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AGENDA
NATURAL RESOURCES COMMITTEE

Monday, November 21, 2016
2:00 p.m.

Executive Conference Room, Administration Building
Beaufort County Government Robert Smalls Complex
100 Ribaut Road, Beaufort

Committee Members:
Brian Flewelling, Chairman
Alice Howard, Vice Chairman
Gerald Dawson
Steve Fobes
William McBride
Jerry Stewart
Roberts "Tabor" Vaux

Staff Support:
Anthony Criscitiello, Planning Director
Gary James, Assessor
Eric Larson, Division Director
Environmental Engineering
Dan Morgan, Division Director
Mapping & Applications

1. CALL TO ORDER – 2:00 P.M.
2. TEXT AMENDMENTS TO CHAPTER 5-NATURAL RESOURCES AND CHAPTER 8-AFFORDABLE HOUSING OF THE 2010 BEAUFORT COUNTY COMPREHENSIVE PLAN AS A RESULT OF THE FIVE-YEAR REVIEW OF THE PLAN; APPLICANT: BEAUFORT COUNTY PLANNING STAFF ([backup](#))
3. EXPENDITURES AND INCOME FOR THE VARIOUS PROGRAMS FOR EACH OF THE NEXT SEVERAL BUDGET CYCLES (I.E., NEW PROGRAMS, SIGNIFICANT DIFFERENCES IN COSTS, REVENUES, AND MISSIONS)
4. PRESENTATION ON PLANNING DEPARTMENT BULLETIN BOARD
5. CONSIDERATION OF REAPPOINTMENTS AND APPOINTMENTS
 - A. Design Review Board
 - B. Zoning Board of Appeals
6. EXECUTIVE SESSION
 - A. Discussion of negotiations incident to proposed contractual arrangements and proposed purchase of property
7. ADJOURNMENT

2016 Strategic Plan Committee Assignment

Stormwater Management Program
Creek Restoration: Progressive Projects for Saltwater, Quality, Recommendations
Tree Ordinance: Evaluation Report, Revision
Affordable / Workforce Housing
Pepper Hall Plantation Site
Comprehensive Plan: Update
Park Potential Development
Community Development Code: Refinements



MEMORANDUM

To: Natural Resources Committee of County Council
From: Anthony J. Criscitiello, Planning & Development Director
Date: October 7, 2014
Subject: Text Amendments to Chapter 5 (Natural Resources) and Chapter 8 (Affordable Housing) of the 2010 Beaufort County Comprehensive Plan as a result of the Five-Year Review of the Plan

Excerpt of PLANNING COMMISSION RECOMMENDATION from its November 3, 2016, draft meeting minutes:

Chapter 5, Natural Resources: Mr. Merchant briefed the Commission with a quick summary of the changes that included recognizing the Stormwater Best Management Practice (BMP) Manual, noting the renourishment projects on Hilton Head Island, updating the freshwater wetland section, updating the open space/preserved land acreage, and adding a new section on the sea level rise adaptation report. He noted that the staff worked with the South Carolina Sea Grant Consortium on the sea level rise section. Recommendations included 5-20 through 5-23 to cover the sea level rise. He also noted minor edits that were brought by the Commission including coloration on shellfish beds.

Discussion by the Commission included notating the update maps that had year 2010 data, the status of the comments given by the public and the Commission on the trees-forest-habitat section regarding tree protection (*Mr. Merchant noted that the staff reviewed the comments and noted that the Comprehensive Plan supported the comments and the Plan need not be changed.*), the status/timeline when the Code would be given “more teeth” regarding tree protection (*Mr. Semmler noted that staff could not give a timeline on such changes. Mr. Merchant noted that the Chart on 5-15 is a reference, not a policy.*)

Chapter 8, Affordable Housing: Mr. Merchant briefed the Commission with a quick summary of changes that included updating the charts and graphs, addressing the homeless population in the housing needs assessment, and updating sections to reflect Code policies. He summarized the changes to recommendations 8.4, 8.6, 8.8, 8.9, and 8.16.

Public Comment: Ms. Angela Childers, the Executive Director of Beaufort Housing Authority and Chairman of the Lowcountry Affordable Housing Coalition, suggested replacing the word "workforce" with “affordable” or leaving it out completely for recommendation 8.4 to get a complete housing needs for Beaufort.

Discussion by the Commission included details of the former housing coordinator position, commenting on affordable housing funding and trends (*Ms. Childers noted that needs were from applications for affordable housing based on growth of the County, with the majority being the elderly and disabled needing one-bedroom units.*), and the rationale and process of updated the housing needs assessment.

Motion: Ms. Diane Chmelik made a motion, and Mr. Ed Pappas seconded the motion, **to recommend approval to Beaufort County Council for Chapter 5-Natural Resources of the 2010 Beaufort County Comprehensive Plan as a result of the Five-Year Review of the Plan.** The motion carried (**FOR:** Chmelik, Hinchler, Mitchell, Pappas, Semmler, and Walsnovich; **ABSENT:** Fermin, Fireall and Stewart).

Motion: Mr. Jason Hinchler made a motion, and Mr. Harold Mitchell seconded the motion, **to recommend approval to Beaufort County Council for Chapter 8-Affordable Housing of the 2010 Beaufort County Comprehensive Plan as a result of the Five-Year Review of the Plan.** The motion carried (**FOR:** Chmelik, Hinchler, Mitchell, Semmler, and Walsnovich; **OPPOSED:** Pappas; **ABSENT:** Fermin, Fireall and Stewart).

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Beaufort County Comprehensive Plan **Natural Resources**



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Introduction

Protection and preservation of Beaufort County's natural resources is a principal component of this plan. Beaufort County has a unique natural beauty, made up of expansive marsh vistas teeming with marine life, sub-tropical maritime forests of live oaks and palmettos, towering pines, forested wetlands of cypress and tupelo and over 30 miles of beaches. Beaufort County residents and visitors have a great attachment to the land and water. Many symbols of the region are an indicator of the region's ecological well-being. Shrimp boats plying the waters and vast expanses of *Spartina* grass waving in the breeze are an indicator of good water quality. Live oaks and Spanish moss point to good resource protection and air quality. Beaufort County's natural environment, however, cannot be taken for granted. If not managed properly, the County's rapid pace of growth will have grave consequences for water quality, forest communities, wetlands, and beach erosion.



Physical Features and Constraints

Beaufort County, like all coastal areas in the southeast, continues to attract new residential and commercial development. The County's geographical and environmental characteristics, however, place many limitations to development. Beaufort County consists of more water than land. Of its 468,000 acres, approximately 51% consists of open waters, sounds, marshes, and estuaries. An additional 14% are freshwater wetlands. The ubiquitous presence of tidal waters, low elevation, and waterlogged soils present unique constraints to development and make the natural environment particularly vulnerable to the impacts of growth. Beaufort County is also susceptible to many natural hazards, including hurricanes, shoreline erosion and earthquakes.

CLIMATE AND WEATHER



Storm looming over the Chechessee River.

The climate of Beaufort County is subtropical, characterized by long, hot summers followed by short and relatively mild winters. The County's precipitation rate averages 49 inches per year with about 70% of the annual rainfall occurring during the April through October growing season. The Sea Islands commonly have winter temperatures 3 to 5 degrees warmer and 30 to 40 additional frost-free days than the more inland areas. Historically, an average of one hurricane or tropical storm visits the South Carolina coast every 4 to 5 years. Since 1900, eight category 2 or larger storms have made landfall in Beaufort County, which is especially vulnerable to storm surge flooding due to its low-lying nature and relatively shallow offshore waters.

ELEVATION

Beaufort County is generally flat and low-lying with elevation ranging from sea level to 42 feet in the Gray's Hill portion of northern Port Royal Island. The County's low elevation makes it very vulnerable to coastal flooding. Approximately 400 square miles or 2/3 of the County's land mass lies within the 100-year floodplain. The primary factors contributing to flooding are storm surges associated with hurricanes, tropical storms and northeasters. To help predict the impact of future

storms, the National Weather Services has produced the sea, lake and overland surge from hurricanes (SLOSH) model (Map 5-1). During a category 3 storm, over 70% of the County's uplands would be under water. A category 5 storm would render all but 7% of the County's land area under water.



The County's low elevation makes it very vulnerable to coastal flooding.

Even a modest increase in sea level would have a profound impact on Beaufort County. In 2007, the Intergovernmental Panel on Climate Change estimated that global sea level is likely to rise 7 to 23 inches over the next century, but also indicated that the sea could rise an additional 3 to 6 inches if polar ice sheets begin to disintegrate. Along the mid-Atlantic coast, sea level rise is generally expected to be 4 to 8 inches more than the global average rise.¹ Sea level rise and higher evaporation rates are expected to increase storm frequency and severity, worsening such environmental hazards as storm surge flooding, erosion, and saltwater infiltration into ground water.

SOILS

Beaufort County's soils also place many constraints to development. As classified by the United States Dept. of Agriculture Natural Resources Conservation Service (NRCS) Soil Survey, Beaufort County has 36 different types of soils in addition to water areas, borrow pits and beach areas. The five most common soils are Bohicket association (24%), Capers association (10%), Wando fine sand (8%), Coosaw loamy fine sand (6%), and Seabrook fine sand (5%).



Organic fall crops on St. Helena Island.

Hydric Soils: A hydric soil is a soil that is saturated with water for all or part of the growing season. Hydric soils have a low infiltration potential and high runoff potential. NRCS has classified 73% of the soils in Beaufort County as hydric (Map 5-2). The wet nature of Beaufort County's soils affects the location of suitable agricultural areas and building sites, the rate of stormwater runoff, and the functionality of septic systems.

Agriculture: The NRCS has inventoried land that can be used for the agriculture. Prime farmland is land that has the best combination of physical and chemical characteristics for producing crops. The second category, farmland of state importance, includes areas of soils that nearly meet the requirements for prime farmland and that economically produce high yields of crops when treated and managed according to acceptable farming methods. The NRCS has designated 90% the County upland acreage as "prime" or "additional farmland of state importance."

¹ Intergovernmental Panel on Climate Change, Climate Change 2007 Synthesis Report

These designations are assigned due to soil characteristics and a location that is favored by warm moist air from the nearby ocean and tidal streams. The USDA stipulates that, when the soils are well managed, they are among the most productive in the region. Some of the soils identified as important farmland require irrigation or drainage. This is due to the high water tables in the area and the abundance of sandy soils (Map 5-3).

Preservation of farmland in the County is important to the maintenance and growth of local food production, the economic well being of local farmers, and maintenance of green space. Much of the land suitable for agriculture has been committed to development. The remaining farmland is concentrated on St. Helena Island, northern Port Royal Island and north of the Whale Branch River. Efforts to preserve remaining farmland should be focused on these areas.

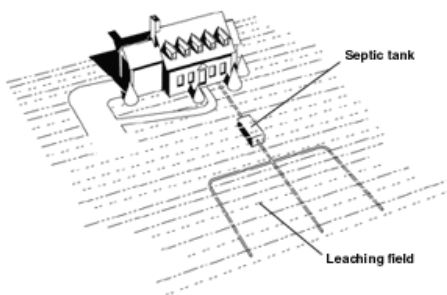


Diagram of a typical on-site sewage disposal system.



Only 24% of the County's soils do not have severe limitations to the construction of dwelling units

On Site Sewage Disposal Systems: Septic tank absorption fields require soils that allow effluent to be properly distributed into the soil. The NRCS classifies 74% of Beaufort County's soils to be "very limited" in their suitability to support septic systems. In fact, no soils in the County are classified as "not limited", the most ideal environment for septic systems. The State (SCDHEC) has different criteria than the NRCS for installation of septic tank absorption fields. The NRCS criteria are three foot depth from the bottom of the drain field to the water table, while SCDHEC requires a six inch depth from the bottom of the drain field to the high water table. SCDHEC makes the determination by looking at soil indicators, thereby removing the seasonal variation in water table levels as a criterion. Because many sites in South Carolina are unsuitable for conventional on-site wastewater systems, the SCDHEC Bureau of Environmental Health has developed 15 alternative standards with specific requirements designed to provide proper on-site treatment on disposal of domestic wastewater.²

Construction: The fragility of the soils in the County is illustrated further by the NRCS designations of soils that are suitable for constructing dwellings without basements. Only 24% of the soils in the County are considered to be "not limited" or "somewhat limited" for the construction of a single-family house of three stories or less. The ratings for dwellings are based on the soil properties that affect excavation and construction costs and the capacity of the soil to support a load without movement. These properties include the depth of the

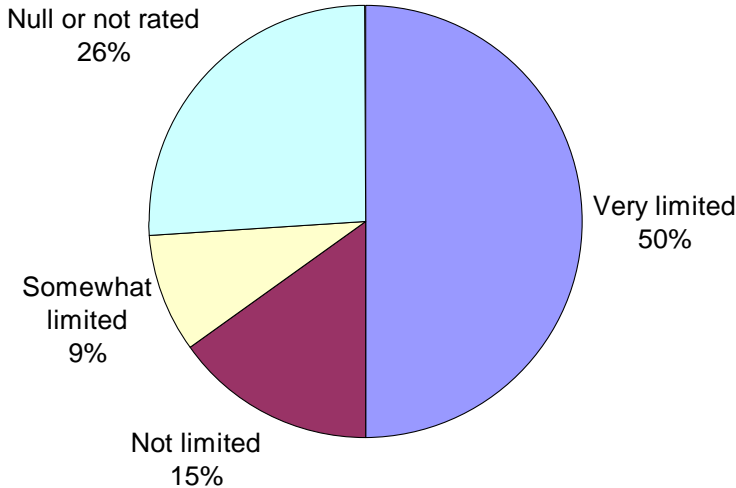
² Personal communication. Feb., 2008. Blaine Lyons, R.S., Environmental Health Director, Region 8, DHEC.

water table, ponding, flooding, subsidence, shrink-swell potential, and compressibility.

Chart 5-1: Suitability of Beaufort County Soils for Construction of Dwellings Without Basements



The County’s geographical and environmental characteristics place many limitations to development.



Source: USDA Natural Resource Conservation Service Soil Survey

CONCLUSIONS

The constraints and limitations of the County’s geography, climate and natural environment need to play a greater role in future land use planning, site plan review, and the location of infrastructure and County facilities. This is especially true of the County’s soils, which affect everything from agriculture, drainage, to suitability of on-site septic systems.



Salt Marshes, Coastal Waters and Marine Resources

The health of Beaufort County's waterways and adjacent marshes is vital to the region's identity, culture and local economy. Shrimp, crabs, and oysters, staples of Lowcountry cuisine, depend on the marshes for all or part of their lifecycle. Recreational fishermen flock to the region for its abundant sheepshead, flounder, croaker, sea trout, whiting and cobia. Marshes also serve to stabilize the shoreline and help absorb floodwaters and storm surges. Finally, the quality of life created by the aesthetic and recreational opportunities serves the residents of the County and attracts tourists and newcomers.

The issue of water quality has been at the forefront of local government initiatives in Beaufort County over the last **20 45** years. In 1995, the closure of 500 additional acres of shellfish beds due to high levels of fecal coliform bacteria alarmed many County residents. This event sparked a heightened awareness of the importance of water quality to the overall health of the natural resources in the region and led to the creation of the Clean Water Task Force, which initiated the Special Area Management Plan (SAMP) for Beaufort County. The SAMP process led to many local programs, policies and ordinances that address water quality.



Shrimp, crabs, and oysters, staples of Lowcountry cuisine, depend on the marshes for all or part of their lifecycle.

ESTUARINE ENVIRONMENT

Of the County's 468,000 acres, 51% are tidally influenced, consisting of sounds, rivers, creeks, and marshes. With the exception of the Combahee, New and Coosawhatchee Rivers, there is an absence of freshwater rivers. The Beaufort, Broad, Colleton, and May Rivers, for example, are actually large saltwater arms of the ocean that ebb and flow twice daily with the tides. Beaufort County lies within the Savannah River and Combahee/Ashepoo/Broad River Basins and is further subdivided by five watersheds (Table 5-2 and Map 5-4).

Table 5-2: Basins, Watersheds, and Sub-Watersheds in Beaufort County

Basin	Watershed	Sub-Watershed
Savannah River	New River	
	May River/Calibogue Sound	May River Calibogue Sound
Combahee/Ashepool/Broad River	Coosaw River/St. Helena Sound	Coosaw River Morgan River Coastal
	Broad River/Port Royal Sound	Whale Branch West Broad River Beaufort River Colleton Okatie River Chechessee River
	Combahee River	

Source: Watershed Water Quality Assessment: Salkehatchie River Basin, SCDHEC, 2003; Beaufort County Stormwater Management Plan, 2006, Thomas & Hutton Engineering Co.



Placards found on storm drains and catch basins.

The water bodies of South Carolina have been classified by SCDHEC based on the intended uses for each waterbody. SCDHEC uses these classifications to determine permit limits for treated wastewater dischargers and other activities that may impact water quality (see Maps 5-5 and 5-6).

Table 5-3: SCDHEC Water Body Classifications in Beaufort County

Water Classification	Description
Outstanding Resource Waters (ORW)	Waters that are an outstanding recreational or ecological resource.
Shellfish Harvesting Waters (SFH)	Tidal saltwaters protected for shellfish harvesting.
Tidal Saltwaters (SA)	Waters suitable for primary and secondary contact recreation, crabbing and fishing.
Freshwaters (FW)	In Beaufort County it applies to the upper reaches of the Combahee River.

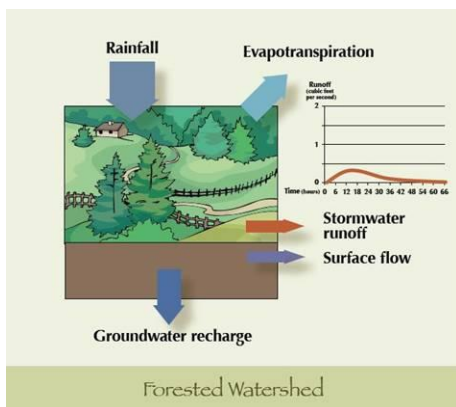
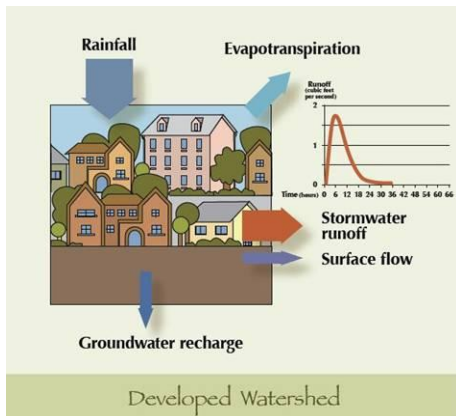
Source: Watershed Water Quality Assessment: Salkehatchie River Basin, SCDHEC, 2003

Beaufort County experiences the largest tidal range on the Atlantic coast south of Maine. The difference between high and low tide ranges between 6 feet during neap tides and 10 feet during spring tides. The region's unusually large tides are largely responsible for the prominence of saltmarshes. Smooth cordgrass (*Spartina alternifolia*) the primary plant species in saltmarshes, thrives in places where it is both submerged in saltwater during high tides and exposed to air during low

tides. Each fall, smooth cordgrass dies and is slowly decomposed by bacteria. The resulting mixture, called detritus, is a major food source for zooplankton (including the larval stages of shellfish and fish) and for clams, mussels, oysters, shrimps, and certain fish.

THREATS TO WATER QUALITY

The greatest threats to Beaufort County's estuarine environment come from non-point source pollution associated with stormwater runoff, drainage, seepage and septic system failure. Because non-point source pollution originates from many different sources, it is difficult to control. Increased flows and pollutants from impervious surfaces, resulting from coastal development (rooftops, roads, parking lots), are a primary factor in degrading water quality. According to the National Oceanic and Atmospheric Administration (NOAA) when the amount of impervious cover without proper treatment in a tidal creek watershed exceeds 10 to 20 %, stormwater runoff greatly increases, resulting in increased concentrations and loadings of chemicals and pathogens that impair water quality and marine life.³ In vegetated environments, a greater degree of stormwater either infiltrates into the soil or evaporates into the air. Impervious surfaces cause more of the stormwater to surge directly into tidal creeks. There are three forms of pollution that result from stormwater runoff:



Source: Tidal Creek Habitats:
Sentinels of Coastal Health, NOAA.

Animal Pathogens: The presence of fecal coliform bacteria has been the most widespread and well-studied water quality issue in Beaufort County. Fecal coliform bacteria originate from the digestive tracts of waterfowl and mammals, including humans. Major sources of fecal coliform bacteria include malfunctioning septic systems and pet waste. When levels of fecal coliform bacteria exceed specified standards⁴ SC DHEC closes oyster beds in the area. Oysters are such highly efficient filter feeders that they filter even very small bacteria from the water. The presence of elevated fecal coliform bacteria levels may indicate that other disease-causing bacteria such as diphtheria or cholera might also be present.

South Carolina's Department of Health and Environmental Control (DHEC) classifies water bodies and salt marshes based on their intended use for the harvesting of shellfish (SFH). Map 5-7 provides an indication of where animal pathogens are compromising water quality.

³ Tidal Creek Habitats: Sentinels of Coastal Health, NOAA

⁴ SCDHEC Water Classifications and Standards Fecal Coliform Standards [Section G 11(e)], "Not to exceed a most probable number (MPN) fecal coliform geometric mean of 14/100 ml; nor shall more than 10% of the samples exceed and MPN of 43/100 ml.

Chemical Contaminants: Chemical contaminants found in tidal creeks include substances that may be harmful to marine life as well as may cause risks to humans through consumption of seafood. Chemical contaminants include:

- Pesticides from agriculture and residential and commercial landscaping;
- Nutrients, such as phosphorus and nitrogen, resulting from fertilizer applications on farms, lawns and landscaping; and
- Polycyclic aromatic hydrocarbons (PAHs) and heavy metals derived from car exhaust, brake dust and tire wear on roads and parking lots.

Changes in Salinity Levels: Large amounts of stormwater runoff into the upper sections of tidal creeks can cause rapid drops in salinity, which kills some species of small marine worms, and crustaceans and spawning fish. These small marine animals are important food for shrimp and larval crabs. A decrease in the abundance of these animals could therefore have a negative impact on larger animals farther up the food chain.

EXISTING EFFORTS TO PRESERVE WATER QUALITY

There are two general approaches to protecting salt marshes and coastal waters through the regulatory process. They consist of limiting development in and around salt marshes and coastal waters, and controlling the quantity and quality of upland stormwater runoff.

Limiting development in and around salt marshes and coastal waters:

The Office of Ocean and Coastal Resource Management (OCRM) provides protection to most of southern Beaufort County's salt marshes and coastal waters through its ownership of these areas (fee simple title) on behalf of the state. In those rare cases of King's grant or state grant lands where property owners hold title to salt marshes, development activity is strictly regulated and limited to water dependent structures, such as docks, marinas, and boat ramps. The OCRM sets a demarcation between upland and state controlled marshland or "critical areas" called the critical line.



Preserving land from development around saltmarshes is one method of protecting water quality.

- Critical Line Buffers: Beaufort County and its municipalities limit development adjacent to salt marshes and coastal waters by requiring development to be set back and buffered from the critical line. The purpose of this requirement is ultimately to improve water quality by capturing sediments and pollution from stormwater runoff. Requirements for critical line buffers vary between Beaufort County and its municipalities. Providing "baseline" standards for critical line buffers was a common

recommendation in both the Northern and Southern Beaufort County Regional Plans.

- Purchasing Development Rights: Another effective water quality measure practiced in Beaufort County is limiting development in sensitive headwater areas through voluntary conservation easements (as with properties within the ACE Basin), purchase of development rights, and fee simple land purchases.
- Limiting Development on Small Coastal Islands: Beaufort County has hundreds of small islands with no bridge access. Almost all of these islands are surrounded by expanses of salt marsh and occasionally bordered by tidal creeks. While historically the lack of bridge access has protected these islands from development, there has been a growing concern that, as waterfront and marshfront property becomes scarcer, there will be a greater demand to develop small coastal islands. Providing access to these islands requires bridges and docks, both of which necessitate placing structures in salt marshes and coastal waters and creating potential threats to the health of the marsh and water quality. The State adopted regulations in 2006 that limit the construction of bridges to small marsh islands. The regulations prohibit the construction of bridges to islands smaller than two acres. For larger islands, the length of bridges is restricted based on the size of the island. Beaufort County further limits the development of small marsh islands through its **Resource Conservation T1 Natural Preserve** Zoning district which restricts residential density to 1 dwelling unit per 10 acres.



Small Coastal Island in the Harbor River.



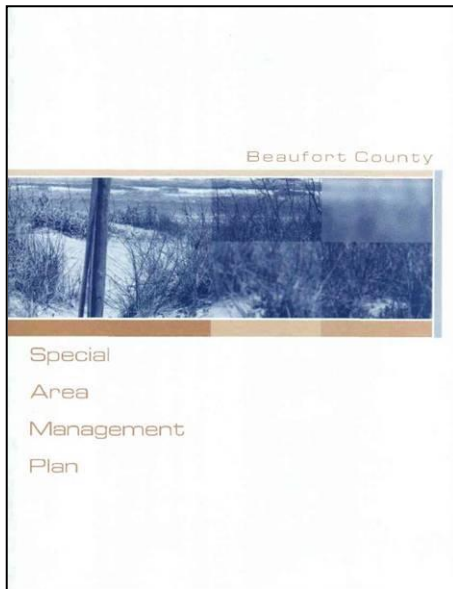
Stormwater Management: The protection of Beaufort County's water bodies was advanced in the mid-1990s with the creation of the Clean Water Task Force. Improvement of stormwater management and planning to improve water quality was one of the primary focuses of the task force and led to the creation of Beaufort County's Stormwater Best Management Practices (BMP) Manual and the Stormwater Utility.

- Managing Stormwater Quantity: Traditionally, stormwater management has been dealt with in terms of managing the quantity of runoff from a site in order to avoid flooding downstream. OCRM's stormwater regulations reflect this traditional approach, requiring stormwater to be detained at pre-development levels in a 10-year storm event. OCRM's requirements also control sedimentation, but do not address specific pollutants that ultimately affect water quality. Beaufort County requires stormwater systems to be designed for 25-year storm events, thus further regulating the quantity of runoff.
- Managing Stormwater Quality: In 1998, Beaufort County adopted

the Beaufort County Manual for Stormwater Best Management Practices (BMP) and has periodically updated the manual. The current BMP Manual has specific attenuation standards for two three types of indicator pollutants; nutrients, such as phosphorus, nitrogen and fecal coliform bacteria. The manual also has stormwater volume runoff control regulations. Recognizing the negative impacts of impervious surfaces on water quality, the BMP Manual requires that on-site stormwater attenuation meet the level of 10% or less impervious development. This level is even lower (5%) for fecal coliform bacteria. In 2007, the Town of Bluffton adopted its own stormwater ordinance which placed greater emphasis on Low Impact Development (LID) stormwater approaches and long term monitoring of stormwater systems to ensure that water quality is being protected. Beaufort County has revised its Manual to be more consistent with Bluffton's requirements, and is currently assessing whether additional requirements should be adopted to limit nitrogen in stormwater runoff and is currently considering revisions based on Municipal Separate Storm Sewer System (MS4) requirements.

- Stormwater Utility: The Stormwater Utility was established in 2001 as a countywide program primarily aimed at maintaining and enhancing regional stormwater management systems and retrofitting older stormwater systems. The Stormwater Utility was originally recommended by the Clean Water Task Force which recognized that “any gains in better land use planning and better BMP design are likely to be overshadowed by the poor performance of existing systems that are not maintained properly.”⁵ The Utility's activities are guided by the Beaufort County Stormwater Management Plan which was completed in 2006. The Utility partners with the City of Beaufort and the Towns of Hilton Head Island, Bluffton, and Port Royal through inter local agreements. Drainage efforts within these municipalities are supported through fees collected by the County and redistributed to the municipalities. A small percentage of revenues is retained by the County to cover the cost of billing and collections. 95% of the fees that are collected within a municipality's jurisdiction are then distributed back to the municipality. Oversight of the Stormwater Utility is provided by the Stormwater Management Utility Board
- MS4: In 2014, Beaufort County, the Town of Hilton Head Island and the Town of Bluffton were designated as a Municipal Separate

⁵ A Blueprint for Clean Water: Strategies to Protect and Restore Beaufort County's Waterways, Clean Water Task Force, 1997.



The Beaufort Special Area Management Plan (SAMP) led to many local programs, policies, and ordinances that address water quality.



Great egret stalking a coastal marsh.

Storm Sewer System (MS4). This designation requires a permit from the SC DHEC. The permit requires a program to address six minimum control measures (MCM) to address water quality. They are:

- Public Education;
- Public Outreach and Involvement;
- Illicit Discharge and Involvement;
- Construction Runoff;
- Post-Construction Best Management Practices; and
- Municipal Facilities Pollution Prevention

Beaufort Special Area Management Plan (SAMP): Responding to the closure of 500 acres of shellfish beds in 1995, the SAMP was conducted to address stormwater and other sources of water pollution and to identify effective actions to prevent further degradation of the County's waterways. The SAMP consisted of 10 work elements that addressed stormwater management, wastewater management, water quality monitoring, boating management and education. Below are some of the highlights of the SAMP:

- Countywide Stormwater Utility: (see above)
- Management Plans for Broad Creek and the Okatie River: These plans emphasize the need for stormwater BMPs, riparian setbacks and buffers, reduction of on-site septic systems, boating management, and other methods to protect water quality.
- River Quality Overlay District: This District would address such concerns as setbacks, buffers and appropriate impervious surface cover limits to minimize impacts of development in sensitive headwater areas.
- Develop a Comprehensive On-Site Disposal System (OSDS) Program: The SAMP recognized that State requirements for on-site septic systems do not account for the region's high water table and do not control density. These two factors heighten the risk of degrading water quality. The SAMP calls for the adoption of more stringent septic system standards and for regular programs of inspection and maintenance.
- Coordinate Water Quality Monitoring: There is a considerable amount of monitoring of water quality in Beaufort County at the federal, state and local levels, but no central coordination of these efforts or dissemination of the information being gathered. Coordinating monitoring efforts would provide more efficient and effective use of the collected data and would help to identify specific pollution sources and track the overall health of the County's waterways.

- Conduct Educational Campaigns: Finally, the SAMP calls for education and public involvement in furthering water quality goals.

CONCLUSIONS

Over the last 10 15 years, Beaufort County has taken great strides to protect its saltmarshes, coastal waters, and marine resources. As the County continues to develop, these policies and regulations will need to be continually reevaluated and adjusted to ensure that the County's water quality goals are being met. Information is key to determining the effectiveness of existing measures to protect water quality. Continued support of the water quality monitoring lab at USCB is key to assuring that information is collected and analyzed and shared to benefit the region and inform new advances in water quality protection. Currently, the County, the Town of Hilton Head Island, the Town of Bluffton and the state conduct water quality monitoring in the County's rivers and creeks, but there is no central clearinghouse or coordination of these monitoring efforts as originally recommended in the Beaufort SAMP.

Another concern is that, in spite of the many achievements in environmental protection, developments that predate newer regulations continue to contribute to water quality degradation. Also, there is still an uneven playing field between Beaufort County and some of the municipalities and neighboring counties that can result in water quality degradation. Therefore, the County needs to continually work to with its neighbors on cooperative natural resource planning, achieving baseline environmental standards, and retrofitting stormwater management for older developments.



Trees, Forests and Habitats

Beaufort County lies almost entirely within the coastal zone of South Carolina. Upland plant communities of the coastal zone include pine woodland, bottomland hardwoods, upland oak-hickory forest, southern mixed hardwood forest, marl forest and calcareous cliff, cypress-tupelo swamps and maritime forests. Maritime forests, which support Beaufort County's signature mature live oaks and sabal palmettos, typically occur on barrier islands immediately inland of dune systems and on sand ridges that mark former shorelines⁶.

The threats to Beaufort County's forest communities and native habitat types are related primarily to the rapid pace of development. Comparing the 1988 Land Use/Land Cover data from the US Geological Survey to 2006 aerial photography provides a snapshot of the impact of growth on Beaufort County's forested areas (Table 5-4). During this period of 18 years, Beaufort County has lost over 18,000 forested acres to development.



Specimen live oaks along Bay Street
in Beaufort.

**Table 5-4: Comparison of Plant Communities –
1988 and 2006**

Plant Community	1988 Acreage	2006 Acreage	% Consumed
Deciduous Upland Forest	2,610	2,607	0.1
Evergreen Upland Forest	44,448	39,035	12.2
Forested Wetland	34,273	32,386	5.5
Herbaceous Rangeland	885	734	17.1
Mixed Upland Forest	32,502	28,136	13.5
Shrub/Brush Rangeland	1,841	1,671	9.2
Upland Planted Pine	23,925	17,891	25.2
TOTAL	140,483	122,460	12.8

Source: US Geological Survey, Beaufort County Planning Department

⁶ 2005 Comprehensive Wildlife Conservation Strategy, SCDNR

TREE PROTECTION

Beaufort County residents have long recognized the value of protecting significant trees both for aesthetic and practical reasons. Trees provide numerous public benefits including the reduction of stormwater runoff, buffering sounds and views from roads, reducing air conditioning costs in shaded buildings, and providing wildlife habitat. Beaufort County requires the preservation of specimen trees and encourages preservation of all trees greater than 8 inches diameter breast height (dbh). Removed specimen trees must be mitigated by planting a similar species with the quantity amounting to the total caliper inches of the tree removed. Other removed trees must be replaced in kind. Where a site does not have sufficient room for mitigated trees, a fee-in-lieu payment must be made to the forestation fund.

Each local jurisdiction classifies certain trees as specimen or significant trees based on the species and size of the tree. During site plan review, emphasis is placed on designing the site around specimen trees. Where trees cannot be saved, mitigation is required by planting back the total caliper inches that were removed or contributing to a reforestation fund. Each local ordinance also requires measures to protect trees during construction.

Beaufort County's Definition of Specimen Trees

1. Dogwood, redbud, and southern magnolia greater than 4 inches dbh.
2. American holly, bald cypress, beech, black oak, black tupelo, cedar, hickory, live oak, palmetto, pecan, red maple, southern red oak, sycamore, or walnut with a dbh of greater than 16 inches.
3. All other non invasive trees with a dbh of 24 inches or greater.

Source: Beaufort County Zoning and
Development Standards Ordinance

PROTECTION OF HABITATS AND FOREST COMMUNITIES

In addition to saving individual trees, only Hilton Head Island and Beaufort County require the preservation of plant communities and forest types. Beaufort County requires a site capacity analysis natural resources survey when property is developed. A developer must provide a survey of the site, which delineates the different forest types such as maritime forests and mixed upland forest and other natural areas such as freshwater wetlands. The amount of each forest type that must be preserved is determined by the value of the resource and the intensity of the zoning district. Hilton Head Island requires much greater protection of native understory vegetation by restricting underbrushing of buffers and other natural areas while requiring the replanting of natural plant species in disturbed areas.

ENDANGERED AND THREATENED SPECIES

According to the US Fish and Wildlife Service, there are 14 species of plants and animals that are listed as either endangered or threatened in Beaufort County. An additional 17 species are listed as "species of special concern." Currently, only endangered and threatened species are protected by the Federal Endangered Species Act and reinforced by County standards.

Table 5-5: Federally Endangered and Threatened Species in Beaufort County



Wood Storks are classified as federally endangered species.

Species	Status
West Indian manatee	Endangered
Bald eagle	Federally Protected
Wood stork	Endangered
Red-cockaded woodpecker	Endangered
Piping plover	Threatened
Kemp's ridley sea turtle	Endangered
Leatherback sea turtle	Endangered
Loggerhead sea turtle	Threatened
Green sea turtle	Threatened
Flatwoods salamander	Threatened
Shortnose sturgeon	Endangered
Pondberry	Endangered
Canby's dropwort	Endangered
American chaffseed	Endangered

Source: U.S. Fish and Wildlife Service

CONCLUSIONS

While Beaufort County has well-developed tree standards, some minor adjustments could provide further tree protection while lessening confusion and conflicts between the County and property owners. For example, existing standards to protect “specimen” trees make little distinction between a 24” mature water oak and a 50” caliper live oak. Revising these definitions to make this distinction could provide for greater protections for larger trees, while providing more flexibility for selective removal of hazardous trees such as water oaks and laurel oaks. Requiring a tree management plan could assist large planned unit developments and subdivisions in carrying out routine tree maintenance while emphasizing the overall sustainability of forest communities in common areas.

While Beaufort County and the Town of Hilton Head Island both provide for some protection of forested areas, these plant communities are often discovered only after a survey of the site is performed. What is lacking is a detailed, area wide database of valuable forest types to assist in a more proactive planning approach to resource preservation. Once certain forest types are gone, it's very difficult to replace them. Many important plant species unique to the coastal south are either slow growing or require a unique set of circumstances to be propagated. Also, Beaufort County and its municipalities should explore the provision of local requirements to protect species of special concern and provide for more “wildlife-friendly” development.



Beaches and Dunes

Beaufort County's beaches are the first line of defense against the powerful forces of wind, waves and currents. A healthy beach and dune system provides a natural storm barrier protecting life and property for those living along the coast. They also provide the basis of much of the region's successful tourism industry and are a factor in the region's attractiveness as a place in which to relocate.

EXISTING CONDITIONS

Beaufort County has approximately 39 linear miles of beaches. Like most of the Atlantic and Gulf coasts, the coastal edge of Beaufort County is made up of a series of barrier islands (Table 5-6), which take the brunt of most offshore storms, thereby protecting the County's inland estuaries and uplands. Barrier islands are composed of dune and beach ridge sands formed by the interaction of wind, waves and ocean currents, and are therefore very dynamic environments. The shapes of these islands change slowly but constantly due to weathering. Evidence of this is seen in the erosion of certain beaches such as Hunting Island and the accretion (gaining sand) on other beaches such as portions of Fripp and Harbor Islands.



Beach erosion on Hunting Island.

Dunes offer the first line of protection from the ocean. Without a healthy dune system, ocean waves rush upland, eroding high ground. Even low dunes (2 to 3 feet tall) can help to avoid this erosion.⁷ Dunes are formed when sand from offshore sandbars is washed ashore, picked up and carried by the wind, and deposited on the downwind side of natural debris that accumulates along the shore. Eventually plants such as sea oats, salt meadow cordgrass and marsh elder take root, further stabilizing the dune. Primary dunes are the first row of dunes nearest the ocean. They typically are built up during calm weather and are washed back to sea during storms. Secondary dunes, characterized by the growth of heavier shrubs and located behind the primary dunes, do not as readily wash away.⁸ Beaufort County's dunes are relatively small

⁷ How to Build a Dune, SC DHEC/OCRM

⁸ Preface to the South Carolina Beachfront Management Act, 1988

due to the lack of strong, direct winds. Hunting Island and Pritchard's Island lack healthy dune systems and are characterized by maritime forests giving way to the forces of the ocean resulting in bleached, dead trees littering the beaches.

Table 5-6: Beaufort County's Barrier Islands

Barrier Island	Miles of Beach	Comments
Harbor I.	1.5	Beaches generally accreting
Hunting I.	4.2	Very erosional ranging from -7 ft. to -15 ft. per year. Latest renourishment in 2006.
Fripp I.	2.9	Beaches almost continuously armored with revetments. Beaches generally stable.
Pritchards I.	2.4	No bridge access. Moderate to severe erosion. Owned and managed by the University of South Carolina.
Capers I.	2.5	No bridge access. Minimal upland.
St. Phillips I.	1.3	No bridge access. Private residence.
Bay Point I.	2.2	No bridge access. Privately owned.
Hilton Head I.	19.0	Slightly accreting at south and north ends. Greatest erosion between Coligney Circle and Folly Beach. Last renourishment in 2006.
Daufuskie I.	3.2	No bridge access. Long term erosion rates from -4 ft. to -5 ft. per year, but going as high as -10 to -11 ft. per year. Last renourishment in 1998.

Source: SC Annual State of the Beaches Report 2008, OCRM



Barrier Islands are a very dynamic environment.

THREATS

The greatest threats to Beaufort County's beaches come from the challenges inherent in building permanent structures in a shifting natural environment. Concern about sea level rise only compounds this issue. In a natural barrier island environment, beach erosion would simply cause waves to break higher up shore. Over time, sand would be carried behind the dune system and the beach would "retreat" inland. Man-made structures interrupt this natural process, create concerns about property loss and may actually accelerate erosion.

Another potential threat to the health of Beaufort County's beaches is beach vitex, an invasive plant that has been spreading among South Carolina's dunes since the mid 1980s. Originally introduced in North Carolina, it has spread as far south as Folly Beach, Charleston County. Beach vitex crowds out native dune vegetation and is not effective in stabilizing dunes.

REGULATORY FRAMEWORK

Development along Beaufort County's beaches is regulated both by state and local governments. The Hilton Head Island beaches are entirely within the Town's jurisdiction. Beaufort County has jurisdiction over the remaining barrier islands with significant private development only occurring on Daufuskie, Harbor, and Fripp Islands.



A portion of Hunting Island's beaches were renourished in 2006 and groins were installed.

State Regulations: The South Carolina Coastal Zone Management Act (CZMA) is the primary legislation that addresses the protection and enhancement of the state's beaches. The OCRM is the state agency charged with enforcement of this legislation. The CZMA identifies three approaches to managing beaches rejecting the first and adopting the second and third as policy:

- Providing hard erosion control devices such as bulkheads and groins;
- Renourishing the beach with sand; or
- Requiring development to be adequately set back from the beach.

The OCRM regulates beachfront setbacks by first identifying a "baseline" defined as the crest of the primary oceanfront sand dune. Setbacks from the baseline are set at 40 times the average annual erosion rate or no less than 20 feet. The OCRM also prohibits the construction of erosion control devices, such as sea-walls and revetments seaward of the setback line. Groins perpendicular to the shoreline are exempted.

Local Regulations: Hilton Head Island requires additional restrictions on development of the dunes and requires a minimum 20-foot buffer from the baseline. Beaufort County requires development to be setback at least 50 feet, and septic fields and drainage fields to be setback at least 100 feet from the crest of the primary dunes and protects dunes through its resource protection standards.

BEACH RENOURISHMENT

A significant amount of state, local, and private funds have been spent to import sand onto the County's beaches. The Town of Hilton Head Island uses its accommodations tax to fund beach renourishment. In 2007, Hilton Head underwent a \$19 million beach renourishment project which involved moving 2.7 million cubic yards of sand to the Island's beaches. Additional renourishment projects occurred in 2013 and 2014 that focused on the beaches in the vicinity of Port Royal Plantation. The Town is planning another large scale beach renourishment program for late 2015. In 2006, a \$16.6 million beach



Providing public access to beaches is vital to both the quality of life for the County's residents and to the economic health of the region's tourism industry.

renourishment project began that involved moving over 2 million cubic yards of sand to the Island's beaches. A similar project was completed in 1997. A state and federally funded renourishment of a portion of Hunting Island's beaches was completed in 2006. A privately funded renourishment of Daufuskie's beaches occurred in 1998 adding 1.4 million cubic yards of sand.

PUBLIC ACCESS

Between mean high tide and the water, beaches are public lands that are under the jurisdiction of the OCRM. Providing adequate public access to this amenity is vital to both the quality of life for the County's residents and to the economic health of the region's tourism industry. Beachfront property tends to be intensely developed and expensive to acquire. These two factors create a challenge to the public sector to provide adequate access and to provide sufficient land for parking and other supportive facilities.

In southern Beaufort County, Hilton Head Island has nine public access points with approximately 1,400 parking spaces along its 19 miles of beaches. Daufuskie Island has approximately 3 ½ miles of beach with only two public access points. In northern Beaufort County, public beach access is essentially limited to Hunting Island. Harbor and Fripp Islands are gated and largely restricted to residents and guests. Pritchard's, Caper's, St. Phillips, and Bay Point are accessible only by boat. Hunting Island State Park receives approximately 1 million visitors annually. As demand for the park is increasing, erosion has had a negative impact on what the park has to offer the public. During high tide, only small portions of the 4.2 mile beach remain accessible. The rapid rate of erosion on the southern portion of the island has been especially severe, resulting in the loss of 10 cabins that were available for rent by the State Park. Many privately leased structures were lost as well. Since 1935, when Hunting Island State Park was established there have been 8 beach nourishment projects. The most recent, in 2007 included the construction of 6 groins in the most popular area of the beach. The beach is currently in need of renourishment just to maintain the area of the beach that was stabilized in 2007. only Hunting Island State Park's four miles of beach is easily accessible. Public access to the beaches of Harbor and Fripp Islands is highly restricted with only Harbor Island providing minimal access via a gate fee and very limited parking.



Coastal development threatens the long-term survival of loggerhead sea turtles.

Beaufort County and the Town of Hilton Head Island have both adopted policies that give local government the option to purchase beach access when land is developed or redeveloped. Beaufort County requires public access for developments with more than 1,000 feet of beach frontage.

SEA TURTLE PROTECTION

Like much of the southeast coast, Beaufort County's beaches serve as nesting habitat for endangered and threatened sea turtles. Coastal development threatens the long-term survival of sea turtles because artificial lighting can deter females from nesting and disorient hatchlings, resulting in eventual death from cars, predators or desiccation. In 2001, Beaufort County adopted an ordinance regulating lighting along beaches to restrict direct light visible from beaches and dunes.

CONCLUSIONS

Beaufort County should recognize that its beaches are a public resource that needs to be protected, stabilized, and made accessible to the public. Greater emphasis should be placed on promoting a healthy dune system by encouraging property owners to enhance and reestablish dune systems with native vegetation. In addition, the acquisition of new public access areas and the enhancement of existing public access are vital given anticipated population growth and growth in tourism.



Freshwater Wetlands

Freshwater wetlands serve as natural stormwater drainage systems, absorbing floodwaters and filtering out pollutants while providing a habitat for many plants and animals. Like other natural habitats, freshwater wetlands are vulnerable to the County's rapid pace of growth. Another threat, however, is the uncertain regulatory framework for freshwater wetland protection. In 2001, the US Supreme Court ruled that the US Army Corps of Engineers no longer had jurisdiction over isolated freshwater wetlands.⁹ This left isolated freshwater wetlands unprotected in much of the United States. In the mean time, the South Carolina State Legislature adopted legislation that provides some oversight of non-jurisdictional wetlands in coastal counties. ~~has introduced several bills to address the protection of isolated wetlands. There is concern, however, that the State will not adequately address wetland protection and will prohibit local governments from enacting or enforcing more stringent local legislation to protect isolated wetlands. In the meantime, the Corps continues to issue wetland determination letters on isolated freshwater wetlands, claiming many as jurisdictional due to their adjacency to navigable waterways or other jurisdictional waters. However, the role of local governments is vital to protecting isolated wetlands, especially in a rapid growth environment.~~

EXISTING CONDITIONS

According to the National Wetlands Inventory (NWI), there are 34,440 acres of freshwater wetlands in Beaufort County, making up approximately 15% of the total land area. The locations of these wetlands are shown on Map 5-8. While this is not an exhaustive inventory, it provides a general picture of the quantity and location of freshwater wetlands.

⁹ Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers, January 9, 2001

REGULATORY FRAMEWORK

As stated above, until 2001 protection of freshwater wetlands was primarily addressed by the Corps of Engineers. Today, however, protection of isolated freshwater wetlands is the responsibility of state and local governments.

Federal Wetlands Regulations: Section 404 of the Clean Water Act regulates the discharge of dredged or fill material into waterways and wetlands. Before development that impacts wetlands can occur, an applicant must demonstrate through a permit process that they have taken steps to avoid wetland impacts; that potential impacts on wetlands have been minimized; and that compensation is provided for any remaining unavoidable impacts. The U.S. Army Corps of Engineers administers and enforces federal wetland regulations. Since 2001 the Corps only regulates wetlands that adjoin navigable waters, leaving the protection of isolated wetlands up to state and local governments.



Manmade wetland attracting a great egret.

State Wetlands Legislation: Since 2001, the South Carolina Legislature has proposed several bills that address the protection of isolated wetlands with no success. ~~While these efforts have the potential to bridge existing gaps in wetlands protection, they would still potentially render many isolated wetlands unprotected. While the most recent bill¹⁰ provides protection of isolated wetlands that are ½ acre or greater in size, it provides many exemptions that include farming, forestry and mining activities; maintenance of flood control devices, bridges, farm ponds, irrigation ditches; and construction and maintenance of farm roads, forest roads, and access roads for utilities. The bill also prohibits local governments from enacting stricter wetlands protection regulations. Currently, non-jurisdictional wetlands only have State oversight in the eight counties that comprise the Coastal Zone. In these areas, the OCRM must issue a coastal zone consistency determination before any activity that impacts non-jurisdictional wetlands may proceed.~~

Local Wetlands Ordinances: With the current condition of federal and state wetlands protection, the role of local governments is vital to protecting isolated wetlands. Beaufort County's wetland protection regulations allow fill for nontidal wetlands less than one acre in size and require mitigation. Minor fill is also allowed in these wetlands in order to reshape the wetland boundary to provide a reasonable building site, providing that less than ~~10% 20% or 2 1~~ acres (the lesser of the two) is disturbed. ~~Setbacks ranging from 20 to 50 feet are required depending~~

¹⁰ South Carolina Legislature Session 117 (2007-2008) S116

on the type of development. For nontidal wetlands, protection levels vary by zoning district, ranging from 60-100%. These regulations also give special protection to bird rookeries and high quality wetlands.

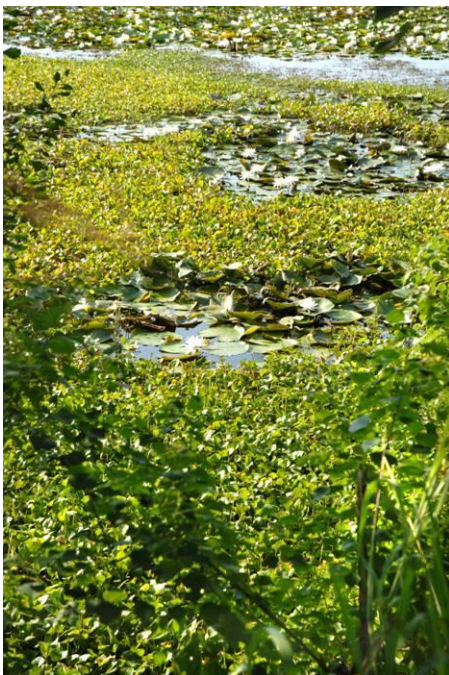
The Town of Port Royal prohibits development in nontidal wetlands except where structures are necessary to a permitted use and cannot be located outside the wetland. In these cases, the structures are required to be located on pilings. The Town has setbacks from wetlands similar to the County's requirements.

The Town of Hilton Head Island is the only other local government that has comprehensive wetlands protection requirements. The Town requires developers to attempt to preserve wetlands in their site design. If wetland alteration is proposed, it can only be permitted if the wetland is of low or moderate value, based on a wetland evaluation sheet that equates environmental, social and landscape value of the wetland with a numerical score. Minimization of the alteration in the site design must then be shown, and mitigation of the altered wetland is required. Mitigation must be done on-site, in-kind and acre-for-acre. Mitigated wetlands and their required buffers must be permanently protected through restrictive covenants. As a last resort, a fee-in-lieu-of program is available, but only when all other options have been exhausted.

The City of Beaufort, Town of Port Royal, Town of Yemassee, and Town of Bluffton currently have no comprehensive local wetland protection requirements. The establishment of baseline freshwater wetlands protection standards was a common recommendation in the Northern and Southern Beaufort County Regional Plans.

CONCLUSIONS

The role of local governments is vital to protect isolated freshwater wetlands. Beaufort County, while strengthening its own regulations, needs to actively work with its municipalities and neighboring counties to enact suitable wetland protection standards. The region also needs to work cooperatively to lobby the state to enact legislation to protect isolated freshwater wetlands while at the same time allowing local governments to enact more stringent standards.



The role of local government is vital to the protection of freshwater wetlands.



Groundwater Resources

Beaufort County lies above the northernmost reaches of the Floridian Aquifer, which historically has supplied the region with a reliable source of water. In 1998, SCDHEC produced a map of the Floridian Aquifer charting the areas of significant groundwater recharge and areas with intense groundwater withdrawal – cones of depression (Map 5-9).

AQUIFER RECHARGE AREAS

Aquifer recharge occurs as a direct result of rainfall entering the aquifer where the overlying confining unit is thin or absent. Because the Floridian Aquifer is generally unconfined throughout Beaufort County, most of the upland areas of the County contribute some ground-water recharge to the underlying aquifers. Locally significant recharge occurs on the northern part of Port Royal Island, the northern part of Lady's Island, St. Helena Island, and on the barrier islands. The northern part of Hilton Head Island is possibly an area of recharge, but the effects of this are insignificant due to the dominating regional influence of the cone of depression centered in Savannah.

CONES OF DEPRESSION

Hydraulic cones of depression are areas in which intense local groundwater withdrawal (pumping) causes the surface of the ground water table to form a conical depression. Locally, there are two areas which indicate cones of depression. One is located on Hilton Head Island and the other is located west of Dale, just north of the Whale Branch River. Savannah's regional cone of depression continues to dominate the shifts in the local potentiometric groundwater surface.

SOURCES OF GROUNDWATER CONTAMINATION

Contamination of groundwater is caused both by pollution infiltrating soils and saltwater intrusion. Due to the unconfined nature of the Floridian Aquifer, the risk of groundwater contamination is very high in Beaufort County. Since the late 1970's, concerns have been raised over the issue of saltwater intrusion into the aquifer. As a result, since the



Pervious paving infiltrates stormwater back into the soil thereby recharging groundwater.

1980's, over \$40 million has been spent to provide alternative sources of drinking water primarily from the Savannah River. As part of the "Sound Science Initiative", Georgia contracted with the South Carolina DHEC to provide monitoring wells, which revealed that there are three separate points of saltwater intrusion into the aquifer in the county; one underlying northern Hilton Head Island, one underlying the Pinckney Island National Wildlife Refuge, and one under the Moss Creek area. These infiltration points are threatening the water quality for those residents in areas like Sawmill Creek, and Pritchardville that are on private wells and for developments still using groundwater for irrigation.

CONCLUSIONS

Irrigation for golf courses and other landscaped areas by far accounts for the greatest use for groundwater in Beaufort County. Therefore, reducing or eliminating the use of groundwater for irrigation would help to preserve the groundwater for the remaining residents who still rely on private wells. A logical source of available water for irrigation is the land disposal of treated wastewater. Another strategy aimed at recharging groundwater is utilizing more low impact development (LID) stormwater management techniques that utilize swales and pervious areas to infiltrate stormwater back into the soil and reuse by storage cisterns.



Open Space

Protecting open space is a common thread among Beaufort County's natural resource goals and recommendations. Conservation easements and fee-simple purchases of land to limit or prevent future development is a powerful tool in protecting valuable habitat types, limiting development in environmentally sensitive areas, providing public access to natural amenities, and facilitating regional stormwater management.

EXISTING CONDITIONS

Currently 30,572 acres of land in Beaufort County are preserved through conservation easements and government and/or non-profit ownership. This makes up approximately 17% of the total land area. Map 5-10 shows the locations of these preserved lands. As undeveloped land becomes scarcer, the cost of acquiring land for open space increases. This fact has made the acquisition of open space for the purpose of preservation a top priority in Beaufort County.

LOCAL EFFORTS TO PRESERVE OPEN SPACE

There are essentially three methods used to preserve open space. The first is the fee simple purchase of a property by a governmental, non-profit or private entity for the purpose of preservation. The second method is through a conservation easement or purchase of development rights which allows the property owner to continue to own their property but limits future development through covenants. The third method is requiring by ordinance the set aside of a certain percentage of open space when land is developed. The most effective (and most expensive) way for local governments to control the use of land is to own it. Both Beaufort County and the Town of Hilton Head Island have programs that target purchasing properties to protect natural areas and to take land out of active development.

Beaufort County's Rural and Critical Lands Preservation Program: This program, established by ordinance in 1999, is aimed at preserving open space either by fee simple land purchases or the purchase of conservation easements on private property. ~~Two~~ Four successful bond



The Alan Ulmer property, a conservation easement purchased through the Rural and Critical Lands Preservation Program.

referendums (2000, and 2006, 2012, and 2014) have provided the program with \$90 \$135 million in County funding. The County contracts with the Trust for Public Land (TPL) Beaufort County Open Land Trust to manage the program, negotiate with property owners, and assist in the purchase of properties. The Rural and Critical Lands Preservation Board, representing a cross-section of Beaufort County, prioritizes properties and makes recommendations to County Council. In 2004 2014, based on citizen input gathered at a number of public meetings, TPL the Open Land Trust assisted the County in developing a “Greenprint” maps that defined seven focus areas to target preservation efforts.



Fish Haul Beach, preserved by the
Town of Hilton Head Island.

Hilton Head Island’s Land Acquisition Program: Hilton Head Island has its own land acquisition program, funded primarily by a real estate transfer fee (RETF) that generates approximately \$3.8 over \$2 million annually for the Town. Hilton Head Island’s integrated approach to land acquisition and its funding is also unique. All of the potential funding sources, RETF, Beach Preservation Fees, Stormwater Utility Fees, general funds and grants feed into a matrix that takes into account all the activities that require land acquisition such as open space, parks, beach access, public facilities and municipal stormwater projects. This integrated approach invites inter-disciplinary solutions to Town needs and maximizes the potential of each of the funding sources.

Private/Non-Profit Sector Resource Protection Efforts: The protection of open space in Beaufort County is not in the exclusive domain of the public sector. The Beaufort County Open Land Trust, formed in 1971, is a non-profit organization dedicated to preserving vistas and natural areas through the purchase of land and conservation easements. In addition, the Sea Pines Forest Preserve, and open space on Spring Island and in Palmetto Bluff are three local examples of private sector efforts to preserve open space.

CONCLUSIONS

While Beaufort County has been very aggressive in securing open space, many of the preserved lands are discrete and unconnected. As growth continues, these natural areas will become more isolated and will not effectively be able to support healthy wildlife communities. In addition, as land becomes scarcer, it is more important to prioritize areas with outstanding natural resources in order to target future acquisitions of open space, and to target the preservation of greenways and wildlife corridors to connect natural areas.

Open space can serve many different needs, including the preservation of natural areas, provision of public access to water, recreation needs, relieving traffic congestion, and regional stormwater projects. There are also several methods and funding mechanisms that can be used to

secure open space, including the Rural and Critical Lands Program, the Stormwater Utility fund, municipal programs such as Hilton Head Islands Land Acquisition Program, and open space preserved through ordinance requirements and development agreements. As open space becomes scarcer and more expensive to acquire, it may become necessary to look more creatively at several different open space acquisition methods to achieve multiple objectives.



Sea Level Rise

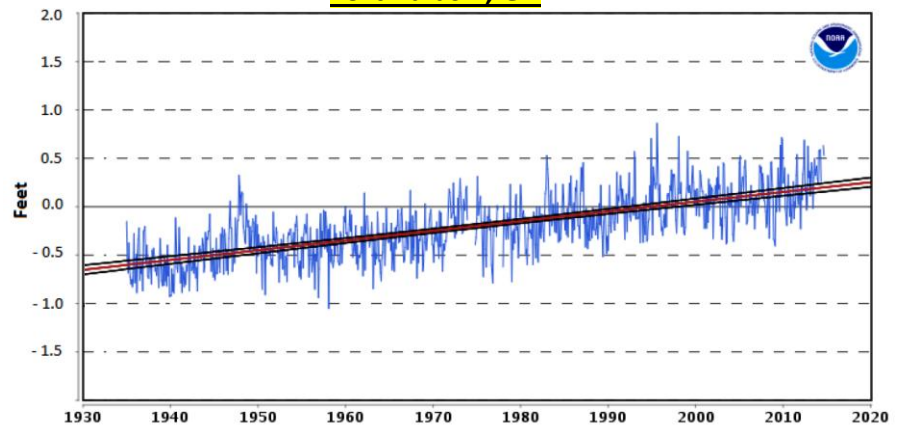
One of the most significant challenges facing low-lying coastal regions, such as Beaufort County is the threat of climate change and resultant sea level rise. Even slight changes in sea levels have the potential to significantly affect private property, public infrastructure, and the natural environment. Mean sea level has increased approximately 1 foot since 1935 and is projected to rise between 1 and 7 feet before the end of this century. Given the potential consequences, it is imperative that the County track changes and projections, closely monitor local conditions, and adopt adaptation strategies to make the region more resilient to the effects of climate change.

HISTORIC SEA LEVEL TRENDS AND CURRENT CONDITIONS

Oceans naturally rise and fall with winds, storms, tides, and seasons, therefore, all measures of sea level need to be averaged over a long time period to arrive at a clear trend. Tidal gauges and satellites are two instruments that scientists use to measure changes in sea level. The nearest tidal gauge is NOAA station 86708703 at Fort Pulaski, Georgia. Although it is situated about 10 miles outside of Beaufort County, this station provides the best long term data necessary for identifying sea level trends in the region. Since the station's establishment in 1935, relative mean sea level has increased an average of 0.12 inches per year (Figure 5-7). This translates to 1.2 in./decade or 1.0 ft./century.

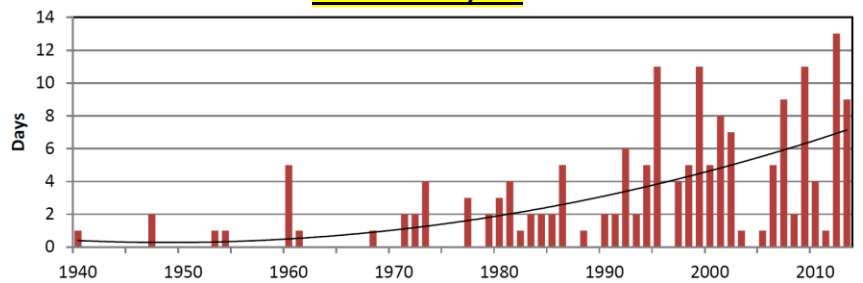
Accompanying gradual increase in mean sea level has been an increase in coastal flooding events due to extreme tides. According the same tidal gauge in Fort Pulaski, GA, extreme tide events have become more common in recent decades. Figure 5-8 below indicates the number of days each year when tide levels have exceeded minor flood stage as defined by the National Weather Service as 1.7 feet above mean higher high tide.

Table 5-7: Historic Sea Level Measurements at Fort Pulaski, GA



Source: NOAA Station 8670870 at Fort Pulaski, GA

Table 5-8: Days with Tides above Minor Flood Stage Each Year at Fort Pulaski, GA



Source: NOAA Station 8670870 at Fort Pulaski, GA



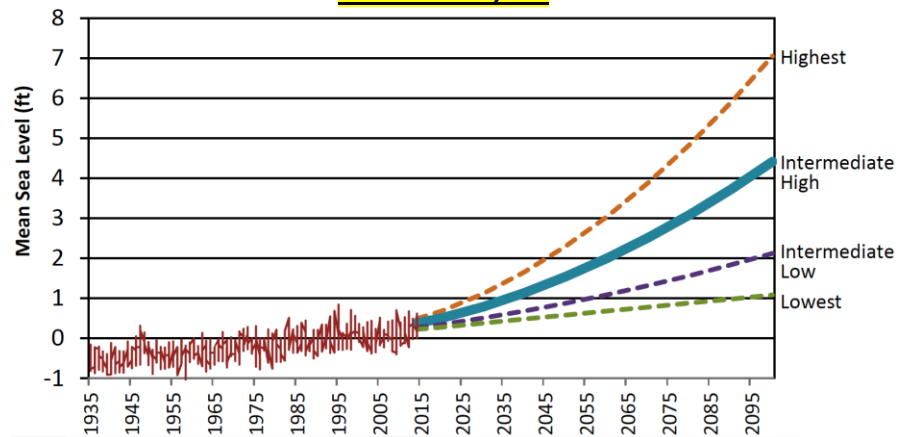
On August 10, 2014, heavy rains combined with an exceptionally high tide combined to generate flooding in the +3-4 ft. zones in the Mossy Oaks neighborhood in the City of Beaufort.

FUTURE SEA LEVEL PROJECTIONS

Global mean sea level is predicted to continue to increase as a result of global climate change. Like mercury in a thermometer, water expands when heated, increasing the surface height of the ocean. In addition, atmospheric heat melts ice, including land-based ice sheets and glaciers, adding additional water volume to ocean basins. These two forces are expected to intensify due to atmospheric heat trapped by the presence of greenhouse gases like carbon dioxide (CO²). The U.S. National Climate Assessment provides four global sea level rise projection scenarios. The lowest scenario is based on a continuation of historic sea level rise; the highest is based on significant glacier and ice sheet loss. These four planning scenarios are meant to serve as a guide for climate adaptation planning for local communities. Figure 5-9 provides localized projections of these four scenarios up to the year 2100. Scientists are 90% confident that global mean sea level will rise within

the 1 ft. to 7 ft. range of these scenarios by the end of the century, but they cannot attribute a probability to any specific scenario.

Table 5-9: Historic and Projected Sea Level Rise at Fort Pulaski, GA



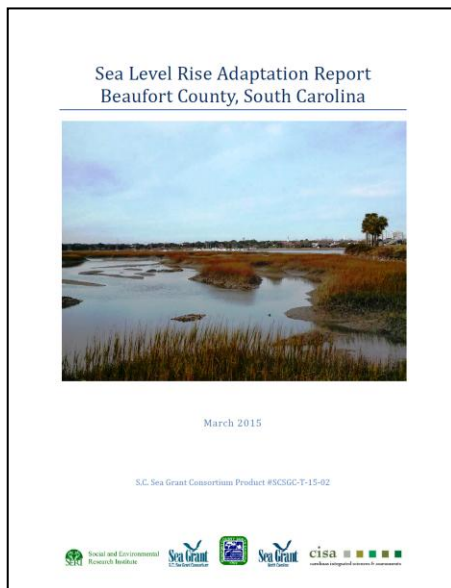
Source: NOAA, US Army Corps of Engineers, Parris et al.

ASSESSING THE POTENTIAL IMPACTS

In response to these uncertainties, Beaufort County joined with the South Carolina Sea Grant Consortium and other agencies to investigate opportunities for the County to adapt to future sea level rise impacts. The process was driven by a stakeholders group, who analyzed the potential impacts of sea level rise and identified adaptation actions. These adaptation actions were presented and prioritized at two public workshops. The results of this analysis were published in the *Sea Level Rise Adaptation Report*. The report identified 23 adaptation actions grouped into nine categories that addressed diverse topics such as increasing intergovernmental cooperation; strengthening development and building standards; protecting low-lying areas from development; monitoring the impacts on natural resources; and protecting vulnerable infrastructure and developing standards for the location and design of future public facilities.

CONCLUSIONS

While there is uncertainty on the magnitude of future sea level rise, it is important for the County to assess its vulnerabilities and take actions to increase its resiliency to the impacts. The Sea Level Rise Adaptation Report provides a good framework and balanced approach that should serve as a starting point to guide for future policy decisions related to climate change. These adaptation actions can be summarized as follows:



Sea Level Rise Adaptation Report: Beaufort County, South Carolina, prepared by South Carolina Sea Grant Consortium in 2015.

- Encourage communication and joint activities among local governments, agencies, non-profits and the private sector to increase the region's awareness of the impacts of climate change and to coordinate appropriate actions;
- Maintain and strengthen development standards and building codes to respond to the impacts of sea level rise such as flood level elevation, erosion, and stormwater runoff;
- Preserve and protect natural resources increasing by protecting low lying areas from development and stabilizing shorelines; and
- Protecting and replacing vulnerable public facilities, and developing policies that assure that new infrastructure and capital facilities take into account projected sea level rise.



Recommendations

Recommendation 5-1: Cooperative Planning with Municipalities and Neighboring Counties

Beaufort County should continually work with its municipalities and neighboring counties to develop baseline standards and plan cooperatively to optimize the protection of natural resources at a regional level.

- Work toward the adoption of baseline standards for critical line buffers, stormwater BMPs, freshwater wetland protection, beach and dune protection, and the protection of trees and habitats.
- Centralize and standardize the collection and analysis of County, municipal, and state water quality monitoring data.
- Coordinate open space protection efforts by pooling and leveraging funds for the preservation of open space and coordinating existing preservation efforts across municipal and county boundaries.
- Coordinate natural resource planning with neighboring counties, with the recognition that development impacts natural resources and water quality across county boundaries.

Recommendation 5-2: Educational Outreach

Beaufort County should work to develop education programs aimed at informing local residents, builders, developers and realtors about the value of water quality and the region's key natural resources, and of County regulations that are designed to protect these resources.

- Dedicate additional staff and funding to environmental education programs.
- Better coordinate existing programs conducted by governmental and non-profit agencies.

Recommendation 5-3 : Enforcement

Beaufort County should dedicate additional staff resources to the enforcement of County regulations designed to protect water quality and protect natural resources.

Recommendation 5- 4: Implement the SAMP

Beaufort County should address the remaining recommendations from the Beaufort SAMP.

- River Quality Overlay District (RQOD): Review the adequacy of existing regulations already adopted, such as river buffers and stormwater BMPs to determine if the intent of the SAMP is already being met.
- On Site Disposal System (OSDS) program: Develop a comprehensive regional approach to reducing the negative impacts of on-site septic systems to surface water quality.
- Coordination of Water Quality Data Collection: Establish a structure to coordinate all water quality monitoring activities in the County.

Recommendation 5-5 : Open Space Preservation

Beaufort County should cooperate and continue to emphasize protection of public and private open space.

- Continue to support and fund Rural and Critical Lands Preservation Program.
- Use local funds to leverage funds from state, federal, and non-governmental organization programs
- Pursue the acquisition of sites that meet multiple objectives, such as the preservation of natural resources, passive recreation, public access to water, and regional stormwater projects.

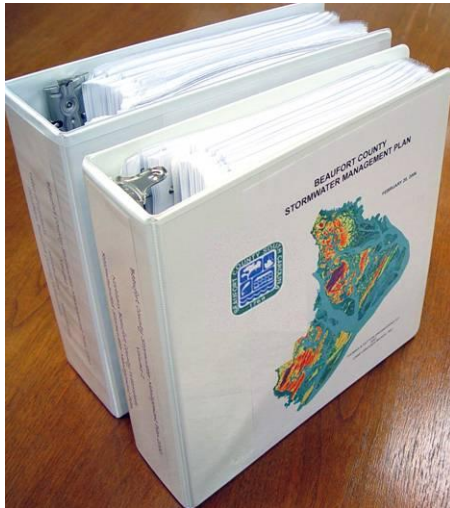
Recommendation 5- 6: Soils

Beaufort County should take greater consideration of soil types in future land use planning, site plan review and locating future infrastructure projects and County facilities.

Recommendation 5- 7: New Approaches to Stormwater Management

Beaufort County should utilize the Stormwater Management Utility Board to explore, develop and promote new approaches to stormwater management

- Continually reevaluate the Stormwater BMP Manual and its application and enforcement to increase the use of Low Impact Development (LID) techniques, such as bioretention, green roofs, pervious paving, and cisterns that promote water conservation and groundwater recharge.
- ~~Design stormwater management in sensitive headwater areas to 100-year storm event to lessen the impact of freshwater surges and channelization on marine life.~~
- When evaluating the impact of new development, take into account the collective impacts of existing development in the same sub-



Beaufort County Stormwater
Management Plan (2006)

watershed.

- Incorporate soil types as a criterion to determine the appropriate percentage of impervious surface within a development.
- Evaluate the necessity designing stormwater management to limit nitrogen pollution in runoff. Adjust Stormwater BMP Manual accordingly. If nitrogen standards are enacted, Provide for mechanism to allow high density developments to mitigate the impact of nitrogen pollution by retrofitting stormwater management devices in older non-conforming developments within the same sub-watershed.
- Continually evaluate how stormwater standards can be modified to help reduce FEMA flood insurance rates.

Recommendation 5-8 : Stormwater Utility

Beaufort County should continue to implement the Stormwater Utility with a priority placed on retrofitting stormwater in older moderate and high density developments that predate the adoption of stormwater standards in Beaufort County.

- Work toward a joint capital improvements plan (CIP) for County and municipal Stormwater Utility projects.
- Utilize Rural and Critical Lands Preservation Program to purchase key sites that serve regional stormwater utility needs.

Recommendation 5-9 : Water Quality Monitoring

Beaufort County should continue to work toward centralizing and standardizing the collection and analysis of water quality data.

- Establish what are considered acceptable and unacceptable water quality standards on the sub-watershed level.
- Update BMP Manual to adjust to new information.

Recommendation 5- 10: Other Water Quality Measures

Beaufort County should pursue additional measures aimed at improving water quality.

- Assess the effectiveness of existing County and state policies to protect small marsh islands from over-development.
- Continue to expand the ability to help the public discard toxic items that can degrade water quality.

Recommendation 5-11 : Tree Protection Standards

Beaufort County should maintain good standards both to protect mature and specimen trees and to plant new trees when property is developed or redeveloped.



Typical items collected during a
County sponsored household
hazardous waste collection event.



Preserved trees in Bluffton.

- Revise Beaufort County's tree standards to distinguish between "mature" trees and "specimen" trees, giving greater protection to specimen trees.
- Continue to require and increase the enforcement of the protection of root zones and canopies of trees during construction.
- Encourage the removal of non-native invasive tree species such as Chinese tallow, Chinaberry, and mimosa.
- Revise parking standards to enlarge islands and medians so that they are of sufficient width to support large shade trees.
- Require replacement trees planted for those removed to be retained in perpetuity or replaced as they die or become hazardous
- Require caliper inch-for-inch replacement for illegal tree removal with a higher replacement ratio assigned for specimen trees.
- Beaufort County should adhere to its tree standards for County properties, parks, and preserved areas.
- Encourage a network of preserved forested areas across parcel boundaries.

Recommendation 5- 12: Tree Management Plan

Beaufort County should require new developments and encourage existing developments to adopt a tree management plan.

- The plan should include a map of all common areas, their purposes and the trees that currently exist in the common areas.
- The plan should address such aspects as the thinning of trees to provide sufficient light to keep desirable trees healthy, and the planting of new trees and shrubs to replace aging or unhealthy trees.
- Beaufort County should work with the Clemson Extension Master Gardner Program to complete tree management plans for the County's parks and preserved lands.

Recommendation 5- 13: Trees - Educational Outreach

Beaufort County should build on its current partnership with Clemson University Extension Service to promote the value of tree protection and proper tree care.

- Provide information on identifying backyard trees, evaluating the health of trees, keeping specimen trees healthy, and planting and caring for new trees.
- Promote good tree maintenance such as root zone protection and sustainable pruning techniques.
- Encourage residents to submit information about outstanding specimen trees to assist the County to establish a GIS database to aid in the evaluation of site plans.

Recommendation 5- 14: Wildlife and Habitat Protection Standards

Beaufort County should develop standards aimed at protecting wildlife and local wildlife habitat.

- Develop mitigation standards for development projects to protect and encourage wildlife. Standards may include replanting of native vertical layers of vegetation, installation of thickets, keeping dead trees where they do not present a hazard, and installation of rest/nest boxes
- Encourage new development to be wildlife friendly and to provide linkages between wildlife habitats through a combination of ordinance requirements and incentives.
- Develop regulations to protect animal and plant species defined as Species of Special Concern by the State of South Carolina
- Promote innovative road construction techniques that are wildlife friendly. Techniques include culverts for under-road crossings, rolled curbing, traffic calming devices, and signage to alert motorists.

Recommendation 5-15: Wildlife and Habitat Educational Outreach

Beaufort County should encourage property owners to landscape their properties to be more wildlife friendly.

- Develop an education program aimed at informing property owners of the benefits of preserving or enhancing native vegetation.
- Inform the public about programs for certifying backyard wildlife habitat offered by the National Wildlife Federation, the National Audubon Society, and the Clemson University Extension Service (Carolina Yards and Neighborhoods).



Consequences of beach erosion and the lack of a healthy dune system.

Recommendation 5- 16: Beaches and Dunes

Beaufort County should recognize that its beaches and dunes are both an important public resource and are valuable as a natural storm barrier protecting life and property for those living along the coast. The following policy components are recommended:

- All new beachfront developments and redevelopments should enhance or reestablish dune systems.
- All native dune plants that provide dune stabilization should be protected.
- Require a natively vegetated buffer between the dune system and development with planting standards and a prescriptive list of native plants.
- Restrict the size and location of structures in dune systems and

buffer areas, such as decks and dune walkovers. Dune walkovers should be constructed so that they do not restrict the free flow of wildlife.

- Prohibit the direct discharge of storm water and pool water into dune systems or onto beaches.
- In order to protect sea turtles, all lighting for parcels fronting barrier island beaches and dunes should be configured so as to ensure that no light is visible from the beaches or dunes during sea turtle nesting season.
- Beaufort County should consult with the SCDNR Sea Turtle Program on the proper placement and configuration of sand fencing, if it is used to reestablish dune systems.
- Beaufort County should exercise its authority to purchase public access when reviewing development plans on beachfront properties, in order to gain as much public beach access as possible when property is being redeveloped.
- Beaufort County should support efforts to stabilize the beach at Hunting Island for the purpose of preserving beach access, recreational amenities, natural habitats, and historic structures on the island.



Privately preserved open space on Spring Island.

Recommendation 5- 17: Network of Open Spaces

Beaufort County should work toward a network of open spaces that protects critical habitats and provides wildlife corridors.

- Continue to fund the Rural and Critical Lands Preservation Program and to update utilize the Greenprint map to assist in prioritizing land purchases.
- Develop better critical habitat identification tools utilizing DNR, NOAA data, and aerial photography to assist in identifying lands for preservation.
- Coordinate public and private preserved open space
- Explore the feasibility of an open space land bank where fees would be collected in lieu of ordinance required open space set asides and applied to the purchase and preservation of larger more critical lands

Recommendation 5- 18: Freshwater Wetlands

Beaufort County should continue to acknowledge the importance of freshwater wetlands as natural assets worthy of protection because of their vital role as natural stormwater drainage systems and as habitats for plants and animals.

- The County should adopt a zero net loss policy on isolated freshwater wetlands with an emphasis placed on avoiding negative impacts on wetlands.

- Where avoidance is not possible, emphasize minimizing and mitigating impacts.
- Provide incentives for development plans that are designed around freshwater wetlands
- Mitigation of impacted wetlands should be on site. When it is not feasible, in-kind mitigation acre for acre in same the watershed should be considered a last resort.
- Once a property is developed, wetlands that are preserved or mitigated and their buffers should be given permanent protection.
- High quality wetlands and wetlands with rookeries should be managed to maintain the site as suitable rookery habitat.
- Freshwater wetlands should have native, upland buffers.
- Stormwater management should be designed so to provide no negative impacts to freshwater wetlands.

Recommendation 5- 19: Protect Groundwater Quality

Preserve groundwater quality by reducing and eliminating heavy usage of groundwater resources in the county.

- Require all new developments to hookup to public water.
- Require Low Impact Development (LID) stormwater management techniques that infiltrate stormwater runoff into the soil, thereby recharging groundwater.
- Encourage heavy users of irrigation (golf courses, landscaping) to use treated effluent for irrigation or storage lagoons.
- Discourage wells for the irrigation of residential landscaping.
- Develop standards for geothermal HVAC systems that recycle the use of groundwater.

Recommendation 5– 20: Climate Change and Rising Sea Level

Beaufort County should anticipate and plan for the impacts of climate change and sea level rise.

- Anticipate Sea Level Rise. Work with the U.S. Geological Survey and other monitoring agencies to track inlet and ocean levels; utilize estimates for mean sea level rise to map potential areas subject to future inundation; and work with FEMA to amend flood maps for any areas subject to increased flooding from a rise in sea level.
- Plan for Sea Level Rise. The potential impacts of sea level rise on low-lying areas should be a consideration in future land use planning, site plan review, and the location of future roads and other public facilities.
- Disclosure: Consider requiring a disclosure statement when development and building permits are issued on low-lying property acknowledging that the County is not committed to stabilizing

~~property or maintaining private roads and causeways by constructing seawalls, levees or other devices.~~

Recommendation 5- 20: Sea Level Rise – Cooperation and Education

Beaufort County should encourage communication and joint activities among government agencies and the private sector to increase the region’s capacity to adapt to sea level rise.

- Public Sector Cooperation: Improve coordination among governments and agencies to share information, assess impacts, and promote public education on the impacts of climate change. Governments and agencies should include local governments; the Department of Defense; regional alliances and networks such as LCOG and the MPO; relevant federal and state agencies such FEMA, DHEC, DNR and SCDOT; and utilities and public service districts.
- Private Sector Cooperation: Facilitate a dialogue on how to balance public and private interests and responsibilities with respect to climate change. This dialogue should involve homeowner associations, the Board of Realtors, the National Association of Homebuilders, and financial and insurance interests.
- Emergency Management Plans: Incorporate future sea level rise impacts into emergency management plans.
- Develop Trigger Points: Work cooperatively to develop trigger points based on data monitoring to inform future policy changes and actions.

Recommendation 5- 21: Sea Level Rise – Development and Building Standards

Beaufort County should maintain and strengthen development standards and building codes to respond to sea level rise.

- Maintain and strengthen setback and buffer policies to protect both the natural environment and private property.
- Revise building codes to higher standards and incentivize better design.
- Continue to evaluate and modify standards for stormwater quality and volume.
- Consider requiring a disclosure statement when development and building permits are issued on low-lying property acknowledging that the County is not committed to stabilizing property or maintaining private roads and causeways by constructing seawalls, levees or other devices.

Recommendation 5- 22: Sea Level Rise – Natural Resource Protection

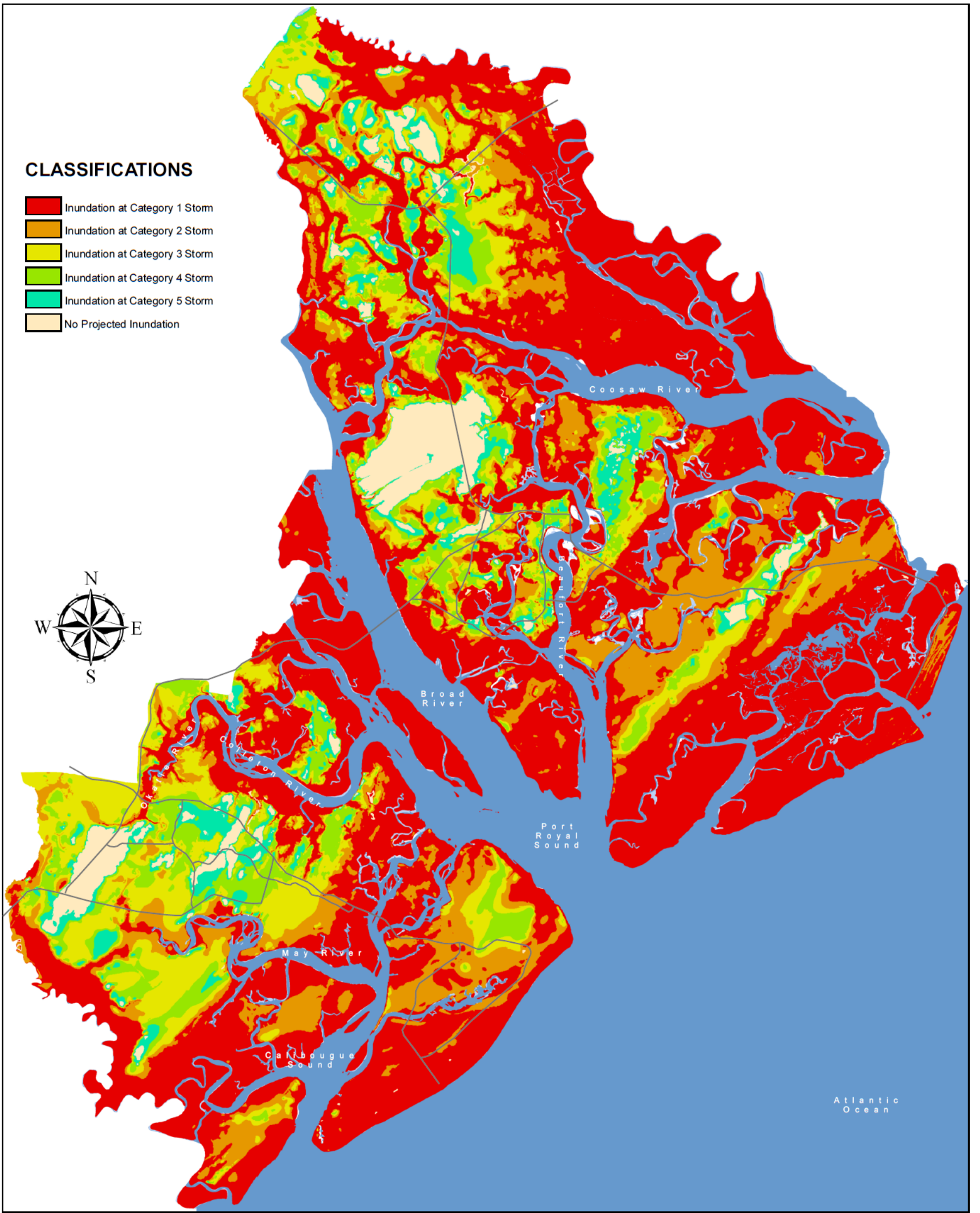
Beaufort County should develop policies and actions to protect natural resources from the impacts of sea level rise.

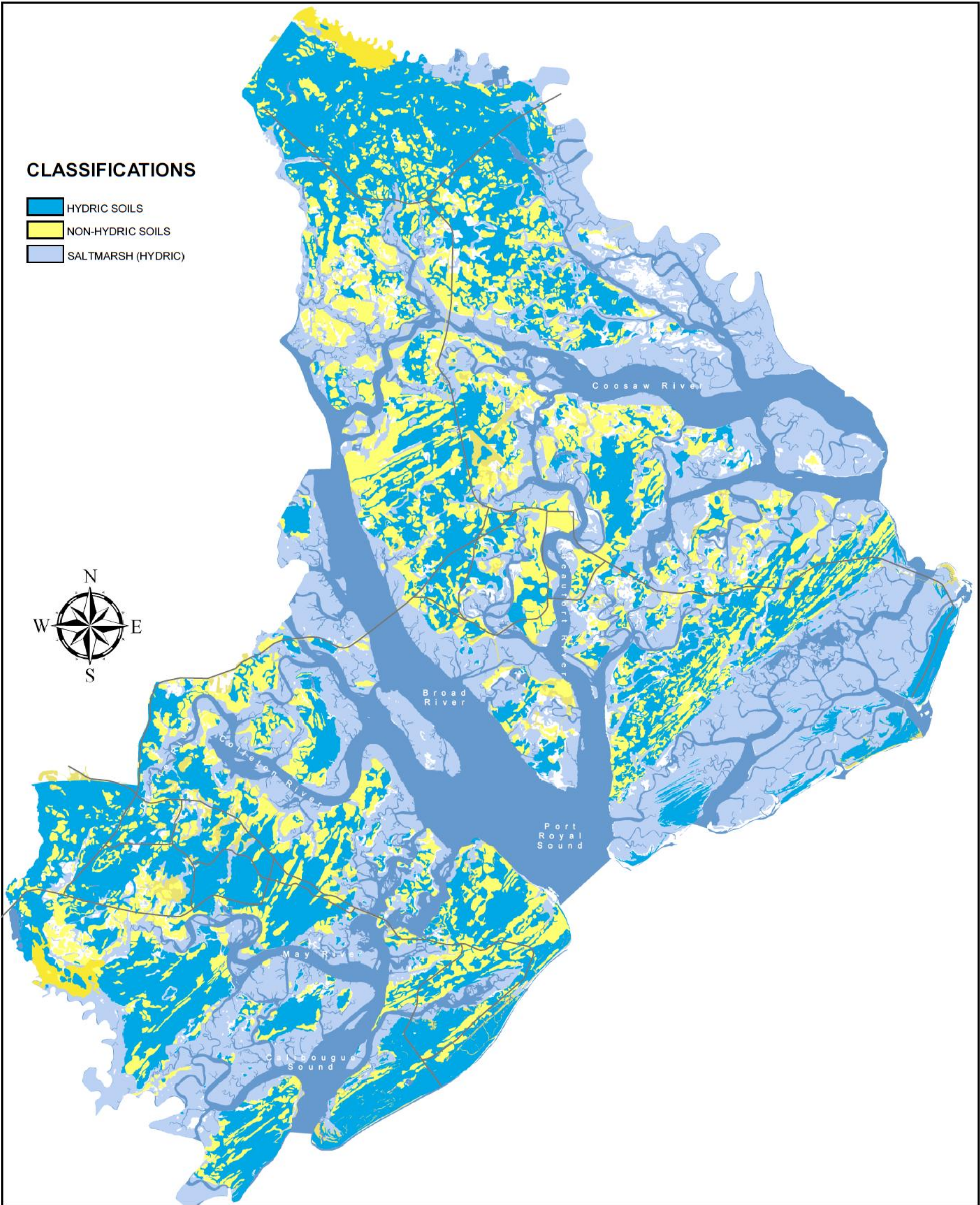
- Study the impact of sea level rise on saltmarshes, oyster beds, shoreline erosion, water quality, and other environmental concerns.
- Use land preservation to protect low lying areas and to protect vulnerable ecosystems.
- Discourage the use of sea walls that limit the ability of the marsh to migrate upland in response to sea level rise. Install and encourage the use of living shorelines to reduce erosion.

Recommendation 5- 23: Sea Level Rise – Infrastructure and Public Facilities

Beaufort County should make improvements to infrastructure located in vulnerable areas and develop policies assure that new infrastructure and public facilities take into account projected sea level rise.

- Prioritize, elevate, and protect low-lying roads and causeways. Base prioritization on the importance of roadway improvements on such factors as average daily traffic counts (ADTs), lack of alternative routes, and importance of roadway for evacuation.
- Identify other vulnerable public facilities such as schools, pump stations, stormwater ponds that may need to be improved or relocated.
- Monitor the impacts of sea level rise on the supply of drinking water.
- Develop policies that require the design and location of future capital improvements and infrastructure to account for projected sea level rise.





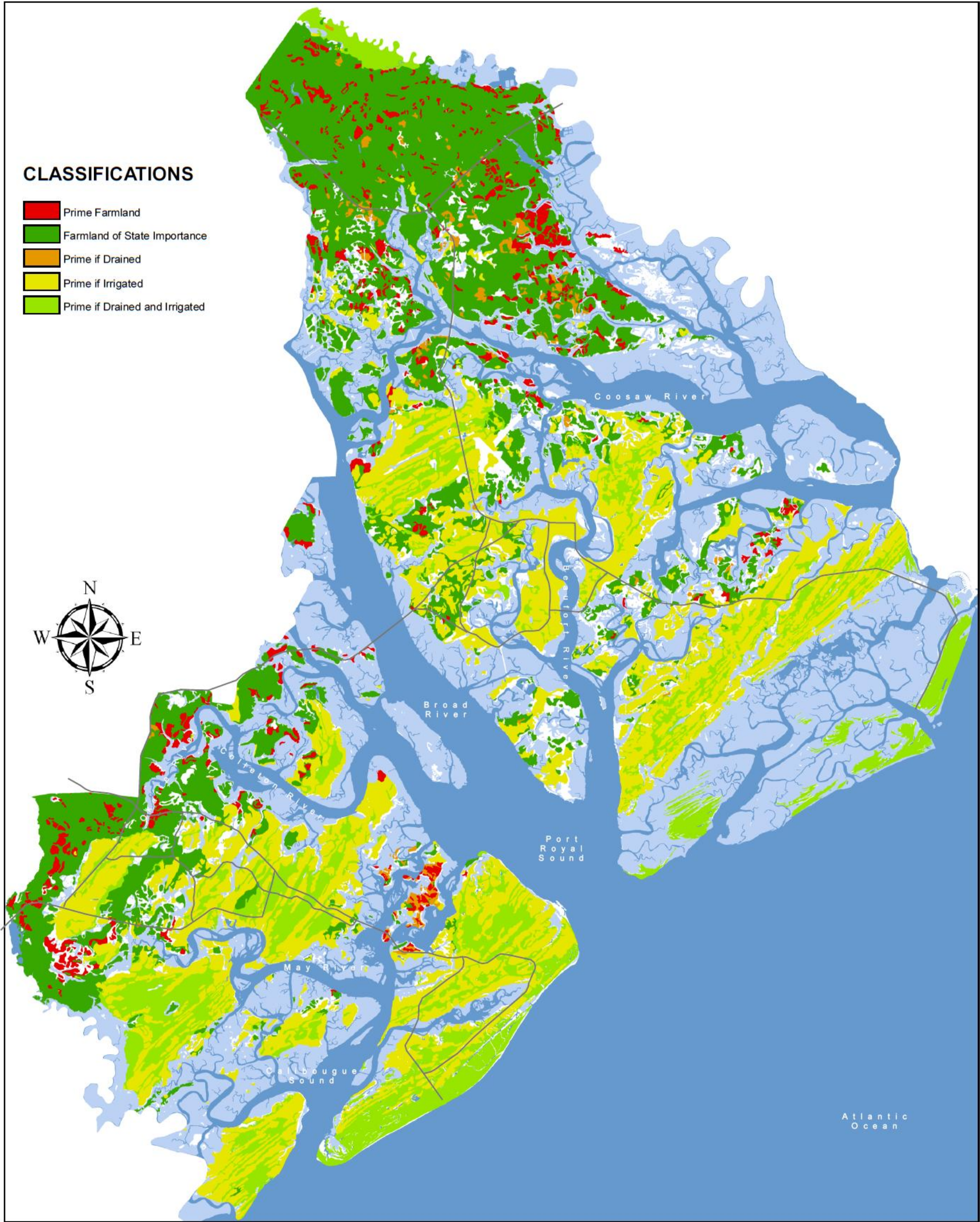
Chapter 5

Natural Resources

Map 5-2: Soil Hydrology



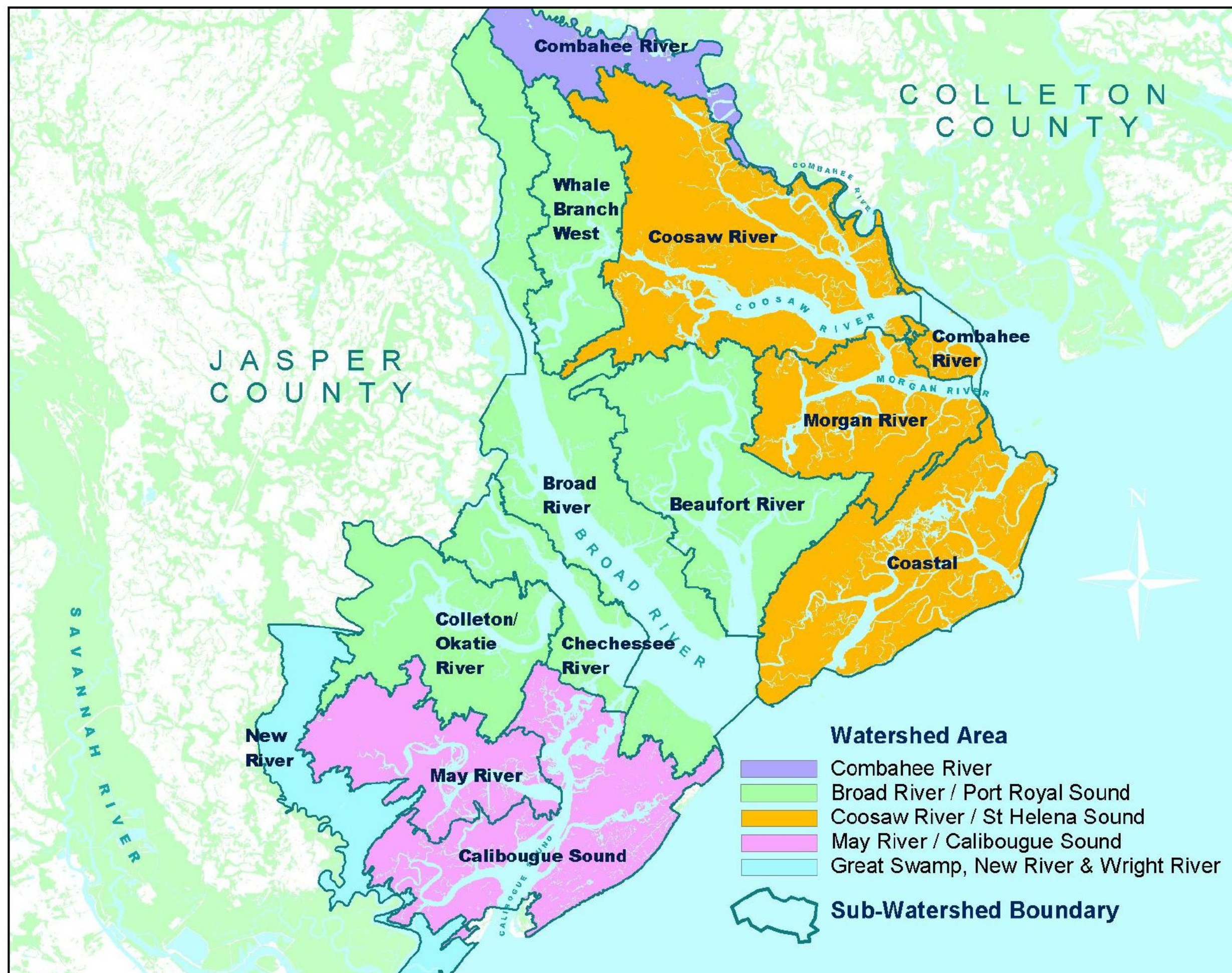
2010 Beaufort County Comprehensive Plan



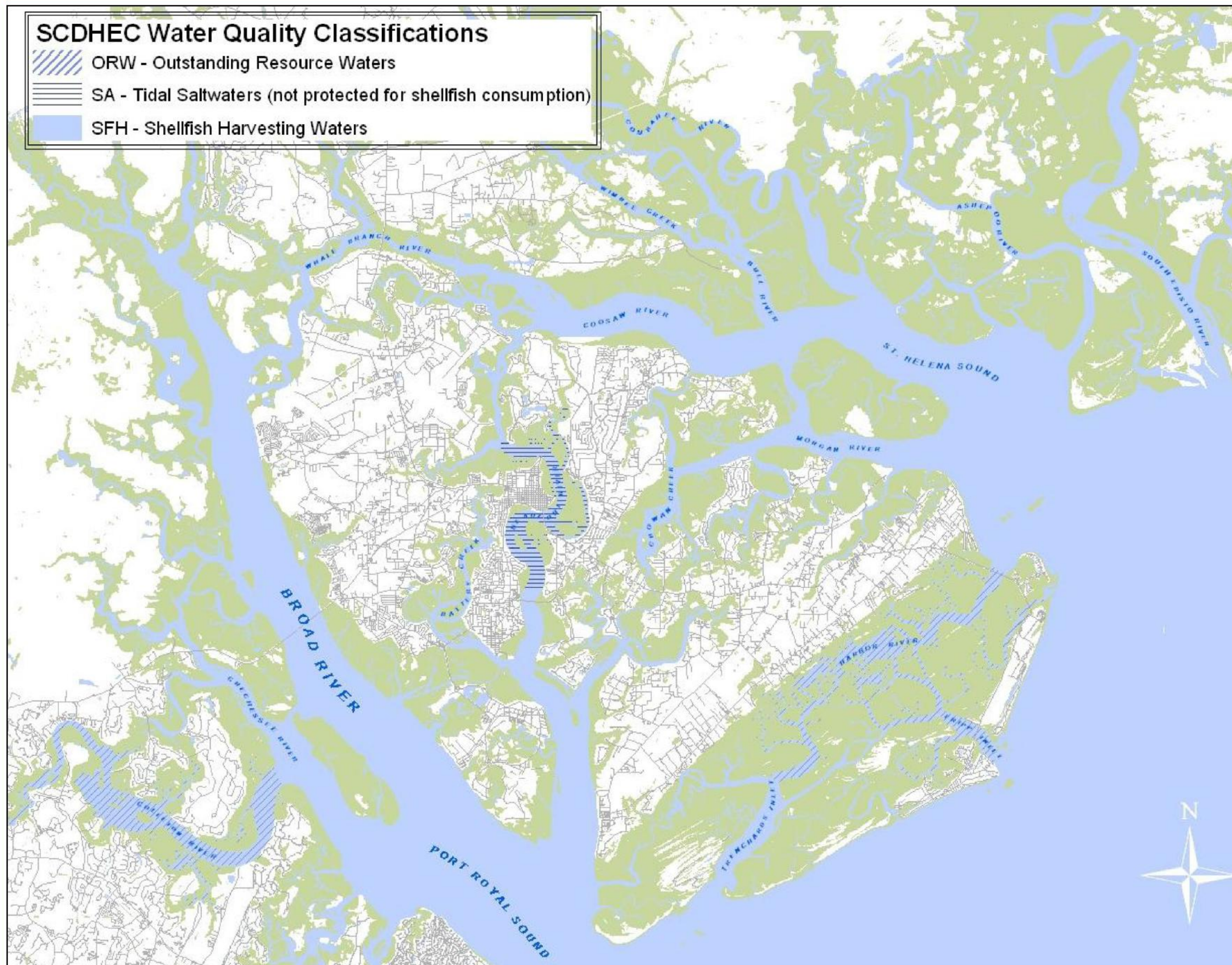
Chapter 5

Natural Resources

Map 5-4: County Watersheds and Sub-Watersheds



 ORW - Outstanding Resource Waters
 SA - Tidal Saltwaters (not protected for shellfish consumption)
 SFH - Shellfish Harvesting Waters

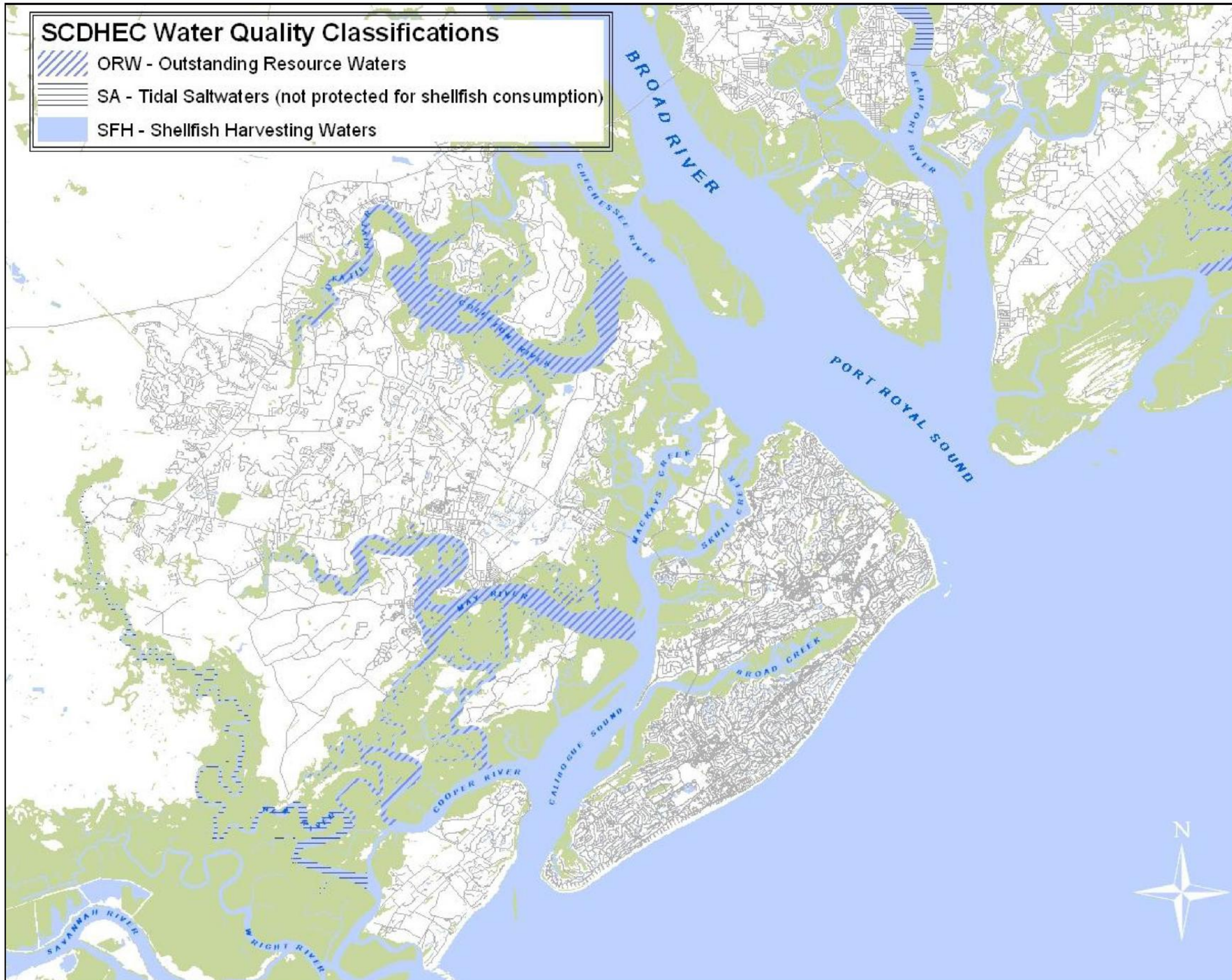


**Map 5-5:
Water
Quality
Classifications:
Northern
Beaufort
County**

2010 Beaufort County
Comprehensive Plan

SCDHEC Water Quality Classifications

- ORW - Outstanding Resource Waters
- SA - Tidal Saltwaters (not protected for shellfish consumption)
- SFH - Shellfish Harvesting Waters



Chapter 5 Natural Resources

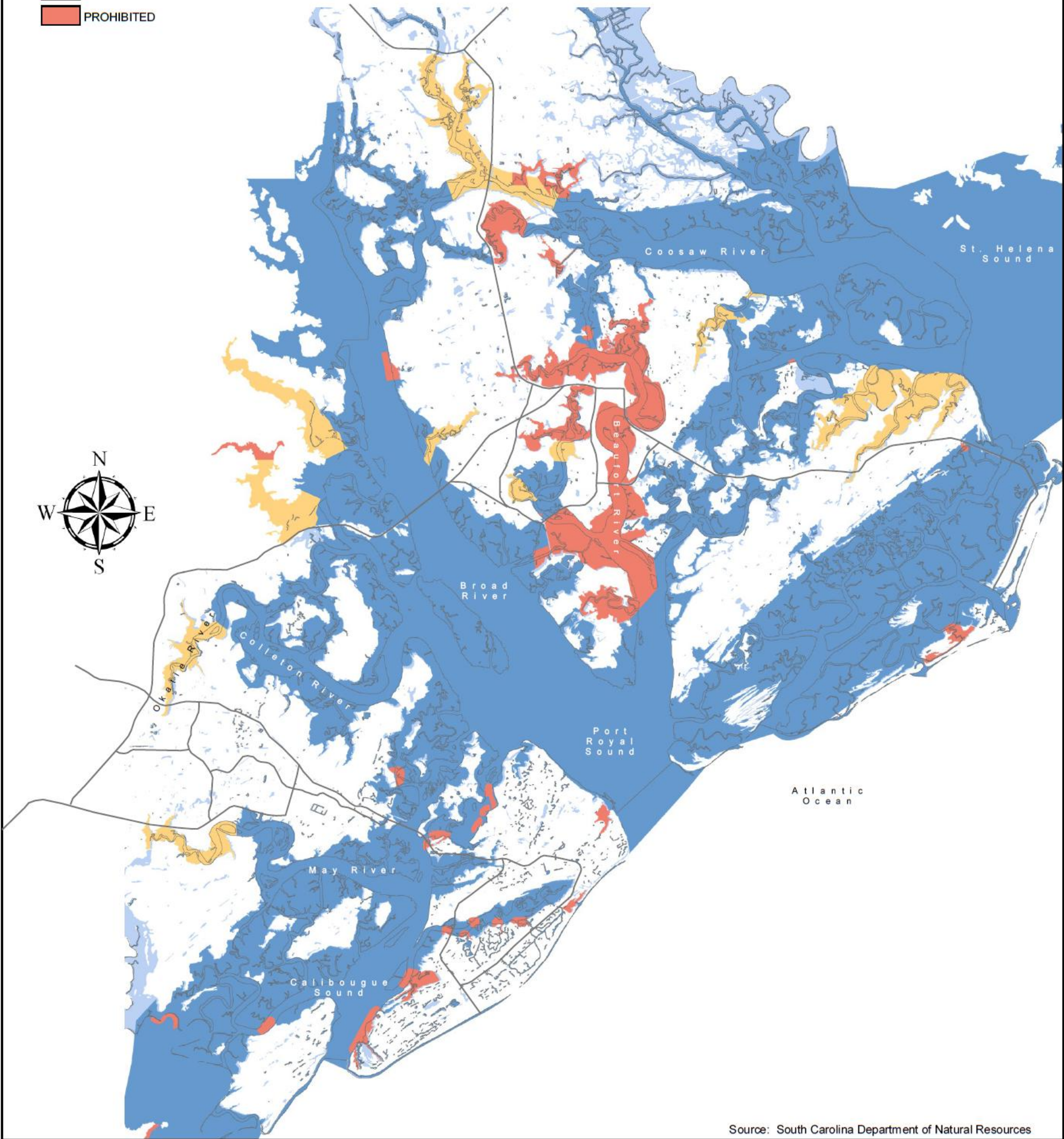
Map 5-6: Water Quality Classifications: Southern Beaufort County



2010 Beaufort County
Comprehensive Plan

CLASSIFICATIONS

- STATE AND PUBLIC SHELLFISH GROUNDS
- RESTRICTED
- PROHIBITED



Source: South Carolina Department of Natural Resources

Chapter 5

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Resources

Map 5-7: Status of Shellfish Beds



2010 Beaufort County Comprehensive Plan



Chapter 5

Natural
Resources

Map 5-8: Freshwater Wetlands



2010 Beaufort County Comprehensive Plan

POTENTIOMETRIC SURFACE OF THE FLORIDAN AQUIFER SYSTEM IN SOUTHERN SOUTH CAROLINA, September 1998

By
Camille Ransom, III and James L. White

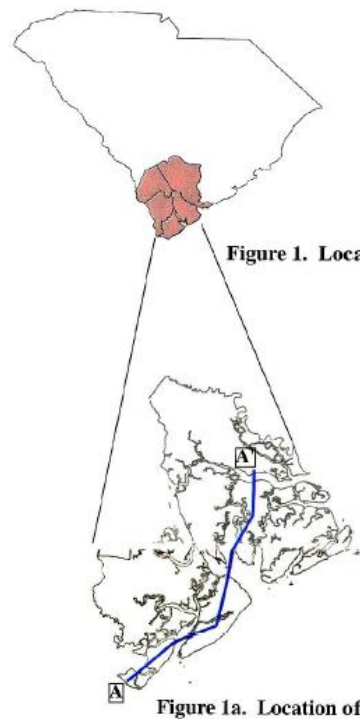


Figure 1. Location of Study Area

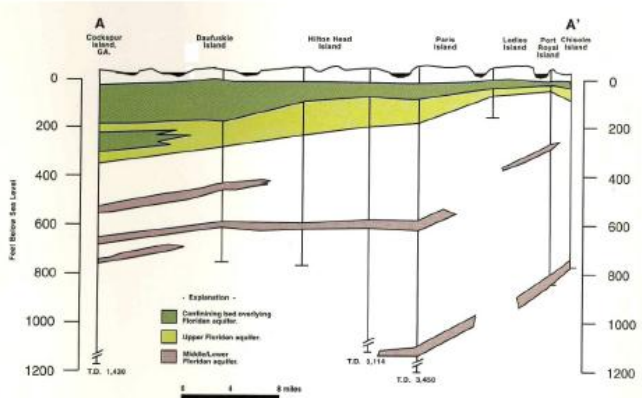
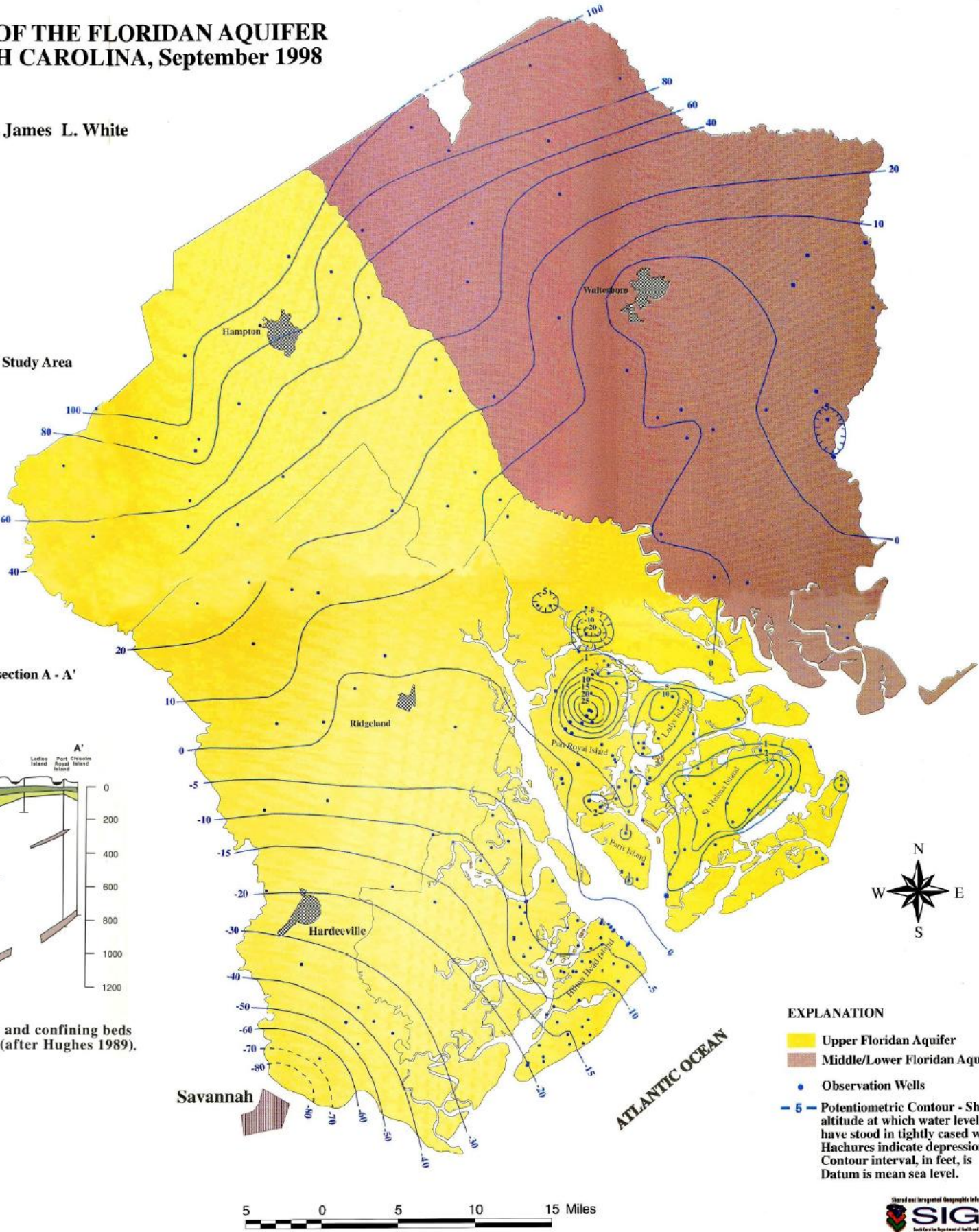


Figure 2. Distribution of permeable units and confining beds of the Floridan Aquifer System (after Hughes 1989).



Chapter 5
Natural Resources

Map 5-9:
Aquifer
Recharge Areas
and Cones of
Depression

- Upper Floridan Aquifer
- Middle/Lower Floridan Aquifer
- Observation Wells
- 5- Potentiometric Contour

[Shows altitude at which water level would have stood in tightly cased wells. Hachures indicate depression. Contour interval, in feet while Datum is mean sea level.]

- EXPLANATION
- Upper Floridan Aquifer
 - Middle/Lower Floridan Aquifer
 - Observation Wells
 - 5- Potentiometric Contour - Shows altitude at which water level would have stood in tightly cased wells. Hachures indicate depression. Contour interval, in feet, is Datum is mean sea level.





8

Beaufort County Comprehensive Plan Affordable Housing



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Introduction

The beauty, coastal amenities, and temperate climate of the Lowcountry have attracted large numbers of new residents to Beaufort County, which has consistently been one of the fastest growing counties in South Carolina. More recently, commercial development has followed population growth, thereby creating high demand for service and retail employees and competition for existing workforce housing.

While Beaufort County has the highest HUD defined median income in South Carolina, middle-to-low income wage earners attracted to the County by job growth are therefore confronted with a constrained often have difficulty entering the housing market. While many developers have concentrated on the profitable retirement and high-end resort housing markets, fewer are producing workforce housing. While home prices have leveled off with the recent economic slowdown, tightened credit resulting from the national mortgage-lending crisis has the potential to further exacerbate the challenge of homeownership in Beaufort County. As when the economic cycle resumes begins an upswing, home prices may are resumeing a rate of escalation resembling that before the downturn. Mortgage credit, however, may not come as easily, making the role of the public and non-profit sectors more important than ever.

The County's continued prosperity, diversity, and desirability has necessitated an active role by the public sector in encouraging affordable housing. By continuing to shoulder that responsibility, Beaufort County is building a sustainable future for tourism and other major industries, protecting its military bases, and continuing to be a desirable place to live for people of all income levels.

VISION

The vision of the Affordable Housing Element is to maintain and enhance the diversity of Beaufort County by providing the opportunity for people of all income levels to live and work in the County by doing the following:

- Build and maintain a consensus on policies and strategies to meet the needs for workforce and other forms of affordable housing in Beaufort County through the leadership of the Lowcountry Affordable Housing Coalition Beaufort County Affordable Housing Consortium.
- Ensure private sector development of workforce housing through effective incentives, and if necessary inclusionary zoning.
- Enhance the capacity of the non-profit sector to assist in the provision of affordable housing, especially where there are gaps in private sector production.
- Ensure a variety of housing types to accommodate the full range of income, age, cultural groups, disabilities, and special needs in the community.
- In concert with the Future Land Use Plan, ensure that most affordable housing is located within a short commuting distance of major concentrations of employment and commercial uses.
- Pursue regional cooperation of public and non-profit agencies in meeting area housing needs.

DEFINITIONS

The term “affordable housing” is used in many contexts and has various connotations. For that reason, it is important to define basic terms at the beginning of a discussion of the subject. For a more detailed lexicon on housing terms used by the housing industry, non-profit housing service providers, and housing policy makers, see Appendix 8-A

Federal (HUD) Definitions: Many housing definitions have been established by the U.S. Department of Housing and Urban Development (HUD), and are applied consistently at all levels of government. HUD’s categories apply to housing whose monthly costs (mortgage, taxes, insurance, and/or rent) do not exceed 30% of household income. For household income, HUD determines a jurisdiction’s median income for various family sizes.

Table 8-1: HUD-Based Definitions of Affordable Housing

Housing Category	Definition
<i>Moderate Income Housing</i>	Affordable for a household earning a gross income of no greater than 120% of the county median income (\$ <u>53,900</u> <u>49,200</u> to \$ <u>82,680</u> <u>73,800</u>).
<i>Low Income Housing</i>	Affordable for a household earning a gross income of no greater than 80% of the county

	median income (\$ 33,700 30,750 to \$ 53,900 49,200).
<i>Very Low Income Housing</i>	Affordable for a household earning a gross income of no greater than 50% of the county median income (\$ 24,350 18,450 to \$ 33,700 30,750).
<i>Extremely Low Income Housing</i>	Affordable for a household earning a gross income of no greater than 30% of the county median income (under \$ 24,250 18,450).

Source: US Department of Housing and Urban Development. Income ranges are based on ~~2015~~ ~~2008~~ HUD defined median income (\$~~68,900~~ ~~61,500~~) for a Beaufort County family of four.



Beaufort County Definitions: While HUD definitions are precise in order to administer nationwide programs, Beaufort County’s definitions reflect the uniqueness or complexity of local conditions. As illustrated in the diagram, there are three major areas of housing needs with unique local definitions. Each of the three areas overlaps to some degree.

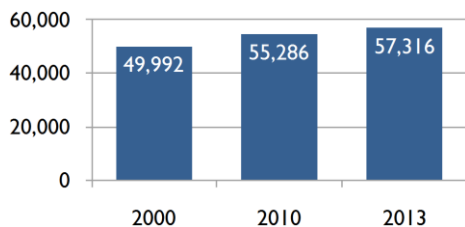
- **Affordable Housing:** Beaufort County defines affordable housing as housing that is affordable to a person or family earning 80% or less of the County’s current area median income and spends no more than 35% of their gross income for housing costs. Housing costs includes principal, interest, taxes, and insurance. This definition is consistent with HUD guidelines, except that Beaufort County has adopted a 35% housing-to-income ratio rather than 30%.
- **Workforce Housing:** Local housing practitioners refer to “workforce housing” as housing that is affordable up to 120% area median income. In 2008, the Beaufort County Affordable Housing Consortium agreed to refer to workforce housing as housing that is affordable to private and public sector workers with incomes at or below that of teachers and public safety workers. More specifically, the guideline encompassed an income range of 65% to 120% of the area median income.
- **Special Needs Housing:** Segments of the population that require attention from the County to meet their needs include persons with developmental disabilities, persons with handicaps and injuries, homeless people, the frail elderly, victims of abuse, and persons in various forms of rehabilitation.



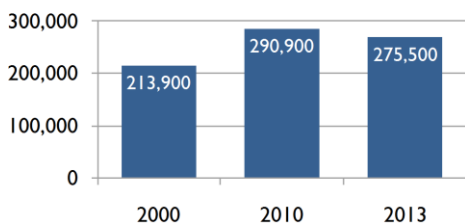
Technical Analysis

The following sub-section provides a summary and analysis of housing data and trends from the 1990 and 2000 and 2010 U.S. Census and from the 2006 American Household Community Survey conducted by the Bureau of the Census. More detailed information on population and housing growth rates can be found in the Appendix 8-A along with detailed housing data by political subdivision and census tract.

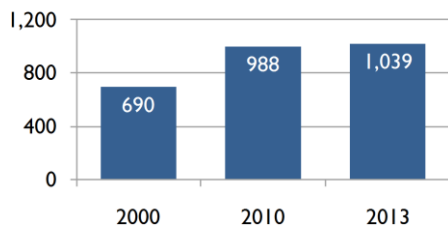
**Median Income Trend,
Beaufort County**



**Median Value Owner Occupied
Housing Trend, Beaufort County**



**Median Gross Rent Trend,
Beaufort County**



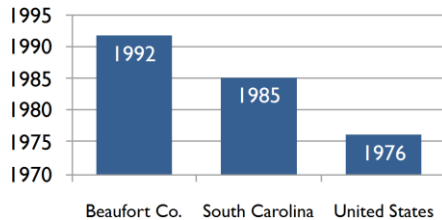
HOUSING AFFORDABILITY GAP

Housing costs in Beaufort County, which are relatively high for the region, are growing at a greater pace than income. The tables in the sidebar reveal that in 2000 and 2013, median housing costs were 100% and 125% higher in Beaufort County than the average for South Carolina, while median household income was only 28% and 39% higher. Between 2000 and 2013 (the most recent data from the American Community Survey), the County's median income remained relatively flat, growing by only 14.6%, while median rent increased by 50%. The median value of owner-occupied housing, however, increased during the same period by 64%. This disparity varies within Beaufort County. Median income in northern Beaufort County is only 78% of the County average. This disparity further deepens when comparing median income in the rural areas of St. Helena Island and Sheldon Township which is only 58% and 62% that of the county as a whole. The latter has the lowest median household income in the county (by census tract geography) at \$32,973 and \$25,688.

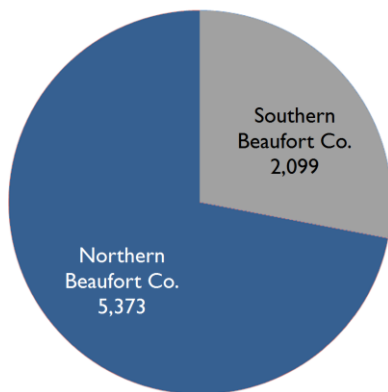
AGE OF HOUSING STOCK

When compared to state and national averages, Beaufort County has a relatively small supply of older housing, which in many other markets, is a significant source of low cost housing. The median year in which housing was built in Beaufort County according to the 2013 American Community Survey 2000 census was 1992 and 1986. By contrast, the median year was 1985 and 1978 statewide and 1976 and 1971 nationwide. The relatively low supply of older housing potentially drives first time buyers to seek newer, more expensive housing.

Median Year Built, 2013



Mobile Homes in Northern and Southern Beaufort County, 2013



SUBSTANDARD HOUSING

The Workforce Housing Needs Assessment¹ estimated that 4,430 housing units in Beaufort County were substandard. This number includes 3,584 conventional “stick-built” homes and 846 mobile homes. The largest number of substandard units was on Port Royal Island. Other concentrations of substandard units were in Sheldon Township and St. Helena Island.

MOBILE HOMES

According to the 2013 American Community Survey 2000 U.S. Census, 10.3% 14.9% (9,624 9,001 units) of Beaufort County’s housing stock consisted of mobile homes. While this countywide figure is lower than the state average (16.8% 20.3%), 78% a majority of the County’s mobile homes are located in northern Beaufort County where they make up 21.3% of the occupied housing stock. Mobile homes in northern Beaufort County and are concentrated in Sheldon Township, Burton, Grays Hill, and St. Helena Island. While mobile homes fill an important niche in the affordable housing market, they are financed at higher interest rates than site-built housing and depreciate over time, preventing owners from building wealth from their housing investment.

HOUSING TENURE

Beaufort County has a slightly higher rate of homeownership (70.6% 73%) than the state (69.3% 70%) and national (65.1% 66%) averages. Rates of homeownership vary within the County. In northern Beaufort County, owner occupancy falls within the state and national range at 62.9% 68% compared to 75.9% 79% in southern Beaufort County. The highest rate of owner occupancy was in the Town of Bluffton, which according to the 2005 Special Census, 83% of the housing units were owner-occupied. While the high owner-occupancy rate in Bluffton and southern Beaufort County is generally acknowledged as desirable, the recent housing crisis has demonstrated that an over-emphasis on homeownership can potentially lure families to purchase housing that is beyond their means and increase the risk of future foreclosures. Moreover, if rental units and high-density residential development are not available near areas of high employment, low-to-moderate income workers may be priced out of the market. Another consequence may take the form of extended-family or even multi-family occupancy of single-family units.

¹ Workforce Housing Needs Assessment, Beaufort County, SC, GVA Marquette Advisors, March 2004

VACANCY RATES

Vacancy rates in Beaufort County (30.6% 23.8%), which are higher than national (12.5% 9%) and state (16.9% 12.5%) averages, are largely a result of the County's tourism and second home market. On Hilton Head Island, 42% of the housing units serve the second home and occasional occupancy markets. The seasonal fluctuation of tourism, especially in Southern Beaufort County, creates a higher demand for workforce housing in the summer months.

HOUSING FORECLOSURES

Prior to the recent recession in recent years, in response to high housing costs, many Beaufort County homebuyers took advantage of subprime loans, adjustable rate mortgages, and lax mortgage application standards. The recent downturn of both the economy and the housing market has led to an increase in the rate of foreclosures. At the peak of the housing crisis in the first half of 2010, nearly 1,800 homes in Beaufort County faced some stage of foreclosure, according to RealtyTrac. This situation has greatly improved with only 595 Beaufort County properties in foreclosure during the first half of 2015. However, Beaufort County's housing affordability gap makes the region vulnerable to future housing downturns. In the fall of 2008, the SC State Housing Finance and Development Authority estimated that 1,226 Beaufort County properties (ranked 12th statewide) were in foreclosure. An additional 4,286 properties were identified as being vulnerable due to high cost loans being obtained between 2004 and 2007². In Beaufort County, the highest numbers of foreclosures are found in newer subdivisions in the rapidly growing Greater Bluffton area. At the same time, older, existing neighborhoods throughout the County have also been adversely affected by the housing crisis.

CONCLUSIONS

An analysis of housing data reveals some of the affordable housing challenges that Beaufort County faces. Growth in housing prices has far exceeded income growth, making it more difficult for working families to find affordable housing in proximity to employment. This is especially a concern in southern Beaufort County where housing costs are higher and there is a concentration of retail and service employment. Beaufort County has a relatively small supply of older housing and rental housing, which in many other markets provides a

² SC Neighborhood Stabilization Program (NSP) Substantial Amendment to the Consolidated Plan 2008 Annual Action Plan, 2008, SC State Housing Finance and Development Authority

significant source of affordable housing. In northern Beaufort County where housing is generally less expensive, rural areas are threatened with a deteriorating and depreciating housing stock. While current market conditions are bringing about a needed decline in housing costs, the potential blighting of the many neighborhoods hit hardest by foreclosures overshadows the benefit of that trend.



Land Use Policies Affecting Housing

The 1997 Beaufort County Comprehensive Plan, municipal comprehensive plans and the Northern and Southern Beaufort County Regional Plans have influenced the location and supply of affordable housing. They also serve as a framework for future affordable housing strategies. The following section provides a brief summary of prevailing land use policies in southern and northern Beaufort County.

SOUTHERN BEAUFORT COUNTY

Hilton Head Island and Bluffton are major employment destinations for the region. Yet prevailing residential development patterns in southern Beaufort County are largely low density. For example, the residential density of Sea Pines, on Hilton Head Island, nets at 1.21 dwelling units per acre. Old Bluffton, the only traditional town center that predates the automobile era has a residential density of 1.28 dwelling units per acre. While there are localized instances of moderate and high-density development, the overall trend of developing at a low density will likely continue into the future if existing approved developments build out accordingly.

Several factors have led to low-density development in southern Beaufort County. Beginning with Sea Pines on Hilton Head Island, master-planned, amenity-based resort and retirement developments have proven to be both popular and profitable. In addition, due to the unique natural qualities of the Lowcountry, Beaufort County, Bluffton and Hilton Head Island have emphasized environmentally sensitive development, to limit its adverse impacts on water quality and to work around natural features. More recently, increased traffic congestion and the inability to maintain existing levels of services for parks, schools and libraries have alerted local governments to control and limit overall buildout numbers in southern Beaufort County. On a positive note, there has been an increase in the Bluffton area of houses built since 2000 has been affordable to the moderate to middle income range. The number of residential units in Bluffton increased from 501 in 2000 to 5,552 in 2014. Developments such as Pine Ridge, Pinecrest, Bluffton Park and the Farm have added to the supply of workforce housing in southern Beaufort County.

NORTHERN BEAUFORT COUNTY

Land Use policies in northern Beaufort County delineate a future growth boundary that focuses new growth in well-defined areas, preserving over 60% of the land area of northern Beaufort County for rural density and uses. Within the growth boundaries, which include the City of Beaufort and the Town of Port Royal, higher density development has been more successful in providing a diversity of housing types at a range of costs in proximity to places of employment.

Beyond the growth boundaries, north of the Whale Branch River and on St. Helena Island, residential density is largely restricted to one dwelling unit per three acres. Family compounds, which are a traditional settlement pattern in rural Beaufort County, are a primary source of affordable housing in these areas. Most of the family compounds are located on heirs' property, property with no clear title, which has been inhabited by a family for decades. This settlement pattern not only provides affordable housing, it provides an extended family support, which stabilizes and preserves the county's rural communities. Community Preservation Areas in rural Northern Beaufort County allow for higher density residential and mixed-use development and, therefore, have potential to provide additional affordable housing opportunities. These areas include Dale, north of the Whale Branch River, and the Corner's Community on St. Helena Island (other CP areas in the north may also have affordable housing potential).

CONCLUSIONS

Southern Beaufort County is a major employment center for the region with a concentration of service and retail jobs. However, prevailing low-density development patterns have contributed to higher housing costs, hindered the effectiveness of public transportation, and therefore, pushed affordable housing further from places of employment. Affordable housing strategies in southern Beaufort County will need to be sensitive to other issues of concern in the region, such as traffic congestion and water quality. Therefore, housing policies for the region will need to emphasize higher-density, mixed-use, transit-friendly development that promotes internal trip capture and reduced vehicle miles traveled in order to make affordable housing accessible to employment.

While land use policies in northern Beaufort County are more conducive to siting affordable housing near employment, there are unique housing issues in rural areas that warrant special attention, such as clearing titles for heirs' property, housing rehabilitation, and appropriate affordable housing options in light of low-density land use regulations.



Housing Needs Assessment

Affordable housing is a complex issue that affects a large cross-section of Beaufort County's population. At one end of the affordable housing equation, there is a concern that the region will be unable to recruit an adequate workforce of teachers, fire fighters, nurses and other professionals due to limited housing choices. At the other end of the equation, many Beaufort County residents live in unsafe or over-crowded housing and are in need of housing rehabilitation or other housing options within their means.

The question of quantifying Beaufort County's affordable housing needs was first posed in the 2002 Assessment of the 1997 Comprehensive Plan, which recommended the County conduct a detailed housing needs assessment from which affordable housing goals can be derived. The Workforce Housing Needs Assessment, drafted in 2004, provided recommendations for the number of workforce housing units that would be necessary to construct in order to address the projected population growth between 2004 and 2009. The study also broke down housing needs according to planning areas within the County.

In addition to the Needs Assessment, during the summer of 2008, the Beaufort County staff commissioned an informed respondent survey to obtain essential information for this chapter from experienced local housing professionals and policy makers. The survey was designed to assess the needs of the range of population segments in the County, to determine the appropriate strategies, policies and programs that deliver affordable housing. The results of this survey, summarized in Appendix 8-B, have helped to inform the needs documented in this section.



WORKFORCE HOUSING

Those who hold workforce jobs - construction workers, hotel front desk clerks, police officers, teachers, government employees, nurses, and other service employees are vital to Beaufort County's economy. Those earning workforce wages fill the majority of jobs in nearly every sector of the economy, especially tourism, services, retail trade, and construction jobs, the primary employment sectors in Beaufort County. An inadequate supply of affordable workforce housing not only affects the quality of life for those working in Beaufort County, it can cause labor shortages and eventually decrease the competitiveness of the region's economy.

In 2008, the Beaufort County Affordable Housing Consortium agreed to refer to workforce housing as housing that is affordable to private and public sector workers with an income ranging from 65% to 120% of the County's median income. For a family of four, this income range translates to approximately \$44,785 \$39,975—to \$82,680 \$73,800

annually³. According to the 2013 American Community Survey 2000 U.S. Census, roughly 28% of Beaufort County households had incomes in this range. Beaufort County is projected to gain 15,129 48,517 households between 2015 and 2030 2006 and 2025. Based on these projections, 4,236 13,585 (282 715 units per year) will need to be affordable to this income range.

Needs vary widely within this large segment of the population. While, rental housing is particularly important to recent arrivals and singles who may not be prepared to commit to home ownership, starter housing is vital to young singles and families who require a small down payment and low monthly payments to enter the housing market. The informed respondent survey revealed a particularly strong need for housing for single mothers and older single workers. The survey also revealed that older working individuals and couples, an expanding demographic are in need of downsized housing including small lot single family houses, townhouses, and condominiums.

In a positive trend for workforce housing, much of the residential development in the Bluffton area built since 2000 has been affordable to the moderate to middle income range. The number of residential units in Bluffton increased from 501 in 2000 to 5,552 2,222 in 20014. Developments such as Pine Ridge, Pinecrest, Bluffton Park and the Farm have added to the supply of workforce housing in southern Beaufort County. In northern Beaufort County, new developments in Port Royal and Burton such as Azalea Square, Shadow Moss and Mint Farms have also added to the supply of workforce housing.

SENIOR HOUSING

This category includes working, disabled, and retired people generally 65 years of age and older. The first Baby Boomers will reached age 65 in 2011, which is anticipated to spark a wave of demand for small lot single-family housing and multi-family housing. Empty-nester couples and other Baby Boomers approaching their senior years are also increasingly interested in housing options for low-maintenance living. A greater range of housing types will be essential to meet this anticipated demographic phenomenon.

While many affluent retirees move into planned communities with a range of support services, most seniors are dependent on conventional forms of housing at convenient locations, preferably with ready access

³ Based on 2015 2008 HUD defined median income for Beaufort County - \$68,900 \$61,500.

to retail and services. More infill development for elderly residents, whether working or retired, is needed in urban locations near the facilities they frequent, especially assisted living and continuing care facilities. Special high-density provisions may be required to accommodate this need.

DISABILITIES AND SPECIAL NEEDS HOUSING

A number of populations within Beaufort County have special housing needs. These groups include developmentally and physically disabled persons, the mentally ill, the frail elderly, homeless persons, victims of domestic violence, persons recovering from substance abuse, and persons transitioning from incarceration. Their needs often fall into three categories: temporary, transitional, and permanent. Increasing the range of housing types available in the county, including residential units within mixed-use districts, is necessary to provide special needs housing.

Developmentally disabled persons are among those specifically protected from discrimination by federal law. They are permitted to reside in residential group homes of six or fewer residents in any residential district. Challenges facing this population are primarily funding, coordination, and social services. The Beaufort County Department of Disabilities and Special Needs (DSN) provides most of these support services, which include community residential care facilities for up to 15 people with high medical or behavioral needs, community training home II facilities for four higher functioning individuals, community training home I facilities (foster home settings for adults), and supported living facilities for four individuals who have their own home or apartment with 24-hour staff available. Housing for mentally ill is provided through Coastal Empire Mental Health.

~~Beaufort County's homeless population has largely been assisted by DSN and other local agencies through *ad hoc* measures. Only 33 homeless persons (four chronically so) were served by DSN and other agencies in 2007 (Appendix 8-A, Table H-14). However, as the county grows it will reach thresholds of population size that will require dedicated facilities such as homeless transitional shelters. The County Housing Coordinator will need to act as a liaison between DSN and the Planning Department to ensure that the Zoning and Development Standards Ordinance (ZDSO) is responsive to the needs of such populations.~~

HOMELESS

According to the Human Services Alliance the most recent comprehensive count indicated that there are 435 documented homeless in Beaufort County. This number includes both homeless living on the street and “couch hoppers”, those without a home staying with family or friends. Beaufort County lacks an emergency homeless shelter for men. The closest shelters are in Savannah, Charleston and Walterboro. There are local agencies that assist specific homeless populations. Family Promise works with area churches to provide temporary housing to families; the Child Abuse Prevention Association (CAPA) provides housing for homeless children; and Citizens Opposed to Domestic Abuse (CODA) provides services to victims of domestic violence.

RURAL HOUSING

While many of the housing needs in rural Beaufort County parallel those of the more urbanized areas, there are several unique challenges that warrant addressing rural housing needs as a separate topic. The rural areas of Beaufort County tend to have a larger proportion of low and moderate income households and substandard housing. Much of the existing affordable rural housing is supplied in the form of family compounds on heirs’ property. Under state law, land that is handed down without a will is legally owned by all the descendants in common. Heirs’ property rights are vulnerable due to the potential for conflict among multiple heirs and the likelihood that such a conflict would result in a loss of the land. Also, without clear title to the land, residents of heirs’ property have difficulty obtaining mortgages. The influx of people into the County has increased development pressures in the rural areas threatening traditional settlement patterns and raising the prospect of higher taxes due to increasing property values. At the same time, existing zoning and land use policies favor the preservation of rural areas placing constraints on traditional affordable housing options for rural residents. Therefore, the principal housing needs in the rural areas are to protect and preserve the settlement patterns that provide rural residents with affordable housing options (i.e. family compounds and small subdivisions), and to rehabilitate substandard housing to allow low and moderate income residents to remain in their own homes.

VERY LOW AND EXTREMELY LOW INCOME HOUSING

County households with very low and extremely low incomes, defined by HUD as earning less than 50% and 30% of County median income, respectively, are severely constrained in their housing options. Many

are rural residents living in older mobile homes or substandard housing. Others live throughout the county in dilapidated structures and in overcrowded conditions.

Beaufort Housing Authority (BHA) is a major institutional provider of housing for very low and extremely low income households. BHA owns and operates ~~293~~ ~~295~~ public housing units and administers 574 Section 8 vouchers. While BHA is able to meet a substantial part of the need of very low and extremely low income households, it does not have the resources to accommodate all needy households. In ~~November 2015~~ ~~August 2008~~, there were ~~168~~ ~~120~~ households on the waiting list for public housing and ~~714~~ ~~500~~ on the waiting list for Section 8 vouchers. Non-profit sector initiatives may be required to complement BHA housing and increase the level of effort in housing rehabilitation critical for very low and extremely low income households.

MILITARY HOUSING

The military installations in northern Beaufort County employ over 12% of the County's labor force. The military provides 1,718 single family units at Laurel Bay, Parris Island, and on the Naval Hospital site for active military. Over 200 units have been built since 2003, and the renovation of the Bachelor Officer Quarters at the Air Station began in 2008. New single-family units offer contemporary conveniences and square footage comparable to private housing (some officers' units are 2,300 square feet and larger).

The housing needs of the military workforce tend to mirror those of the workforce in general. Civilian employees and military households who live off base primarily reside in the City of Beaufort, the Town of Port Royal, Lady's Island, and unincorporated Port Royal Island, and have benefited from several new moderately priced developments in the Shell Point and Burton areas. While currently the housing needs of the military are largely served by base housing and the existing civilian housing stock, an increase in forces in the area could, at least temporarily, increase demand for civilian housing.



Barriers to the Creation of Affordable Housing

In order to discuss affordable housing strategies, it is necessary to analyze some additional factors that have led to a limited supply of affordable housing in Beaufort County. The Workforce Housing Needs Assessment provided a summary of primary barriers to the development of affordable housing in Beaufort County, which are provided below.

LAND COST

Because of strong market demand for high-end housing in Beaufort County, the county has seen a dramatic increase in the construction of housing for affluent buyers during the past decade. This has driven up the cost of land throughout the county, particularly along the water and along key transportation corridors.

LAND SUPPLY

The Workforce Housing Needs Assessment concluded that there is an adequate supply of land in the county to accommodate residential development. However, while large tracts of undeveloped land remain within the county, most of these areas are far removed from key workforce job centers in Hilton Head, Bluffton, Beaufort and Port Royal. Further, the cost of extending water and sewer infrastructure to these areas adversely impacts the affordability of housing.

CONSTRUCTION COST

Construction cost increases have outpaced income growth in the region. The cost of materials is rising dramatically. Construction labor cost is also more expensive in Beaufort County compared to other parts of the state. Hurricane standards in the Beaufort County area also contribute to higher construction costs, as do tap fees and impact fees.

MARKET DYNAMICS

There has been a strong demand for high-end housing throughout the county, which provides a higher return to a developer versus lower priced housing.

INSUFFICIENT DEVELOPMENT INCENTIVES

Current density bonuses are apparently insufficient to generate increased affordable housing development activity. With land costs on the rise and demand still strong for upscale housing, the available density bonuses simply do not create the economics of scale needed to generate comparable economic returns from affordable housing construction.

THE SECTION 42 HOUSING TAX CREDIT ALLOCATION PROCESS

The South Carolina Housing Finance Agency currently administers the allocation of tax credits, the primary source for gap financing in support of workforce housing development throughout the state. The tax credit application process is very competitive, and the state's allocation system is based upon a competitive application process that favors projects in counties with lower median incomes.

ZONING REGULATIONS

There is a short supply of land zoned for high-density housing development within the unincorporated county. Based on market need, there appears to be a shortage of areas that would allow for cluster development on small lots and higher density apartment development, particularly along key transportation corridors. The county's goal of maintaining rural character and preserving open space and the natural environment in the county's outlying areas through zoning restrictions needs to be balanced with the need to construct affordable housing.

ANTI-GROWTH SENTIMENT

An anti-growth sentiment still prevails with a portion of the citizenry and there has been a general desire for lower, not greater, density. In addition, there is a strong public sentiment to preserve open space. NIMBYism (Not In My Back Yard) has been a deterrent and has created controversy surrounding most affordable housing communities, including Section 42 housing projects and even market rate apartments.



Existing and Proposed Housing Strategies

New strategies must take into account that affordable housing is not a single form of housing for a single targeted income range. There are many population segments in the county with a wide range of housing needs. A variety of strategies is therefore required to address the needs of various market segments. Each area is discussed subsequently. In order to address the complexity of the problem, housing strategies must take several forms. Among these are *regulatory*, *institutional*, and *educational* strategies.

REGULATORY STRATEGIES

Regulatory strategies available to the County fall primarily in the area of planning policies, zoning regulations, and incentives. With the adoption of the Community Development Code (CDC), Beaufort County moved away from direct incentives targeting affordable housing to a broader approach to encourage a diversity of housing types to address the broad spectrum of housing needs.

- Transect Zones: In urbanizing areas of the county, the CDC has a palette of form-based districts that place greater emphasis on building walkable communities and promoting a diversity of housing choices. These districts create greater flexibility for developing affordable housing on infill and redevelopment areas by removing minimum site area and density requirements while offering a variety of housing options and small minimum lot sizes.

Figure 8-1: Permitted Housing Types within Transect Zones

Housing Type	T3 Edge	T3 Hamlet Neighborhood	T3 Neighborhood	T4 Hamlet Center	T4 Neighborhood Center
Single-Family	X	X	X	X	X
Accessory Dwelling Unit	X	X	X	X	X
Duplex		X	X	X	X
Cottage Court			X	X	X
Townhouse				X	X
Mansion Apartment			X	X	X
Apartment House				X	X

- Traditional Community Plan (TCP): The TCP is development provision designed to promote walkable communities and a diversity of housing types in areas of the county that are zoned with conventional districts.
- Accessory Dwelling Units (ADU): ADUs provide the option for more affordable housing while at the same time giving homeowners additional income opportunities. With the adoption of the CDC, the right to build ADUs was expanded to all zoning districts with the exception of T1 Natural Preserve and S1 Industrial. In T2 and conventional districts ADUs are limited to no more than 1,000 square feet. In all districts except T2, ADUs are required to be in a carriage house building type.
- Family Compounds: The principal mechanism to preserve and create affordable housing in the rural areas is the Family Compound. This option allows property owners a density bonus for established family dwelling units arranged in a historic cluster pattern. Applicants must provide the county with information showing that the property has been in one's family for no less than 50 years. The additional dwelling units must also be built for persons related to the owner by blood, marriage or adoption.
- Rural Community Preservation Districts: The Community Preservation (CP) districts located in rural communities allow for higher density than the surrounding rural areas. At the same time they still have many undeveloped tracts and, therefore, represent an opportunity for workforce and affordable housing.

Existing Regulatory Strategies: The 1997 Comprehensive Plan called for the County to explore regulatory incentives to leverage private investment in affordable housing. Since then, the following provisions have been adopted as part of the County's Zoning and Development Standards Ordinance (ZDSO):

- Density Bonuses: The ZDSO establishes two types of density bonuses for affordable housing:
 - * Below market density bonuses of 50% to 100% (depending on the zoning district) are available for housing developments where at least 50% of the units are built with a local, state or federal subsidy or a private non-profit sponsor for persons or families earning less than 80% of countywide median income. The density bonus provisions for below market affordable housing require dispersal of individual developments and limit the size of developments. To date, only one Low Income Tax

Credit project has utilized the density bonus for multifamily developments.

- Market density bonuses of 10% for single-family cluster developments and 20% for planned community and multifamily developments are available where up to half of the units are affordable. There have been very few units developed utilizing the market bonus provision. This confirms earlier findings that these bonuses are insufficient to generate increased affordable housing and need to be re-evaluated.
- Accessory Dwelling Units: The ZDSO allows for one accessory dwelling unit (ADU) to be permitted by right in the Urban district and as part of new clustered, planned or community subdivisions in all other zoning districts, and in Rural and Rural Residential districts. ADU's are limited to no more than 800 square feet and, in the rural district, have to be located no more than 50 feet from the principal dwelling unit. This size limitation is a potential obstacle to the creation of ADU's and has raised equity issues with respect to guest cottages, which have less stringent size limitations.
- Flexible Development: The ZDSO has some flexible provisions for the clustering of small single-family housing for infill development. While, to date, these options have not been utilized in the County, there have been several small, high-density clusters of infill housing in Port Royal and the City of Beaufort. This may suggest that either the County places too many restrictions for these options, or that the development type is better suited for more urban environments.
- Lady's Island Redevelopment District: In 2004, County Council created the Lady's Island Redevelopment District as part of the Lady's Island Community Preservation area. The district is located mainly south of Sea Island Parkway and east of Meridian Road. The purpose of the district is to encourage the development and redevelopment of vacant and underutilized land in this area. The Redevelopment District provides a wide range of permitted housing types including single-family, townhouses, duplexes, small apartment buildings, and accessory dwellings; no density requirement as long as minimum lot sizes are met; and open space reductions in exchange for amenities such as sidewalks, trails, community facilities and affordable housing. To date, only a few projects have been approved within the Redevelopment District, most notably, Tradewinds Subdivision, comprised of 82 lots located south of Sea Island Parkway.

Proposed Regulatory Strategies: Inclusionary Zoning has been advocated by the Affordable Housing Consortium as vital regulatory tool to create affordable housing. An inclusionary zoning ordinance would require all new residential development to address the provision of affordable housing by requiring a certain percentage of the housing units to be affordable. Making this policy mandatory and applying it consistently throughout the region would help to increase the supply of workforce housing, whose need was documented in the 2004 Workforce Housing Needs Assessment. The inclusionary zoning policy should include provisions for, on a case by case basis, a housing fee in lieu of, off site inclusionary units, land donation, and incentives such as density bonuses that are greater than the Inclusionary Zoning set aside so that the builder can reap the benefit of some bonus market-rate units.

INSTITUTIONAL STRATEGIES

Institutional strategies generally involve public and non-profit entities expending funds to provide affordable housing construction, rehabilitation, down-payment assistance, and other housing services. Institutional strategies also include interagency cooperation and public/non-profit cooperation to optimize the provision of housing and services. The Lowcountry Affordable Housing Coalition (LAHC) is a group of governmental, non-profit, and private organizations that serves this role by providing education, advocacy and coordination to help increase affordable housing opportunities in Beaufort County. Overseeing institutional strategies, the Affordable Housing Consortium provides broad-based community input into planning, policy development, and program management. As such, it provides the County's Housing Coordinator and various departments with advice and advocacy in addressing the spectrum of housing needs. It also serves to keep staff and policy makers continuously in touch with the development interests of the private sector, non-profit housing service providers, and other governmental agencies.

Existing Institutional Strategies: The following is a summary of some of the institutional strategies in use in Beaufort County.

- **Affordable Housing Program:** In 2001, Beaufort County demonstrated a commitment to assist in resolving the affordable housing shortage by designating \$500,000 for an Affordable Housing Program (AHP). Down payment assistance, project subsidies, housing development incentives, and technical development services are were offered through this program. The AHP has also secured HOME Investment Partnership Program (HOME) funds for Beaufort County as part of a regional request. To date, this funding source has helped produce four new units, six

rehab units, and 36 elderly apartment units. The funding level for fiscal year 2007-08 was \$248,722.

- Low Income Tax Credits: In terms of sheer number of affordable housing units, the Low Income Tax Credit program has been highly successful in Beaufort County. Most tax credits are provided through the federal Low Income housing Tax Credit (LIHTC) program, which provides funding for the development costs of low-income housing by allowing a taxpayer to take a federal tax credit equal to a large percentage of the cost of development of the low-income rental units. Development capital is raised by "syndicating" the credit to an investor. The developer proposes the project to the state in a competitive process and lines up an investor to contribute capital to the development company that owns the project in exchange for tax credits. Tax credit projects developed in Beaufort County include Laurel Hills in Port Royal (72 units for age 62 and over), Shell Point Apartments in Port Royal (72 units), Mossy Oaks Village (96 units), and Port Royal Apartments in Port Royal; Hallmark Homes in Bluffton (72 units) and May River Village (108 units) in Bluffton; and Ashley Pointe (56 units), Sea Pointe (56 units) and Pond Place in the City of Beaufort (36 units for age 62 and over).
- Habitat for Humanity: Habitat for Humanity is an international, non-profit, Christian housing ministry with two local non-profit affiliates. The Lowcountry Habitat for Humanity serves northern Beaufort County and has constructed 42 26 homes since 1990. The Hilton Head Regional Habitat for Humanity has constructed 95 75 homes, 62 64 of which are in the Brendan Woods subdivision in Bluffton. In 2014, work began on the first phase of the Glen, a 16-unit single-family subdivision on Hilton Head Island developed by Habitat for Humanity. The second phase may include between 20 and 25 additional homes. Both agencies have indicated that access to affordable land is their greatest obstacle to constructing new housing.

Proposed Institutional Strategies: The Affordable Housing Consortium has discussed the feasibility of exploring several new institutional strategies.

- Affordable Housing Trust Fund: Housing Trust Funds are distinct funds established by local governments that dedicate revenue to support affordable housing. The key to establishing a Housing Trust Fund is to identify a dedicated revenue source to allow the County or region to better plan for housing programs.
- Community Land Trust: A land trust for affordable housing would be an agreement whereby the County or non-profit established to administer the land trust agrees to hold ownership of a piece of real

property to be developed as affordable housing by another party. An example would be if the County purchased land for Habitat for Humanity or another non-profit entity to develop affordable housing.

- Home-to-Work Program: The Consortium is exploring the feasibility of a home-to-work program in which employers participated in workforce housing development.
- HUD Good Neighbor Next Door Program: The Consortium is investigating the potential to designate a HUD-approved revitalization area for participation in the Good Neighbor Next Door Program, which allows law enforcement personnel, firefighters, EMS personnel, and teachers to purchase homes acquired by HUD through an FHA foreclosure at half price. Newer HUD programs authorized in 2008 in response to the collapse of the housing market are also being investigated by the AHP.

EDUCATIONAL STRATEGIES

Educational strategies, primarily in the form of homebuyer counseling, have been an essential part of the County's affordable housing effort. This effort is crucial and needs to be improved in two areas. First, a consistent source of funding must be identified. Agencies currently providing this service have long waiting lists and very little funding. Second, more effort needs to go into financial literacy education to prepare inexperienced, low-to-moderate income households with the financial discipline required for homeownership. Financial literacy education should take the form of intensive classes for first-time homebuyers that lead to a certificate of completion. While general homebuyer counseling covers financial literacy, it is not sufficient to prepare many households for the demands of homeownership.



Recommendations

The following recommendations are provided to maintain forward momentum to the County's workforce and affordable housing programs. Recommendations 8-1 through 8-5 address the overarching policy framework that should govern affordable housing initiatives. Recommendations 8-6 and 8-7 through 8-8 address regulatory revisions and new provisions to facilitate the creation of affordable housing. The remaining recommendations address affordable housing programs both initiated by the County and through cooperation with non-profits and other organizations.

Recommendation 8-1: Relationship to Other Policies

Beaufort County recognizes the relationship between its affordable housing goals and other chapters of this plan. Therefore, the following policies are recommended:

- Affordable housing should be located in areas that are accessible to employment, services and public transportation.
- Different affordable housing approaches should be established in urban and rural areas.
 - In urban areas affordable housing strategies should be focused on constructing new workforce housing and low/moderate income housing and on the rehabilitation of existing housing structures. Affordable housing in urban areas should be targeted in infill sites near employment opportunities and services.
 - In rural areas affordable housing strategies should be focused on the rehabilitation of existing houses for low/moderate income homeowners, eliminating barriers to expanding existing family compounds, and assisting families in clearing titles to heirs' property.
- LEED, EarthCraft and other green building programs should be encouraged for affordable housing developments to reduce the utility costs for low and moderate-income households.

Recommendation 8-2: Full Spectrum of Affordable Housing

Beaufort County should ensure that affordable housing production meets the needs of the full range of demographic segments in Beaufort County, with respect to income levels, age, cultural traditions, disabilities, and special needs.

- Develop targets for housing needs for each segment of the population, and monitor affordable housing production annually by segment to ensure that all needs are being addressed.
- Maintain an inventory of all affordable and workforce housing units in the County. The inventory should include the location, structure type, and target income range for each housing unit.
- Increase assistance to area non-profits in order to boost production of affordable housing for segments of the population with incomes or needs not addressed by the private sector .
- Require homes for people with disabilities and special needs to be included in affordable housing developments. Such homes should be designed with special considerations in the interior and externally indistinguishable from other single-family housing.
- Mix housing types within developments wherever possible to accommodate various incomes, ages, and special needs.

Recommendation 8-3: Regional Approach to Affordable Housing

Beaufort County should adopt a regional, inter-governmental approach to affordable housing

- Identify “common denominators” in approaches to affordable housing with Jasper, Hampton, Colleton, and Chatham Counties.
- Determine on a regional basis where emerging urban centers will be located, and what their role will be in providing affordable housing.
- Develop a tiered plan for regional transportation that serves the needs of the wider, multi-county region while also increasing service to emerging higher density areas.

Recommendation 8-4: Monitor Demographic Trends

Beaufort County should monitor demographic trends to determine future housing needs.

- Beaufort County should plan for the housing needs of older single persons and couples by encouraging gradual increases in production

of small lot subdivisions, townhouses, and multi-family development.

- Beaufort County should plan for the housing needs of a young labor force that will be increasingly needed to replace the Baby Boom population while meeting the retail and service needs of an aging population. Vibrant, mixed use developments may be increasingly important to attract and retain younger employees in a regionally competitive labor market.
- Beaufort County should update its Workforce Housing Needs Assessment.

Recommendation 8-5: Address Barriers to Affordable Housing

Beaufort County, in cooperation with local municipalities and the Lowcountry Affordable Housing Coalition ~~Beaufort County Affordable Housing Consortium~~, will continue to work to eliminate barriers to developing affordable and workforce housing.

- Beaufort County shall work with local municipalities to identify land zoned to accommodate affordable and workforce housing at higher densities, particularly multifamily housing.
- Beaufort County will review the application of hook-up and impact fees to affordable housing development and seek a method of waiving all or part of those fees or paying the fees with funds reserved for that purpose in the proposed Affordable Housing Trust Fund (see Recommendation 8-810).
- ~~Beaufort County should revisit and refine existing affordable housing incentives (see Recommendation 8-6).~~

Recommendation 8-6: Revisit and Refine Existing Affordable Housing Regulatory Environment Incentives

Beaufort County shall continually evaluate ~~conduct a comprehensive assessment of its regulatory environment incentives for affordable and workforce housing to determine its their effectiveness in fostering providing new the creation of workforce housing units.~~

- ~~Density Bonus: Beaufort County shall continue to explore the use of density bonuses as a way to leverage private investment in affordable and workforce housing and recommend changes to the ZDSO to ensure they are sufficient to generate additional units. These changes include:~~

- Assessing whether the size and density limitations for affordable housing density bonuses conflict with optimum size and density requirements for Low Income Tax Credit projects.
- Considering the elimination of market based incentives if inclusionary zoning is enacted.
- **Accessory Dwelling Units (ADU's):** Reevaluate existing ADU provisions to determine whether ADU's should be permitted in more zoning districts, whether the size limitations for ADU's should be changed, and whether more than 1 ADU per principle dwelling should be considered for larger lots (e.g. greater than 3 acres).
- **Flexible Development:** Amend the Flexible Development provisions (planned communities) located in Article XI of the ZDSO to allow greater flexibility in density, lot sizes and housing types when specified outcomes are achieved. Outcomes should include:
 - At least 25% of units would be affordable to moderate income households;
 - At least 25% of units would be affordable to low income households;
 - Architectural and site design would be context sensitive;
 - Sites would be centrally located near jobs;
 - There would be a high internal (or local area) capture of trips thus minimizing traffic impacts; and
 - Utility cost would be minimized through LEED recommended energy and water saving design features.

Recommendation 8-7: Mixed-Use Affordable Communities

Beaufort County should encourage mixed-use development at higher intensity nodes along the County's major travel corridors to allow for the creation of affordable housing that is accessible to employment, services and public transportation.

- The location of mixed-use communities should be near employment centers, located on potential transit lines, and contextually suitable for multi-story development at higher densities than typically found in Beaufort County.
- Mixed-use communities should be encouraged to be LEED certified to lower utility costs for low and moderate income residents.
- Transit should be planned into such development to minimize traffic impact.
- Employer-based rental housing could be part of such developments with employers participating by leasing units and subletting them to employees.

- Development of mixed-use affordable communities would likely require both public/private and intergovernmental coordination.

Recommendation 8-8: Inclusionary Zoning

Beaufort County should enact inclusionary zoning, which places a requirement to provide a specified percentage of affordable housing for new residential development. The inclusionary zoning policy should include provisions for, on a case by case basis, a housing fee in lieu of, off-site inclusionary units, land donation, and incentives such as density bonuses that are greater than the Inclusionary Zoning set aside so that the builder can reap the benefit of some bonus market-rate units. The County should adopt a program that includes participation by the municipalities.

Recommendation 8-9: Affordable Housing Consortium

Beaufort County should provide continued support to the Beaufort County Affordable Housing Consortium as the principal forum for consensus on affordable housing issues. Support includes continuing to provide a Housing Coordinator position and by committing staff support from other related departments when needed.

Recommendation 8-9: Lowcountry Affordable Housing Coalition

Beaufort County should provide continued support to the Lowcountry Affordable Housing Consortium as the principal forum for consensus on affordable housing issues. Support includes continuing to provide a Housing Coordinator position and by committing staff support from other related departments when needed.

Recommendation 8-10: Housing Trust Fund

Beaufort County should support the establishment of a housing trust fund in order to pool limited resources, manage dedicated funding, and to prioritize and manage affordable housing initiatives. At least one dedicated source of revenue should be identified before creating the trust fund.

Recommendation 8-11: Land Acquisition

Elevate land acquisition for affordable housing to a high priority utilizing Housing Trust Fund.

- Identify a permanent funding stream for land acquisition
- Establish a Community Land Trust to acquire land for affordable housing.

- Ensure that the Community Land Trust operates within the framework of the Comprehensive Plan by targeting infill sites in areas where there is existing infrastructure and close proximity to employment, services, and public transportation.
- Partner with Habitat for Humanity and other organizations that build affordable housing.

Recommendation 8-12: Coordinate and Integrate Efforts of Non-profits

Beaufort County should work with non-profit organizations to ensure that a wide range of housing needs are being addressed countywide and that there is no duplication of services.

- Beaufort County should support applications from non-profits (and for profit) organizations that apply for state and federal funding for the purpose of constructing and/or rehabilitating affordable housing.
- Beaufort County should consider supporting the creation of a “vertically-integrated” non-profit community development corporation (CDC) that would address all aspects of the development and provision of affordable housing including:
 - Identifying eligible homeowners (or renters);
 - Offering homebuyer counseling and financial education;
 - Planning new developments; and
 - Constructing new houses.

Beaufort County should consider an existing entity such as the Beaufort Housing Authority to play this role since they have countywide jurisdiction.

Recommendation 8-13: Housing Rehabilitation

Beaufort County should make home repair and replacement of substandard housing a housing priority to further the recommendations outlined in the 2004 Workforce Needs Assessment.

- The County should ensure that the maximum amount of CDBG, HOME and other applicable grants are sought annually by the County, its municipalities and non-profits to fund housing rehabilitation.
- Beaufort County should partner with the Lowcountry Council of Governments and the municipalities to conduct a comprehensive

housing survey for the purpose of identifying substandard dwelling units.

- Beaufort County should partner with agencies and non-profits that are best equipped to administer housing rehabilitation programs.
- Beaufort County should target the preservation of historic rural vernacular architecture.

Recommendation 8-14: Housing Foreclosures and Neighborhood Stabilization

Beaufort County should monitor and pursue state and federal grants aimed at reducing housing foreclosures and stabilizing neighborhoods.

Recommendation 8-15: Rural Affordable Housing Approaches

The following actions are recommended to promote affordable housing in rural areas.

- Target the rehabilitation of rural housing in order to allow low and moderate income families to remain in housing.
- Increase the level of effort to clear titles for heirs' property through capacity-building grants to the non-profit sector. The effort may be directed through the United Way, Penn Center, and similar organizations. Lack of clear title prevents owners from obtaining mortgages, home equity loans, and grants for property rehab and weatherization. It also prevents equity formation and perpetuates poverty.
- Promote Rural Community Preservation areas as a location for small-scale affordable housing developments.

Recommendation 8-16: Military

Ensure that affordable housing leveraged by the County north of the Broad River addresses the needs of military personnel and civil employees.

- Ensure that the military is represented on the Affordable Housing Consortium Governing Council.
- Include rental housing in the mix of affordable developments, and include the military in the employer-based initiative where rental units are leased in blocks (see Recommendation 8-7).

ADD-ONS

The document(s) herein were provided to Council for information and/or discussion after release of the official agenda and backup items.

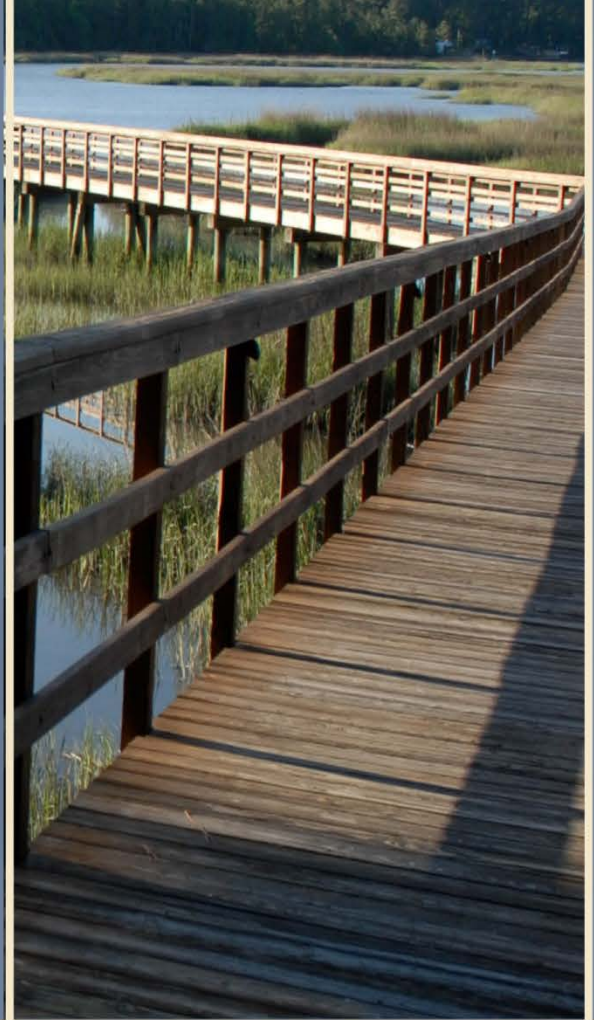
Topic:	Beaufort County Comprehensive Plan - Five Year Review
Date Submitted:	November 21, 2016
Submitted By:	Rob Merchant
Venue:	Natural Resources Committee



BEAUFORT COUNTY COMPREHENSIVE PLAN

Five Year Review

Natural Resources Committee
November 21, 2016



Natural Resource Updates

- **Salt Marshes, Coastal Waters and Marine Resources:** Updates to Stormwater BMP Manual, the Stormwater Utility, and EPA MS4 permitting.
- **Beaches and Dunes:** Recognizes new renourishment efforts and public access issues.
- **Freshwater Wetlands:** Recognizes changes to state and local ordinances
- **Open Space:** Preserved lands acreage updated.
- **Sea Level Rise:** New section incorporates data and recommendations from Sea Level Rise Adaptation Report (SC Carolina Sea Grant Consortium).

Natural Resource Updates

- **Recommendation 5-20:** Encourage intergovernmental cooperation and public education on sea level rise issues
- **Recommendation 5-21:** Maintain and strengthen development standards in light of sea level rise.
- **Recommendation 5-22:** Develop actions to protect natural resources from the impacts of sea level rise.
- **Recommendation 5-23:** Take sea level rise into account when constructing new infrastructure. Strengthen and improve existing vulnerable facilities.

Affordable Housing Updates

- **Technical Analysis:** US Census data on housing and income figures updated to most current data;
- **Land Use Policies Affecting Housing:** Description of Southern Beaufort County housing updated to reflect current trends;
- **Housing Needs Assessment:** Section was revised to address homeless population
- **Existing and Proposed Housing Strategies:** Regulatory strategies updated to reflect CDC policies. Updates made to institutional strategies (Habitat, Low Income Housing Tax Credits)

Affordable Housing Updates

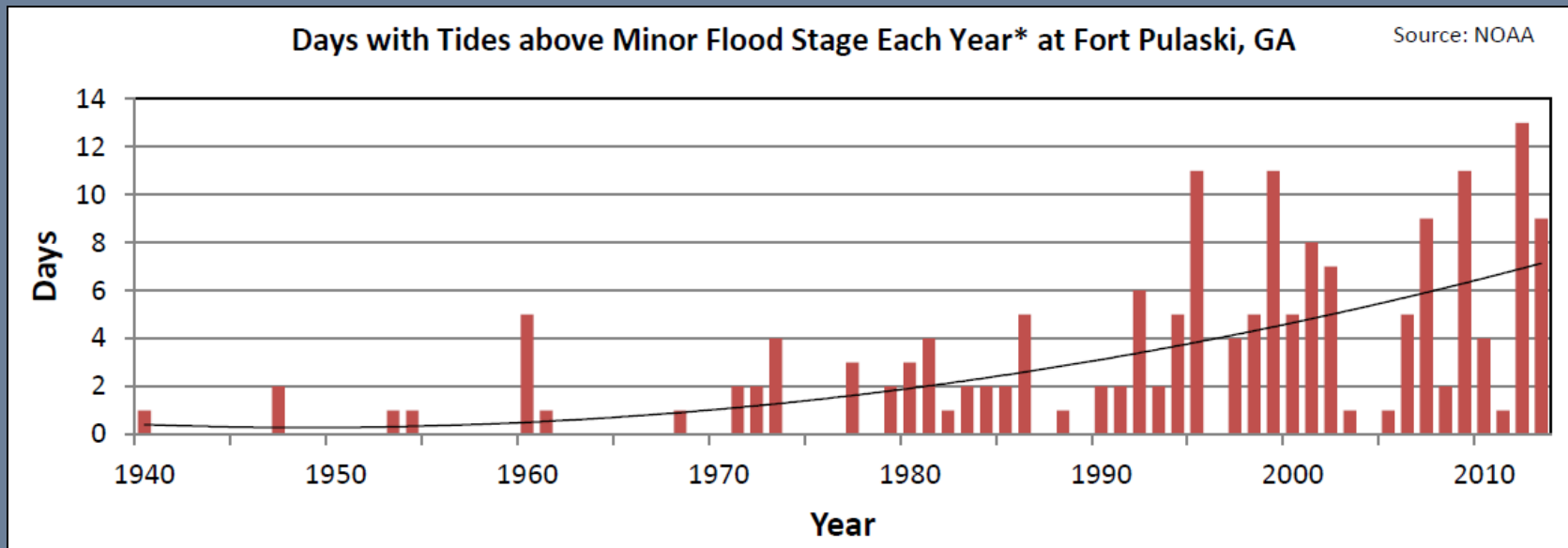
- **Recommendation 8.4:** Recommendation updated to call for a new Workforce Housing Needs Assessment;
- **Recommendation 8.6:** Updated to call for a more broad approach to land use policy to encourage affordable housing (recognizes CDC);
- **Recommendation 8.8:** Recommendation calling for inclusionary zoning requirements removed;
- **Recommendation 8.9:** Revised to acknowledge role of Lowcountry Affordable Housing Coalition;
- **Recommendation 8.16:** Military housing recommendation eliminated due to dated language.

Sea Level Rise Study Overview

- Partnership between Beaufort County staff and South Carolina Sea Grant Consortium.
- Formulated with oversight of a Beaufort County Stakeholder Group consisting of local decision makers.
- Two public workshops.
- The report cites data on local sea level rise trends and reviews the 23 adaptation actions identified by the Beaufort County Stakeholder Group and members of the broader public.

Beaufort County's Vulnerability

- Local sea level has risen 6 inches since 1965.
- Beaufort County experiences tidal flooding more frequently than in past decades



Mossy Oaks

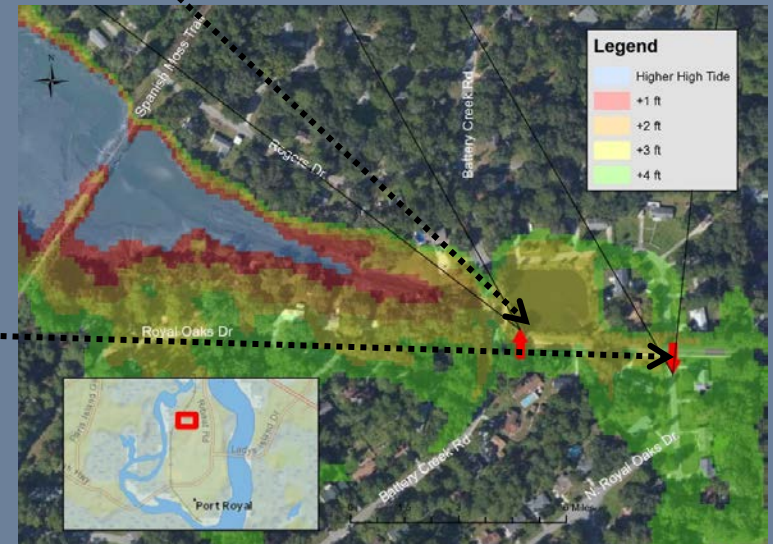
August 10, 2014



Credit: F. White



Credit: F. White

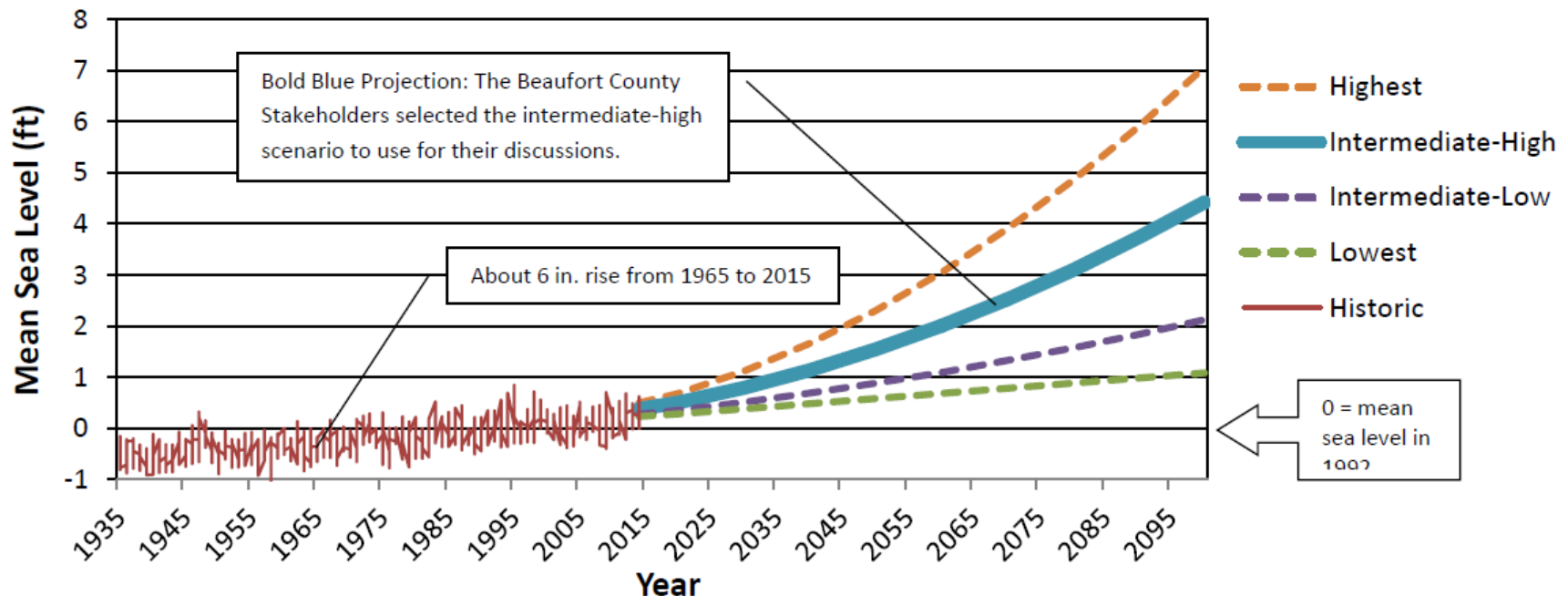


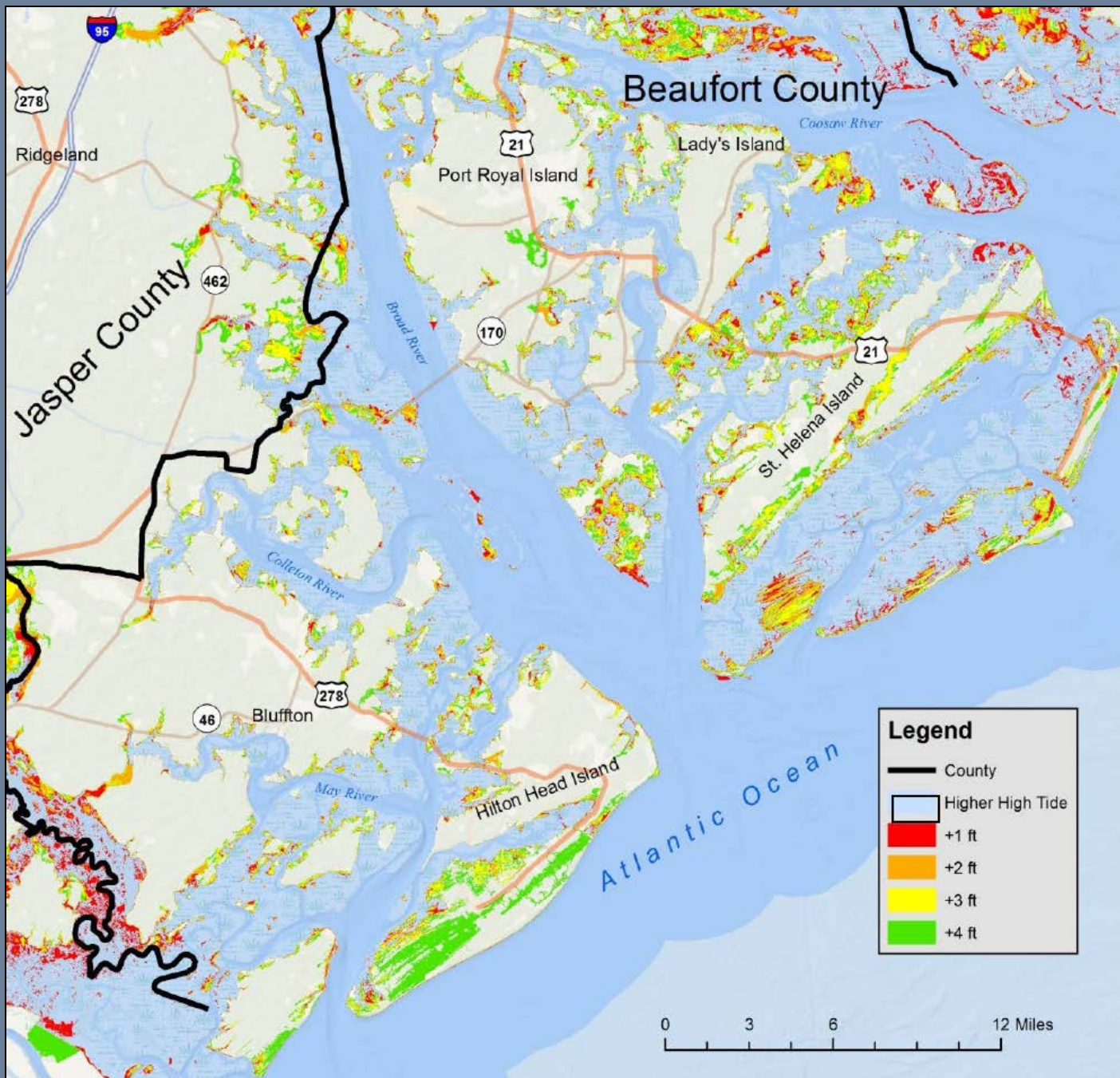
Future Sea Level Rise

- Scientists are uncertain about the pace of future sea level rise, but project a range of 3 to 7 inches by 2040.

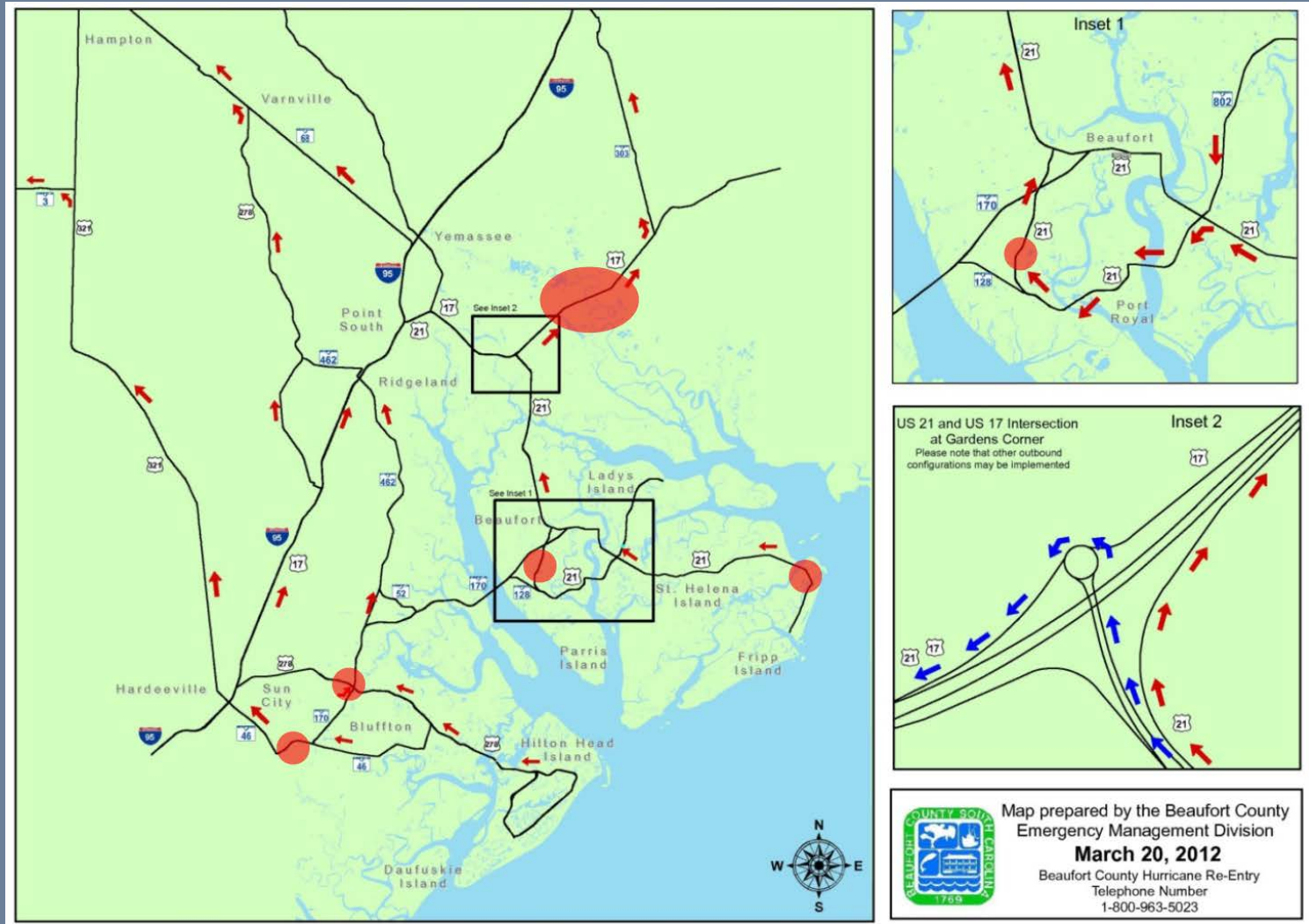
Historic and Projected Sea Level Rise
Fort Pulaski, GA

Sources: NOAA, USACE, Parris et al., 2012





Potential Impacts on Evacuation



Topic:	Committee Mission Statement and Possible Future Needs
Date Submitted:	November 21, 2016
Submitted By:	Brian Flewelling
Venue:	Natural Resources Committee

Natural Resources Committee

Mission Statement

- **Development Agreement:** To review and negotiate development agreements with various developers throughout the County to address the needs of the developer and the County concerning the specific development projects.
- **GIS:** Uses computers and software to leverage the fundamental principle of geography-that location is important in people's lives.
- **Land Management:** To advise Council and provide input to County staff on the issues of current planning and development standards and to advise Council and provide guidance to County staff on the finalization of the ordinances necessary to implement the Comprehensive Plan. It is also this Committee Chairman's responsibility to recruit and submit names of candidates for the boards, agencies, commissions, and authorities within its auspices.
- **Real Property Services:** Maintain real property records (land, buildings, mobile homes, docks, swimming pools, etc.); appraises real property for ad valorem tax purposes; responsible for the application process for the 4% and the agricultural use exemption assessment ratio; and responsible for maintenance of tax maps and initiates refunds as it relates to real property.
- **Water Quality:** Waterways are dynamic systems, ranging from the headwaters deep into our county, to river-mouths spilling into the oceans. Such waterways support a wide variety of plants and animals and are sensitive to environmental change within Beaufort County. We are committed to preserving and enhancing these natural areas and recognize not only the ecological benefits of protecting our natural assets, but also the social and recreational benefits as well

Natural Resources Committee

Administration Departments

Planning

- Likely need for new Director

- Likely need for new employee (Passive Parks oversight)

Zoning

Codes

Stormwater Management

Boards and Commission

Planning Commission

- Possible Reconfiguration

ZBOA

- Possible Reconfiguration

Rural and Critical

- Bond Referendum 2018 or 2020

- Future of the Program

Corridor Beautification

- Fundraising/grants

Design Review

- Historic Preservation

- Stormwater Board

- BJWSA