Cape Fear
Maritime Heritage Area

A State Reservation of National Significance

Prospectus (Preliminary)

Part I–The Place and the Plan

[Draft–January 23, 2015]

The Cape Fear in 1955,
from the National Park Service publication, Our Vanishing Shoreline

Save the Cape, Inc.
618 North Howe Street
Southport, North Carolina 28461
www.savethecape.org
www.facebook.com/savethecape
Synopsis

This is a plan for a new type of State reservation in North Carolina, a “State heritage area,” the state equivalent of a National heritage area in purpose, scope, and function. It would be created by amalgamating existing State facilities at the Cape Fear—parks, natural areas, recreational areas, and historic sites—into a single entity, completed by creating new State parklands and affiliating local parks into a coherent destination park with national recognition. This plan would be much more practical to accomplish than a national park or seashore, and would retain State management, yet should have the same conservation, recreation, and tourism value as a National facility.

The plan evolved from these circumstances:

• In 1955, the National Park Service, in the report *Our Vanishing Shoreline*, identified North Carolina’s Cape Fear as an area to be preserved and protected from the march of development that was even then consuming important shoreline resources.

• Then in 1967, the National Park Service recommended the Cape Fear for national monument status, a stepping stone to national seashore status. In 1988, the Cape Fear was nominated as a new national park or seashore by the National Parks Conservation Association in, *New Parks: New Promise*.

• Since the 1967 recommendation, most of the undeveloped areas at the lower Cape Fear have come under some sort of State protection or effective private reservation. Federal reservation would add little protection, but would enhance the area’s appeal.

• But the State reservations are, at best, a conglomeration of sites of different status, purpose, and administration. There are a State park, two State historic sites, a State recreation area, a State natural area, two sites in the North Carolina National Estuarine Reserve, a State coastal reserve, the State Aquarium at Fort Fisher, the Underwater Archeological Center, and the State Maritime Museum at Southport.

• The State reservations are complemented by municipal parks, the Federal reservation of 16000 acres for the Military Ocean Terminal at Sunny Point with its large buffer area kept in a natural state, and thousands of acres of private land subject to conservation easements. The region includes over 20 historic places on the National Register.

A single reservation embracing these important historic and natural assets could transform this conglomeration into a whole, identifiable entity that would be much more than the sum of its parts in terms of fulfillment of conservation purpose, efficient administration, and attractiveness as a tourist destination and cornerstone of the region and North Carolina’s recreation and life-style–based economic growth and future prosperity.

This a plan for that entity: the *Cape Fear Maritime Heritage Area*. 
## Contents

*Part I–The Place and the Plan*

The Cape Fear  
- Early Federal Recognition .................................................. I-2  
- How to Save the Cape? .......................................................... I-4  
- National and State Heritage Areas .......................................... I-5  
- The Cape Fear Maritime Heritage Area ...................................... I-6  
- The Maritime Heritage Area Defined ....................................... I-8  

About the Cape Fear  
- Location .............................................................................. I-10  
- Climate ................................................................................ I-12  
- Geology ............................................................................... I-14  
- Biodiversity ......................................................................... I-15  
- History ............................................................................... I-19  
- Current Protection ............................................................. I-23  

Economic Benefits  
- Tourism ................................................................................ I-24  
- Economic Development ....................................................... I-27  
- Hedonic value ....................................................................... I-28  

Other Benefits, Tangible and Intangible  
- A Framework for Growth ..................................................... I-29  
- Ethic of Place ....................................................................... I-30  

Implementation and Management

References (Parts I and II)

Appendix A  
- Natural Communities

Appendix B  
- Endangered and Threatened Species

*Part II–A Tour of the Cape Fear*
The Cape Fear
Where North Carolina Began

This land is in latitude 34 degrees, with good and wholesome ayre, temperate between hot and colde, no vehement windes do blowe in those Regions, and those that doe commonly reign to those coasts, are the Northwest and West windes in the summer season (in the beginning whereof we were there) the skie cleere and faire with very little raine; and if at any time the ayre be cloudie and mistie with the Southern winde, immediatly it is dissolved and waxeth clear and faire again.

~ Giovanna da Verrazano (1524)

Though it begins as a fast-rushing stream, for the last miles, the Cape Fear is a coastal river, meandering in lazy loops, tea-colored from the cypress tannin that leaches into it from the adjacent swamps. On the river the scenery is wild and green, a lush tangle that caches a remarkable variety of birds, along with deer, otters, beavers, foxes, mink, and even black bears. From the air, the lower river is a surprisingly lovely maze of recursive loops, a work of art on an amazing scale, broadening into an estuary that never fails to astonish with its diversity of birds and sheer panoramic beauty.

~ Philip Gerard, Down the Wild Cape Fear (2013)

The lower Cape Fear, the “estuary that never fails to astonish,” for its broad and diverse spectrum of life, has an equally astonishing history, reaching back to the first European exploration of the North American continent in 1524 and attempted colonization in 1526.

Indeed, the word “astonishing” describes the Cape Fear. Its historical and natural attributes make the region perhaps the most significant part of North Carolina’s historical and natural heritage. Yet much of that heritage is unrecognized and undervalued by the State and nation, and visitors are astonished to learn that the region represents more than the setting of a scary movie with Gregory Peck and Robert Mitchum.

The people who live in the region, and even the leaders who govern, are largely unaware of the trust they have inherited, one of the last large estuaries on the Eastern Seaboard to remain in a relatively unmolested state. This is a plan to bring recognition of that trust, to show value for exploitation without abuse, to preserve and enhance our heritage to share with future generations.
Early Federal Recognition

Saving the country’s seashores became a national priority in the Great Depression (the other one) with renewed interest in expanding the national park system. There had been a few national parks created in coastal areas—Acadia in Maine and Hawaii National Park on the islands of Maui and Hawaii—but the National Park Service, in studies in the 1930s, recognized that many areas other than canyons and mountains were of special ecological and recreational significance, were threatened with damage from development pressures, and should be preserved. The first national seashore was authorized for Cape Hatteras in 1937.

In the 1930s the National Park Service identified twelve coastal areas for incorporation in the parks system, but no other national seashores were created until the Federal recreational mission was resumed after World War II. In 1955, the National Park Service issued a short report, *Our Vanishing Shoreline*, a resurvey of the Atlantic and Gulf coasts. The Service found that of the 3,700 miles of Atlantic and Gulf coasts shoreline, Federal and state governments had preserved only 240 miles—and more than half were accounted for by the Cape Hatteras National Seashore. Of the twelve areas recommended for parks in 1935, only one had been preserved; most of the remainder were “ghosts of departed opportunities.”

In the 1955 report, the National Park Service recommended twelve sites for new national seashores, including Smith Island at the Cape Fear. (The map on the left appears on page 29 of the 1955 report.) In the 1960’s, Stewart Udall, John F. Kennedy’s Secretary of the Interior, pushed Congress to create new parks. Several national seashores were created in the 1960s, including those at Cape Cod and Fire Island, areas already partially developed.

Since being featured in the 1955 report, the Cape Fear has remained in the bureaucratic consciousness of the National Park Service. In 1967, the Park Service recommended 13,000 acres of the Cape Fear for inclusion in the national park system as national monument, a category of parks created by Presidential order rather than Congressional action. In its report, the National Park Service found that the Smith Island complex, comprising the peninsula between the eastern side of the Cape Fear River and the Atlantic Ocean, was then “one of the few remaining areas on the Atlantic Coast where man’s effect on the landscape has been relatively limited. Considered in its entirety as a natural complex, Smith Island is one of the wildest and most primitive areas on the Atlantic Coast.”
The national monument recommendation did not go forward. Smith Island, then in private hands, did, however, come under the protection of a hodgepodge of State, Federal, and private reserves. State natural areas now take in most of the land area between the eastern side of the river and the sea in the lower reaches of the Cape, and those places have been spared development. Administration is uneven, some facilities being showplaces of stewardship, others of neglect. The State reservations are, at best, a conglomeration of sites of different status, purpose, and administration. There are a State park (Carolina Beach), a State historic site (Fort Fisher), a State recreation area (Fort Fisher), a State natural area (Bald Head Island), two sites in the North Carolina National Estuarine Reserve (Masonboro Island and Zeke’s Island), a State coastal reserve (Bald Head Woods), the State Aquarium at Fort Fisher, and the Underwater Archeology Center. At Bald Head Island, at the extremity of the Cape, the now-rare maritime forest and five species of sea turtles relying on the beaches for continuation of their kind depend on the care of an enlightened community and a privately-funded foundation.

On the western side of the river, the picture is less complete. There are another State historic site (Brunswick Town), many acres of private land under conservation easement or enlightened stewardship, and the de facto protection of large areas of the Military Ocean Terminal at Sunny Point held in the natural state as buffer areas (the “blast zone”).

Two large areas remain in the natural state but not protected: the ferry landing forest on the northern edge of the City of Southport, and the 600-acre site on the Cape Fear River owned by the State Ports Authority. These have important salt marshes, swamp and coastal fringe evergreen forests, and other significant habitat, some unique to the region and among the last surviving examples. Others have succumbed to large projects conceived before environmental protection became a national priority. A citric acid plant built on the Cape Fear River in 1970 on the area between the ferry landing forest and Ports Authority’s property includes the site of a lighthouse built in 1851 and used until 1863 as a range light for entrance to the river through New Inlet. The lighthouse has been preserved only by the voluntary care of plant employees.
The conflict between developmental ambitions and environmental values at the Cape Fear is demonstrated by a dredging project, commenced in 2000 by the Wilmington District of the US Army Corps of Engineers and not yet complete, to create artificially what does not exist naturally to compete with nearby naturally deep harbors for Asian trade. Then the North Carolina State Ports Authority invested $50 million to advance a project for a massive container terminal on the lower reaches of the river before realizing that a deepwater port where the water is not deep and the markets are distant would never repay the $4.4 billion cost. In neither case was any consideration given to environmental values beyond the need to comply with legal minimums.

The climate that fostered such projects continues. The Cape Fear estuary is at risk. This resource of immense ecological and historic value and unrealized recreation potential cannot survive without protection.

How to Save the Cape?

The logical course of action to preserve and protect the Cape Fear and to realize its full potential as a recreational destination is to revive the 1967 plan to establish a national monument at the Cape Fear, as a stepping stone to full national seashore status. Indeed, in 1988, the National Parks Conservation Foundation, a private foundation supporting the national parks system, recommended the Cape Fear for park status in its publication *New Parks, New Promise*. The national seashore structure lends itself to be woven among the developments that have occurred at the Cape Fear since the 1967 survey.

But a national seashore is a major undertaking, which would require many years of climbing national bureaucratic ladders and ultimately, an act of Congress. Although the area meets the National Park Service’s criteria for “nationally significant natural or cultural resources” necessary for inclusion in the national park system, it does fail one important test: because much of the area is now protected by governmental agencies and the private sector, a need for direct National Park Service management is not evident.

We look, then, for other structures.
National and State Heritage Areas

Beginning in 1984, Congress established another tier of federally-designated conservation areas that include important natural, scenic, historic, cultural, and recreational resources: National Heritage Areas. These are not part of the National Park System, where lands are federally owned and managed. Rather, lands within heritage areas typically remain in state, local, or private ownership or a combination thereof. National Heritage Areas are partnerships among the National Park Service, states, and local communities. The Park Service supports local conservation through Federal recognition, seed money, and technical assistance.

National Heritage Areas and their creation are not covered by any comprehensive legislation; rather, each area has been created by a special act of Congress. Congressional designation of heritage areas is commonly viewed as a less expensive alternative to creating and operating new units of the National Park System. Heritage areas have been established for lands that are regarded as distinctive because of their resources, their built environment, and the culture and history associated with these areas and their residents. A principal distinction of these areas is an emphasis on the interaction of people and their environment. Heritage areas seek to tell the story of the people, over time, where the landscape helped shape the traditions of the residents. In a majority of cases, National Heritage Areas now have, or have had, a fundamental economic activity as their foundation, such as agriculture, water transportation, or particular industrial development.

Although the traditional form of National Park Service land protection has been through government ownership, management, and funding of lands set aside for protection and enjoyment, National Heritage Areas typically are nonfederally owned, managed by local people with many partners and National Park Service advice, funded from many sources, and intended to promote local economic development as well as to protect natural and cultural heritage resources and values.

Heritage areas have been supported as protecting lands and traditions and promoting tourism and community revitalization, but are sometimes opposed as potentially burdensome, costly, or leading to Federal control over non-Federal lands. This conflict has been resolved in the creation of two such areas in North Carolina: the Blue Ridge National Heritage Area and a portion of the Gullah/Geechee Heritage Corridor, which extends from Florida into southeastern North Carolina.

Just as states have state counterparts of national parks, some states also have heritage areas. North Carolina does not. The State has a Natural Heritage Program, which provides an inventory of important natural areas in the various counties, but this is not modeled on the Federal system. Pennsylvania, Massachusetts, and New York were the early developers of state heritage areas, initially focused on the manufacturing heritage of those states. The programs have matured to embrace environmental and cultural conservation. The emphasis is on establishing frameworks for intergovernmental and private cooperation to achieve those goals.
The Cape Fear Maritime Heritage Area

The inspiration for the Cape Fear Maritime Heritage Area is a proposal for a National Maritime Heritage Area on the saltwater coast of the State of Washington. This was conceived by the Washington Department of Archaeology and Historic Preservation and is being pursued in Congress. In legislation introduced in early 2014, it has been renamed the “Maritime Washington National Heritage Area.”

Achieving Federal recognition is a major effort, requiring an act of Congress supported by a feasibility study to demonstrate the national importance of the heritage resources and the ability of local organizations and jurisdictions to implement the heritage area. The project in Washington would be the first National heritage area emphasizing a maritime heritage.

Supporters of the project initiated a parallel effort in the Washington State legislature to create a State Maritime Heritage Area, which would both support the effort in Congress and obtain, at the state level, some of the benefits of National designation: increased public awareness of the maritime heritage and potential for tourism. The state plan would create a maritime heritage area in name only: it would be non-regulatory, there would not be any associated funding required, nor any administrative costs. The State legislature did not adopt the plan, but Kings County, which takes in the Seattle area, did pass an ordinance in 2014 designating the shorelines of King County as a heritage area. Like the state effort, it is not meaningful in terms of regulation or administration, but shows public support, and demonstrates that the designation does not hurt or usurp private property rights.

The plan for the Cape Fear Maritime Heritage Area set forth herein falls somewhere between the State of Washington’s Federal and state efforts. At this stage, we do not contemplate seeking National recognition, but we do propose a structure and organization similar to the pattern of National heritage areas and replicated to some extent in other states.

The Cape Fear Maritime Heritage Area would be a new structure for North Carolina. It could also be the first in the United States, at the National or state level. While it would be created by the North Carolina General Assembly, it would follow the pattern of National heritage areas (such as the Blue Ridge National Heritage Area) to facilitate a later upgrade to National status to obtain the benefits of National Park Service assistance and Federal funding. Heritage areas in other states typically do the same.

Heritage areas, whether National or state, do not disturb the ownership of or create regulatory burdens on land; lands within heritage areas typically remain in state, local, or private ownership or a combination thereof. Heritage areas are partnerships among the National Park Service (in the case of National heritage areas), state agencies, local communities, private landowners, and relevant non-profit agencies. The structure of the partnership varies with the particular area, its needs, and its landowners, and there are as many management structures as there are heritage areas, although a pattern has evolved for the newer
National heritage areas. Congress typically designates a management entity to coordinate the work of the partners. Management entities could include state or local government agencies, nonprofit corporations, and independent federal commissions. The management entity usually develops and implements a plan for managing the heritage area, in collaboration with partners and other interested parties. In this case, the North Carolina General Assembly would identify the management entity in creating the area, although it could be done solely with administrative action and partnership agreements.

In the case of the Cape Fear Maritime Heritage Area, the dominant position of State agencies suggests that administration and management be shared by the North Carolina Department of Environment and Natural Resources Divisions of Parks and Recreation and of Coastal Management, and the North Carolina Department of Cultural Affairs. Other respective owners of lands included within the area, particularly the Department of Defense, the owner of the Military Ocean Terminal at Sunny Point, and the North Carolina Coastal Land Trust, which holds extensive conservation easements throughout the area, should be given substantial responsibility. Other stakeholders that must be heard in decisions would be the Counties of Brunswick and New Hanover and the municipalities included within the designated area.

Whatever organizational structure is devised, it must provide a certain coherence and unified administration to present to the public a common identity to achieve the goals of Statewide and national recognition. Some public lands would be accessible, while other lands, particularly federally and privately-owned lands would not, and would be included principally to ensure fulfillment of the objectives of preservation and conservation. Certainly, gateways and welcome centers should be provided on both sides of the river to provide a coherent interface with the public. Signage and State tourism materials would announce the area.

All of this must be in aid of the identification that a single entity, such as a national seashore, would provide. Collecting the various protected elements of the Cape Fear and filling in important gaps would transform the current conglomeration into a whole, identifiable entity that would be much more than the sum of its parts in terms of fulfillment of conservation purpose, efficient administration, and attractiveness as a tourist destination and cornerstone of Brunswick County’s and North Carolina’s recreation and life–style–based economic growth and future prosperity.

Success in properly tying together those components under a State instead of Federal umbrella would present a new structure, a State equivalent of a national heritage area, with the same prestige and drawing power, and the same ability to foster community pride and stewardship of lands within and abutting the new area: the Cape Fear Maritime Heritage Area.
The Maritime Heritage Area Defined

The boundaries shown on this map are designed to embrace the existing State reservations and historic sites at the Cape Fear, along with other reservations of Federal and local governments. Also included are areas identified as natural heritage areas or are otherwise ecologically or historically significant, whether or not protected by government or private reservation.

Inasmuch as the Maritime Heritage Area would not create any regulatory burdens, the specific location of the boundaries is not significant at this stage of planning. Hence entire municipalities and communities are included, as well as a large section of the City of Wilmington.

Specific facilities and points of interest included are listed on the next page and more fully described in Part II of this prospectus.
North Carolina Department of Environment and Natural Resources Divisions of Parks and Recreation and Coastal Management reservations and other facilities:

- Bald Head Island State Natural Area
- Bald Head Woods State Coastal Reserve
- Cape Fear State Park (proposed for site currently owned by State Ports Authority)
- Carolina Beach State Park
- Fort Fisher State Recreation Area
- Masonboro Island National Estuarine Reserve
- North Carolina Aquarium at Fort Fisher
- Zeke’s Island National Estuarine Reserve

North Carolina Department of Cultural Resources

- Brunswick Town State Historic Site
- Fort Fisher State Historic Site
- North Carolina State Maritime Museum at Southport
- North Carolina Underwater Archeology Center

United States Department of Defense

- Military Ocean Terminal at Sunny Point

National Register of Historic Places

- Bald Head Creek Boathouse
- Bald Head Lighthouse
- Brunswick County Courthouse
- Brunswick Town Historic District
- Cape Fear Civil War Shipwreck Discontiguous District
- Cape Fear Lighthouse Complex
- Fort Caswell Historic District
- Fort Fisher
- Fort Johnston
- Oak Island Life Saving Station
- Oak Island Lighthouse
- Orton Plantation
- Southport Historic District
- St. Philip’s Church Ruins
- USS North Carolina
- USS Peterhoff

(the riverfront area of the City of Wilmington includes a large number of buildings on the National Register of Historic Places)
About the Cape Fear

Location

This map shows the location of the proposed Cape Fear Maritime Heritage Area, at the Cape Fear in the southeast corner of North Carolina.

The lower Cape Fear lies in the coastal plain of North Carolina. The Cape Fear River, which empties into the ocean at the Cape Fear, drains the largest river basin in North Carolina—9100 square miles, and is the only large river in the State that empties directly into the ocean. The lower portion of the river, approximately 30 miles, is entirely tidal.

The City of Wilmington, whose historic district would be included in the heritage area, was established in 1733 and incorporated in 1740 as the region’s seaport. It has a current population of about 112,000 and is growing rapidly. It is the seat of New Hanover County and covers most of the County’s land area.
The western side of the Cape Fear River is entirely in Brunswick County. Brunswick County also takes in Bald Head and Smith Islands on the east side of the river, at the tip of the cape. From there northward, the east side is in New Hanover County.

Within the area are Carolina Beach and Kure Beach in New Hanover County, the Village of Bald Head Island at the tip of the Cape, the Town of Caswell Beach on the western side of the river mouth, and the City of Southport slightly upriver. Carolina Beach and Kure Beach are typical beach towns, with densely-spaced housing, largely seasonal. The Village of Bald Head Island is very low-density, luxury housing with resort facilities. Caswell Beach is entirely medium and low density housing and large open spaces, with no commercial development. The City of Southport is mixed residential and commercial, but low density. These are the populations in the 2010 census:

<table>
<thead>
<tr>
<th>Location</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carolina Beach</td>
<td>5700</td>
</tr>
<tr>
<td>Kure Beach</td>
<td>2012</td>
</tr>
<tr>
<td>Bald Head Island</td>
<td>158</td>
</tr>
<tr>
<td>Caswell Beach</td>
<td>398</td>
</tr>
<tr>
<td>Southport</td>
<td>2833</td>
</tr>
<tr>
<td>Total</td>
<td>11101</td>
</tr>
</tbody>
</table>

The other areas are largely vacant, as shown on this excerpt from the map of protected conservation areas and Significant Natural Heritage Areas. (This map does not show the Brunswick Nuclear Plant between the City of Southport and the Sunny Point Military Ocean Terminal and slightly inland.) The unincorporated white area north and west of Southport does have some substantial residential areas. The population of Brunswick County is approximately 120,000, and growing rapidly.
Climate

The Cape Fear enjoys a mild, marine-influenced climate, the warmest area of the State of North Carolina. In spring and summer winds are generally from the southeast and are usually balmy breezes. In late fall and winter, winds are consistently stronger and mostly northeasterly to northerly. Occasionally winds reach gale force, and the area has suffered severe hurricanes. Annual rainfall is about 60 inches.

Temperature records show that the islands and beach areas are a few degrees warmer than the inland areas throughout the year. Bald Head Island, at the tip of the Cape, rarely suffers freezing weather.

### Temperature Normals (Degree Fahrenheit)

<table>
<thead>
<tr>
<th></th>
<th>JAN</th>
<th>FEB</th>
<th>MAR</th>
<th>APR</th>
<th>MAY</th>
<th>JUN</th>
<th>JUL</th>
<th>AUG</th>
<th>SEP</th>
<th>OCT</th>
<th>NOV</th>
<th>DEC</th>
<th>ANNUAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAX</td>
<td>56.4</td>
<td>59.3</td>
<td>64.5</td>
<td>71.4</td>
<td>78.1</td>
<td>84.3</td>
<td>88</td>
<td>87.4</td>
<td>83.6</td>
<td>76.7</td>
<td>68.4</td>
<td>58.6</td>
<td>73</td>
</tr>
<tr>
<td>MIN</td>
<td>33.5</td>
<td>36.1</td>
<td>41.6</td>
<td>48.7</td>
<td>57</td>
<td>65.4</td>
<td>70.1</td>
<td>88.5</td>
<td>82.9</td>
<td>59.9</td>
<td>43.3</td>
<td>35.8</td>
<td>51.1</td>
</tr>
<tr>
<td>MEAN</td>
<td>45</td>
<td>48.7</td>
<td>53.1</td>
<td>60.1</td>
<td>67.6</td>
<td>74.9</td>
<td>79.1</td>
<td>76</td>
<td>73.2</td>
<td>63.3</td>
<td>55.9</td>
<td>47.7</td>
<td>62.1</td>
</tr>
</tbody>
</table>

### Degree Day Normals (Total)

<table>
<thead>
<tr>
<th></th>
<th>JAN</th>
<th>FEB</th>
<th>MAR</th>
<th>APR</th>
<th>MAY</th>
<th>JUN</th>
<th>JUL</th>
<th>AUG</th>
<th>SEP</th>
<th>OCT</th>
<th>NOV</th>
<th>DEC</th>
<th>ANNUAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>HDD</td>
<td>827</td>
<td>513</td>
<td>378</td>
<td>172</td>
<td>42</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>6</td>
<td>135</td>
<td>300</td>
<td>545</td>
<td>2719</td>
</tr>
<tr>
<td>CDD</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>24</td>
<td>121</td>
<td>298</td>
<td>435</td>
<td>401</td>
<td>252</td>
<td>83</td>
<td>24</td>
<td>8</td>
<td>1650</td>
</tr>
</tbody>
</table>

**Avg. last Spring Frost:** March 19  
**Avg. first Fall Frost:** November 12  
**Growing Season:** 238  

*HDD = Heating Degree Days  
*CDD = Cooling Degree Days*

### Precipitation Normals (Total in Inches)

<table>
<thead>
<tr>
<th></th>
<th>JAN</th>
<th>FEB</th>
<th>MAR</th>
<th>APR</th>
<th>MAY</th>
<th>JUN</th>
<th>JUL</th>
<th>AUG</th>
<th>SEP</th>
<th>OCT</th>
<th>NOV</th>
<th>DEC</th>
<th>ANNUAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOTAL</td>
<td>5.28</td>
<td>4.18</td>
<td>4.47</td>
<td>3.06</td>
<td>4.16</td>
<td>5.04</td>
<td>6.68</td>
<td>7.66</td>
<td>8.93</td>
<td>3.67</td>
<td>3.45</td>
<td>4.19</td>
<td>60.96</td>
</tr>
</tbody>
</table>

### Ocean Beach Temperature Normals (Degree Fahrenheit)

<table>
<thead>
<tr>
<th></th>
<th>JAN</th>
<th>FEB</th>
<th>MAR</th>
<th>APR</th>
<th>MAY</th>
<th>JUN</th>
<th>JUL</th>
<th>AUG</th>
<th>SEP</th>
<th>OCT</th>
<th>NOV</th>
<th>DEC</th>
<th>AVERAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEMP.</td>
<td>48</td>
<td>50</td>
<td>55</td>
<td>64</td>
<td>73</td>
<td>79</td>
<td>92</td>
<td>83</td>
<td>80</td>
<td>70</td>
<td>61</td>
<td>53</td>
<td>66.5</td>
</tr>
</tbody>
</table>
The area is the northern extremity of USDA plant zone 8b, with average annual extreme minimum temperatures of 15° to 20° F.

The Cape Fear is the northern limit of the range of the American alligator and the cabbage palmetto.
Geology

The proposed Maritime Heritage Area lies in the geologic region known as the “Cape Fear Arch,” a region distinguished by unusual geology and the greatest biological diversity along the Atlantic Coast north of Florida. The Cape Fear Arch is located between Cape Lookout in North Carolina and Cape Romain in South Carolina, and extends inland beyond Fayetteville to the Sandhills Region of the Carolinas.

The Cape Fear Arch is a little higher in elevation than areas near the coast to the north and south, and has been above sea level for a longer period of time. It has stood as a peninsula at certain times when the rest of the coastal plain was submerged, and had been a refuge for coastal plain plants and animals during the last Ice Age. The geologic strata exposed on it represent older beds that elsewhere within the region are buried by younger sediments.

According to a study done for the State Department of Environmental and Natural Resources, “Uplifting may also account for the preservation of the relict beach ridge systems, which are more extensive in this area than elsewhere along the coast, particularly in southern mainland Brunswick County and along both sides of the lower Cape Fear estuary. Collectively these ridges support the largest and best developed Coastal Fringe Sandhill communities found anywhere within the state.”

The study also identifies these special features of the region:

- active dunes on the barrier islands;
- pine savanna and wet pine flatwood habitats;
- limestone (marl) beds located relatively near the surface, which contribute to the unique soil chemistry associated with some of the rarest natural community types found in the state: coastal plain marl outcrop, wet marl forest, and the very wet clay variant of pine savanna;
- limesink depressions, formed by solution cavities in marl beneath sand, which support still other types of communities, such as small depression pond and small depression pocosin, that have many of their best examples in North Carolina within this region;
- extensive riparian wetlands and aquatic habitats.

The Cape Fear River, whose estuary is the Cape Fear, is a very long river carrying a rich load of sediment and clay from its origins in the Piedmont region. This results in rich soils in the floodplain and diverse bottomland communities. Sediment carried by the river is essential to the nourishment of the beaches at the mouth.
Biodiversity

The Cape Fear is a region of unique biogeographic features and extraordinary biodiversity. The southeastern coastal plain of North Carolina is an area of particularly high biodiversity, but within that area the Cape Fear is the highest. The area has greater diversity of plant and animal species than any area along the East Coast north of Florida. Brunswick County, which embraces most of the Cape, has the largest number of rare species of any in the State. Many of those species grow nowhere else, and are endangered or threatened.

Biodiversity “hotspots” in the United States. Note the Cape Fear region.

The region has

* 50 different natural communities
* 300 species of animals and plants
* 19 federally threatened or endangered species
* 63 state threatened or endangered species
* 22 endemic species of plants
* 19 endemic species of animals
* 100% of the world’s native Venus flytraps
* The oldest trees east of the Rocky Mountains, including a 1,700-year-old Bald Cypress.

Many of these unique natural communities are regarded as critically imperiled by the United States Fish and Wildlife Service. The Service has expressed special concern for certain
inhabitants: the painted bunting, king rail, and migratory shorebirds; swallow-tailed kite, rusty blackbird, Swainson’s warbler, and prothonotary warbler; sharp-tailed sparrow, Bachman’s sparrow, brown-headed nuthatch, and Federally-endangered red-cockaded woodpecker; American alligator, Carolina gopher frog, and Cape Fear threetooth; eastern fox squirrel, northern bobwhite quail, and eastern tiger salamander. There are also plants of concern, most notably the Venus fly trap.

The lower Cape Fear River is a nursery and habitat for several hundred species of fish. Among the most abundant are Atlantic menhaden, Atlantic croaker, spot, star drum, penaeid shrimp, mullet, weakfish, bay anchovies, killfish, silversides, blueback herring, American shad, hickory shad, and striped bass. Rare fish species include the shortnose sturgeon and Atlantic sturgeon, both endangered species, and the significantly rare spinycheek sleeper, marked goby, freckled blenny, and opossum pipefish. The manatee and the American alligator are also present in the Cape Fear River estuary.

According to the United States Fish and Wildlife Service, population levels of anadromous fish species (species that depend on coastal freshwater systems for spawning and nursery habitat) such as sturgeon, American shad, and striped bass have declined over the past two centuries due to human molestation of the Cape Fear River. The Service seeks to restore these and other fish and wildlife resources to more sustainable levels.

The Atlantic Ocean near the shore at the mouth of the river is permanent home to black sea bass, longspine porgy, Atlantic bumper, inshore lizardfish, and searobins. Migrant species include bluefish, spanish and king mackerel, cobia, Florida pompano, and spiny dogfish.

The nearby ocean is also on the migratory path of right whales, an endangered species.
Many areas along the lower Cape Fear River have been determined by the Marine Fisheries Division of the State Department of Environment and Natural Resources to be “Primary Nursery Areas,” essential to the sustenance of many species.
Tidal inlets in the Cape Fear River and rocky outcrops offshore of the river mouth have been identified as “Habitats of Particular Concern” by the South Atlantic Fisheries Council, because of their ecological significance, rarity, or susceptibility to human-induced degradation.

The remaining wetlands along the Cape Fear River support a variety of avian life. The US Fish and Wildlife Service names these groups “(1) waders, (2) shallow-probing and surface searching shorebirds such as sandpipers, plovers, knots and oystercatchers, (3) deep-probing shorebirds, such as godwits, willets, and curlews, (4) serial searching birds such as terns, gulls, skimmers, pelicans and kingfishers, (5) floating and diving birds such as ducks, grebes, loons, cormorants and swans, and birds-of-prey such as osprey, hawks, eagles and owls.”

The map below from the North Carolina Beach and Inlet Management Plan shows the natural communities and plant and animal habitats of the lower portion of the lower part of the Cape Fear area that include protected species.

Appendix A lists the natural communities with descriptions. Appendix B lists the Federal and State endangered and threatened species in the lower part of the Cape Fear area.
The history of North Carolina and indeed, the United States of America, begins at the Cape Fear. The first reported sighting of the Cape Fear by Europeans occurred in 1524, when Giovanni da Verrazano briefly explored the Cape before heading north along the coast. Later explorers included Lucas Vasquez de Ayllon (1525-1526), John White, on his way to establish the colony at Roanoke Island for Sir Walter Raleigh (1587), and William Hilton (1662). Hilton is said to have given the name “Cape Fear” to the region, but there is some lore that the name evolved from “Cape Faire.” Hilton’s exploration resulted in a settlement of people from the Massachusetts Bay Colony near what is now Town Creek on the west bank of the river, but that was abandoned in 1663.

Then in 1664 John Vassall and 200 settlers established a town, called Charles Town, on the river they then called the Charles, a few miles upriver at the mouth of what is now called Town Creek. That was the center of rapid growth, to a reported 800 settlers spread 60 miles along the river. Alas, the natives were less than friendly, and this settlement was abandoned in 1667.
Then in the early 18th century, colonists from South Carolina and the northern part of North Carolina began to resettle the Cape Fear region. In 1726, Roger and Maurice Moore established the town of Brunswick a short distance upriver from the proposed park site, just above what is now Sunny Point. That was the beginning of the era of rice plantations in the lowlands along the river north from Brunswick. Roger Moore’s plantation, Orton, remains today, the building and grounds undergoing restoration by Orton’s current owner, a descendant of Roger Moore.

The Cape Fear Indians who had once inhabited the region in substantial numbers had dwindled to about 200 in 1715, living in five villages. By 1725 they had died, left, been killed, or driven off, leaving scarcely a trace.

Brunswick Town was abandoned during the Revolutionary War; a new community was established closer to the mouth of the river in 1792, around Fort Johnston, a small fort for which construction was started in 1745. First called Smithville, this community was renamed Southport in the late nineteenth century.

Brunswick Town and then Smithville were the original seaports at the Cape Fear. However, when a new community was established upriver in 1733, on high ground closer to inland destinations, that quickly became the seaport for the region. It was renamed Wilmington in 1740. Smithville continued to serve as a port for river traffic, and was renamed Southport in 1887. As Southport, it acquired a railroad connection and had a coaling station well into the twentieth century. Southport continues as the departure point for river pilots boarding ships entering the river and destined for Wilmington.

The Cape Fear was the scene of considerable action during the Civil War. The Union blockade, although effective at other Southern ports, was difficult to enforce at the Cape Fear. A storm in 1761 had opened a second inlet from the sea (called New Inlet) into the river. Thus the Union
navy was compelled to block both old and new river entrances to prevent access to the port at Wilmington. Both entrances were shallow and shoals extended well out to sea, impeding maneuvering by the deep-draft Union gunboats. Shallow-draft blockade runners, keeping close to shore and protected by shore batteries, could often elude the Union boats. War materials brought in through Caribbean ports were unloaded at Wilmington and shipped onward north or west via the two railroads terminating at Wilmington. Other Southern ports effectively had been closed, so the route through Wilmington became known as the “lifeline of the Confederacy.”

Both river entrances were heavily fortified to provide cover for the blockade runners, the lower entrance by Fort Holmes on Bald Head Island and Fort Caswell on the western side of the channel. At New Inlet a major fortification, called Fort Fisher, was built on the northern side of the inlet, at Federal Point.

In late 1864, a large Union armada, the largest ever assembled in the war, arrived to take Fort Fisher. The first attack in December was unsuccessful. Then in January 1865, the largest combined operation by the armed forces of the United States until World War II was mounted, overrunning the Fort. That ended the flow of war material from Wilmington to Virginia on the Wilmington & Weldon Railroad, forcing General Lee to surrender his forces in April, ending the war.

In 1871, the US Army Corps of Engineers began constructing a rock wall in the Cape Fear River across New Inlet to block the passage to the sea, in case the South should rise again. That was successful. New Inlet, deprived of currents, gradually filled in. Now the eastern shore of the river is a continuous land mass from Federal Point south. Other, smaller inlets south of New Inlet have also filled in, so Bald Head Island is now connected to the mainland.

The waters around Federal Point are the graveyard of many ships of the era, including the *CSS Raleigh*, one of two ironclads built in Wilmington. That lies between Snow’s Marsh, the island just off of the park site, and Federal Point. The other, the *CSS North Carolina*, lies just off of Battery Island near Southport. Thirty-seven of 167 shipwrecks of historical interest are on the National Register of Historic Places. The State Underwater Archeological Center is located near the museum at Fort Fisher.

The fortifications at the lower Cape Fear continued in service through the two World Wars. The Cape Fear was the site of several battles with German submarines in World War II, and many wrecks from that era remain.

Other remnants and relics of the history of the region remain. The foundations of Brunswick Town and the walls of St. Philips church, built in 1768, are exposed and preserved. The fortifications at Fort Fisher are now a park, and some remnants of fortifications at Fort Holmes on Bald Head Island and a substantial part of Fort Caswell across the mouth of the river remain.
New discoveries continue: the residents of Caswell Beach recently found the remnants of World War I era firing range that had been used by the soldiers stationed at Fort Caswell, and promptly undertook restoration.

The City of Southport retains its historic district, which is on the National Register of Historic Places. Two specific buildings, the old court house (City Hall until 2014) and Fort Johnston are also listed on the National Register of Historic Places. The manor house at Orton plantation is on the register, as is the lighthouse on Bald Head Island. “Old Baldy” was built in 1817, and although retired as an active light, remains in place and is available for tours.

The Price’s Creek lighthouse, first lit in 1851 and abandoned in 1863, remains in place, neglected.

The Oak Island lighthouse, built in 1958 to replace a light on Bald Head that had been built to replace Old Baldy, is also on the National Register of Historic Places. It is a working light. Nearby is one of the last remaining lifesaving stations, originally built along the coast of the United States in the nineteenth century and manned by the United States Lifesaving Service, the forerunner of the US Coast Guard. Now maintained as a private home, it is also on the National Register of Historic Places.
This map from the North Carolina Beach and Inlet Management Plan shows critical wildlife habitats, natural heritage areas of national and state significance, and areas that are under government or private protection.

Note that many areas of national, state, and regional significance are unprotected. However, the North Carolina Coastal Land Trust has an active program of acquisition of conservation easements, and many properties along the west bank of the Cape Fear River that are or soon will be protected are not shown.
Economic Benefits

Tourism

The fundamental premise of the Cape Fear Maritime Heritage Area is that a single entity, a single, large park like a national park or national seashore, with a consistent theme, identity, and management can produce greater economic, environmental, and social benefits than the sum of such benefits produced by the individual components. Synergy, and a scale sufficient to create national recognition for the Cape Fear and its unique history and natural attributes. Synergy and scale to drive the great economic engine that tourism represents for North Carolina.

In a statement in May 2014, Governor Pat McCrory announced that the North Carolina tourism industry generated record visitor spending in 2013, $20.2 billion. That represents a 4.1 percent increase over 2012.

“The growth of our tourism industry gives us a lot to celebrate,” Governor McCrory said. “We attracted 52.5 million travelers from across the United States last year because of our great tourist destinations. The money they spent while visiting our mountains, beaches, cities and places in between directly supported nearly 200,000 jobs and more than 40,000 businesses. We can be proud that the quality of North Carolina’s travel experiences makes us the sixth most visited state in the nation.”

The State Department of Commerce provides these facts:

- In 2013, total visitor volume was 52.5 million, up nearly 16 percent from 2012. North Carolina is the sixth most visited state for domestic travel.

- North Carolina’s domestic market share of tourist visits increased from 4% to 4.3%.

- More than 40,000 businesses in North Carolina provide products and services to travelers, with travelers directly contributing more than 25 percent to their total products and services. Direct tourism employment in North Carolina increased nearly 2.1% in 2013, to 197,700. The majority of the growth was in lodging, transportation, food service and retail employment. Direct tourism payroll increased 3.8% to $4.6 billion.

- Visitors to North Carolina generated more than $3 billion in federal, state and local taxes in 2013. State tax receipts as a result of visitor spending passed the $1 billion mark in 2013. The figure represents 4% growth over 2012’s $970 million. Local tax receipts from visitor spending grew 3.1% to $597.3 million.
Visitors spend more than $55 million per day in North Carolina. That spending adds more than $4.4 million per day to state and local tax revenues (about $2.8 million in state taxes and $1.6 million in local taxes).

Each North Carolina household saves $435 in state and local taxes as a direct result of visitor spending in the state.

The Department of Commerce reports these figures for tourism in Brunswick and New Hanover Counties in 2013:

<table>
<thead>
<tr>
<th></th>
<th>Brunswick</th>
<th>New Hanover</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economic impacts</td>
<td>$471 million</td>
<td>$478 million</td>
</tr>
<tr>
<td>Jobs attributable to tourism</td>
<td>5,030</td>
<td>5,460</td>
</tr>
<tr>
<td>Payroll due to visitor travel</td>
<td>$86 million</td>
<td>$105 million</td>
</tr>
<tr>
<td>State and local tax revenues from tourism</td>
<td>$50 million</td>
<td>$42 million</td>
</tr>
</tbody>
</table>

The State’s attractiveness to visitors is based on many things, but the State parks are symbolic of the State’s natural beauty and are a significant element of tourist draw. A study done in 2008 by North Carolina State University attributed $289 million in sales to visitors to our State parks, approximately ten times the NCDENR Division of Parks and Recreation annual budget. This figure excludes direct revenues such as campsite rental. Most importantly, the figure does not include local visitors—only revenues from those visitors from other areas traveling specifically to see a park were counted.

The study attributed 5,000 full-time equivalent jobs to these non-local visitors to the State parks.

Components of the proposed maritime heritage area deliver among the best returns. The 2008 study showed that visitors to the Fort Fisher State Recreation Area from out of the area spent $14.5 million in the sample year, 46 times the park’s net annual operating budget—a stupendous return. The popularity of the park continues. In 2012, Fort Fisher had 781,000 visitors. Carolina Beach State Park was also among the most popular in the system with 551,000 visitors.

The economic impact study is being refreshed based on park visits in 2013, which continue to grow, exceeding 14 million in that year.

On a national basis, parks show the same 10-to-1 ratio of benefits to costs as occurs with our State parks. A study done for the National Park Service in 2013 showed that national parks generated $26.5 billion in economic activity and supported 238,000 jobs. More than one-half of
those billions, $14.6 billion, went into communities within 60 miles of a park. The “gateway” communities nearest the parks inevitably prosper, from parks payroll and local purchases, but more importantly, from tourist dollars spent on lodging, food, fuel and also on collateral activities—other attractions, entertainment, and retail.

Also in 2013, the National Park Service received the results of a study of economic impacts of National heritage areas. That study showed that the 49 National heritage areas supported $12.9 billion in economic activity and 148,000 jobs. That is an average of $263 million in economic impacts and 3020 jobs for each area; however, some of the National heritage areas are quite large.

The benefits of tourism are more than those counted at the cash register. In a study funded by American Express, the National Trust for Historic Preservation observed that:

Tourism is a powerful economic development tool. Tourism creates jobs, provides new business opportunities and strengthens local economies. When cultural heritage tourism development is done right, it also helps to protect our nation’s natural and cultural treasures and improve the quality of life for residents and visitors alike.

Although this study focused on cultural heritage tourism, these observations are equally applicable to natural heritage tourism, and the Cape Fear Maritime Heritage Area is a mix of both. Indeed, these concepts are inseparable in most situations. More from the study:

Cultural heritage tourism can have a tremendous economic impact on local economies. To economic benefits like new businesses, jobs and higher property values, tourism adds less tangible—but equally important—payoffs. A well-managed tourism program improves the quality of life as residents take advantage of the services and attractions tourism adds. It promotes community pride, which grows as people work together to develop a thriving tourist industry.

An area that develops its potential for cultural heritage tourism creates new opportunities for tourists to gain an understanding of an unfamiliar place, people or time. With the arrival of visitors in turn come new opportunities for preservation. Well-interpreted sites teach visitors their importance, and by extension, the importance of preserving other such sites elsewhere.

Perhaps the biggest benefit of cultural heritage tourism is that opportunities increase for diversified economies, ways to prosper economically while holding on to the characteristics that make communities special.
Economic Development

Enrico Moretti, in *The New Geography of Jobs*, points out that “Over the past century, the United States has shifted from an economy centered on producing physical goods to one centered on innovation and technology.” And “In the twentieth century, competition was about accumulating physical capital. Today it is about attracting the best human capital.”

Thus attracting human capital is essential to the economic success of both housing development enterprises and the new industrial economy in the Cape Fear region. Certainly the proximity to a nationally significant recreational and cultural facility is a central part of the picture the area must present to attract that human capital.

Headwaters Economics, in a recent (2012) research paper on business location, observed:

Traditional location factors are relatively less important to firms in knowledge-based enterprises. Thanks to advances in transportation and communication, these companies now have far fewer constraints on where they conduct business. As “footloose” businesses, whose success is relatively independent of location, such companies are less focused on traditional cost factors and more sensitive to the preferences of CEOs and recruitment and retention factors such as access to outdoor recreation and natural landscapes.

Quality of life variables are shifting from “would like” to “must have” location factors. A growing body of research developed over the last 30 years has documented this shift. According to a recent survey, “Quality of life consistently ranks near the top of locational criteria for high-technology, R&D labs and other facilities that are more footloose in relation to traditional cost–sensitive location factors and place a greater emphasis on attracting and retaining skilled labor.”

A thoughtful economic development program would build on a region’s strengths. A current study sponsored by the Cape Fear Council of Governments observed:

Our high quality of life, welcoming people, beautiful beaches, and historic places are not a secret. North Carolina and our region enjoy a stellar reputation nationally for quality of life and cost of living. As a result, we are attracting new businesses, retirees, others seeking opportunity.

A plan to preserve, enhance, and call attention to the five-century-old maritime heritage of the Cape Fear River, the rare and unique flora and fauna of the region, and the recreational opportunities presented by the river and the beaches, in addition to being intrinsically valuable economically and socially, directly supports the region’s economic destiny.
Hedonic value

The Trust for Public land, in research done under a grant from the US Forest Service, found that parks have a positive impact on nearby residential property values. This is not a new discovery; Frederick Law Olmstead observed the value increase in properties near New York’s then new Central Park: “a family residence near the park will be more attractively situated than anywhere else on the continent.” Other things being equal, people are willing to pay more for a home close to a nice park.

Economists call this phenomenon “hedonic value.” It varies with both distance and the quality of the park. The maritime heritage area, a megapark, would loom large relative to residential communities in both counties, enhancing market appeal throughout the region.
Other Benefits, Tangible and Intangible

A Framework for Growth

The Cape Fear region, with a current population of about 384,000 people (2013), is among the fastest growing regions in the nation. Brunswick was North Carolina’s fastest growing county in 2013. Brunswick (47th) and Pender (98th) are also among the 100 fastest growing counties in the United States.

Parks and recreation facilities must keep pace. The National Recreation and Parks Association recommends “a core system of parklands, with 6.25 to 10.5 acres of developed open space per 1000 population.” Brunswick County, which does not have a State park, does not now meet that standard, even disregarding the seasonal population, which is about 2.6 times the permanent population.

The population of the region has been projected to increase 190,000 to 320,000 in the period to 2040. Maintaining the quality of life so essential to individual well-being and regional economic health would require the addition of 1900 to 3200 acres of developed parkland by 2040 just to accommodate the permanent population. This does not take into account the new facilities necessary for the seasonal population. Nor does it take into account the growth in tourism as the Nation and the State continue to grow and travel.

And the world will not end in 2040. Population, seasonal as well as permanent, and tourist visits will continue to grow exponentially, carrying along similar requirements for parkland. The passage of time will likewise require expansion of cultural facilities. Our heritage grows longer and more diverse with the passage of time and social change, and the events of our heritage that have not yet occurred will one day be as important as the heritage developed in that time period we now regard as the past.

So we must plan for growth in our recreation facilities, particularly those founded on our natural heritage, and in our cultural facilities, which include elements and reminders of our heritage. That plan requires a framework, a system, organizational as well as physical, on which to install the new elements of our new social and recreational lives.

Such a framework, particularly the organizational elements, must have a foundation. The new cultural heritage would be a continuation of the old; the natural heritage would not be new, only the knowledge of it would be new. In each case, the existing heritage is the starting point. We must define that starting point, that foundation for the future, now. A strong, interlinked, integrated structure of a regional heritage area.

The Cape Fear Maritime Heritage Area would provide the physical and administrative framework for that future growth in population and prosperity for the region.
Ethic of Place

Here is your country. Cherish these natural wonders, cherish the natural resources, cherish the history and romance as a sacred heritage, for your children and your children’s children. Do not let selfish men or greedy interests skin your country of its beauty, its riches or its romance.

-- Theodore Roosevelt

We need to develop what I call an ethic of place. It is premised on a sense of place, the recognition that our species thrives on the subtle, intangible, but soul-deep mix of landscape, smells, sounds, history, neighbors, and friends that constitute a place, a homeland. An ethic of place respects equally the people of a region and the land, animals, vegetation, water, and air. It recognizes that residents revere their physical surroundings and that they need and deserve a stable, productive economy that is accessible to those with modest incomes. An ethic of place ought to be a shared community value and ought to manifest itself in a dogged determination to treat the environment and its people as equals, to recognize both as sacred, and to insure that all members of the community not only search for, but insist upon, solutions that fulfill that ethic.

– Professor Charles Wilkinson

Here we return to the original issue, saving the Cape Fear, its natural heritage and its cultural heritage. And somehow fostering sensitive development so that heritage can be used and enjoyed, can be used to enhance the well-being and quality of life of the people of the Cape, both directly and by producing the income necessary to build and sustain that well-being and quality of life.

The Cape Fear Maritime Heritage Area would work in several ways:

More efficient regulation

This plan would marshal the existing regulatory structure into a more efficient and effective administrative unit, and would call attention to gaps, both geographic and regulatory that should be filled. This heritage area’s boundaries, while not directly invoking regulation, should be very much in the consciousness of local planning and zoning officials, resulting in a coherent plan for conservation and preservation of the area’s heritage.

We must emphasize, however, that a heritage area functions, not by adding a layer of regulation or surrender of ownership to government entities, but by voluntary action and cooperation among government entities, local organizations, and private owners.
Recognition of importance of natural and cultural heritage in economic growth

The decisions of public officials, from the State level on down, are very much driven by economics. Dollars are measurable, while conservation, recreation, cultural and environmental education seem to be abstract.

Here we have a situation where those abstract concepts embodied in the heritage area could be reduced to dollars, manifested in tourism and economic development. The value of conservation, recreation, cultural and environmental education would be evident, leading to protection, whether in actual regulation or in official and public attitudes and actions, direct and indirect. A business or individual taking actions that would threaten the goose that lays the golden egg does so at its or his peril.

In a broader sense, the maritime heritage area would define the Cape Fear region and constitute the essence of its attractiveness for business, education, and leisure. Any plan of development, whether regulatory or private development, should recognize that and build on the region’s strengths, its intrinsic value and resources. Protecting the future requires more than just protecting those intrinsic value and resources, however. They must be enhanced to keep pace, or even lead, population growth and development of the built environment.

Pride of place

The presence of a heritage area of national recognition, which is perceived to enhance both quality of life and economic growth, would become a point of pride for the region. Civic pride and regional pride can have their own effects. Enlightened leaders throughout the country regard boosting civic pride as a primary challenge. They find that positive attitudes towards cities improve productivity, encourage local constituents to become further invested and engaged, and attract new talent and growth. This theory is so compelling, perhaps obvious, that civic leaders seek major-league teams, prestigious institutions, beautiful buildings and parks, as much for the pride they would bring as any direct monetary return.

The Cape Fear Maritime Heritage Area would provide that positive driver for the Cape Fear region, and would define the region and indeed the people who live here.
Implementation and Management

The organization of the new Cape Fear Maritime Heritage Area would be a structure not heretofore seen in North Carolina as a State facility, but the Blue Ridge National Heritage Area is a useful Federal model for creating this first North Carolina State heritage area, just as National parks are the models for North Carolina’s State parks.

This passage from the Blue Ridge National Heritage Area describes the heritage area concept:

National Heritage Areas are locally governed institutions that encourage residents, government agencies, non-profit groups, and private partners to join together in planning and implementing programs that preserve and celebrate America’s defining landscapes. The National Heritage Areas seek near-term and long-term solutions to their conservation and development challenges by fostering relationships among regional stakeholders and encouraging them to work collaboratively to achieve shared goals.

A National Heritage Area designation does not affect the ownership or use of land. Existing local, state, and national parks are commonly included and actively partner in National Heritage Area activities. Programs and projects are created through voluntary efforts coordinated by the management organization of each National Heritage Area.

The organization of the Cape Fear Maritime Heritage Area would involve these elements.

- Enabling legislation by the North Carolina General Assembly to create the entity as a creature of the State, define the boundaries, and provide for management by a board of directors appointed by certain named stakeholders, such as the Counties of Brunswick and New Hanover, the Secretaries of the Departments of Environment and Natural Resources and Cultural Resources, the North Carolina Coastal Land Trust, and the municipalities included within the area boundaries.¹

- A memorandum of understanding between NCDENR and the North Carolina Department of Cultural Resources for coordination of operations of their respective

---

¹ Failure of the General Assembly to act would not cause the project to fail. The Cape Fear Maritime Heritage Area could be established administratively by agreement between NCDENR and the NC Department of Cultural Affairs, supported by a conservation partnership among other affected parties.
reservations and facilities, and for joint action on such matters as signage, promotional materials, marketing, and maintenance.

- A conservation partnership involving the State agencies, the Federal government, Brunswick County, and the municipalities within and adjoining the new heritage area, and such private owners and holders of conservation easements as a willing to join to further common purposes. This is the most complex undertaking, but there are precedents in State conservation partnerships and partnership parks in the National Park System as well as in National and state heritage areas.

There may be some administrative overhead in this structure. However, that should be offset by certain economies of scale and sharing of resources. A relationship of individual park elements to the larger whole may also be useful in coaxing budgets out of the State legislature, inasmuch as the Cape Fear Maritime Heritage Area should would become a significant driver of the regional economy and provide an element of pride encouraging development of complementary economic activity.
References

Brunswick County Planning Department, *Historic Sites in Brunswick County* (1976)

Chris E. Fonvielle, Jr., *Historic Wilmington & the Lower Cape Fear* (2007)

Alexander Garvin, *Public Parks, the Key to Livable Communities* (2011)

Philip Gerard, *Down the Wild Cape Fear* (2013)


Ethel Herring, *Cap’n Charlie and Lights of the Lower Cape Fear* (1967)

Holland Consulting Planners, Inc., *Brunswick County CAMA Core Land Use Plan* (2007)


Richard J. LeBlond, *Inventory of the Natural Areas And Rare Species of Brunswick County, North Carolina* (1995)


Lower Cape Fear Sustainable Communities Consortium, *Cape Fear Regional Framework for Our Future* (draft 2014)

Michael Mallin, *The Ecology of the Cape Fear River System*


Davide Sartori, Gelsomina Catalano, *Infrastructure Investment Long Term Contribution: Economic Development and Wellbeing*


Catherine Cullinane Thomas, Christopher Huber, and Lynne Koontz, *2013 National Park Visitor Spending Effects, Economic Contributions to Local Communities, States, and the Nation*


Appendix A

Natural Communities

The diverse and rare range of wildlife and plant life at the Cape Fear is fostered by the equally diverse and rare natural communities at the Cape, from the maritime communities on the islands to the woodland communities on higher ground, with transitional marshes and wetlands between. The distinct natural communities in that portion of the survey area in Brunswick County were inventoried for the North Carolina Natural Heritage Program in a 1995 report, *Inventory of the Natural Areas and Rate Species of Brunswick County*, North Carolina by Richard J. LeBlond. The relevant passages of the descriptions of each natural community are included here. The portion of New Hanover County included in the survey area includes some of the same types of natural communities. Some of the more interesting and unusual natural communities are outlined below.

**Maritime Communities**

Maritime communities occur where there is a direct oceanic influence, such as salt spray and storm overwash (tidally influenced areas are treated separately as tidal wetland communities below). They occur on barrier islands and small areas of the mainland edge primarily near river mouths. These communities have adapted to a very dynamic area and endure considerable natural stress. Naturally limited, these communities have been further reduced by commercial and residential development.

The **Dune Grass** natural community occurs on the line of foredunes just behind the ocean beach, and on unstable sand dunes farther inland on barrier islands. The loose, shifting sand with its low water holding capacity and low nutrient reserves makes these environments habitable by only a handful of specialized plant species. Sea oats (*Uniola paniculata*) usually dominates.

**Bald Head Natural Area**

The **Interdune Pond** is a freshwater pond community occurring on barrier islands. These ponds are geologically young and potentially subject to sand dune movement or salt water flooding, as well as salt spray. In Brunswick County, this community is characterized by areas of open water within emergent tall marsh vegetation dominated by such species as black needlerush (*Juncus roemerianus*), southern cattail (*Typha domingensis*), salt-marsh bulrush (*Schoenoplectus robustus*), and salt grass (*Distichlis spicata*). Common reed (*Phragmites australis*), an invasive and aggressive large grass, has also become a dominant in this habitat.

**Bald Head Natural Area, Bluff Island**
Maritime Evergreen Forest is found in sheltered, sandy upland areas of barrier islands, and is characterized by a well-developed canopy typically dominated by live oak (*Quercus virginiana*), sand laurel oak (*Q. hemisphaerica*), and loblolly pine (*Pinus taeda*). Cabbage palm (*Sabal palmetto*), rare in North Carolina, is a distinctive component of maritime forests in the Cape Fear area. Canopy height and community composition are restricted by such maritime influences as wind-born salt spray, and hurricanes can be particularly destructive. However, these are natural disturbances to which the community has adapted over time.

Bald Head Natural Area

Maritime Shrub is characterized by distinctive scrubby, woody growth found on stabilized sand dunes, in drier dune swales, and on sand flats. The species composition is similar to that of the Maritime Evergreen Forest, but the stature of the Maritime Shrub community is lower, the stunted canopy trees typically not exceeding 15 feet in height. Live oak and coastal red cedar (*Juniperus virginiana var. silicicola*) are frequent dominants, with an understory formed by wax-myrtle (*Myrica cerifera var. cerifera*) and yaupon (*Ilex vomitoria*). Wax-myrtle sometimes forms pure stands. This community occurs in areas that are more exposed than areas in which Maritime Evergreen Forest is found.

Bald Head Natural Area, Battery Island

Maritime Wet Grassland occurs on low sand flats or in dune swales where the freshwater table is at or close to the surface for at least part of the year. Some areas may be flooded for substantial periods, and seawater overwash can occur. This community is densely vegetated by herbs, and has a high species diversity. Prominent species include fimbries (*Fimbristylis spp.*), duneslack muhly (*Muhlenbergia filipes*), small whitetop sedge (*Rhynchospora colorata*), and three-square (*Schoenoplectus pungens*). This community occurs in small, scattered areas on barrier islands and the mainland coastal edge. It is extremely limited in Brunswick County.

Bald Head Natural Area, Battery Island

Upper Beach occurs above the mean high tide line along the intertidal beach. This area is inundated only during spring tides and storm tides, but is moistened by salt spray between periods of inundation. The environment is very harsh for plants, with almost constant salt spray and with periodic flooding and reworking of sand during storms. A few, mostly annual, salt-tolerant herbs occur as sparse patches and scattered individuals on the sand, but they are instrumental in the formation of new dunes. Prominent species are sea rocket (*Cakile edentula*), seabeach sandmat (*Chamaesyce polygonifolia*), Carolina beach-thistle (*Salsola caroliniana*), and seabeach orach (*Atriplex arenaria*). The Upper Beach is a very dynamic community dependent on natural disturbance, and
quickly succeeds to the Dune Grass community if protected from tidal and storm influences.

Bald Head Natural Area, East Beach

Tidal Wetland Communities

These communities occur in areas that are protected from oceanic wave action. They are found in areas regularly flooded during the normal tide cycle, and in areas that are intermittently flooded by wind-driven and spring tides. They are most abundant on low flats between the mainland and barrier islands, and along the shores and marsh islands of the Cape Fear River. River tidal flow is extensive, with tidal influence extending up the Cape Fear River into Bladen County. Town Creek, a Cape Fear River tributary, experiences tidal flow for 20 or more creek miles. Tidal wetland communities are directly influenced by water salt content. Salt decreases upstream, and there are extensive stretches of river and creek tidal flow where the water is fresh, permitting the growth of tidally influenced forests and freshwater marshes. The relative position of these communities, moving from saltier to fresher waters, is: Salt Flat; Salt Marsh; Brackish Marsh; Tidal Freshwater Marsh; Tidal Cypress--Gum Swamp. Because of gradual rising sea level these communities may be imperceptibly migrating upstream.

Brackish Marsh occurs in areas where tidal waters are partly diluted by fresh water, and are most abundant along the lower reaches of the rivers. Because of the salt influence, they are low in plant diversity, with black needle rush (*Juncus roemerianus*) typically dominating large areas. Salt meadow cordgrass (*Spartina patens*), giant cordgrass (*S. cynosuroides*), and sawgrass (*Cladium jamaicense*) often form large colonies, and a variety of smaller plants may occur in openings.

Southport Ferry Landing, proposed Cape Fear State Park

Salt Marsh occurs where tides regularly flood an area with undiluted sea water. This environment of repeated flooding and exposure and high salt levels is habitable by only a few plant species, but is very fertile and among the most biologically productive habitats in nature. Saltmarsh cordgrass (*Spartina alterniflora*) is always the dominant plant in this community, with few other plant species present.

Bald Head Natural Area, Zeke’s Island, Battery Island, proposed Cape Fear State Park

Tidal Cypress--Gum Swamp occurs in freshwater tidal areas of large creeks. The community is dominated by swamp black gum (*Nyssa biflora*), water tupelo (N. aquatica), baldcypress (*Taxodium distichum*), and pondcypress (*T. ascendens*). Water ash (*Fraxinus caroliniana*) and Carolina red maple (*Acer rubrum var. trilobum*) are the...
dominant understory trees, and shrub and herb layers are usually sparse and low in diversity, but can be dense in canopy openings. This community is susceptible to canopy die-off from episodes of storm-driven saltwater intrusion.

Town Creek, proposed Cape Fear State Park

**Tidal Freshwater Marsh** occurs in tidal areas with minute or no salt influence. It is most abundant in upstream tidal areas of the Cape Fear River and Town Creek. The vegetation is generally strongly zoned, with larger grasses and grass-like plants dominating patches. Two variants of this community are recognized: the Oligohaline Variant and the Freshwater Variant. The Oligohaline Variant, as its name indicates, has a very small amount of salt present in the water (much less than in the Brackish Marsh). Typical patch dominants are sawgrass, cattail (*Typha spp.*), and giant cordgrass. The Freshwater Variant has no salt present during the normal tide cycle. Dominant species include lanceleaf arrowhead (*Sagittaria lancifolia*), georgia spider-lily (*Hymenocallis crassifolia*), pickerelweed (*Pontederia cordata*), and green arrow-arum (*Peltandra virginica*). Tidal Freshwater Marsh has the highest species diversity of the tidal wetland communities, and some zones, particularly in the Freshwater Variant, are dominated by large, showy wildflowers. In some areas of a few tributaries of the Cape Fear River, this community occurs with an impoverished cypress–gum canopy, which may indicate the gradual replacement of Tidal Cypress–Gum Swamp by Tidal Freshwater Marsh.

Pleasant Oaks, Town Creek

**Mainland Coastal Edge Forests**

Mainland coastal edge forest communities occur on flats and low hills near the coastal edge. They are similar to the Maritime Evergreen Forest found on barrier islands, but generally have a higher species diversity because their locations are more protected from the effects of salt spray. These forests, naturally uncommon, have been greatly reduced by coastal commercial and residential development.

**Coastal Fringe Evergreen Forest** occurs on moist sandy soil and is characterized by a canopy dominated by sand laurel oak, live oak, and loblolly pine. Common understory species include wild olive (*Osmanthus americana*), swamp red bay (*Persea palustris*), American holly (*Ilex opaca*), and yaupon. The shrub layer is often dense, and woody vines frequently are abundant. Herbs generally are sparse and low in diversity. This community is rare, and may be one of the most imperiled community types in the state.

Southport Ferry Landing, proposed Cape Fear State Park
Longleaf Pine Communities

Longleaf pine communities occur on wet-to-dry sandy or sandy-loam soils. They once were the dominant natural forest types in Brunswick the county. All of these communities are adapted to and maintained by frequent low intensity fire. Two of the dominant plants—longleaf pine (*Pinus palustris*) and wiregrass (*Aristida stricta*)—are dependent on fire for reproduction. Sustained periods without fire lead to development of a dense shrub understory, suppression of the herb layer, and buildup of the fuel load. The wetter communities (Pine Savanna, Wet Pine Flatwoods) have a much high herb diversity than the drier communities (Coastal Fringe Sandhill, Xeric Sandhill Scrub).

**Coastal Fringe Sandhill** occurs in dry sandy areas, primarily on rolling sandhill terrain and relict beach ridges. It is usually found within a few miles of the coast. The community is distinguished by a scrub oak subcanopy beneath the longleaf pine canopy. Sand live oak (*Quercus geminata*) is the most frequent dominant, and turkey oak (*Q. laevis*) and sand laurel oak are often prominent. The shrub and herb layers are usually open to sparse, although the shrub layer can become dense without fire.

Southport Ferry Landing, Sunny Point, Pleasant Oaks

**Pine Savanna** occurs in flat areas that are saturated or even slightly flooded during the wetter parts of the year. Although longleaf pine usually dominates the canopy, pond pine (*Pinus serotina*) is often prominent and can be locally dominant. The herb layer is dominated by grasses and sedges, most typically wiregrass and Carolina dropseed (*Sporobolus sp. 1*). The herb layer usually contains many showy composites, orchids, and insectivorous plants. Southeastern North Carolina Pine Savannas have among the highest species diversity values at fine scales in temperate North America. More rare species are associated with Pine Savannas than any other community type in the state. Two Pine Savanna variants occur in Brunswick County: Wet Spodosol and Wet Ultisol. The Wet Spodosol Variant occurs on sandy soils and often exhibits a pocosin influence in its flora. The Wet Ultisol Variant occurs on loamy or clayey soils, and its flora indicates a broader moisture range than that for the Wet Spodosol Variant.

Sunny Point, Pleasant Oaks

**Wet Pine Flatwoods** resemble Pine Savannas in general structure, with an open pine canopy over a grassy ground cover with low shrubs when frequently burned. It typically occurs on flat areas that are not as wet or fertile as those that support the Pine Savanna. Longleaf pine is usually the dominant canopy tree, although loblolly pine can be prominent to dominant. Wiregrass is always the dominant herb, but herb diversity is lower than that found in Pine Savannas. Shrubs become dense if fire is excluded. Two variants of the Wet Pine Flatwoods community occur in Brunswick County: the Wet
Spodosol Variant occurs on sandy soils, and the Wet Ultisol Variant occurs on loamy or clayey soils. [Note to draft: LeBlond, page 110]

Sunny Point, Orton, Pleasant Oaks

**Xeric Sandhill Scrub** occurs on the deepest and driest infertile sands of sandhills and ridges. It is distinguished by an open longleaf pine canopy over a scrub oak subcanopy dominated by turkey oak, with other scrub oaks few in number or absent. The shrub layer is usually sparse, and the herb layer is sparse to dense. Wiregrass and lichens often are the ground layer dominants. Most occurrences of this community in Brunswick County belong to the Coastal Fringe Variant, which frequently occurs with the Coastal Fringe Sandhill natural community, and is transitional to it.

Pleasant Oaks

**Pocosin Communities**

Pocosin communities are found on nearly flat, poorly drained areas and in large, shallow depressions such as Carolina bays. Peat deposits develop where the soil is saturated for long enough periods that organic matter cannot completely decompose. Once peat has developed, it acts as a sponge, raising water levels in the soil. Without decomposition, plant nutrients are tied up in organic matter and the soil is extremely infertile and acidic. The natural community types are determined by variation in wetness, depth of peat, and fire dynamics.

**Small Depression Pocosin** is found in small, isolated depressions typically less than 10 acres in size, and that are filled with saturated organic deposits or peaty sands. It is distinguished by a dense shrub layer dominated by such species as fetterbush, titi, inkberry, and gallberry. A sparse to dense canopy of such trees as pond pine, red maple, and swamp red bay may also be present.

Sunny Point

**Impoundments, Ponds, and Pools**

This category groups communities that occur in and around the edges of non-flowing water bodies. Permanently flooded ponds and temporarily flooded pools are primarily found in limesink depressions. Impoundments occur in beaver ponds, blocked embayments, and dammed streams.

**Coastal Plain Semipermanent Impoundment** natural communities occur where streams have been dammed. All are characterized by relatively large, permanently flooded areas.
of open water supporting aquatic vegetation, and with emergent vegetation in shallower water near-shore. Marsh vegetation dominates the emergent zone, and pondcypress forms an emergent canopy in some impoundments. Aquatic vegetation includes water lily (**Nymphaea odorata**), watermilfoils (**Myriophyllum spp**.), pondweeds (**Potamogeton spp**.), and bladderworts (**Utricularia spp**.). Dominant emergent herbs include Torrey's nutrush (**Scleria muhlenbergii**), maidencane (**Panicum hemitomon**), Virginia horned beaksedge (**Rhynchospora macrostachya**), and sawgrass. American cupscale (**Sacciolepis striata**), large-flowered bur marigold (**Bidens laevis**), and swamp smartweed (**Polygonum hydropiperoides**) are prominent in some areas.

**Small Depression Pond** communities occur in limesink depressions. These depressions are believed to have been created by subterranean collapse of limestone deposits, resulting in the slumping of overlying sand deposits. If the depression intersects groundwater, a pond forms. Because the pond surface is an exposed expression of the water table, pond levels rise and fall with groundwater fluctuations, typically rising in winter and spring, and falling in summer and fall. Some ponds may dry out during drought years. When water levels drop during the growing season, the exposed pond margins support a diverse herb layer with several rare plant species. Characteristic shoreline species include spadeleaf (**Centella erecta**), Wright’s witch grass (**Dichanthelium wrightianum**), pinebarren rush (**Juncus abortivus**), southern bog clubmoss (**Lycopodiella appressa**), Mohr’s boneset (**Eupatorium mohrii**), combleaf mermaidweed (**Proserpinaca pectinata**), and warty panic grass (**Panicum verrucosum**). Brunswick County contains the largest concentration of Small Depression Pond community occurrences between Massachusetts and Florida.

Sunny Point, Orton, Pleasant Oaks, proposed Cape Fear State Park
Appendix B

Endangered and Threatened Species

The table below shows species identified by the North Carolina Department of Environment and Natural Resources Natural Heritage Program as rare species occurring in the lower Cape Fear region as of 2012.

<table>
<thead>
<tr>
<th>SCIENTIFIC NAME</th>
<th>COMMON NAME</th>
<th>STATE</th>
<th>FEDERAL STATE RANK</th>
<th>HABITAT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Amphibian</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rana capito</td>
<td>Carolina Gopher Frog</td>
<td>T</td>
<td>FSC</td>
<td>S1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>breeds in temporary fish-free pools; forages in sandy woods, especially</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>pine-oak sandhills</td>
</tr>
<tr>
<td><strong>Birds</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Charadrius melodus</td>
<td>Piping Plover</td>
<td>T</td>
<td>T</td>
<td>S1B,S1N</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>ocean beaches and island-end flats [breeding evidence only]</td>
</tr>
<tr>
<td>Charadrius wilsonia</td>
<td>Wilson's Plover</td>
<td>SC</td>
<td></td>
<td>S2B</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>beaches, island-end flats, estuarine islands [breeding evidence only]</td>
</tr>
<tr>
<td>Egretta caerulea</td>
<td>Little Blue Heron</td>
<td>SC</td>
<td></td>
<td>S3B,S3N</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>forests or thickets on maritime islands [breeding sites only]</td>
</tr>
<tr>
<td>Egretta thula</td>
<td>Snowy Egret</td>
<td>SC</td>
<td></td>
<td>S2S3B,S3N</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>forests or thickets on maritime islands [breeding sites only]</td>
</tr>
<tr>
<td>Egretta tricolor</td>
<td>Tricolored Heron</td>
<td>SC</td>
<td></td>
<td>S3B,S3N</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>forests or thickets on maritime islands [breeding sites only]</td>
</tr>
<tr>
<td>Gelochelidon nilotica</td>
<td>Gull-billed Tern</td>
<td>T</td>
<td></td>
<td>S1S2B</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>sand flats on maritime islands [breeding sites only]</td>
</tr>
<tr>
<td>Haematopus palliatus</td>
<td>American Oystercatcher</td>
<td>SC</td>
<td></td>
<td>S2S3B,S3N</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>estuaries, oyster beds, mudflats [breeding evidence only]</td>
</tr>
<tr>
<td>Ixobrychus exilis</td>
<td>Least Bittern</td>
<td>SC</td>
<td></td>
<td>S2S3B</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>fresh or brackish marshes [breeding season only]</td>
</tr>
<tr>
<td>Passerina ciris ciris</td>
<td>Eastern Painted Bunting</td>
<td>SC</td>
<td>FSC</td>
<td>S3B</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>maritime shrub thickets and forest edges [breeding season only]</td>
</tr>
<tr>
<td>Picoides borealis</td>
<td>Red-cockaded Woodpecker</td>
<td>E</td>
<td>E</td>
<td>S2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>mature open pine forests, mainly in longleaf pine [breeding evidence only]</td>
</tr>
<tr>
<td>Plegadis falcinellus</td>
<td>Glossy Ibis</td>
<td>SC</td>
<td></td>
<td>S1S2B</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>forests or thickets on maritime islands [breeding sites only]</td>
</tr>
<tr>
<td>Sternula antillarum</td>
<td>Least Tern</td>
<td>SC</td>
<td></td>
<td>S3B</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>beaches, sand flats, open dunes [breeding sites only]</td>
</tr>
<tr>
<td><strong>Freshwater Fish</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acipenser brevirostrum</td>
<td>Shortnose Sturgeon</td>
<td>E</td>
<td>E</td>
<td>S1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>brackish water of large rivers and estuaries; spawns in freshwater areas</td>
</tr>
<tr>
<td>Acipenser oxyrinchus</td>
<td>Atlantic Sturgeon</td>
<td>SC</td>
<td>E</td>
<td>S3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>coastal waters, estuaries, large rivers</td>
</tr>
<tr>
<td>Scientific Name</td>
<td>Common Name</td>
<td>Category</td>
<td>Subcategory</td>
<td>Status</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>------------------------------</td>
<td>----------</td>
<td>-------------</td>
<td>--------</td>
</tr>
<tr>
<td>Heterandria formosa</td>
<td>Least Killifish</td>
<td>SC</td>
<td>S2</td>
<td></td>
</tr>
<tr>
<td><strong>Freshwater or Terrestrial</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Gastropod</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Triodopsis soelneri</td>
<td>Cape Fear Threetooth</td>
<td>T</td>
<td>FSC</td>
<td>S2S3</td>
</tr>
<tr>
<td><strong>Mammals</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corynorhinus rafinesquii macrotis</td>
<td>Rafinesque’s Big-eared Bat - Coastal Plain subspecies</td>
<td>SC</td>
<td>FSC</td>
<td>S3</td>
</tr>
<tr>
<td>Myotis septentrionalis</td>
<td>Northern Myotis</td>
<td>SR</td>
<td>PE</td>
<td>S2S3</td>
</tr>
<tr>
<td>Trichechus manatus</td>
<td>West Indian Manatee</td>
<td>E</td>
<td>E</td>
<td>S1M</td>
</tr>
<tr>
<td><strong>Moss</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Campylopus carolinae</td>
<td>Savanna Campylopus</td>
<td>SR-T</td>
<td>FSC</td>
<td>S1S2</td>
</tr>
<tr>
<td><strong>Reptiles</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alligator mississippiensis</td>
<td>American Alligator</td>
<td>T</td>
<td>T(S/A)</td>
<td>S3</td>
</tr>
<tr>
<td>Caretta caretta</td>
<td>Loggerhead Seaturtle</td>
<td>T</td>
<td>T</td>
<td>S3B,S3N</td>
</tr>
<tr>
<td>Chelonia mydas</td>
<td>Green Seaturtle</td>
<td>T</td>
<td>T</td>
<td>S1B,SUN</td>
</tr>
<tr>
<td>Crotalus adamanteus</td>
<td>Eastern Diamondback Rattlesnake</td>
<td></td>
<td></td>
<td>S1</td>
</tr>
<tr>
<td>Dermochelys coriacea</td>
<td>Leatherback</td>
<td>E</td>
<td>E</td>
<td>S1B,SUN</td>
</tr>
<tr>
<td>Lepidochelys kempii</td>
<td>Kemp’s Ridley</td>
<td>E</td>
<td>E</td>
<td>S1B,SUN</td>
</tr>
<tr>
<td>Malaclemys terrapin</td>
<td>Diamondback Terrapin</td>
<td>SC</td>
<td>FSC, in part</td>
<td>S3</td>
</tr>
<tr>
<td>Ophisaurus mimicus</td>
<td>Mimic Glass Lizard</td>
<td>SC</td>
<td>FSC</td>
<td>S1</td>
</tr>
<tr>
<td>Pituophis melanoleucus</td>
<td>Northern Pine Snake</td>
<td>SC</td>
<td>FSC</td>
<td>S2</td>
</tr>
<tr>
<td>Species</td>
<td>Common Name</td>
<td>Habitats</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------------------------------</td>
<td>------------------------</td>
<td>----------------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sistrurus miliarius</td>
<td>Pigmy Rattlesnake</td>
<td>pine flatwoods, pine/oak sandhills, other pine/oak forests</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Vascular Plants</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amaranthus pumilus</td>
<td>Seabeach Amaranth</td>
<td>ocean beaches and island-end flats</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amorpha confusa</td>
<td>Savanna Indigo-bush</td>
<td>wet savannas</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aristida condensata</td>
<td>Big Three-awn Grass</td>
<td>bay rims with xeric pine-oak scrub</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asclepias pedicellata</td>
<td>Savanna Milkweed</td>
<td>dry savannas and moist flatwoods</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Baccharis glomeruliflora</td>
<td>Silverling</td>
<td>shrubby areas on margins of brackish marshes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bulbostylis warei</td>
<td>Ware's Hair Sedge</td>
<td>interdunes, riverine sandhills, and other xeric sand deposits</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crocanthemum georgianum</td>
<td>Georgia Sunrose</td>
<td>maritime forests</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crocanthemum nashii</td>
<td>Florida Scrub Frostweed</td>
<td>coastal fringe sandhill</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cyperus dentatus</td>
<td>Toothed Flatsedge</td>
<td>marshes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dichanthelium caerulescens</td>
<td>Blue Witch Grass</td>
<td>wet savannas with a calcareous influence</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dionaea muscipula</td>
<td>Venus Flytrap</td>
<td>savannas, seepage bogs, pocosin edges</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drosera filiformis</td>
<td>Threadleaf Sundew</td>
<td>depression ponds, wet borrow pits, and ditches in various habitats including savannas, riverine sand ridges, and bay rims</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elymus virginicus var. halophilus</td>
<td>Terrell Grass</td>
<td>brackish marshes, maritime forests and hammocks</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Erythrina herbacea</td>
<td>Coralbean</td>
<td>maritime forests</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eupatorium leptophyllum</td>
<td>Limesink Dog-fennel</td>
<td>limesink ponds and clay-based Carolina bays</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Galactia mollis</td>
<td>Soft Milk-pea</td>
<td>loamy sand depressions in longleaf pine-oak uplands</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ipomoea imperati</td>
<td>Beach Morning-glory</td>
<td>sea beaches and foredunes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lachnocaulon minus</td>
<td>Brown Bogbutton</td>
<td>depression ponds and ditches</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lechea torreyi var. congesta</td>
<td>Torrey's Pinweed</td>
<td>sandhills, savannas</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Litsea aestivalis</td>
<td>Pondspice</td>
<td>limesink ponds, other pools</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ludwigia lanceolata</td>
<td>Lanceleaf Seedbox</td>
<td>interdune ponds, open wet areas</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Species Name</td>
<td>Common Name</td>
<td>Status</td>
<td>Federal Status</td>
<td>State Status</td>
</tr>
<tr>
<td>------------------------------</td>
<td>----------------------------------</td>
<td>--------</td>
<td>----------------</td>
<td>--------------</td>
</tr>
<tr>
<td>Ludwigia ravenii</td>
<td>Raven's Seedbox</td>
<td>T</td>
<td>FSC</td>
<td>S1</td>
</tr>
<tr>
<td>Ludwigia suffruticosa</td>
<td>Shrubby Seedbox</td>
<td>T</td>
<td></td>
<td>S2</td>
</tr>
<tr>
<td>Lysimachia asperulifolia</td>
<td>Rough-leaf Loosestrife</td>
<td>E</td>
<td></td>
<td>S3</td>
</tr>
<tr>
<td>Myriophyllum laxum</td>
<td>Loose Water-milfoil</td>
<td>E</td>
<td>FSC</td>
<td>S2</td>
</tr>
<tr>
<td>Parietaria praetermissa</td>
<td>Large-seed Pellitory</td>
<td>SC-V</td>
<td></td>
<td>S1</td>
</tr>
<tr>
<td>Polygonum glaucum</td>
<td>Seabeach Knotweed</td>
<td>E</td>
<td></td>
<td>S1</td>
</tr>
<tr>
<td>Rhexia aristosa</td>
<td>Awned Meadow-beauty</td>
<td>SC-V</td>
<td>FSC</td>
<td>S3</td>
</tr>
<tr>
<td>Rhynchospora odorata</td>
<td>Fragrant Beaksedge</td>
<td>SC-V</td>
<td></td>
<td>S1</td>
</tr>
<tr>
<td>Rhynchospora pleiantha</td>
<td>Coastal Beaksedge</td>
<td>T</td>
<td>FSC</td>
<td>S2</td>
</tr>
<tr>
<td>Sabal palmetto</td>
<td>Cabbage Palm</td>
<td>T</td>
<td></td>
<td>S1</td>
</tr>
<tr>
<td>Sideroxylon tenax</td>
<td>Tough Bumelia</td>
<td>T</td>
<td>FSC</td>
<td>S1</td>
</tr>
<tr>
<td>Sporobolus virginicus</td>
<td>Saltmarsh Dropseed</td>
<td>T</td>
<td></td>
<td>S1</td>
</tr>
<tr>
<td>Trichostema sp. 1</td>
<td>Dune Bluecurls</td>
<td>SR-L</td>
<td>FSC</td>
<td>S2</td>
</tr>
<tr>
<td>Utricularia cornuta</td>
<td>Horned Bladderwort</td>
<td>T</td>
<td></td>
<td>S1S2</td>
</tr>
</tbody>
</table>

**Status designations, State and Federal**

E: Endangered; in danger of extinction  
FSC: Federal species of concern; species at risk  
SC: Special concern  
SC-H: Special concern-historical; all known populations are either historical or extirpated  
SC-V: Special concern-vulnerable: likely to become threatened  
SR: Significantly rare  
SR:L Significantly rare–limited; range limited to North Carolina and adjacent states; fate depends on conservation here.  
T: Threatened; likely to become endangered

**State conservation status ranking**

S1 Critically imperiled; extremely rare; especially vulnerable to extirpation in the State  
S2 Imperiled; rare; very vulnerable to extirpation in the State  
S3 Vulnerable to extinction in the State due to rarity or restricted range  
SH Occurred in the State historically, with the expectation of rediscovery