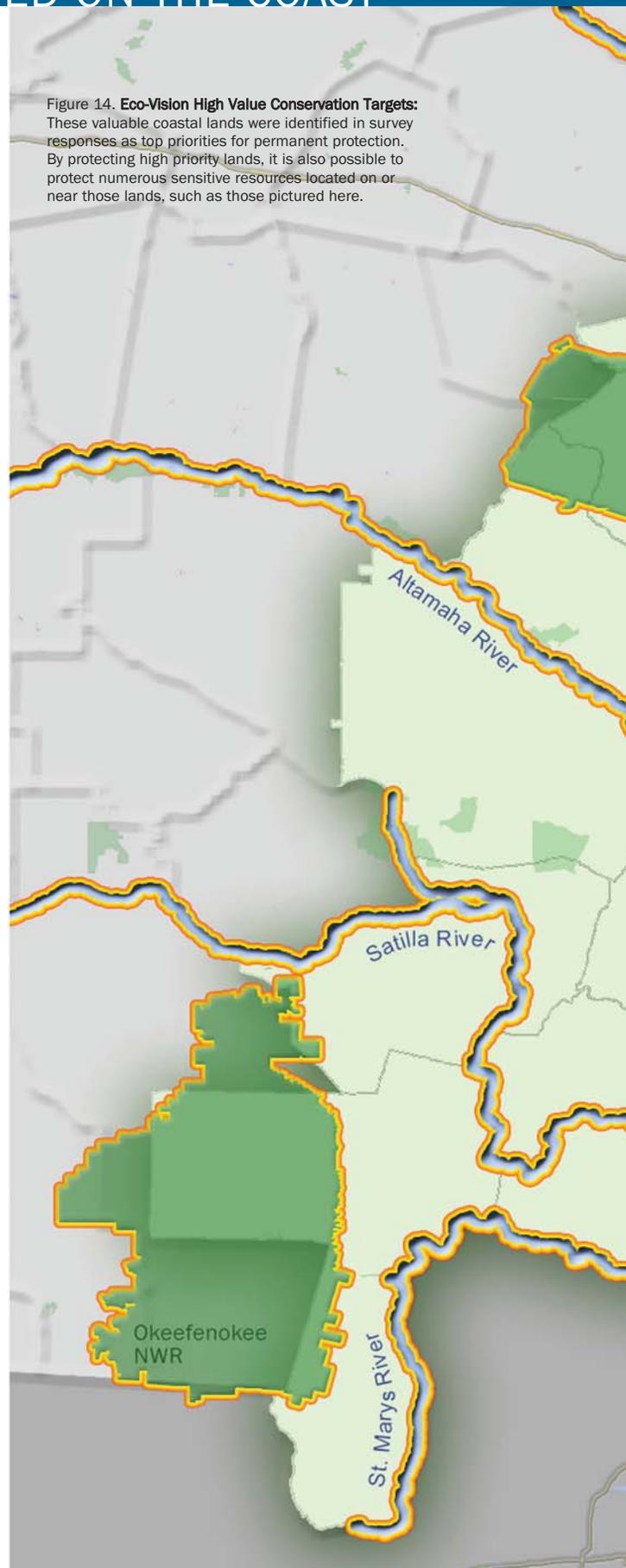


Figure 14. **Eco-Vision High Value Conservation Targets:** These valuable coastal lands were identified in survey responses as top priorities for permanent protection. By protecting high priority lands, it is also possible to protect numerous sensitive resources located on or near those lands, such as those pictured here.



14(a) **River Corridors** provide invaluable water quality protection and wildlife habitat.



CRAIG TANNER

14(b) **Marsh Hammocks** provide habitat crucial to wildlife, including several rare species listed as threatened or endangered.



DAVE LEWIS



NOAA

14(c) **Wetlands** retain floodwaters, filter pollutants, recharge groundwater, and provide important wildlife habitat.



BILL LEA

14(d) **Endangered Species**, including manatees, right whales, wood storks, and indigo snakes, depend upon Georgia's coastal habitats.

14(e) **Barrier Islands** and Beaches provide habitat for nesting sea turtles and birds and offer exceptional recreational opportunities.



BILL LEA



DAVE LEWIS

14(f) **Tidal Shoals** provide irreplaceable habitat for nesting shorebirds as well as important resting and feeding areas for migratory birds.

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resources have been permitted. As more and more developments are constructed along the coast, it will be increasingly important to track the location of new projects so that the conservation groups will be able to analyze the cumulative impacts to coastal resources.

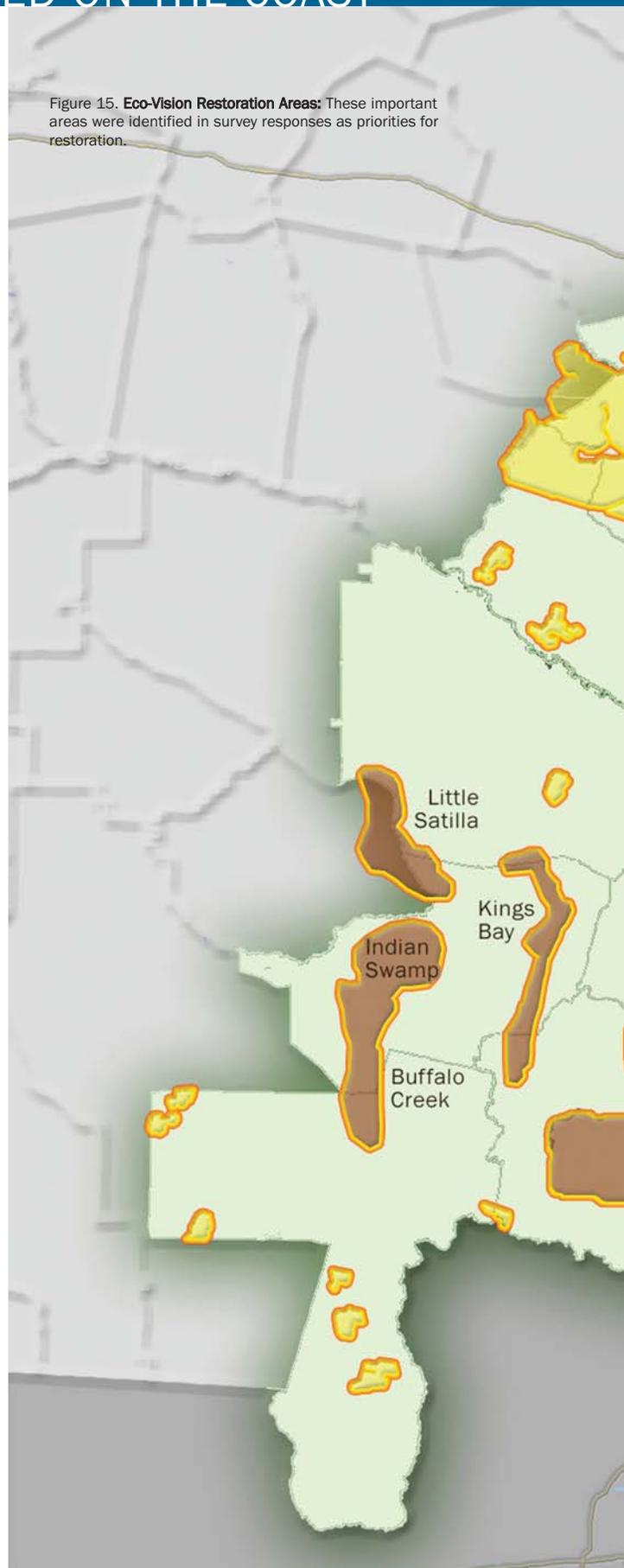
In order to create an eco-vision, the conservation groups will have to collect data, analyze it, and depict it using geographic information systems (GIS). For starters, the eco-vision would include already developed areas, including military bases, commercial, urban, and suburban areas. For the undeveloped areas, it would include public lands, wetlands, rivers, streams, and other ecologically valuable habitat, such as stands of longleaf pine and maritime forests. The map would also include information from local governments on zoning classifications and property ownership. With the relevant information depicted, the conservation groups could develop a consensus vision for the region's future, which would include zones where development should be prohibited and other zones where additional development would be suitable. Given the amount of work that individual groups have already devoted to mapping the coast, the development of a collective vision would not be difficult. For example, for the purposes of this Assessment, SELC has already amassed a substantial amount of data relating to the location of important coastal resources.

In addition, SELC conducted a survey of knowledgeable environmental professionals, including state and federal agency employees, scientists, environmentalists, environmental attorneys, and others, regarding the most important areas for conservation on the coast. Using GIS, Figures 14, 15, and 16 depict the survey results in three distinct categories: (1) specific high value conservation targets deserving permanent protection; (2) specific ecosystems, such as wetlands and longleaf pine forests, meriting restoration; and (3) coast-wide resources needing regulatory protection, such as marshlands and barrier islands. Tables summarizing results from the survey are included at Appendix C.

One of the most important attributes of a GIS-based eco-vision is that the maps are versatile and valuable for use with many conservation tools, including advocacy, education, preservation, restoration, and grassroots organizing. For example, a number of those surveyed identified protecting certain resources, such as isolated wetlands and longleaf pine forests, as opposed to specific tracts of land. Figure 16 shows the resources that were identified. Improved regulatory protection is needed for these resources to complement land acquisition and restoration activities on specific parcels. In addition, regulation is necessary to control those activities that affect these coast-wide resources such as dock construction and building in buffers and floodplains. Figure 16(a)-(c). For example, one of the best ways to protect water quality and preserve habitat corridors along rivers is to require a buffer of natural vegetation between development and waterbodies. Figure 16(a) shows how buffer regulations can be used to ensure buffers remain intact and provide these important benefits.

The maps are also valuable for ranking the specific, high-priority targets for protection and acquisition. Many of the individuals we surveyed identified Little St. Simons Island, St. Catherines, and Cumberland Island National Seashore in addition to the Altamaha,

Figure 15. **Eco-Vision Restoration Areas:** These important areas were identified in survey responses as priorities for restoration.





15(a) **Important wetlands** that have been filled or converted to other land uses should be restored to provide their full range of water quality and habitat values.



JAMES HOLLAND



ALLAN KRESSLER



BILLY BARNES



DWIGHT DYKE

15(b) **Shellfish beds**, which were once extensive in coastal Georgia waters, should be restored to provide water filtering functions, economic opportunities, and important marine habitat.

Shellfish Waters

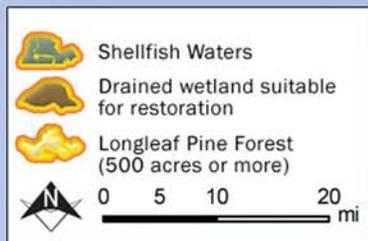
15(c) **Former longleaf pine forests** on forestry and agricultural lands should be restored to provide their full range of recreational and habitat functions.



DAVE LEWIS



KATIE STUBBLE



ACTIONS AND INITIATIVES NEEDED ON THE COAST

Ogeechee, and Satilla Rivers as high priority areas. Other areas of high priority included Jekyll, Sapelo, and Ossabaw Islands. Further discussion of the results of SELC's survey is found below in the Special Places Initiative.

Other groups have devoted significant institutional resources to mapping efforts as well. In 2005, The Nature Conservancy completed The Carolinian Ecoregional Assessment for estuarine and marine (to 200m depth) areas extending from the mouth of the Chesapeake Bay in Virginia to Cape Canaveral in Florida.¹⁹⁴ The goal of the assessment was to identify conservation areas that, if protected, will represent the full range of the region's biodiversity. TNC's assessment identified ten priority action areas where TNC will focus initial efforts to enhance its marine conservation. Two of the ten action areas are located along the Georgia coast: St. Marys-Satilla-Cumberland Island Estuarine Complex and Altamaha-Ogeechee Estuarine Complex.¹⁹⁵ Within the Altamaha-Ogeechee Complex, TNC is working with partners to create and implement a site-specific Conservation Action Plan that will guide conservation and restoration activities, including land conservation and planning, water management, and habitat restoration.

The Georgia Conservancy initiated Coastal Footprints in 2000 to develop visual mapping tools to support dialogue among decision-makers, citizens, and resource managers in shaping future growth patterns and protecting sensitive coastal resources. Footprints uses GIS technology to map local development trends and project future growth to demonstrate options for land-use that protect environmental quality while allowing for economic growth.¹⁹⁶ The Conservancy also collaborated with the National Oceanic and Atmospheric Administration and the Georgia Coastal Management Program to produce a set of web-based mapping tools to help coastal communities analyze, visualize and make decisions about land-use, land conservation, and site development. A key component of the Conservancy's coastal strategy is to build upon these mapping efforts and those of others to create a comprehensive, GIS-based natural resources inventory of the 11-county coastal region that will determine: (1) areas most critical to protect and preserve; (2) potential wildlife and green-space corridors; and (3) optimum future land-use patterns that are located away from environmentally unsuitable areas and utilize existing infrastructure.

The SELC, TNC, and Georgia Conservancy Initiatives, along with detailed work recently completed by state biologists analyzing endangered species data, should be used in the development of a region-wide eco-vision. Though the development of an eco-vision and related maps are not a panacea, SELC believes that the development of an eco-vision would facilitate effective collaboration of groups working on a shared vision for how to protect the coast. Such a dynamic is imperative as part of an overall, coordinated effort to address the development pressures bearing down on the coast.

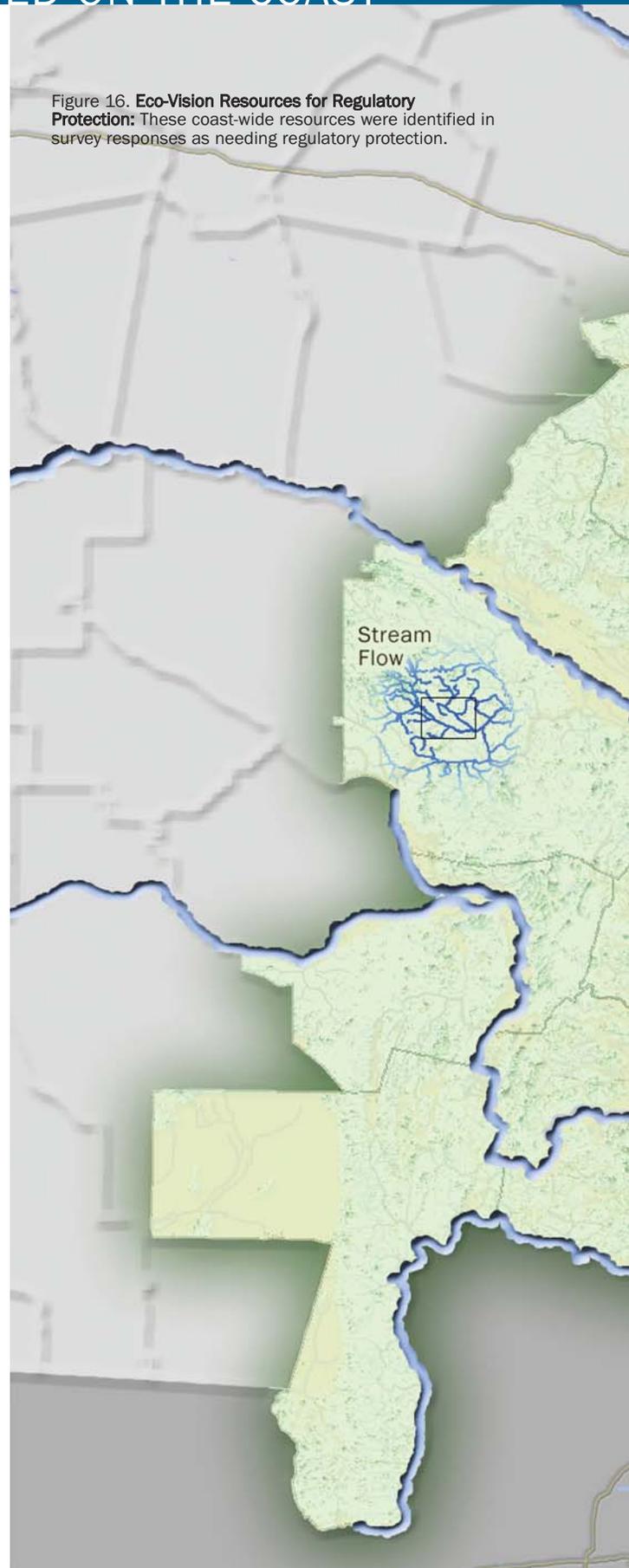


Figure 16. **Eco-Vision Resources for Regulatory Protection:** These coast-wide resources were identified in survey responses as needing regulatory protection.



16(a) **Buffer Losses:** Buffers are essential for protecting coastal water quality. Actions are needed to ensure enforcement of regulations requiring ample buffers.



DAVE LEWIS

DAVE LEWIS



DAVE LEWIS

DAVE LEWIS

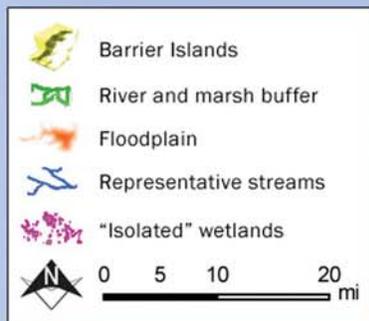
16(b) **Dock Overcrowding:** Docks negatively impact marshes and creeks by shading marsh plants and reducing the productivity of marshlands. Actions are needed to regulate the construction of docks and address their cumulative impacts on coastal resources.

16(c) **Improper Floodplain Management:** Development within floodplains puts houses and people at risk from floods. Actions are needed to improve regulatory protection for these areas to guard people and water quality alike.



GOOGLE EARTH

GOOGLE EARTH



ACTIONS AND INITIATIVES NEEDED ON THE COAST

Comprehensive Initiatives Needed to Secure the Future of the Coast

While the Immediate Actions will go far to jump-start coastal protection and the eco-vision will help guide long-range conservation efforts, SELC also proposes a suite of Comprehensive Initiatives to shape the future of the Georgia coast. It is our expectation, however, that this list will be further refined as we continue to collaborate with other conservation groups.

Similar to the selection of Immediate Actions, SELC applied three criteria to identify the “Comprehensive Initiatives.” First, the issue or action must have the potential to significantly impact the development of the coast in either a positive or negative way over the next decade. Second, the issue or action must be one that the conservation groups have indicated that they would be interested in pursuing. And third, the issue or action must be one that the conservation groups could achieve if the overall resources available on the coast increased by a substantial amount. After applying these criteria, we then chose those issues and actions that were likely to have the most potential to further overall conservation efforts. The Comprehensive Initiatives that SELC arrived at are as follows:

MARSHLANDS AND HAMMOCKS INITIATIVE

- 1) *Ensure Proper Implementation of the Coastal Marshlands Protection Act*
- 2) *Ensure Proper Planning for Docks and Marinas*
- 3) *Advocate for Conservation Leasing for Non-Profits and Fair Market Value Leasing for For-Profit Entities*
- 4) *Secure the Adoption and Implementation of Favorable Recommendations Resulting from the Coastal Marsh Hammocks Collaborative Dialogue*

WETLANDS INITIATIVE

- 1) *Ensure Proper Permitting Process*
- 2) *Ensure Mitigation Requirements are Satisfied*
- 3) *Enact a State Wetlands Program*
- 4) *Ensure Proper Application of Silviculture Exemption*

POLLUTED RUNOFF INITIATIVE

- 1) *Secure Better Stormwater Permits*
- 2) *Secure Larger Buffers*
- 3) *Seek Local Adoption of the Coastal Stormwater Supplement*
- 4) *Ensure Better Enforcement*

SPECIAL PLACES INITIATIVE

- 1) *Increase State Funding for Land Conservation*
- 2) *Identify and Protect Special Places*
- 3) *Restore Special Places*

PLANNING INITIATIVE

- 1) *Guide Land Use Decisions*
- 2) *Guide Floodplain Management*
- 3) *Develop Effective Watershed Plans*
- 4) *Protect Groundwater*
- 5) *Challenge Damaging Reservoir and Water Withdrawal Proposals*
- 6) *Petition for Critical Habitat for Eastern Indigo Snakes under the Endangered Species Act*

CLIMATE CHANGE INITIATIVE

- 1) *Help the Coast Adopt Measures to Prepare for Global Warming*
- 2) *Educate Coastal Georgians on Climate Change*
- 3) *Advocate for Decreases in Greenhouse Gas Emissions*

BILL LEA





White ibis

ACTIONS AND INITIATIVES NEEDED ON THE COAST

Marshlands and Hammocks Initiative

The following four measures must be included as part of a Comprehensive Initiative to not only defend the marshes from poorly planned development, but also to advance additional protections for this vital natural resource system. The actions described below are intended to protect and restore the health and function of the marshlands system over the long-term.

1) ENSURE PROPER IMPLEMENTATION OF THE COASTAL MARSHLANDS PROTECTION ACT

In addition to continuing to pursue current litigation under the CMPA as an Immediate Action, it will be important over the long-term to ensure that the law is applied correctly. If the Court of Appeals and Georgia Supreme Court uphold the lower court rulings in the *Cumberland Harbour* case, then the coastal groups must be prepared to take on the challenge of ensuring that the state abides by the judicial decisions. If the conservation groups win, it can be expected that some political leaders will try to undo the legal rulings through legislative or agency action. The coastal groups must be vigilant in the years to come to make sure that CMPA is properly used to secure adequate protection for Georgia's marshlands and marsh-dependent resources.

2) ENSURE PROPER PLANNING FOR DOCKS AND MARINAS

Responsible planning for docks and marinas is required to protect the ecological integrity of the marsh system in the face of increased development pressure. The Corps is proposing to reissue a general permit (Programmatic General Permit 0083), which preauthorizes the construction of private docks in the eleven coastal counties provided that the proposed private dock fits into the general permit's standard requirements. If a proposed private dock complies with these conditions, no additional review under federal or state law is required before the dock can be constructed. Over the past ten years, approximately 1,500 private docks have been built under prior versions of this general permit. The impacts from any one private dock can be considerable in themselves; taken together, the cumulative impacts of escalating dock construction are even more significant. Docks in addition to marinas reduce marsh productivity, threaten marine mammals and sea turtles, and overload fragile tidal systems. Other conservation groups, including the Georgia Conservancy and Satilla Riverkeeper, have been working as part of a stakeholder group to recommend rules governing docks and marinas. Beneficial elements from the stakeholder group's recommendations must be implemented before it is too late. Figure 16(b) illustrates the impact potential from typical dock overcrowding on a tidal creek. With better planning and restrictions, the impacts to the surrounding marshes and tidal creeks of such dock congestion could be avoided.



DWIGHT DYKE

3) ADVOCATE FOR CONSERVATION LEASING FOR NON-PROFITS AND FAIR MARKET VALUE LEASING FOR FOR-PROFIT ENTITIES

In addition to proper planning for marinas and docks, other measures need to be assessed. Currently, the CMPA allows for non-profit organizations, such as yacht clubs, to lease marshlands and water bottoms for \$1 to construct marinas. The conservation groups need to advance the position that non-profit entities such as The Nature Conservancy or the Trust for Public Lands can also secure water bottom leases at a nominal rate to preserve the marsh.

In addition, the current leasing rate for marshlands and water bottoms for for-profit entities is \$1,000 per acre, per year. By charging just \$1,000 per year for occupying an acre of marshlands, the state is not recouping fair market value for use of its publicly-owned resources, which is a violation of the CMPA. A long-term strategy under the Marshlands Act should correct this problem so that the public is compensated fairly for the private use of this publicly-owned natural resource.

4) SECURE THE ADOPTION AND IMPLEMENTATION OF FAVORABLE RECOMMENDATIONS RESULTING FROM THE COASTAL MARSH HAMMOCKS COLLABORATIVE DIALOGUE

In 2003, the Georgia Conservancy, The Nature Conservancy, the Sierra Club, SELC, and others participated in a marsh hammock stakeholder process, which resulted in a number of important recommendations.¹⁹⁷ Among these are recommendations for bridge access restrictions, proof of hammock ownership, permanent protection of hammocks through acquisition and other means, and water quality buffers. The stakeholder group's final report and recommendations were presented to the Board of Natural Resources but have never been adopted. The coastal groups should advocate for the DNR Board to revisit and adopt the protective measures presented by the stakeholders and direct appropriate staff at the Georgia Department of Natural Resources to proceed with their implementation.

Wetlands Initiative

While it is absolutely essential that the conservation groups immediately begin closely monitoring the Savannah District of the Corps of Engineers in light of the confusion that the *Rapanos* decision and its guidance have created, it is also critical that the conservation groups undertake longer-term actions to protect freshwater wetlands on the coast. These wetlands are integral to the overall coastal ecosystem, including the marshes, since they provide many important ecological functions, including vital habitat for aquatic species and wildlife alike. They are also integral to human life on the coast in that they improve water quality, store flood waters, and provide wild areas to visit. In short, they are irreplaceable. To counter the trend of wetlands destruction on the coast, the following measures are needed:

1) ENSURE PROPER PERMITTING PROCESS

Under the 404 program, if a wetland is protected by the CWA and no exemptions apply, a developer must obtain a 404 permit prior to filling the wetland. Before issuing the permit, the Corps must conclude that there is no practical alternative to filling in the wetland, such as finding another site for the proposed project that does not involve destruction of wetlands.¹⁹⁸ If the project does not require water access, the burden is on the applicant to demonstrate that practicable, less damaging alternatives do not exist.¹⁹⁹ Although these requirements are in the Corps' regulations, the Savannah District is often lax in applying them. Instead of steering developers away from wetlands, the Savannah District will often simply approve the permit application. The conservation groups cannot let this continue. Over the long-term, the Corps' failure to properly implement the permitting process results in the loss of countless wetlands. Although the Corps may require mitigation to offset wetland losses, as discussed below, mitigation requirements are often left unfulfilled or completed hundreds of miles away from the site of the wetlands destruction. In such situations, the area where the wetland fill occurred suffers a complete loss of the functions and values that the wetland had provided.

If the Corps is unwilling to apply its own regulations in an appropriate manner, then conservation groups must monitor Corps permitting decisions and challenge them, when necessary. Only by aggressive enforcement can the conservation groups hope to get the message across to the Corps that it must follow its own permitting procedures. The longer it takes to change the Corps' attitude toward permitting, the more wetlands will be lost.

2) ENSURE MITIGATION REQUIREMENTS ARE SATISFIED

When the Corps issues a permit for a wetland fill, it must require the applicant to restore, enhance, create, or preserve another wetland to compensate the public for the loss. However, this is not necessarily the case if the applicant is the Georgia Department of Transportation (GADOT). GADOT fills more wetlands each year than any other entity in the state. SELC has good reason to believe that GADOT is failing to satisfy its mitigation requirements and that the Savannah District is turning a blind eye towards this malfeasance. The conservation groups must require GADOT to satisfy its mitigation responsibilities.

3) ENACT A STATE WETLANDS PROGRAM

In the wake of the SWANCC and *Rapanos* decisions, it is unlikely that the Corps will provide adequate protection to wetlands and other waters in the coastal zone. Accordingly, it is important that the conservation groups begin laying the groundwork for the adoption of a state wetlands regulatory program that will, at a minimum, regulate those wetlands and streams that are left unprotected by the deci-

ACTIONS AND INITIATIVES NEEDED ON THE COAST

sions. Although the adoption of such a program may not seem politically feasible at the present time, it is imperative to begin strategizing for such an effort now.

4) ENSURE PROPER APPLICATION OF SILVICULTURE EXEMPTION

As explained above, throughout the coastal region, timber companies have converted bottomland hardwood forests to pine plantations. These pine stands are less diverse than natural communities and, due to short harvest schedules, do not support species that depend upon old growth forests. In addition, many of these areas have been dried out through ditching and bedding activities. When these dried out tracts are sold to developers, they are often developed without the required wetland permits. The conservation groups need to review development proposals affecting timberlands to ensure that the federal CWA is being implemented to protect wetland systems that have been illegally altered. Since so many thousands of acres of wetlands are at issue, this action could have far-reaching benefits for the coast.

Polluted Runoff Initiative

With escalating levels of development and lax enforcement of the law, Georgia's streams, rivers, wetlands, and marshes are becoming choked with sediment from construction sites. The Georgia Environmental Protection Division recently conducted an investigation of 100 construction sites. It found that not a single developer was in compliance with the state erosion and sedimentation requirements. Silt fences were absent or improperly installed, sediment ponds were missing, and check dams were undersized. Consequently, with every rain event, soil was being transported into the nearest stream or marsh.²⁰⁰ As sediment and other pollutants build up in tidal waters, they rob the water of oxygen, smother oyster mounds, and bury marsh grasses. To rectify the problems associated with the ongoing discharge of pollution and sediment laden runoff, the conservation groups need to take the following actions:

1) SECURE BETTER STORMWATER PERMITS

With a number of the state's general permits for stormwater up for renewal in the next few years, the conservation groups need to bolster the post-construction stormwater requirements in these permits. For example, a general permit is currently required for local governments that own or operate separate storm sewer systems. This general permit expires next year. The conservation community needs to engage in the regulatory process to get permit conditions for post-construction stormwater and greater coverage of the permit across the region. On the coast, the only counties that have municipalities covered by the general permit are Chatham County (and all of its incorporated municipalities); Glynn County (Brunswick); and Liberty County (Flemington and Walthourville).²⁰¹ If the state does not strengthen the general permit and

require its proper implementation, the conservation groups must challenge it.

2) SECURE LARGER BUFFERS

In the 2007 legislative session, House Bill 500 was introduced to amend the Coastal Marshlands Protection Act to require a 50-foot buffer along the state's marshlands. Although half of what science suggests is needed,²⁰² this proposed legislation would have doubled the size of the 25-foot buffer currently provided under the Erosion and Sedimentation Act. The 50-foot buffer would have been more effective in filtering out sediment and excess nutrients than its 25-foot counterpart. It would also have been more effective in protecting coastal waterbodies from other harmful contaminants found in polluted runoff, including pesticides, heavy metals, and pathogens from human and animal wastes. Furthermore, the larger buffer would have provided more wildlife habitat, more protection against flooding and storm damage, and more protection for sensitive estuarine areas. Although HB 500 was not enacted during the 2007 legislative session, it is incumbent upon the conservation groups to continue lobbying for this bill or a stronger measure until it is passed by the General Assembly.

3) SEEK LOCAL ADOPTION OF THE COASTAL STORMWATER SUPPLEMENT

As discussed above, the state is now developing a Coastal Supplement to the Georgia Stormwater Manual. The conservation community needs to participate in the process to ensure that this document includes strong guidance for the protection of coastal waters. If the conservation community is successful in its efforts, the manual could ultimately contain numerous stormwater control practices that can provide important protection for coastal resources. Depending on the outcome of the process, the conservation community should stand ready to work with local governments throughout the region to advocate for the adoption of ordinances that require compliance with the manual.

4) ENSURE BETTER ENFORCEMENT

Finally, the last prong of the Polluted Runoff Initiative would be to increase enforcement of stormwater requirements. Local governments and the EPD are failing to use their enforcement powers in a way that will encourage dischargers to comply with the law throughout the coastal zone. The environmental community needs to identify good cases and file enforcement actions against the most egregious violators to bring developers in line with the stormwater requirements.

Special Places Initiative

As discussed above, although SELC is not an expert on protecting land permanently, we strongly support a robust land conservation strategy to protect special places in coastal Georgia. Once the conservation groups identify

these important tracts of land in the eco-vision, the conservation groups will have to leverage resources in order to permanently protect as many of these important areas as possible. Following the Conservation League's model, land conservation results can be improved when advocacy organizations collaborate closely with land trusts. By using legal leverage, advocacy organizations can often help get a landowner to the table so that the land trust can then finish the deal. Where possible, SELC is committed to partnering with advocacy groups and land trusts to facilitate protection of important tracts of land. Considering that large tracts of land in special places like Harris Neck (which was identified in our survey as one of the most important areas on the coast; Figure 17(b)) are coming up for sale, it is imperative that the community not delay. The following are SELC's suggested actions:

1) INCREASE STATE FUNDING FOR LAND CONSERVATION

As discussed previously, the state of Georgia does not provide as much funding for land conservation as other states in the Southeast. Georgia must do more for conservation. Advocacy groups, land trusts, and other interest groups, whether they are on the coast or not, should all rally behind efforts to increase funding for protecting sensitive lands through the Georgia Land Conservation Program. The conservation groups on the coast must establish alliances with like-minded and diverse organizations to convince those with power over the budget to fund the Georgia Land Conservation Program at a significantly higher level. Increased state funding for land conservation would provide a much-needed boost for coastal protection efforts.

2) IDENTIFY AND PROTECT SPECIAL PLACES

The development of an eco-vision will help guide efforts to protect coastal Georgia in many ways. Part of the value in developing the eco-vision is to coordinate with other groups regarding the most important areas to protect. As described above, SELC has completed a survey identifying three categories of special places. Figure 14 reveals specific high value lands deserving permanent protection, such as Little St. Simons Island, St. Catherines Island, Harris Neck, and areas surrounding Fort Stewart. By protecting specific high value lands, the conservation community also protects numerous sensitive resources that they support, such as endangered species, wetlands, and water quality. See Figures 14(a)-(f). Combined with information already developed by other conservation organizations, the eco-vision will help to identify and prioritize other targets as well.

Once specific conservation targets are identified for purposes of an eco-vision, GIS can be used to establish natural corridors between targets and other important resources, such as rivers and marshlands. For example, SELC has used GIS to evaluate digital ownership informa-



CRAIG TANNER

Cumberland Island, Georgia

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Longleaf pine forest, Okefenokee National Wildlife Refuge, Georgia

tion for the eastern portion of Bryan County. Bryan County contains a portion of Fort Stewart, a wildlife “hotspot” in the region. Fort Stewart provides a density and diversity of species unmatched elsewhere in the state. However, as development pressures mount in surrounding areas, important habitat is fragmented and Fort Stewart’s wildlife populations become more susceptible to isolation. It is important that this critical core of habitat be connected to other habitat areas to ensure the long-term viability of species found there. An analysis of Bryan County parcel information reveals that there are a number of large, undeveloped parcels in the immediate vicinity of Fort Stewart. Figure 17(a). Through purchase or easement, these parcels could establish a natural corridor between Fort Stewart and the marshes.

In addition to Figure 17(a), which depicts Bryan County, SELC has created maps of McIntosh County (Figure 17(b)) and southern Camden County (Figure 17(c)), showing how the eco-vision maps can be applied to specific locations on the coast. These maps illustrate the value of using an eco-vision to evaluate proposed development projects. In the McIntosh County map, the area of the proposed Julinton Plantation on Harris Neck (which is further discussed below in the Planning Initiative) is depicted. The mapping of this area helps to evaluate the potential for impacts to surrounding resources, including neighboring shellfish production grounds and the Harris Neck Wildlife Refuge. In the Camden County map, the location of the Cumberland Harbour project is depicted in the context of surrounding resources. Without performing this type of analytical examination, it is difficult to consider the full impacts of the proposal on the multiple sensitive resources within close proximity to the project, which in this case includes Cumberland Island National Seashore and Cabin Bluff (important habitat for the threatened eastern indigo snake). Not only do these maps enable the conservation community to fully assess the possible effects of these projects, but less damaging alternatives can be readily evaluated as well. Whenever suitable alternatives are available, these maps can be used to more effectively advocate for those options. In addition, each of these maps illustrates priority acquisition targets, candidate areas for restoration, and resources that must be protected through regulation. In doing so, the maps provide an invaluable tool for steering institutional resources to protect important places and resources on the Georgia coast in the most effective ways. Similar analyses, using ownership data, should be completed throughout the eleven-county coastal zone to develop a land acquisition strategy for the entire region. For some counties, ownership data is easy to collect because the data have been digitized. For other counties, the data are not digital and would have to be gathered by researching local tax maps. As in coastal South Carolina, substantial assistance from someone trained in GIS is required to assist in this effort.

BILLEA

3) RESTORE SPECIAL PLACES

In addition to habitat preservation, there are areas within the region in which habitat restoration is needed. These areas should be identified and prioritized in conjunction with resource professionals. As discussed previously, large areas on the Georgia coast are comprised of wetlands that have been managed intensively as pine plantations. Timber practices have altered the natural hydrology in these areas, resulting in increased flashiness of water flows to the estuaries. In addition to identifying high value target lands for preservation, our survey has identified a number of large wetland complexes that provide excellent opportunities for restoration. These areas are currently managed for monoculture pine production and could soon be converted into subdivisions; however, the opportunity currently exists to restore these vast wetland complexes, such as Indian Swamp-Caney Bay, Buffalo Creek Swamp, Little Satilla Swamp Complex, and King's Bay Complex. These areas are identified in Figure 15.

Other candidate habitats for restoration include shellfish beds and longleaf pine forests. Figures 15(b) and (c). A federal initiative that should be made part of the overall longleaf conservation effort involves restoration of longleaf forests on private lands under programs administered by the federal Natural Resources Conservation Service. The agency has prioritized longleaf restoration for funding under a number of its grant programs, including the Conservation Reserve Program. This initiative, combined with acquisition efforts near Fort Stewart, is of paramount importance for the future of longleaf in the region.

Following the example of the Coastal Federation in North Carolina, groups in Georgia should also support efforts to restore shellfish habitat due to the important functions that shellfish, such as oysters, play in tidal environments. In addition to filtering water and improving its quality, oyster reefs provide important habitat for a wide variety of marine life and stabilize exposed marsh edges, which prevents erosion and loss of marsh grasses.

Planning Initiative

1) GUIDE LAND USE DECISIONS

Many of the most significant decisions for the future of the Georgia coast are made by local governments. Some of these decisions involve the rezoning of ecologically important tracts of land. A recent example is the proposed Julinton Plantation in McIntosh County, which involves the rezoning of a 1,300-acre parcel of land in an area called Harris Neck, which is in close proximity to the Harris Neck Wildlife Refuge. Figure 17(b). Harris Neck has been identified in our survey as one of the most important areas on the Georgia coast to preserve, and this rezoning may allow for the construction of as many as 1500 homes. Immediately adjacent to the proposed development is one of the most significant commercial clam operations on the

coast, owned and operated by Sapelo Sea Farms, a small business started by local fishermen. Given the sensitive nature of these shellfish resources, the commercial fishermen who work these waters believe that, if not carefully regulated and limited to a moderate density, the development proposed will ultimately result in the closure of these beds due to water pollution. Major rezonings, such as this, are being approved routinely by cities and counties across the coastal region, with little, if any, analysis of their impact on public resources.

Like the Conservation League, the conservation groups, relying on the eco-vision, should identify the counties and municipalities of concern within which to focus resources. The groups should engage in these communities and become respected voices for balanced forms of growth. In addition to regularly attending planning meetings, all local land-use decisions should be monitored so that significant decisions do not get made without necessary public input. Further, like the Conservation League, the conservation groups should steer public infrastructure projects, such as roads, sewer, and water lines away from ecologically important areas. When public input does not result in better land-use decision-making, poor decisions must be challenged.

Residents should also be educated to play a meaningful role in local policy formulation and governmental decision-making. Some citizen monitoring programs already exist in the coastal region. These opportunities should be expanded and additional programs should be developed to raise awareness and provide much-needed input. As discussed above, on February 11, 2005, Governor Sonny Perdue signed an executive order directing the Georgia Department of Community Affairs to begin work on a "Coastal Comprehensive Plan" for the Georgia coast. The conservation groups will need to pay special attention to this process to ensure that this plan includes the wise investment of public resources. With this plan now under construction, immediate attention needs to be devoted to oversee this process.

2) GUIDE FLOODPLAIN MANAGEMENT

Improving floodplain management on national and local levels will decrease residential hazards and economic losses resulting from natural disasters and reduce the amount of funds expended through emergency management programs. Therefore, responsible floodplain management is an environmental strategy that can increase sustainable growth as well as address a number of health and economic concerns. For this reason, the Buy Dry Land campaign should be strengthened and supported to educate homebuyers of the hazards of floodplain and wetland development.²⁰³ Figure 16(c) shows examples of improper floodplain development and proper floodplain management. Homes and other structures should be prohibited in

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Figure 17.

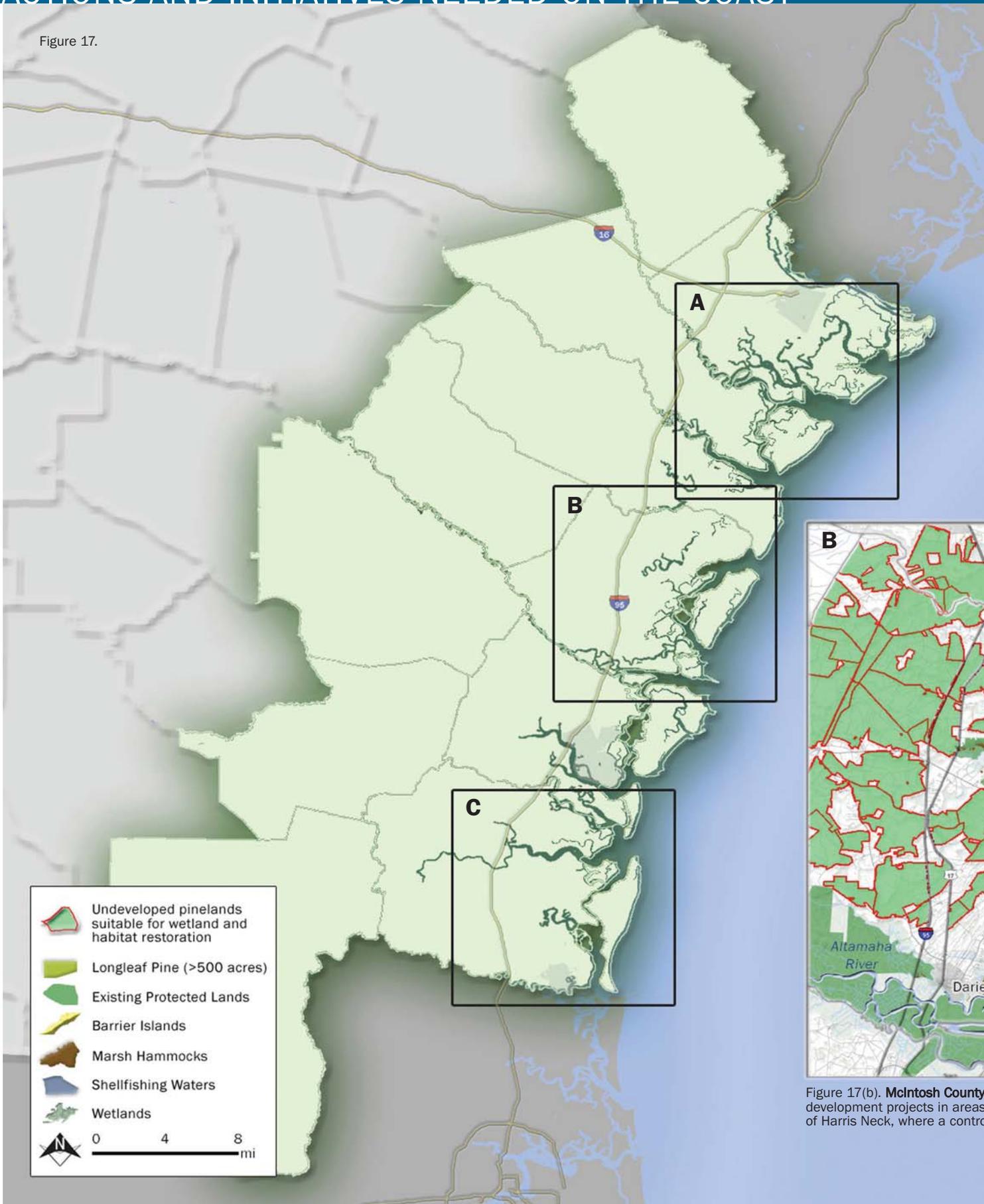


Figure 17(b). McIntosh County development projects in areas of Harris Neck, where a contro

Figure 17(a). **Bryan County:** An analysis of Bryan County parcel information reveals that there are a number of large tracts of land in the immediate vicinity of Fort Stewart that are ideal for preservation efforts.

RESTORATION:
Longleaf Pine

CONSERVATION:
Habitat corridor

REGULATION:
'Isolated' Wetlands

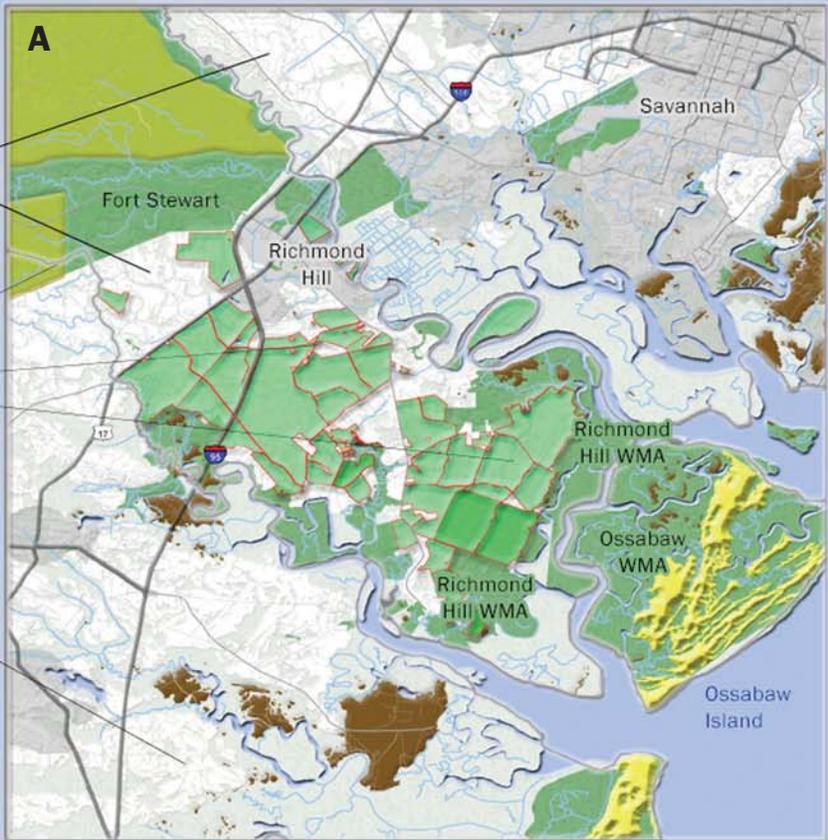


Figure 17(c). **Camden County:** This Figure provides another local example of how the eco-vision can be used to evaluate development projects. This map depicts a portion of Camden County and illustrates the proximity of the proposed Cumberland Harbour development maps to a variety of sensitive coastal resources.

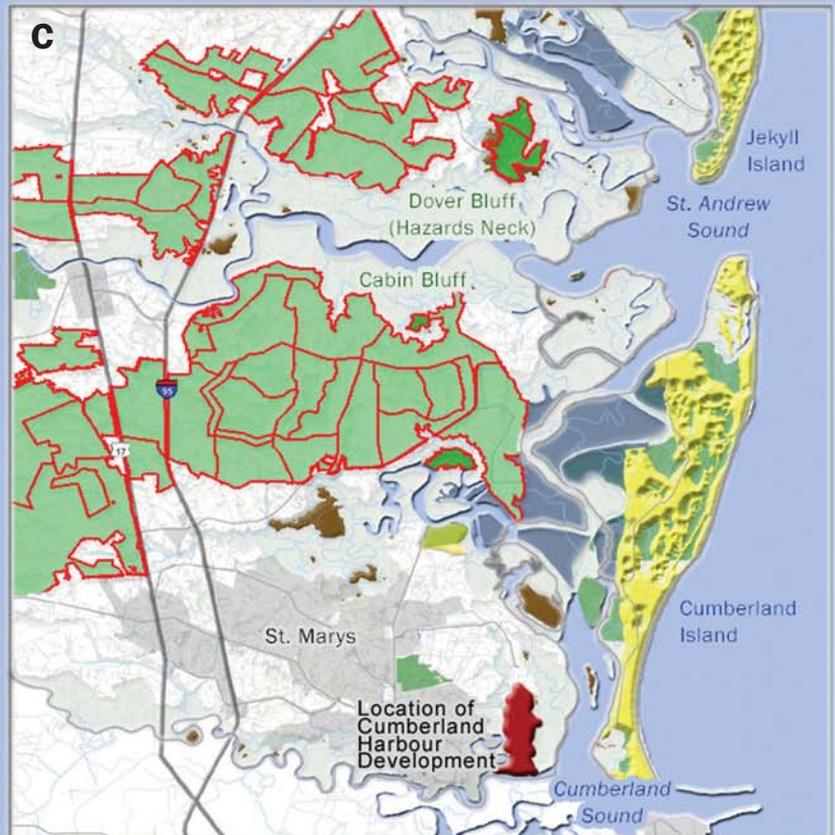


Figure 17(b). The eco-vision can be used to analyze proposed development projects like McIntosh County. This Figure shows the location of a controversial development project is being proposed.

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floodways to protect against economic and ecological losses. The conservation groups need to have a bigger hand in making sure that coastal floodplains do not become filled with houses.

3) DEVELOP EFFECTIVE WATERSHED PLANS

Coastal counties should conduct watershed planning, using tools essential for growing sustainably. These tools include land conservation, aquatic buffers, improved site designs, erosion and sediment control ordinances, stormwater treatments, and management of other discharges. Based on a directive by the Governor and a schedule set by the Georgia Department of Community Affairs, such plans should be completed by 2011.²⁰⁴ As part of this Initiative, the conservation groups should monitor the development of these plans to ensure they are sufficiently protective of the coast.

4) PROTECT GROUNDWATER

Another issue that has major implications for coastal Georgia is saltwater intrusion into the Upper Floridan Aquifer. The conservation groups need to pressure the state to take the actions necessary to protect groundwater resources for coastal Georgia into the future. As part of this effort, development of the Statewide Comprehensive Water Management Plan should be monitored. This plan will in all likelihood be key in determining where water flows in Georgia. Considering that the water needs of

Neuse River Basin—Effective Watershed Planning

An outstanding example of successful watershed planning is the effort to improve estuarine water quality in the Neuse River Basin in North Carolina. The Neuse River Estuary was not meeting water quality standards. Under requirements of the U.S. Environmental Protection Agency, the state adopted a nitrogen reduction requirement for the river of 30 percent. To achieve this reduction, the state prohibited new point source discharges and adopted a buffer protection regulation requiring a 50-foot vegetated buffer. Where impacts to buffers are unavoidable, the state required a \$40,000 per acre fee. These fees are used to restore buffers in other locations within the basin. New and expanded discharges must purchase discharge credits through a nutrient trading program. In addition, initiatives were undertaken throughout the basin to reduce nitrogen inputs from agriculture. New urban stormwater controls were adopted, and all new developments are required to install Best Management Practices such as constructed wetlands, rain gardens, permeable pavement and green roofs to control nitrogen loading to 3.6 pounds per acre per year. Together, these actions resulted in a 42 percent decrease in nitrogen loading to the estuary, exceeding the 30 percent reduction goal.

Atlanta dwarf the needs of other parts of the state, the plan could recommend that provisions be made to send additional water to Atlanta. This could be done at the expense of the coast. Thus, the conservation groups need to be prepared to lobby for a more coast-friendly outcome. In addition, as discussed above, the conservation community should ensure that the state's plan includes the progressive conservation measures contained in the Coastal Georgia Water and Wastewater Permitting Plan for Managing Saltwater Intrusion.

At present, most of coastal Georgia receives its drinking water from the Upper Floridan Aquifer. Efforts to protect this aquifer must include safeguarding groundwater recharge areas, implementing aggressive water conservation programs, preventing new withdrawals that jeopardize the Upper Floridan Aquifer, and educating the public on the issue. The conservation groups should be engaged in all of these efforts.

5) CHALLENGE DAMAGING RESERVOIR AND WATER WITHDRAWAL PROPOSALS

A decrease in the amount of freshwater flowing into Georgia's estuarine waters can degrade the health of marshlands and estuaries. Decreases in freshwater flows to the coast can be attributed to the construction of drinking water impoundments and withdrawals in areas upstream from the coast. There is concern that populated areas like Atlanta might try, possibly with the backing of recommendations included as part of the final Statewide Comprehensive Water Management Plan, to use increasingly more water from rivers like the Savannah to quench the region's growing thirst for water. If less freshwater reaches the coast to mix with the ocean's saltwater, saline levels in the estuaries will rise, resulting in severe damage to Georgia's estuaries and estuarine-dependent aquatic life. Coastal protection efforts must ensure that damaging proposals to withdraw surface waters in upstream areas do not damage the coast's aquatic resources. As discussed above, the conservation groups will need to pay special attention to the Statewide Comprehensive Water Management Plan.

6) PETITION FOR CRITICAL HABITAT FOR EASTERN INDIGO SNAKES UNDER THE ENDANGERED SPECIES ACT

Another tool for protecting land and affecting local land-use decisions is the Endangered Species Act. Eastern indigo snakes were designated as threatened in 1978, yet no critical habitat has ever been designated. The adoption of critical habitat would provide another important tool for shaping future development proposals. Proposals in areas of critical habitat would require the application of special conditions on the proposed project that would not only protect the threatened snakes, but would also require a more sensitive type of development. Therefore, the conservation groups should submit a petition for the designation of critical habitat for the indigo snake under the ESA.

Climate Change Initiative

SELC believes climate change presents an opportunity for the conservation groups to develop alternative messages to support balanced coastal development. Communications regarding the threats of climate change may have the potential to reach greater numbers of people in coastal Georgia. In fact, this spring, the mayor and city council in Savannah passed a unanimous resolution to join the Cities for Climate Protection campaign and became one of 230 local governments committed to taking action at the local level to combat climate change.²⁰⁵

1) HELP THE COAST ADOPT MEASURES TO PREPARE FOR GLOBAL WARMING

Due to the impacts of increased storms and sea-level rise, coastal areas must prepare for the impacts of climate change. Conservation groups should advocate for wider buffers, protection of wetlands, restrictions of development in floodplains, and other measures to mitigate the impacts of climate change. These same strategies comprise some of the measures described above. Climate change presents the opportunity to advocate for these same measures using different strategies and messages. For example, threats associated with climate change may lead to new opportunities to obtain state and federal funding to permanently protect important lands—not for their ecological values—but to serve as permanent buffers to protect developed areas from storms. Further, if people do not respond to messages to protect wetlands based on their ecological values, perhaps they will support strategies designed ultimately to protect private property from flooding and storms.

2) EDUCATE COASTAL GEORGIANS ON CLIMATE CHANGE

Like everywhere else on the planet, action must be taken now in coastal Georgia to address climate change. Groups in coastal Georgia should educate the public on this important issue.

3) ADVOCATE FOR DECREASES IN GREENHOUSE GAS EMISSIONS

The conservation community must advocate in support of actions to lower the emissions of greenhouse gases, which may include green building techniques, expansion of mass transit, and use of alternative fuels.



DAVE LEWIS

Downtown Savannah, Georgia

RESOURCES, ACTIONS, AND INITIATIVES



CRAIG TANNER

In the previous section we provided our analysis of what “Immediate Actions” and “Comprehensive Initiatives” are needed to address the current threats to the coast. In this section, we provide our estimation of what additional resources are needed to achieve these Actions and Initiatives. Having completed this year-long Assessment, it is clear that: (1) Georgia’s coast still supports natural resources that are of national, if not world-wide, importance; (2) the coastal conservation groups, including advocacy organizations, land trusts, and sportsmen’s groups, must band together like never before if this incomparable region is to be protected; and (3) without a significant infusion of additional resources to support much-needed capacities, the conservation groups will not be able to effectively address the development pressures that are bearing down across the region. As discussed below, the conservation groups must act now to get additional resources on the ground to accomplish short-term goals and must act strategically to begin laying the foundation for substantially increasing the capacity of the coastal conservation community to meet growing long-term challenges.

Resources Needed to Protect the Coast

Having examined the coastal advocacy groups in both South Carolina and North Carolina, it is clear that the effort to protect Georgia’s coast is suffering from deficiencies in certain key areas.

Although the South and North Carolina coasts are arguably more challenging to protect in light of their larger size, each state has a community of coastal advocacy groups that is significantly larger than comparable groups on the Georgia coast. The Conservation League alone has twenty-two to twenty-three funded program staff members that dedicate their time to protecting the South Carolina coast. In addition to these program staff members, the Conservation League has seven to eight development and administrative employees to support the program work. Similarly, the Coastal Federation has about ten funded program staff members that focus their time on protecting the North Carolina coast. They too are supported by development and administrative staff. In addition, other advocacy organizations in North Carolina also have staff that are dedicated to coastal protection. These organizations include Environmental Defense, the Lower Neuse Riverkeeper, the Pamlico-Tar Riverkeeper, the Cape Fear Riverkeeper, and Audubon North Carolina. Altogether, there are at least sixteen advocates focused on protecting North Carolina’s coastal rivers and estuaries. Despite having all these resources at their disposal, both the Conservation League and the Coastal Federation are in the midst of capital campaigns to further increase the size of their organizations. In short, protecting a coastline requires a lot of resources.

While it is difficult to make a precise “apples to apples” comparison of the resources on all three coasts, it is clear that Georgia is lagging far behind the Carolinas in the number of people that are fully engaged in coastal advocacy efforts. Our conclusion is that in order to execute the Comprehensive Initiatives as part of the Long-Term Plan discussed below, at least five new people are needed to complement the existing organizations and fill gaps.

Even with such an increase of coastal advocates, it is also apparent that all conservation groups on the coast are going to have to collaborate more effectively. For instance, in our interviews with the Conservation League, it was clear that the Conservation League’s work would not be nearly as effective without the close working relationships that it enjoys with land preservation organizations. If the conservation groups are to succeed on the Georgia coast, land preservation groups, such as The Nature Conservancy, and advocacy groups are going to have to work together. The Conservation League has enhanced its overall effectiveness through close collaboration with land preservation groups. The same level of coordination needs to occur here in Georgia.

In addition to needing additional manpower and greater coordination, the conservation groups need other resources in important areas to increase their overall effectiveness. While the coastal developers can hire experienced consultants, high-priced attorneys, and public relations firms, the coastal groups are left to do the best they can with the resources they have. Considering the rapid growth on the Georgia coast, every advocate in the fight to save the coast must be equipped with the resources needed to be successful. To remedy this situation, the conservation groups need to be equipped with increased levels of technical, legal, and communications capacities in the following ways.

First, both the Conservation League and the Coastal Federation have considerable scientific and technical capacity to enhance their advocacy work. The Conservation League uses many different types of experts, including land-use planners, engineers, air quality experts, GIS technicians, and others. The Conservation League does not have these experts on permanent staff; rather, the League has a preference for contracting with outside experts, when needed. The Coastal Federation contracts with outside experts as well, but has scientists on staff to assist with issues related to water quality, habitat, and wetlands. As the Conservation League and Coastal Federation have demonstrated time and time again, having technical expertise at their finger tips has made their advocacy much more effective. The same should be true on the Georgia coast.

Second, decisions are made every day at every level of government (federal, state, and local) that affect the envi-

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ronment. These decisions are subject to an array of state and federal environmental laws. Accordingly, the conservation groups must have strong and adept legal advocates that can challenge decisions at every level of government to ensure proper implementation of the law and protection for coastal resources. SELC continues to work with the other conservation groups on the coast, but a significant increase in legal capacity is needed to ensure proper implementation of the law to protect the coast's resources in light of escalating development pressures. This is especially true given the unlimited legal resources that developers can use to accomplish their goals on the coast.

Third, communications capacity is a key attribute of an effective conservation strategy. Todd Miller of the Coastal Federation underscored this during his interview with SELC. He also provided several examples of the ways in which the Coastal Federation communicates with the public, including its *State of the Coast* report, its website, and a monthly television show. Miller also explained that in its early years, the Coastal Federation's collaboration with a Raleigh television station on a "Save Our Sounds" program helped educate the public, generate support for water quality protection rules and legitimize the organization.²⁰⁶ The conservation groups need additional resources to augment communications abilities to disseminate messages to the public about the importance of protecting coastal resources. To protect the coast, the conservation community must not only be able to communicate effectively on a local level, but the community must also be able to draw statewide and national attention to the issues confronting the coast and the ecological importance of the region.

In short, the advocacy groups working to protect coastal Georgia do not have an adequate number of people or the technical, legal, or communications capacities to provide the same level of protection for the Georgia coast that the Conservation League or the Coastal Federation are able to provide in their respective states. This needs to change quickly in order to meet current challenges. In the following discussion, SELC offers Short-Term and Long-Term Plans to support the Immediate Actions and Comprehensive Initiatives described in the previous section.

Short and Long-Term Plans

To form these two plans, SELC looked at two different planning horizons, three years and ten years. These timeframes line up with the schedules for the Immediate Actions and the Comprehensive Initiatives. The Immediate Actions are designed to be implemented and largely completed within three years. The Comprehensive Initiatives are matters that could require continued work for a decade. The Short-Term Plan is designed to implement the Immediate Actions, while the Long-Term Plan is designed to advance the Comprehensive Initiatives.

DAVE LEWIS

SHORT-TERM PLAN

The Immediate Actions, as explained in the “Actions and Initiatives Needed on the Coast” section above, are the following:

(1) Prevent the state from marginalizing the protections of the Coastal Marshlands Protection Act (the state must consider all of the ways in which coastal development projects impact the marsh);

(2) Require the state to enforce the Erosion and Sedimentation Act’s 25-foot buffer requirement on the salt marsh and other coastal waters (the state must require local governments in the coastal zone, like Glynn and Chatham Counties, to implement and enforce the 25-foot buffer for marshlands and tidal streams);

(3) Monitor and challenge, if necessary, Corps jurisdictional decisions over wetlands and streams throughout the coastal region (if the Savannah District’s decisions are not monitored and challenged, the agency will use the current confusion surrounding its authority to remove federal protections for wetlands under the Clean Water Act); and

(4) Permanently protect as many ecologically important tracts of land as possible (advocacy and land trust organizations must work in tandem to achieve maximum protection for sensitive lands).

The Short-Term Plan involves the Immediate Actions listed above, as well as the development of an eco-vision to guide long-range conservation efforts on the coast. The development of an eco-vision will result in maps that identify the most vulnerable and ecologically valuable areas on the coast. The conservation groups would use the maps to refine the Immediate Actions and Comprehensive Initiatives and to deploy resources in the most strategic places.

In order to successfully implement the Immediate Actions, it is essential that the conservation groups be equipped properly. As described above, the conservation groups need more technical, legal, and communication resources. In the paragraphs below, we explain how those resources could be deployed on the coast in short order.

Technical Capacity

To ensure that the conservation groups have the scientific and technological resources they need to be effective, a scientist or environmental management professional with experience in a relevant coastal discipline, such as ecology, biology, or environmental planning, should be hired. This person would be available to assist conservation groups with technical needs, including on-the-ground analysis of potential environmental problems. In addition, this person would be able to help analyze proposed development projects and offer suggested improvements to make the projects more environmentally sensitive. If a project were beyond this person’s expertise, he or she would be respon-

sible for identifying an appropriate expert in academia, an agency, or the private sector to provide the necessary assistance. The scientist would also be responsible for alerting the conservation groups to lessons learned through successful approaches to environmental problems in other coastal states.

SELC proposes that conservation groups form a committee to hire the scientist. A key requirement for this position would be for the scientist to foster relationships with academics, consultants, and other technical experts to develop a reliable community of experts that are willing to provide assistance when called upon. In addition, sufficient funding must be provided not only to pay for the scientist, but also to allow the community to hire relevant experts, such as GIS and aerial photography professionals. Expert assistance in disciplines such as these is critical to ensuring that the Corps fulfills its obligation to protect wetlands. In light of the fact that most wetlands at issue are found on private lands, access to experts in aerial photography and map-making is essential for successful investigation. Without these technical tools, it would be very difficult to meet the challenges facing the conservation community, including the fallout from the *Rapanos* decision and other changes in federal wetlands law.

Having a scientist to strengthen overall technical capacity would address one of the community’s primary shortcomings. It would also obviate the need for individual groups to build their own in-house technological expertise. In addition, it would be beneficial for groups to be able to look to a single source for the latest scientific and technical information to support program work, such as model ordinances for protecting resources.

Legal Capacity

Many of the Immediate Actions identified above in the “Actions and Initiatives Needed on the Coast” section require substantial legal resources. Implementation of the Coastal Marshlands Protection Act; requiring the state to implement the 25-foot buffer requirement on coastal waters; and reviewing and challenging improper wetlands jurisdictional determinations, all require a significant investment in legal resources. Given the current political climate in Georgia, legal approaches are sometimes the only forms of advocacy that can effectively defend coastal resources and require government agencies to correct improper implementation of the law. Considering the challenges posed by the proposed Immediate Actions, it is imperative that more legal resources be deployed as part of the Short-Term Plan.

Communications Capacity

In addition to increasing technical and legal capacities, the Short-Term Plan includes building communications capacities for the coastal conservation community, which includes the ability to hire communications consultants

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and to fund important campaigns. The conservation groups must have the ability to communicate with the public in an effective way about important issues in the region. By educating the public through effective messages regarding substantive work, the conservation groups would be able to garner support for their positions and influence important political leaders. In addition, the conservation groups must have the ability to support those communication campaigns that it develops. Accordingly, the Short-Term Plan includes acquiring sufficient funding to give innovative campaigns like “Buy Dry Land” a chance to succeed.

In sum, the Short-Term Plan involves:

- (1) Taking the immediate actions outlined in the “Actions and Initiatives Needed on the Coast” section above;
- (2) Increasing technical capacity, including hiring a scientist or other environmental management professional to serve existing groups; bolstering legal capacity; strengthening communications capacity; and
- (3) Devising an eco-vision as a foundation for implementation of Comprehensive Initiatives.

In order to launch the Short-Term Plan, SELC proposes the following meetings:

August 2007—A meeting among environmental advocates, land trusts, sportsmen’s organizations, and others to discuss the proposed Short-Term Plan, including immediate next steps and the hiring of a scientific or environmental management professional to serve the environmental organizations; and

February 2008—A meeting among environmental advocates, land trusts, sportsmen’s organizations, and others to initiate the development of a coastal eco-vision. As described above, the objective of the eco-vision is to develop a shared vision for the future of the coast that would identify ecologically valuable areas deserving of permanent protection and other areas where responsible development can be accommodated.

These meetings to further refine the Short-Term Plan and develop the eco-vision will lay the foundation for the implementation of an effective, coordinated, long-term strategy to protect the Georgia coast.

LONG-TERM PLAN

Although the Short-Term Plan with its Immediate Actions is urgently needed and extremely important, that plan is not going to save the Georgia coast on its own. The Short-Term Plan must be complemented by a Long-Term Plan to implement the Comprehensive Initiatives. In addition to actively implementing the Short-Term Plan, the conservation community needs to lay the groundwork to dramatically increase resources to support coastal protection efforts over the long haul. Where possible, statewide

organizations need to shift additional resources to the coast, and all the conservation groups need to collaborate to devise ways to focus state and national attention on the Georgia coast. The Georgia coast must be placed in the spotlight so that the conservation groups can raise the funding needed to protect the saltwater marshes, maritime forests, cypress domes, and other resources that comprise the Georgia coast’s unique character.

As discussed above, compared to the South and North Carolina coasts, the Georgia coast has a fraction of the advocates that the Carolina coasts enjoy, and, as the lead coastal organizations in those states will readily explain, the South and North Carolina coasts are still not adequately protected. Based on the numbers of people protecting the South and North Carolina coasts and the challenges inherent in pursuing the Comprehensive Initiatives in Georgia, a minimum of five additional people focused on protecting coastal Georgia is needed. In order to ensure that these new people are utilized in the most effective manner, our recommendation, for the reasons discussed below, is that a new organization be established on the Georgia coast.

Organization to Protect the Entire Coast Using All Forms of Advocacy

SELC recommends that a free-standing organization based on the successful models of the Conservation League and the Coastal Federation be established to focus on protecting the entire coast as a region. Such an organization would be the best vehicle for deploying new resources and for enhancing efforts to protect the Georgia coast for a number of reasons.

First, an organization dedicated solely to protecting the entire coast and with a critical mass of five program staff would have the ability to bring all of the different coastal groups together in a coordinated fashion to work meaningfully on the full range of coastal issues. Also, with the right communication resources, such an organization would have the opportunity to focus public attention on the Georgia coast and make its protection a statewide and national priority. Over time, the new organization, like the Conservation League and Coastal Federation, could build a significant constituency for protecting the entire coastal region, including a much-needed political constituency to advance an agenda of coastal protection in state government.

Second, a new stand-alone organization provides the most effective means for managing new employees and resources. If five new people were hired to protect the coast, it would be more efficient to have those new employees reporting to one manager located within one organization that has a goal of protecting the entire coastal region. Without a new organization to house new employees, new hires would be placed within different organiza-

tions, which would make it harder for these new employees to collaborate effectively. The new organization, like the Conservation League and the Coastal Federation, also could be poised to rapidly make decisions about how to use limited resources. Considering how quickly the Georgia coast is developing, it would be an advantage to have an organization with sufficient resources that is able to respond decisively to new threats or other pressing issues.

Third, with a coast-wide mission, the organization would also be in a position to develop a membership base throughout coastal Georgia. With members throughout the region, the organization, like the Conservation League and the Coastal Federation, could use legal advocacy, wherever necessary on the coast, to address threats. In order to file and maintain a lawsuit, a plaintiff must establish “standing to sue.” In order to establish standing, a non-profit organization must show that it has members who are adversely affected by the challenged activity. Further, the injury alleged must be to an interest that is germane to the organization’s purpose. An organization with a coast-wide focus and membership would be able to establish standing throughout the coastal region. Legal action is currently a tool of paramount importance in coastal Georgia because it is one of the only ways to effectively advance an environmental agenda. SELC has seen examples of this over and over again in Georgia and elsewhere. For example, without a legal strategy, it would have been very difficult, if not impossible, to have required the Coastal Marshlands Protection Committee to properly apply the law in its permitting activities. Although an important case on this issue is still pending, win or lose, the case has, at a minimum, advanced important issues and brought heightened public awareness to the threats to Georgia’s marshlands.

SELC understands that establishing a new organization with the traits identified above is not without its challenges. It is important to understand that the landscape in Georgia now is different than when the Conservation League and the Coastal Federation were formed in the Carolinas. At that time in those states there were no other major advocacy groups present in the region. In Georgia, there are a number of groups already working on the coast. A new organization, therefore, should not duplicate efforts, and for this reason, the organization should not be as large and comprehensive as the Conservation League or the Coastal Federation. Instead, the organization should be smaller and should fill gaps that exist in Georgia’s conservation community. An organization starting with five new employees could fill areas of need without resulting in redundancies.

Another concern with building a new organization is potential competitiveness for funding between the new organization and other groups in the region. SELC does



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not wish to increase competitive pressures for resources among conservation groups. To the contrary, SELC believes that there are new sources of funding that can be attracted to support conservation efforts in the region, and any attempt to build a new organization should aim to bolster existing organizations by increasing funding levels for the entire community. With a new organization dedicated to enhancing coordination among groups and raising state and national awareness of the issues confronting the Georgia coast, SELC believes that new sources of funding will be developed.

Coalition

A second, less desirable alternative for deploying additional resources is to form a coalition. Coalitions can be effective mechanisms for bringing people together, especially in the short-term, to rally around a common problem or to advance a specific agenda. The Georgia Water Coalition provides a good example.²⁰⁷ In the GWC, the Georgia Wildlife Federation, Georgia Conservancy, Upper Chattahoochee Riverkeeper, and SELC have worked well together to build and implement an advocacy strategy on statewide water issues of mutual concern. In the Georgia General Assembly, the GWC has demonstrated its effectiveness by defeating damaging legislative proposals, including a bill to create water markets in Georgia.

The benefits to be derived from coalition work are further illustrated by the establishment of a coastal committee of the GWC, which was formed to address issues of special concern relating to coastal Georgia. This committee consists of many of the advocacy groups described above in the “Government Agencies and Environmental Groups” section. As a result of working together in the GWC coastal committee, these groups have demonstrated through the “Buy Dry Land” campaign how improved coordination can lead to greater overall effectiveness. If a coalition model were adopted to implement the Comprehensive Initiatives, serious consideration should be given to using the coastal committee of the GWC as a foundation from which to build the needed coalition.

Although the establishment of a coalition to implement the Initiatives would enhance coastal protection efforts over the long-term relative to the status quo, the approach also has drawbacks. A coalition, unlike a new organization, would not have a leader that could make important decisions in an efficient manner. Long-term coalitions are inherently inefficient relative to free standing organizations and often become bogged down in decision-making processes. In light of the rapid growth across the region, slow decision-making can mean the difference between permanently protecting an important parcel of land and losing it to a poorly-conceived development plan.

Furthermore, a coalition is a less desirable option for managing new resources. Many of the groups in coastal

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Georgia are small and must devote their available resources to their current priorities. To manage the GWC, groups are expected to perform specific functions such as: legal and policy; legislative and lobbying; communication; membership; report preparation; and meetings organization. For SELC, our leadership role within the GWC requires a significant amount of staff resources from two attorneys. The GWC has been effective, in part, because the organizations that lead the coalition are relatively large and better able to devote significant staff time to GWC responsibilities. Conversely, a number of the groups working to protect the coast are already stretched thin in light of the significant challenges they are already undertaking. Therefore, it would be unfair to expect these organizations to assume the added challenge of managing a coalition on top of all of their other responsibilities.

In addition, a coalition, unlike a free-standing entity, does not have its own members and is therefore unable to establish standing to challenge environmental harms or to require proper implementation of the law. A coalition's inability to use legal advocacy as a tool is a significant shortcoming compared to the ability of organizations like the Conservation League or the Coastal Federation that are able to use legal advocacy, when necessary, to address problems throughout the geographic regions they cover.

Implementation and Coordination of Short and Long-Term Plans

As discussed previously, the Short-Term Plan includes urgent actions to address immediate threats to the coast. Time is of the essence, and this Short-Term Plan must be launched in short order.

The Long-Term Plan will be more complicated to enact. The substantive actions included in the Comprehensive Initiatives are far broader in scope than the Short-Term Plan's Immediate Actions, and the establishment of a new organization is a significant undertaking. There are many tasks that must be accomplished, including recruiting a board of directors, hiring an executive director and staff, and raising significant funds. To be done properly, these tasks will take time to complete. SELC recommends that interested parties take initial exploratory steps to examine the formation of the recommended organization over the course of the next year. This evaluation, however, should not interfere with the launching of the Short-Term Plan to address the immediate challenges that lie ahead.

If the conservation community can initiate and implement these plans in a coordinated fashion, SELC believes that the difficult obstacles that today cast a shadow over the coastal region can be successfully overcome. Correcting the failures of government agencies to properly implement the law and ensuring more balanced and sensitive forms of development on the Georgia coast are daunting challenges. Nevertheless, by working together to implement the Short

and Long-Term Plans, the conservation community can, and will, protect this national treasure and secure a future where the Georgia coast remains distinctive, where habitat is protected and wildlife abounds, and where special places throughout the region are saved in perpetuity for generation after generation to enjoy.

- ¹ Sidney Lanier, 1842-1881, is one of Georgia's most famous poets. "The Marshes of Glynn" (1878) was part of an unfinished set of lyrical nature poems known as the "Hymns of the Marshes," which describe the vast, open salt marshes of Glynn County on the coast of Georgia. See EDWIN MIMS, A BIOGRAPHY OF SIDNEY LANIER (1998), available at <http://www.gutenberg.org/etext/1224> (last visited June 22, 2007). See also Milton S. Eisenhower Library, Johns Hopkins University, Lanier (Sidney) 1842-1881, <http://www.library.jhu.edu/collections/specialcollections/manuscripts/msregisters/ms007.html> (last visited June 22, 2007).
- ² See OFFICE OF OCEAN & COASTAL RES. MGMT., NAT'L OCEANIC AND ATMOSPHERIC ADMIN., STATE OF GEORGIA COASTAL MANAGEMENT PROGRAM AND PROGRAM DOCUMENT 2 (2003).
- ³ DOMINIC GUADAGNOLI ET AL., COASTAL RES. DIV., GA. DEP'T OF NATURAL RES., THE CONDITION OF GEORGIA'S ESTUARINE AND COASTAL HABITATS 2000-2001—Interim Report 1 (2005), available at <http://crd.dnr.state.ga.us/assets/documents/GAreport3062306finalLOWRES.pdf> (last visited June 19, 2007).
- ⁴ Letter from Gov. Sonny Perdue, State of Georgia, to Hon. James D. Watkins, Chairman, U.S. Commission on Ocean 1 (June 4, 2004), available at http://www.oceancommission.gov/documents/gov_comments/Georgia.pdf (last visited June 19, 2007).
- ⁵ See GUADAGNOLI, *supra* note 3, at 1.
- ⁶ See Perdue, *supra* note 4, at 1.
- ⁷ BRUCE A. STEIN, STATES OF THE UNION: RANKING AMERICA'S BIODIVERSITY 20-21 (2002), available at <http://www.natureserve.org/Reports/stateofunions.pdf> (last visited June 19, 2007).
- ⁸ According to its website, Georgia's Regional Development Centers (RDCs) are multi-county planning and development agencies serving municipal and county governments. The Coastal Georgia RDC serves ten counties and thirty-five cities. The region encompasses the six coastal counties and four inland counties. See Coastal Georgia Regional Development Center, <http://www.coastalgeorgiarcd.org> (last visited June 19, 2007). It should be noted that these population projections are for an area that is not completely analogous to the region we have chosen for purposes of this Assessment. The Coastal RDC study includes Bulloch and Screven counties, which are not included in our Assessment. *Id.* Meanwhile, our Assessment includes Brantley, Charlton, and Wayne, which are not included in the Coastal RDC study.
- ⁹ CTR. FOR QUALITY GROWTH AND REG'L DEV., GA. INST. OF TECH., GEORGIA COAST 2030: POPULATION PROJECTIONS FOR THE 10-COUNTY COASTAL REGION 3 (2006), available at http://www.cqgrd.gatech.edu/PDFs/coastal_ga_pop_projections.pdf (last visited June 19, 2007).
- ¹⁰ *Id.* at 4.
- ¹¹ R.B. Hammer et al., *Characterizing spatial and temporal residential density patterns across the U.S. Midwest, 1940-1990*, 69 LANDSCAPE & URBAN PLANNING 183 (2004).
- ¹² See Mary Star, *Get Ready to Grow*, BRUNSWICK NEWS, Oct. 14, 2006; Mary Landers, *In Coastal Georgia: Expect 844,000 residents by 2030*, SAVANNAH MORNING NEWS, Oct. 18, 2006.
- ¹³ Interview with David Kyler, Center for a Sustainable Coast (Apr. 2007).
- ¹⁴ See Star, *supra* note 12.
- ¹⁵ See *id.*; Landers, *supra* note 12.
- ¹⁶ See Star, *supra* note 12.
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APPENDIX A: SOUTHERN ENVIRONMENTAL LAW CENTER

Southern Environmental Law Center

The Southern Environmental Law Center has been defending the health and environment of the Southeast for over 20 years. With offices across the region (core offices in Atlanta, GA; Chapel Hill, NC; and Charlottesville, VA; and satellite offices in Sewanee, TN; Asheville, NC; Charleston, SC; and Washington, DC), SELC is the only organization using law and policy expertise exclusively to protect the South's natural resources—its land, air, water, coast and wetlands—and to preserve our scenic countryside and community character.

Our approach is unique—and successful. We work in Congress and state legislatures to inform environmental law; in regulatory agencies to implement environmental laws and policies; and in the courts, when necessary, to stop the worst abuses of southern resources and set precedents to ensure their lasting protection. SELC works collaboratively with over 100 national, state, and local groups to enhance their efficacy and achieve our common conservation goals. Our legal and policy staff comprises some of the nation's leading experts in their respective fields, and SELC is recognized as one of the most effective environmental organizations in the country.

Advocacy and Leadership for the South's Coast and Wetlands

Effective coastal and wetland protection requires significant expertise in multiple, complex arenas. First and foremost, a thorough understanding of state and federal environmental laws, especially wetlands law, and the science of coastal ecosystems is required. Experience in wildlife protection and water law is also necessary to address water pollution in coastal rivers and estuaries. An understanding of transportation law is needed, since where we build roads and bridges directly affects growth patterns. Expertise is also needed in zoning and other local land-use issues. And recently, even air pollution expertise has become critical to the coastal zone due to increased knowledge of the effects of global warming and sea level rise.

SELC has cultivated expertise in all of these areas over the 20 years that we have been dedicated to protecting the southeastern coast. Working with myriad South Atlantic partners including the North Carolina Coastal Federation, Coastal Conservation League in South Carolina, Chesapeake Bay Foundation in Virginia, and all the Georgia groups working on coastal issues, SELC provides strategic guidance, legal and policy acumen, and access to state and federal decision-makers necessary to develop and implement multi-faceted, comprehensive coastal protection initiatives.

In one of our earliest victories, SELC closed a significant federal loophole that resulted in the protection of 8 million acres of highest-quality southern wetlands from destructive forestry activities. This landmark success

brought national attention to SELC and tagged our organization as one of our country's foremost wetlands advocates. In recognition of this early success and subsequent accomplishments, in 2000 SELC received the National Wetlands Award, granted by the U.S. Environmental Agency and six other federal environmental agencies and organizations.

Our more recent efforts have focused on compelling the federal and state agencies responsible for coastal and wetlands protection to fully enforce these safeguards. A series of court decisions in the late 1990s and early 2000s created uncertainty about the extent of federal protection provided to wetlands. SELC has been working at the federal level to clarify the law and ensure maximum protection for these resources. We are using targeted legal action to stop the worst projects that threaten key southern wetlands or coastal resources, and we are strengthening and creating state-level protection programs to fill the gaps at the federal level. Virginia's wetlands law and associated regulations, which we helped draft and pass, have been lauded as a model program for state-level wetlands protection. In North Carolina, our efforts have curbed the unpermitted destruction of wetlands by development projects posing as forestry endeavors. In South Carolina, we have worked with environmental groups and developers to craft a strong wetlands protection program, which we are currently shepherding through the legislative process.

We launched our coastal work in Georgia in 1987 with a successful effort to prevent massive dredging that would have threatened water quality and aquatic communities off Cumberland Island. Then, as growth pressures began to mount up and down the South Atlantic seaboard, SELC made protection of Georgia's relatively natural and wild coast an institutional priority. In 2000 SELC's regional coastal expert, Derb Carter, working with staff from SELC's Atlanta office, conducted a comprehensive assessment of the coastal zone. We interviewed agency staff, community leaders, and policymakers. From that effort, SELC identified the protection of Georgia's coastal marsh hammocks and surrounding marshlands as an urgent need.

To address this issue, SELC convened a group of scientists to conduct a biological inventory and ecological assessment of Georgia's marsh hammocks. We published our data and analyses and distributed the report to conservation organizations, key decision-makers, and citizens. The investigation confirmed that the health of these islands affects the health of their surrounding waters. It also highlighted just how fragile and vulnerable this ecosystem is. The entire process brought regional attention and focus to this unique and threatened resource. Moreover, our findings served as the foundation for a series of legal actions that should force the state to better enforce its

marshland law and regulations in order to fully protect Georgia's marshes from the direct and indirect threats posed by development.

SELC is using a powerful combination of legal, legislative, and policy advocacy to preserve the features that make Georgia's coast so special—its marshes and marsh hammocks, barrier islands, natural forests, freshwater wetlands, and coastal and aquatic wildlife. Our multi-faceted strategy allows us to take immediate action to stop the worst proposals that threaten to destroy these resources, while at the same time develop a strong framework for long-term protection.

Authors

Christopher K. DeScherer. Mr. DeScherer has many years of experience working on issues related to wetlands, water quality, and wildlife in the Southeast and has worked since 2000 to protect Georgia's wetland resources. In particular, Mr. DeScherer is highly knowledgeable regarding the current regulatory framework for Georgia's coastal wetlands and marshes. Mr. DeScherer received his law degree from Georgetown University Law Center and his undergraduate degree in History from the University of Virginia. In addition to practicing with the Smith Anderson law firm in Raleigh, NC, he was a staff attorney with the Conservation Law Foundation and has consulted with Environmental Defense. Until recently, Mr. DeScherer was a Senior Attorney in SELC's Atlanta office. Mr. DeScherer will be opening SELC's Charleston office this summer.

L. P. Fabrizio. Ms. Fabrizio formerly worked as a wetlands scientist for the North Carolina Division of Coastal Management where she co-developed GIS-based wetland mapping and assessment techniques. Her work there included extensive field verification with cooperating state and federal agencies. Ms. Fabrizio later served as Director of the Planning Branch for the NC Wetlands Restoration Program where she created watershed restoration strategies. She has also conducted extensive field research in coastal Georgia and authored the first report on marsh hammocks. She has an M.E.M. in Coastal Ecology and Management from Duke University.

Adam M. Kron. Since his debut at SELC last year, Mr. Kron has worked on a variety of water quality issues. He is a recent graduate of Harvard Law School where he was managing editor of the *Harvard Environmental Law Review*. He received a BA with Distinction in Biology from the University of Virginia. Mr. Kron has done legal research for several conservation organizations including EarthJustice, Conservation Law Foundation, and Appalachian Voices, and is an Associate Attorney in SELC's Atlanta office.

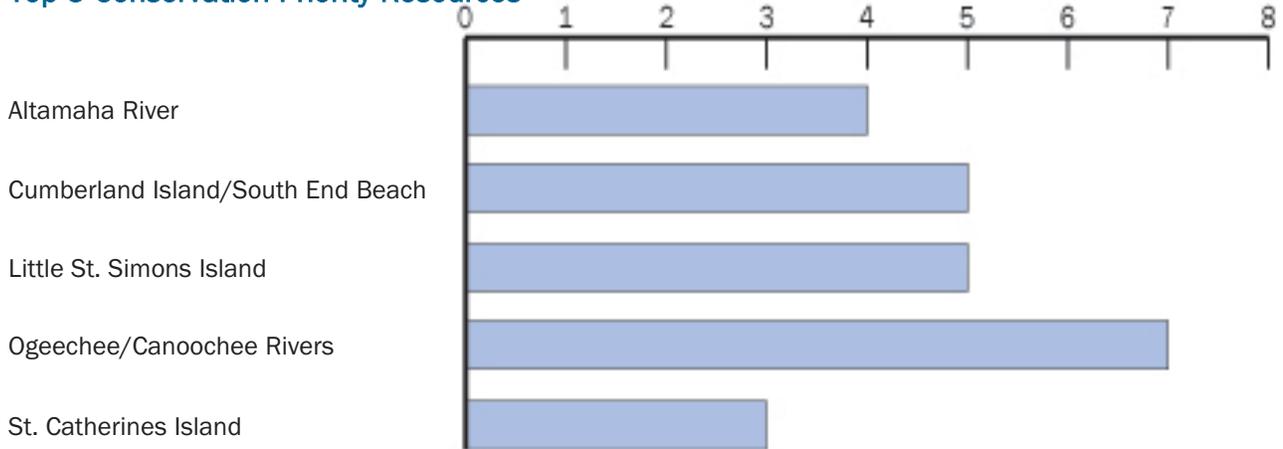
William W. Sapp. Mr. Sapp has been working on wetlands issues for the past seventeen years. During this time he worked in the Office of the Chief Counsel for the Army Corps of Engineers, practiced with the Atlanta law firm Alston & Bird, and served as the lead wetlands attorney for Region 4 of the Environmental Protection Agency. Mr. Sapp earned his law degree at Harvard Law School and his masters of law degree in environmental law from George Washington Law School. In 2007, he joined SELC as a Senior Attorney in our Atlanta office.

Graphic Design

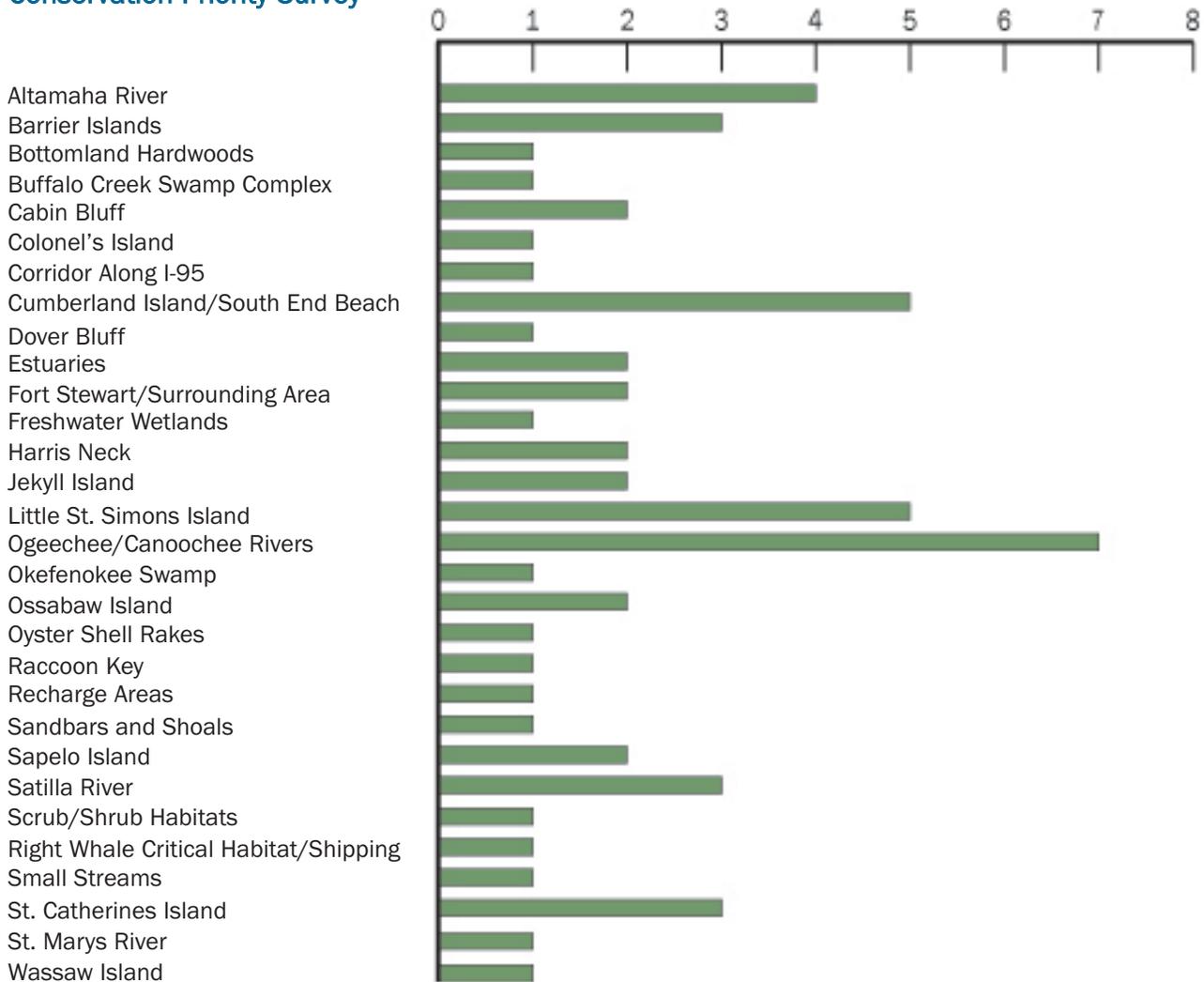
David A. Lewis. Mr. Lewis is a specialist in GIS mapping. Mr. Lewis works in SELC's North Carolina office and is responsible for producing GIS documentation and quantitative analyses to assess, quantify, and communicate issues related to the environment. Mr. Lewis graduated from Duke University's School of the Environment.

APPENDIX C: PRIORITY LANDS SURVEY RESULTS

Top 5 Conservation Priority Resources



Conservation Priority Survey





Champions *for* Conservation

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