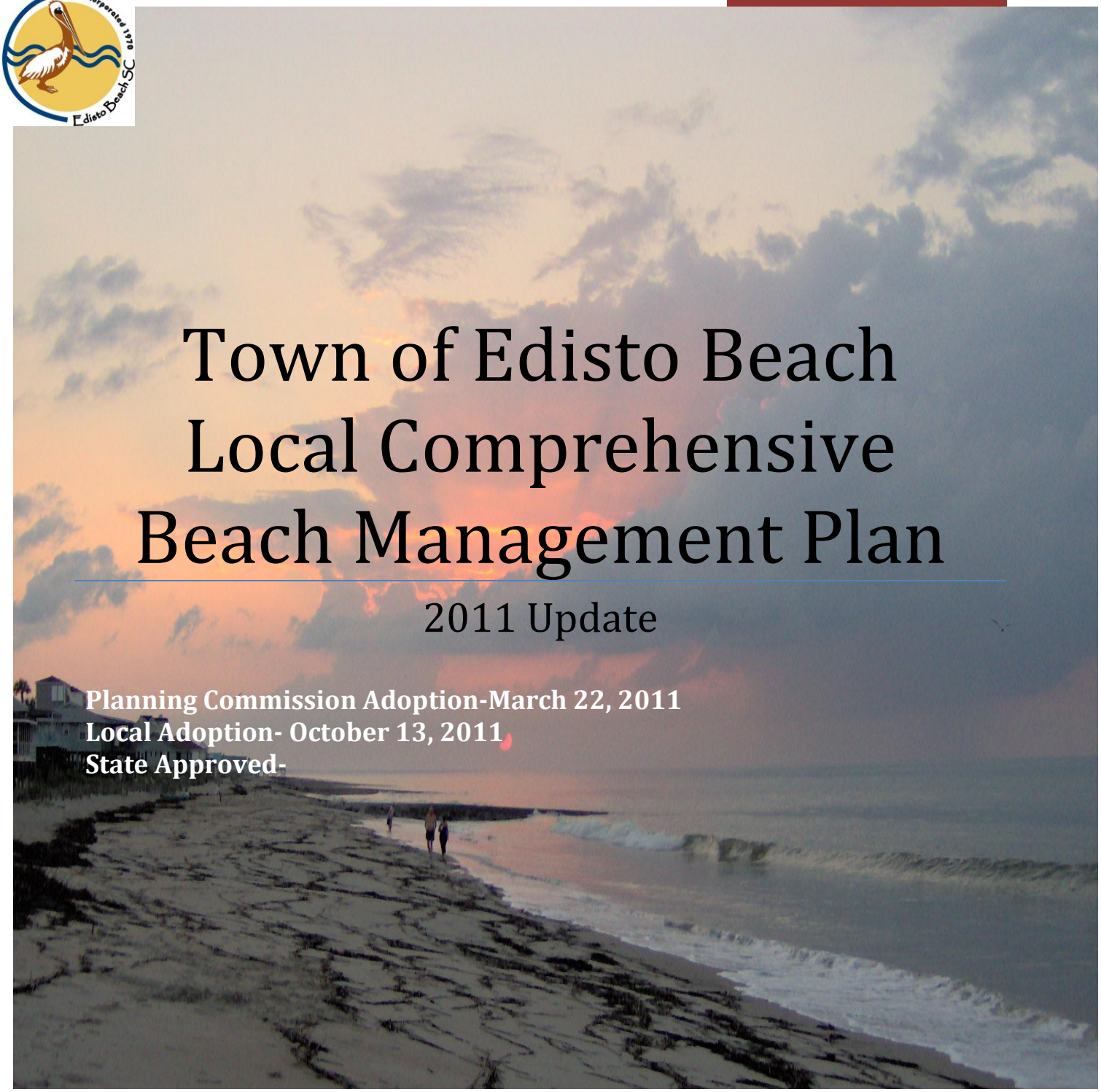

Town of Edisto Beach Local Comprehensive Beach Management Plan

2011 Update

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1. Introduction

1.1 Local Comprehensive Beach Management Plan

In accordance with the State Beachfront management Act, the Town of Edisto Beach has prepared this local comprehensive beach management plan in coordination with the South Carolina Department of Health and Environmental Control's Office of Ocean and Coastal Resources Management (DHEC OCRM). The Town's local comprehensive beach management plan represents considerable effort, inventory and deliberation on the part of the Town, and establishes a strategy for the management of the Town beach for the sustainable enjoyment by residents and visitors. This local beach management plan is intended for incorporation into the State Beachfront Management Plan in accordance with the provisions of the State Beachfront Management Act.

The State Beachfront Management Act became law in 1988, with revisions in 1990, and is intended to protect both life and property, protect unique ecological habitats, and preserve the beach for future use by all citizens of South Carolina. The Act addresses preservation of a dry sand beach, public access opportunities, measures for renourishment on eroding beaches, and the protection of natural vegetation within the beach and dune system. The Act rejects the construction of new erosion control devices and adopts retreat and renourishment as the basic state policies for preserving and restoring oceanfront beaches in South Carolina. The Act directs DHEC OCRM to implement the forty-year retreat policy by designating a baseline and setback line (See Section 5.1) and regulating development on all oceanfront properties seaward of the setback line. The Act also provides establishment of a long-range comprehensive State plan for management of the beach and dune resources.

One of the most important provisions of the Act requires local beachfront counties and municipalities to develop and adopt local comprehensive beach management plans which refine the State's beach management strategy to address local conditions and issues. The Act requires that these local plans be long-range, comprehensive, and consistent with the State Beachfront Management Act. Once adopted locally, DHEC OCRM reviews the plan for approval, and approved local plans become part of the State Beachfront Management Plan. Once approved, the local plan is required to be updated every five years in coordination with DHEC OCRM.

Local beach management plans are required to include a minimum of ten elements:

1. An inventory of beach profile data and historic erosion rate data for each standard erosion zone and inlet erosion zone under the local jurisdiction;
2. An inventory of public beach accesses along with a plan for enhancing public access and parking;
3. An inventory of all structures located in the area seaward of the setback line;
4. An inventory of turtle nesting and important habitats of the beach/dune system and a protection and restoration plan if necessary;
5. A conventional zoning and land use plan consistent with the purposes of the Act for the area seaward of the setback line;
6. An analysis of beach erosion control alternatives, including renourishment of the beach under the local government's jurisdiction;
7. A drainage plan for the area seaward of the setback zone;
8. A post disaster plan including plans for cleanup, maintaining essential services, protecting public health, emergency building ordinances, and the establishment of priorities, all of which must be consistent with the Act;

9. A detailed strategy for achieving the goals of this chapter by the end of the forty-year retreat period. Consideration must be given to relocating buildings, removal of erosion control structures, and the relocation of utilities; and
10. A detailed strategy for achieving the goals of preservation of existing public accesses and the enhancement of public accesses to assure full enjoyment of the beach by all residents of the State.

The Town of Edisto Beach has coordinated with DHEC OCRM to fully inventory, analyze, and document each of the ten required elements for an approvable local comprehensive beach management plan. The plan also identifies and discusses the economic and social benefits, issues and opportunities, and local, state, and federal policies and authorities related to the management and protection of Edisto Beach. This local beach management plan represents a foundation for a comprehensive, long-range, and enforceable local management strategy for the beachfront area of the Town of Edisto Beach.

1.1.1. Purpose

The Town of Edisto Beach has written and adopted this plan for two principal reasons:

- To help Edisto Beach direct and control future growth, and serve as an essential tool in all of its forthcoming planning activities.
- Enable the Town to qualify for its share of future beach renourishment funding.

1.1.2 History

In 1977, after realizing that its coast was a depleting resource, the State of South Carolina enacted the Coastal Zone Management Act (§48-39-350), establishing for the first time a coastal zone permitting management agency.

However, in 1988, after years of loosely controlled growth, beach erosion, and depletion of coastal resources, the State saw the need to increase its beach management authority by amending its Coastal Zone Management Act. In July 1988, the South Carolina Beachfront Management Act (Act) became law. The Act was subsequently amended by the state legislature in 1990. The law requires the use of scientific studies of coastal processes to establish precise building setback lines along the coast. It also prohibits the construction of seawalls, limits the size of buildings within the predicted erosion zone and adopts a policy of retreat away from the erosional beach. These amendments called for the preparation of a State Comprehensive Beach Management plan drafted and implemented by communities on the South Carolina coast.

The Act is intended to protect both life and property, as well as protect and preserve unique coastal habitats and beaches. Provisions of the Act address:

- the preservation of a sand beach,
- public access opportunities,
- measures to renourish eroding beaches,
- and protection of natural vegetation within the beach/dune system.

The responsibility for the development of these plans falls, in the most part, on the local communities. If the community fails to meet this responsibility, it will automatically lose its eligibility to receive any state funds designated for beach renourishment programs. As a result the Town of Edisto Beach, like many of the other coastal communities in South Carolina, developed and implemented a Beach Management Plan.

The Town first initiated drafting its Local Comprehensive Beach Management Plan in 1990. A Plan prepared by Planning Services Group, Inc. was submitted to the South Carolina Coastal Council (SCCC) on June 13, 1991. In 1991, the Town adopted the first Local Comprehensive Beach Management Plan. In 1994, Professor Grant Cunningham, Ph.D. and Josh Selway of Clemson University prepared an evaluation of the plan. Subsequent Local Comprehensive Beach Management Plan updates have been completed in 1996 and 2002.

1.1.3 Goals

The Town hopes to realize the beach management vision:

- A dry, sand beach at all stages of the tide, capable of providing recreational opportunities for residents and visitors, protecting upland development and sustaining natural resources;
- Eliminate chronic and periodic erosion problems that threaten structures and loggerhead nesting habitat along the shoreline;
- Minimize the need for emergency protection of upland structures and development;
- Avoid future shoreline development practices which perpetuate or exacerbate problems of the past;
- Cooperation between all Town residents to ensure that this vision is implemented and future generations can enjoy the beach on Edisto Beach.

1.2 Description and Local Jurisdiction

Some sources indicate that Edisto was settled before Charleston, but no records prove or disprove this statement. Edisto was purchased from the Edisto tribe of Indians by the Earl of Shaftsbury, one of the original Lord Proprietors, for some cloth, hatchets, beads and other goods in 1674. Rice and indigo were among the crops grown on Edisto. During this period sea- island cotton became world famous. As the cotton industry prospered many owners built plantation homes that are still present.[1]

Following the Civil War and advent of the boll weevil, the cotton industry was destroyed. Islanders started shrimping, fishing and truck farming. Tourism is now the largest industry on Edisto.

Edisto Beach, once known as "McConkey's Island" was purchased in the early 1900's by the Edisto Beach Company of Sumter, South Carolina and resort development began. They acquired this property for the "purpose of affording those who find pleasure by the seashore an opportunity to enjoy an all season resort without the prohibitive cost encountered at similar places in Florida and elsewhere.[2]" Beachgoers had to time their visits to coincide with low tide in order to cross the marsh areas. There was no electricity or running water. Development continued gradually. In 1940, a major hurricane destroyed 175 cottages and cut the dunes back by 30 to 120 feet. Following World War II, development increased.

Edisto Beach is located on "McConkey's" or "Big Bay Island" immediately adjacent to Edisto Island. Originally located in Charleston County, the Town is now within Colleton County. (The Town left

[1] Cunningham, Grant M., Ph.D and Selway, Josh. January 2004. "Edisto Beach: A Beach Access Management Plan"., Clemson University, South Carolina.
[2] Edisto Beach Company. "Edisto Beach, McConkey's Island, South Carolina, a Seaside Development". Sumter, South Carolina.

Charleston County in 1975 to become a part of Colleton County.) Adjacent to this beach is a mound over a hundred years old referred to as the "Spanish Mound". Tradition has it that this is a part of an old fort erected there by the Spaniards in the earliest colonial times, during the wars that were then fought between the Spanish colonists of Saint Augustine and the English colonists on the South Carolina coast.

The Town of Edisto Beach is in southeastern South Carolina, approximately 45 miles southwest of the City of Charleston. Bounded by Charleston County to the north, St Helena Sound to the southwest, and the Atlantic Ocean to the east, Edisto Beach is the barrier island part of Edisto Island which is located landward in Charleston and portions of Colleton Counties.

Big Bay Creek, Scott Creek, Jeremy Creek and salt marsh separate Edisto Beach from the main body of Edisto Island[3]. According to the Edisto Beach Management Plan by Planning Services Group, Inc., Edisto Beach's beachfront is 4.0 miles (6.4 km) long, a length of 4.4 miles (7.1 km), and a maximum width, including both high ground and marsh, of 1.5 miles (2.4 km). There are 920 acres of high land and 464 acres of salt marsh. The Island is roughly 2.16 square miles, and elevations on the island range from sea level to 20 feet above sea level (9.1 m). With 35 acres of sandy beachfront, Edisto Beach provides 63 percent of the sandy beachfront in Colleton County.[4] Edisto Beach is geographically located at Latitude 32.487613N, Longitude - 80.324402N in the Eastern Standard Time Zone.

Edisto Beach is the second smallest incorporated place in coastal South Carolina. Pawley's Island is the smallest.

Edisto Beach State Park occupies approximately one-third of Edisto Beach at the northern end. The Edisto Beach State Park is an oceanfront campground on a palmetto-lined beach.

The west end of the island has been developed as a resort (Wyndham Resort formerly known as Fairfield Ocean Ridge) that includes an eighteen-hole golf course known as 'The Plantation Course' at Edisto Beach. The rest of the island is privately owned by small landowners. The number of permanent residents in the 2010 U.S. Census is 414.

1.2.1 Population and Demographics

The year round population of Edisto Beach was recorded as 641 in the 2000 Census[5] and 713 in the 2007 Census Bureau estimate.[6] Edisto Beach has a council form of government with a full-time town administrator. There are 33 full-time Town employees that provide a full suite of services to the public.

MUNICIPAL SERVICES

Date of Incorporation	1970
Form of Local Government	Council
Annual Budget	$4,953,870

[3] Planning Services Group, Inc. "Town of Edisto Beach, South Carolina, A Beachfront Management Plan". 1991. Columbia, South Carolina p 6.
[4] Mathews, T.D., F.W. Stapor, Jr., C.R. Richter, Et al., eds. 1980. "Ecological Characterization of the Sea Island coastal region of South Carolina and Georgia". Vol. I: Physical features of the characterization area. U.S. Fish and Wildlife Service, Office of Biological Services, Washington, D.C. FWS/OBS-79/40. 212 pp.
[5] U.S. Bureau of Census. 2009. http://censtats.census.gov/data/SC/1604523020.pdf
[6] http://www.census.gov/popest/cities/SUB-EST2007-4.html

Square Miles	2.16
City Zoning Regulated	Yes
City Planning Commission	Yes
Ambulance Service	Yes (Colleton County)
Police (Full Time)	6
Fire Station	Paid-Volunteer
Number of Pumper Trucks	3

UTILITIES

WATER

Supplier:	Town of Edisto Beach
Water Source:	Well
Plant Capacity:	0.300 MGD
Ave Daily Use:	0.500 MGD
Elevated Storage:	0.100 MGD
Min. Charges to 24,000 gallons	$123.08

The Town water contains trace amounts of salt to a sufficient level that most residents choose to have reverse osmosis systems for ice and beverage usage. The Town has a public RO system at Town Hall that is available to the public.

SEWER

Name of Plant	Town of Edisto Beach
Treatment Type:	Biological
Plant Capacity:	0.350 MGD
Present Load:	75% capacity
Min. Charges to 6,000 gallons	$189.00

Most of the Town utilizes septic systems.

ECONOMY

Unemployment Rate	14.3%
Job Growth	-4.3%
Future Growth (10 years)	17.10%
Income per capita	$48,725
Median Household Income	$69,023
Median Home Cost	$289,040

RACE

RACE	Edisto Beach	United States
White	98.6%	72.4%
Black or African American	1.0%	12.6%
American Indian and Alaska Native	0.0%	0.9%

Asian	0.0%	4.8%
Other Asian	0.0%	0.2%
Some other race	0.0%	0.2%
Two or more races	0.0%	2.9%
Hispanic	0.5%	16.3%

EDUCATION DATA

Education Level	Edisto Beach, SC	United States
High School Graduates	26.8%	28.6%
Some College	29.6%	27.4%
Bachelor's Degree	18.7%	15.5%
Master's Degree or higher	12.5%	8.9%

HEALTH DATA

Health	Edisto Beach, SC	United States
Air Quality (100=Best)	50	48
Water Quality (100=Best)	47	55

PEOPLE DATA

People	Edisto Beach, SC	United States
Population	414	308,745,538
Population Density	336	80
Population Change	-35.4%	5.88%
Median Age	63.8	37.2
Households	232	116,716,292
Household Size	1.78	2.58
Male Population	49.0%	49.2%
Female Population	51.0%	50.8%
Married Population	64.7%	58.89%
Single Population	35.3%	41.11%

VOTING DATA

Democratic	47.49%
Republican	51.496%
Independent	0.411%

1.2.2 Major Roads and Bridges

The Town of Edisto Beach is accessible from Edisto Island and the mainland via the SC 174. The William McKinley Jr., bridge connects Edisto Island to the mainland. Although many of the roads on Edisto Beach are paved, most Town-owned roads are unpaved.

Major local roads on the island include Palmetto Boulevard (SC 174), Lybrand Street, Jungle Road, Dock Site Road and Myrtle Street.

- Palmetto Boulevard is the longest shore-parallel road on the beach, extending from the causeway to Dock Site Road, a distance of 4.1 miles. It is primarily a four-lane road which narrows to two lanes the last quarter of its length. During 2011, Palmetto Boulevard from Holmes Street to the marina was repaved and drainage improved.

- Jungle Road extends along the marsh side of the island from SC 174 and Lybrand Street for a distance of 1.9 miles.
- Lybrand Street extends from SC 174 to Dock Site Road and transects the island. It is 0.4 miles long.
- Dock Site Road extends 0.8 miles.
- Myrtle Street extends from Lybrand Street to SC 174, a distance of 1.7 miles.

The total length of roads on Edisto Beach is estimated to be 22 miles (including privately owned roads in Wyndham Resort), with approximately 12.70 miles of roads under the jurisdiction the South Carolina Department of Transportation (SCDOT). Of the roads within the Town limits, 4.24 miles are primary roads and 8.46 miles are secondary roads. Maintenance of the roads within the State system is provided through an agreement between Charleston County and the SCDOT. Roads within the Wyndham Resort community total approximately 4.5 miles and are privately owned and maintained. The Town is responsible for maintaining approximately 5.64 miles of roads, of which 4.0 miles are not paved. Unpaved roads are graded on average three times annually and streets are repaired as needed. The SCDOT and the Town are responsible for maintaining the rights-of-way along public roads; however, in the past, the Town has undertaken maintenance along some State roads to expedite mowing and upkeep.

1.2.3 Land Use Patterns

Land use (Figure 1) on Edisto Beach is primarily residential in the form of single and multiple-family dwelling units, including those located within the gated community of Wyndham Resorts. Residential development on Edisto Beach began in the 1920's.

The Census indicated that there were 1,785 total housing units in the Town in 2000, and that 329 (18.4%) were occupied and 1,456 (81.6%) were vacant housing units, included those under construction, not occupied year-round, or occupied by persons with primary residences elsewhere. The Census also reported that 280 (85.1%) were owner-occupied single-family homes and the median value of these houses was $320,300 in 2000. Renter-occupied units comprised 49 (14.9%) of the total housing units.

The Town of Edisto Beach has relatively few commercial units. Of the approximately 1,531.8 acres on the beach, approximately 34 acres or 2% of the beach is zoned commercial, excluding resort amenities within the gated section of Wyndham Resort. Commercial development is limited and includes a grocery store, restaurants, a service station, a video store, an arcade and tourist related retail.

Wyndham resort was built as a planned unit development (PUD). One 18-hole championship golf course, 'The Plantation Course' at Edisto Beach, is located on the beach within the Wyndham Resort gated community. The golf course snakes around many "natural looking" lagoons connected to Big Bay Creek.

Integrated throughout the Town are 4.67 miles of bike/walking trails that provide recreational activities for the public. These bike paths were constructed using combined Town and grant funding from state and federal sources. Sidewalks are exclusively located on Palmetto Boulevard. Sidewalk replacement by the State has been completed on the 100, 200, 300, 2000 through 2900 blocks. Additional sidewalk replacement will be completed as funding becomes available.

The South Carolina Parks Recreation and Tourism owns and operates the Edisto Beach State Park which was named one of the top ten beaches in the United States by the United Kingdom Trip Watch. Edisto Beach State Park occupies approximately one-third of Edisto Beach at the northern end and abuts Jeremy Inlet. The park is located along the Atlantic Ocean. The park has over 111 camp sites with electrical and water hookups. All are located near restrooms, showers, and beach access. The park offers numerous scheduled activities and educational opportunities.

1.3 Local Beach Management Issues

The most significant local beach management issue facing Edisto Beach is the *erosion threat to buildings and infrastructure,* particularly along the southern shoreline (front beach). The erosion problem is a continual problem that is exacerbated by storm surge/natural disasters, sea level rise (long term threat), tides and wave action. In conjunction with erosion, are funding and sand resource concerns. Is there enough funding and/or resources to correct erosion as it occurs?

Groin maintenance has been an ongoing issue. After the groins were restored, concerns were raised regarding plans not to lengthen the groins. Coastal Science Engineering (2001), at the end of a six year monitoring program cautioned "However, the amount trapped is a function of groin length which, in most instances, is inadequate to provide a protective beach and dune system seaward of house." The seaward end of the groins establishes the vegetative line.

As with Groin maintenance, *sand fencing maintenance continues to be an issue*. Sand fencing around the 100 block has required annual replacement because as erosion occurs, it is washed away. Establishing vegetation to stabilize sand around sand fencing has had mixed levels of success. The Town continues to work with the Army Corps of Engineers on establishing a viable vegetation plan.

Although, no structures are currently threatened, *emergency protection of threatened buildings and infrastructure* goes hand-in-hand with the episodic erosion threat, and has been a challenging issue. Because South Carolina has had only modest success with its policy of retreat, Edisto will need to decide where retreat is a viable option, and if not, employ other erosion control measures to protect threatened buildings and infrastructure.

Dog management has recently become an issue on Edisto Beach. Although the Town has enacted ordinances that prohibit unleashed dogs on the beach and require owner responsibility for pet waste removal, enforcement is often difficult. The Town has purchased and have installed dog waste stations at all beach accesses. Stations are stocked with biodegradable pet waste bags.

The Town has been able to successfully address other beach management issues such as protection of marine turtle nesting, providing public beach access and parking along most of the ocean shoreline, controlling new oceanfront development and providing for public safety (including evacuation and disaster planning), etc.

1.4 Local Beach Management Policies

The Town of Edisto Beach manages its oceanfront beach as one contiguous stretch of sand, and its beach regulations apply uniformly along the entire oceanfront. These regulations are as follows:

- Chapter 6. Article II. Dogs, Section 6-36. Running at large.
- Chapter 10. Article II Beach Regulations, Division 1. Generally, Section 10-31. Shark Fishing.
- Chapter 10. Article II Beach Regulations, Division 1. Generally, Section 10-33. Vehicles Limited.

- Chapter 10. Article II Beach Regulations, Division 1. Generally, Section 10-34. Motorized Watercraft/jet skis.
- Chapter 10. Article II Beach Regulations, Division 1. Generally, Section 10-36. Glass Containers prohibited on the beach.
- Chapter 10. Article II Beach Regulations, Division 1. Generally, Section 10-37. Camping, picnicking and use of tents, canvas awnings and umbrellas on the beach and beach access.
- Chapter 10. Article II Beach Regulations, Division 1. Generally, Section 10-38. Limitations of launching boats from beaches.
- Chapter 10. Article II Beach Regulations, Division 1. Generally, Section 10-39. Fires Prohibited.
- Chapter 10. Article II Beach Regulations, Division 1. Generally, Section 10-40. Beach access vegetation and fencing.
- Chapter 10. Article II Beach Regulations, Division 2. Protection of Sea Turtles.
- Chapter 14. Article IV. Flood Damage Prevention.
- Chapter 82. Article IV. Stormwater Management.
- Edisto Beach Emergency Operations Plan.
- Chapter 86. Article IV. Districts. Section 86-145.

Local Standard Operating Procedures require garbage to be emptied from beach accesses twice weekly during the tourist season.

Garbage is removed from the beach by the Turtle patrol while performing daily turtle nesting inspections from May until October. Recently, the DHEC OCRM Marine Debris Initiative implemented an "Adopt a Beach" program that promotes organization participation in keeping beaches free of litter. Boy Scout Troup 63 has adopted one section of the beach on Edisto.

2. Inventory of Existing Conditions

2.1 Local Government Beaches

Edisto Beach is a four mile long barrier island with an additional one mile of beach fronting St. Helena Sound. The island is situated between Jeremy Inlet and the South Edisto River Inlet, but is also strongly influenced by the tidal deltas of the North Edisto Inlet and St Helena Sound.

2.1.1. Beach Characteristics

Several Inlets, South Edisto River Inlet, Big Bay Creek Inlet and Jeremy Inlet impact the shoreline of Edisto Beach. Inlets are areas of special concern in any coastal management program. Their location and configuration characteristics are dependent upon the balance of forces from waves, currents and volumes of sand moving through the inlet area under their influence. This balance is delicate with minor changes in the driving and shaping forces being capable of producing dramatic changes in the configuration of the inlet.

The south Edisto River is a deep channel that lies close to the Edisto Beach shore. Water depths are up to 37 feet and Mean Low Water (MLW) exists within 100 yards of the shore. Large offshore sand deposits are a feature of this inlet and historically this inlet has been an area of substantial accretion. [7] In the Shoreline Management Plan in 1987, this inlet had advanced 800 feet during the

[7] Cubit Engineering, LTD. (1987). "Shorefront Management Plan, Edisto Island, Jeremy Inlet to Big Bay Creek, South Carolina", Volume I: Management Program. P2-3 through 2-5.

131 year period of record or an average of 6.1 feet per year. This inlet known as the South Edisto River Inlet Management Zone has a direct influence on the adjacent ocean front from Big Bay Creek to Marianne Street.

At the confluence of Big Bay Creek and the South Edisto River known as "the Bay Point", there have been cycles of shoreline advance and recession. The maximum change in the Big Bay Creek shoreline is about 110 feet[8].

Jeremy Inlet located at the northern end of the Edisto Beach State Park is generally stable. Although short term changes tend to be more dramatic, over the 131 year period from 1852 to 1983, the inlet has migrated only about 50 feet southwest into the state park property.

Another influence on beach fronts is storm hazards and the erosion damage to beaches and dunes that accompanies storm surges. Using hypothetical storm conditions, dune recession varies from 31.9 feet to 56.2 feet during a 25 year storm event and 50 year storm event.[9] According to the Federal Emergency Management Agency (FEMA) in June 1987, the entire Town of Edisto Beach would be flooded during a 100 year storm event causing further erosion to the beach.

Edisto Beach has conducted numerous nourishment and groin projects in the past to maintain the beach. The borrow area for nourishment projects has typically been the north shoal of the South Edisto River Inlet which infills rapidly with beach-quality sand and is available for reuse. The most current potential borrow area study (July 2008) by Coastal Science Engineering indicates that at least 20 million cubic yards of suitable beach quality sand sufficient for 50 years of initial and subsequent renourishment is available. The composite mean grain size of sand on Edisto is 0.404 millimeters (mm) which is a medium, coarse sand as compared to other South Carolina beaches.[10]. This is due to several factors: 1) up drift sediment supply from Edingsville Beach has high concentrations of oyster shell and mud; 2) the 1954 nourishment project used marsh sediment from the Yacht Basin; 3) Groins cells trap coarse sediments.

The primary dunes are vegetated and the Town has been constructing and maintaining sand fencing to build secondary dunes. Hurricane Bill that passed offshore in 2009, damaged much of the sand fencing and plantings constructed prior to May 2009 and deposited approximately two additional feet of sand on the north end of the beach. These have since been replaced.

2.1.2. Shoreline Change

Littoral transport is the movement of beach sediments caused by wave action or other influences such as wind, tide and non-tidal influences. Littoral transport can be perpendicular or parallel to the beach and impacts the location and orientation of the shoreline. Short term shoreline changes are caused by storm events and the modification of the shoreface by removal or installation of structures or renourishment.

By comparing shoreline data over a long period of time, short term effects associated with storms are eliminated and trends become apparent. These trends can provide a planning tool for measuring the future shoreline location. The southwestern end of Edisto Island where coastal and inlet processes interact plays a critical role in Edisto's long term shoreline change.

[8] Cubit Engineering, LTD. (1987).
[9] Cubit Engineering, LTD. Volume I (1987), p 2-10.
[10] Coastal Science Engineering, "Geotechnical Data Report". July 2008, p. 43.

According to the Cubit Engineering's Shorefront Management Plan, the shoreline on Edisto was stable between 1857 and 1937, but this pattern has not continued.[11] Between 1939 and 1954, major erosion was experienced; however corresponding accretion is most likely attributable to littoral drift and river sediment deposits. Previous studies indicate no clear net erosion or accretion trends are evident making reasonable prediction of shoreline changes impossible.

In the Shorefront Management Plan the shoreline retreat at Jeremy Inlet is about 3.5 feet per year. At Mary Street in the northern portion of the Town, the shoreline change is about 1.5 feet per year. The nodal point of this long term shoreline change occurs around Marianne Street. Southwest of Marianne Street, the coast has historically accreted.

Long term shoreline change data shows the coastline is eroding at an average rate of 31,000 cubic yards per year. The area subject to erosion loss extends from Marianne Street to the northern limit at Jeremy Inlet.[12]

According to the DHEC OCRM 2009 Annual State of the Beaches Report, areas located along the South Edisto Inlet shoreline generally only experience minimal seasonal changes because this area is sheltered from the open ocean. The area between Edisto Street and Billow Street known as "the Point" has been stable in recent years. The oceanfront southern half of Edisto Beach has experienced minor changes and has eroded 10-25 feet per year between 2006 and 2007 and 2007 and 2008. The northern half of the beachfront "was one of the most critically eroded sections of the beach anywhere in the state until the 2006 renourishment"[13]. The renourishment created a 100+ foot berm in most areas. After the renourishment, erosion has been minimal with some areas of accretion especially at the Mikell Street area.

2.1.3 Beach Uses

Like most South Carolina beaches, Edisto Beach is used for a wide variety of recreational activities, including sunbathing, swimming, beachcombing, walking/jogging, cycling, fishing, surfing, sand sculpting, beach games, etc. Special events have become popular on Edisto such as weddings, parties, and receptions. Special events are allowed with Administrative approval.

Dogs are allowed on the beach, but only if on a leash from May through October. At other times, dogs are allowed on the beach and have to be under the owner's control.

Records are not kept regarding the number of visitors to the Town of Edisto Beach. Some data are available and support the conclusion that the beach is highly accessible and used by the public:

- Unpublished data collected from local real estate agencies that service rental units indicate occupancy levels on the beachfront during the season maintain 100% occupancy. During the shoulder season, occupancy on the beachfront is approximately 30%. Overall occupancy on the beach for all rentals during the season is around 75%.
- Data from the Edisto Beach State Park indicate that over 254,000 visitors stay at the Edisto Beach State Park annually which adjoins to the Town of Edisto Beach.
- Traffic data indicates that during the peak tourist season, over 30,000 vehicles drove onto the beach via SC 174 to visit the beach.

[11] Cubit Engineering, LTD, Volume II (1987), p. 4-10.
[12] Cubit Engineering, LTD. Volume I (1987), p 2-3.
[13] DHEC OCRM. South Carolina Annual State of the Beach Report (2009), pp 20-22.

Beach accesses have been marked with highly reflective beach access signs and numbered on the street side and beach side to assist visitors in finding beach accesses and for emergency response.

The Town routinely monitors weather and surf conditions, and receives notifications of dangerous coastal conditions from the National Weather Service. Warnings are posted on Comcast Channel 2. The county has a Police Boat that is available for rescue purposes.

During the summer season, the Police Department implements a beach patrol program where personnel patrol the beach for unsafe conditions and ordinance violations. Information is disseminated to visitors when these conditions are present.

2.2 Benefits and Value of Beach

Edisto Beach is an affordable, family beach which is primarily residential with a modest commercial base that influences the local economy. The Town's Comprehensive Plan (2009) states the Town's beach, tidal marshland and surrounding environmental areas are the most important economic assets. The desire to live near these natural resources has created relatively high property values and creates a considerable tax base.

Natural habitats and resources are recognized for the economic benefits that they provide. Protection of natural resources is identified in the Town's Comprehensive Plan as essential to maintaining the high quality of life. Residents indicate that the attributes of coastal ecosystems, including marshes, marine waters, and sandy beaches influenced their decision to live on Edisto Beach. Eco-tourism has become increasingly popular especially since Edisto is located in close proximity to the Ace Basin and Botany Bay. On October 16, 2009, SC Scenic Highway 174 from the McKinley Washington Bridge to Palmetto Boulevard was designated as a National Scenic Byway by the US Department of Transportation.

Edisto Beach's shoreline is a diverse and productive ecosystem and is a critical asset between the water and the land. The sandy beach and dunes system serve as the island's first line of protection from high winds and waves associated with storm activities. This area supports a rich and intricate ecosystem that forms numerous food webs. The beach provides critical habitat for the threatened loggerhead sea turtle. The beach also provides numerous recreational activities such as swimming, fishing, sunbathing, beachcombing, and bird watching and contributes significantly to the Town's tourism industry.

Being a tourist destination, the local economy depends on tourism as its major source of income. According to the Edisto Chamber of Commerce, the beach contributes $12,447,501 in direct economic impacts to Colleton County. It is estimated that 387 full and part-time jobs have been created from tourism on the beach and attracts employees from both Colleton and Charleston counties.

The Town estimates there are approximately 2,200 rental units on the beach (rental properties and second homes), and the reasonable assumption is this is due to the Town's proximity to the Atlantic Ocean and tidal marshes. According to the Town's business permit gross receipts, the 714 rental units grossed over $27.5 million annually which accounts for over $126,500 in business license fees collected by the Town. These units also generate a large part of the $690,000 in accommodations taxes received by the Town annually. The primary source of funding of renourishments is a 2% local Accommodations fee levied on short term rentals.

The economic impact of the coastal areas has also been recognized by DHEC OCRM in a report issued in October 2002. According to this report, 22% of the state's economy is a result of the output of revenues from coastal areas.[14]

Tourism is the Town's main industry, and the prosperity of the Town is related closely to the health of the beach. Without the beach, the Town would suffer.

2.3 Beachfront Developments

Most of the Town is comprised of single family homes; however, there are some small subdivisions scattered throughout the Town which consist of duplexes, condominiums and timeshares. Over 85% of the Town has been developed.

No subdivisions or developments are located on the beachfront.

Wyndham Resorts

- Wyndham Resorts is the only planned unit development located on Edisto Beach. It was permitted in 1983, as Oristo Ridge and was sold to Fairfield. It is centrally located and is bounded by Dock Site Road and single family houses on Fort Street, Myrtle Street and Lee Streets. Several other segregated areas owned by Wyndham have been developed.
- Bay Point, owned by Wyndham Resorts, was permitted in 1987, has 48 timeshare units and is located on Yacht Club Road on Big Bay Creek.
- Beachwalk, owned by Wyndham Resorts, was permitted in 2001, has 8 timeshare units and is located on Murray Street.
- Marsh Point, owned by Wyndham Resorts, was permitted in 1989, has 52 timeshare units and id located on SC 174 and Sunset Street.
- South Point, owned by Wyndham Resorts was permitted in 1999, has 11 timeshare units and is located on Myrtle Street.
- The Village, owned by Wyndham Resorts, was permitted in 2001, has 34 timeshare units and is located on Dock Site Road.

The Retreat

- The Retreat was permitted in 2000, has 12 units and is located behind the Palmetto Plaza off Jungle Road.

Bay Creek Villas

- Bay Creek Villas was permitted in 1985, has 62 condominium units and is bounded by Dock Site Road and Big Bay Creek.

Marsh Side

- Marsh Side was permitted in 2005, has 8 duplexes and is located on Jungle Road

2.4 Land Use

Edisto Beach adopted its first Local Comprehensive Plan in 1996. The plan was revised and adopted in 2003. The present plan was revised and adopted February 2010 as required by the Enabling Act. According to the Comprehensive Plan, it is evident that the Town continues to

[14] Henry, M.S. & Barkley, D.L. 2002. "*The Contribution of the Coast to the South Carolina Economy*". Clemson University Regional Development Research Laboratory.

provide for elements that promote protection and preservation of the beach and dune system. Within the Introduction and Vision component, the Town's accomplishments since the 2003 update regarding beach and dune protection are documented. These accomplishments are listed below:

The Town continues to use the Beachfront Management Plan to direct both new development and redevelopment as far landward as possible.

To encourage new construction away from the beach, the Town continues to utilize a "Beach Management Overlay Zoning District" to enforce the retreat strategy and storm hazard mitigation requirements within the baseline established by the South Carolina Office of Coastal Resource Management.

The Town, with funding from the local municipal government, Colleton County and the Federal Government, had an $8M beach restoration project completed during the spring of 2006.

The Town, as well as the State Park, utilized volunteers to complete a sand fencing project from the northern end of the State Park campground to the beginning of the sound on the southern end of the Town's beach area. As of the spring of 2007, it was visually obvious that sand dunes were beginning to develop along the sand fencing. Additionally, existing sand fencing has been repaired/replaced up to the summer of 2010, and some fencing has been added to "fill in the gaps".

Other components of the Comprehensive Plan promote protection and preservation of the beach and dune systems, such as the Land Use, Community Facilities, Economy, and Natural and Cultural Resources, and list additional recommendations relating to the protection of the beach, dunes and natural resources of the Town. Key to the Comprehensive Plan are conditions that reference the Town's Beach Management Plan which further strengthens and supports the Town's vision to protect its most valuable resource—the beach, dunes and natural resources.

As recommended in the Town's first Beach Management Plan adopted in 1991, a Beach Management Overlay Zoning District was adopted in 1992. The purpose of the Beach Management Overlay Zoning District is to implement and enforce the retreat strategy and hazard mitigation plan adopted by the Town to protect life and property located within close proximity to the baseline established by the South Carolina Coastal Council. It also is used to educate persons owning property along the beach about the hazards connected with erosion, storms and flooding in areas close to the beach. This District is compatible with the intent of the South Carolina Beach Management Act where it relates to setback lines, permitting, nonconforming buildings and uses and parking. Figure 1 shows the current Town of Edisto Beach land use map.

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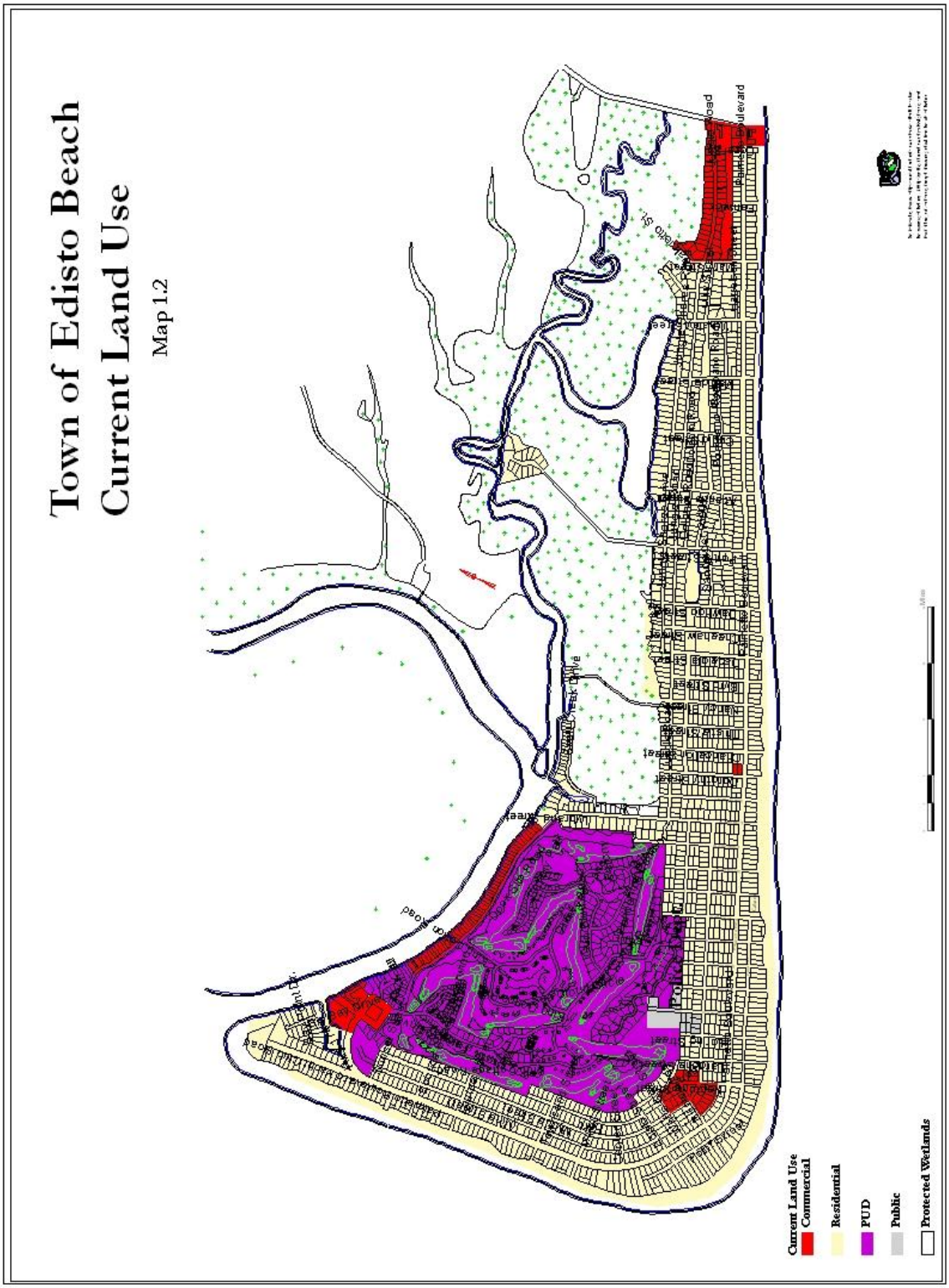

Figure 1. Town of Edisto Beach Land Use Map

2.5 Natural Resources and Ecological Habitats

Edisto Beach, like most South Carolina barrier islands, is characterized by a beach and dune ridge system, partially surrounded by an extensive tidal marsh. The island is surrounded in part by navigable waters and provides some opportunities for access by boat and numerous beach access points. Prior to development, the island was covered by a maritime forest.

Of concern is the protection and conservation of coastal natural resources and ecological habitats. The beachfront exhibits a variety of natural resources due to the diversity of ecotypes and habitats that occur. The interaction between shifting terrestrial sand dune and beach habitats, shallow coastal waters, and the open ocean create a dynamic landscape and comprise three terrestrial habitats: 1) the beach community, 2) maritime shrub thicket, 3) maritime forest.

The natural resources and ecological habitats of Edisto Beach are diverse and plentiful. Remnants of the maritime forest are still visible today although altered by development. The maritime forests typically found on barrier islands are characterized by slow-growing and salt tolerant species. Tree canopy species on Edisto include southern live oak (*Quercus virginiana*), laurel oak (*Q. laurifoia*), southern magnolia (*Magnolia grandiflora*), loblolly pine (*Pinus taeda*), slash pine (*P. elliottii*) and long leaf pine (*P. palustris*) and are often found in hammock-like islands. Typical of the understory plants (shrub thicket) include sabal palmetto (*Sabal palmetto*), southern red cedar (*Juniperus silicicola*), eastern red cedar (*J. virginiana*), American holly (*Ilex opaca*), yaupon holly (*Ilex vomitoria*), purple passionflower (*Passiflora incarnate*), squaw vine (*Mitchella repens*), tall nutrush, (*Scleria triglomerata*), and blackseed needlegrass (*Stipa avenacea*) Dispersed throughout this native maritime forest vegetation are non-native, imported species that have been used on the beach for landscaping. Landscaping has evolved from natural grasses to irrigated lawns of St. Augustine and Bermuda grasses.

Whitetail deer, raccoons, rats, mice, snakes and numerous species of birds are commonly seen on Edisto. Cardinals (*Cardinalis cardinalis*) and painted buntings (*Passirena ciris*) are two of the most colorful birds seen.

The Town of Edisto Beach has implemented numerous natural protection efforts. These efforts include: beach nourishment; dune rebuilding and revegetation; ordinances to protect sea turtles, wetlands, beach and waterways, stormwater management, trees; sea turtle monitoring; and code enforcement personnel.

2.5.1. Beach Habitats

The importance of Edisto Beach's habitat for plants and animals is significant. Many animals are dependent on smaller prey available on open beach habitats as part of complex food chains. The primary dunes provide nesting sites and sub-tidal bars can support numerous species of marine invertebrates and fish that cannot survive in open water. Long-term or permanent alterations to these ecosystems can impact the type, health and viability of the flora and fauna.

Edisto Beach is typical of any barrier island habitat. Some of invertebrate genera on the sand beach or immediate shoreline identified by Johnson et al. 1974 are *Arenicola* (polychaete worm), *Balanoglossus* (acorn worm), *Donax* and *Cardium* (clams), *Haustoria*, *Orchestia* and *Talorchestia* (amphipods), *Ocypoda* (ghost crab), *Callinectes* (blue crab), *Oliva* and *Terebra* (snails), *Clibarius* and *Pagurus* (hermit crabs), and *Busycon* (whelk)[15].

[15] Johnson, A.S., H.O. Hillestad, S.F. Shanholtzer, and G.F. Shanholtzer. 1974. "An Ecological Survey of the Coastal Region of Georgia". National Park Service Science Monogr. Series No. 3.

Shore bird species (plovers, sanderlings, sandpipers, turnstones, seagulls, etc.) feed on the shore line.

2.5.2. Sand Dune Habitats

Because of the intensive development along the beach front, very little natural vegetation remains on the dunes other than scattered sea oats (*Uniola paniculata)*, blanketflower (*Gaillardia aristata*), bitter panicgrass (*Panicum amarum*), seabeach evening-primrose (*Oenothera humifusa*), dune water pennywort (*Hydrocotyle bonariensis*), beauty berry (*Callicarpa*), american beachgrass (*Ammophila breviligulata* Fernald), sand spurs and broomsedge (*Andropogon virginicus L*). The Town has been actively installing sand fencing to rebuild the dune area and sea oats and beachgrass are planted in conjunction with the sand fencing installation. During high tides sea wrack (comprised primarily of dead spartina grass) is deposited on the beach and provides an additional habitat periodically throughout the year.

In the past, there have been problems with vitex (*Vitex rotundfolia*), an invasive, non-native woody shrub native to the Pacific Rim that colonizes dune habitats and displaces native plant species and may adversely impact turtle nesting. Council has prohibited the planting of beach vitex and any occurrences are eradicated immediately. Currently there is no beach vitex on Edisto Beach.

The sand dunes provide habitat to many mammals and include the Norway rats (*Rattus orvegicus*), Marsh rats (*Holochilus sciureus*), Whitetail deer (*Odocoileus virginianus*), Raccoons (*Procyon lotor*), and feral cats (*Felis catus*). (Dawdry, Apex Exterminators)

The high marsh behind the beach is a mixture of cordgrass, needlerush, yaupon and sea myrtle. The low marsh complex extending to Scott Creek consists of smooth cordgrass. Just upland of the sand dune area is vegetated inland.

2.5.3. Threatened and Endangered Species

In correspondence from the United States Department of the Interior, Fish and Wildlife Service dated October 18, 2005, a biological opinion along the shoreline of Edisto Beach, the piping plover (*Charadrius melodus*) and the sea-beach amaranth (*Amaranthus pumilus*) per section 7 of the Endangered Species Act of 1973 is not present in this area. Until 2009, the Loggerhead Sea Turtle was the only endangered species on Edisto Beach. In 2009, a Leatherback Sea Turtle *(Dermochelys coriacea)* nested at the Edisto Beach State Park. Green and Kemp's Ridley turtles can nest on South Carolina beaches, but nesting on Edisto is rare. A current list of rare, threatened and endangered species on or near Edisto Island provided by the South Carolina Department of Natural Resources is shown in Table 1.

Table 1. Rare, Threatened and Endangered Species on or Near Edisto Island

Rare, Threatened, and Endangered Species Known to Occur on or Near Edisto Island					
June 30, 2009					
Scientific Name	Common Name	USESA Designation	State Protectio	Global Ran	State Rank
Vertebrate Animal					
Caretta caretta	Loggerhead	LT: Listed threatene	ST-Threatened	G3	S3
Charadrius wilsonia	Wilson's Plover		ST-Threatened	G5	S3?
Ophisaurus compressus	Island Glass Lizard			G3G4	S1S2
Sterna antillarum	Least Tern		ST-Threatened	G4	S3
Vascular Plant					
Agrimonia incisa	Incised Groovebur			G3	S2
Sageretia minutiflora	Tiny-leaved Buckthorn			G4	S3
Animal Assemblage					
Waterbird Colony				GNR	SNR
Community					
Juniperus virginiana var. silicicola - zanthoxylum clava-herculis - quercus virginiana - (sabal palmetto) / sageretia minutiflora - (sideroxylon tenax) woodland	South Atlantic Coastal Shell Midden Woodland			G2?	SNR

(Julie Holling, South Carolina Department of Natural Resources, email 6/30/2009)

The Town of Edisto Beach continues to do a commendable job in monitoring the nesting activities of the Loggerhead Turtle. In 1990, a group of volunteers organized to start the annual monitoring activity. This volunteer group has grown and remains diligent in monitoring nesting activities. To accommodate the Turtle Patrol, the Town has staff embedded in the organization to ensure disturbance from human activity is curtailed during the nesting season and provide a conduit for communication to resolve issues that may impact the nesting activities. The Town is working with representatives of the Turtle Patrol and DNR to strengthen the Town Ordinance for Turtle protection. In 2010, the Georgia and South Carolina Department of Natural Resources, and North Carolina Wildlife Resource Commission participated in a multi-state genetics research project along with the University of Georgia to look at basic loggerhead sea turtle nesting habits. An egg from each nest was collected and tested for DNA to identify individual loggerhead nesting females. Data from this study can be obtained from www.Seaturtle.org. Table 2 provides historical data on sea turtle nesting on Edisto Beach. Figure 2 provides a map of the 2010 sea turtle nesting sites on Edisto Beach.

Table 2. Inventory of Sea Turtle Nesting on Edisto Beach

	2002	2003	2004	2005	2006	2007	2008
Number of Nests	94	63	11	88	50	104	49
False Crawls	44	39	10	66	54	N/A	24
Nest Relocated	33	14	4	44	22	36	32

Nest Success*	93	63	11	83	46	67	35
Nest Success %**	98.86	98.15	100.00	96.51	92.00	64.00	71.00
Hatchling Productivity***	8984	5315	1078	7851	4481	5669	3895
Mean Hatch Success****	83.8	78.3	78.1	76.5	71.0	71.0	77
Strandings	1	6	2	1	3	5	2

*Nest Success = number of nests that hatch with a 10% or greater hatch success.
**Nest Success % = percentage of the nests that hatched with a 10% or greater hatch success.
***Hatchling Productivity = number of hatchlings that were produced in the nest.
****Mean Hatch Success = Average of all the nests of the season. Hatch success assesses the number of eggs that hatched.

Figure 2. 2010 Map of Sea Turtle Nests on Edisto Beach

2.6 Existing Public Access Inventory Map

According to the Beachfront Management Act of 1990, as amended, the General Assembly of South Carolina realizes that it is in the best interest of the state to protect and promote the increase in public access to the state's beaches. If a local government wants to participate in the state bonding programs created for beach renourishment or other beach funding programs, the governing body must adopt and enforce a local beachfront management plan that is consistent with the State Beachfront Management Act. Those not in compliance with the Coastal Council's regulations for access and parking would not be eligible for funding for beach nourishment projects.

The South Carolina Coastal Zone Management Program states "public funds can only be expended for beach or shore erosion control in areas, communities, or on barrier islands to which the public has full and complete access" (p. IV-64). The table below defines the Beachfront Management Act definition of "full and complete access".

Table 3. DHEC OCRM Public Beach Access Facility Classification

Type of Facility	Distance on Either Side of Access Point Which Will be Considered as Having Full and Complete Access	Minimum Facilities
Public Access Point	1/8 Mile	Trash receptacle; walkover/improved surface access, signage, on-street parking for 6 vehicles
Local Public Access Park	¼ mile	As above, parking for 10 vehicles
Neighborhood Public Access Park	½ mile	As above, parking for 25 vehicles
Community Public Access Park	¾ mile	As above, showers, lifeguards, concession, handicapped access and parking, parking for 75 vehicles
Regional Public Access Park	1 mile	As above, parking for 150 vehicles or greater

Based on the three factors that comprise 'reasonable' in the definition of public beach access and parking, the Town of Edisto Beach's number and distribution of public access points are excellent for the residents of Colleton County and Edisto Beach.

Excluding the State Park, the Town has 38 public beach access points that lie along Palmetto Boulevard, Point Street and Yacht Club Road. Because the beach access points were previously street termini, the average width of each access point is 50 feet with an average distance between each access point of 400 ft.

Public parking along the rights-of-way of the Town's streets is permitted by the Town. Signs are posted indicating where parking is not allowed, and takes the position that public parking is allowed wherever it is not prohibited. Beach visitors are accustomed to this convention and the need to post signs stating where parking is allowed has not been necessary. According to the Edisto Beach Beachfront Management Plan prepared by Planning Services Group, Inc. in 1991, there are 113 on street parking spaces. In addition, the Town purchased property within 1,000 feet of the Atlantic Ocean and established a public parking lot that provides twenty (20) public parking spaces within walking distance of the beach.

The on-street parking count procedure used involved measurement of distances along the rights-of-way where parking would be possible (not prohibited by the Town; not blocking driveways or sidewalks, not precluded by vegetation/landscaping, not precluded by property owner obstruction); where parking is parallel to the road, each parking space was assumed to require 30 feet of right-of-way; where parking is perpendicular to the road or a street-end, parking space widths were assumed to be approximately 12-15 feet. There are no fees for on-street parking.

Each access point is identified with highly reflective "Beach Access" signs numbered 1 through 38. Each access point has trash receptacles (except Fenwick-Beach Access 1A), and pet waste disposal stations. Most access points have regulations signs. Annual maintenance is performed at each access point by volunteer groups and town personnel.

In 2008, each access was delineated with rope fencing and waste can enclosures were constructed. In 2009, signage was replaced with highly reflective blue signs that are numbered to correspond with block numbers on Palmetto Boulevard. Corresponding numbered signs were placed on the beach front to provide visitors with a landmark for ease of access/egress or for emergency response since houses are not numbered on the beach front. Old wooden pet waste disposal stations were replaced with composite (Green) pet waste disposal stations with biodegradable bags and bags are replenished as needed. Other amenities such as bicycle racks being installed at all beach accesses. In 2009, Mitchell Street, Baynard, Jenkins and Neptune Streets were opened for additional off-street parking totaling 43 additional spaces. Between 1991 and 2008, no additional off-street parking was constructed. At the time of this update, the Town of Edisto Beach has 206 off-street parking spaces. In 2010, all "Keep off the Dunes" signs were replaced as well as "Danger Keep Off" signs placed at all groins. All accesses are accessible with beach wheelchairs that are provided free of charge to the public through the Edisto Beach Fire Department or for a fee at a local retail establishment.

There are several privately owned vacant lots on the beachfront that that are utilized by the general public to gain access to the beachfront. These are not included as public access because the Town does not promote access across private property and across dune areas. Beside the access point at Baynard Street is an additional private access area that serves Wyndham Resorts. The right-of-way leading to the facility is owned by the Town. This facility is accessible to the public and contains a drop-off area for a tram shuttle, concessions, showers, and restrooms, handicap access, trash receptacles, signage and a walk-over structure. Off street parking was improved in 2010. In 2011, 8 additional off-street parking spaces will be added at the Baynard Street beach access.

The Town has worked diligently to remove private encroachments and prohibits any new encroachments. Some long-established encroachments persist due to complex legal issues, but these encroachments have been accounted for in the parking counts of the plan. License agreements between the Town and homeowners were executed on access points with private encroachments to ensure that as these residences are repaired or replaced, encroachments are eliminated from the public access.

The number and distribution of public access points are excellent, and sufficient access facilities and parking exist to classify 100 % of Edisto Beach as having full and complete access per the State guidelines (SCC, 1995; see Table 3). DHEC OCRM recognizes that full and complete public access is provided along approximately 7 miles of the beach from a point 1/8 mile (660 feet) west of the public beach access at Coral Street (Beach Access 1) to a point 1/8 mile (660 feet) of the public beach access at Yacht Club Road.

There are 113 on-street parking areas. There are 24 public access points that provide an additional 206 parking spaces. Two private parking areas-Pavilion Pier and facility at Baynard Street (Wyndham Resort) provide additional parking as well as the State Park. Baynard Street also has a private restroom area provided by Wyndham Resort. Table 4 provides a list of the Edisto Beach accesses and amenities.

Table 4. Edisto Beach Public Access Table

Location	Distance to Next Access	Sign Number	Pedestrian Only	Boardwalk	Walkover	Private	Concessions	Off-Street Parking	On-Street Parking	Pet Waste Disposal Station	Handicapped Access	Trash Receptacles	Showers/Restrooms	Fencing	Signage	Notes
Coral St.	842	1						6	√	√		√		√	√	
Fenwick St.	807	1a	√			√			√	√				√	√	Landscape
Mary St.	829	2	√						√	√		√		√	√	
Whaley St.	791	3	√			√			√	√		√		√	√	Septic
Matilda St.	797	4	√						√	√		√			√	
Cupid St.	787	5	√						√	√		√		√	√	
Atlantic St.	802	6	√						√	√		√		√	√	
Portia St.	797	7	√						√	√		√		√	√	
Dawhoo St.	300	8						6	√	√		√		√	√	
Cheehaw St.	288	9				√		10	√	√		√		√	√	Block wall
Osceola St.	290	10				√		8	√	√		√		√	√	Landscape
Byrd St.	300	11	√			√			√	√		√		√	√	Fence
Nancy St.	302	12						6	√	√		√		√	√	
Thistle St.	317	13						11	√	√	√	√		√	√	
Chancellor	300	14	√					12	√	√		√		√	√	
Dorothy St.	300	15	√			√			√	√		√		√	√	Drive/Trellis
Marianne St.	284	16				√		10	√	√	√	√		√	√	Driveway
Lybrand St.	300	17		√	√	√		10	√	√	√	√		√	√	wall
Catherine St.	300	18	√	√					√	√		√		√	√	
Mitchell St.	303	19			√	√		15	√	√	√	√		√	√	Walkway
Baynard St.	300	20	√		√		√	10	√	√	√	√		√	√	8 tba 2011
Edings St.	300	21		√	√		√	7	√	√	√	√		√	√	
Jenkins St.	300	22						6	√	√	√	√		√	√	
Seabrook St.	300	23				√		10	√	√	√	√		√	√	Propane tank
Murray St.	300	24						10	√	√	√	√		√	√	
Holmes St.	308	25				√		10	√	√	√	√		√	√	Hedgerow
Loring St.	300	26				√		10	√	√	√	√		√	√	Driveway
Laroche St.	300	27				√		10	√	√	√	√		√	√	Driveway
Neptune St.	907	28	√					12	√	√	√	√		√	√	
Billow St.	300	29	√	√		√			√	√		√		√	√	Driveway
White Cap St.	350	30						9	√	√	√	√		√	√	
Edisto St.	387	31				√		6	√	√	√	√		√	√	Retain Wall
Mikell St.	599	32		√				2	√	√	√	√		√	√	
Townsend	1249	33	√						√	√		√		√	√	

Louise St.	600	34	√	√					√	√		√		√	√	
Ebb Tide St.	1425	35		√	√			4	√	√	√	√		√	√	
Yacht Club	865	36	√	√		√			√	√		√		√	√	Sidewalk/walk
Yacht Club		37		√				6	√					√	√	

2.7. Beachfront Structural Inventory and Map

Section 48-39-350(A)(3) of the Beachfront Management Act requires all communities to include an inventory of all structures located seaward of the DHEC OCRM setback line as part of this plan. One hundred thirty-four structures within the Town of Edisto Beach are located seaward of the DHEC OCRM jurisdictional setback line. These include 84 habitable structures, 34 groins, 9 bulkheads, 6 revetments, zero seawalls and zero pools. Of these structures, 32 habitable structures and all 34 groins are located seaward of the DHEC OCRM baseline. Structures located seaward of the DHEC OCRM baseline and setback line are shown in the structure inventory tables in Section 8.4 of this plan.

2.8 Beachfront Drainage

Controlling stormwater and other discharges along the beachfront is a priority for the Town. Uncontrolled, direct discharge to the beach does not only erode dunes and beach areas, but impacts water quality.

In 1999, the U. S. Environmental Protection Agency (EPA) issued the Stormwater Phase II General Rule. The program uses the National Pollutant Discharge Elimination System (NPDES) permit coverage to address stormwater run-off from smaller municipal separate storm sewer systems (MS4s) in urbanized areas and construction sites greater than one acre. Phase II is intended to reduce impacts on water quality caused by stormwater runoff by instituting controls to unregulated sources of discharges. Although the Town does not fall under the Phase II regulations currently, in the future this could change so the Town decided to take a proactive approach and begin addressing stormwater issues.

In 2004, the Town of Edisto Beach contracted with B.P. Barber & Associates, Inc. (BPB) to develop a Stormwater Management Plan to address stormwater quality and quantity issues. Six measures identified by the Environmental Protection Agency (EPA) and the South Carolina Department of Health and Environmental Control (SCDEHC) were reviewed by BPB and best management practices were developed for implementation by the Town.[16]

The six measures and corresponding best management practices are:

1. Public Education and Outreach
   - Use EPA and DHEC Phase II recommendations
   - Use existing program components such as local access TV channel, water bills, Edisto Beachcomber, real estate agents, and welcome packages
   - Partnership with other governmental entities
   - Implement classroom education
   - Distribute stormwater educational materials tailored for specific groups.
2. Public Participation/Involvement

[16] BPB (2004) "Town of Edisto Beach Stormwater Management Plan".

- Stormwater Advisory Board
- Surveys
- Sponsored community activities

3. Illicit Discharge Detection and Elimination
   - Prepare storm sewer system map
   - Prepare stormwater ordinance (8-9-07)
   - Identify illicit discharges
4. Construction Site Runoff Control
   - Structural controls
   - Develop and enforce an ordinance and stormwater and sediment reduction plan
   - Increase enforcement
   - Waste management for general construction sites
   - Stormwater advisory board meetings
5. Post-Construction Runoff Control
   - Structural best management practices
   - Revise land development standards
   - Formulate a land development plan
   - Implement a post-construction management plan
6. Pollution Prevention/Good Housekeeping
   - Implement an employee education program
   - Adopt internal regulations and practices
   - Periodic monitoring and reporting of employee activities

In August 2007, the Town adopted a Stormwater Management Ordinance. Land disturbance activities are regulated by this ordinance. The Town does not meet the definition of an urbanized area and was not included on the required list for regulated MS4s when the rule was published in the Federal Register on December 8, 1999, meaning the Town is not covered by the Phase II regulations. Because regulation allows a provision that the South Carolina Department of Health and Environmental Control (DHEC) can designate additional Phase II MS4s, in the future, based on certain criteria such as environmentally sensitive areas, the Town could possibly be designated in the future and took a proactive approach to managing stormwater runoff.

Water quality concerns from flooding are being addressed through changes in zoning ordinances included in the Engineering Study for Impervious Area Zoning Requirements (January 2003).[17] In 2002, the Town adopted two ordinances placing limits on impervious surfaces. The approach taken by Council involved placing limits on the size of residential dwellings and other impervious areas within an R-1 lot. By limiting the impervious area allowed in future development, the Town is lessening the impact that development will have on the already burdened stormwater drainage system. In 2011, this ordinance was modified to account for larger lots versus percent of impervious area.

A Flood Damage Prevention Ordinance was adopted by the Town on November 8, 2007. [18] The objectives of this ordinance are to protect human life and health, to help maintain a stable tax base

[17] BPB (2003). "Engineering Study for Impervious Area Zoning Requirements", 22pp +appendices.
[18] Code of Ordinances, Town of Edisto Beach, South Carolina, Municipal Code Corporation, Chapter 14, Article IV. http://library.municode.com/index.aspx?clientId=13036&stateId=40&stateName=South%20Carolina.

by providing for sound use and development of flood prone areas in such a manner as to minimize flood areas and to ensure that potential home buyers are notified that property is in a flood area. The provisions of this ordinance are intended to minimize damage to public facilities and utilities such as water and gas mains, electric, telephone, and sewer lines, streets and bridges located in the foodplain, and prolonged business interruptions. Another objective of this ordinance is to minimize expenditures of public money for costly flood control projects and rescue and relief efforts associated with flooding.

The Town does not have an extensive stormwater collection system and relies heavily on stormwater ditches to convey runoff to areas of detention before release to the receiving streams or infiltration of the excess water into the ground. Due to the flat slopes and low elevations characteristic of the Town within the coastal plain that is already hindered by tidal influence, localized flooding will continue to increase. Along with the Stormwater Management Ordinance and associated plan, the Town has been working with the South Carolina Department of Transportation (SCDOT) to address flooding and related drainage issues on Palmetto Boulevard (SC 174). Curb and gutter systems installed by SCDOT on Palmetto Boulevard are not connected to an outfall. The Town's Drainage Committee has been actively working to re-establish roadside ditches to drain stormwater drainage to the lagoons before septic systems can be impacted.

The Town cooperates with the DHEC to monitor beach water quality at 12 locations.[19] These sites are located at:

- LC-077 Pavilion Restaurant
- LC-077A2 Mary Street
- LC-077A Matilda Street
- LC-077B Atlantic Street
- LC-078 Cheehaw Street
- LC-078B Dorothy Street
- LC-079 Edings Street
- LC-079A Neptune Street
- LC-080 Edisto Street
- LC-080A Mikell Street
- LC-081 Ebb Tide Street
- LC-082 Bay Point

Edisto Island is located in Region 8 and all sites are tested every other week between May 15th and October 15th. The Town has a standard protocol for warning swimmers if bacteria levels in swimming waters are elevated. DHEC will notify the Town if water quality sampling results indicate unsafe conditions, at which time the Town and/or DHEC will post signs in any affected areas (media reports do not always reach visitors and residents, and are not relied upon). The signs warn against wading, swimming, shell collecting and fishing until bacteria levels return to normal. All posting of signs is coordinated between the Town and DHEC.

[19] Bureau of Water (January 2009) "Ocean Water Quality Monitoring and Notification Program". www.scdhec.gov/beach

"During the summer of 2010, eight (8) routine samples collected at these stations exceeded 104 CFU/100ml. Of these, four (4) samples exceeded 500 CFU/100ml. On August 9, 2010, three consecutive stations, LC 080, LC-080A, and LC 081 had sample results of 521, 3255, and 691 CFU/100ml, respectively. The fourth sample that exceeded 500 CFU/100ml occurred on September 27 at station LC 080A (644 CFU/100ml)." (Edisto Beach Ocean Water QAPP, Rev. 0. December 2010, prepared by David Payne, DHEC)

The advisories issued in 2010, have been the first advisories issued at Edisto Beach since 2004. However, there have been other samples exceeding 104 CFU/100ml, particularly at station LC 082 at the end of Yacht Club Road located near the confluence of Big Bay Creek with the South Edisto River. Big Bay Creek is located within Shellfish Management Area 13. The lower reaches are classified administratively as Prohibited for Shellfish harvesting due to the presence of a marina and numerous boat docks. The upper reaches of Big Bay Creek and its tributary, Scott Creek are classified as Restricted based on water quality sampling data for fecal coliform bacteria.

Upon issuance of any advisories, the Town checks with all septic companies to see if there are septic failures in the area of contamination. Failing septic systems during the tourist season has become a chronic issue and needs to be monitored and correlated to increased bacteria levels. Figures 3 through 14 graphically depict the historical enterococcus data on Edisto Beach.

According to DHEC, this increase in swimming advisories in 2010 warrants a sampling study to try and identify potential/probable sources of enterococcus bacteria. This study would also be used to re-evaluate the current Tier 2 status of the beach monitoring sites.

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Figure 3. LC 077 Water Quality Data

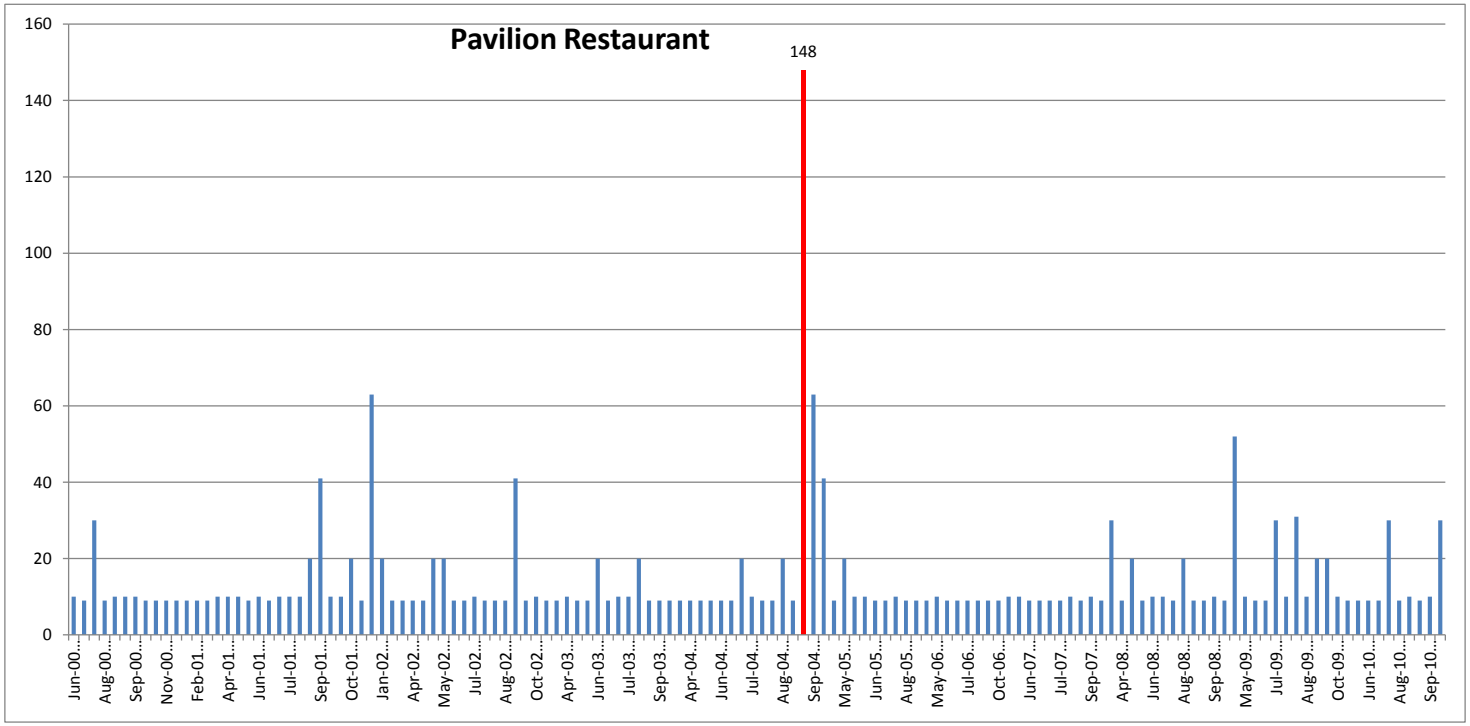


Figure 4. LC 077A2 Water Quality Data

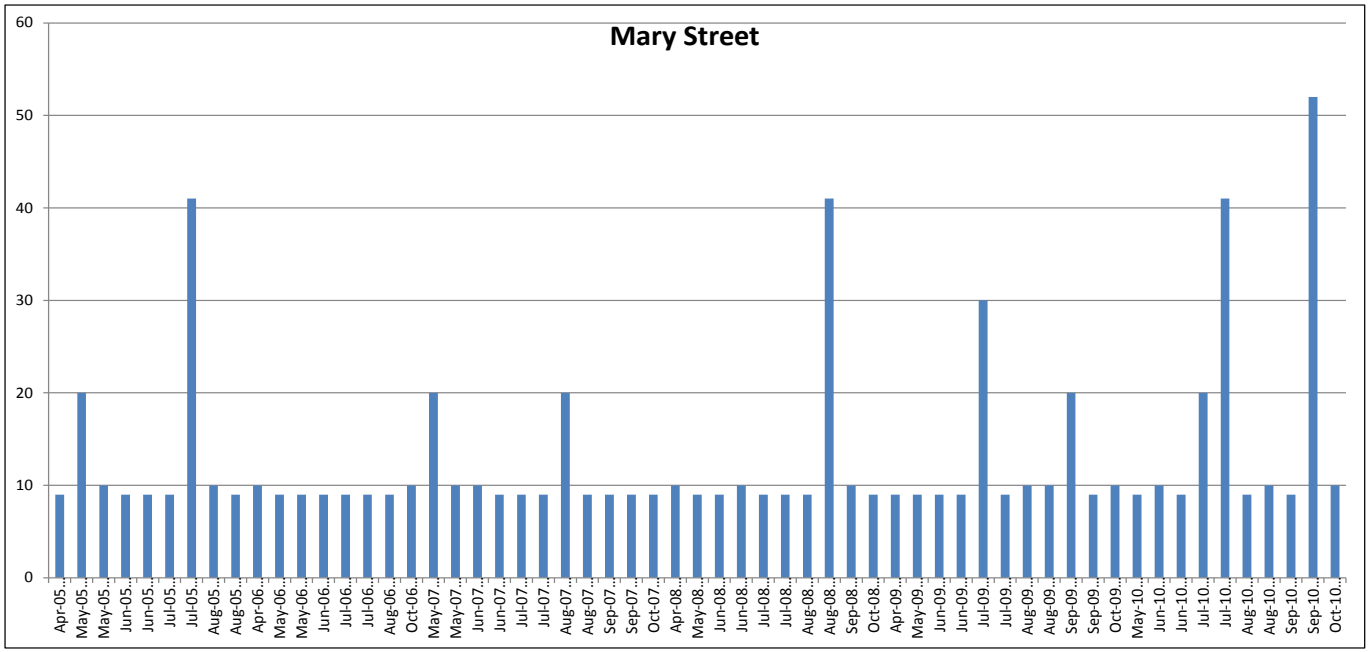


Figure 5. LC 77A Water Quality Data

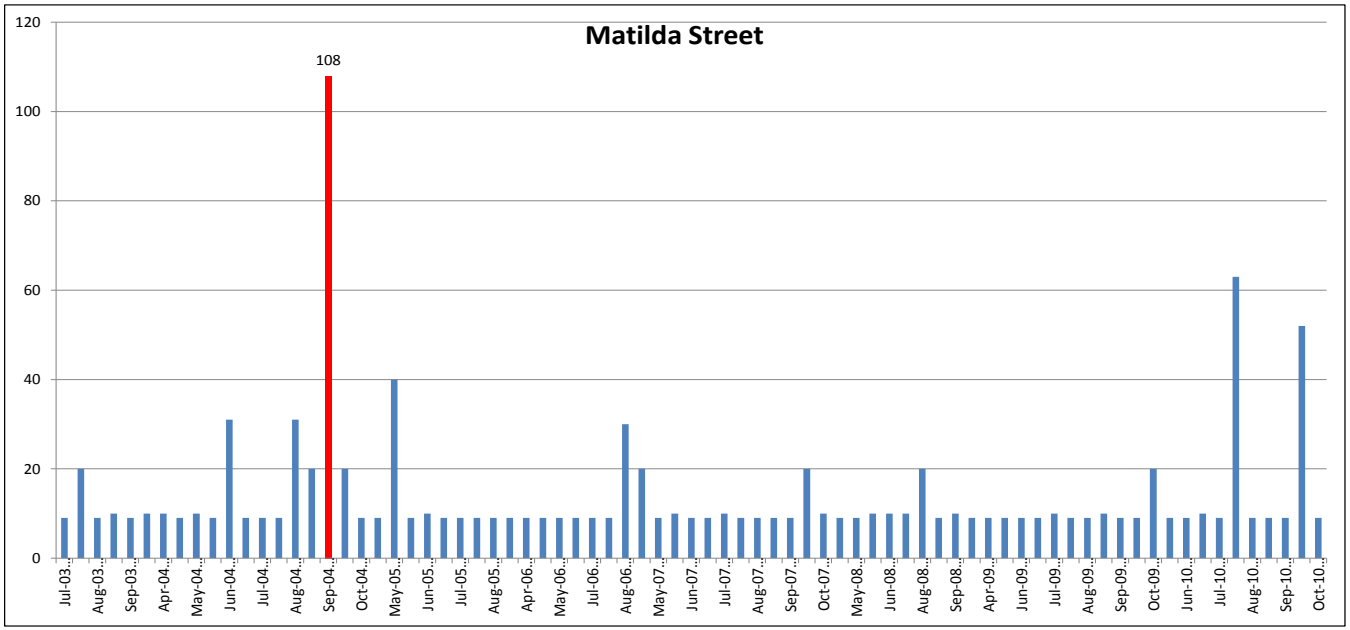


Figure 6. LC 077B Water Quality Data

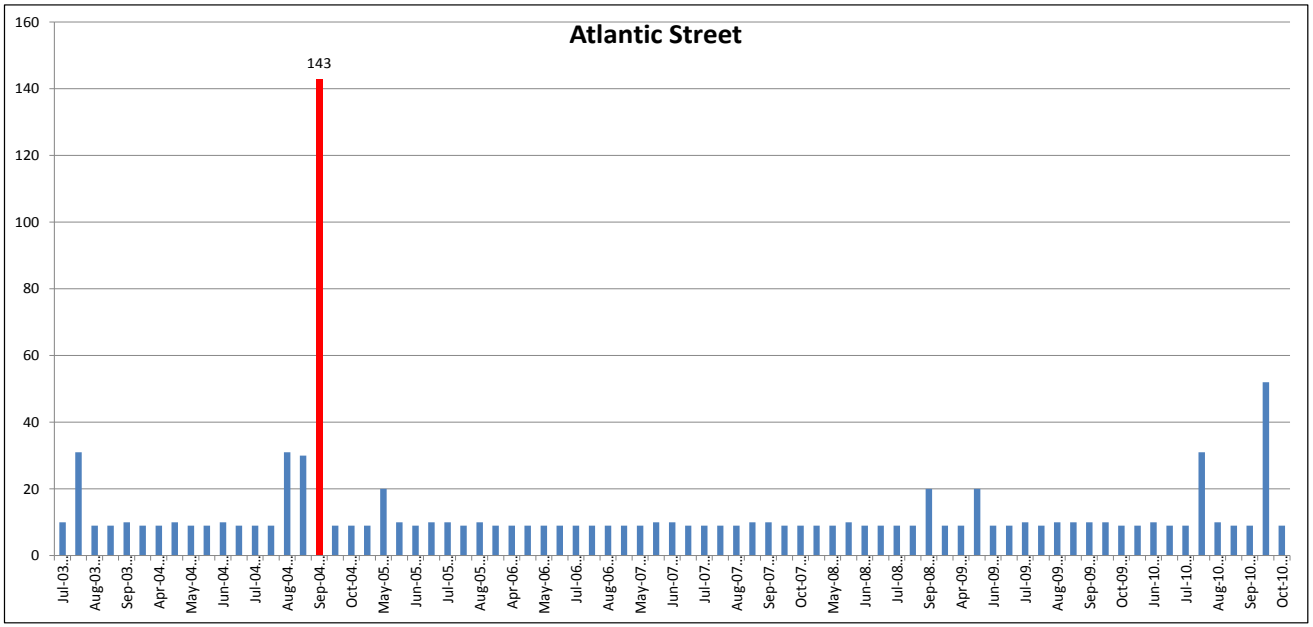


Figure 7. LC 078 Water Quality Data

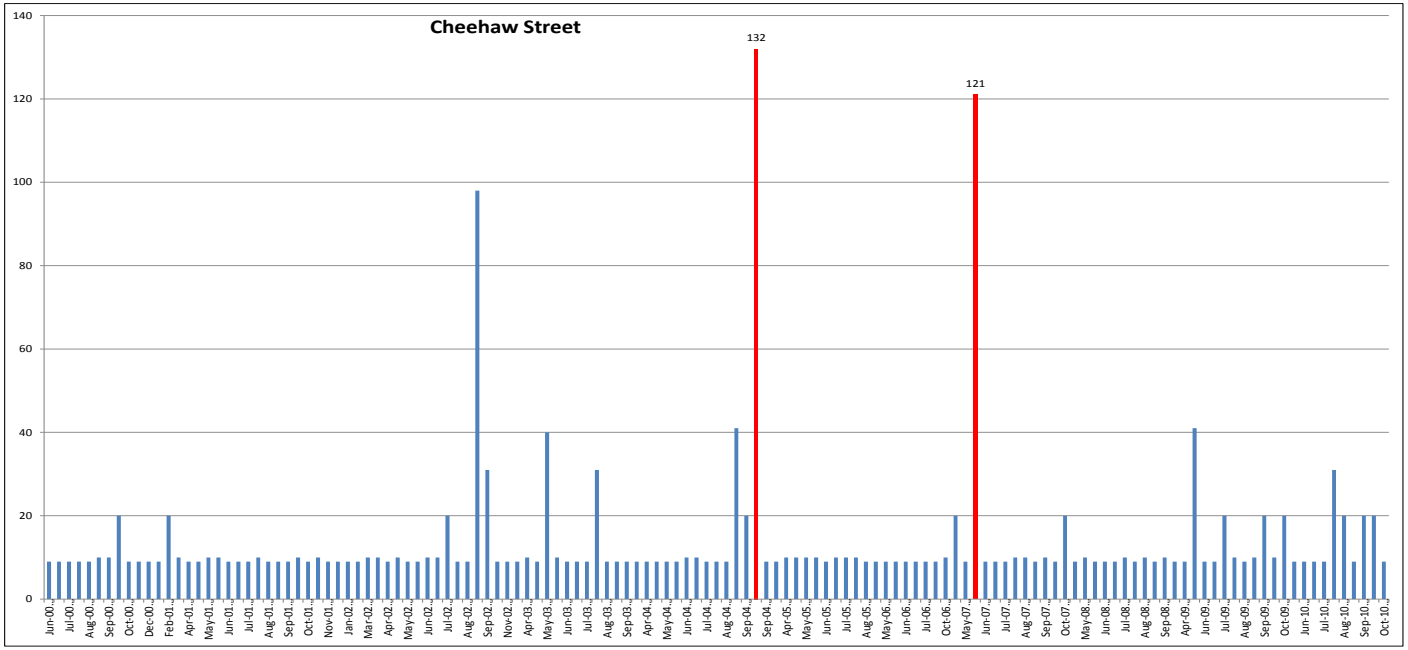


Figure 8. LC 078B Water Quality Data

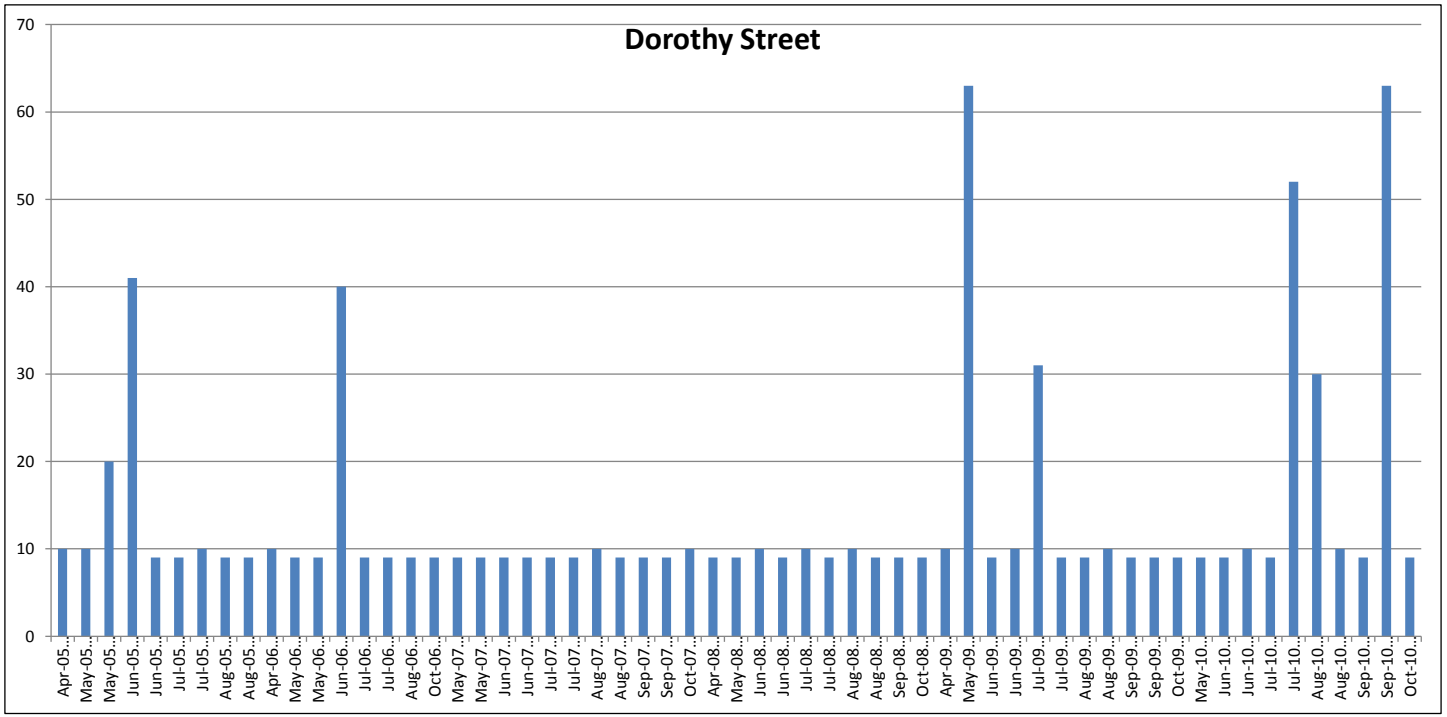


Figure 9. LC 079 Water Quality Data

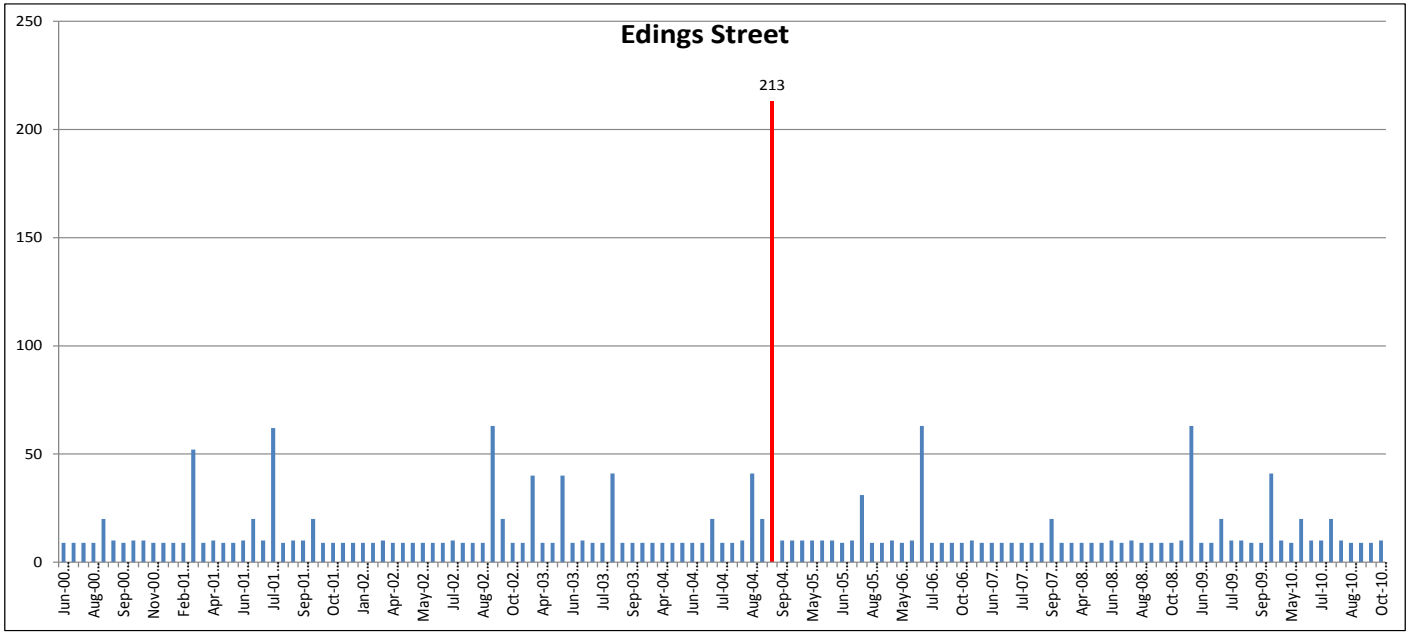


Figure 10. LC 079A Water Quality Data

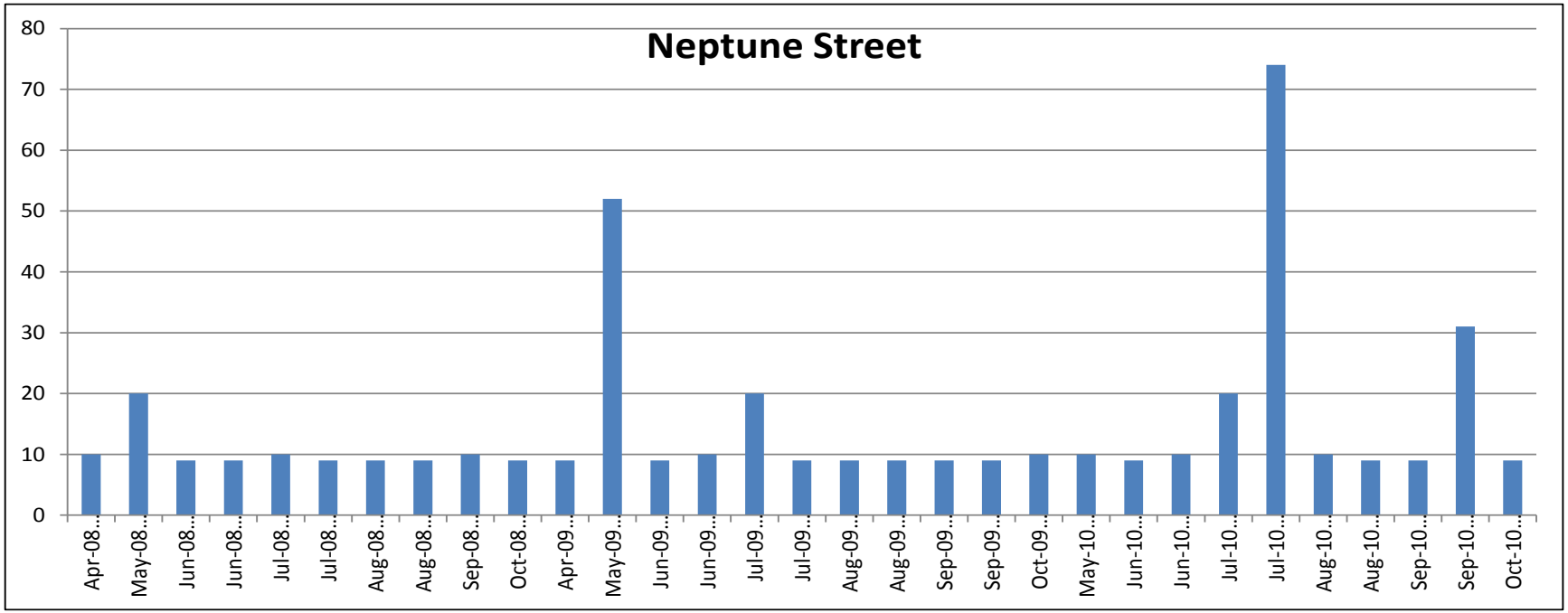


Figure 11. LC 080 Water Quality Data

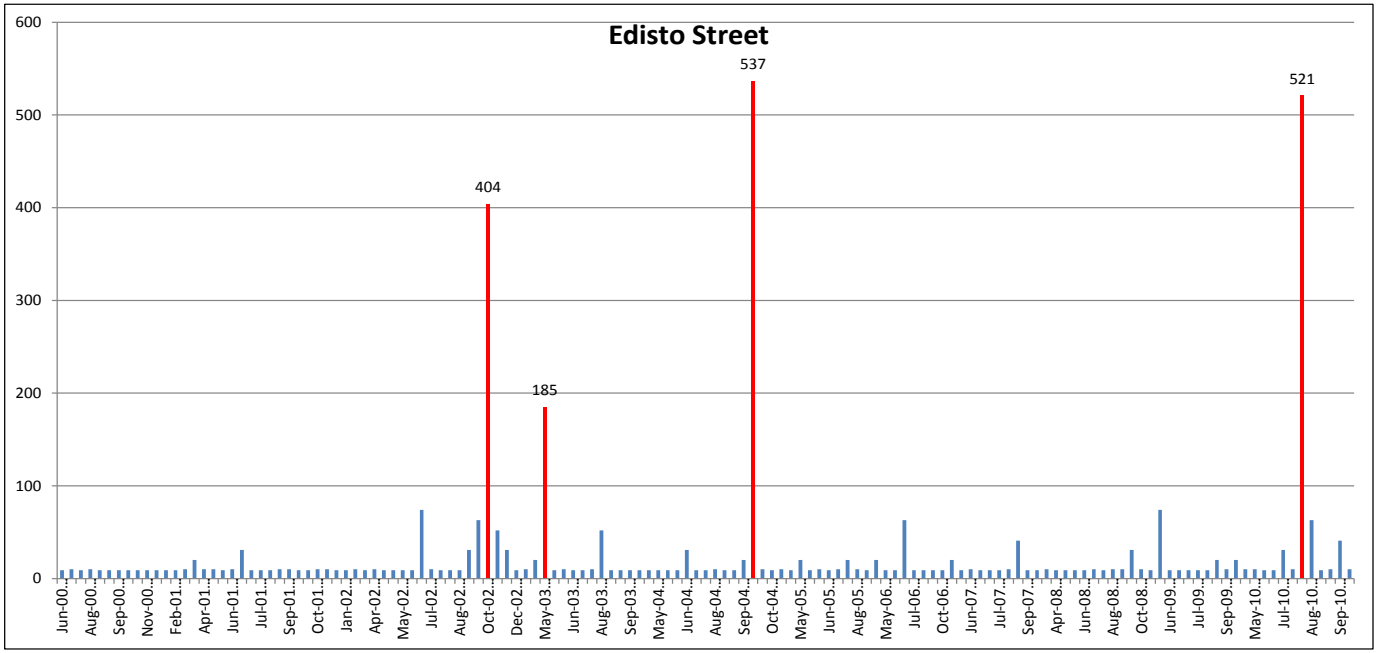


Figure 12. LC 080A Water Quality Data

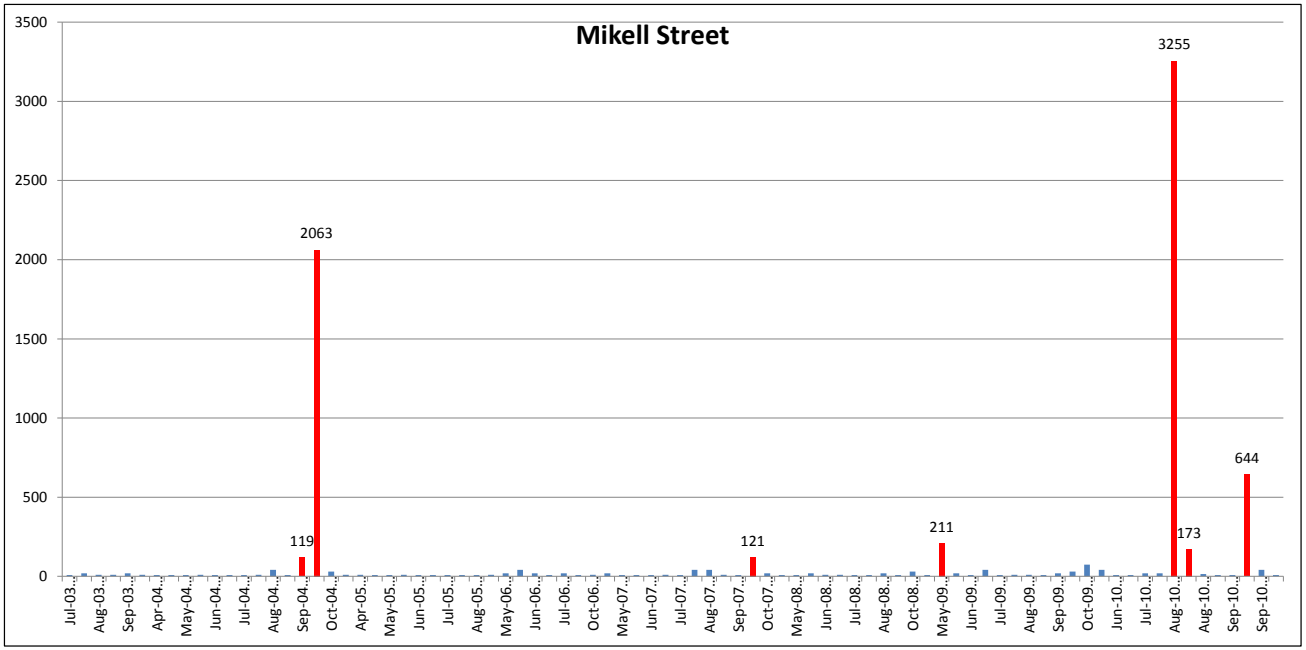


Figure 13. LC 081 Water Quality Data

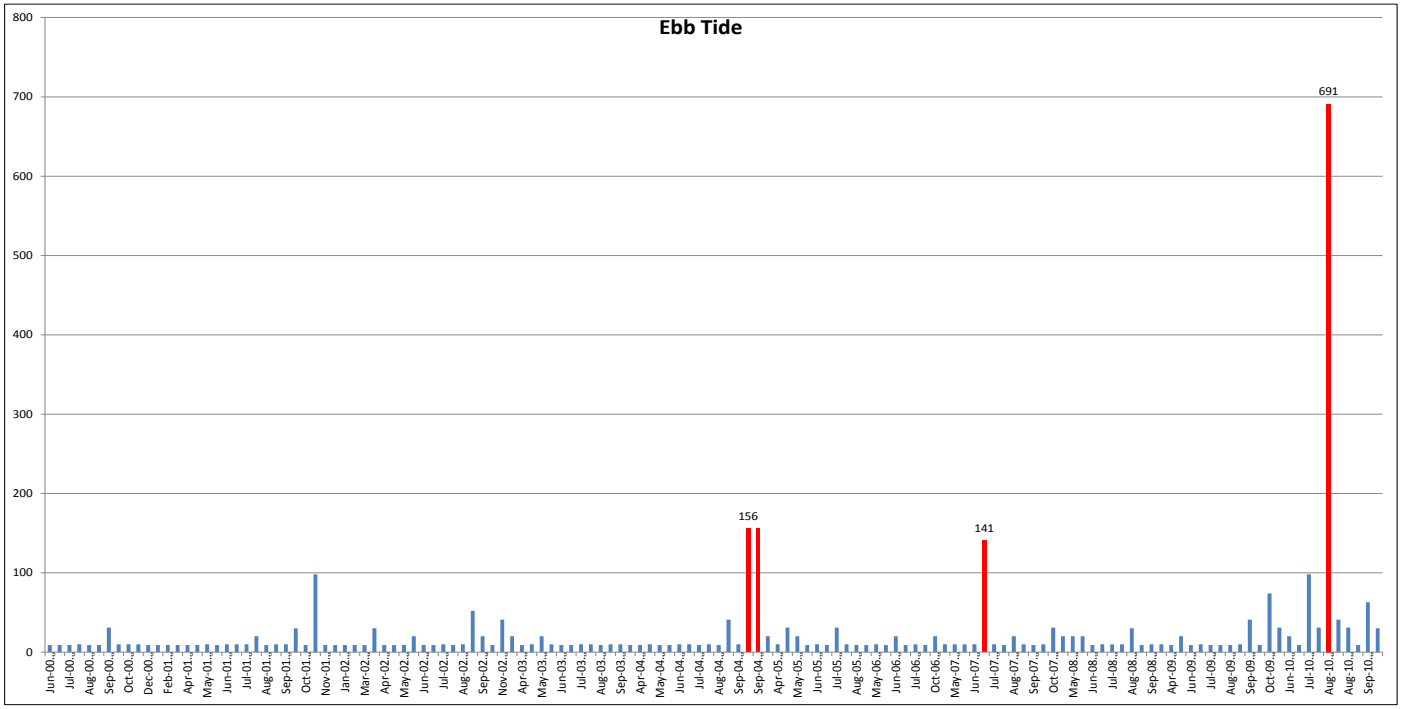
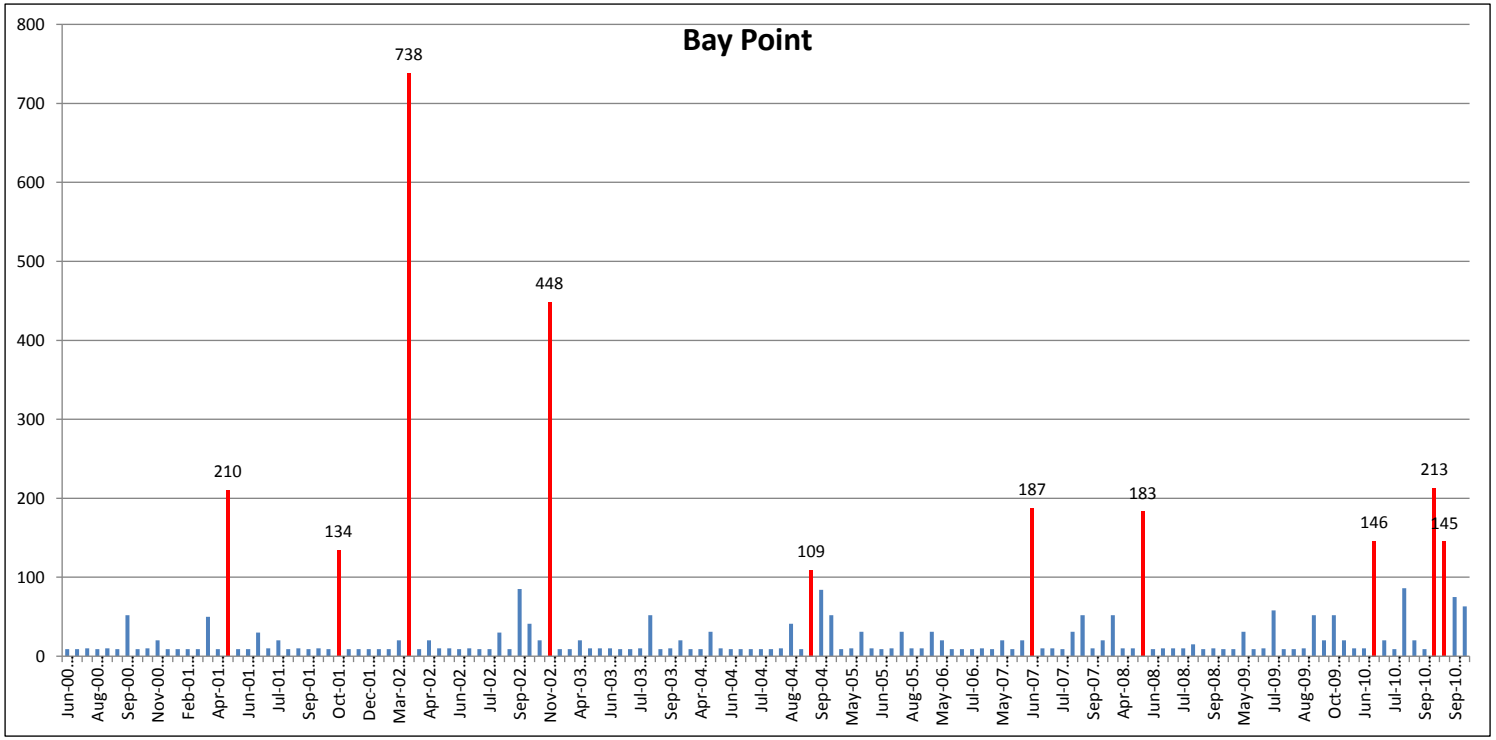


Figure 14. LC 082 Water Quality Data



3. Erosion Control and Management

As is the case of most coastal communities, erosion can and does threaten upland structures and infrastructure. Managing the erosion threat, by adding sand to the beach, relocating threatened development landward, or a combination of the two is essential if the Town of Edisto Beach is to preserve its recreational beaches, preserve its tax base, and ensure the safety of its citizens.

The Town of Edisto Beach has been dealing with the periodic erosion threat to structures and infrastructure on the beachfront for the past forty plus years. Erosion control methods utilized on Edisto include functional seawalls, functional revetments, groins, and functional combination seawalls/revetments. Construction of new seawalls and revetments is currently prohibited by the State of South Carolina.

3.1 Beach Alterations

Nourishment

In the mid 1950s, the South Carolina Highway Department combined groin construction with the first renourishment of Edisto Beach in 1954 using sand, shells and mud from the marsh behind the island. Excavations created the "Yacht Basin" and reclaimed nearly 1.2 miles of shoreline between Groins 1 and 12.

In April 1995, selected areas of Edisto Beach were renourished.

The 2006 beach restoration project was necessitated by increased erosion rates in down-coast areas, insufficient protection of beachfront properties, and insufficient beach width to support dune formation and recreational beach access. The 2006 beach renourishment project addressed critically eroded areas along the majority of the beachfront and added to the sand supply and beach width.

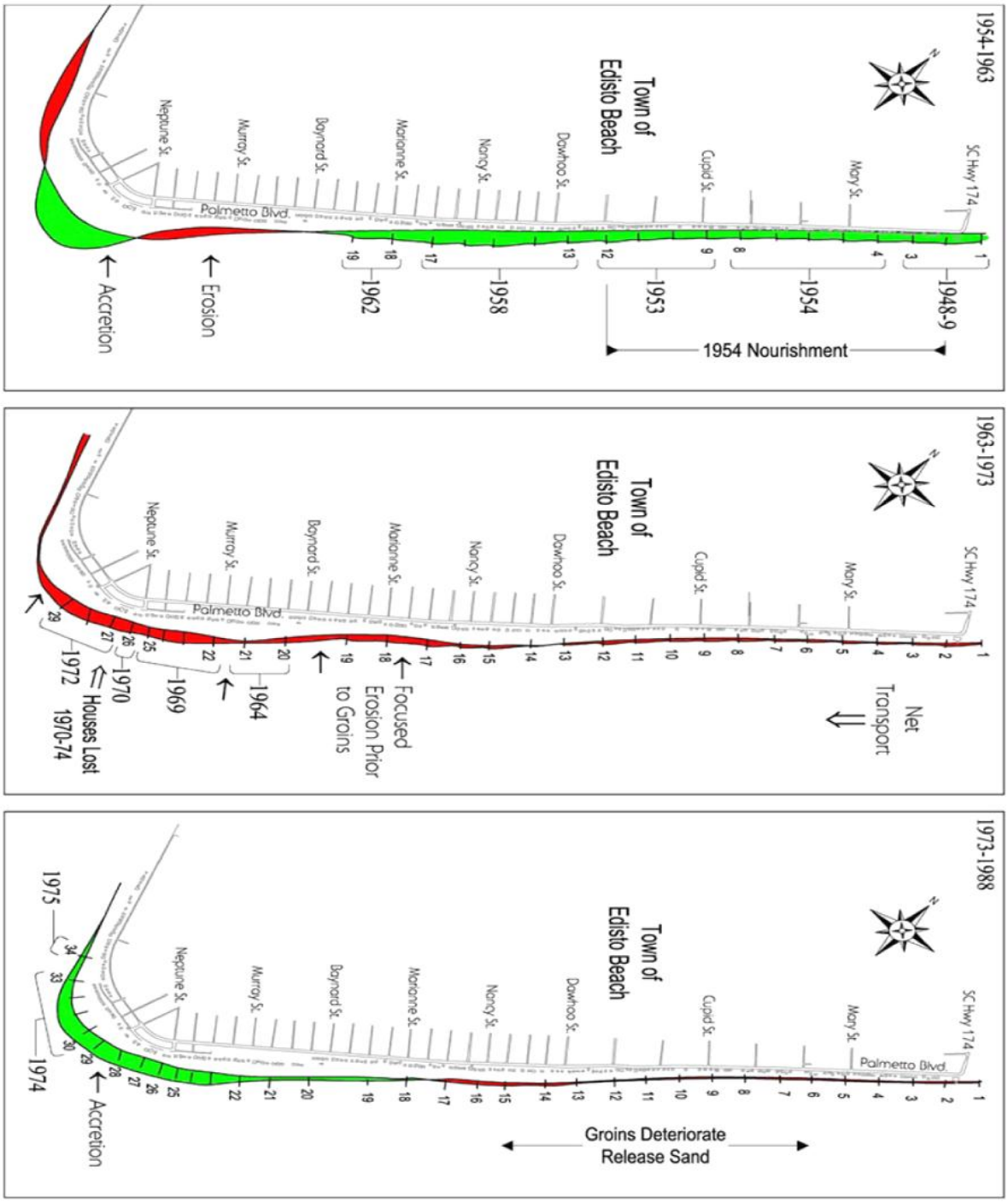
Groins

Erosion along Edisto Beach led to construction of the first groins in 1948 near the pavilion. During the next decade, 17 groins were built from north to south in an attempt to halt the loss of sand, or at least slow its southerly movement. Erosion continued down-coast of the structures as each group of groins was built, sometimes to the point where houses were washed out (CSE, 2001). This prompted construction of more groins through 1975 for a total of 34 groins on Edisto Beach. Other than Folly Beach with 47 existing groins, Edisto Beach has the second largest groin field with 34 groins.

Groin 1 is located approximately 390 feet north of the ruins of the Pavilion fishing pier with all other groins located south of the pier. Groin 34 is situated along the South Edisto River Inlet Shoreline, about 3,000 ft from Big Bay Creek.

The sand-trapping capacity of individual groins impacts erosion rates along the beachfront. Gaps in deteriorating groins allow sand piping and leaking, which results in erosion within the groin cell and accretion downcoast. Conversely, when updrift groins are repaired and their trapping capacity is restored, downcoast areas may erode. Sand volumes around The Point area (at the southern tip of Edisto Beach) are particularly influenced by the condition of groins along the oceanfront (Kana et al, 2004). Groins are numbered from updrift to downdrift (Figure 15).

Figure 15. Historical Erosion and Accretion along Edisto Beach



Description of the Groin System

According to The Shorefront Management Plan, prepared by Cubit Engineering, Ltd, 1987, the groin field is located on the southern shoreline of Edisto Island from a point where SC 174 (Palmetto

Blvd.) intersects the coast extending approximately three miles southwest past Bay point and approximately one mile up the Edisto River. Groin numbers and locations are listed in Table 5 below.

Table 5. Groins Constructed along Edisto Beach

Groin	Year Built	Location	Groin	Year Built	Location
1	1948	State Park	18	1962	1602 Palmetto Blvd
2	1948	108 Palmetto Blvd	19	1962	1802 Palmetto Blvd
3	1949	122 Palmetto Blvd	20	1964	2101 Point St
4	1949	134 Palmetto Blvd	21	1964	2301 Point St
5	1954	204 Palmetto Blvd	22	1969	2403 Point St
6	1954	218 Palmetto Blvd	23	1969	2601 Point St
7	1954	312 Palmetto Blvd	24	1969	2604 Point St
8	1954	406 Palmetto Blvd	25	1969	2704 Point St
9	1953	420 Palmetto Blvd	26	1970	2802 Point St
10	1953	514 Palmetto Blvd	27	1972	2806 Point St
11	1953	608 Palmetto Blvd	28	1972	2811 Point St
12	1953	702 Palmetto Blvd	29	1972	2903 Point St
13	1958	718 Palmetto Blvd	30	1974	3105 Point St
14	1958	902 Palmetto Blvd	31	1974	3116 Palmetto Blvd
15	1958	1102 Palmetto Blvd	32	1974	3328 Palmetto Blvd
16	1958	1206 Palmetto Blvd	33	1974	3414 Palmetto Blvd
17	1958	1402 Palmetto Blvd	34	1975	

Groin History

Due to severe beach erosion, the South Carolina Highway Department began constructing the timber groins in the vicinity of the fishing pier in 1948 and proceeded southward through 1975. During this period, some of the initial timber only groins had rubble structures appended. Groins south of groin 23 are entirely rubble structures. As repairs have been made, timber only groins have been replaced with rubble. Timber groins were not maintained and were allowed to rot and fall apart. Groins 25-28 have been restacked and grouted. Groin 29 is partially restacked but not grouted. As repairs have been made, the timber portions that have been destroyed have been partly covered with Gunite and partly replaced with grouted rubble.

In 1981 and 1987, Cubit Engineering, LTD conducted a physical examination of the groins which included measurements, photographs and visual observation of each groin. Lengths were measured from the first visible pile or stone on the landward end of the groin. The results of these studies are inserted below.

Table 6 Summary of Groin Parameters

TABLE 5.1

SUMMARY OF GROIN PARAMETERS

			1981 SURVEY						1987 SURVEY									
		INSTALLED		TIMBER			ROCK	TOTAL		TIMBER			ROCK			TOTAL		
NO	DATE	LENGTH	TYPE	GOOD	POOR	LENGTH	LENGTH	LENGTH	TYPE	GOOD	POOR	LENGTH	GOOD	POOR	LENGTH	LENGTH	SLUMP	NOTES
1									compound	83	22	105	60	0	60	165	2-3	
2	1948	300	compound	85	0	85	80	165	compound	50	25	75	60	0	60	135	2-2.5	1)
3	1949	271	timber	80	60	140	0	140	compound	110	5	115	60	0	60	175	1.5	
4	1949	271	timber	84	45	129	0	129	compound	90	30	120	60	0	60	180	1-1.5	
5	1954	222	compound	75	0	75	89	164	compound	95	30	125	60	0	60	185	2	2)
6	1954	240	compound	78	0	78	90	168	compound	63	22	85	60	0	60	145	2.5-3	3)
7	1954	272	compound	78	0	78	95	173	compound	88	14	102	60	0	60	162	2	
8	1954	272	compound	65	0	65	83	148	compound	88	17	105	70	0	70	175	2.5-3	
9	1953	240	compound	56	0	56	87	143	compound	71	21	92	80	0	80	172	(1-2)	
10	1953	241	compound	78	0	78	78	156	compound	80	40	120	70	0	70	190	2.5-3	
11	1953	240	compound	64	0	64	96	160	compound	81	0	81	100	0	100	181	2-2.5	
12	1953	240	compound	80	0	80	93	173	compound	90	30	120	80	0	80	200	2-3	
13	1958	241	timber	104	60	164		164	timber	110	60	170				170		4)
14	1958	241	timber	68	90	158		158	timber	77	93	170				170		
15	1958	241	timber	86	72	158		158	timber	75	95	170				170		
16	1958	241	timber	88	72	160		160	timber	70	100	170				170		
17	1958	241	timber	88	82	170		170	timber	74	86	160				160		
18	1962	261	timber	100	72	172		172	timber	60	100	160				160		
19	1962	261	timber	100	60	160		160	timber	70	80	150				150		
20	1964	225	timber	50	78	128		128	timber	65	95	160				160		
21	1964	225	timber	48	80	128		128	timber	68	92	160				160		
22	1969	264	timber	80	64	144		144	timber	90	80	170				170		
23	1969	277	timber	88	72	160		160	timber	85	75	160				160		

Notes:
1) 15 ft gap between dune and groin
2) Asphalt placed in 20 ft gap between dune and groin
3) Asphalt placed in 10 ft gap between dune and groin
4) Total length estimated, end of groin submerged

5 - 4

4

In 1996, the groins were repaired (CSE 1996 (a,b), 1997, 1999, 2001). Through 1998 to 2001, Edisto Beach conducted extensive groin repair. Elevations were raised and some groins were extended. In 2003 and 2004 additional groin repairs were made and the last inspection of the groins was performed by Coastal Science & Engineering in 2011. The current status of the groin field and corresponding pictures are listed in Appendix 8.2.

3.2. Beach Profiles, Erosion Rates, and Shoreline Change

3.2.1. Beach Profiles

Over the past 40 years, the methodology and approach for beach surveys have evolved from fairly crude methods to highly sophisticated data collection systems involving global-positioning-system (GPS) satellite navigation in three dimensions. Prior to 1999, Coastal Science & Engineering (CSE) used rod-and-level, theodolite, or sled surveys through the surf zone because they were the most

accurate, consistent, and cost-effective methods of data collection which followed recommendations of the National Academy of Sciences. No corrections are required for water depth by these methods because the measurements involve placement of a rod or prism directly on the bottom. In the past few years with the availability of real-time-kinematic (RTK) GPS x–y–z positioning (post-1999), it is now possible to reduce the errors associated with boat surveys. The present standard of practice for beach monitoring, and one that is consistent with nearly all historical profile surveys is single-beam bathymetric surveys using a linked RTK-GPS receiver.

Several control points and stationing systems have been used along Edisto Beach. Permanent monuments (Figure 16) established by the state of South Carolina are situated from Big Bay Creek (OCRM 2110) to the state park (OCRM 2270). CSE has monitored the shoreline for the Town of Edisto Beach since the early 1990s using the OCRM lines as well as numerous intermediate profiles. Because of the presence of groins, typically three profiles per groin cell are monitored (CSE 2001), which provides for better accounting of fillets as sand shifts north or south within each groin cell as a function of wave direction. CSE's numbering system uses a combination of groin cell number and distance downcoast (south) from the nearest groin beginning at Cell 1. Groin cells are numbered consecutively from north to south with Cell 1 being the length of the beach between Groins 1 and 2, Cell 2 being the length between Groins 2 and 3, and so on (Appendix 8.3).

The latest survey was conducted in November 2010 by CSE. Profiles along Edisto Beach were surveyed perpendicular to the local shoreline azimuth from the control points to a minimum of –12 ft NGVD* (the depth equal to the normal limit of sand movement). Surveys were conducted by combining a land-based survey and bathymetric survey. Land surveys were accomplished using an RTK-GPS between the foredune and low-tide wading depth, whereas over-water work was accomplished via RTK–GPS combined with a precision echo sounder mounted on CSE's shallow-draft research vessel (R/V *Congaree River*). Working around the tidal cycle, data collected on land were extended into shallow depths in the surf zone at low tide. Then data were collected from the boat at high tide such that overlap of the two surveys occurred close to shore. See Appendix 8.3, Beach Profiles and Erosion Rates.[20]

[20] Coastal Science & Engineering, 2010. "2006_Edisto Beach Restoration Project, Colleton County, South Carolina, Survey Report No. 4 November 2010".

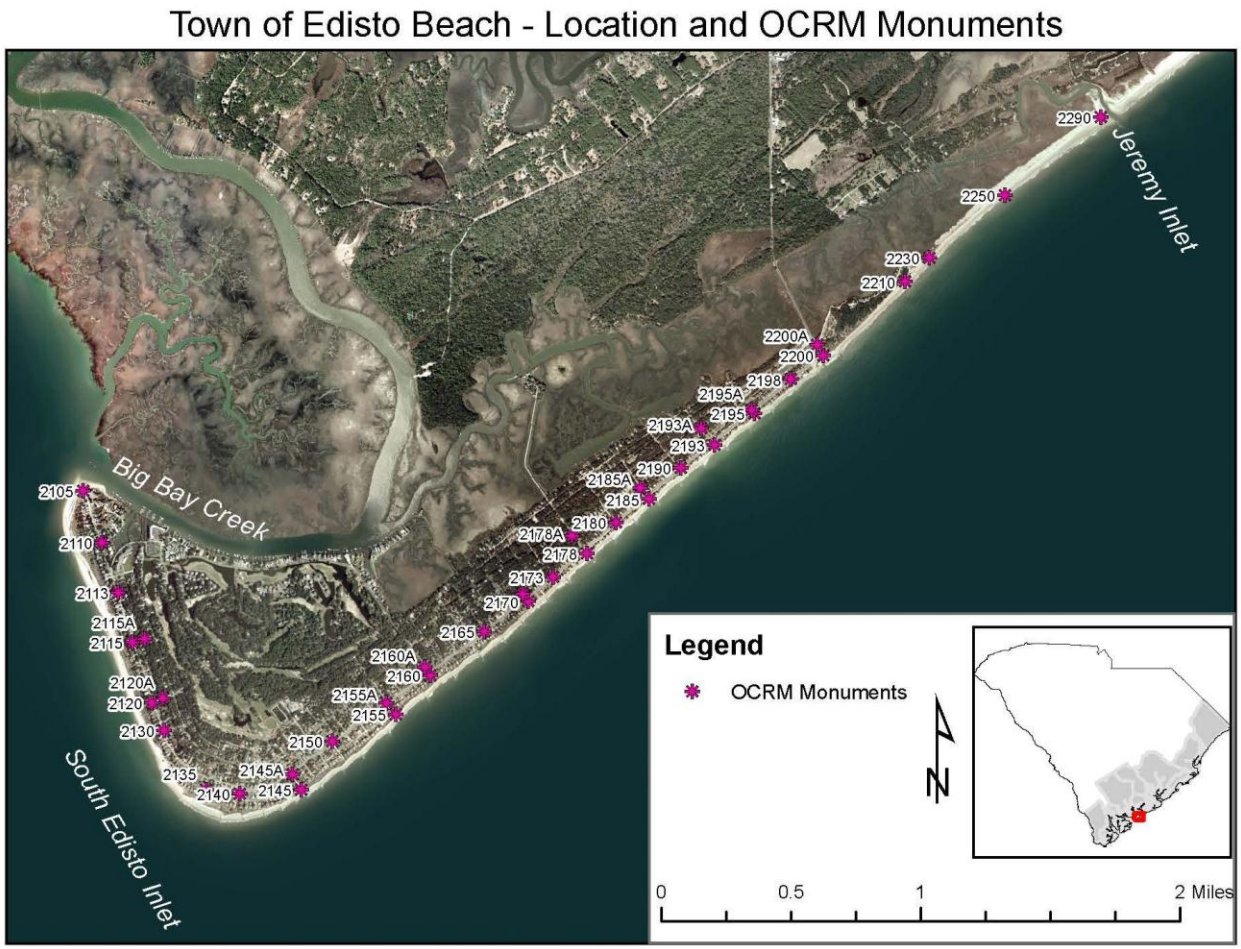


Figure 16. Town of Edisto Beach Location and OCRM Monuments

In addition to the beach profile data collected by CSE, Coastal Carolina University has collected annual beach profile data on Edisto Beach since 1988 for most of DHEC OCRM's monuments. Figures 17 through 35 show beach profile changes between 1995 and 2008 at stations 2230, 2200, 2190, 2173, 2160, 2145, 2135, 2120, and 2110.[21] The large increases in profile volumes in November 2006 are the result of a beach renourishment project. Information on other monuments is available at http://gis.coastal.edu.

[21] These plots were created using the on-line tool available at: http://gis.coastal.edu

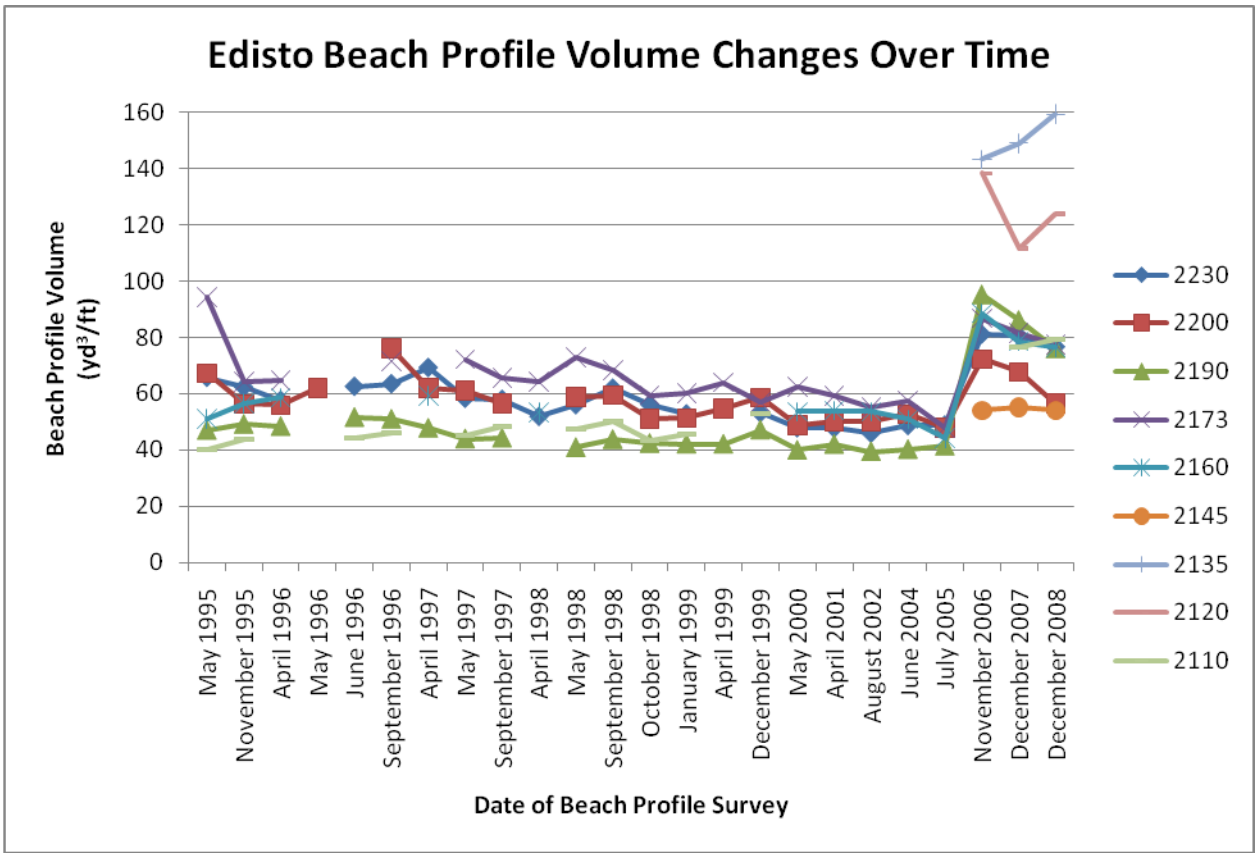


Figure 17. Edisto Beach Profile Volume Changes Over Time

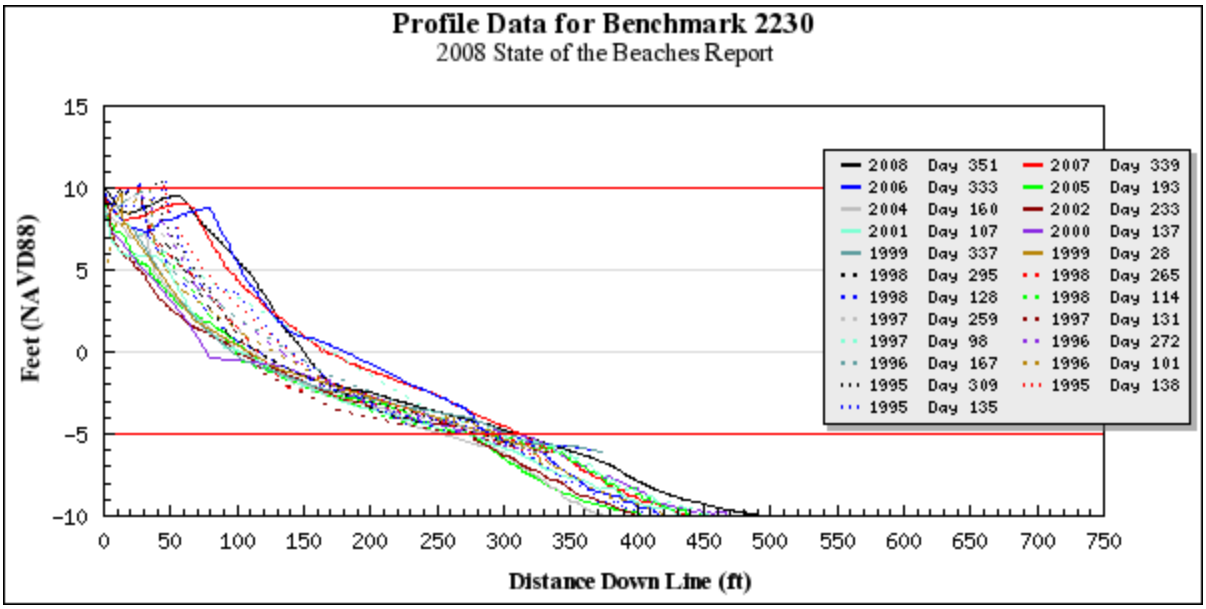


Figure 18. Profile Data for Benchmark (Monument) 2230

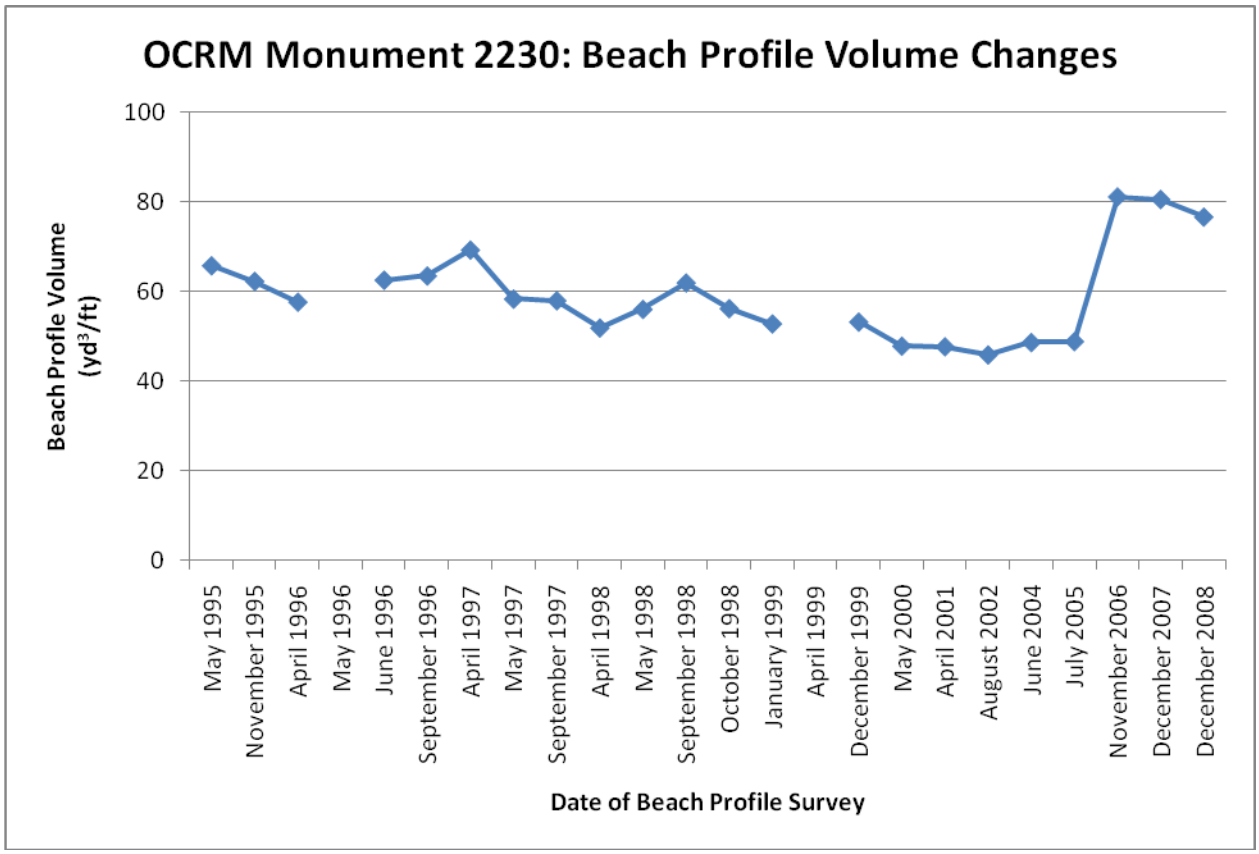


Figure 19. OCRM Monument 2230: Beach Profile Volume Changes

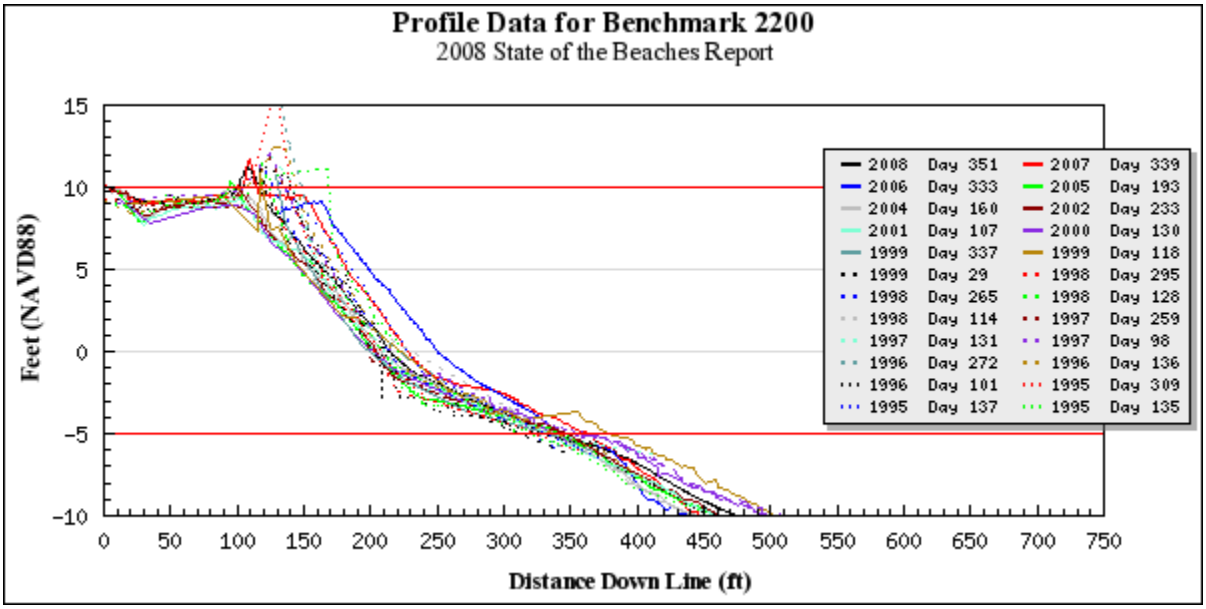


Figure 20. Profile Data for Benchmark (Monument) 2200

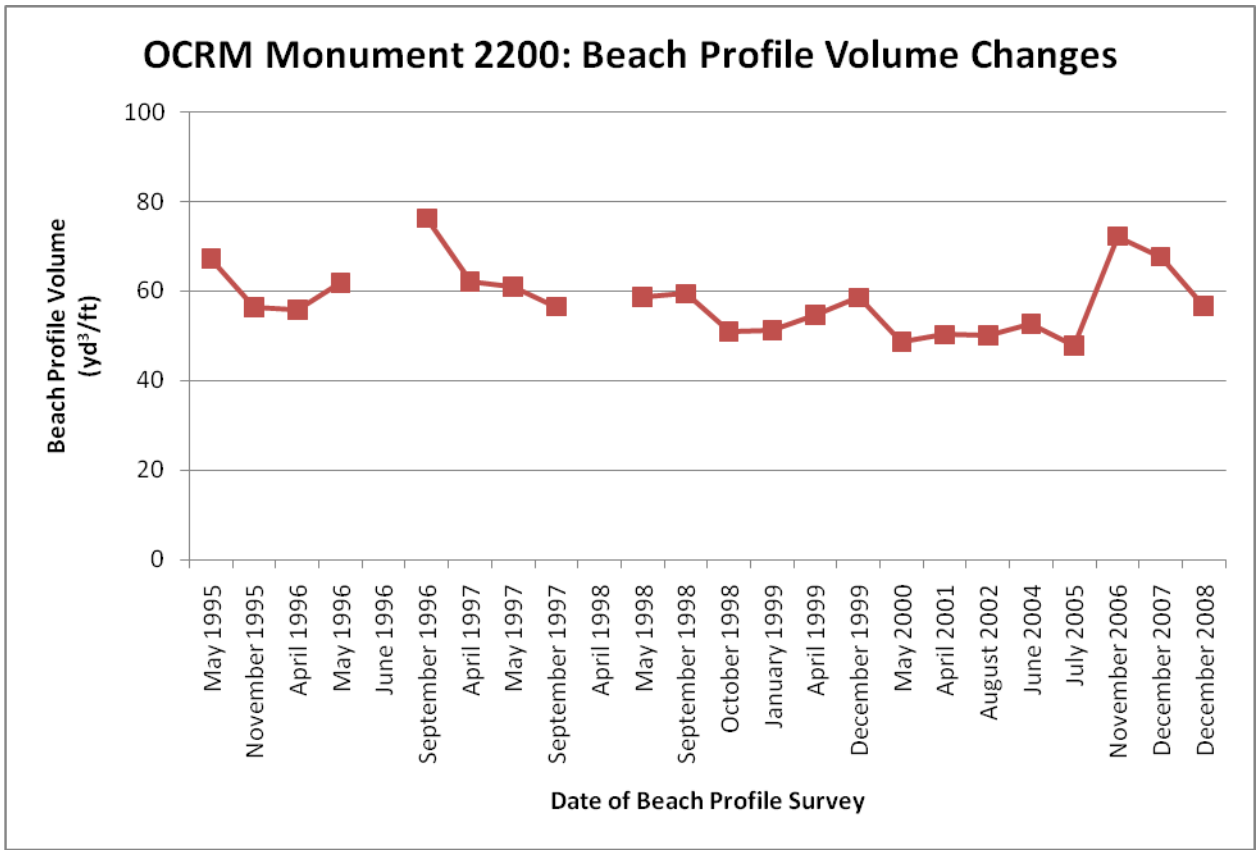


Figure 21. OCRM Monument 2200: Beach Volume Changes

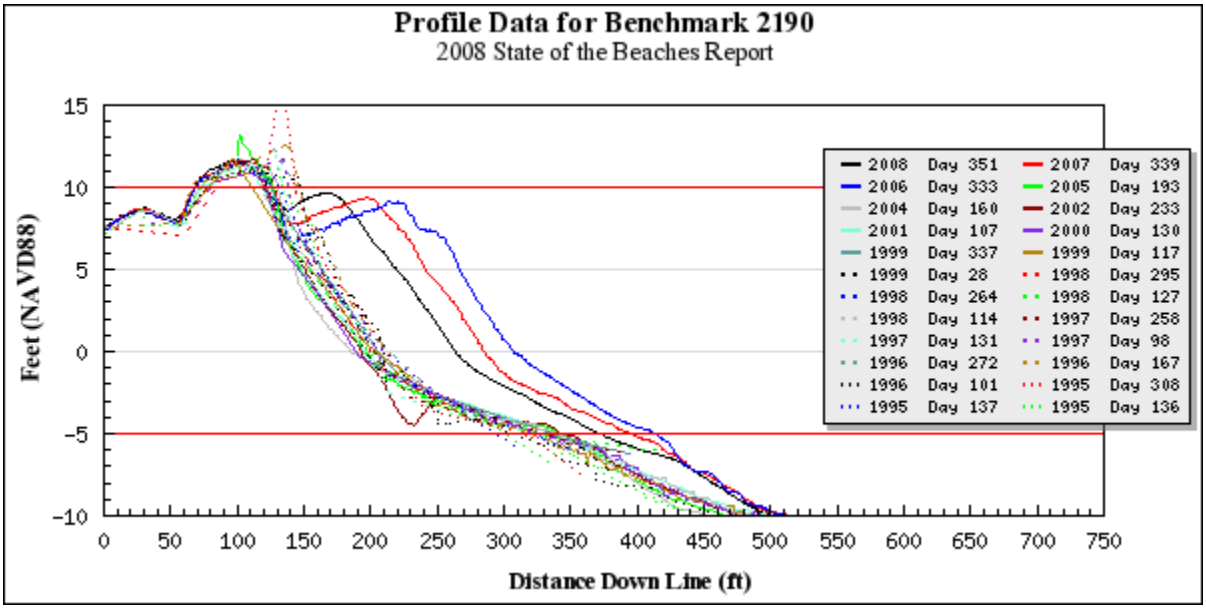


Figure 22. Profile Data for Benchmark (Monument) 2190

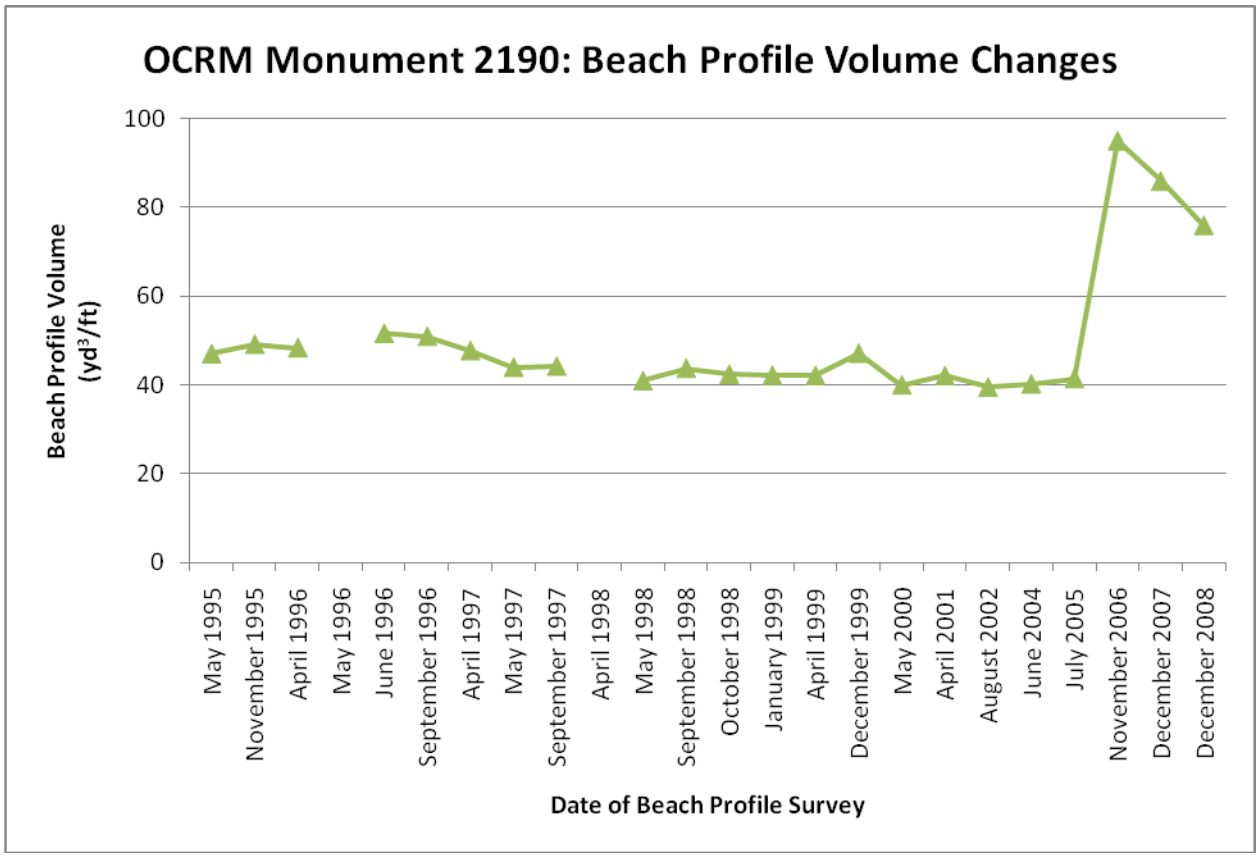


Figure 23. OCRM Monument 2190: Beach Profile Volume Changes

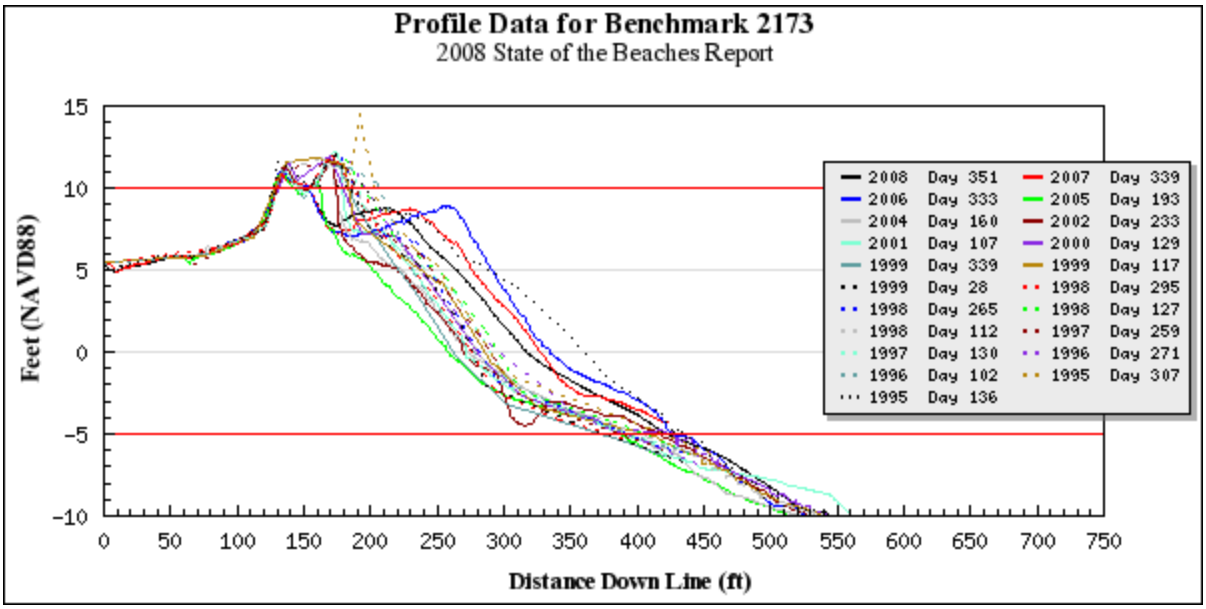


Figure 24. Profile Data for Benchmark (Monument) 2173

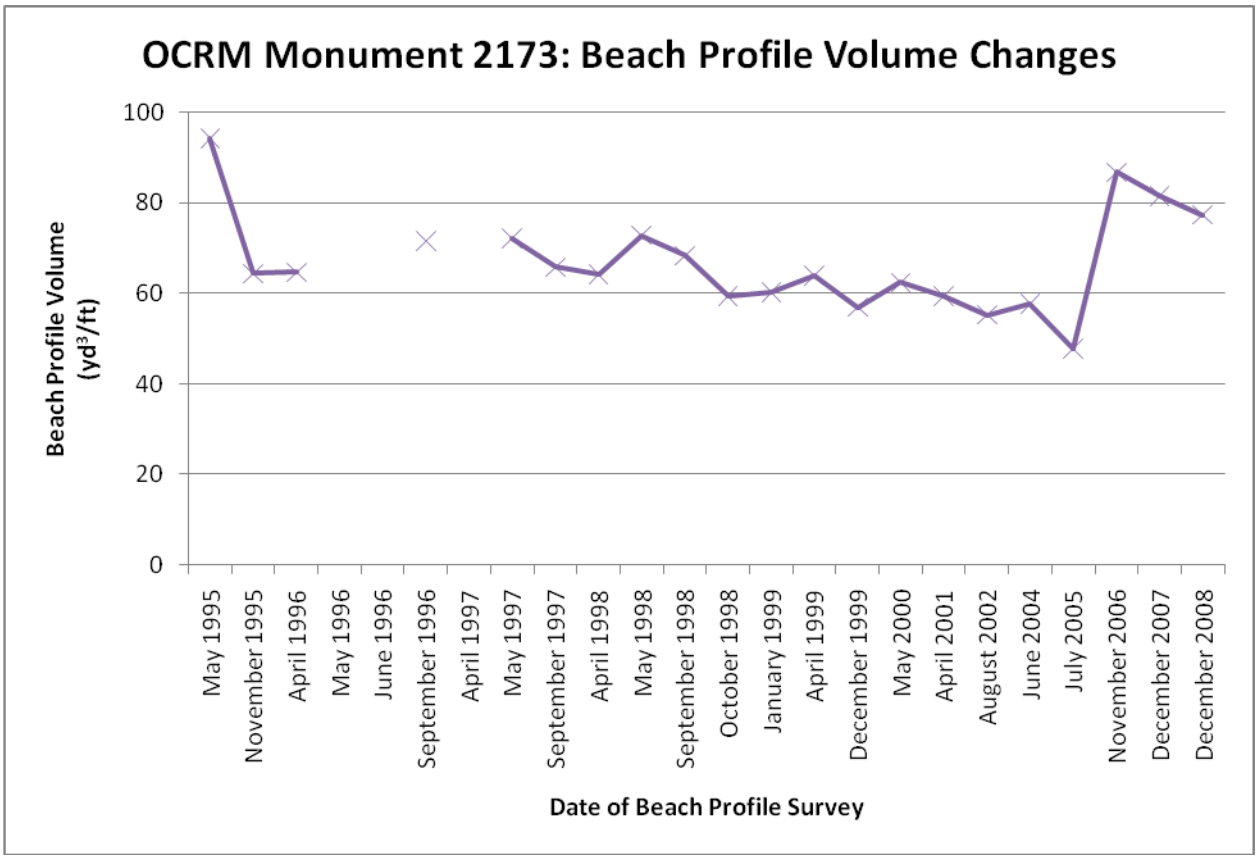


Figure 25. OCRM Monument 2173: Beach Profile Volume Changes

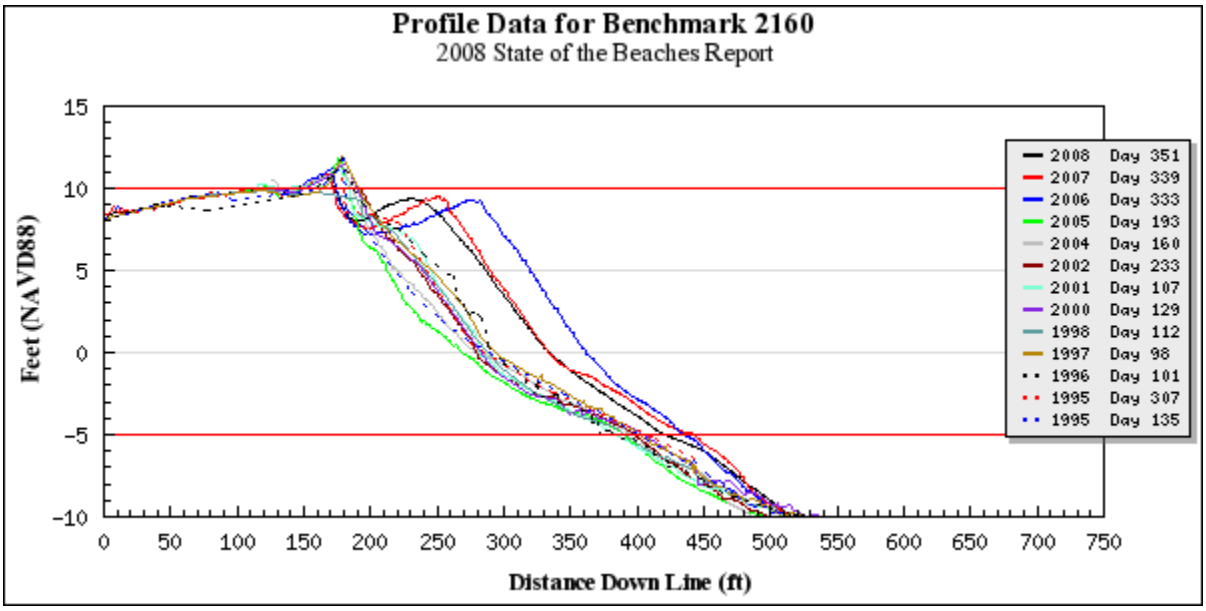


Figure 26. Profile Data for Benchmark (Monument) 2160

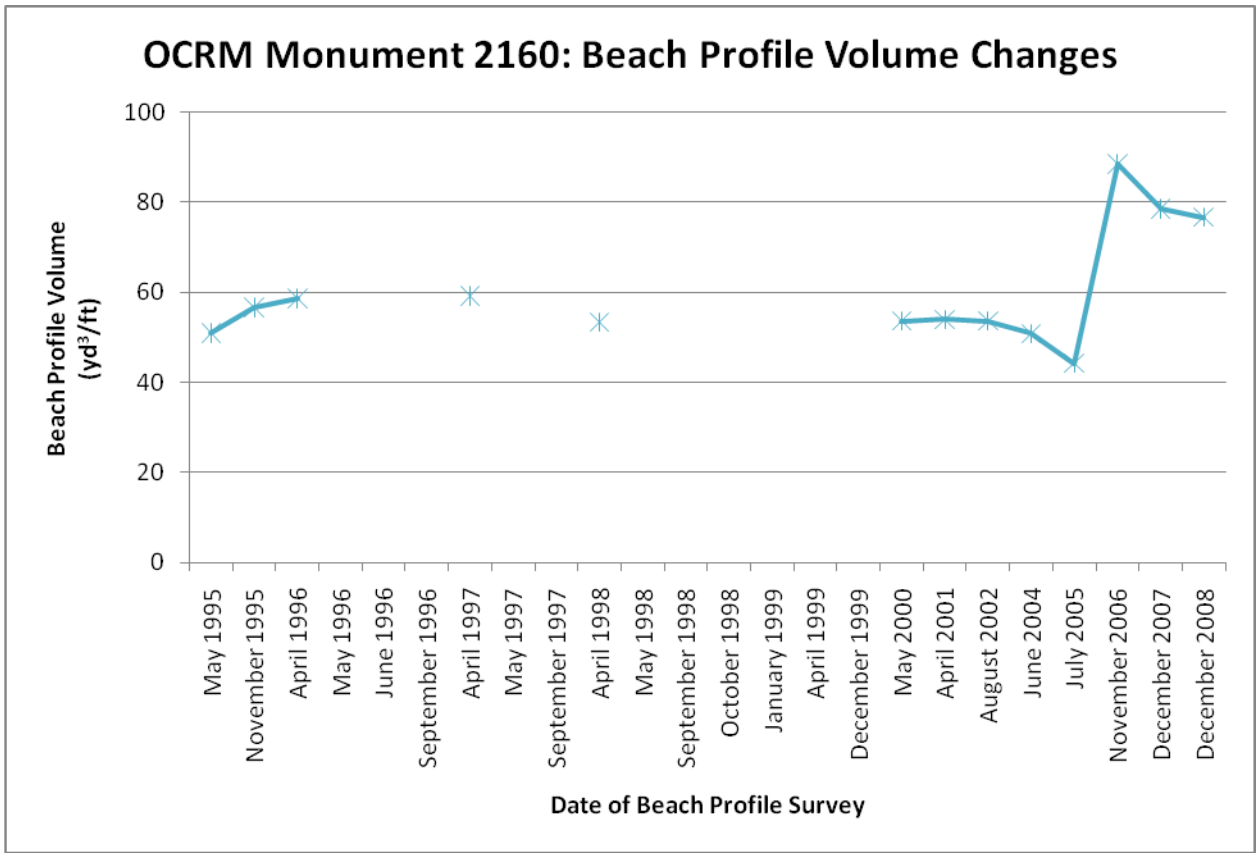


Figure 27. OCRM Monument 2160: Beach Profile Volume Changes

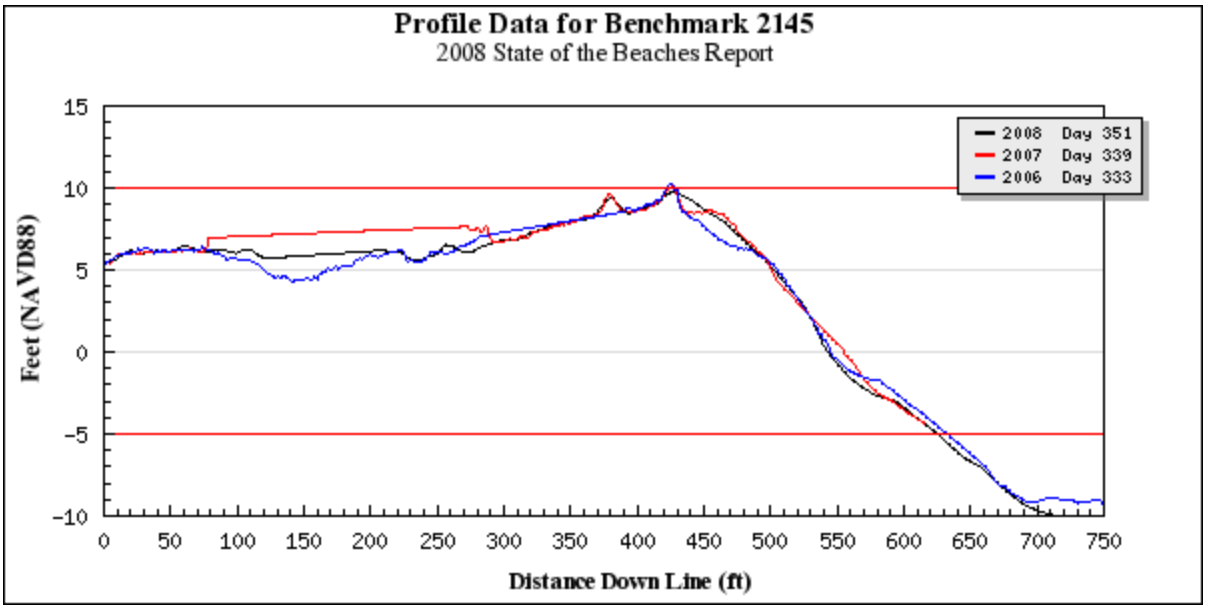


Figure 28. Profile Data for Benchmark (Monument) 2145

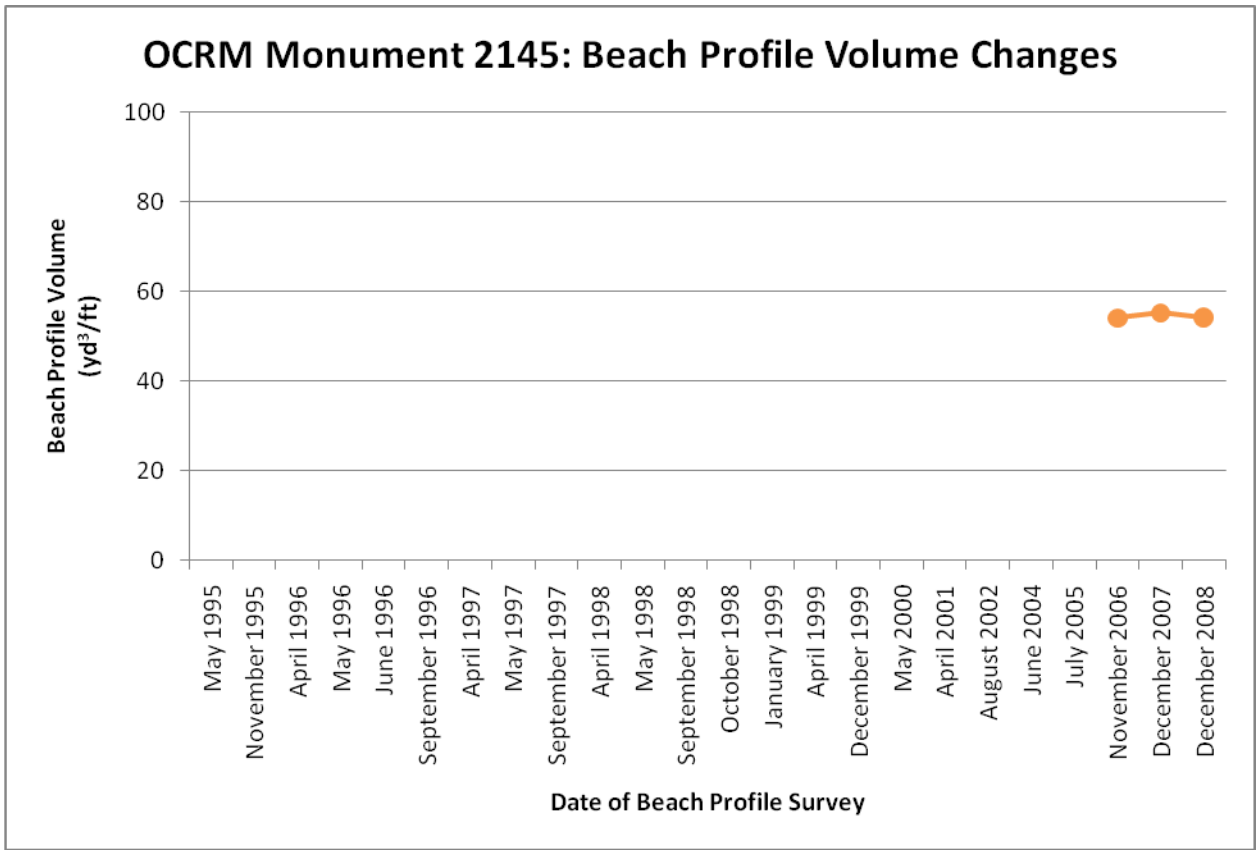


Figure 29. OCRM Monument 2145: Beach Profile Volume Changes

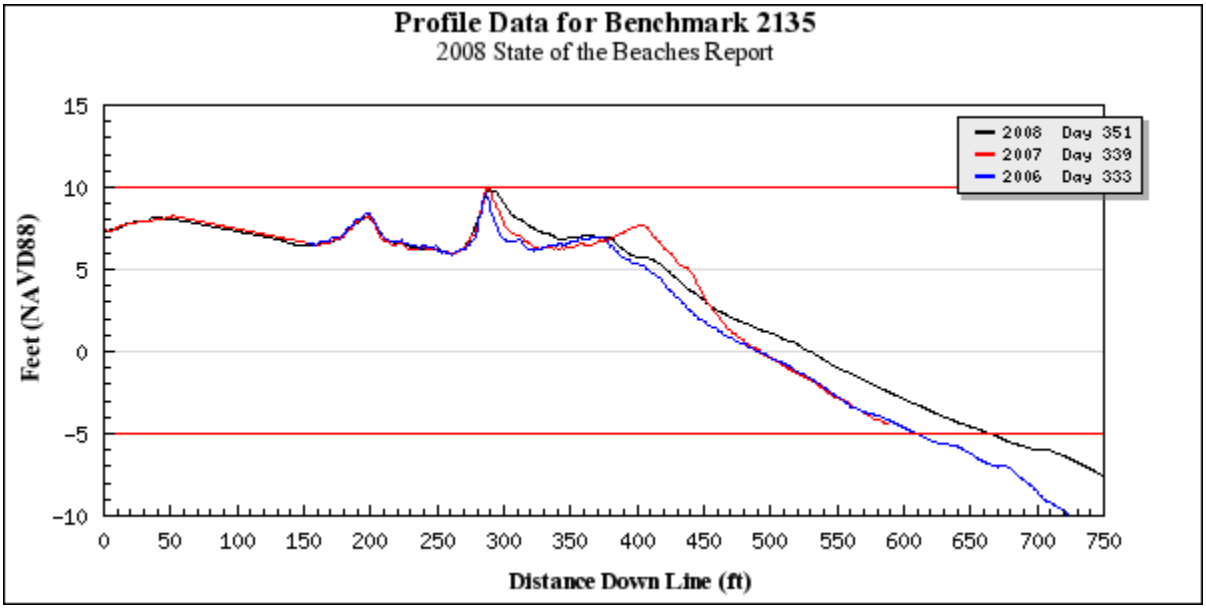


Figure 30. Profile Data for Benchmark (Monument) 2135

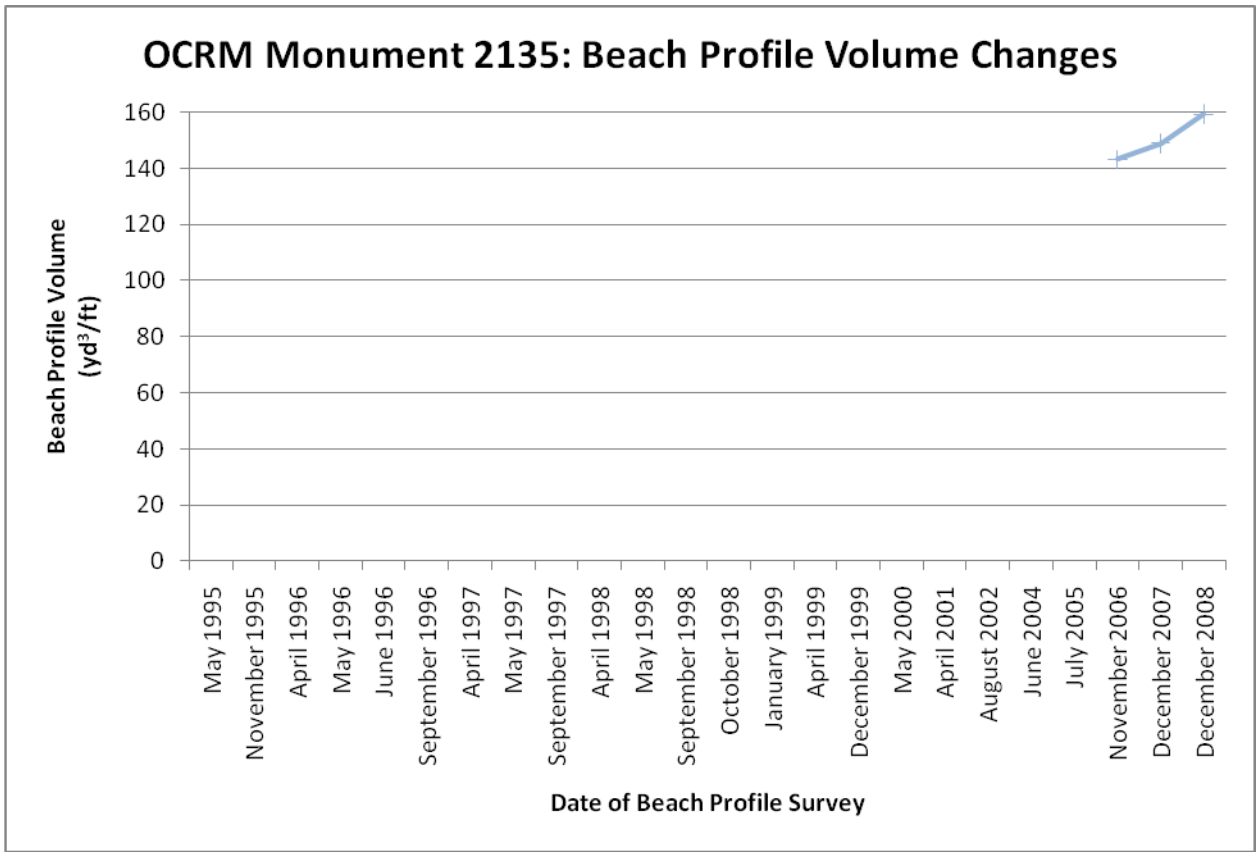


Figure 31. OCRM Monument 2135: Beach Profile Volume Changes

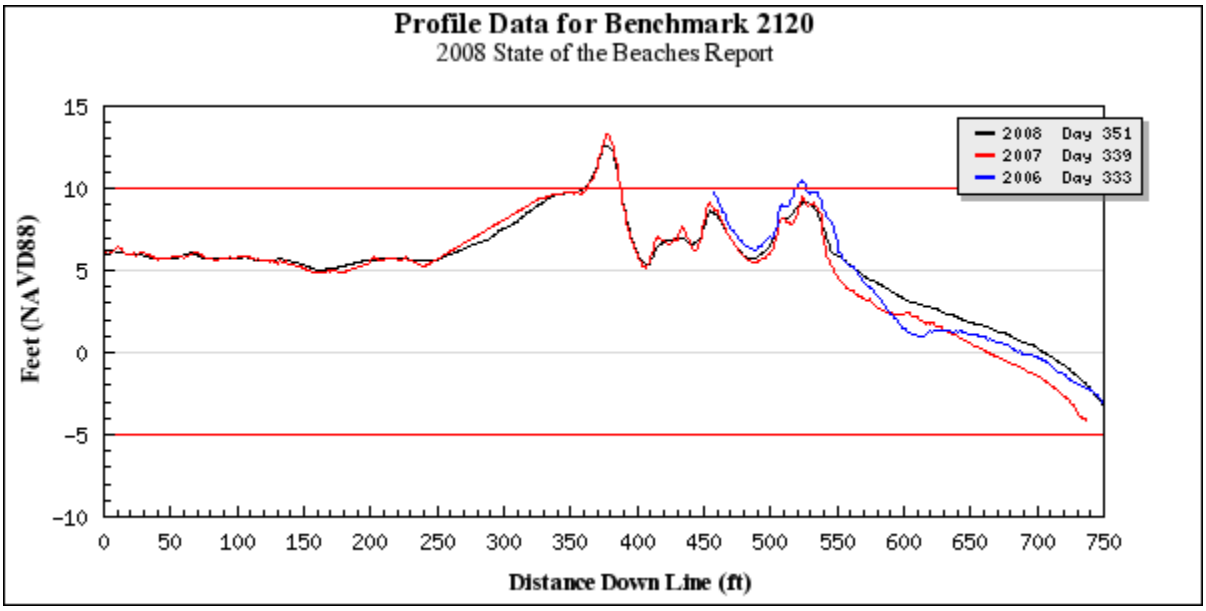


Figure 32. Profile Data for Benchmark (Monument) 2120

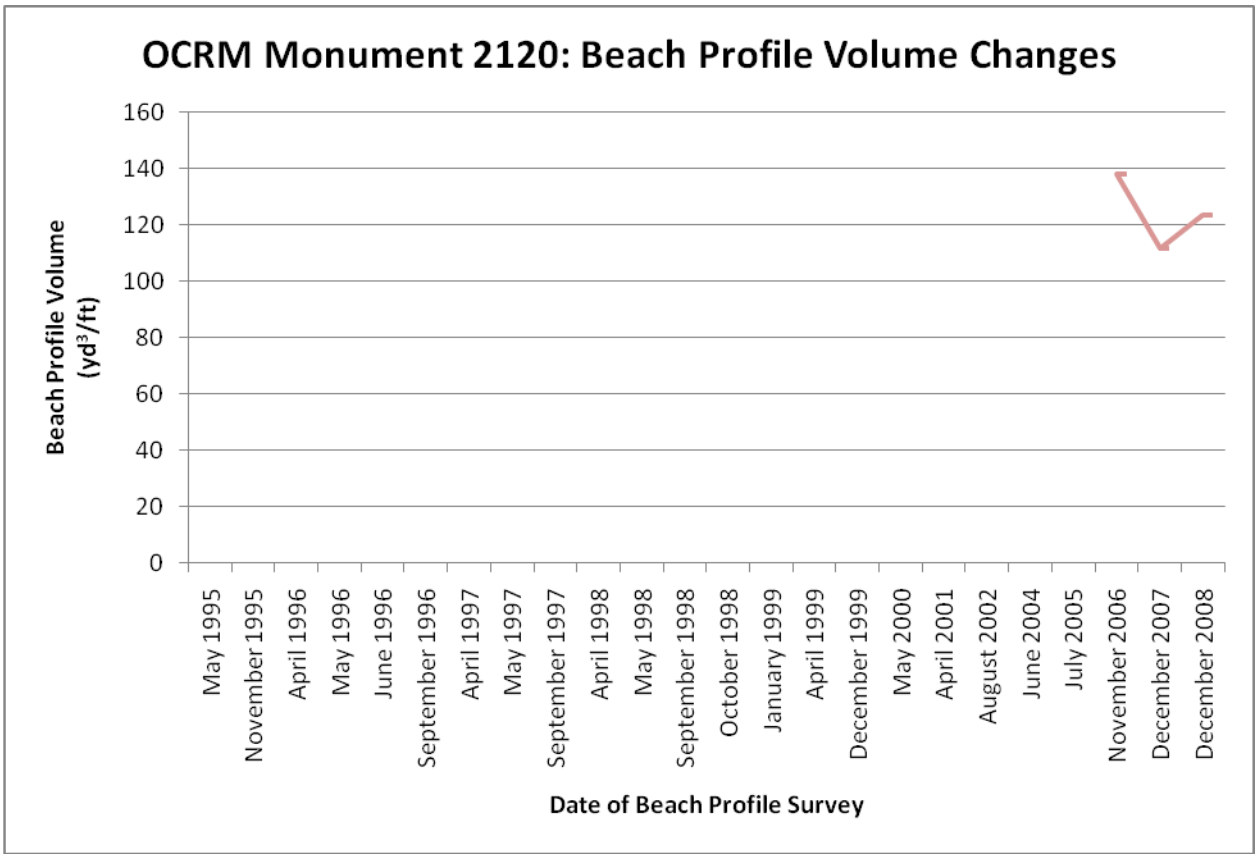


Figure 33. OCRM Monument 2120: Beach Profile Volume Changes

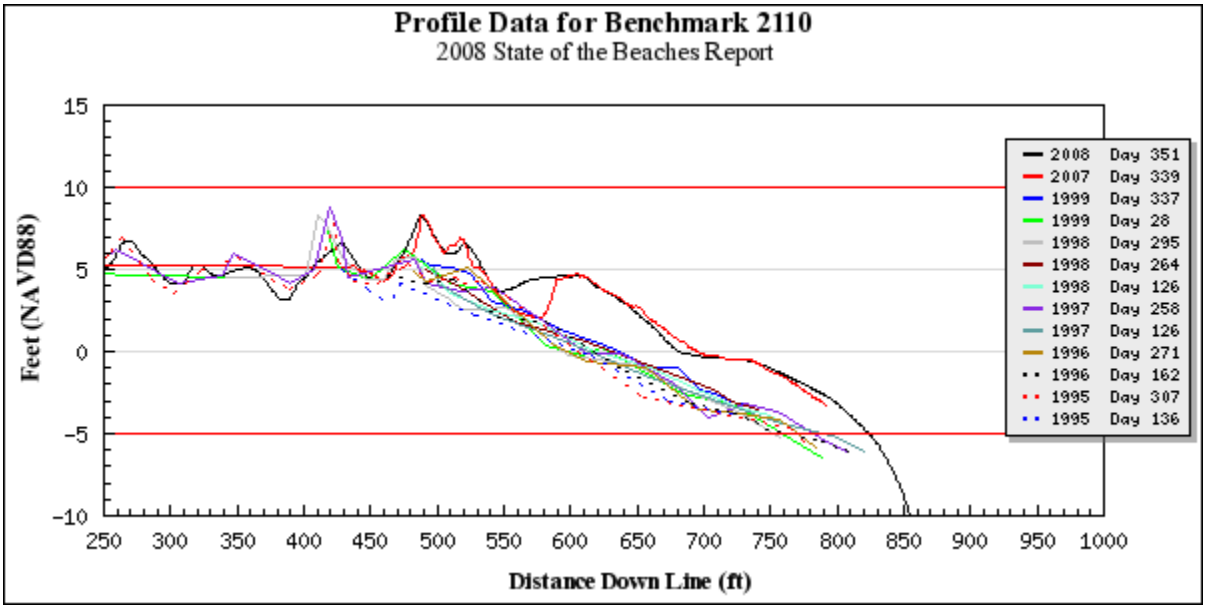


Figure 34. Profile Data for Benchmark (Monument) 2110

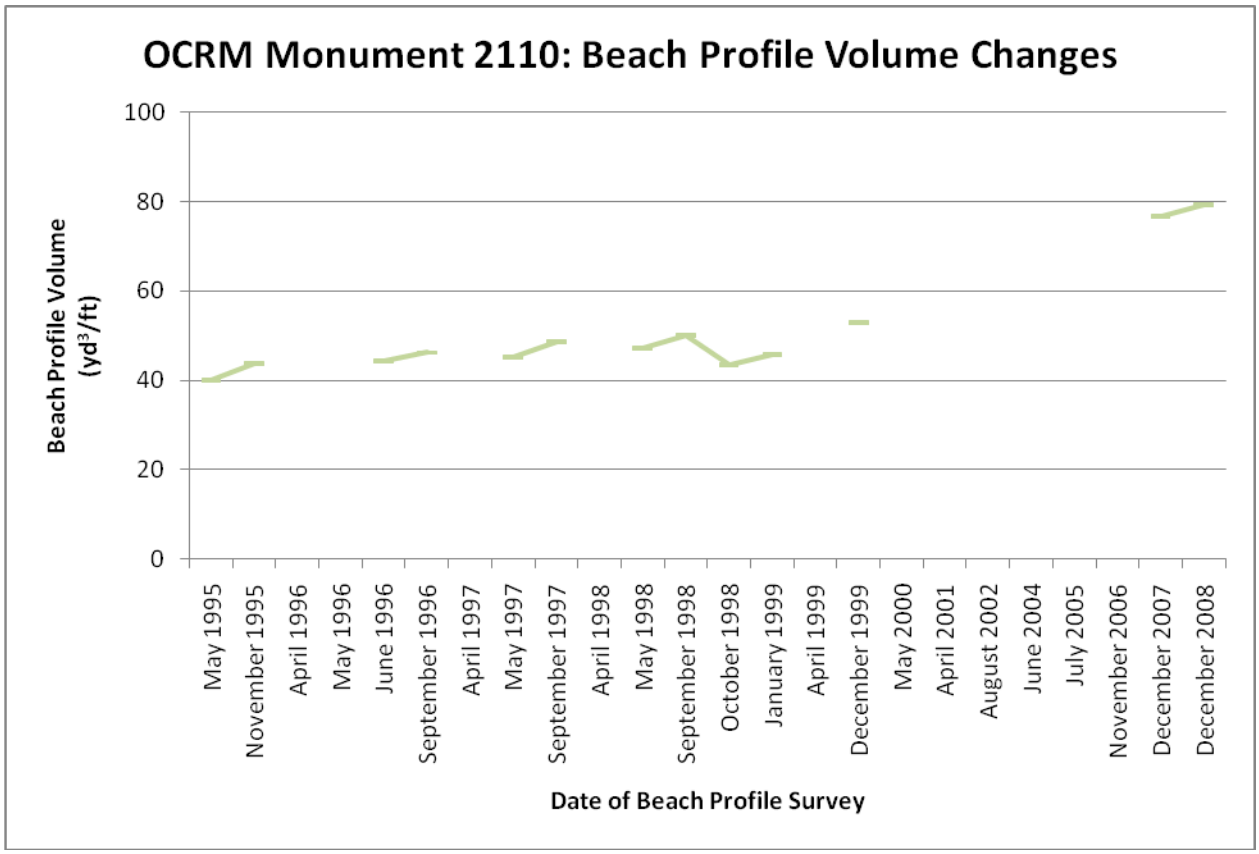


Figure 35. OCRM Monument 2110: Beach Profile Volume Changes

According to the DHEC OCRM South Carolina Annual State of the Beaches Report for 2009, there are 27 beach survey monuments on Edisto Beach that were surveyed August 2004, July 2005, November 2006, December 2007 and December 2008.[22] Stations 2110-2130 are located along the South Edisto Inlet Shoreline and experience modest seasonal shoreline changes. Stations 2135 at Edisto Street and 2140 at Billow Street, located at the Point (shoreline curve between the South Edisto River and the Atlantic Ocean) have remained relatively stable in recent years. The upper beach has accreted between 50 to 100 feet since the 2006 survey.

The widest oceanfront beach is located at the southern half of Edisto Beach from stations 2145 to 2165. The 2006 renourishment of this section added a 100 foot berm that eroded 10-25 feet per year between 2006 and 2008. The northern half of Edisto Beach from stations 2170 and 2200, at the "Pavilion was one of the most critically eroded sections of beach anywhere in the state until the 2006 renourishment". From stations 2155 through 2173, 15 to 20 feet of erosion occurred between 2006 and 2007 and 10 to 15 feet of erosion occurred between 2007 and 2008. Slight accretion occurred between stations 2178 and 2180 and slight erosion occurred between stations 2190 and 2230.

[22] DHEC OCRM, 2009. "South Carolina Annual State of the Beaches Report". http://www.scdhec.gov/environment/ocrm/pubs/docs/SOB/SOB_09.pdf

3.2.2. Long-Term Erosion Rates and Shoreline Change

Long-term erosion rates are calculated based on beach shoreline positions dating back to 1872 at Edisto Beach. Based on an assessment methodology that was developed by the U.S. Geological Survey, the calculated long-term erosion rates for Edisto Beach are shown in Table 7 and Figure 36. South of station 2160 (Marianne St.), the island is classified as an unstabilized inlet zone and is slightly accretional. The rest of the island, including the state park, is a standard zone with low long-term erosion rates. In some cases, groin fields on Edisto Beach have more recently counteracted a long-term erosional trend to produce a relatively stable shoreline, with an official average long-term erosion rate of 0.99 ft/yr for the entire island. However, localized long-term erosion rates may be as high as -7.2 ft/yr.

Long-Term Erosion Rates: Edisto Beach		
Monument	**Beach Zone Classification**	**Long-Term Erosion Rate (ft/yr)**
2105	Unstabilized Inlet	11.3
2110	Unstabilized Inlet	6.7
2113	Unstabilized Inlet	3.7
2115A	Unstabilized Inlet	3.3
2120A	Unstabilized Inlet	4.4
2130	Unstabilized Inlet	6.2
2135	Unstabilized Inlet	9.0
2140	Unstabilized Inlet	9.6
2145A	Unstabilized Inlet	8.4
2150	Unstabilized Inlet	7.0
2155A	Unstabilized Inlet	2.5
2160A	Unstabilized Inlet / Standard	-0.3
2165	Standard	-0.6
2170A	Standard	-1.1
2173	Standard	-1.6
2178A	Standard	-1.8
2180	Standard	-2.1
2185A	Standard	-2.2
2190	Standard	-2.1
2193A	Standard	-2.2
2195A	Standard	-2.1
2198	Standard	-2.2
2200A	Standard	-2.6
2210	Standard	-5.8
2230	Standard	-6.0
2250	Standard	-5.6
2290	Unstabilized Inlet	-7.2

Table 7. Long Term Erosion Rates

There are two principal sources of historical shoreline change information: 1) historical maps and charts, and 2) historical and recent aerial photographs. Both are available for Edisto Beach, and both have been used to assess shoreline change.

Digital high water shoreline position maps covering Edisto Beach have been compiled for the years 1852, 1920, 1933, 1952, 1964, 1970, 1983, 1985, and 2006 (Anders et al., 1990; Harris et al., 2009). DHEC OCRM reviewed aerial photographs to locate the vegetation line in the unstabilized inlet zone south of station 2160 for the years 1959, 1967, 1973, and 1988 for the original establishment of its baseline and 40-year setback line along Edisto Beach in 1990. The baseline and setback line were revised in October 1999 using additional data including aerial photographs from 1993 and 1998. The current baseline and setback line positions for Edisto Beach were adopted on October 9, 2009 using aerial photographs from 1973, 1988, 1993, 1998, and 2006.

The shoreline position at The Point (Billow, White Cap, and Edisto Streets) is somewhat dynamic, but this area has been accretional in recent years (Figure 37). Since 1852, this section of shoreline has grown seaward by about 1,200 feet.

In contrast, north of station 2160 in the standard beach zone, groins and renourishment have helped stabilize the shoreline position to some degree, but it is still erosional with a long-term rate of about -2 ft/yr. The shoreline position in this area is now approximately 320 feet further landward than it was in 1852, and many houses are located very near the active beach (Figure 38).

The erosion rate near Edisto Beach State Park is even higher, at -6 ft/yr. The shoreline has migrated landward a distance of about 750 feet since 1852 and about 100 feet since 1964 (Figure 39).

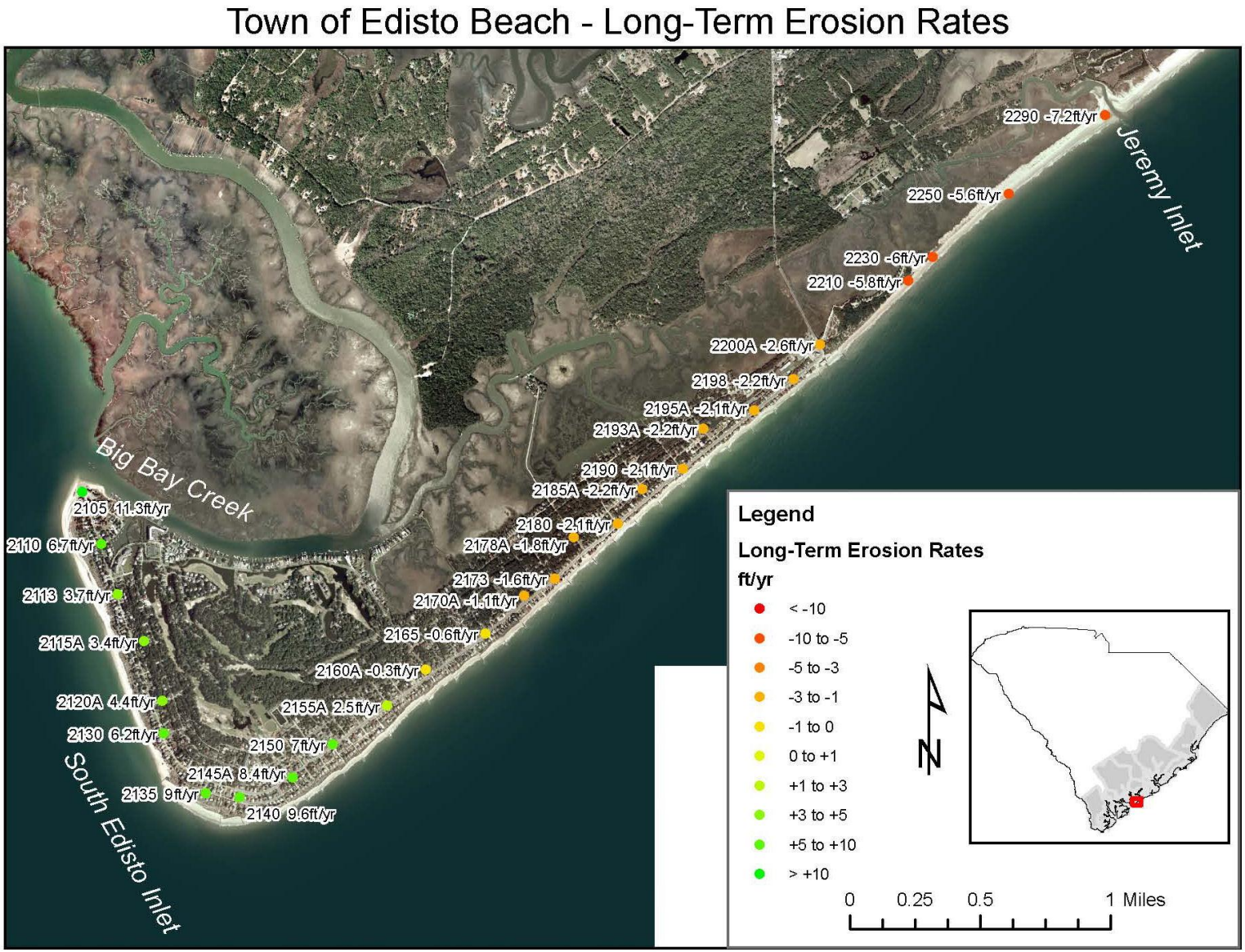


Figure 36. Long Term Erosion Rates on Edisto Beach

Figure 37. Historical Shorelines near "The Point"

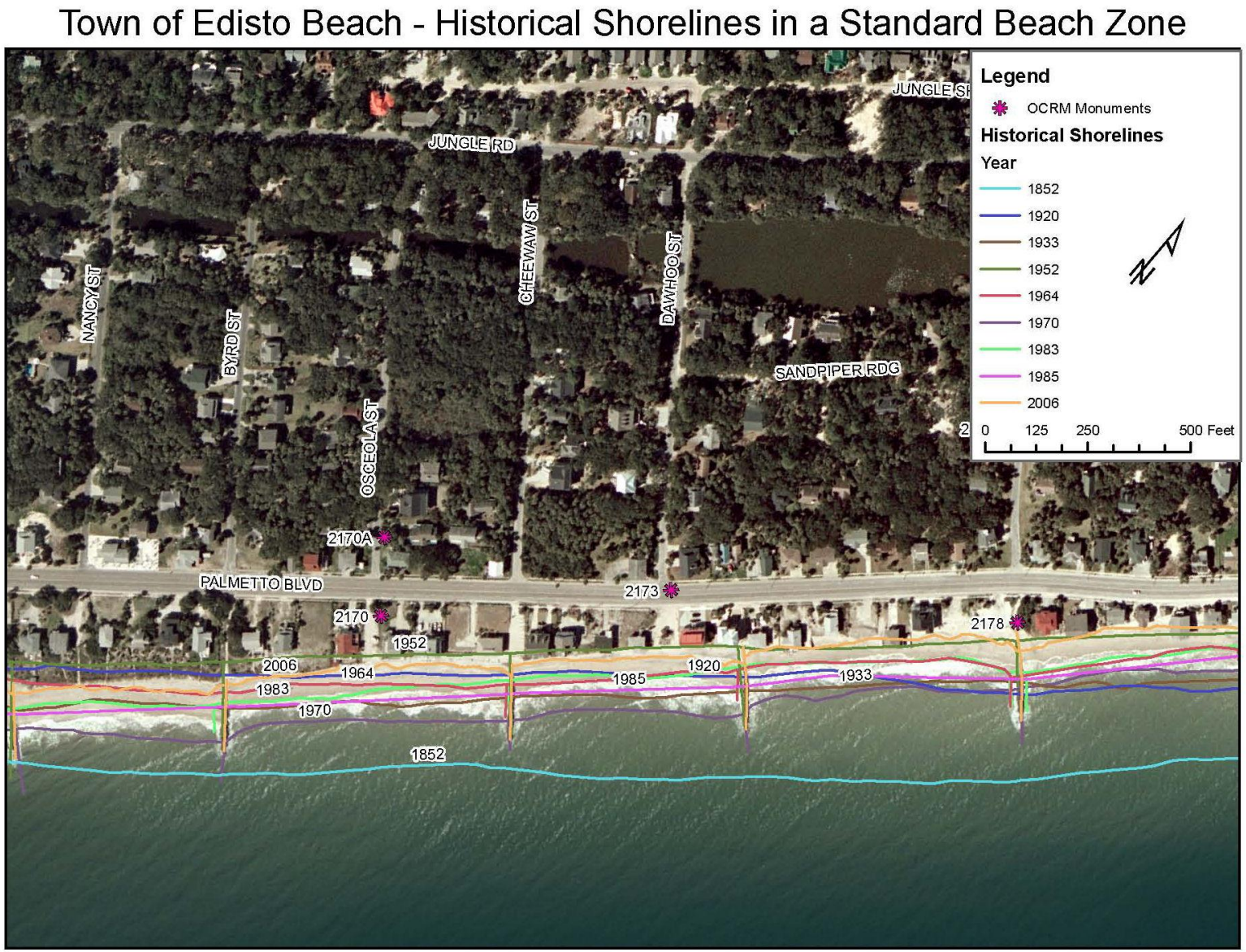


Figure 38. Historical Shorelines in a Standard Beach Zone

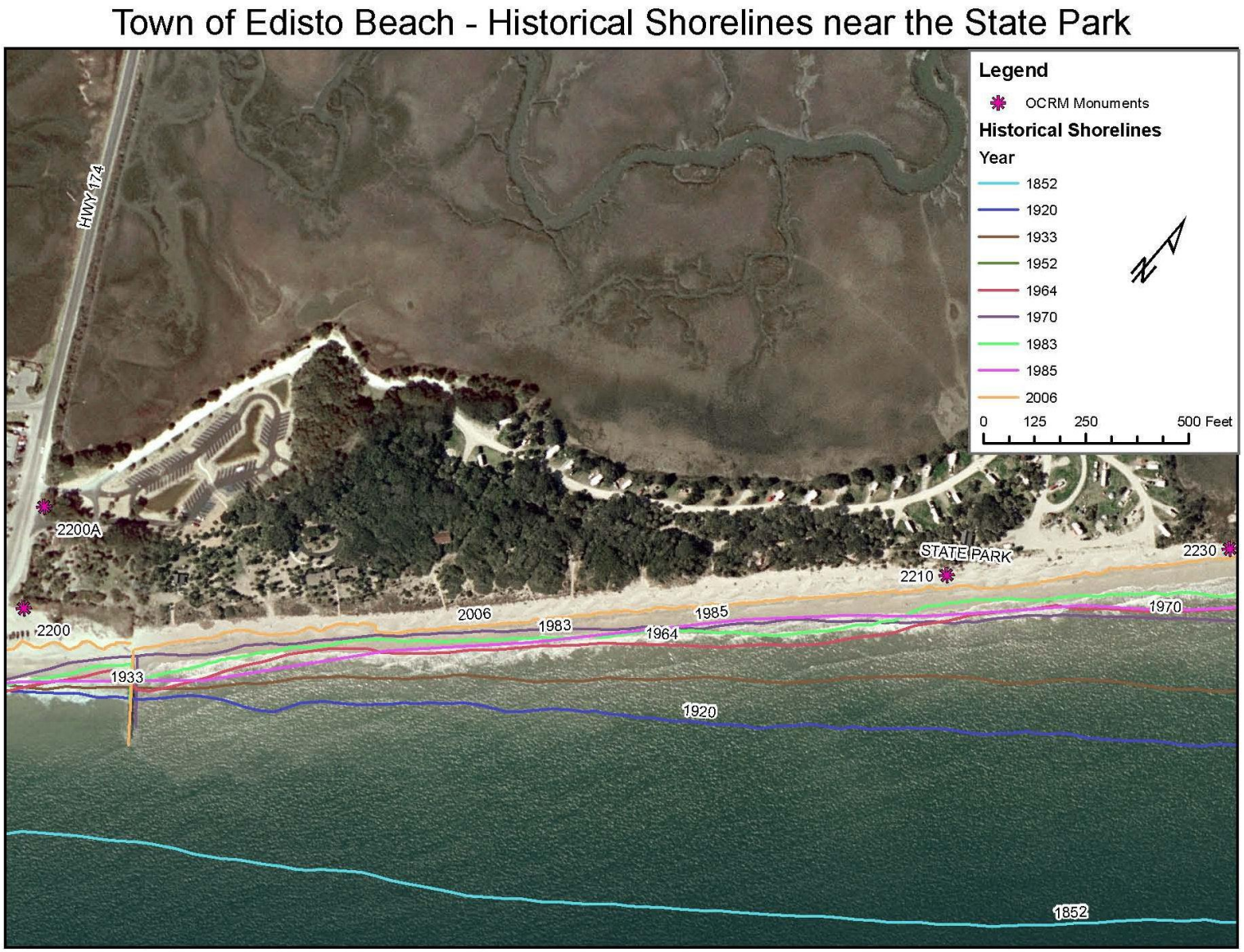


Figure 39. Historical Shorelines near the State Park

3.3. Discussion of Erosion and Erosion Control Alternatives

Beach erosion is strongly influenced by the tidal deltas of North Edisto Inlet and St Helena Sound. The two deltas define a littoral cell encompassing Botany Bay Island, Edingsville Beach, and Edisto Beach. There is a general divergence of sand transport away from the center of the littoral cell with sand shifting north toward Deveaux Bank and sand moving south from Edingsville Beach. (Coastal Science & Engineering, December 2007). Sand supply along Edingsville Beach has been depleted, resulting in insufficient down-coast movement of sand to Edisto Beach, which is evident by the scarping occurring along the groins (Figure 40).

Edisto Beach remains in better shape than at any time in the past 40 years. Since the beach nourishment project in 2006, sand from within the project area is moving to unnourished areas downcoast and to a lesser extent upcoast. About 39,000 cubic yards eroded from the oceanfront of Edisto Beach, while over 77,000 cubic yards was gained in the downcoast reaches. [23] The island-wide volume change between July 2007 and July 2008 was a gain of 38,500 cubic yards. Overall 97% of the sand placed in 2006 is accounted for as of July 2010 (CSE, 2010). Between July 2009 and July 2010, Edisto Beach lost 75,600 cubic yards of sand equivalent to ~2.7 cy/ft/year.

Sediments being supplied to Edisto Beach tend to have a high proportion of mud and shells derived from eroding marsh deposits. Net sediment transport at Edisto Beach is to the South; however waves from the south produce northerly sediment transport causing fillet development at the northern ends of the groin cells. This has caused steep and often scarped beach along the southern ends of the groin cells. The most significant erosion is in Reach 1, (Edisto Beach State Park to Mary Street) on the northern ends of groin cells 1 through 5. This area has returned to pre-nourishment levels. Groin Cells 26-27 should also be monitored closely as the beach around this area is impacted by southerly waves and encroaching marginal flood channel of the South Edisto River inlet (CSE, 2008).

Historically, Edisto Beach has reacted to storm damage and erosion by implementing nourishment projects. The Town actively combats erosion by installing sand fence in conjunction with plantings of sea oats and bitter panicum in efforts to rebuild primary dune systems. During isolated erosion events, homeowners have permitted and funded projects (revetments, seawalls, etc.) to individually protect their properties. Edisto Beach has committed a portion of the local accommodations funds to future nourishment projects and has actively lobbied Colleton County and the State of South Carolina to budget funds for future needs.

Alternatively, because portions of Edisto Beach are accreting, the Town could opt to sand scrape accreted areas and move the sand upcoast to eroded areas and/or the State Park to continue "feeding" sand to Edisto Beach. In the absence of funding, Town Council ratified a statement in December 2010 regarding using sand scraping. As fuel prices increase, this option becomes more cost effective.

Edisto Beach and the United States Army Corps of Engineers, Charleston District are jointly conducting a feasibility study to seek future federal funding. As part of this study, the Town will look at other potential means to control erosion such as groins (lengthening/shortening), artificial reefs, relocation/raising structures or take no action. Edisto Beach has plans to begin lobbying for

[23] Coastal Science & Engineering, November 2008. "2006 Edisto Beach Restoration Project, Colleton County, South Carolina, Survey Report No. 2 ".

federal funding in 2011 in an effort to secure future funds for an anticipated nourishment project in 2016.

On December 9, 2010, Town Council ratified the following statement regarding future erosion:

> "The Town's position is the Atlantic Ocean and sandy beach are the Town's industrial park and no loss is acceptable; however, the Town is not financially capable of restoring the beach to its current condition if storm damage occurs. At any point where homes are threatened by erosion, the Town will aggressively seek ways to prevent further damage and if possible restore the beach to pre-storm conditions. At minimum, the Town will work toward preventing any loss of homes or property that would result in a loss of revenues for the Town, county or state.
>
> In the event the Army Corps of Engineers and the Town of Edisto Beach are not successful in obtaining federal funding to minimize and protect Edisto Beach against storm damage, the Town will take the following measures.
>
> Taking into consideration past nourishment costs as a baseline and the average life of a nourishment project (10 years), Town Council has obligated a portion of the annual local accommodations funds for future nourishment needs over the next 10 years. Although past nourishment projects have had state and county funding, future funding is not guaranteed. The Town, will take the necessary steps to acquire funding both at the county and state levels. As Edisto Beach is the only coastal community in Colleton County, the Town has discussed a future funding obligation with Colleton County, and has received a verbal commitment. As elected positions change, there is no guarantee of this commitment. Considering the impact on tourism and the direct impact on the Edisto Beach State Park, the Town will seek funding from the State of South Carolina.
>
> As a last resort, the Town will consider sand scraping from the sound side of the beach with relocation of sand to areas in critical need. The Town's position is to maintain the groin field in good working condition and nourish localized areas, when feasible. Sand fencing in combination with re-vegetation will be used to prevent future erosion by providing limited sand stabilization. "

The Town has made no commitment to relocate structures in eroded areas.

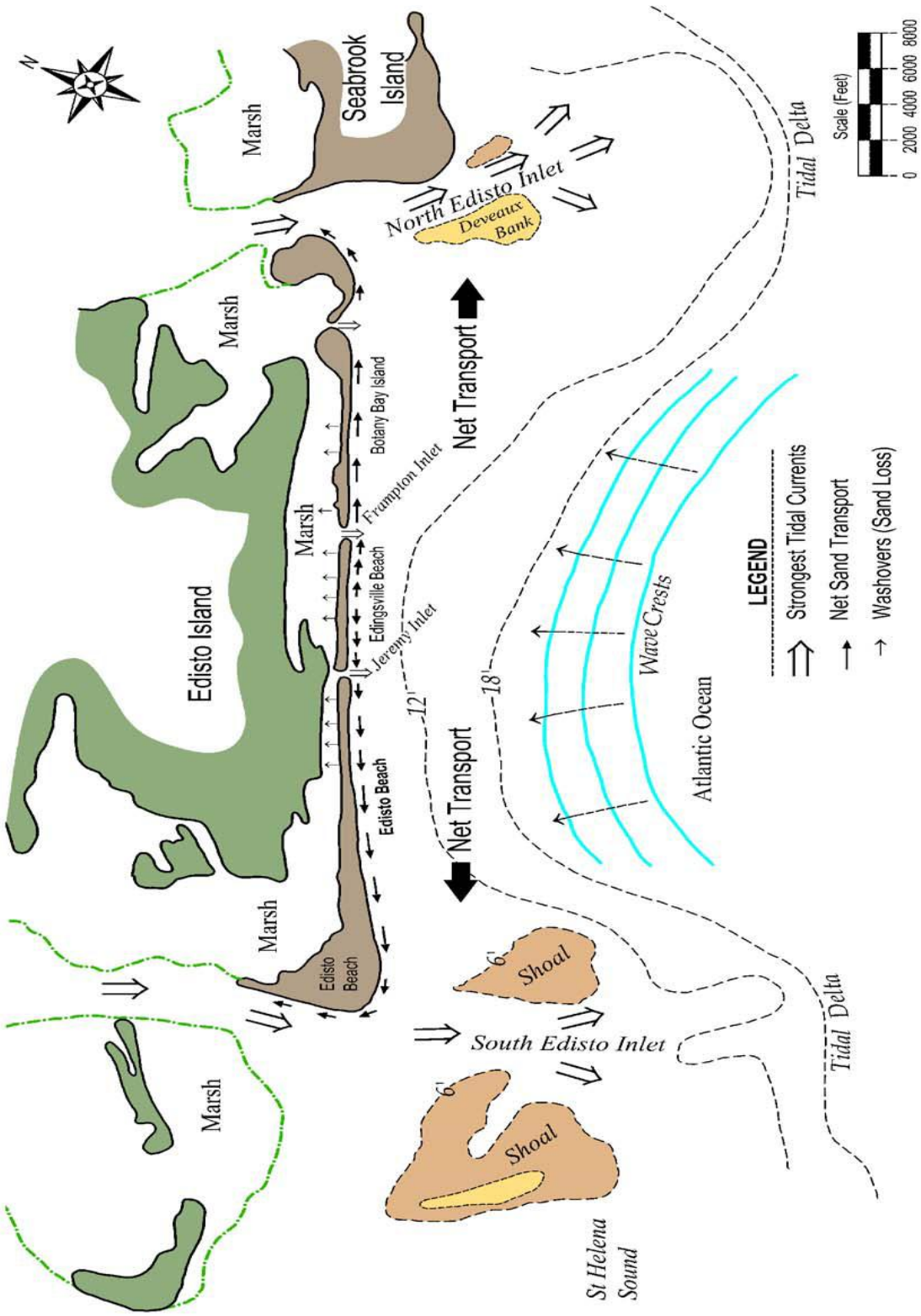


Figure 40. Sand Transport on Edisto Beach

3.3.1. Past Renourishment Projects

Figure 41. 1954 Beach Nourishment Project

In the mid 1950s, erosion near the Pavilion had progressed so far that groins alone were not sufficient to protect Palmetto Boulevard (SR 174). The South Carolina Highway Department combined groin construction with the first nourishment of Edisto Beach in 1954 using sand, shells, and mud from the marsh behind the island (Figure 41). Excavations created the "Yacht Basin" and reclaimed nearly 1.2 miles of shoreline between Groins 1 and 12. Much of the material was very fine and washed away leaving coarser sand and broken shells.

In April 1995, selected areas of Edisto Beach were renourished (a total of 155,000 cubic yards between Groins 1 to 17 and 24 to 28), and groins (1-16) were repaired (CSE 1996 (a,b), 1997, 1999, 2001). The borrow area was located ~2,500 ft off The Point at the southern tip of Edisto Beach and was characterized by coarse beach-quality sand. By the summer of 2001, roughly one-third of the renourishment volume was still present in the project area.[24] Plans called for lengthening of groins 1-10 so that at the seaward end of the groins formed a straight line. The cost of construction was approximately $1,500,000 including groin repairs. The Town received $1,000,000 from the 93/94 State Supplement budget as provided by an agreement with DHEC. The agreement required a $500,000 match.

With erosion of the 1995 nourishment sand, groins became more exposed and less effective for sand retention because groins were not impermeable and groins were not maintained.

3.3.2. Recent Renourishment Projects

The 2006 beach restoration project was necessitated by increased erosion rates in down-coast areas, insufficient protection of beachfront properties, and insufficient beach width to support dune formation and recreational beach access. The 2006 beach renourishment project addressed critically eroded areas along the majority of the beachfront and added to the sand supply and beach width (Figures 42 and 43). The project was constructed between March and May of 2006 by Great Lakes Dredge and Dock Company and was engineered by Coastal Science & Engineering. The length of the project area was 18,258 linear feet, including 3,200 linear feet in the state park area. Fill volumes were varied along the beach with the goals of achieving a standard, minimum profile volume of at least 100 cubic yards/feet for the length of the project area. The greatest volumes were added to the park and updrift areas in anticipation of sand moving south. Post-project erosion rates along the northern half of the project area were expected to be rapid during the first few years as the groins were buried and nonfunctional. Figure 44 indicates the project limits.

[24] Coastal Science & Engineering. November 2001. "Edisto Beach 1995 beach nourishment project. Survey Report No 5".

The total sand volume added in the 2006 restoration was 877,647 cubic yards of which 181,728 cubic yards (20.7%) were placed along the park (north of Groin 1) and 695,919 cubic yards (79,3%) were placed between Groins 1 and 27. This exceeded the original contract volume of 850,000 cubic yards. The cost of the project was $8,063,445. Of this cost $1,960,000 covered mobilization and demobilization. The Town of Edisto Beach and the South Carolina Department of Parks Recreation and Tourism sponsored the project with a combination of local, county, and state funds.

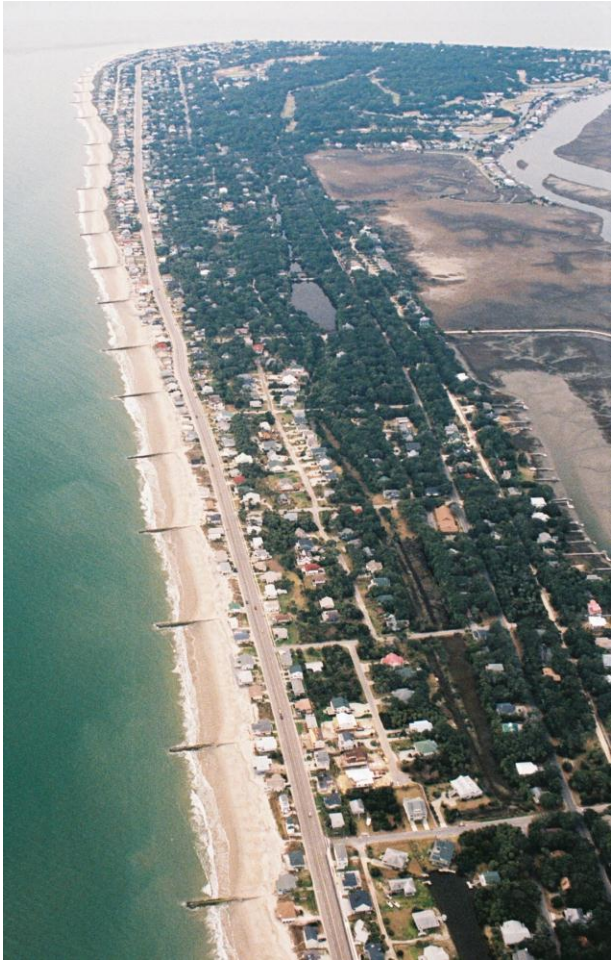


Figure 43. 2006 Pre Nourishment

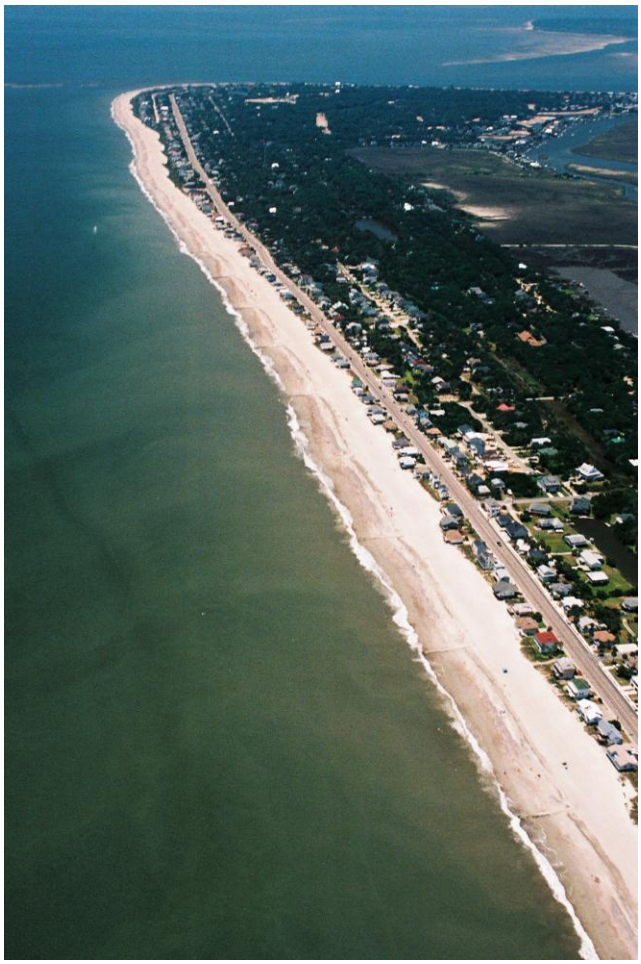


Figure 42. 2006 Post Nourishment

Both the House of Representatives and the Senate overrode the Governor's veto to the Beach Renourishment Act providing the Town of Edisto Beach $4.75 million for the project. Of this amount $1.75 million was used on State Park property. The remaining $3,313,445 million was funded from Colleton County ($1.5 million) and Edisto Beach local accommodations tax funds ($1,813,445).

Coastal Science & Engineering completed annual monitoring of year 4 of the project in November 2010. Between July 2006 and July 2010 the following annual change rates have occurred (Table 8).

Table 8. Annual Change Rates between 2006 and 2010

Upcoast 1	4.7 cy/ft/yr
Upcoast 2	-8.0 cy/ft/yr
Reach 1	-4.5 cy/ft/yr
Reach 2	-2.9 cy/ft/yr
Reach 3	-2.2 cy/ft/yr
Reach 4	-4.3 cy/ft/yr
Downcoast 1	12.4 cy/ft/yr
Downcoast 2	3.8 cy/ft/yr

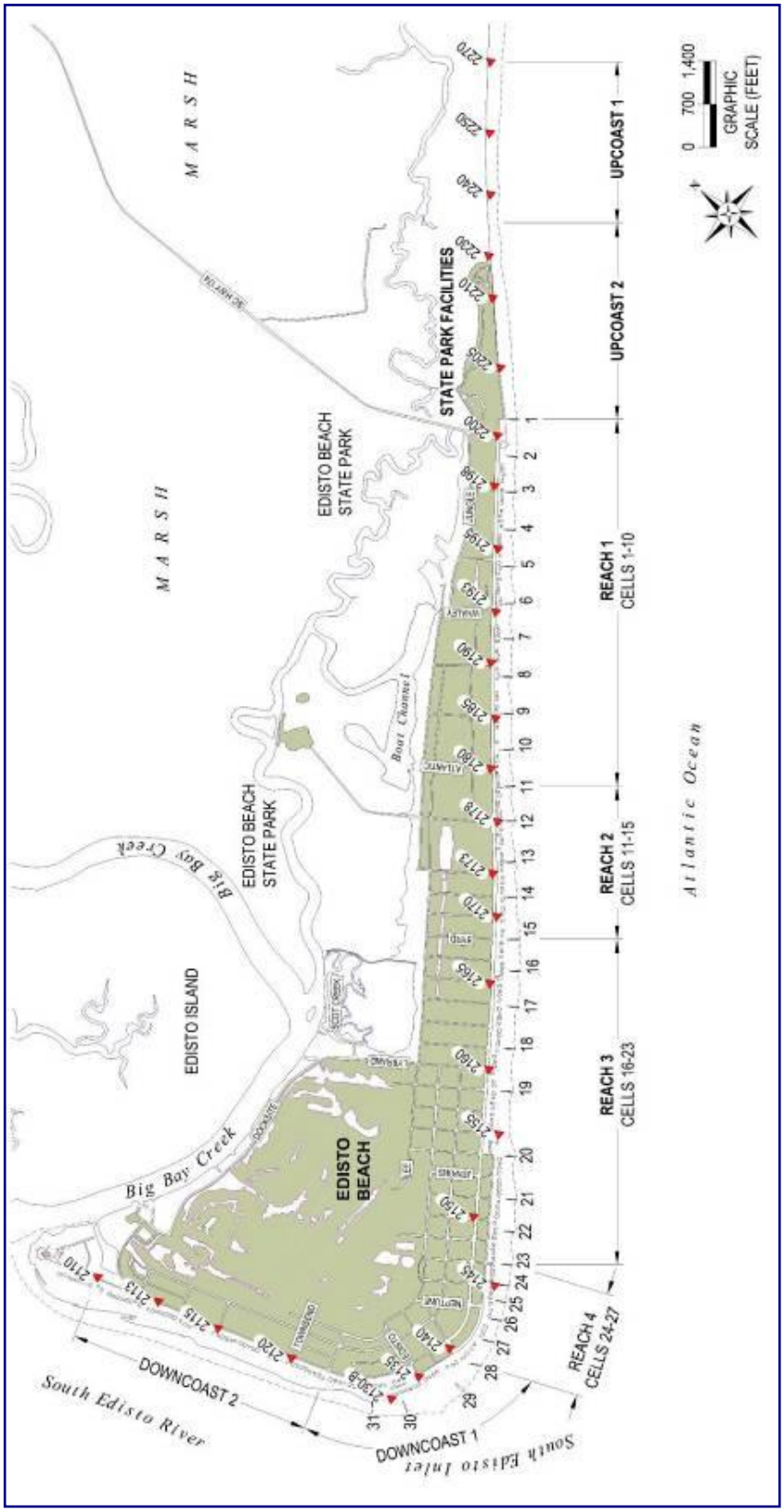


Figure 44. 2006 Nourishment Project Reach Limits

Profiles reveal the dry beach continues to build higher, while the active beach face shows moderate erosion.

Currently the Town is undergoing a feasibility study conducted by the Army Corps of Engineers (ACOE) for future beach nourishment. It appears there is an ample supply of sand for the project and a public hearing was held in October 2009. Once the feasibility study is complete, funding will be the next step. The Town of Edisto Beach Council has committed $200,000 annually from the local accommodations fees for future renourishment activities.

3.3.3. Sediment Budgets

In July 2008, Coastal Science & Engineering collected beach samples along Edisto Beach from 34 stations as recorded in the Geotechnical Data Report -2008, for HDR Engineering Inc. of the Carolinas as part of a feasibility study between the US Army Corps of Engineers and the Town of Edisto Beach to research the feasibility of future nourishment projects. These samples reflect conditions after the 2006 renourishment project. The composite mean grain size of all samples was .404 mm (medium sand). Mean grain size along the beach is often a function of energy, with the coarsest sediments found in the most energetic environments. As such, the coarsest sand was found along the beach face that is subject to the most wave energy, as opposed to the grain size at the dune, top of berm, and low tide terrace. Shell content for beach samples averaged 24.8%. In general, shell content was greater at the beach face and low-tide terrace than at the dune and berm. As indicated in previous Coastal Science & Engineering studies, these beach samples are consistent with previous samplings. Edisto Beach sand tends to have a higher shell content and be more coarse than most South Carolina beaches due to:[25]

- Updrift sediment supply is derived from eroding marsh deposits along Edingsville Beach yielding a high concentration of oyster shells and mud.
- The 1954 nourishment excavated marsh deposits from the area known as the Yacht Basin. The mud eroded and left shell.
- Groins trap and retain fillets of coarse sediment in high concentration such as oyster shells and shell hash.

Four potential areas have been located off Edisto Beach that can be used for future beach nourishment. Sand is in sufficient quantity to substantiate future beach nourishment projects.

4. Beach Management and Authorities

4.1. Public Trust Doctrine

The Public Trust Doctrine provides much of the basis for the management of public lands and waters in the United States. The Public Trust Doctrine is an example of common law, meaning rules that were derived from the traditional laws of England in the Middle Ages that are based on custom and precedent rather than legislative action. Common law often addresses issues of access, fairness, commerce, and land uses. The Public Trust Doctrine establishes that public trust lands, waters, and living resources are held in trust by the State for the benefit of all citizens. It also creates the right of the people to fully enjoy public trust lands, waters, and living resources for a

[25] CSE. 2006. "Beach restoration project, Edisto Beach, Colleton County, South Carolina". Columbia, SC. CSE, Columbia, SC, 75 pp + appendices

multitude of public uses. Finally, the Doctrine establishes responsibilities for the State when managing these public trust resources, and sets limitations on the ways government, public and private owners can use public trust resources.

In the coastal zone, the Public Trust Doctrine covers navigable waters and lands that are subject to the ebb and flow of the tide including tidal marshes and oceanfront beaches. While each state is able to implement the Public Trust Doctrine according to its own views of justice and policy, the core principles are the same throughout the country. These principles, and the responsibility they establish for the state, are at the heart of many of the state's coastal laws, regulations and policies. In many states, including South Carolina, the jurisdiction of the Public Trust Doctrine on the beach and navigable waters of the ocean extends landward to the mean high water line. Generally, the Public Trust Doctrine protects the right of the public to pass along the shoreline up to the mean high water line and utilize the space for fishing, navigation or recreation. The Public Trust Doctrine does not authorize the public to trespass on upland private property in order to access the beach. However, the doctrine does help preserve and protect the right of the public to access and utilize the beach.

In South Carolina, as with much of the United States, the Public Trust Doctrine has been at the center of numerous court cases and deliberations and will likely continue to be. This doctrine is at the core of the philosophy of coastal zone management and should be recognized and considered by the government, private landowners and the public at large in the course of decision-making along the beach.

4.2. Agencies and Jurisdictions

Numerous agencies have responsibility or authority for assisting in the management of the beach at Edisto. This section provides a summary of agencies with regulatory or management authority and discusses their authority as relevant to beach management at Edisto Beach.

4.2.1. Federal

4.2.1.1. The US Army Corps of Engineers (USACE)

The US Army Corps of Engineers (USACE) is responsible for providing engineering services to the United States, including a major role in civil works projects in which there is a federal interest. The regulatory mission of the USACE is to protect federal trust resources in their authority. USACE also plays a major regulatory function through Section 404 of the Federal Water Pollution Control Act of 1972 (Clean Water Act), which authorized the Secretary of the Army to issue permits for the discharge of dredged and fill material in and around wetlands.

USACE has three main permitting mechanisms, 1) the general permit (GP), 2) individual permit, and 3) nationwide permit. The Army Corps is responsible for reviewing applications and regulating beach nourishment activities under Section 10 to the Rivers and Harbors Act of 2899 and Section 404 of the Clean Water Act. The decision to issue a permit is based on evaluation of the probable impact of the project including cumulative impacts of the activity on the public interest.

USACE also maintains an emergency management responsibility through its Emergency Management Division located in Charleston. During emergency situations, the USACE is authorized to provide engineering and public works assistance to State government agencies.

4.2.1.2. The US Fish and Wildlife Service (USFWS)

The US Fish and Wildlife Service (USFWS) is the federal agency responsible for the protection of federal fish and wildlife habitats and species, specifically those that are imperiled, threatened, or endangered. Much like the National Oceanic and Atmospheric Administration (NOAA), USFWS does not directly permit or authorize activities but is typically part of a consultation team and can raise issues that are deemed important. USFWS is responsible for administering the federal Endangered Species Act (ESA), which protects threatened and endangered species and habitats primarily on land and on the beaches in coastal areas. The USFWS has direct responsibility for protecting endangered insects, plants and shorebirds, and shares joint responsibility with National Marine Fisheries Service (NMFS) for the protection and recovery of sea turtles.

4.2.1.3. The Federal Emergency Management Agency (FEMA)

The Federal Emergency Management Agency (FEMA) is part of the Department of Homeland Security and is responsible for reducing the loss of life and property and protecting the United States from hazards, including natural disasters. FEMA supports a risk-based program for a comprehensive emergency management system of preparedness, protection, response, and communication to state agencies during federal emergencies and is involved in promoting community resiliency and post-disaster relief.

4.2.1.4. The National Oceanic and Atmospheric Administration (NOAA)

The National Oceanic and Atmospheric Administration (NOAA) is a federal agency housed within the Department of Commerce. The mission of the NOAA is to protect federal trust resources, provide mapping of navigation channels, monitor and forecast weather, monitor coastal dynamics and condition, and manage the nation's coast. Within NOAA are the National Ocean Service and National Marine Fisheries Service.

The National Marine Fisheries Service (NMFS) implements the Magnuson-Stevens Fishery Management Act policies, monitors and established federal catch limits, restores coastal wetlands and shellfish habitat, and assesses national resource damage to federal trust species. NMFS has coordination authority over federal activities and permits that may adversely affect Essential Fish Habitat (EFH), and requires notification and consultation prior to federal permitting of certain activities, including beach nourishment. NMFAS administers the requirements of the Marine Mammal Act, and has joint responsibility with the US Fish and Wildlife Service of the protection and recovery of sea turtles.

The National Ocean Service monitors coastal processes and conditions and administers the federal Coastal Zone Management program. Section 307 of the Coastal Zone Management Act requires that an applicant for a federal permit, grant, license, or approval must certify that the proposed action is consistent to the maximum extent practicable with the policies and purposes of a federally approved state coastal management program. The State must concur with this certification prior to a federal agency undertaking the approval, authorization, licensing or funding of the proposed project.

The Office of Ocean and Coastal Resource Management (OCRM), part of NOAA provides national leadership, strategic direction and guidance to state and territory coastal programs and estuarine research reserves.

4.2.1.5. The United States Coast Guard (USCG)

The United States Coast Guard (USCG) is the federal agency responsible for protecting the nation's waterways and coastline as part of the Department of Homeland Security. The Coast Guard's mission includes promoting maritime safety, security and mobility, providing for national defense, and protecting natural resources. The USCG performs search and rescue operations in coastal areas for missing boaters, lost swimmers, and sinking vessels. The USCG is also involved in law enforcement on the water, particularly reckless boating, boating while intoxicated and drug interdiction. In addition the USCG has authority over the permitting of bridges. A major responsibility of the USCG is to respond to, investigate, and address oil spills in a water body. The USCG has developed an Area Contingency Plan for each section of the State for spills and response and serves as the federal On Scene Coordinator for spills.

4.2.1.6. The United States Geological Survey (USGS)

The United States Geological Survey (USGS) is a federal agency housed within the Department of the Interior. The mission of the USGS is to serve the nation by providing reliable scientific information to describe the Earth; minimize loss of life and property from natural disasters; manage water, biological, energy and mineral resources; and enhance and protect our quality of life. The USGS is typically known for mapping the nation's water, earth, and biological science. The USGS collects, monitors, analyzes and provides scientific understanding about natural resource conditions, issues and problems. Although this agency has no regulatory authority, it does provide research and technical assistance for coastal zone management under the Coastal Zone Management Act of 1976.

4.2.2. State

4.2.2.1. State General Assembly

The South Carolina General Assembly is the legal legislative body of the State and holds significant authority over decisions of the State. The General Assembly has the authority to control public lands, including bottomland and beaches below the mean high water mark, manage public trust resources, and regulate the use of water bodies for various purposes including navigation. The assembly has delegated responsibility for the management of many Public Trust resources to State agencies. All authority and jurisdiction assumed or acted upon by any State agency is through direct delegation of authority from the South Carolina General Assembly.

4.2.2.2. Department of Health and Environmental Control

DHEC is the state's health and environmental management agency comprised of five deputy bureaus including Administration, Health Regulation, Health Services, EQC, and OCRM. The mission of DHEC is to promote and protect the health of the public and the environment in South Carolina. The DHEC Commissioner and a Board of Health and Environmental Control comprised of seven appointed members are appointed by the General Assembly.

4.2.2.3. Office of Environmental Quality and Control

The Department of Health and Environmental Control Office of Environmental Quality and Control (DHEC EQC) is the State's environmental management and regulatory agency and operates eight regional offices in the State. EQC manages water and community wastewater permitting, storm water permitting, septic systems, public and private wells and other inspections, manages air emissions, brownfields, solid waste and hazardous waste, mining, beach monitoring, public swimming pools, and permitting activity for numerous environmental program areas.

4.2.2.4. Office of Ocean and Coastal Resource Management

DHEC OCRM is the State's coastal management agency and administers the federal coastal program, as amended and refined by the state, and protects and manages coastal public trust resources out to three nautical miles. Formerly known as the South Carolina Coastal Council, DHEC OCRM consists of a regulatory division, a policy and planning division, and a program administration and communication division. The regulatory program reviews and permits dock activities beach and dune permits, beach renourishment, wetland impacts, marina applications, and coastal storm water permitting within the eight coastal counties. The Policy and Planning Division provides assistance to local communities in identifying and addressing coastal change, prepares guidance and policy documents to assist government agencies in understanding coastal issues, and manages the preparation of local comprehensive beach management plans.

4.2.2.5. Department of Natural Resources

The South Carolina Department of Natural Resources (DNR) is the principal advocate for and steward of the State's natural resources. This is accomplished through regulating hunting, fishing and boating activities through conservation, land and water management programs. DNR administers the State's threatened and endangered species programs, including protection of shorebirds, sea turtles and marine mammals. DNR also administers most of the State's authority for the management of surface vessels and enforcing boating regulations through the DNR Law Enforcement Division.

4.2.2.6. Department of Transportation

The South Carolina Department of Transportation (DOT) is responsible for planning, constructing and maintaining State roads and bridges, and providing mass transit services in the State. DOT is an Executive branch agency that is overseen by a seven-member commission. The Governor appoints the Commission chairperson and the six commission members represent the congressional districts of the State. The Commission is responsible for hiring the Executive Director who is responsible for hiring the division directors. The Department helps plan for hurricane evacuation routes and maintains and publishes the current evacuation routes. DOT also provides emergency response during hurricanes to facilitate evacuation.

4.2.2.7. Emergency Management Division

The South Carolina Emergency Management Division (EMD) is responsible for preparing for, responding to, and assisting in recovery after major disasters, storms and other emergencies. EMD is comprised of six divisions under the supervision of a Division Director. The divisions include the division director's office, public information, preparedness and recovery, response and operations, Critical Incident Management Group (CIMG) and administrative services. EMD provides planning assistance for communities prone to emergencies such as storms or hazards, and also provides training to responders. A Regional Emergency Management Program is housed in EMD that provides on-the-ground assistance to communities in the six EMD districts. EMD also works directly with county and local governments following storms to help facilitate rebuilding.

4.2.3. Town

The Town has jurisdiction over lands within its boundaries and is responsible for planning, zoning, building regulation, code enforcement, floodplain management, emergency services, etc. According to Title 5, Chapter 7 of the South Carolina Code of Laws, the municipal jurisdiction extends one-mile

seaward of the high tide line[26]. The following Town departments have authority over the beach and nearby areas:

- Police and fire (public safety, emergency operations, evacuations, etc.)
- Building and planning (regulation of new and existing construction, land use and development, code enforcement, floodplain management)
- Public works (beach maintenance, street signs, access signs, ditch maintenance, collection of garbage and debris and overall rights of way maintenance)
- Municipal courts (adjudication of beach-related violations of the Town code)
- Town Council (policy implementation regarding beach related issues)

4.3. Local Government Regulation and Management

The Comprehensive Plan provides a conventional zoning and land use plan for the area seaward of the setback plan. The first Comprehensive Plan was adopted in 1996 in compliance with the South Carolina Local Government Comprehensive Planning Enabling Act of 1994. Revised and adopted in 2003 and 2010, the Comprehensive Plan is a dynamic planning program for the physical, social and economic growth, development and redevelopment of the beach. It is intended to document the history of development for the Town of Edisto Beach, to identify the community's problems and needs, and to articulate a vision for its future. The plan is not a final product; it is part of a continuing planning process and is updated and revised as new information becomes available or as new problems and needs arise. The Plan was recently revised and adopted by Town Council in February 9, 2010. (http://townofedistobeach.com/departments/building.aspx)

Other elements of the Comprehensive Plan promote protection and preservation of the beach and dune systems. The Natural Resources and Cultural element describes the beach systems and coastal dunes, as well as the endangered, threatened and rare plant communities and species. It lists goals to conserve and protect critical and sensitive natural and cultural resources in the Town. This section also discusses the implementation of the beach retreat and storm mitigation policy requiring new construction and reconstruction in the beach management overlay district meet certain setback requirements and encourages voluntary compliance with the 40 year setback zones. The Land Use element describes the challenges of accommodating new development while preserving the quality of its existing environment.

Section 86-145 of the Town's Code titled Beach Management Overlay Zoning District addresses setbacks and retreat strategy. Its primary purpose is to implement and enforce the retreat strategy and storm hazard mitigation plan adopted by the Town to protect life and property located within the close proximity to the baseline established by the South Carolina Coastal Council. Its secondary purpose provides a means of educating all persons owning property along the beach about the hazards connected with erosion, storms and flooding in areas close to the beach. In further accordance of the State's retreat policy, Edisto Beach does not allow the construction of habitable structures to exceed 3,450 sq ft between the DHEC OCRM baseline and setback line.

[26] South Carolina Code of Laws. Title 5, Municipal Corporations, Chapter 7, General Structure, Organization, Powers, Duties, Functions and Responsibilities of All Municipalities. Section 5-7-140. http://www.scstatehouse.gov/code/t05c007.htm.

4.3.1. Land Use, Development and Zoning

Chapters 10, 14 and 86 of the Town Code contain regulations pertaining to the Building Code, zoning and land use regulations. The Beachfront Management Overlay District (86-145) establishes a beachfront overlay district that encompasses the entire beachfront seaward of Palmetto Boulevard, and extending down seaward of Yacht Club Road. The purpose of this district is to provide guidance of development in accordance with the State of Carolinas' retreat strategy, and to protect, promote, and improve the public health, safety, morals, convenience, order appearance, prosperity and general welfare. All of the property is Zoned R-1, with the occasional non-conforming uses mixed in from before the Town's Zoning Ordinance. The Town's Beachfront Management Overlay district compliments the state's retreat policy by establishing an additional setback line ten (10) feet landward of the state's baseline, and requiring that all new redevelopment be located as far landward as possible. Figure 45 depicts the current zoning on Edisto Beach.

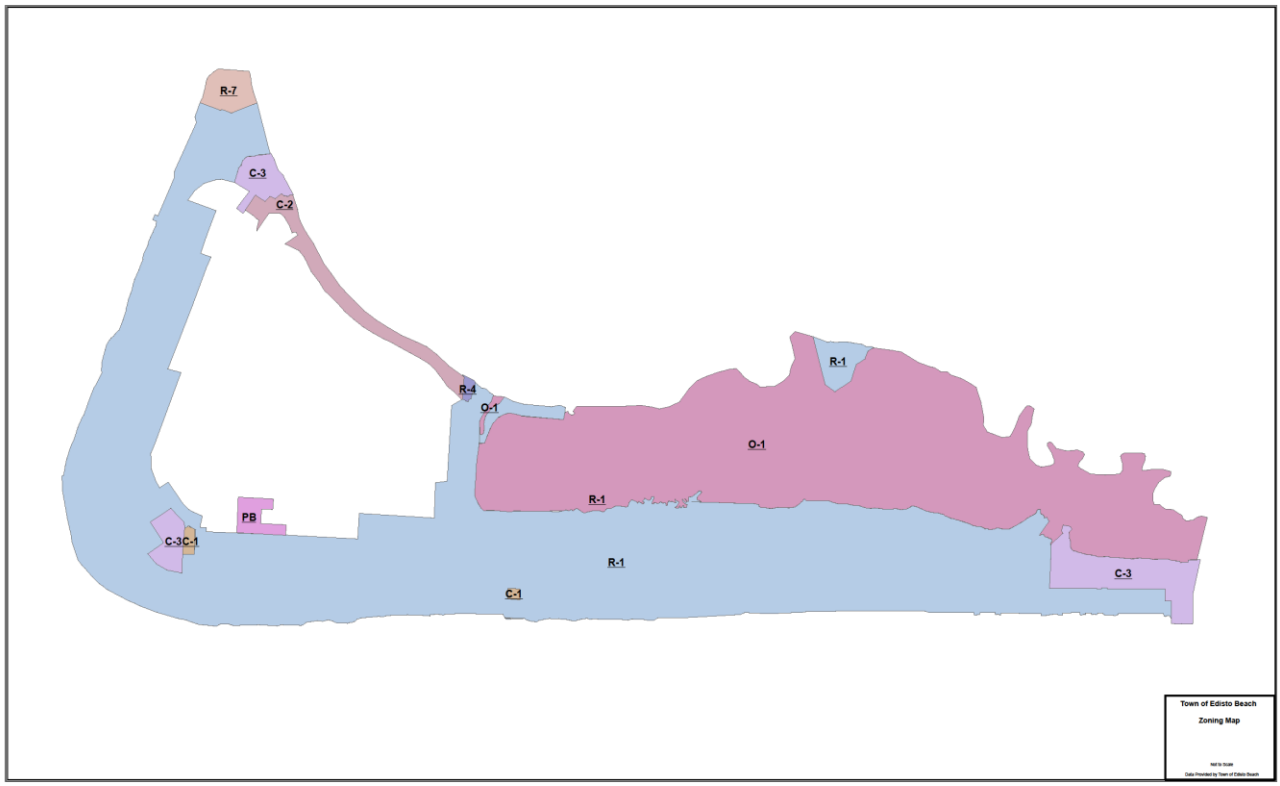


Figure 45. Zoning Map

4.3.1.1. Building Regulations and code Enforcement

Chapter 86 of the Code defines zoning provisions including those pertaining to various districts including 86-145 which address the Beach Management Overlay Zoning District. Chapter 10 contains provisions that specifically address beach regulations. Chapter 14 addresses building and building regulations including building code enforcement and flood damage prevention under Article IV. [27] The Town also implemented an ordinance revision into the Flood Damage Prevention

[27] Code of Ordinances, Town of Edisto Beach, South Carolina, Municipal Code Corporation, http://library.municode.com/index.aspx?clientId=13036&stateId=40&stateName=South%20Carolina

Ordinance [14-114 (g)(4)] that prohibits the new or reconstruction of seawalls, within the Beachfront Management Overlay District (86-145), even if located outside of the state's jurisdiction. Revetments however, are permissible under Town Ordinance 14-114(g)(5) and erosion control structures (even if temporary) in the event of an emergency under Town Ordinance 14-114(g)(8).

4.3.1.2.1. Beach Regulations

Section 10-31 through Section 10-67A of the Town Code addresses beach regulations. [Reference 8.7.1] Included in these sections are codes that address:

- Shark fishing
- Throwing trash, rubbish, debris prohibited
- Vehicles
- Motorized watercraft, jet skis
- Camping
- Boat launching
- Fires
- Vegetation and fencing
- Glass containers

4.3.1.2.2. Sea Turtle Outdoor Lighting Regulations

Section 10-65 and Section 10-66 of the Code specifies lighting requirements for the protection of sea turtles. [Reference 8.7.1] Disorientations of sea turtles have become an increasing issue on Edisto Beach. This ordinance is being reviewed to strengthen protection of sea turtles.

4.3.1.2.3. Non Conforming Structures

Reconstruction of damaged non conforming buildings and other structures along the oceanfront (and elsewhere on the beach) are governed by the Town Code, specifically:

Section 14-110 through Section 14-241 (Flood Damage Prevention) requires any work on substantially damaged or improved non conforming structures to be in accordance with the requirements for new construction.

Section 86-171 provides that any non conforming building or land uses may be repaired or reestablished as long as the extent of its pre-damage non conformity is not increased, and repair or reconstruction begins within six months of damage. (i.e. the repaired or rebuilt structure shall not be larger than the original structure footprint, or size), it will have to meet all other requirements for new construction.

4.3.1.2.4. District Regulations

The Town has established the following zoning districts under Section 86-111:

R-1 Low density residential district

R-2 Two-family residential district

R-4 Low density residential and clubhouse district

R-7 Multi family residential district

C-1 Office commercial district

C-2 Marine commercial district

C-3 Commercial district

PB Public and semipublic district

MH Mobile home district

PUD Planned unit development district

O-1 Open space district

Beach Overlay Zoning District

All property on the beachfront is zoned R-1 low density residential, except for the most northern section at the Pavilion which is zoned commercial C-3. Although the zoning ordinance defines a mobile home district, there are no mobile homes located on the beach. The current map does not show an R-2 districts, however the Town does have a few R-2 zoned residences constructed when R-2 zoning was allowed. Section 4.3 of this plan discusses provisions of the beach overlay zoning district that pertain to beach management.

4.3.1.2.5. Landscaping and Tree Removal

Tree protection, addressed under Sections 86-250 through 86-260 of the Town Code, includes regulations for tree removal. Section 86-187 of the Town Code addresses landscaping and storm water runoff.

4.3.1.2.6. Flood Damage Prevention

Section 14-110 through Section 14-241 (Flood Damage Prevention) of the Town Code govern development activities within the Special Flood Hazard Area. [Reference 8.7.3] The Town Code has adopted the most recent Flood Insurance Study (FIS) and Flood Insurance Rate Maps (FIRMs) for the Town of Edisto Beach (Federal Emergency Management Agency, 2001). The Town has established the minimum elevation of the lowest floor for new construction at the BFE, consistent with NFIP minimum requirements.

4.3.1.2. Zoning

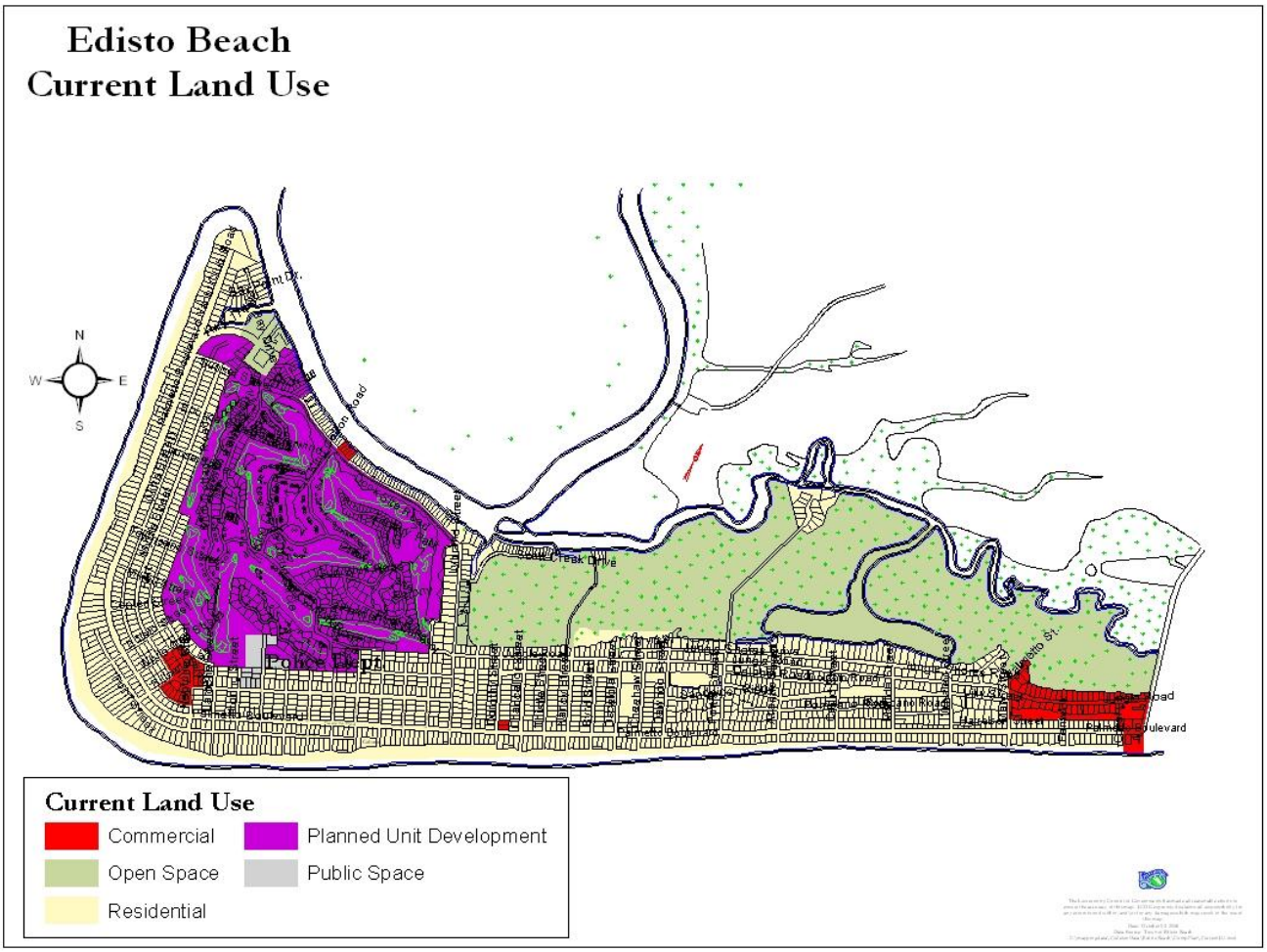


Figure 46. Current Land Use Map

4.3.2. Beach Management

The Town of Edisto Beach regulations pertaining to beach protection require conformance with the State's Beachfront Management Act. The Town's beach regulations also regulate development and other activities within the beach management overlay zoning district (86-145) that includes the area from the mean high water, and extends landward of the edge of Palmetto Boulevard. Within this beach management overlay zoning district (86-145), and the areas between this district and the first public street right of way running parallel to the beachfront the Town prohibits new seawalls, bulkheads, rip-rap, and/or any hard erosion control structures, but allows revetments located landward of the OCRM baseline in accordance with 14-114 (g) (5) (existing erosion control structures may be maintained or repaired, but not enlarged, and are subject to local, state and federal permitting requirements). Town regulations also protect public beach accesses by prohibiting encroachments into public beach access routes and by prohibiting vehicle parking that blocks or obstructs public beach accesses. Any pre-existing encroachments have been licensed and upon such time as the home is destroyed or requires work on any encroachment, the owners must remove such encroachments.

4.3.2.1. Dogs

The Town of Edisto Beach requires dogs be on a leash between May 1 and October 31. At all other times, dogs must be under the direct control of his owner or other competent person.[28]

4.3.2.2. Beach and Marine Regulations

The Town of Edisto Beach regulates many aspects of the beach and marine environment including shark fishing, garbage, motorized vehicles, motorized watercrafts, glass containers, camping, fires, boat launching, vegetation and sand fencing, dumping foreign objects into bodies of water, sea rescue, beach preservation fee, and beach management overlay zoning district.[29]

4.3.2.3. Regulation of Activities Affecting Protected Species and Habitats

The Town of Edisto Beach regulations require protection of sea turtles. The purpose of this division is to protect the threatened and endangered sea turtle that nest along the beaches of the Town by safeguarding the adult female turtle laying her eggs and hatchlings from sources of artificial light that cause disorientation and subsequent death.[30]

4.3.2.4. Vehicle Operation on the Beach or Beach Accesses

The Town of Edisto Beach regulates the driving or operating of any motor vehicle on the beach.[31]

4.3.2.5. Destruction of Sea Oat Plants

The Town of Edisto Beach prohibits the destruction of sea oat plants. It is unlawful for any person to damage, walk upon, vandalize, place objects or items upon, remove or in any other manner disrupt or disturb, the vegetation and fencing located on the beach, beach accesses, street ends adjacent to the beach, or any Town owed land.[32]

4.3.3. Management of Uses Involving Beach or Ocean

The Town of Edisto Beach does not attempt to exert duplicate jurisdiction over some activities seaward of the 40-year setback line that are regulated by DHEC OCRM, but does regulate these activities landward of the 40-year setback line. Buildings constructed seaward of the 40-year setback line must comply with Town requirements and with DHEC OCRM requirements.

4.3.4. Local Government Hazard Mitigation Plan

The Hazard Mitigation Plan is required by the Federal Emergency Management Agency (FEMA) for all counties in the State of South Carolina. The Town of Edisto Beach is included in the plan for

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[28] Code of Ordinances, Town of Edisto Beach, South Carolina, Municipal Code Corporation, Chapter 6, Article II, Section 6-36.
http://library.municode.com/index.aspx?clientId=13036&stateId=40&stateName=South%20Carolina.

[29] Code of Ordinances, Town of Edisto Beach, South Carolina. Municipal Code Corporation, Chapter 10, Article II, Division I, Sections 10-40, Chapter 58, Sections 58-67, Chapter 64, Chapter 74, Section 74-34 and Chapter 86, Article IV, Division II, Section 86-145.

[30] Code of Ordinances, Town of Edisto Beach, South Carolina, Municipal Code Corporation, Chapter 10, Article II, Division 2.
http://library.municode.com/index.aspx?clientId=13036&stateId=40&stateName=South%20Carolina.

[31] Code of Ordinances, Town of Edisto Beach, South Carolina, Municipal Code Corporation, Chapter 10, Article II, Division 1, Section 10-33.
http://library.municode.com/index.aspx?clientId=13036&stateId=40&stateName=South%20Carolina.

[32] Code of Ordinances, Town of Edisto Beach, South Carolina, Municipal Code Corporation, Chapter 10, Article II, Division 1, Section 10-40.
http://library.municode.com/index.aspx?clientId=13036&stateId=40&stateName=South%20Carolina.

Colleton, Hampton, and Jasper Counties, prepared by the Low Country Council of Governments. This plan represents the commitment of the jurisdictions to reduce the risks from natural hazards. Participants who comply with this requirement are eligible for pre-disaster mitigation funding from FEMA. The initial plan was submitted for review to the South Carolina Emergency Management Department and FEMA January 9, 2004. Formal plan submission was completed June 1, 2004. The Town is scheduled to update the plan in 2009.

4.3.5 Local Government Stormwater Management Plan

The Town of Edisto Beach Stormwater Management Plan was adopted in August 9, 2007.[33] Chapter 82, Article IV, Stormwater Management of the Town Code governs stormwater discharges caused by land disturbance activities. Illicit or improper discharge of stormwater into any receiving water is prohibited.

4.3.6 Floodplain Management

The Town of Edisto Beach participates in the National Flood Insurance Program (NFIP) and administers its floodplain management in accordance with NFIP and the South Carolina Department of Natural Resources requirements. Chapter 14, Article IV, Flood Damage Prevention of the Town Code governs the development activities within the Special Flood Hazard area.[34]

4.4. Public Outreach and Education

The Town maintains extensive public outreach and education capabilities through its monthly newsletter as well as Comcast Channel 2 and the Town of Edisto Beach website (www.townofedistobeach.com). Citizens are involved in numerous boards, committees and commissions (Planning, Zoning Board of Appeals, Bay Creek Park, Water, The Image and Design of Edisto (TIDE), Safety, Accommodations Tax, Elections) and in occasional ad-hoc advisory groups.

5. Shoreline Retreat Policy

5.1. State Mandated Beachfront Setback

The State of South Carolina established a 40-year policy of retreat as part of the Beachfront Management Act. DHEC OCRM, as the steward of the State's coastal resources, is responsible for implementing this policy. The implementation is derived from a baseline (Figures 47-49) established by DHEC OCRM which runs parallel to the shoreline on oceanfront beaches. The baseline is evaluated and redrawn by DHEC OCRM every 8 to 10 years and, as directed by the Beachfront Management Act, stretches of beach are divided into standard erosion zones and inlet zones based on their erosion characteristic.

The baseline for a standard erosion zone is established at the location of the crest of the primary oceanfront sand dune in that zone. If the shoreline in a standard erosion zone had previously been altered naturally or artificially by the construction of erosion control or other anthropogenic structures, the baseline is established where the crest of the dunes would be had the disturbance not occurred.

The baseline for inlet erosion zones is determined differently for inlets that are stabilized by jetties, groins or other structures, and inlets that are not stabilized. For unstabilized inlets, DHEC OCRM

[33] Code of Ordinances, Town of Edisto Beach, South Carolina, Municipal Code Corporation, Chapter 82, Article IV. http://library.municode.com/index.aspx?clientId=13036&stateId=40&stateName=South%20Carolina.
[34] Code of Ordinances, Town of Edisto Beach, South Carolina, Municipal Code Corporation, Chapter 14, Article IV. http://library.municode.com/index.aspx?clientId=13036&stateId=40&stateName=South%20Carolina.

establishes the baseline at the most landward point of erosion at any time during the past forty years. For inlet zones that are stabilized by jetties, groins, or other structures, DHEC OCRM establishes the baseline at the location of the crest of the dune, and not at the location that the dunes would be had the inlet remained unstabilized.

All baseline decisions are determined by DHEC OCRM, founded on the best scientific and historical data available. In determining the baseline location for inlet erosion zones, DHEC OCRM must consider historical inlet migration, inlet stability, channel and ebb tidal delta changes, the effects of sediment bypassing on shorelines adjacent to the inlets, and the effects of nearby beach restoration projects on inlet sediment budgets.

The second part of implementing the 40-year retreat policy at the State level is the setback line. The setback line (Figures 47-49) is a boundary established by DHEC OCRM that is landward of the established baseline at a distance equal to forty times the average erosion rate, and not less than 20 feet.

No new construction is permitted seaward of the baseline, with the exception of wooden walkways no more than 6 feet wide, wooden decks no larger than 144 square feet, public fishing piers, golf courses, normal landscaping, pools that were located landward of existing functioning erosion control structures, groins built before 1988, or structures permitted by a DHEC OCRM special permit. A DHEC OCRM permit is required for all of the above actions except the construction of wooden walkways not more than 6 feet wide.

Construction within the State setback line is restricted in order to implement the State 40-year retreat policy. Construction, reconstruction, or alterations between the State baseline and setback lines are governed as habitable structures, erosion control devices and swimming pools. All other construction between the baseline and setback lines requires a permit from DHEC OCRM. New habitable structures built between the baseline and the setback line may not exceed five thousand square feet of heated space, must be located as far landward on the property as possible, and must not incorporate any erosion control structure or device as part of the integral habitable structure. No part of the building may be constructed seaward of the baseline or on the primary sand dune. The permit applicant must certify to DHEC OCRM in writing that these conditions are accurate, and submit a drawing that shows the footprint of the structure on the property, a cross section of the structure, and the structure's relation to property lines and setback lines which may be in effect.

Owners may replace habitable structures permitted within the setback that have been destroyed beyond repair by natural causes after notifying DHEC OCRM. The owner must certify that the total square footage of the replacement structure seaward of the setback line is not greater than the original square footage beyond the setback line, that the replacement structure is no further seaward than the original structure, and that it is constructed as far landward as possible, considering local zoning and parking requirements.

No new erosion control devices are allowed to be constructed seaward of the setback line, except to protect a public highway which existed prior to the enactment of the Beachfront Management Act. Erosion control structures that existed before 1988 may not be repaired or replaced if destroyed by more than fifty (50 %) above grade. DHEC OCRM is responsible for assessing the damage to erosion control devices and structures, as well as habitable structures, to determine the extent of damage following hurricanes or other events.

Finally, no new pools are permitted to be constructed seaward of the setback line, unless they are located as far landward as possible from an existing, functional erosion control device. Pools that

existed prior to 1988 may be repaired or replaced, if destroyed beyond repair, and if the owner certifies to DHEC OCRM that the pool is moved as far landward as practical, is rebuilt no larger than the destroyed pool, and is constructed in such a manner that cannot become or act as an erosion control device. DHEC OCRM may issue a special permit for all other construction or alterations between the setback line and baseline.

Figure 47. Baseline and Setback Line Map

Figure 48. Baseline and Setback Line Map

Figure 49. Baseline and Setback Line Map

6. Disaster Recovery and Mitigation

6.1. Preparedness and Evacuation

The Town of Edisto Beach annually updates the Emergency Operations Plan which incorporates the Colleton County Emergency Preparedness Plan and the State of South Carolina Emergency Preparedness and Hurricane Plans. Under this plan, the Town government addresses the evacuation of citizens and visitors, damage assessment, and recovery. The Town plans to work with all appropriate agencies, in advance of the disaster and after, to minimize potential injury and damage and expedite recovery and redevelopment.

The purpose of the plan is to establish procedures for the preparation, staffing, organization, activation and operation of the Town of Edisto Beach Municipal Emergency Operations Center (MEOC) during peacetime emergency conditions. Additionally, to provide for the protection of the people and the resources within the Town, to minimize damage, injury and loss of life resulting from any peacetime emergency, provide for damage assessment and to provide for the continuity of government.

The plan establishes the policies and procedures by which the Town will coordinate local, state and federal response to disasters impacting the Town of Edisto Beach and its citizens.

- It describes how the Town will mobilize resources and conduct activities to guide and support local emergency management efforts through preparedness, response, recovery, and mitigation planning.
- It utilizes the Emergency Support Function (ESF) concept to marshal and apply resources and describes the responsibilities of Town departments in executing effective response and recovery operations.
- The plan supports the National Incident Management System (NIMS) which is a nationwide template enabling federal, state, local, and tribal governments and private sector and non-governmental organizations to work together effectively and efficiently to prevent, prepare for, respond to, and recover from domestic incidents regardless of cause, size, or complexity.
- The plan's procedures are applicable to all town and non-town employees, either assigned or attached to the MEOC. The governing body of each county shall operate, in accordance with Regulation 58-1, Local Emergency Preparedness Standards, their respective Emergency Operations Plans (EOPs) and Standard Operating Procedures (SOPs).

The Town of Edisto Beach is designated by the State Hurricane Plan as a Category 1 evacuation area, meaning that all tourists and residents should evacuate in the event that a Category 1 hurricane threatens the area.

- Coastal areas of South Carolina are at risk from the threat of hurricanes. There is significant possibility that a hurricane will strike the South Carolina coast and impact political jurisdictions within Colleton County with extremely strong winds, storm surge, and torrential rains; tornadoes may also be spawned by the hurricane. The potential for damage will depend on the storm's strength, where it makes landfall, and the storm path.
- When a hurricane/tropical event occurs, the Town of Edisto Beach will follow the Incident Command System (ICS) to control and direct the first response with the state, coordinating and providing support as needed.
- Movement of people into and within the disaster area will be controlled by the Town of Edisto Beach Police Department with the assistance of the Colleton County Sheriff's Office and the Edisto Beach Fire Department.
- The evacuation of residents and tourists from Edisto Beach is along SC 174 to US 17 South to SC 64 to Walterboro.
- The special medical needs shelter is Colleton Medical Center, located at 501 Robertson Boulevard, Walterboro, South Carolina. Colleton County shelters are Colleton County High School, 1379 Mighty Cougar Drive, Walterboro and Ruffin Middle School, 155 Patriot Lane, Walterboro.
- There are no hurricane shelters on the beach or island.
- When an emergency exceeds local resource and response capabilities, the local government will request assistance from the next higher level of government.
- Both local government and state agencies will utilize resources obtained by pre-arranged agreements with neighboring jurisdictions, states and federal entities, and the local private sector prior to seeking the next higher level assistance.
- The federal government will be available with financial and additional resources when response and recovery operations exceed the capabilities of state government in a Presidential declared disaster or emergency. In some instances, federal agencies may provide direct assistance without a Presidential declaration.

6.2. Recovery

The Town's recovery plan establishes the following recovery goals:

- Maintain leadership;
- Promote economic recovery;
- Utilize local initiative and resources;
- Maximize state/federal programs and benefits;
- Establish and maintain communication to and from citizens;
- Provide a point of contact for disaster victims; and
- Make maximum use of damage assessment for recovery planning.

The organization of the Town's recovery activities is consistent with the concepts of the Incident Command System (ICS) and Integrated Emergency Management System (IEMS). Storm recovery is divided into short term and long-term recovery.

OPERATIONS

Short-term Recovery efforts focus on the assessment of public safety and health concerns and an assessment of restoring essential public and social services in the following priority:

- Depending on the severity of the disaster, it may be necessary to conduct a public safety/security and health assessment to assess life and property prior to the general damage assessment by the DA team.
- Conduct detailed damage assessments to determine the need for supplemental Federal assistance.
- Conduct a debris assessment.
- Follow procedures for requesting Federal disaster assistance;
- Relax protective actions and coordinate access into evacuated areas;
- Restore essential public facilities and services;
- Coordinate Federal disaster assistance with special emphasis on temporary housing;
- Coordinate resources and materials;
- Coordinate volunteer organizations;
- Coordinate information and instructions to the public; and
- Identify post-disaster hazard mitigation activities to reduce future risks.

SAFETY ASSESSMENT (LEVEL 1)

Depending on the severity of the disaster, a safety assessment may need to be conducted prior to the initial damage assessment. Most often, both can be accomplished at the same time. In order to conduct both Level 1 assessments, it may be necessary to perform road clearing to provide access to all areas.

As in any disaster situation, plans may be modified by the IC to account for disaster specific situations. In the event the Town is flooded and access is limited to watercraft, a recovery team will survey the area and perform any recovery efforts needed. This shall be conducted by medical emergency personnel via boat with the assistance of law enforcement, county, state or mutual aid agencies.

DAMAGE ASSESSMENT (LEVEL 1)

Even with assistance from state and federal forces there remains a need for local governments to take the lead role in planning out the recovery process and putting into place the mechanisms necessary for response. It is imperative that disaster impact assessments be made quickly to

determine the necessary state response or federal assistance following any major or catastrophic disaster. To accomplish this, the Damage Assessment Team will perform an initial damage assessment typically known as a wind shield survey to provide a monetary value of damage to the County to be utilized to determine eligibility for federal assistance. A more extensive damage assessment will be conducted after emergency protective measures have been initiated. The County and State will normally participate in a more extensive assessment after initial assessments have been completed.

If the municipality needs assistance in performing the initial assessment, one or more Damage Assessment Teams (DA) teams may be deployed from the State to evaluate immediate needs and report the findings to the MEOC. DA teams, typically consisting of 10-12 state personnel, will evaluate immediate victim needs (food, water, medical, shelter, etc) and impact to infrastructure (utilities, communications, transportation, etc). The South Carolina Emergency Management Division, American Red Cross, SC National Guard, Department of Transportation, Budget and Control Board (General Services Division and Office of State Chief Information Officer), Department of Health and Environmental Control, Department of Social Services, Office of Regulatory Staff, Department of Natural Resources, and the State Law Enforcement Division provide team members.

Once conditions allow, rapid and thorough assessments must be conducted. Re-entry by authorized officials shall be determined. Pictures will be taken before any debris is removed.

Damage assessment activities are conducted in one of three ways, depending on circumstances. They are as follows:

1. Fly-over: conducted aerially when there may be no other way to get into the area; when the damaged area is so large that this method provides the best opportunity to identify specific areas to be surveyed by damage assessment teams; or when the damage is so extensive and catastrophic that the need for detailed damage assessment may not be necessary.

2. Windshield Survey: conducted by automobile to assess a large area in a relatively short time span. It may be used when a general overview of the area is all that is required. A windshield survey provides the opportunity for team members to exchange views as they assess the area together. This process allows the team to quickly record the number of homes and businesses destroyed or damaged. The raw figures acquired by this method can be extrapolated to give an overview of the extent of the disaster.

3. Walk-Through: the most thorough and time-consuming method for damage assessment, this method is most often used when the assessment needs to be detailed and specific. In a marginal situation, detailed information needs to be gathered in order to assess the extent to which the jurisdiction is eligible for federal assistance. Detailed documentation and pictures should be submitted with damage assessment.

Damage assessment teams will assess damage to the following public facilities:

- roads, streets, bridges;
- water control facilities, such as drainage systems, dikes, levees, etc.;
- buildings and equipment;
- public utilities; and
- parks and recreational sites.

Initial damage and Needs Assessment shall include:

- Estimated number of homes damaged, destroyed and value of damage.
- Needs Assessment to include roads requiring clearing for re-entry to vital facilities; vital facilities to include emergency facilities (MEOC, EMS, Fire and Public Works.) Estimated value of damage to vital facilities.
- Public Safety hazards shall be determined.
- Utilities damage assessment including the water and sewer systems will be performed.
- Estimated damage to groin field and beach access including value of damage shall be performed. Secondary assessments of beach erosion shall be conducted.

Road clearing and debris removal will be prioritized by the Town of Edisto Beach and will be the responsibility of the Colleton County Public Works and/or by contract until the State Highway Department can assist with paved roads. Emergency protective measure road clearing in Town may be performed by local contractors prior to mobilization of debris removal contractor due to isolation of town and potential delays in reaching Town via SC 174 depending on level of debris damage.

Roads subject to priority clearing will include SC 174 to Jungle Road, Jungle Road to Lybrand Street, Lybrand Street to Myrtle Street, Myrtle Street to Murray Street. The well system in the Edisto Beach State Park will also be prioritized.

Restoration of vital facilities; i.e., Town Hall, Fire, Police, Water and Sewer as conditions warrant.

Restoration of power to vital facilities prioritized and coordinated with SCE&G.

Determine authorization for the general public to return to the Town.

During restoration activities Emergency Medical Services will be available at all times to crews and officials.

It is expected that DHEC OCRM staff will be conducting "destroyed beyond repair" evaluations of buildings, pools, and erosion control devices seaward of the DHEC OCRM 40-year setback line. Town personnel will coordinate with DHEC OCRM staff, as appropriate.

Emergency orders may be issued by the Building Department, allowing property owners to undertake emergency repairs and procedures to protect against further damage. Depending on the severity and extent of damage to the island, the Town may institute a temporary moratorium on building reconstruction (except for emergency repairs), and may later modify permit fees.

Substantial damage determinations will also be made by the Building Official and/or his designated representatives. Buildings which have been determined to be substantially damaged can only be repaired and reconstructed in compliance with prevailing floodplain management and building code requirements.

6.3. Mitigation

In an effort to reduce or mitigate future storm-related damages, the Town has participated in the development of the Low country Region Hazard Mitigation Plan (see Section 4.3.4 above).

Town regulations will also preclude the reconstruction of non-conforming structures and will result in a more hazard resistant community following a disaster.

As part of its duties, the Town's Board of Zoning Appeals considers requests for variance to requirements of the Town's zoning ordinance.

7. Beach Management Needs, Goals, and Implementation Strategy

7.1. Strategy for achieving goals of the state 40-Year Retreat Policy

Edisto Beach understands there is a state policy of retreat but does not fully understand the intent or definition. Recently, the SC Shoreline Change Advisory Committee's report, *Adapting to Shoreline Change*, acknowledged there is a widespread lack of understanding on the meaning of the state's policy of retreat. In an effort to clarify, the report states that "state and local governments should enact policies to ensure that sufficient space is provided for the natural migration of the beach/dune system and so that the related risks to private and public resources are minimized."[35]

The Town has developed and adopted development regulations which complement the State's retreat policy, specifically the implementation of the beach management overlay zoning district. The primary purpose of the beach management overlay district is to enforce the retreat strategy and storm hazard mitigation plan adopted by the town so as to protect life and property. A secondary purpose of the beach management overlay district is to provide a means of educating all persons owning property along the beach about the hazards connected with erosion, storms and flooding in areas close to the beach[36].

This beach management overlay zoning district is to be compatible with the intent of the South Carolina Beach Management Act, S.C. Code 1976, § 48-39-10 et seq. with full compliance with this act being required whenever applicable.

New construction and the reconstruction of roofed structures within this overlay district shall have a minimum rear setback measured from the roof line which equals the greatest distance resulting from application of each of the following three methodologies:

> a. Ten feet from the South Carolina Office of Coastal Resource Management baseline;
>
> b. The average of the distance between the seaward most building roof line of the closest three existing habitable structures to the lot containing the new or reconstructed structure and the South Carolina Office of Coastal Resource Management baseline; and
>
> c. The average of the distance of the seaward most building roof line of the closest three existing habitable structures to the lot containing the new or reconstructed structure and the edge of the adjacent highway right-of-way.

Should application of the rear setback stated above does not provide sufficient area to provide for construction or reconstruction, the building codes administrator is authorized to allow the 20-foot front setback to be reduced to not less than ten feet.

No person or corporation shall initiate any development construction or reconstruction, in the area regulated by the beach management overlay district, or cause the same to be done without first obtaining permit.

[35] SC Shoreline Change Advisory Committee, Report on Adapting to Shoreline Change (2009), pp 20.
[36] Town of Edisto Beach Code of Ordinances § 86-145(a)(b)

Any person or corporation desiring to extend any structure seaward of the setback line must be issued authorization from DHEC OCRM. Any person or corporation desiring to extend any structure seaward of baseline must be issued a special permit from the DHEC OCRM.

No permit shall be issued for construction on any land or accreted land seaward of the most seaward lots currently existing within the town; except that beach walkovers may permitted so long as the entire length of the walkover meets the requirements of DHEC OCRM, and no such walkover shall be allowed whose width is greater than six feet.

New construction and the reconstruction of decks and steps within this overlay district shall have a minimum rear setback which equals the greatest distance resulting from application of each of the following three methodologies:

a. Ten feet from the South Carolina Office of Coastal Resource Management baseline;

b. The average of the distance between most seaward portion of the steps and/or decks of the closest three existing habitable structures to the lot containing the new or reconstructed structure and the South Carolina Office of Coastal Resource Management baseline; and

c. The average of the distance of the seaward most portion of the steps and/or decks of the closest three existing habitable structures to the lot containing the new or reconstructed structure and the edge of the adjacent highway right of way.

Should application of the rear setback stated above does not provide sufficient area to provide for construction or reconstruction, the building codes administrator is authorized to allow the 20-foot front setback to be reduced to not less than ten feet.

Furthermore, The Town encourages property owners to site oceanfront buildings and structures as far landward as possible.

The Town allows non-conforming structures that are destroyed or damaged more than specified allowable limits to be rebuilt only in accordance with applicable provisions of the Town. This may result in reconstruction in a more landward location, either due to DHEC OCRM regulations or Town regulations.

The relocation of buildings, removal of erosion control structures, and relocation of utilities are currently not viable options for the Town. Relocation of buildings to a nearby lot is not possible because most of the available land on Edisto is currently developed. Relocation anywhere else is prohibitively expensive. Furthermore there are relatively few financial assistance programs or incentives to relocate structures from beachfront lots.

An eight inch water main is located on the beach side of Palmetto Boulevard in the 100, 200 and 300 blocks and at this time, there are no plans to relocate the line. To the Town's knowledge, there are no sewer lines, cable, etc. located seaward of the beachfront structures. There are septic systems on the front beach that have been subject to inundation and wash over during storm events. The Town has developed a long-term capital improvement plan to put all beachfront homes on sewer to prevent further contamination from septic systems failures. The main obstacle of

septic abandonment is funding. There are few financial assistance programs and funding of this project is cost prohibitive.

The Town of Edisto Beach and the U.S. Army Corps of Engineers are co-funding a Hurricane and Storm Reduction Plan that is scheduled for completion in 2013. Preliminary results indicate that this project will be feasible and will be recommended for federal funding. If the Town is successful in receiving federal funding, this will address future funding for a 50- year period.

As it is not likely federal funding will be easily obtained, the Town has already begun making plans for future nourishment of the beach in 2016. Based on funding availability, the Town may only be able to afford spot nourishment which would consist of trucking in beach quality sand to prevent structural damage by re-establishing a dune system. Other alternatives being reviewed are sand scraping and transport from the south end of the beach (sound side) to the north end of the beach where areas are eroding, groin lengthening/shortening, artificial reefs and do nothing. However, any of these activities require approval from DHEC OCRM and other state and federal agencies.

7.2. Strategy for preserving and enhancing public beach access

The Town continues to commit to preserving and enhancing public beach access points. It is the Town's opinion that Edisto Beach currently provides "full and complete access" according to the criteria established by the Department of Health and Environmental Control.

Although Edisto Beach was not successful in obtaining grant funding from the SC Department of Parks, Recreation and Tourism in 2009, signs were updated and installed, pet waste stations were installed and Mitchell Street was opened for off-street parking. In 2010, the Edisto Beach Public Works Department opened Neptune, Baynard and Jenkins Street beach accesses for off-street parking. Existing boardwalks and walkovers are being added to the Public Works Capital Improvement Plan to keep these structures maintained and in good condition. Future plans include providing boardwalks and dune walkovers at all beach accesses and the Town has been reviewing the use of "MobiMat" rather than construction of permanent wooden structures. MobiMat can be removed in the event of impending storm events.

The Town will continue to apply for grant funding for the improvement of beach accesses. The Image and Design of Edisto Committee have been discussing a standardized "look" for all beach accesses that would outline all amenities and parking. This has not been vetted by Council. There are no plans to establish new sites on the ocean side of Edisto Beach, but plans are being reviewed to add marsh side access for the public.

8. Appendix

8.1. Beach Management Overlays

The original Ordinance was approved by Town Council May 14, 1992 and subsequently revised May 12, 1994.

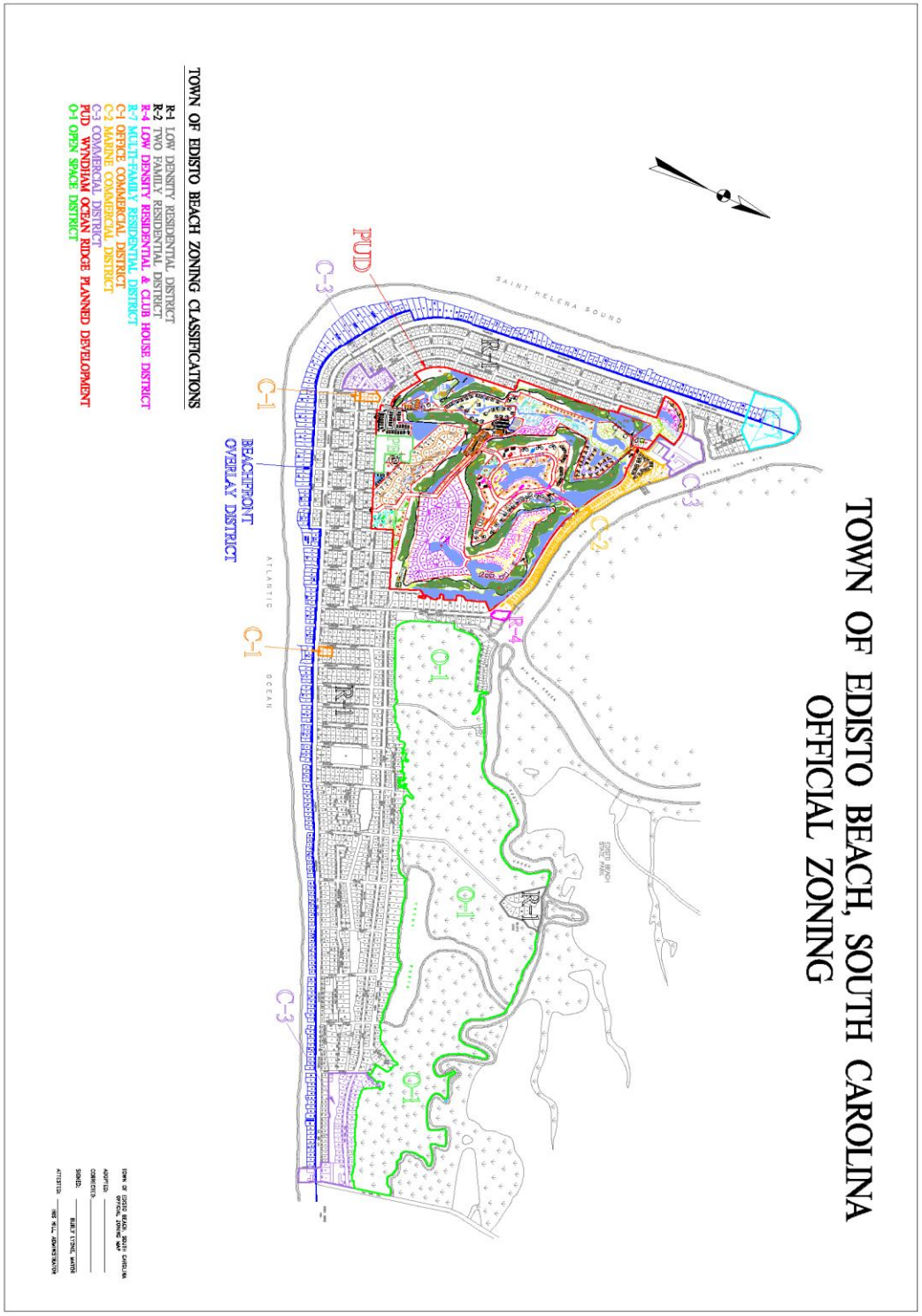


Figure 50. Beachfront Overlay District Map

8.2 Structure Inventory Table

Table 9. Edisto Beach Structure Inventory Table

Tax Map Sequence Number (TMS #)	Street Address	Distance Seaward of DHEC OCRM Baseline (ft)	Distance Seaward of DHEC OCRM Setback Line (ft)	Structure Inventory	Erosion Control Structure
	2806 Point St	13	33	H	
	2805 Point St	0	11	H	
	2804 Point St	0	16	H	
	2803 Point St	0	11	H	
	2802 Point St	0	10	H	
	2801 Point St	0	7	H	
	2104 Point St	0	10	H	
357-06-00-012	1002 Palmetto Blvd	0	22	H	
357-06-00-016	908 Palmetto Blvd	0	26	H	
357-06-00-017	906 Palmetto Blvd	0	32	H	
357-06-00-019	902 Palmetto Blvd	0	40	H	
357-06-00-020	808 Palmetto Blvd	0	56	H	
357-06-00-021	806 Palmetto Blvd	0	58	H	
357-06-00-022	804 Palmetto Blvd	0	57	H	
357-06-00-023	802 Palmetto Blvd	0	63	H	
357-06-00-024	720 Palmetto Blvd	0	58	H	
357-06-00-025	718 Palmetto Blvd	0	64	H	
357-06-00-026	716 Palmetto Blvd	5	70	H	
357-06-00-27	714 Palmetto Blvd	8	75	H	B
357-06-00-028	712 Palmetto Blvd	0	48	H	
357-06-00-29	710 Palmetto Blvd - vacant lot	N/A	N/A	-	B

357-06-00-3	708 Palmetto Blvd	15	85	H	B
357-06-00-31	706 Palmetto Blvd	0	50	H	B
357-06-00-032	704 Palmetto Blvd - new house - not in imagery	N/A	N/A	H	
357-06-00-033	702 Palmetto Blvd	0	43	H	
357-02-00-117	620 Palmetto Blvd	0	69	H	
357-02-00-118	618 Palmetto Blvd	5	82	H	
357-02-00-119	616 Palmetto Blvd	0	50	H	
357-02-00-120	614 Palmetto Blvd	0	64	H	
357-02-00-121	612 Palmetto Blvd	17	95	H	
357-02-00-122	610 Palmetto Blvd	0	75	H	
357-02-00-123	608 Palmetto Blvd	8	86	H	
357-02-00-124	606 Palmetto Blvd	0	75	H	
357-02-00-125	604 Palmetto Blvd	0	78	H	
357-02-00-126	602 Palmetto Blvd	0	66	H	
357-03-00-063	520 Palmetto Blvd	0	72	H	
357-03-00-062	518 Palmetto Blvd	0	78	H	
357-03-00-61	516 Palmetto Blvd	0	76	H	R, B
357-03-00-058	510 Palmetto Blvd	0	87	H	
357-03-00-055	504 Palmetto Blvd	0	93	H	
357-03-00-054	502 Palmetto Blvd	0	86	H	
357-03-00-053	420 Palmetto Blvd	0	82	H	
357-03-00-052	418 Palmetto Blvd	9	95	H	
	418-A Palmetto Blvd	15	98	H	
357-03-00-050	414 Palmetto Blvd	17	94	H	
357-03-00-049	412 Palmetto Blvd	14	87	H	

357-03-00-046	406 Palmetto Blvd	22	92	H	
357-03-00-045	404 Palmetto Blvd	30	105	H	
357-03-00-044	402 Palmetto Blvd	21	100	H	
357-03-00-043	320 Palmetto Blvd	19	104	H	R
357-03-00-042	318 Palmetto Blvd	24	113	H	R
357-03-00-041	316 Palmetto Blvd	0	91	H	R
357-03-00-039	312 Palmetto Blvd	10	107	H	B
357-03-00-038	310 Palmetto Blvd	8	108	H	
357-03-00-037	308 Palmetto Blvd	27	127	H	
357-03-00-036	306 Palmetto Blvd	6	103	H	
357-03-00-035	304 Palmetto Blvd	0	86	H	
357-03-00-034	302 Palmetto Blvd	0	84	H	
356-15-00-122	220 Palmetto Blvd	0	85	H	B
356-15-00-123	218 Palmetto Blvd	40	129	H	B
356-15-00-124	216 Palmetto Blvd	50	139	H	B
356-15-00-125	214 Palmetto Blvd	4	92	H	
356-15-00-126	212 Palmetto Blvd	3	92	H	
356-15-00-127	210 Palmetto Blvd	0	74	H	
356-15-00-128	208 Palmetto Blvd	10	99	H	R
356-15-00-129	206 Palmetto Blvd	0	83	H	
356-15-00-130	204 Palmetto Blvd	12	102	H	
356-15-00-131	202 Palmetto Blvd	0	85	H	
356-15-00-132	146 Palmetto Blvd	0	72	H	
356-15-00-133	144 Palmetto Blvd	0	74	H	
356-15-00-134	142 Palmetto Blvd	0	77	H	
356-15-00-135	140 Palmetto Blvd	0	79	H	

356-16-00-049	138 Palmetto Blvd	0	74	H	
356-16-00-051	134 Palmetto Blvd	23	98	H	
356-16-00-052	132 Palmetto Blvd	17	94	H	
356-16-00-053	130 Palmetto Blvd	0	68	H	
356-16-00-054	128 Palmetto Blvd	0	77	H	
356-16-00-055	126 Palmetto Blvd	4	89	H	
356-16-00-056	124 Palmetto Blvd	3	90	H	
356-16-00-057	122 Palmetto Blvd	0	86	H	
356-16-00-058	120 Palmetto Blvd	0	86	H	
356-16-00-060	116 Palmetto Blvd	0	79	H	
356-16-00-061	114 Palmetto Blvd	15	113	H	R
356-16-00-062	112 Palmetto Blvd	0	98	H	
356-16-00-063	110 Palmetto Blvd	0	104	H	
	102 Palmetto Blvd - Enterprise Pavilion	43	147	-	

H=Habitable Structure R=Revetment
P=Pool B=Bulkhead
S=Seawall

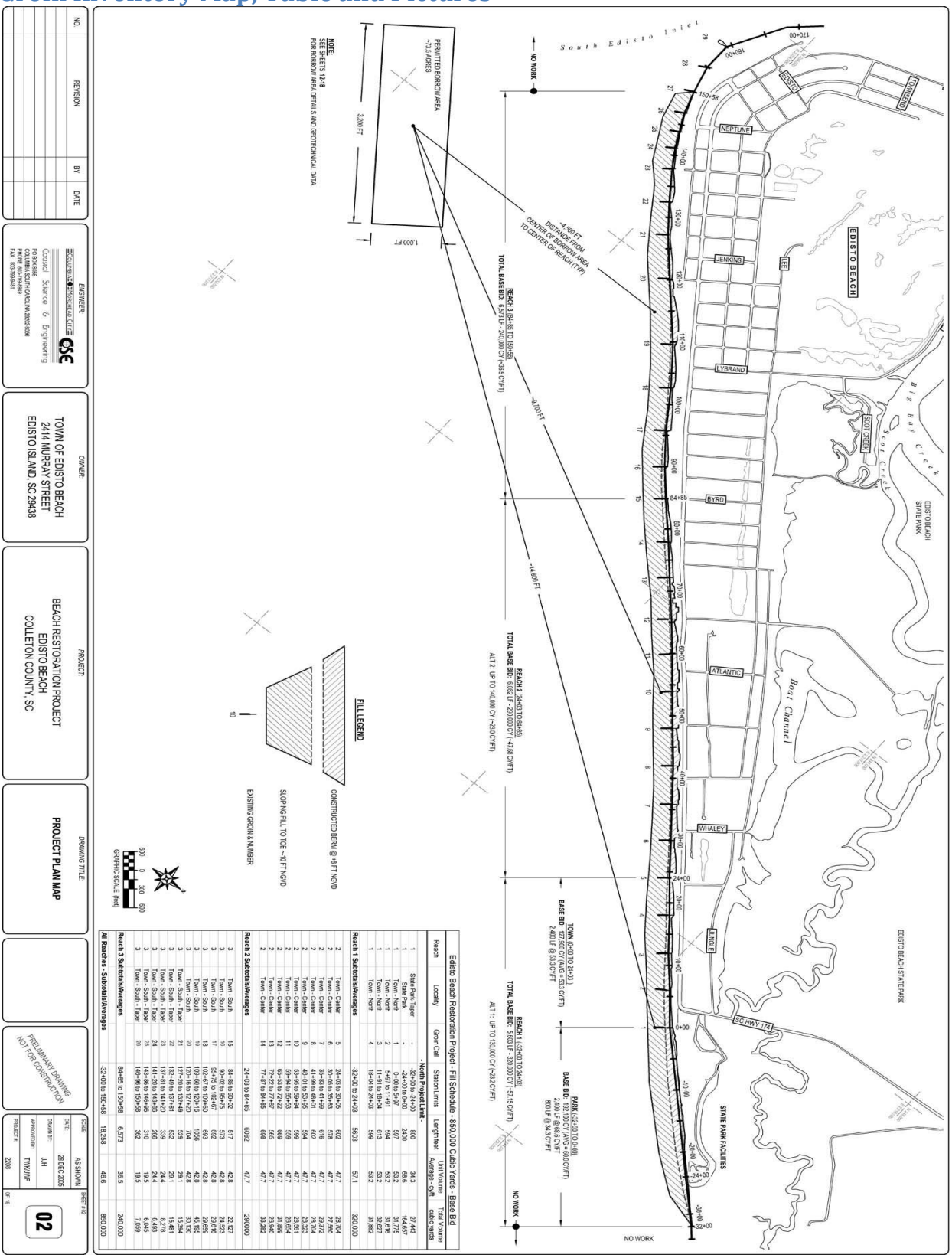
8.3 Public Access Inventory Table

Table 10. Public Access Inventory Table

Street	Tax Map Number	Parcel Number	Facility Type
Coral Street	N/A	N/A	PAP
Fenwick Street	N/A	N/A	PAP
Mary Street	N/A	N/A	PAP
Whaley Street	N/A	N/A	PAP
Matilda Street	N/A	N/A	PAP
Cupid Street	N/A	N/A	PAP
Atlantic Street	N/A	N/A	PAP
Portia Street	N/A	N/A	PAP
Dawhoo Street	N/A	N/A	PAP
Osceola Street	N/A	N/A	PAP
Byrd Street	N/A	N/A	PAP
Nancy Street	N/A	N/A	PAP
Thistle Street	N/A	N/A	PAP
Chancellor Street	N/A	N/A	PAP
Dorothy Street	N/A	N/A	PAP
Marianne Street	N/A	N/A	PAP
Lybrand Street	N/A	N/A	PAP
Catherine Street	N/A	N/A	PAP
Mitchell Street	N/A	N/A	PAP
Baynard Street	N/A	N/A	PAP
Edings Street	N/A	N/A	PAP
Jenkins Street	N/A	N/A	PAP
Seabrook Street	N/A	N/A	PAP
Murray Street	N/A	N/A	PAP
Holmes Street	N/A	N/A	PAP
Loring Street	N/A	N/A	PAP
Laroche Street	N/A	N/A	PAP
Neptune Street	N/A	N/A	PAP
Billow Street	N/A	N/A	PAP
White Cap Street	N/A	N/A	PAP
Edisto Street	N/A	N/A	PAP
Mikell Street	N/A	N/A	PAP
Townsend Street	N/A	N/A	PAP
Louise Street	N/A	N/A	PAP
Ebb Tide Street	N/A	N/A	PAP
Yacht Club Road	N/A	N/A	PAP
Yacht Club Road	N/A	N/A	PAP

PAP=Public Access Point

8.4. Groin Inventory Map, Table and Pictures



Edisto Beach Restoration Project - Fill Schedule - 850,000 Cubic Yards - Base Bid						
Reach	Locality	Groin Cell	Station Limits	Length feet	Unit Volume Average - cy/ft	Total Volume cubic-yards
			- North Project Limit -			
1	State Park - Taper	-	-32+00 to -24+00	800	34.3	27,443
1	State Park	-	-24+00 to 0+00	2400	69.6	164,657
1	Town - North	1	0+00 to 5+97	597	53.2	31,775
1	Town - North	2	5+97 to 11+61	564	53.2	31,616
1	Town - North	3	11+61 to 16+43	483	53.2	32,077
1	Town - North	4	16+43 to 24+43	599	53.2	31,862
Reach 1 Subtotals/Averages			-32+00 to 24+43	5603	57.1	320,000
2	Town - Center	5	24+43 to 30+25	582	47.7	28,304
2	Town - Center	6	30+25 to 35+83	578	47.7	27,560
2	Town - Center	7	35+83 to 41+99	616	47.7	29,372
2	Town - Center	8	41+99 to 48+01	602	47.7	28,704
2	Town - Center	9	48+01 to 54+43	642	47.7	30,621
2	Town - Center	10	54+43 to 59+94	599	47.7	28,563
2	Town - Center	11	59+94 to 65+53	559	47.7	26,654
2	Town - Center	12	65+53 to 72+22	669	47.7	31,899
2	Town - Center	13	72+22 to 77+67	545	47.7	25,940
2	Town - Center	14	77+67 to 84+85	598	47.7	28,502
Reach 2 Subtotals/Averages			24+43 to 84+85	6082	47.7	290000
3	Town - South	15	84+85 to 90+02	517	42.8	22,127
3	Town - South	16	90+02 to 95+75	573	42.8	24,523
3	Town - South	17	95+75 to 102+57	682	42.8	29,616
3	Town - South	18	102+57 to 109+40	683	42.8	29,659
3	Town - South	19	109+40 to 115+10	570	42.8	24,750
3	Town - South	20	115+10 to 122+20	710	42.8	30,835
3	Town - South - Taper	21	122+20 to 132+49	529	29.1	15,384
3	Town - South - Taper	22	132+49 to 137+81	532	29.1	15,481
3	Town - South - Taper	23	137+81 to 141+20	339	24.4	8,273
3	Town - South - Taper	24	141+20 to 145+96	476	24.4	11,609
3	Town - South - Taper	25	145+96 to 148+96	310	19.5	6,045
3	Town - South - Taper	26	148+96 to 150+58	162	19.5	3,159
Reach 3 Subtotals/Averages			84+85 to 150+58	6,573	36.5	240,000
All Reaches - Subtotals/Averages			-32+00 to 150+58	18,258	46.6	850,000

Figure 51. Groin Inventory Map

Table 11. Edisto Beach Groin Observations

EDISTO BEACH GROIN OBSERVATION 10/14/2008						
Groin	Reveal	Exposure Height	Timber	Grout	Rocks	Notes
1	150	6	damage	good	displacement	"Shotcrete" shows a little below previous grade; some displacement on south and north sides; timber at toe in bad shape; could use more grout
2	150	6	damage	good	displacement at head	Timber in bad shape; one leak; some displaced rock at head; large fillet on north side of groin
3	130	6		good	good	Some piping on south end ~20 ft landward of toe
4	140	5	damage	good	some displacement	
5	140	5	pile missing	good	displacement	Some displacement, especially at toe; two small leaks
6	130	4.5		good	good	Piping on south side
7	120	4	not visible	good	good	Grout and cap are good; no leaks; end appears to be sheared off
8	130	4.5	little visible	good	good	Cell 8 has ~1-ft scarp ~100 ft long at north end of cell; one large and one small leak on south side
9	100	4		good	displaced at toe	Small leaks on south side
10	100	4		good	good	Large crack ~15 ft from toe
11	90	5	good	good	good	2.5-ft scarp ~30 ft long south of groin; scour under concrete cap at head, but no damage; small leak at head; dune grass and oats growing in fencing
12	120	5.5	pile damage	good	good	Toe is flat (lobate) but not damaged
13	110	4.5		good	good	Scarping south of groin
14	90	4	ok	good	good	Large leak on north side 20 ft from toe; safety hazard,;piping
15	80	3.5	little timber showing	good	good	Large fillet on north side of groin; healthy section
16	100	3.5		good	good	Some displacement at head
17	110	3.5	pile damage	good	good	2 ft scarp ~25 ft long on south side of groin; fillet on north; buildup in fencing, but high water encroaching
18	100	4	ok	good	good	Grass at fence, 30-40 ft of berm seaward of fence
19	110	4	good	good	good	Some scour at toe; wide berm
20		3.5		good	good	2-ft reveal at toe; medium leak on south side
21	100	4		good	good	Piping 30 ft from toe on south side; rock at toe is unconsolidated; wide fillet on north side
22	100	6	ok	good	good	Piping 40 ft from toe; scour 10-20 ft from toe; scour could be concern if gets worse; scarping and fence damage; need to move fence at north end of cell
23	70	6		scour @ head	displacement	Fillet at north side not as pronounced
24	80	5		good	good	Some displacement at toe; high water encroaching fence
25	80	5.5		good	good	1-2 ft reveal on north side
26				good	good	Some piping @ toe; little reveal on north side; crack ~15 ft from toe; displaced rock on south side
27	130	5		good		Major displacement on south side; significant scarping within 30 ft of house; present condition appears to be landward prenourishment; some scour 20-40 ft landward of toe
28	100	4		good	some displacement	South side approaching prenourishment condition; 1–1.5 ft scarp for most of cell length
29					nonfunctional displacement	Groin is critically displaced and is currently nonfunctional; 1.5 ft scarp at head
30-32						Mostly/completely buried
Areas south of Groins 2, 3, 4, and 5 need to be monitored closely as there is relatively little dry beach and storm protection. Sand fencing in areas with significant erosion is vulnerable.						

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[37] Coastal Science & Engineering, 2008. 2006 Edisto Beach Restoration Project, Colleton County, South Carolina, Survey Report No. 2 November 2008.

8.5 Beach Profiles and Erosion Rates

Stations and reaches along Edisto Beach used for measuring changes in sand volume. Coordinates reference the landward control point along the beach-monitoring baseline (typically the centerline of Palmetto Boulevard). Stationing within groin cells 1–28 references the cell number followed by the distance (ft) downcoast of the respective updrift groin (see text for further explanation). "Offset" and "cutoff" refer to distances in feet along the profile from the baseline over which changes were calculated. The "2000-series" stations are OCRM permanent survey lines.

Table 12. Edisto Beach Profiles and Erosion Rates

Edisto Beach Profile Stations (North - South)

Station	Offset	Cutoff	Distance to Next (ft)	Northing	Easting
Upcoast 1					
2270	-150	400	1,160	248,569	2,221,530
2250	-200	400	2,000	247,834	2,220,635
Upcoast 2					
2230	-22	500	690	246,560	2,219,091
2210	0	500	2,060	246,070	2,218,604
Reach 1					
1+75	80	675	225	244,574	2,217,181
1+300	100	700	225	244,443	2,217,003
1+525	130	700	143	244,295	2,216,826
2+75	115	800	225	244,206	2,216,715
2+300	150	800	225	244,068	2,216,539
2+525	136	772	145	243,928	2,216,361
3+75	110	650	225	243,838	2,216,248
3+300	110	700	225	243,699	2,216,072
3+525	128	800	155	243,559	2,215,894
4+75	105	675	225	243,461	2,215,768
4+300	100	800	225	243,314	2,215,582
4+525	135	650	153	243,182	2,215,415
5+75	91	723	225	243,089	2,215,297
5+300	100	800	225	242,950	2,215,120
5+525	139	782	145	242,811	2,214,944
6+75	89	638	225	242,730	2,214,841
6+300	92	779	225	242,591	2,214,663
6+525	120	700	155	242,452	2,214,487
7+75	75	703	225	242,359	2,214,369
7+300	105	800	225	242,220	2,214,191
7+525	100	900	150	242,064	2,214,008
8+75	65	940	225	241,963	2,213,897
8+300	90	800	225	241,811	2,213,731
8+525	102	850	158	241,660	2,213,565
9+75	75	850	225	241,558	2,213,452
9+300	60	850	225	241,406	2,213,285
9+525	90	930	150	241,258	2,213,122
10+75	100	800	225	241,159	2,213,012
10+300	65	800	225	241,007	2,212,845
10+525	91	666	155	240,855	2,212,678
Reach 2					
11+75	98	700	225	240,756	2,212,568
11+300	75	700	225	240,614	2,212,413
11+525	114	712	170	240,476	2,212,261
12+75	75	700	225	240,363	2,212,133
12+300	85	700	225	240,198	2,211,945
12+525	150	750	185	240,053	2,211,780
13+75	160	653	225	239,935	2,211,645
13+300	125	800	225	239,803	2,211,495
13+525	155	800	170	239,665	2,211,337
14+100	169	633	250	239,550	2,211,206
14+350	177	800	250	239,385	2,211,018
14+600	210	800	160	239,220	2,210,830
15+65	235	730	180	239,115	2,210,711
15+245	230	800	205	238,995	2,210,574
15+450	269	720	145	238,863	2,210,423

Station	Offset	Cutoff	Distance to Next (ft)	Northing	Easting
Reach 3					
16+75	235	750	225	238,767	2,210,313
16+300	218		225	238,642	2,210,159
16+525	260		175	238,508	2,209,980
17+75	205	900	225	238,404	2,209,839
17+300	206		225	238,257	2,209,642
17+525	240		200	238,111	2,209,445
18+75	201		225	237,991	2,209,284
18+300	205		225	237,844	2,209,087
18+525	230		200	237,697	2,208,888
19+100	220		425	237,570	2,208,734
19+525	256		430	237,284	2,208,416
19+955	335	800	200	236,998	2,208,098
20+100	365	900	250	236,864	2,207,949
20+350	295	950	250	236,696	2,207,763
20+600	440	950	185	236,527	2,207,574
21+75	450	850	190	236,409	2,207,443
21+265	450	875	165	236,284	2,207,305
21+430	475	1025	165	236,174	2,207,176
22+75	450	900	193	236,069	2,207,045
22+268	445	940	192	235,965	2,206,881
22+460	480	900	190	235,862	2,206,719
23+100	470	1000	120	235,761	2,206,560
23+220	465	1000	205	235,699	2,206,471
Reach 4					
24+100	450	1000	90	235,592	2,206,293
24+190	440	950	175	235,544	2,206,218
25+100	405	850	100	235,465	2,206,054
25+200	400	900	215	235,432	2,205,962
26+115	375	975	120	235,352	2,205,747
26+235	380	950	200	235,311	2,205,636
27+145	400	850	145	235,249	2,205,376
27+290	460	850	275	235,227	2,205,233
Downcoast 1					
28+130	530	1100	147	235,184	2,204,955
28+277	600	1170	725	235,163	2,204,811
2135	270	800	639	235,103	2,204,088
2130B	-7	450	642	235,477	2,203,569
2130A	-140	300	729	236,041	2,203,261
Downcoast 2					
2130	270		596	236,729	2,203,018
2120	290	600	1,298	237,299	2,202,841
2115	300	700	1,000	238,527	2,202,418
2113	375	750	115	239,476	2,202,101
2110	500	825	0	240,553	2,201,713

[38]

[38] Coastal Science & Engineering, 2008. 2006 Edisto Beach Restoration Project, Colleton County, South Carolina, Survey Report No. 2 November 2008.

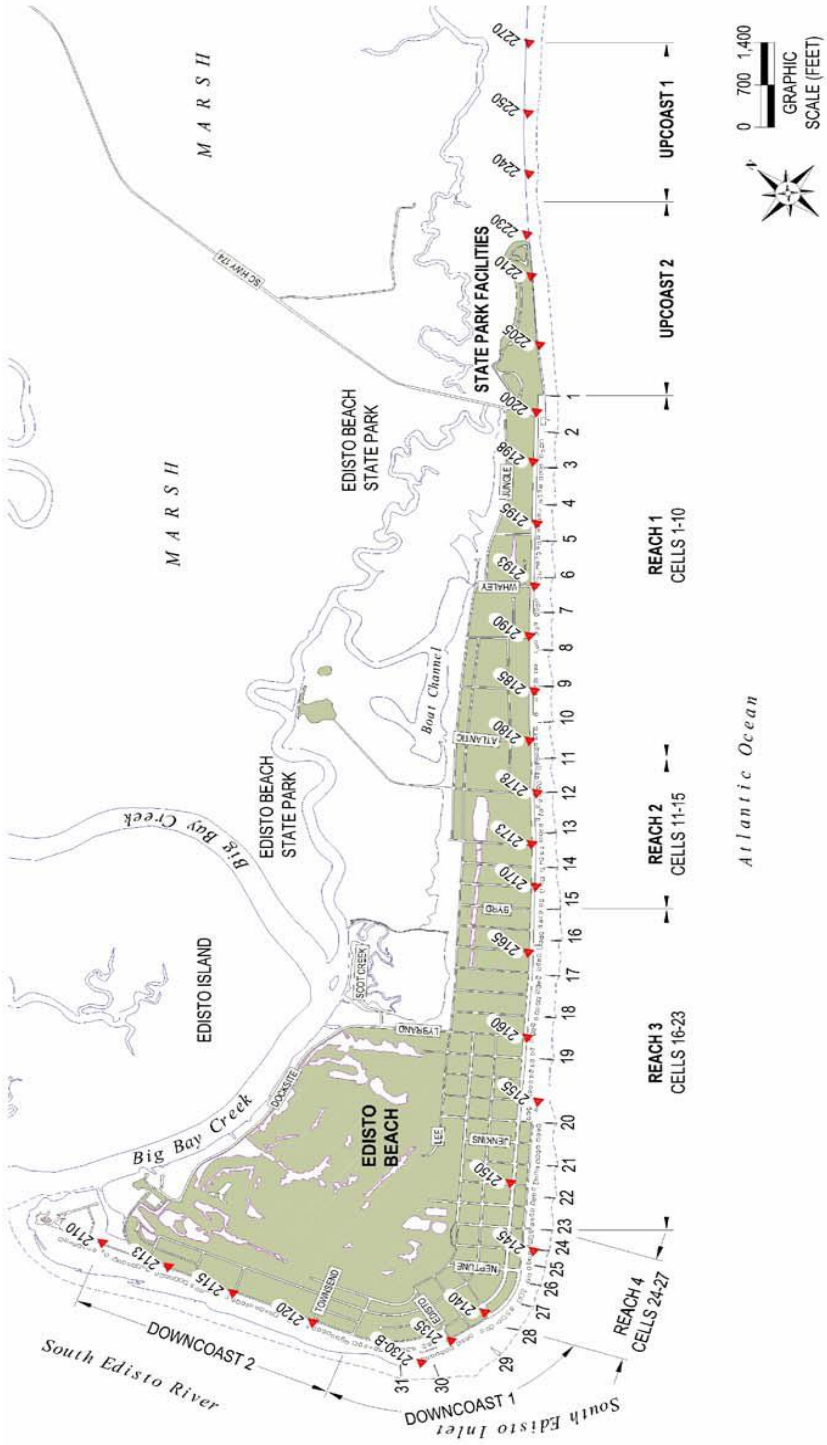

Figure 52. Edisto Beach Monitoring Map

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[39] Coastal Science & Engineering, 2008. 2006 Edisto Beach Restoration Project, Colleton County, South Carolina, Survey Report No. 2 November 2008.

8.5. Prior Studies

2006 Edisto Beach Restoration Project, Colleton County South Carolina by Coastal Science and Engineering (November 2010). This is a report detailing the results of the fourth, post project monitoring survey of the 2006 Edisto Beach nourishment project and serves as an up to date reference for pre-storm conditions in the event of a major storm event directly impacting Edisto Beach.

2006 Edisto Beach Restoration Project, Colleton County South Carolina by Coastal Science and Engineering (October 2009). This is a report detailing the results of the third, post project monitoring survey of the 2006 Edisto Beach nourishment project and serves as an up to date reference for pre-storm conditions in the event of a major storm event directly impacting Edisto Beach.

2006 Edisto Beach Restoration Project, Colleton County South Carolina by Coastal Science and Engineering (2008). This is a report detailing the results of the second, post project monitoring survey of the 2006 Edisto Beach nourishment project and serves as an up to date reference for pre-storm conditions in the event of a major storm event directly impacting Edisto Beach.

2006 Edisto Beach Restoration Project, Colleton County South Carolina by Coastal Science and Engineering (December 2007). This is a report detailing the results of the first, post project monitoring survey of the 2006 Edisto Beach nourishment project and serves as an up to date reference for pre-storm conditions in the event of a major storm event directly impacting Edisto Beach.

Beach Condition Survey, Edisto Beach, South Carolina by Coastal Science and Engineering (February 2005). This is a memorandum report for the Town of Edisto Beach, Edisto Island, SC. Surveying the current beach conditions prior to nourishment.

Beach Restoration Plan, Edisto Beach, South Carolina by Coastal Science and Engineering (2003). This is a draft Summary Report to Town of Edisto Beach, SC regarding a future restoration plan

Beach Restoration Project, Edisto Beach, Colleton County, South Carolina by Coastal Science and Engineering. (December 2006). This is the final Report for Town of Edisto Beach, Edisto Island, SC and SC Department of Parks Recreation & Tourism regarding the beach nourishment project.

Calculation of Interim Baseline and 40-Year Setback Lines, 1988, by C.P. Jones, D.M. Scaturo, T.W. Kana and W.C. Eiser. This report, prepared by the South Carolina Coastal Council, established the June 1988 locations of the interim baselines and setback lines for 11 islands along the South Carolina coast. Interim lines were later revised by DHEC OCRM when final lines were adopted. pp 3-8.

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Edisto Beach: A Beach Access Management Plan by M. Grant Cunningham, Ph.D. and Josh Selway of Clemson University. (January 2004). This is an evaluation of the 1991 Beachfront Management Plan prepared by Planning Services, Inc and subsequent updates.

Edisto Beach Nourishment project-engineering report: geotechnical studies, bathymetric and beach surveys, wave modeling studies by Coastal Science & Engineering (1992). This is a draft Report for South Carolina Department of Parks, Recreation & Tourism regarding Edisto Beach State Park.

Edisto Beach groin study by Coastal Science and Engineering (1993). This is a report for the Town of Edisto Beach regarding the groins.

Edisto Beach 1995 beach nourishment project by Coastal Science and Engineering (April 1996) This is the first post nourishment survey.

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Engineering Study for Impervious Area Zoning Requirements, by B. P. Barber & Associates, Inc. (January 2003). This study was a comprehensive engineering evaluation of existing zoning ordinances and recommended revisions related to impervious surfaces.

Erosion assessment and beach restoration alternatives for Edisto Beach State Park, South Carolina, by Coastal Science & Engineering. (1990). This report assesses feasibility of beach restoration at the Edisto Beach State Park.

Evaluation of Local Beachfront Management Plans-Phase I by the Office of Ocean and Coastal Resource Management, South Carolina Department of Health and Environmental Control (August 1995). A report to review selected communities local beachfront management plans in relation to the Beachfront Management Act.

Geotechnical Data Report-2008, Phases 1 and 2, Edisto Beach and Edingsville Beach (SC) by Coastal Science Engineering prepared for HDR Engineering Inc of the Carolinas. (July 2008). This report contains the geotechnical data regarding borings and sediment quality in potential offshore borrow areas.

Groin Conditions and repair recommendations, Edisto Beach, South Carolina by Coastal Science and Engineering (2003). This is a summary Report to Town of Edisto Beach, SC regarding the status of the groins and repair recommendations.

Land Use Plan-Town of Edisto Beach by Lowcountry Council of Governments. (March 1980).

Project plans and specifications, Edisto Beach, South Carolina by Coastal Science and Engineering. (2005). This is a report on renourishment project plans and specifications.

Reconnaissance borings in potential offshore borrow areas: Edisto Beach restoration project by Coastal Science and Engineering. (July 2004). This is a data report regarding potential offshore borrow areas for future beach renourishment.

Shorefront Management Plan-Edisto Island Jeremy Inlet to Big Bay Creek, S.C., Volume I: Management Program. 1987 by Cubit Engineering, LTD prepared for the South Carolina Coastal Council. This report is a strategic plan for the Edisto Island area that provides a framework for decision making regarding the future of Edisto Island.

Shorefront Management Plan-Edisto Island Jeremy Inlet to Big Bay Creek S.C., Volume II: Supporting Studies. 1987 by Cubit Engineering, LTD prepared for the South Carolina Coastal Council. This report includes all supporting studies for Volume I.

South Carolina's Annual State of the Beaches Report by the South Carolina Office of Coastal and Resource Management. (2008). This report summarizes recent shoreline changes along Edisto Beach and other South Carolina shorelines. The report also shows the locations of beach monitoring stations and the non-stabilized inlet erosion zones and standard erosion zone on Edisto Beach.

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Town of Edisto Beach Stormwater Management Plan by B.P. Barber & Associates, Inc. (2004). This report provided an in depth review of issues involving stormwater quality and quantity and provided recommendations for improvement.

Town of Edisto Beach, South Carolina, A Beachfront Management Plan by Planning Services Group, Inc. (1991). This was the first adopted beachfront management plan submitted to the DHEC according to the Beachfront Management Act.

8.6. Copies of Local Laws and Ordinances

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8.6.1 Beach Regulations

8.6.2 Stormwater Management Ordinance

8.6.3 Flood Damage Prevention Ordinance

8.6.4. Beach Management Overlay Zoning District

8.6.5. Zoning

8.6.6. Building Regulations

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