South Carolina's Annual State of the Beaches Report

March 2003

D H E C

PROMOTE PROTECT PROSPER

Ocean and Coastal Resource Management

DHEC-OCRM
1362 McMillan Ave., Suite 400
Charleston, SC 29405

(843) 744-5838

This report was prepared by the staff of the South Carolina Department of Health and Environmental Control, Office of Ocean and Coastal Resource Management. Funding for beach monitoring was provided by a grant from the U.S. Geological Survey. For additional information or copies of this report, contact Bill Eiser, staff oceanographer.

Introduction

The following report summarizes changes to South Carolina's beaches during the past year. The results are based on beach profile surveys conducted during 2002 at approximately 400 monitoring stations throughout the state. Surveys start at a benchmark located landward of the primary dune or seawall, and at most stations continue down the beach face to a depth of -25 ft or an offshore distance of 5000 ft, whichever is reached first. Across the dune, data is collected on foot using a Global Positioning System (GPS) receiver. On the upper beach and intertidal beach (at low tide), data is collected using a GPS receiver mounted on an ATV 4-wheeler. For the offshore portion of the profile, data is collected from a boat with a GPS receiver and fathometer. These three data sets can then be integrated into one seamless beach profile, which shows a cross-section of the beach shape at the time of the survey. The 2002 data can then be compared to similar data from 2001 to determine what changes have occurred to the beach profile during the past year.

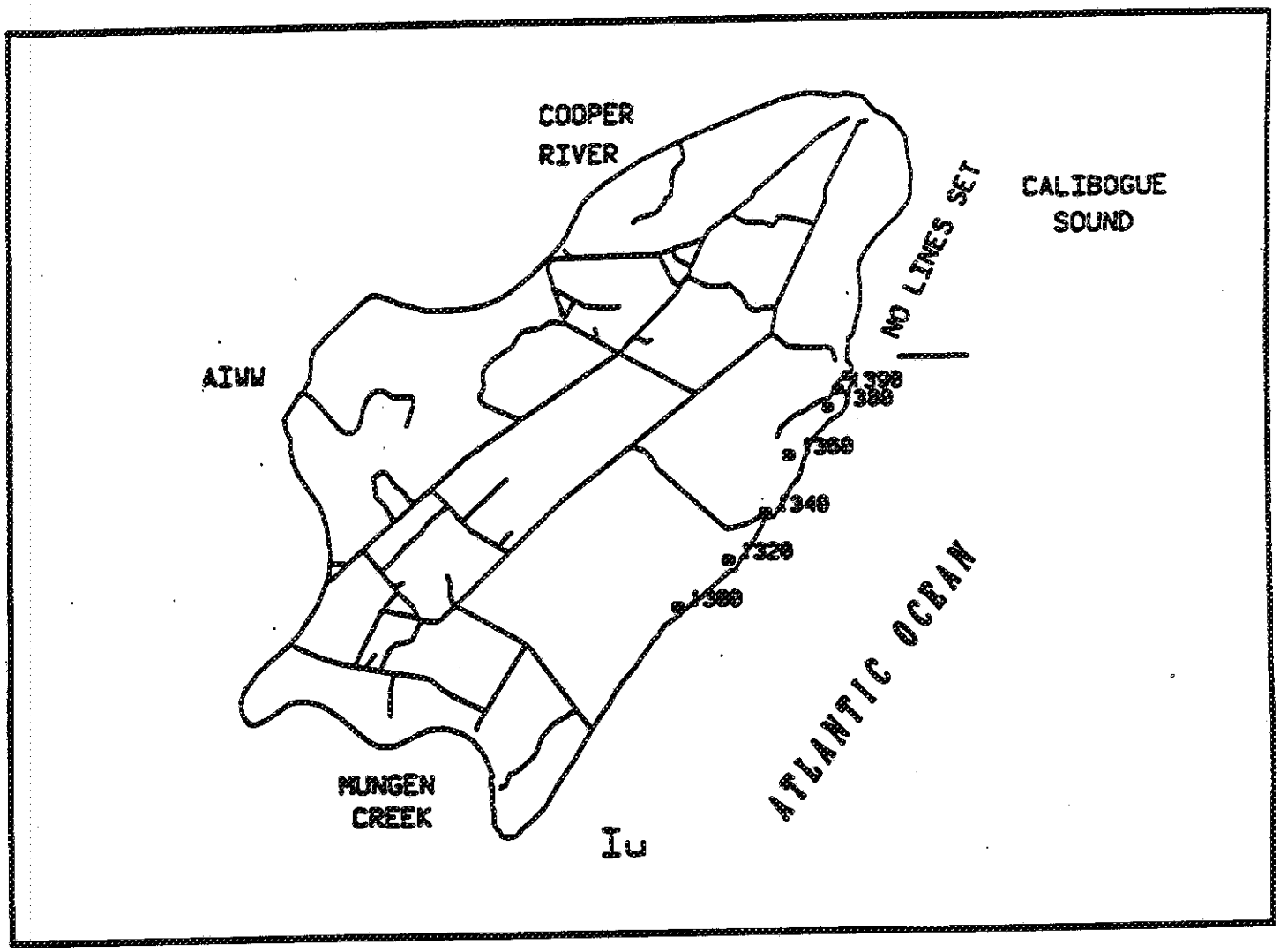
The reference elevation used for data collection and for all elevations discussed in this report is the North American Vertical Datum of 1988 (NAVD88), which is approximately the same as mean sea level. Profiles are analyzed for dune erosion or scarping, changes in beach slope, and changes in unit-width sand volume, the amount of sand from the dune down to a chosen cutoff elevation per linear ft of shoreline. This sand volume is expressed as cubic yards per linear ft of beach. The presence or absence of a berm, the shelf of dry sand between the dune and the high-water mark, is noted, as well as any sand bars and corresponding troughs. Berm width is particularly important, since it represents the amount of recreational dry-sand beach seaward of the dune that is available at high tide.

Most beaches in South Carolina go through a yearly cycle of profile change. In the summer, smaller waves tend to push sand up the beach, forming a wider berm and a steeper beach slope below mean high water. In the winter, higher energy waves erode

sand from the berm and move it to an offshore bar, resulting in a narrower high-tide beach and a more gently sloping beach below mean high water. In many cases this seasonal profile variation is greater in magnitude than the long-term trend for a particular island or beach—that is, the change observed from October to April and then from April back to October can be greater than the change observed for subsequent Octobers or consecutive Aprils.

As called for under the Beachfront Management Act, all beaches in the state have been classified as standard zones or inlet zones. Inlet zones are regions in close proximity to a tidal inlet, where the presence of the inlet plays a dominant role in erosion or accretion patterns on the beach. Most inlet zones are unstabilized, meaning the inlet channel is not anchored by jetties or groins, and the surrounding shoreline is often quite dynamic. On the location maps that appear in this report, standard zones are designated as "S", unstabilized inlet zones as "Iu", and stabilized inlet zones as "Is". In general, the larger Sea Islands in Charleston and Beaufort counties consist of a standard zone in the central portion of the island and an inlet zone at either end. The smaller Sea Islands are entirely inlet zones. In the Grand Strand, the shoreline is a continuous standard zone, interrupted by small inlet zones at the swashes.

The remainder of this report contains individual summaries for each island or beach in the state surveyed during the past year. Summaries are presented in a south-to-north progression. The geographic setting of each beach is discussed, along with any significant long-term trends. A typical beach profile plot is provided, with a location map showing survey monument locations. Finally, a state-wide summary is found at the end of the report, along with an assessment of beach renourishment needs.



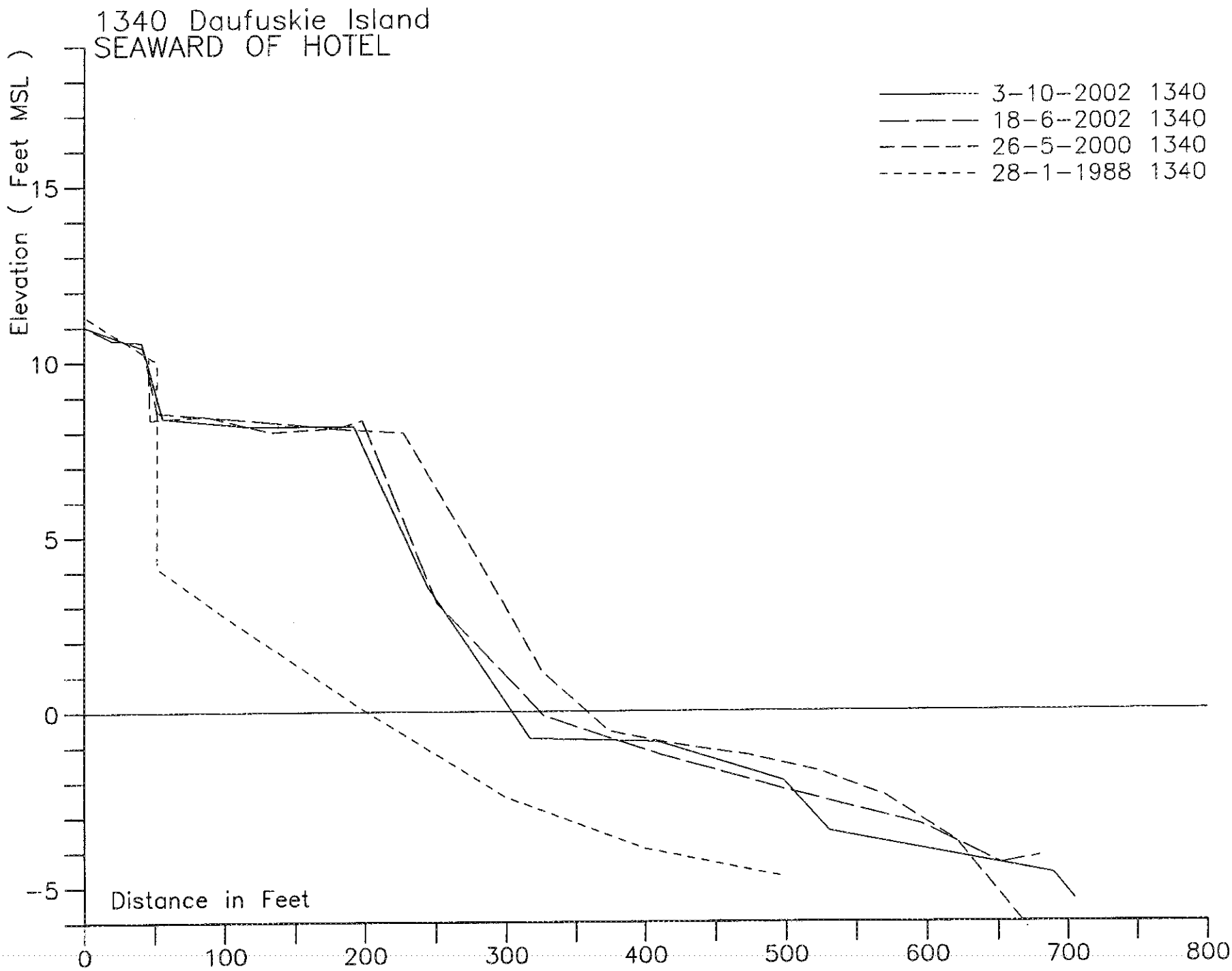
Daufuskie Island

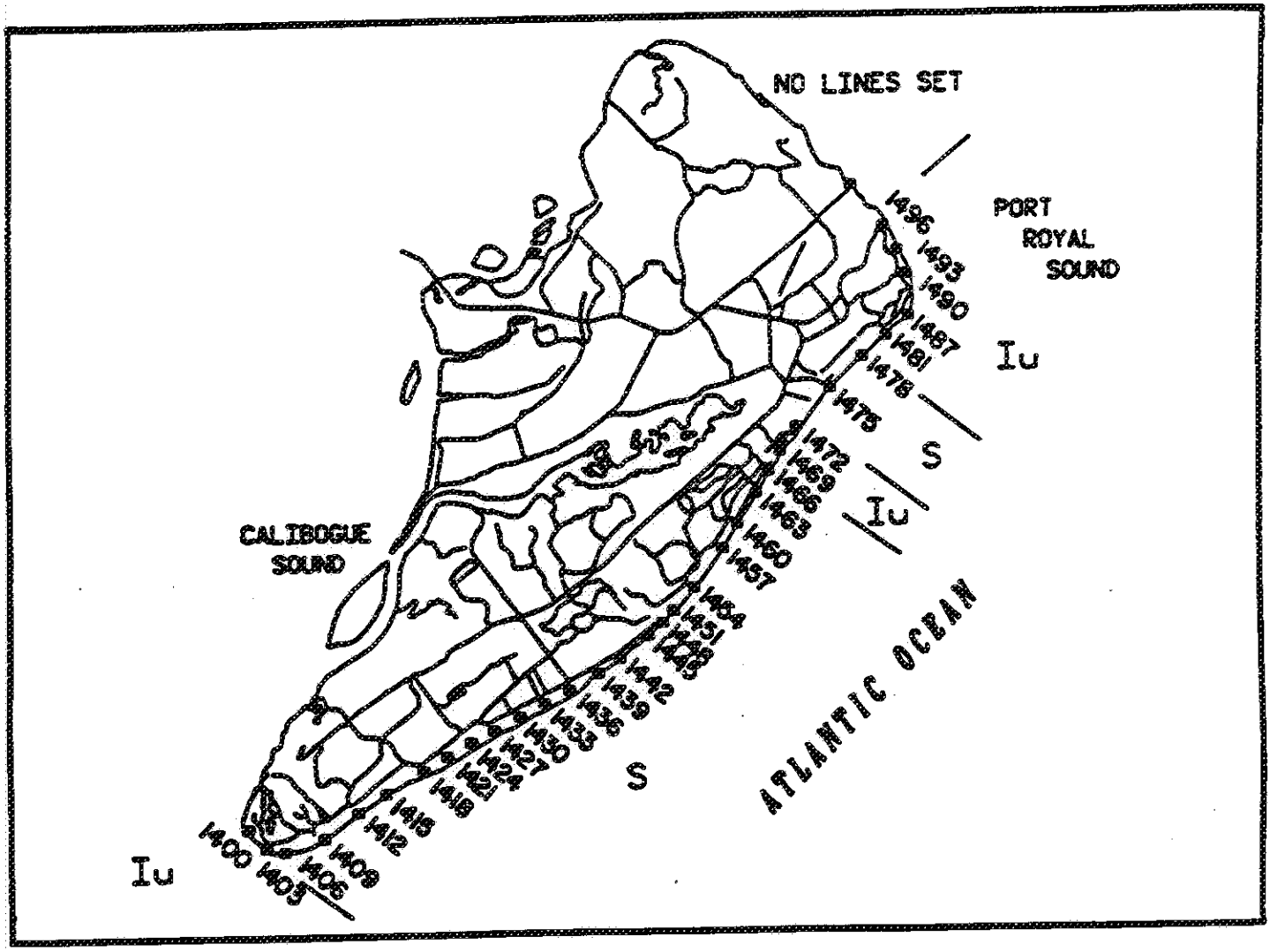
Daufuskie Island

Daufuskie Island is located to the south of Hilton Head Island, between Calibogue Sound to the northeast and Mungen Creek to the southwest. The entire island has been classified as an unstabilized inlet zone. Long-term erosion rates on the island average -4 to -5 ft per year, with the highest rates of -10 to -11 ft per year found at the southern end of the Melrose Tract and the northern end of the Oakridge Tract. There is a wooden bulkhead approximately 4000 ft long in the center of the island. A renourishment project was constructed here in December 1998.

There are 12 monitoring stations on Daufuskie Island. The earliest beach survey data was collected in 1988, and the island was most recently surveyed in June and October 2002. Beginning at the southern end of the island in the Bloody Point tract, the beach at station 1260 is eroding at a short-term rate of more than 30 ft per year. Moving to the north, station 1250 is also eroding at short-term rate of more than 30 ft per year. These two stations, particularly 1260, received a smaller amount of renourishment sand in 1998 than the rest of the island. Station 1240 was very stable during 2002, while station 1230 actually gained about 30 ft of upper beach width. At station 1210, in the Oak Ridge tract, the width of the upper beach has increased by 45 ft from May 2000 to October 2002. At 1300, the other station in the Oak Ridge tract, the trend reversed and the upper beach showed some moderate erosion.

In the Melrose tract the two stations along the bulkhead, 1320 and 1340, showed only minor upper beach erosion. In general the 1998 renourishment project has held up quite well here. North of the bulkhead, station 1360 showed very little change on the upper beach but did lose sand along the entire profile below the mean sea level contour. At 1380, similar to station 1360, the upper beach remained fairly stable but the intertidal and lower beach profile lost sand. In general the 1998 renourishment project continues to perform very well except at the southern end of the island, at Bloody Point, where short-term beach erosion rates have been extremely high in the past several years.


1340 Daufuskie Island
SEAWARD OF HOTEL
3-10-2002 1340
18-6-2002 1340
26-5-2000 1340
28-1-1988 1340
Elevation (Feet MSL)
15
10
5
0
-5
Distance in Feet
0
100
200
300
400
500
600
700
800



Hilton Head Island

Hilton Head Island

Hilton Head Island, located between Calibogue Sound to the southwest and Port Royal Sound to the northeast, is one of the state's largest barrier islands. Hilton Head Island can be divided into five geomorphologic reaches, which are each discussed below. A beach renourishment project placed 2.5 million cubic yards of sand on the Hilton Head shoreline between May and November 1997. Beach survey data was collected in September 2001 and October 2002.

The portion of Sea Pines Plantation bordering on Calibogue Sound is an unstabilized inlet zone, subject to the influence of the Sound. The long-term shoreline change rate is 2 to 5 ft per year of accretion. This area experienced moderate erosion during the mid 1990's and was not renourished as part of the big 1997 project, but was renourished in the winter of 1999. SCCC monuments 1400-1409 are located here. As a result of the renourishment the beach width here was increased by as much as 250 ft, and even with some erosion over the past 4 years is still more than adequate. Using station 1409 as representative for this area, the beach experienced slight accretion during 2002.

The second zone on Hilton Head is a 10 mile-long standard zone that extends from station 1412 in Sea Pines Plantation to station 1469, just south of the Folly. This area includes South Forest Beach, North Forest Beach, and Palmetto Dunes. Both North Forest Beach and Palmetto Dunes were included in the 1997 renourishment project, which began at the Hilton Head Inn. Long-term shoreline change rates vary in this zone--they are accretional south of Coligny Circle and erosional north of Coligny Circle, with the rate of erosion increasing with distance from the Circle.

All stations in Sea Pines, from monument 1412 through 1424, showed accretion from September 2001 to October 2002. This area is generally the most stable to accretional section of Hilton Head Island, and has a well-established dune. Stations in South Forest Beach, 1427 through 1436, also showed a consistent trend of accretion last year. This area is also stable in the long-term, with a well-established dune.

In North Forest Beach and Palmetto Dunes the long-term shoreline change rates become erosional, with the erosion rates becoming progressively higher with movement

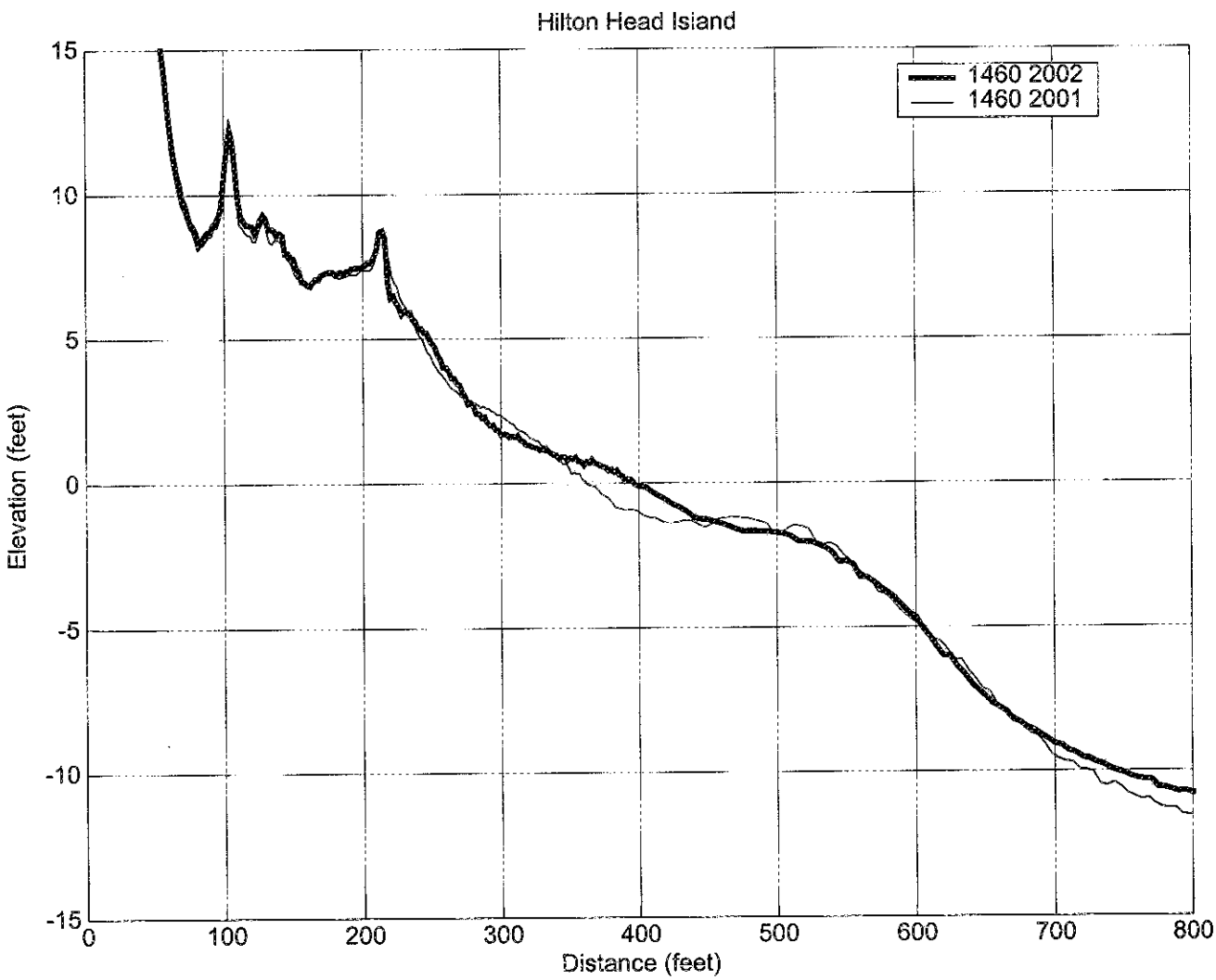
toward the northeast. Beach profiles here showed sand deficits prior to renourishment, but unit-width volumes increased dramatically as a result of the 1997 beach fill project. Stations 1437 through 1448, located in North Forest Beach, showed substantial erosion of the renourishment berm between September 1998 and November 1999, but only minimal loss of renourishment sand since then. During 2002 station 1439, at Gannet St., was the only North Forest Beach station that experienced erosion—the others were all stable.

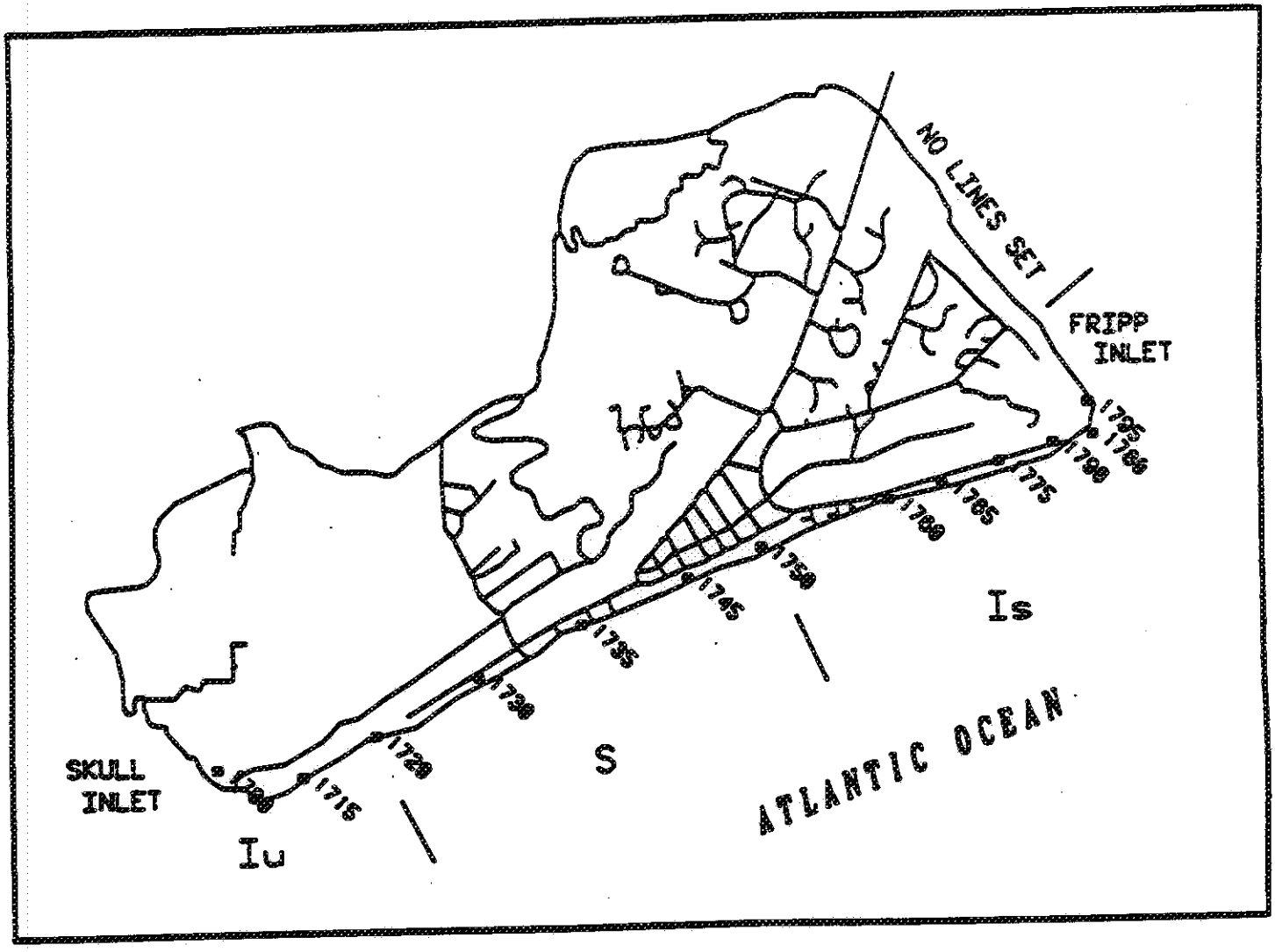
Stations 1451 through 1466 are located in Palmetto Dunes and showed the same general trend as North Forest Beach—all stations were stable to slightly accretional during 2002. This pattern over the past year is at odds with the long-term trend for this area, where documented erosion rates range from –5 to –6 ft per year.

The third zone on Hilton Head is a 2200-ft long unstabilized inlet zone, located on either side of the Folly. Stations 1468, 1469 and 1472 are the monitoring stations in this reach, which historically was very dynamic because of the inlet channel. However, a small jetty constructed on the south side of the Folly in 1997 has helped stabilize this region. Long-term erosion rates here are around -2 ft per year. During 2002 the beach at 1468, southwest of the Folly, was very stable, while at 1472, northeast of the Folly, the upper beach showed moderate accretion.

The fourth zone is a 1.3 mile-long standard zone that extends from just north of Burke's Beach Road to the Westin Hotel and includes stations 1474 through 1478. Long-term shoreline change rates here are stable. Station 1478 showed the biggest change during 2002, about 25 ft of upper beach accretion.

The fifth zone is an unstabilized inlet zone that includes all of the Port Royal Plantation shoreline. Survey stations 1481 through 1496 are located here. This region shows two distinct shoreline trends, with long-term accretion along the Atlantic shoreline to station 1484, and erosion of -3 to -4 ft per year along Port Royal Sound. This section of Hilton Head Island was not surveyed in 2002.


Hilton Head Island
1460 2002
1460 2001
Elevation (feet)
Distance (feet)
15
10
5
0
-5
-10
-15
0
100
200
300
400
500
600
700
800



Fripp Island

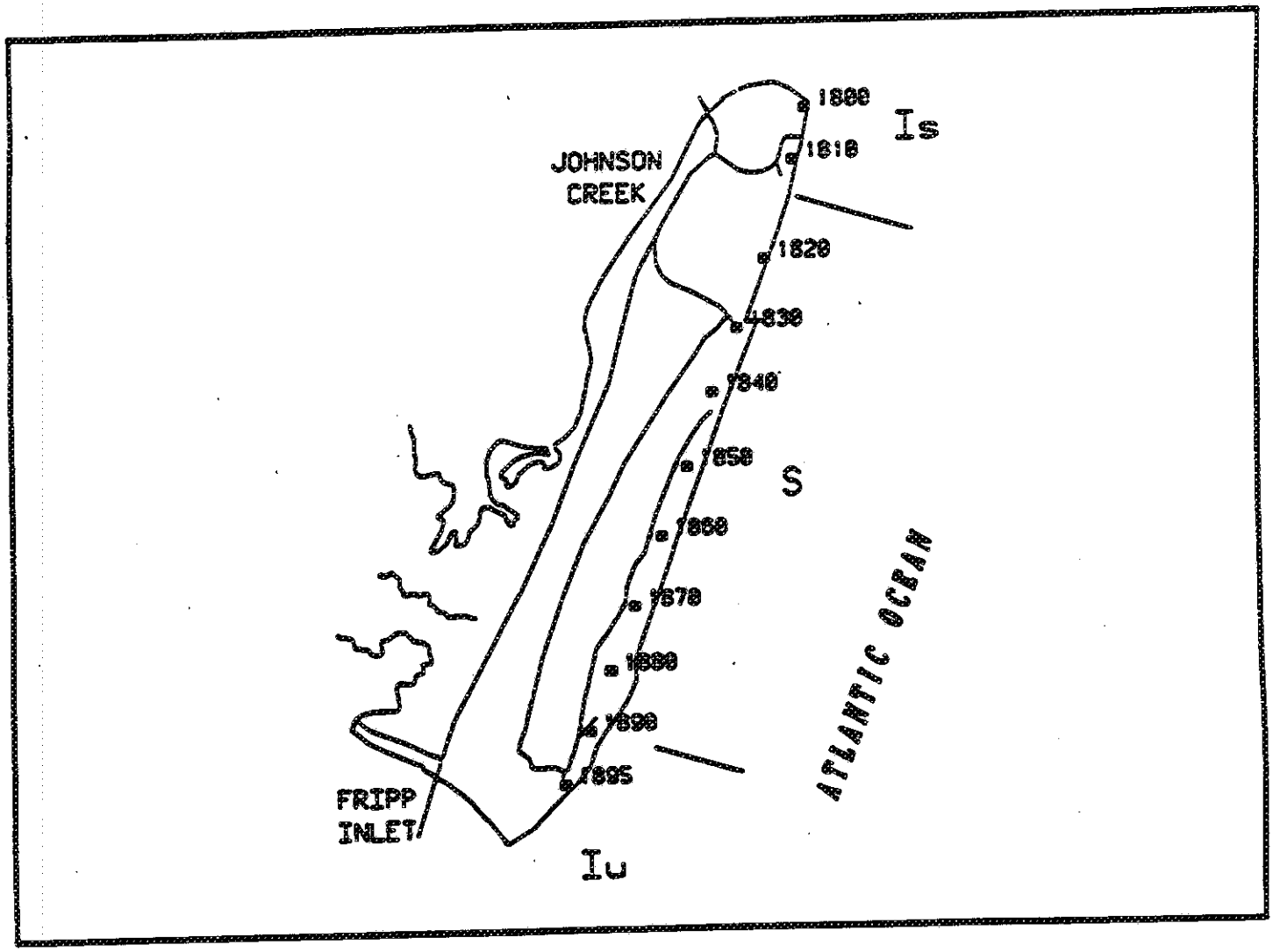
Fripp Island

Fripp Island is a three-mile long barrier island located between Pritchards Island and Skull Inlet to the southwest, and Hunting Island and Fripp Inlet to the northeast. Development on the island is primarily single family residential, and the island is almost continuously armored with revetments. The central portion of the island is classified as a standard zone, with an unstabilized inlet zone at the southwest end and a stabilized inlet zone at the northeast end. An analysis of long-term erosion trends has shown the island to be stable, although sand-bypassing events across Fripp Inlet, with a period of decades, can cause significant changes to the beach profiles on the island.

There are 15 beach survey monuments located on Fripp Island. Most recent profile data was collected at 5 of these stations in September 2001 and August 2002. Station 1700, on Skull Inlet, is sheltered from the open ocean and shows virtually no change from year to year. Stations 1715 through 1735 face the Atlantic Ocean along the southern half of Fripp Island. The beach width is narrower here, and at high tide there is little to no dry sand seaward of the substantial rock revetment. During 2002 the beach at station 1715 showed some minor fluctuations seaward of the revetment. Station 1720 gained 10 cubic yards of sand from the base of the revetment down to the –10 ft contour. Stations 1730 and 1735 both showed minor sand gains.

The beach condition changes at station 1745, on Winter Trout Rd. North of here and up to station 1775, at the end of Marlin Drive, the beach has been strongly accretional in recent years and has gained a tremendous amount of sand. The beach here is significantly wider than along the southern half of the island. As an example, station 1745 on Winter Trout Rd. gained 23 cubic yards of sand during 2002. Stations 1790 and 1780, near the northeastern end of the island, are the last two monitoring stations that face the Atlantic Ocean. The beach is much narrower here, and there is no dry-sand beach seaward of the revetment. These two stations are very similar to the southern end of the island. The final two monitoring stations on Fripp Island are 1795 and 1798, located on Fripp Inlet. These stations show typical inlet profiles--very steep, no dry-sand beach, and only minor changes from year to year.

Fripp Island
1745 2002
1745 2001
Elevation (feet)
Distance (feet)
10
8
6
4
2
0
-2
-4
-6
-8
-10
0
100
200
300
400
500
600
700
800
900
1000



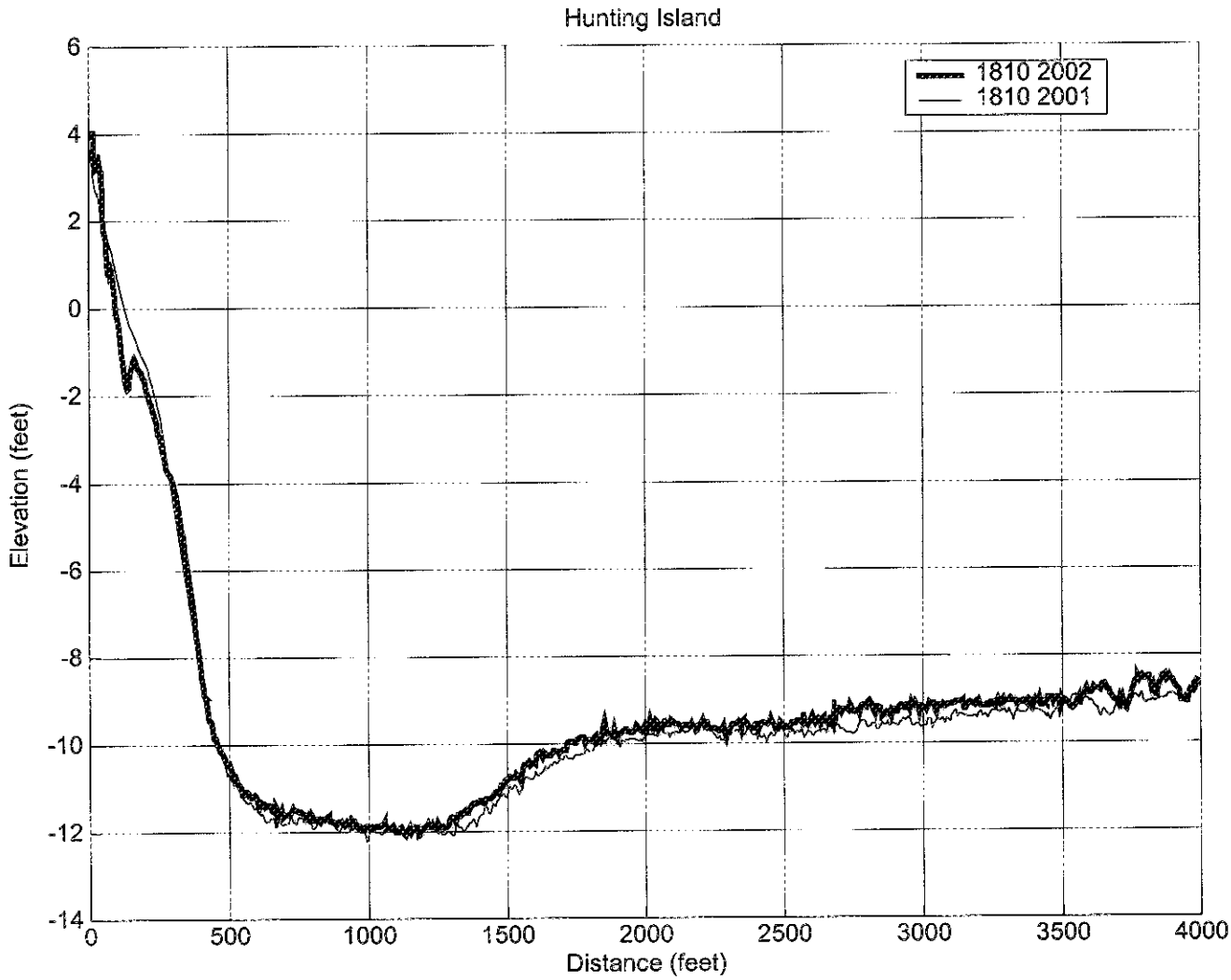
Hunting Island

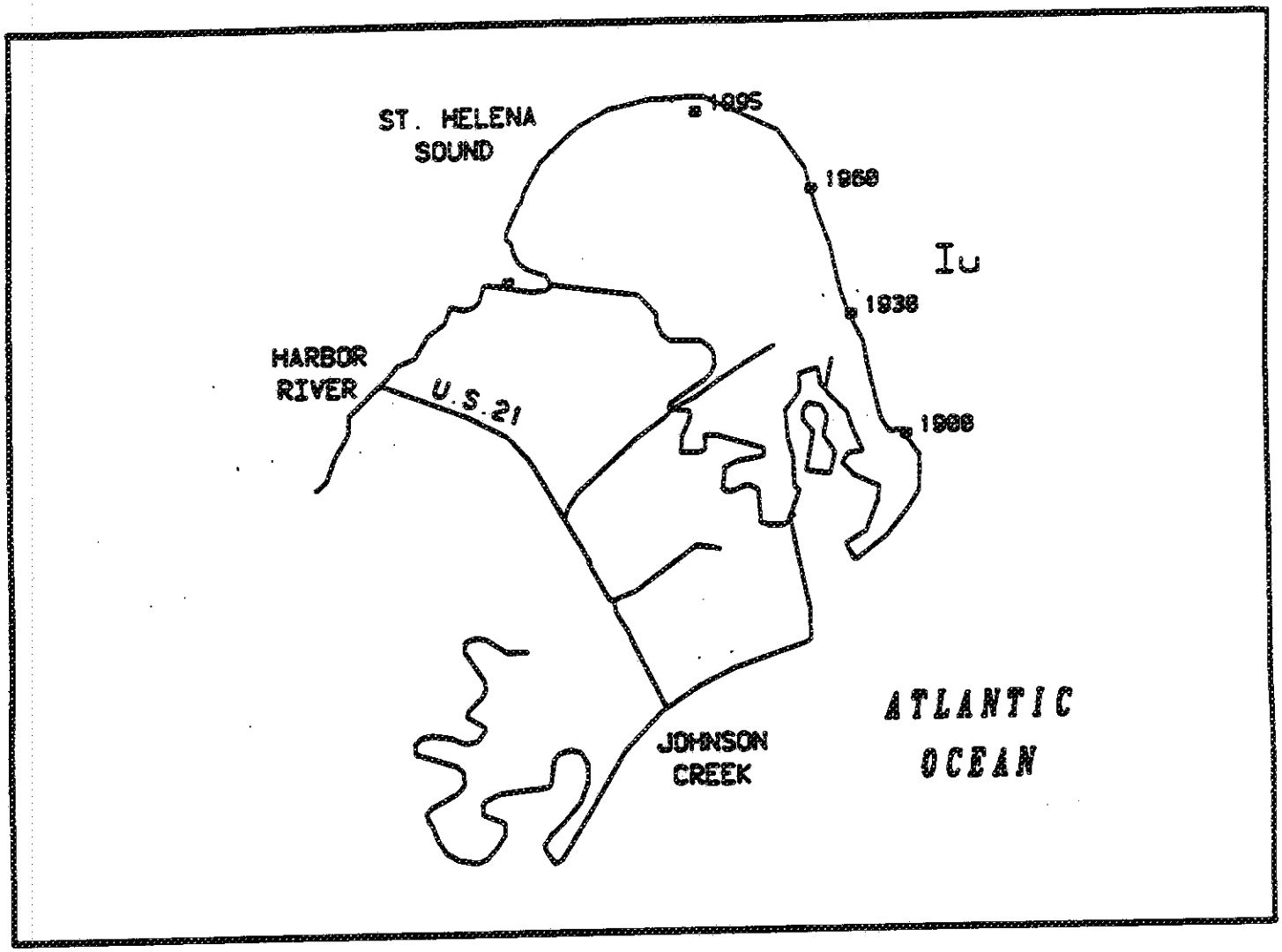
Hunting Island

Hunting Island is a state park located between Fripp Island and Harbor Island. The island has historically been strongly erosional, with long-term rates ranging from -7 to -15 ft per year. The central portion of the island is a standard zone, while the southern end along Fripp Inlet is an unstabilized inlet zone and the northern end along St. Helena Sound is an inlet zone stabilized by an 800-ft terminal groin. Hunting Island has been renourished several times in the past 20 years, most recently in March 1991, but is presently in a critically eroded state.

The 11 beach monitoring stations on Hunting Island are unique in that their identification numbers increase from north to south. The most recent surveys, conducted during September 2001 and August 2002, show that the beach at Hunting Island continues to wash away. All stations except for 1830 experienced erosion, typically ranging in magnitude from 10 to 50 ft. With the exception of the extreme southwest and northeast ends of the island there are no sand dunes or high-tide beach here. Instead, the subtropical maritime forest vegetation literally falls off into the ocean.

In order to protect Cabin Road, the beachfront access road to the southern end of the island and the houses located there, the US Army Corps of Engineers is presently constructing a Section 14 Emergency Shoreline Protection Project along a 2,500 ft. section of beach where the road is threatened. This work involves dredging about 225,000 cubic yards of sand from Fripp Inlet and pumping it onto the beach at Cabin Road. The Corps of Engineers is also planning a large-scale ecosystem restoration project at Hunting Island, to include additional beach renourishment, but project construction is still probably several years away. In the mean time, Hunting Island remains one of the state's most critically eroded beaches.


Hunting Island
1810 2002
1810 2001
Elevation (feet)
Distance (feet)
6
4
2
0
-2
-4
-6
-8
-10
-12
-14
0
500
1000
1500
2000
2500
3000
3500
4000



Harbor Island

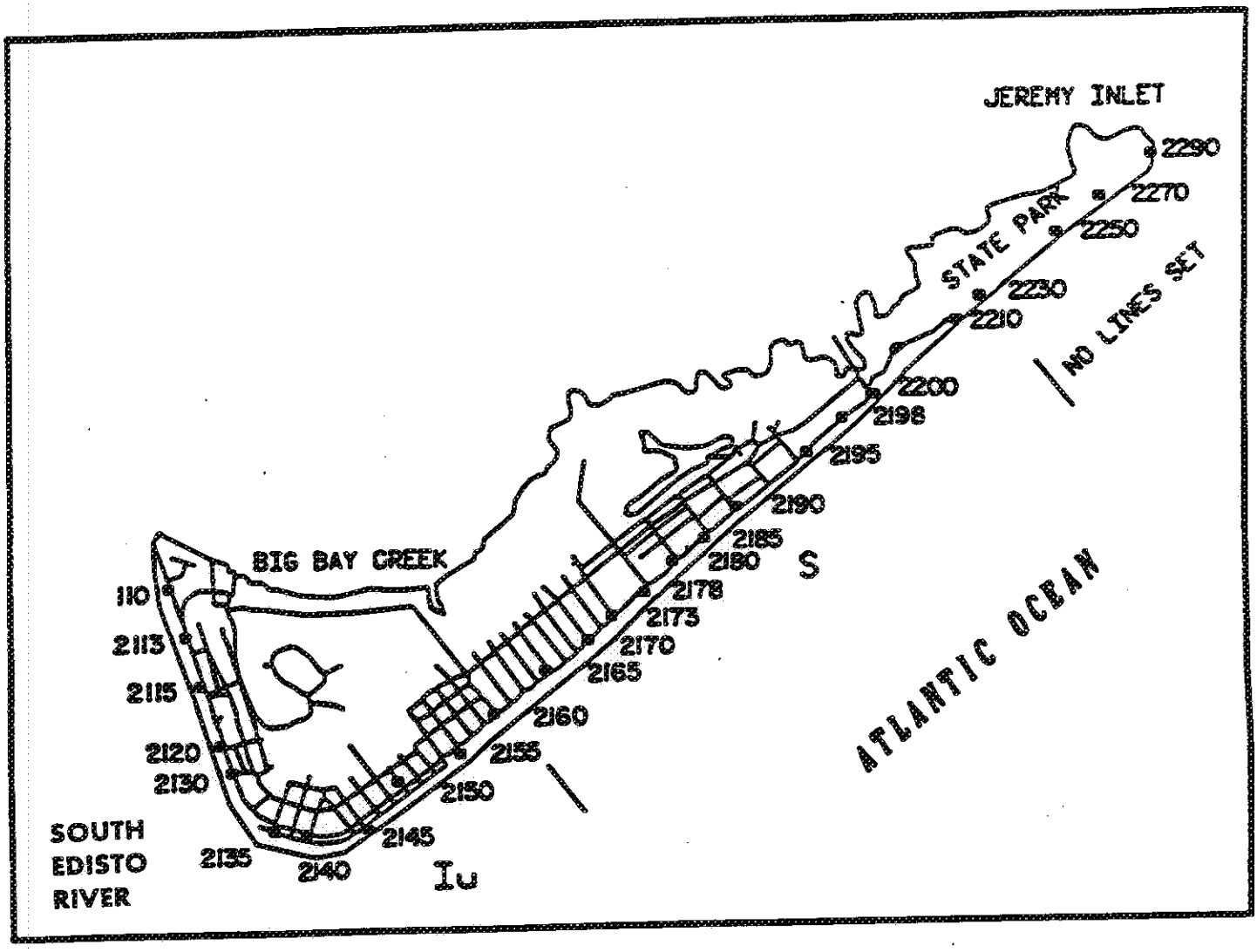
Harbor Island

Harbor Island is located between Hunting Island and Johnson Creek to the southwest and St. Helena Sound to the northeast. Beachfront development is primarily single-family residential, with a few condominium buildings. The entire island is classified as an unstabilized inlet zone, and while the shoreline is very dynamic it is generally accretional in the long term. The beach width decreases dramatically from south to north. There are a total of six beach monitoring stations on Harbor Island. Most recent beach surveys were collected here in May 2000, so comments on the relative condition of the beach are based on more recent qualitative field observations.

Stations 1900 and 1930 are located at the southern end of the island, where the beach is wide and accretional. Station 1900 is located closest to Johnson Creek and the beach profile here is extremely wide, over 2000 ft. A series of intertidal sand bars and troughs are constantly shifting back and forth in this area, changing the shape of the lower beach profile. While the long-term trend is accretional there is some evidence of recent beach erosion, in the form of dune scarping, at this station. At station 1930, near the multi-family units, the beach sand volume is also greater than average and the profile appears to be accretional.

The beach width narrows significantly at station 1960, on Harbor Island Drive North. The beach here was erosional several years ago but stabilized in 2001, and seems to have accreted some during 2002. A row of sand fence is now half-buried by upper beach accretion. This same trend continues at station 1980, where the beach eroded for several years during the late 1990's, stabilized in 2001, and accreted during 2002. The same line of sand fencing is also half-buried at this station as well. However, there is still no sand dune here and the high-tide swash line comes very close to several houses.

At station 1995, located where the shoreline begins to curve onto St. Helena Sound, the beach is wider, with a small, well-vegetated dune, and appears to be accreting as well. Station 1998 is located within the lower wave energy environment of St. Helena Sound, so that the beach profile drops off fairly rapidly. The beach here typically shows only minor changes from year to year.



Edisto Beach

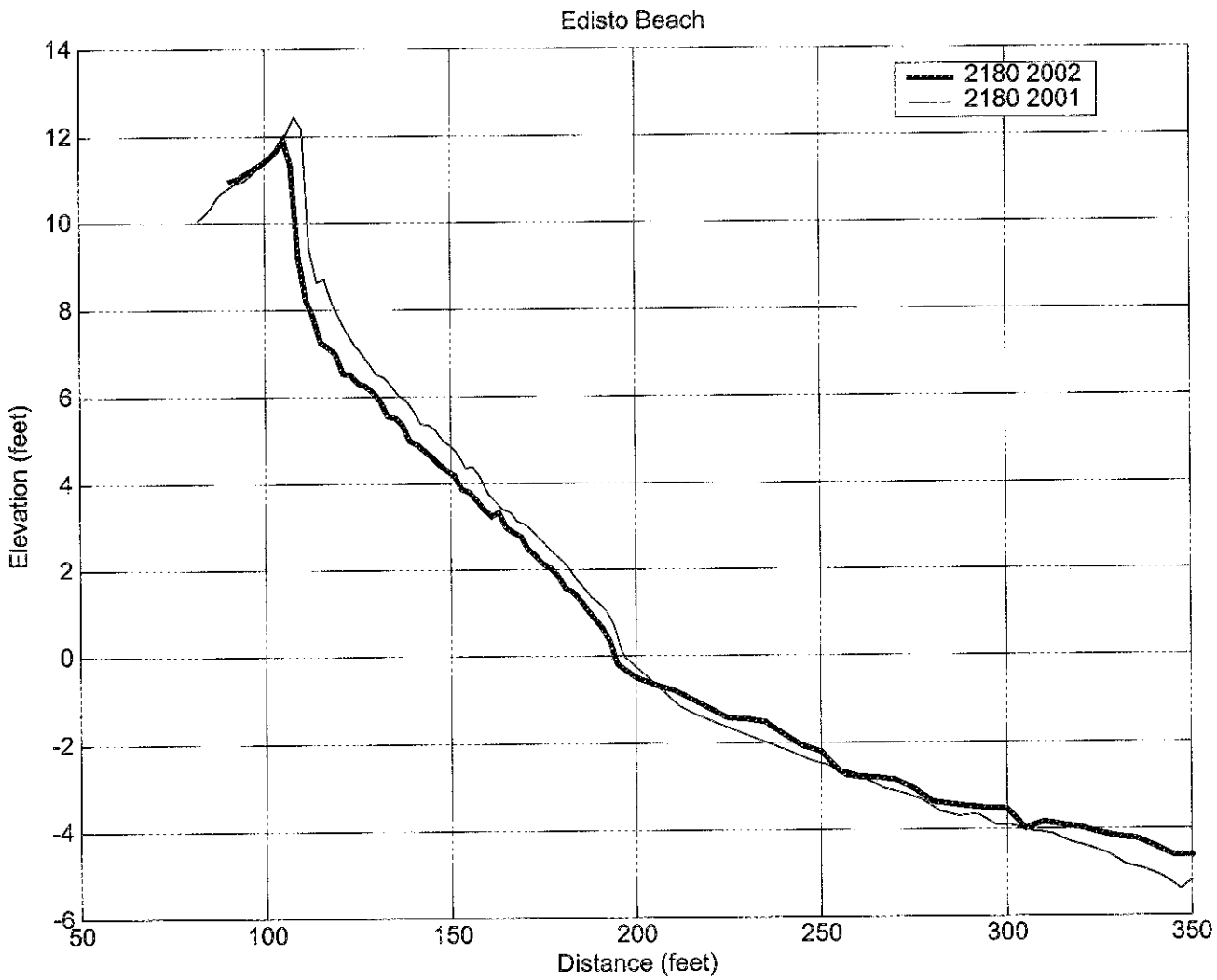
Edisto Beach

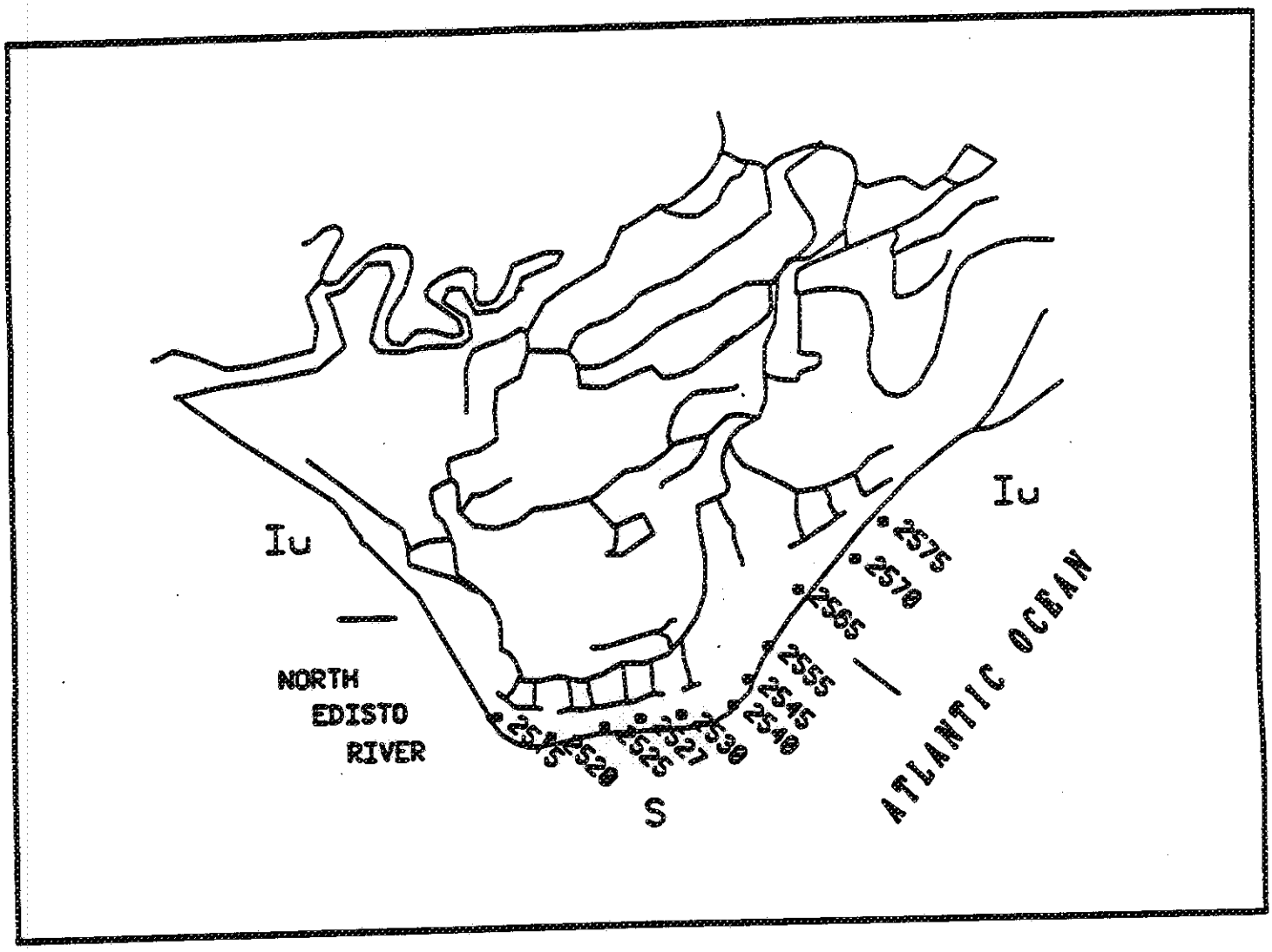
Edisto Beach is a barrier island situated between the South Edisto River and Jeremy Inlet. The northeastern portion of Edisto Beach is a state park, which includes camping sites, while the remainder of the island is primarily single-family residential. An extensive groin field on the island serves to stabilize the shoreline position. 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 and is fairly stable in the long term. There are 27 beach survey monuments on Edisto Beach, which were surveyed in September 2001 and August 2002.

Stations 2110-2130 are located along the South Edisto Inlet shoreline. These stations are sheltered from the open ocean and generally experience only modest seasonal changes on the intertidal beach. Stations 2135 at Edisto Street and 2140 at Billow Street are located on The Point, the shoreline curve between the South Edisto River and the Atlantic Ocean. Historically this section of beach can be very dynamic, but has remained stable in recent years.

The oceanfront southern half of Edisto Beach, from stations 2145 to 2165, has the widest oceanfront beach on Edisto. Most stations here experienced only minor seasonal changes during 2002. The northern half of developed Edisto Beach, from station 2170 to station 2200 at the Pavilion, remains one of the most critically eroded sections of beach anywhere in the state. This reach suffers from a considerable sand deficit and has virtually no beach at high tide and no protective dune between the ocean and the development. Almost every station here showed significant upper-beach erosion during the past year, with some stations losing up to 40 ft of upper beach. Stations 2190 and 2195 were the only survey stations here that did not experience any erosion.

Stations 2200 to 2230 in Edisto Beach State Park are comparable to the northern half of Edisto Beach. Station 2200 showed no net change during 2002, perhaps because of some local beach scraping to restore the dune, while 2230 lost about 25 ft of upper beach. The campsites and access roads in the park still remain very vulnerable to erosion.


Edisto Beach
2180 2002
2180 2001
Elevation (feet)
Distance (feet)
14
12
10
8
6
4
2
0
-2
-4
-6
50
100
150
200
250
300
350



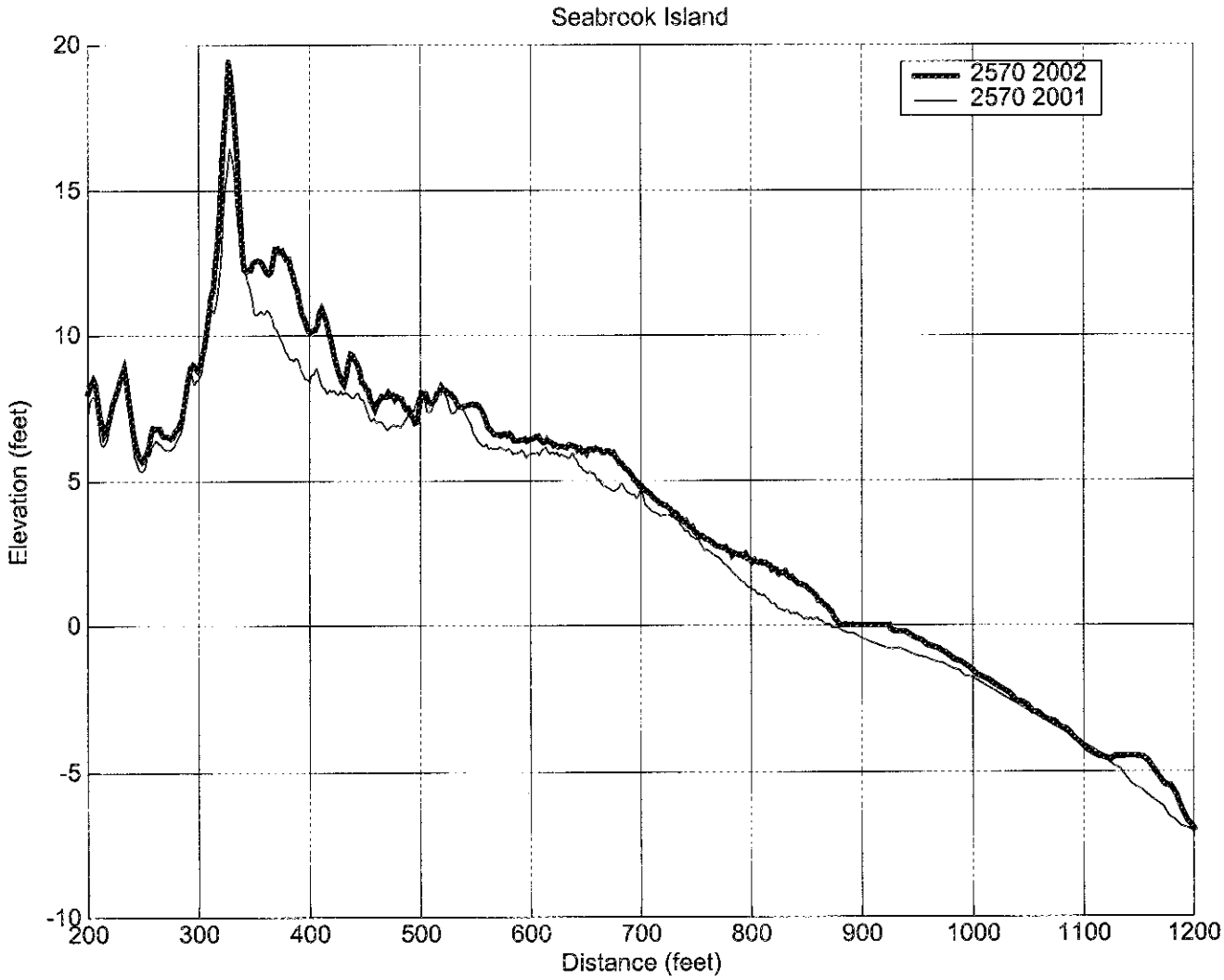
Seabrook Island

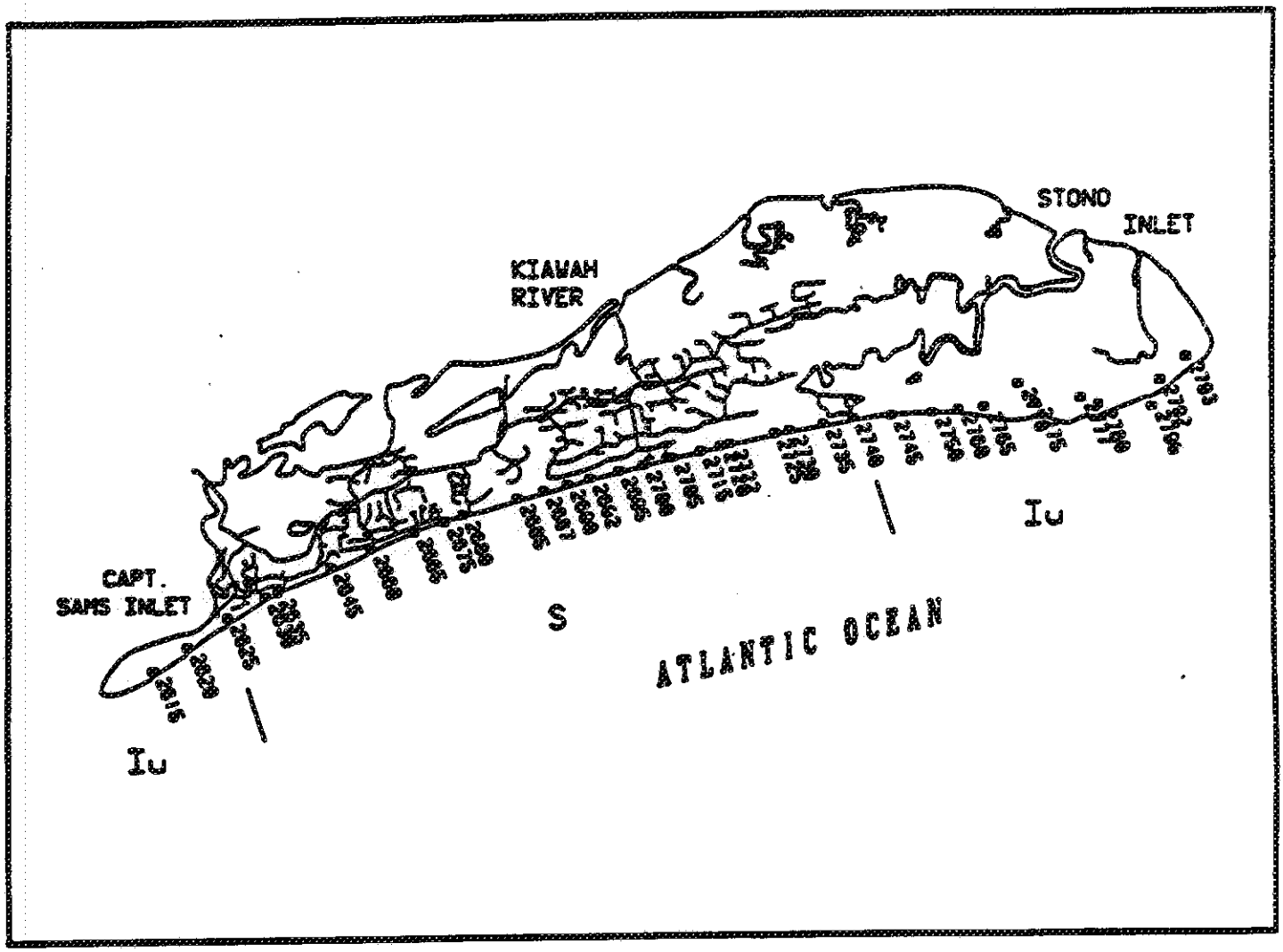
Seabrook Island

Seabrook Island is a barrier island approximately 4 miles long, situated between North Edisto Inlet and Captain Sams Inlet. Development on the island is a mix of single-family and multi-family structures. A continuous 5000-ft section of shoreline is armored with rock revetments and a few seawalls. The entire island is classified as an inlet zone—the armored portion is a stabilized inlet zone, while the remainder is unstabilized. Shoreline change patterns have been quite dynamic over the past 50 years. There are 11 beach monitoring stations on Seabrook Island. Three of them, stations 2545, 2565, and 2570, were surveyed during August 2001 and August 2002.

Station 2515, at Beach Club Villas along the North Edisto River, is a typical inlet profile—very steep and fairly stable. Stations 2520 through 2540 are located along the revetment, from the Beach Club to Renken Point. This section of Seabrook Island has consistently lacked a dry-sand beach for many years. The northern flood channel of the North Edisto River is fairly deep and pinches in very close to the shoreline here, which creates a steep profile and makes it difficult to retain a dry-sand beach. Work is currently underway to scrape sand from the intertidal portion of the beach to the north, which is much wider, and move it to this section.

In the North Beach area, from station 2545 to 2575, the high-tide beach averages over 500 ft in width. This area is closer to Captain Sam's Inlet and its nearness to the inlet causes the shoreline to be more dynamic, experiencing episodes of moderate erosion or accretion from one year to the next. However, the substantial width of the dry-sand beach makes these changes of less concern than they might be elsewhere. Station 2545, near Cobia Court, showed considerable growth in the dune field, above the high-tide swash line, but some erosion on the intertidal beach. At station 2565, near Seascape Court, the primary dune gained height and the entire profile seaward of the dune accreted. Station 2570, off Oyster Catcher Court, also showed substantial growth on the primary dune and the upper beach seaward of the primary dune, while the intertidal beach was relatively stable.


Seabrook Island
2570 2002
2570 2001
Elevation (feet)
Distance (feet)
20
15
10
5
0
-5
-10
200
300
400
500
600
700
800
900
1000
1100
1200



Kiawah Island

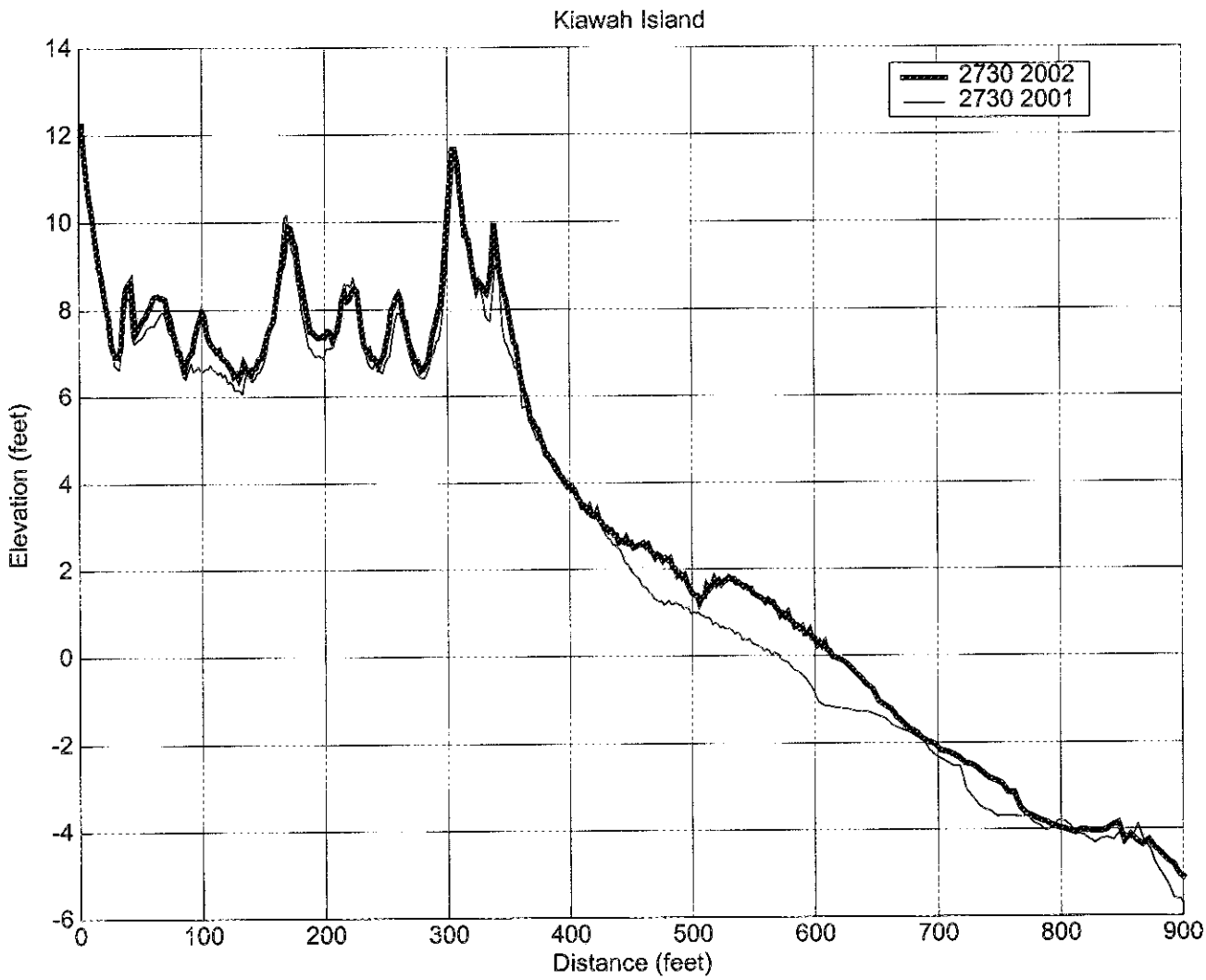
Kiawah Island

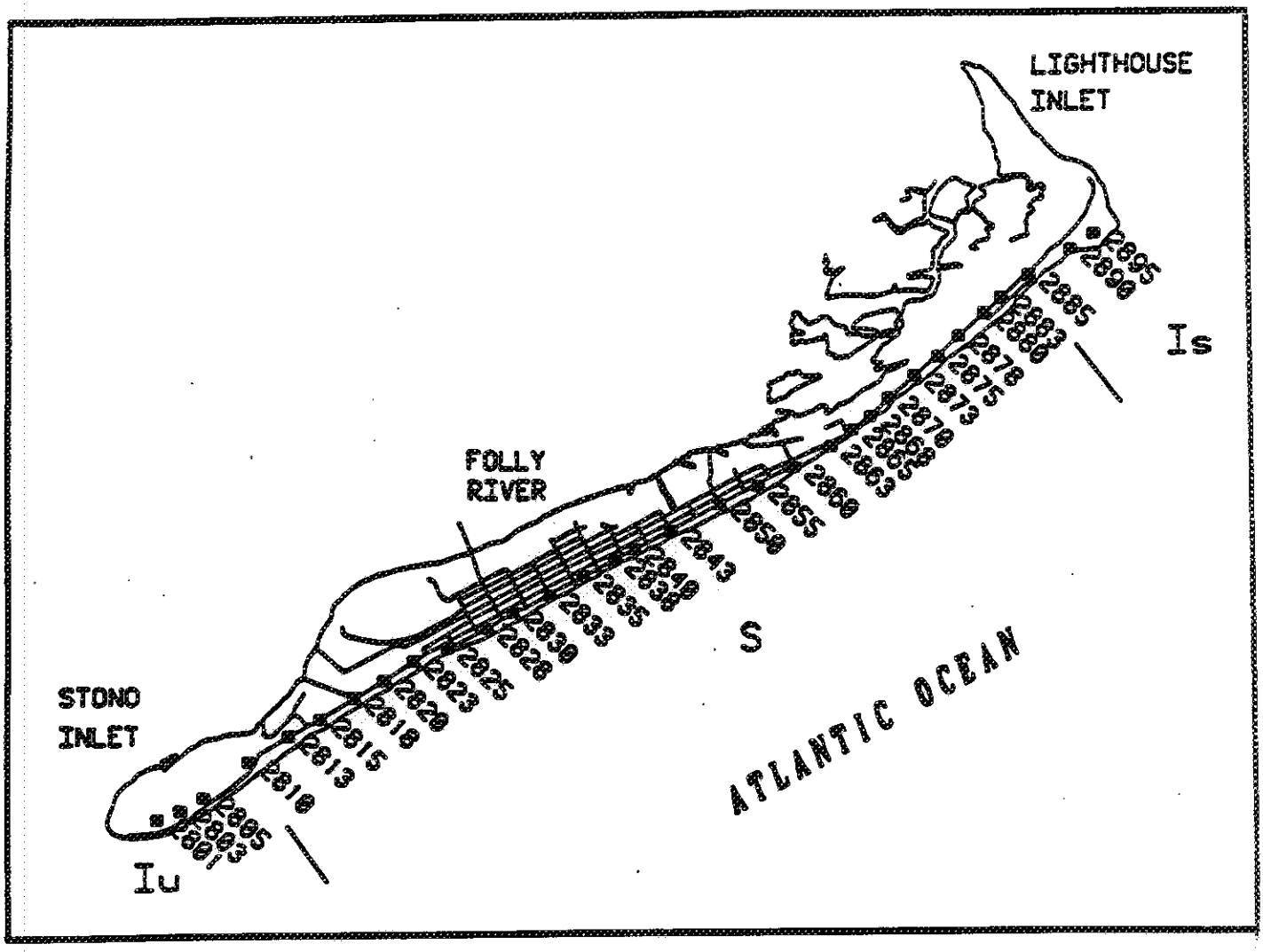
Kiawah Island is a ten-mile long barrier island, located between Seabrook Island and Captain Sams Inlet to the west, and Stono Inlet and Folly Beach to the east. Kiawah is one of the most stable barrier islands in the state, although the eastern and western ends of the island are more dynamic due to their proximity to inlets. Most oceanfront development here is single-family residential, although there are some multi-family residential buildings, commercial structures, a golf course, and a public park.

Twenty beach monitoring stations on Kiawah Island were surveyed in August 2001 and August 2002. Stations 2615 through 2645 are located at the western end of Kiawah, where land use consists of undeveloped property, a beach park, single-family homes, and some multi-family structures. This is usually one of the most stable sections of Kiawah Island. For most stations here the primary dune was stable and the beach profile seaward of the dune showed moderate accretion between August 2001 and 2002.

The area from station 2660, near the middle of Eugenia Ave., through station 2680, at the eastern end of Windswept Villas, experienced significant erosion in 1995 and 1996, stabilized from 1997 through 1999, then became erosional again in 2000 and 2001. The trend reversed once more from August 2001 through August 2002, as the primary dune stabilized and the beach seaward of the dune increased in width by 10 to 50 ft. Other stations to the northeast, from 2685 on Turtle Beach Lane to 2720 on Flyway Drive, also showed a stable dune and minor to moderate accretion seaward of the dune.

Oceanfront development along the eastern half of Kiawah, from station 2725 to 2785, is limited to some single-family structures, a golf course and associated amenities. Beach profile changes here historically have been more dramatic than along the western half of Kiawah. During the past year the beach at stations 2725 and 2730, on Flyway Drive, showed stable dunes and some upper beach accretion. But stations 2760 and 2765, near the Ocean Course Clubhouse, both experienced about 25 ft of dune and upper beach erosion. Stations 2780 and 2785 are closest to Stono Inlet and historically are the most dynamic, as the profile changes in response to the movement of intertidal sand bars associated with the inlet. These stations were not surveyed during the past year.


Kiawah Island
2730 2002
2730 2001
Elevation (feet)
Distance (feet)
14
12
10
8
6
4
2
0
-2
-4
-6
0
100
200
300
400
500
600
700
800
900


LIGHTHOUSE
INLET
FOLLY
RIVER
STONO
INLET
Iu
Is
S
ATLANTIC OCEAN

Folly Beach

Folly Beach

Folly Beach is located between Stono Inlet and Kiawah Island to the southwest, and Lighthouse Inlet and Morris Island to the northeast. Nearly all of Folly's shoreline is armored and contains groin fields. Oceanfront development is mostly single-family residential, with one large condominium and one large hotel in the center of the island, a public park at the southwest end, and a large tract of undeveloped property at the northeast end. There are 33 monitoring stations here that were surveyed in August 2001 and August 2002.

At the western end of the island in the county park, stations 2803 through 2810 continued to experience a trend of significant erosion that began in 1995. The upper beach at 2805 eroded back by about 50 ft during the past year, and the entire area continues to be critically eroded. The remaining western section of Folly Beach, from station 2813 just outside the park to station 2825 at 3rd St. West, was fairly stable and continues to maintain a small primary dune seaward of the buried line of revetments and seawalls. At station 2828, in front of the Holiday Inn seawall, the upper beach profile reversed the erosional trend from the previous year and accreted by about 40 ft. Station 2830 just northeast of the pier also showed a slight gain of sand.

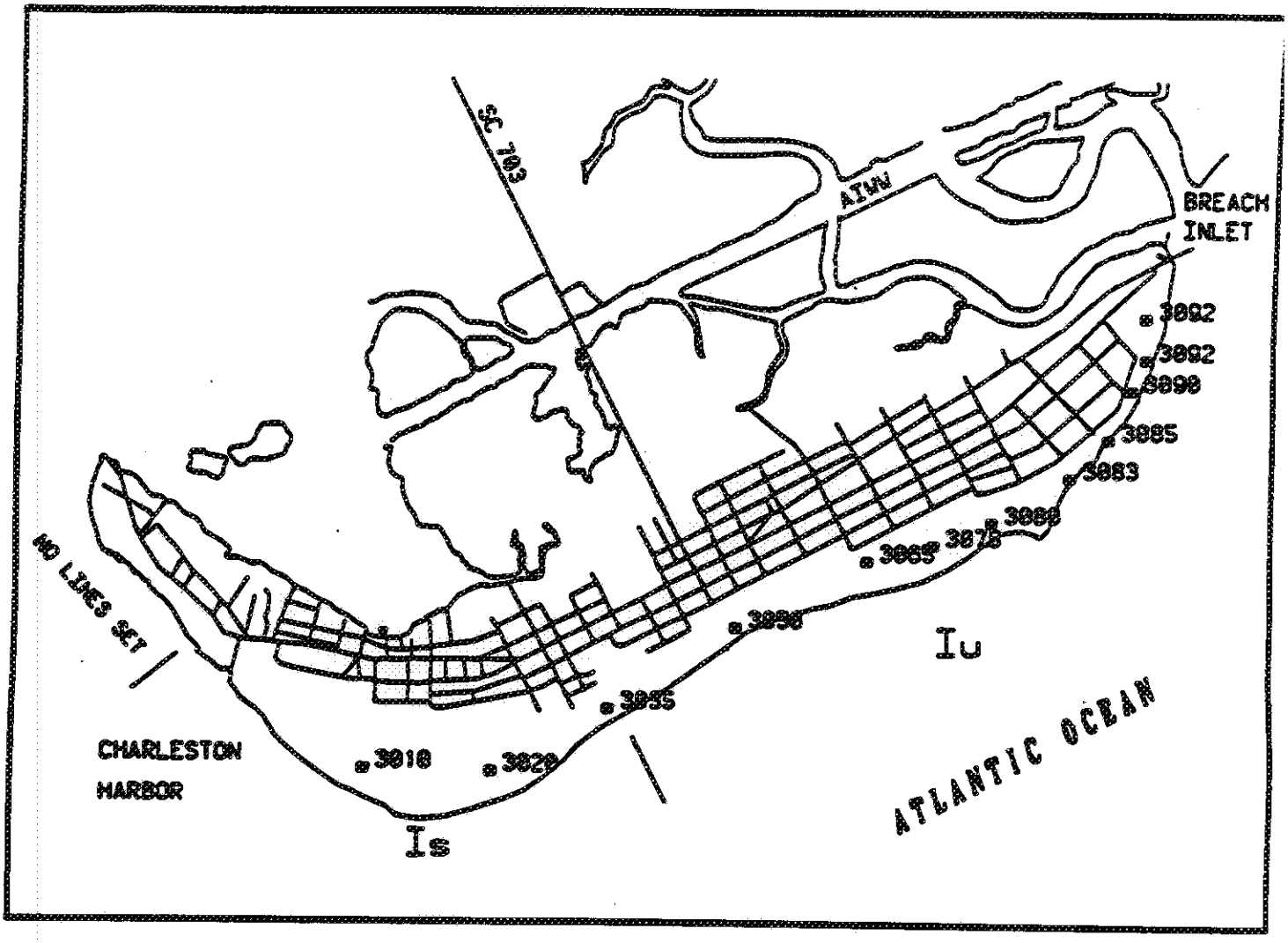
The next section of beach is the first twelve blocks east of the Holiday Inn, up to the Washout. Stations 2833 to 2855 are located here, with a moderate dune over or seaward of the line of rock revetments. Almost all profiles in this area were stable to slightly accretional between August 2001 and August 2002.

The next area, commonly referred to as the Washout, extends from station 2860 through 2873. The ocean is closest to the road in this section of beach, and there are no residential lots on the seaward side of Ashley Ave. Stations here were relatively stable for the study time period, although the beach here is still fairly narrow, with no dune, exposed revetment stone, and virtually no beach at high tide.

The region east of the Washout, stations 2878-2890, experienced a general trend of accretion from 1993 through 1997. This area then became erosional, with the amount

of erosion increasing with movement toward the east (that is, as monitoring station distance from the Washout increased). During the August 2001-August 2002 time period the erosion was once again worst at the extreme eastern end of the island. Station 2878 was fairly stable, station 2880 eroded back 15 ft, and stations 2883 and 2885, near the end of Ashley Ave., both eroded back 20 ft. At station 2890 on the former Coast Guard base property the profile showed about 50 ft of upper-beach erosion.

Folly Beach
2890 2002
2890 2001
Elevation (feet)
Distance (feet)
15
10
5
0
-5
0
50
100
150
200
250
300
350
400



Sullivans Island

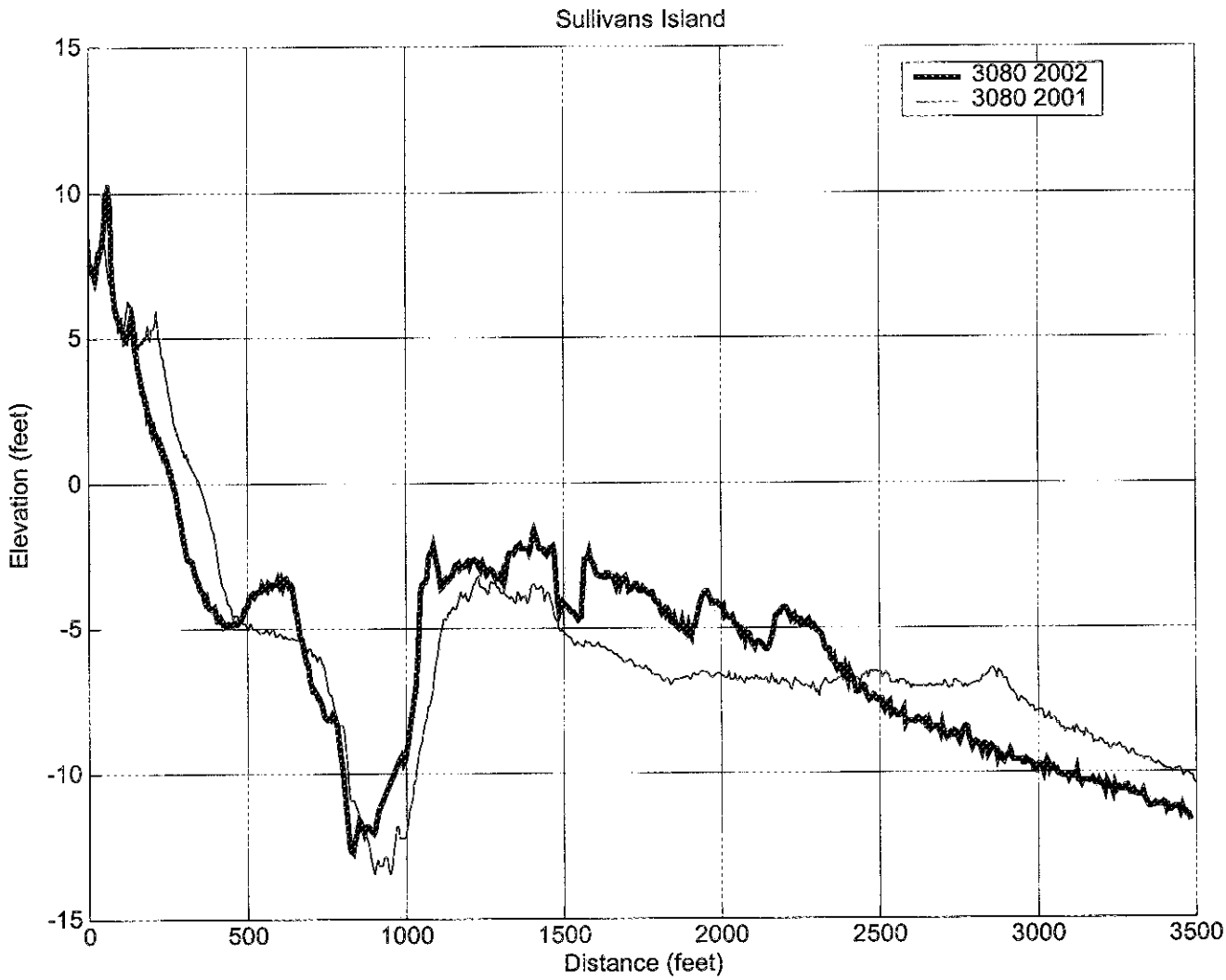
Sullivans Island

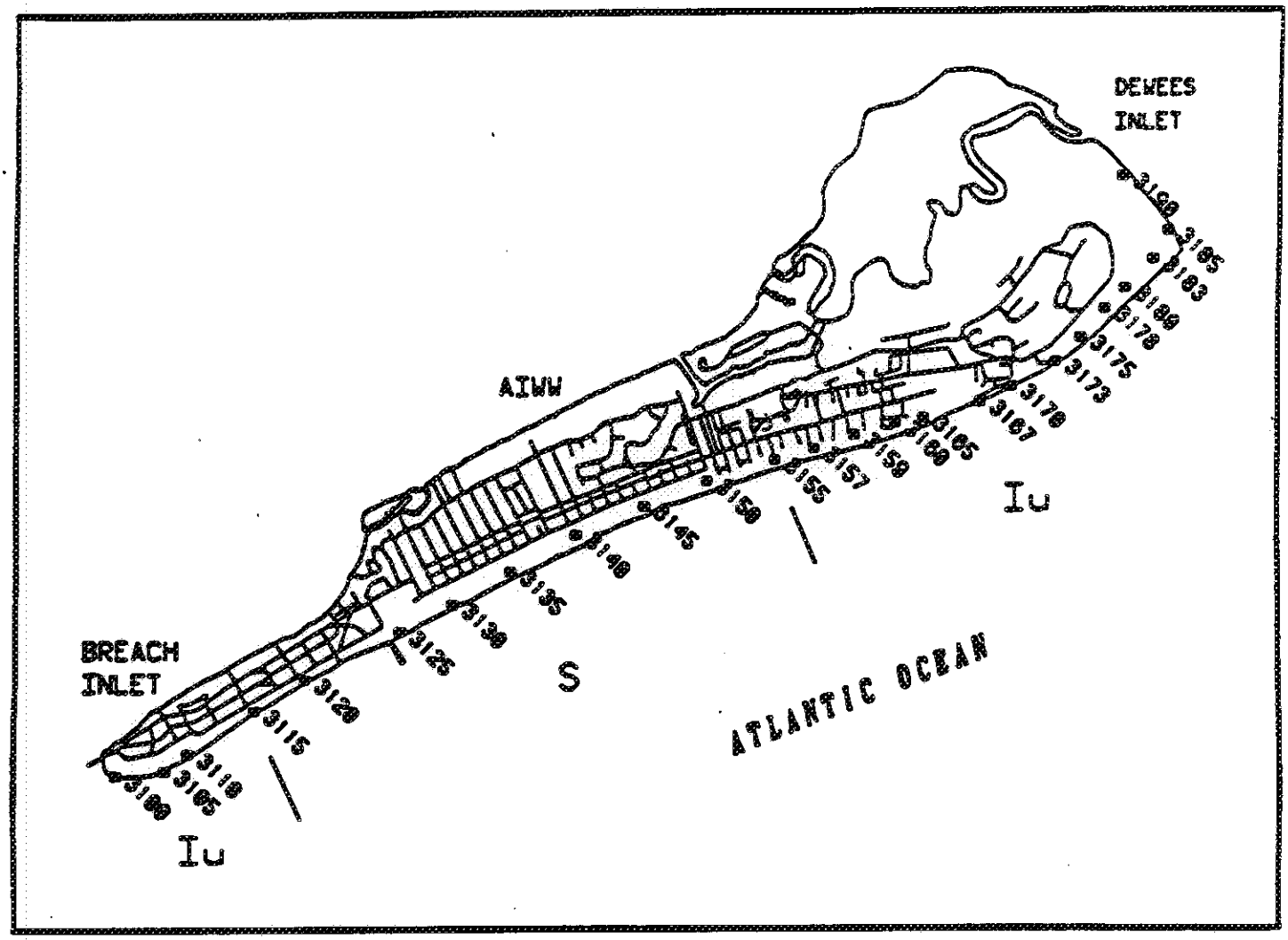
Sullivans Island is located between Charleston Harbor and Breach Inlet. The Charleston Harbor north jetty, which comes ashore on Sullivans Island, has caused the long-term shoreline trend to be stable or accretional for much of the island, although periodic shoal attachment and movement of the channel at Breach Inlet can cause the shoreline in this region to be quite dynamic. Beach surveys were conducted in August 2001 and July 2002.

Survey monuments 3010-3035, between Station 16 and Station 19, are located within the Charleston Harbor north jetty. This area is extremely accretional in the long-term but has been stable to erosional for the past several years. However, the tremendous beach buildup over the past century still leaves this as one of the widest beaches in South Carolina, as measured from the oceanfront row of houses to the high water line.

Survey monuments 3050-3080 are located along the center section of Sullivans Island, outside the north jetty. Sand shoals from Breach Inlet periodically attach to the beach here, and while long-term trends are accretional the shoreline is quite dynamic. At 3050, near Station 22½, the dune field remained stable while the upper beach increased in width by about 20 ft. At 3065, near Station 26, a new primary dune began to emerge but the profile seaward of this new dune experienced erosion out to a depth of -4 ft. Farther seaward a sand shoal is beginning to coalesce and move toward the beach. At 3080, near Station 28, the primary dune increased slightly in elevation while the beach seaward of the dune, eroded back by 75 to 100 ft. A small sand bar also formed farther seaward, at a depth of -5 ft. Much farther seaward, on the far side of the Breach Inlet channel, the massive, 1500-ft wide sand shoal increased in height by several ft.

Monuments 3083 and 3085 are located in the transition zone between the accretional center section of the island and the erosional northeastern end of the island along Breach Inlet. The beach at 3083 has been moderately accretional in recent years, while 3085 has been stable. Monuments 3090 at Station 31, 3092 at Station 31½, and 3095 at Station 32, all located close to Breach Inlet, continue to show steep and narrow inlet profiles with a sand deficit, no dune, and no high-tide beach.


Sullivans Island
3080 2002
3080 2001
Elevation (feet)
Distance (feet)
15
10
5
0
-5
-10
-15
0
500
1000
1500
2000
2500
3000
3500



Isie of Palms

Isle of Palms

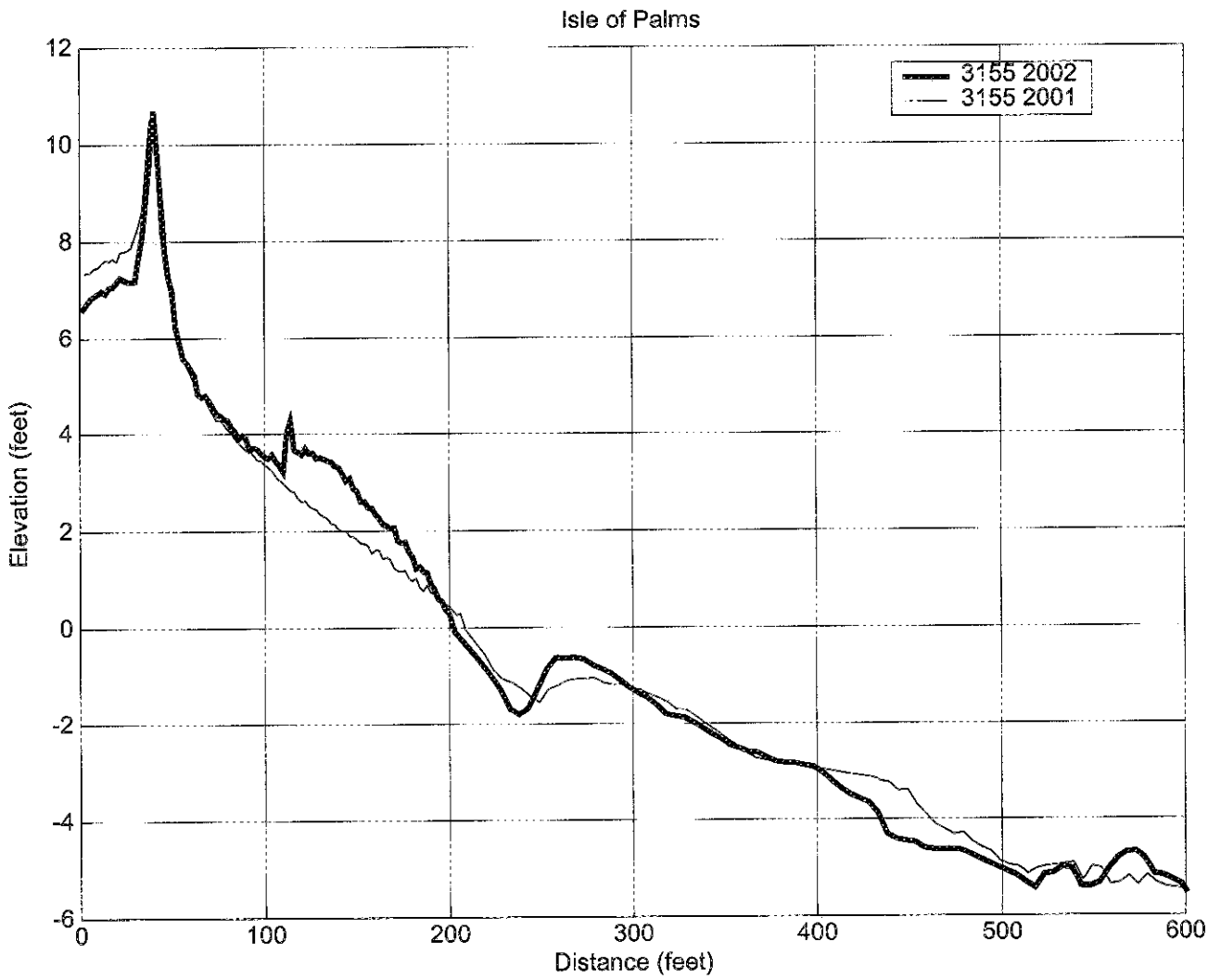
The Isle of Palms is located between Breach Inlet and Sullivans Island to the southwest, and Dewees Inlet and Dewees Island to the northeast. The island is generally accretional, primarily because the downdrift Charleston Harbor jetties interrupt the longshore flow of sand from north to south. There are 22 monitoring stations on the Isle of Palms, which were surveyed in July 2001 and August 2002. Stations 3100-3110, from Breach Inlet to 3rd Ave., are influenced by the inlet's channels and shoals and are usually more dynamic than the central portion of the island. This area is strongly accretional in the long term, but did experience some erosion on the upper and intertidal beach last year.

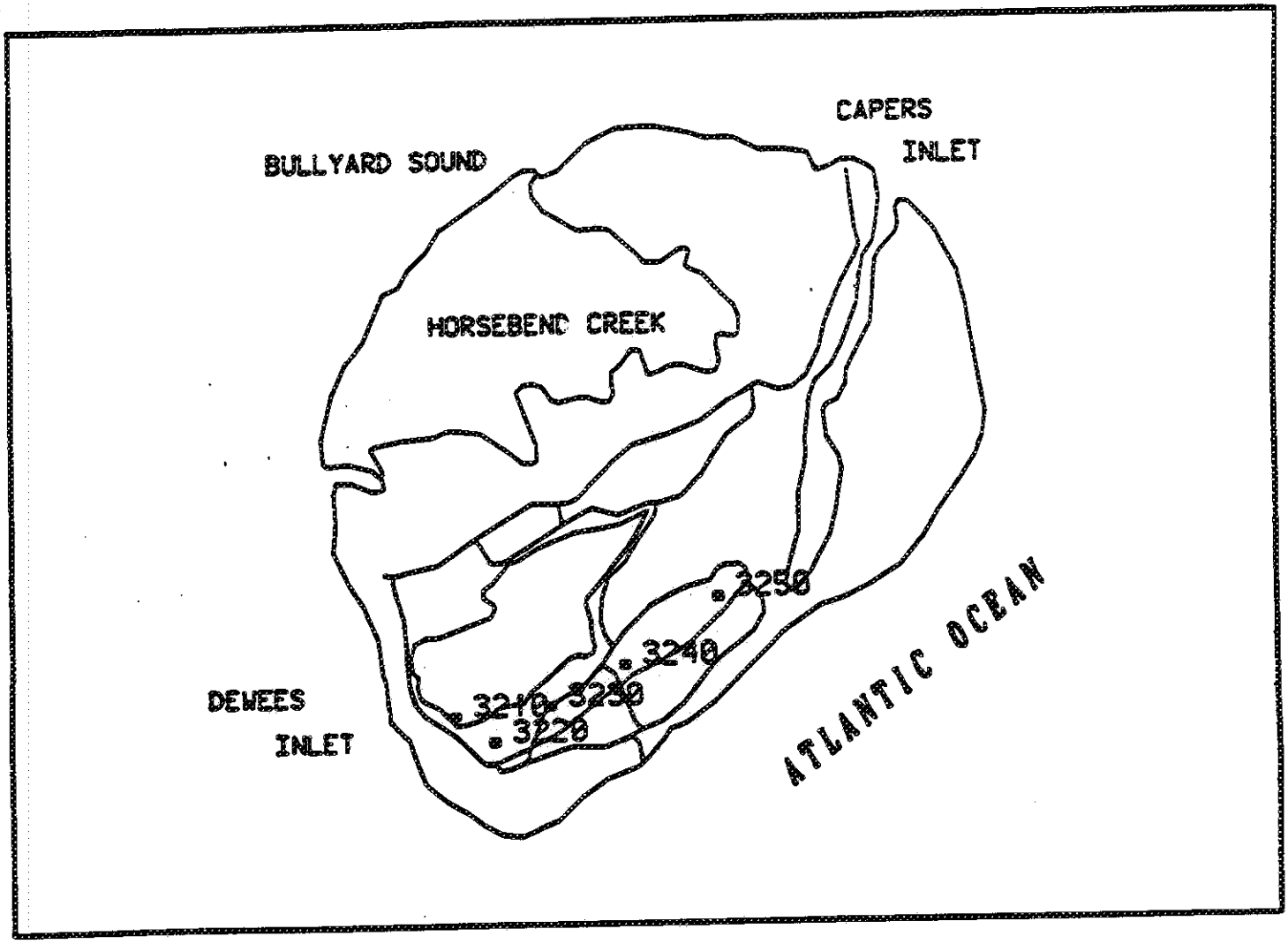
Stations 3115-3155, from 6th Ave. to the Citadel Beach Club, are located along the more stable portion of shoreline in the center of the island. Beach profiles here typically show a well-defined primary sand dune and only minor to moderate seasonal variations from year to year, although an occasional hotspot will crop up. This area was stable to slightly accretional during the past year.

Beginning at station 3157 near 50th Ave. and continuing on into Wild Dunes, beach profiles are close enough to Dewees Inlet to be effected by periodic bar bypassing from the inlet shoal complex, and as a result profiles here are more dynamic than the rest of the island. These shoal attachment episodes cause extreme accretion in the area of shoal attachment and severe but localized erosion immediately adjacent to the attachment site. These shoal attachment episodes occur about every 6-8 years and last about 18 months, with the most recent event terminating in the fall of 1996.

For the current report period, station 3157 experienced some moderate erosion on the intertidal beach. Station 3159 at 53rd Ave. was more stable, but station 3165 near 57th Ave. also showed some moderate erosion on the upper and intertidal beach. Station 3167 at the southwest end of Beachwood East experienced almost 100 ft of erosion on the intertidal beach. The same was true at Station 3170, at the northeast end of Beachwood East. The offshore portion of the profile here, at a distance of 2,000 ft and depths ranging from -8 to -10 ft, also showed some significant changes. By contrast the beach profile seaward of the revetment at station 3173, near the Property Owners Clubhouse, was

relatively stable, as was the beach at station 3175 near Mariners Walk. The dune field at station 3178, near SummerHouse condominiums, is fairly wide and is mostly unvegetated, so that wind-blown sand can shift around from one survey to the next. Seaward of this unstable dune field the beach profile went through some moderate erosion, as did the offshore portion of the profile. Finally, station 3180 at Port O' Call condominiums lost 100 ft of beach seaward of the dune.


Isle of Palms
3155 2002
3155 2001
Elevation (feet)
Distance (feet)
12
10
8
6
4
2
0
-2
-4
-6
0
100
200
300
400
500
600



Dewees Island

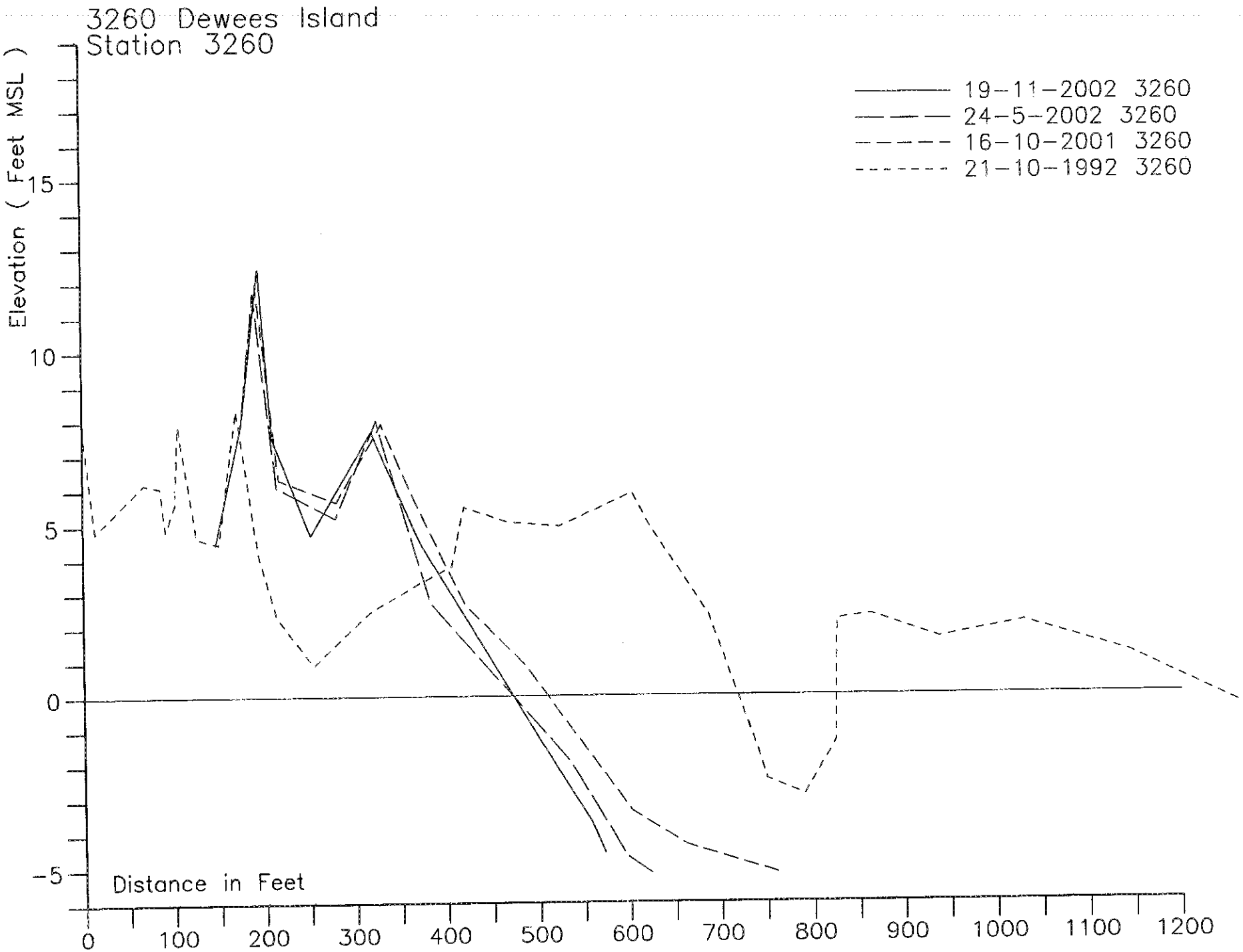
Dewees Island

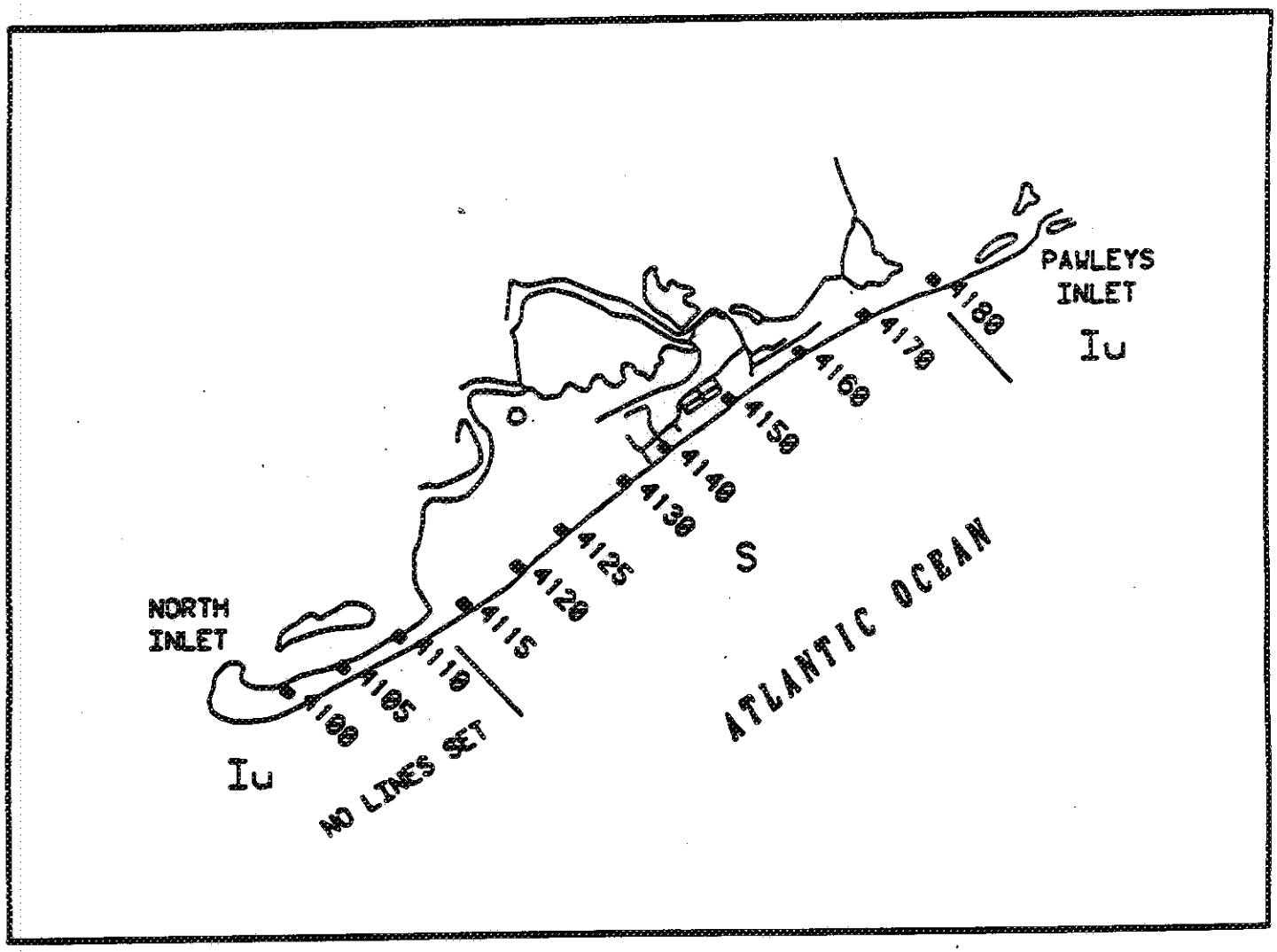
Dewees Island is located between Dewees Inlet to the southwest, and Capers Inlet to the northeast. The island is approximately two miles long, and is classified as an unstabilized inlet zone. The shoreline is very dynamic, with long-term erosion rates of -3 to -12 ft per year, although in recent years the entire island has been accreting. There is limited single-family development here. There are 9 monitoring stations on Dewees Island, which were surveyed in May and November 2002.

Station 3220 is located on top of a bluff along Dewees Inlet. The beach here can be very dynamic but was fairly stable in 2002 and showed only minor changes. Station 3230 continued with an accretional trend that began several years ago, as the upper beach beyond the primary dune shifted seaward by a distance of 50 to 150 ft. A newly emerging primary dune at 3240 continued to increase in height, while at 3250 the intertidal and lower-beach portions of the profile showed a slight loss of sand during the previous year.

On the dike at station 3255 several rows of developing dunes showed moderate changes, while the primary dune closest to the ocean experienced some scarping. The active beach portion of the profile seaward of the dune also eroded back by about 75 ft. At station 3260 the intertidal and lower-beach portions of the profile showed some minor erosion. Station 3270 also experienced about 75 ft of erosion seaward of the primary dune from October 2001 to May 2002, and then stabilized for the remainder of the year.

Station 3280 has a very wide profile that extends several hundred ft offshore. The seaward portion of this profile cut back by over 100 ft during 2002, but still remains about 500 ft farther seaward than its 1992 position. The last monitoring station, 3290, is located on Capers Inlet. The primary dune here is usually quite stable, while seaward of the dune a large sand flat, most of it intertidal, extends offshore for hundreds of feet. During the past year a channel leading to a small lagoon or pond here finally filled in.


3260 Dewees Island
Station 3260
19-11-2002 3260
24-5-2002 3260
16-10-2001 3260
21-10-1992 3260
Elevation (Feet MSL)
15
10
5
0
-5
Distance in Feet
0
100
200
300
400
500
600
700
800
900
1000
1100
1200



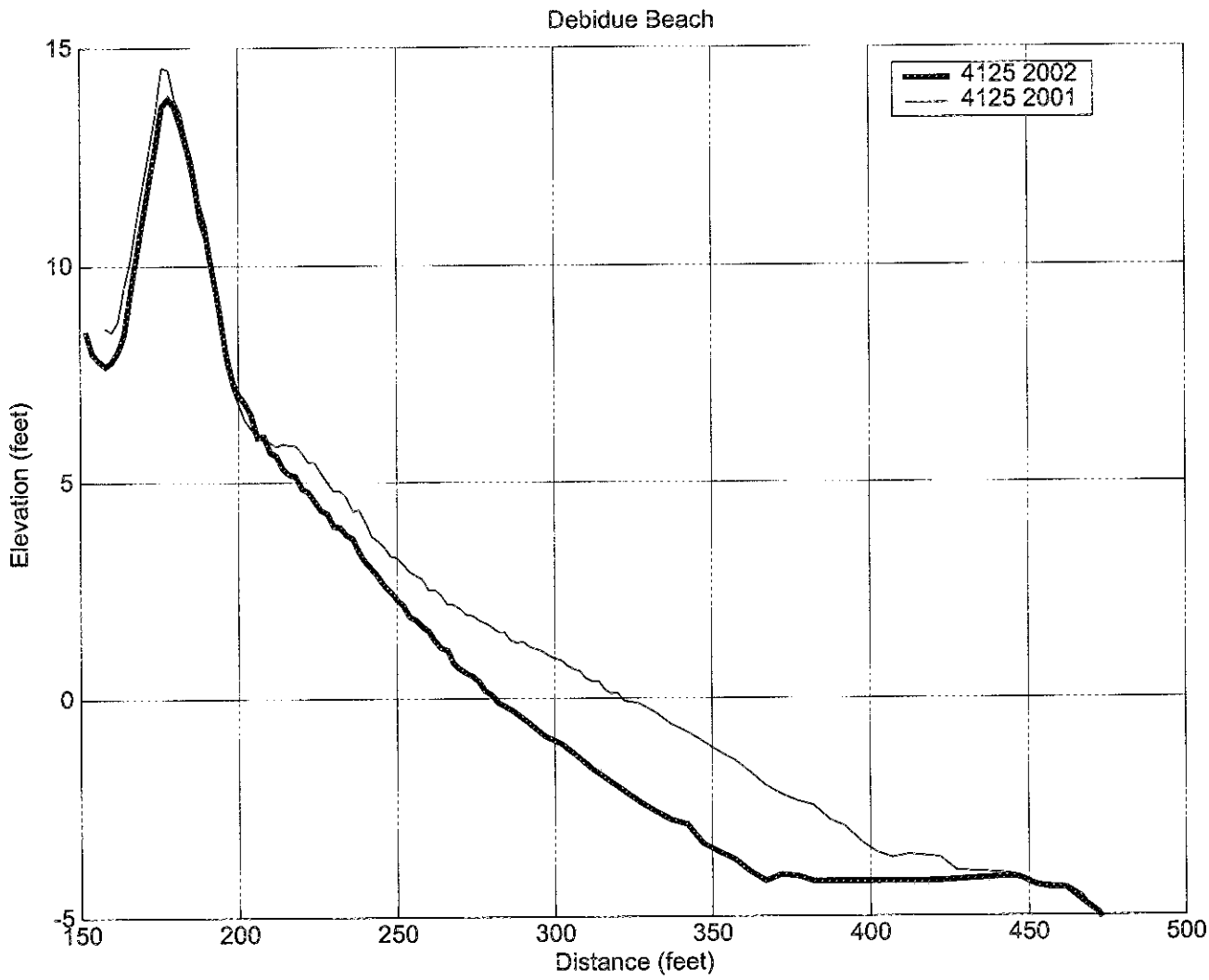
Debidue Island

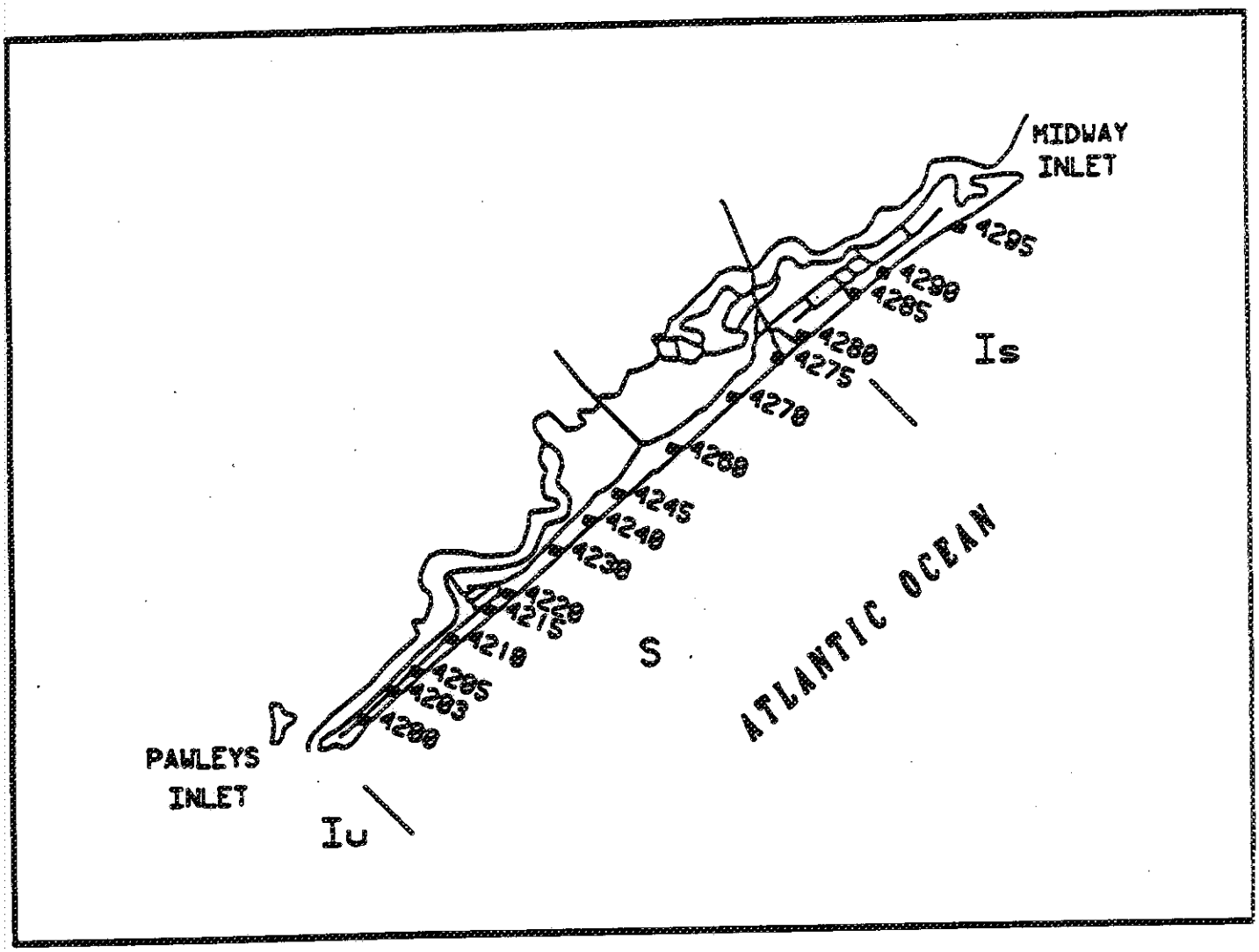
Debidue Beach

Debidue Beach, located between North Inlet and Pawleys Inlet, is the southernmost of the Grand Strand beaches. The central portion of Debidue is armored with a continuous 4500-ft long bulkhead. The area south of the bulkhead has experienced long-term erosion rates of -8 to -12 ft per year, while the area north of the bulkhead is stable to accretional. Stations here were surveyed in June 2001 and June 2002.

At station 4125, just south of the bulkhead, the long-term trend is erosional but the dune has remained stable for the past few years. Seaward of the dune, the beach profile down to –4 ft eroded back by 10 to 50 ft during the past year. At the south end of the bulkhead station 4130 actually gained a small amount of sand at the base of the bulkhead, but the rest of the profile, seaward to a depth of –4 ft, also eroded back by 10 to 50 ft. This south bulkhead section of beach has historically been the most critically sand-starved beach profile at Debidue. Station 4140, near the northern end of the bulkhead, saw some minor dune erosion and also lost a small amount of sand from the upper and intertidal beach, down to a depth of –5 ft. This station is the "pivot point" on Debidue – the beach erodes to the south and accretes to the north.

Stations 4150-4180 are located north of the bulkhead. This is a mostly undeveloped area with an extensive dune field. In general, the dune field remained stable here and the upper and intertidal beach experienced some degree of erosion during the past year. At station 4150 the beach profile from +5 ft down to –5 ft experienced some moderate erosion. Erosion was less extensive at station 4160, where the only loss was a small sand berm seaward of the primary dune. This same sand berm was eroded away at station 4170, as the upper beach here cut back by about 50 ft. The profile at station 4180 looks very similar, as the dune remained stable but a 50-ft wide sand berm around elevation +5 ft was eroded away.


Debidue Beach
4125 2002
4125 2001
Elevation (feet)
Distance (feet)
15
10
5
0
-5
150
200
250
300
350
400
450
500



Pawleys Island

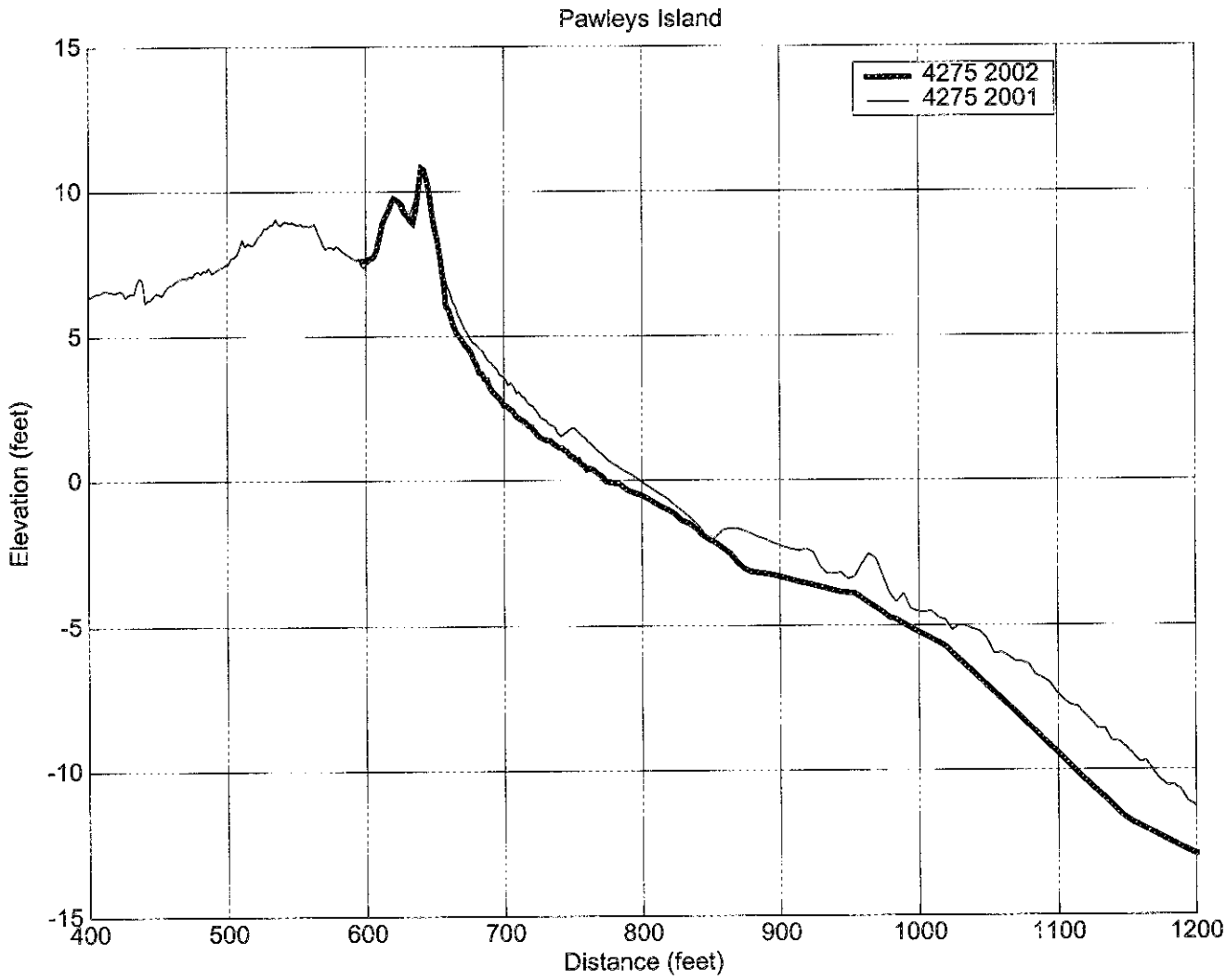
Pawleys Island

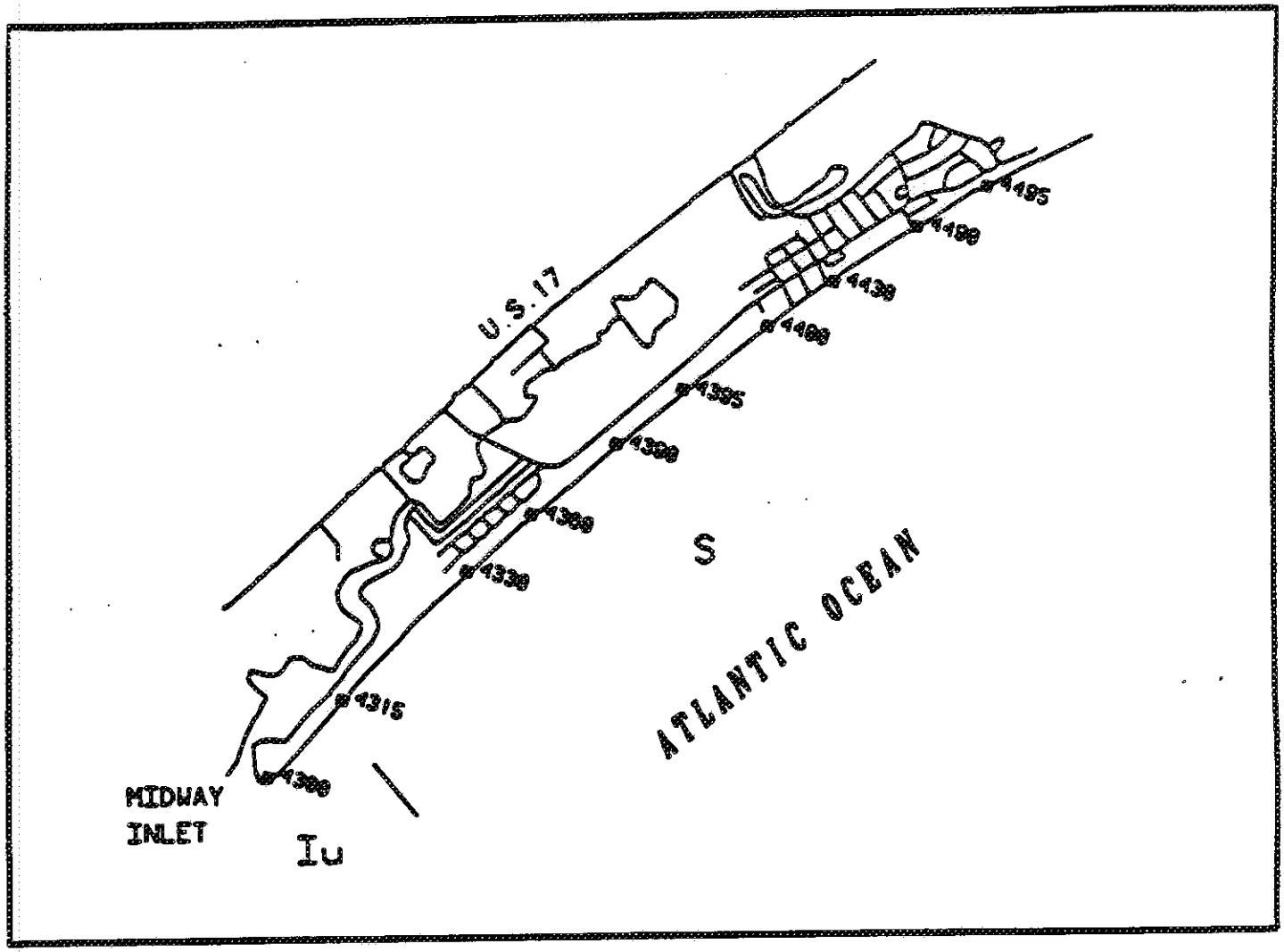
Pawleys Island is located between Pawleys Inlet and Midway Inlet. Groin fields on Pawleys have counteracted a slight erosional trend to produce a stable shoreline. The southern portion of Pawleys is low-lying, with little or no sand dunes. The central portion has some of the highest dunes in the state, while the northern, accretional end has a wide field of low dunes. A beach renourishment project using sand borrowed from the sand spit at the southern end of the island was completed in 1999. Sixteen monitoring stations at Pawleys were surveyed in April 2001 and June 2002.

While there are no monitoring stations on the sand spit at the southern end of the island, it is apparent from visual observations that the renourishment borrow area has filled back in with sand. The southernmost groin cell, containing the last 13 houses on Pawleys, still has no sand dune to speak of. Stations 4200-4220 are the 6 monitoring sites located north of this groin cell, in the developed, low-lying southern end of Pawleys Island. In this region the primary dune has experienced some erosion during the past year.

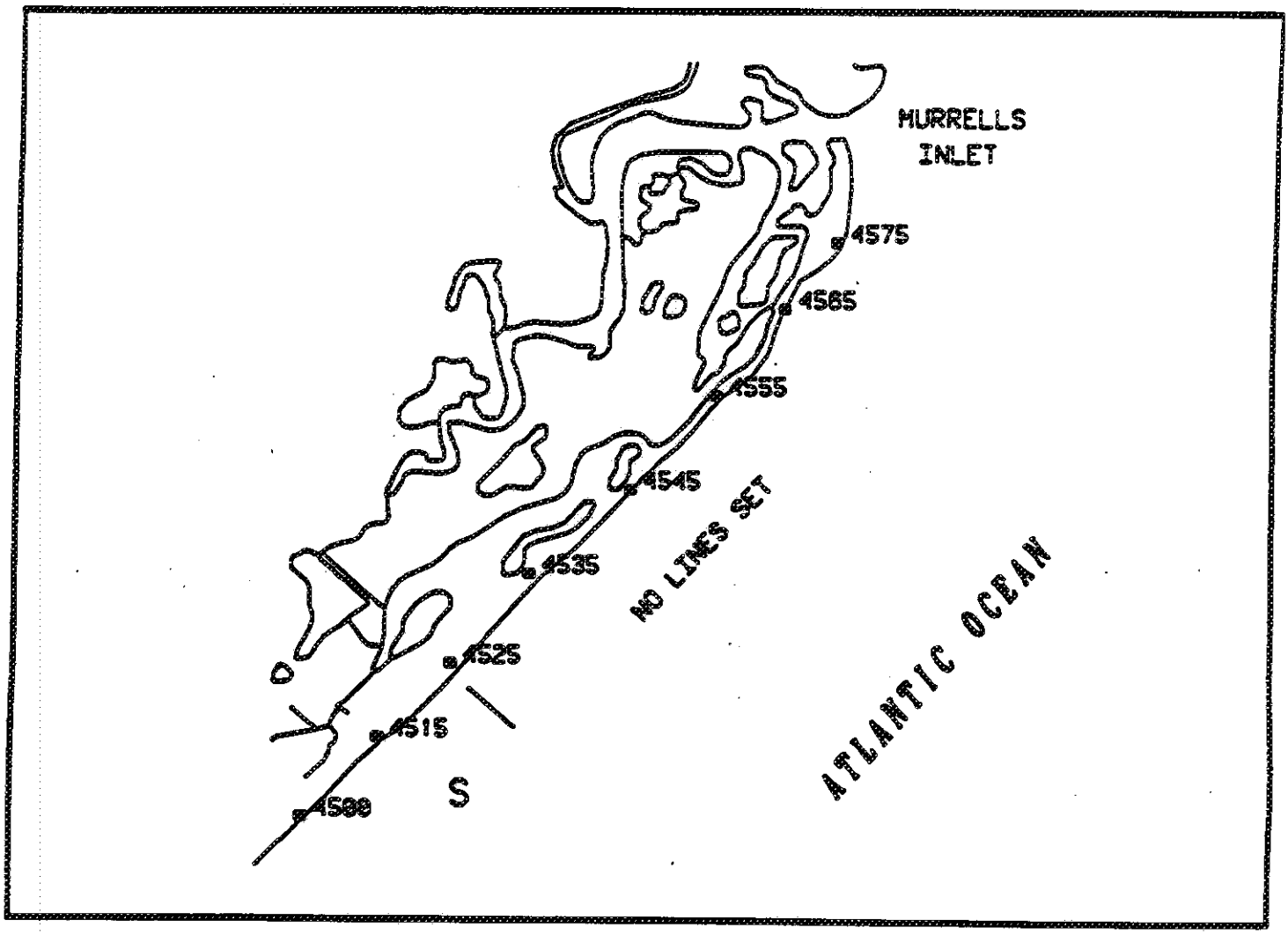
The central portion of Pawleys Island, with a large primary dune, is represented by stations 4230-4280. Most of the 7 profile stations here were fairly stable, gaining or losing a small amount of sand on the beach seaward of the primary dune. Historically, this entire section of beach has always been the most stable portion of Pawleys Island. It shows little change from year to year, has an adequate sand volume, and, in most places, a massive sand dune.

Stations 4285 to 4295 are located closest to Midway Inlet, where the beach is much wider and is generally more dynamic. The long-term trend here is accretional, and most houses are several hundred feet landward of the high-tide water line. Most monitoring stations here showed some dune accretion and a minor gain of sand seaward of the dune between April 2001 and June 2002.


Pawleys Island
4275 2002
4275 2001
15
10
5
0
-5
-10
-15
Elevation (feet)
400
500
600
700
800
900
1000
1100
1200
Distance (feet)



Litchfield Beach



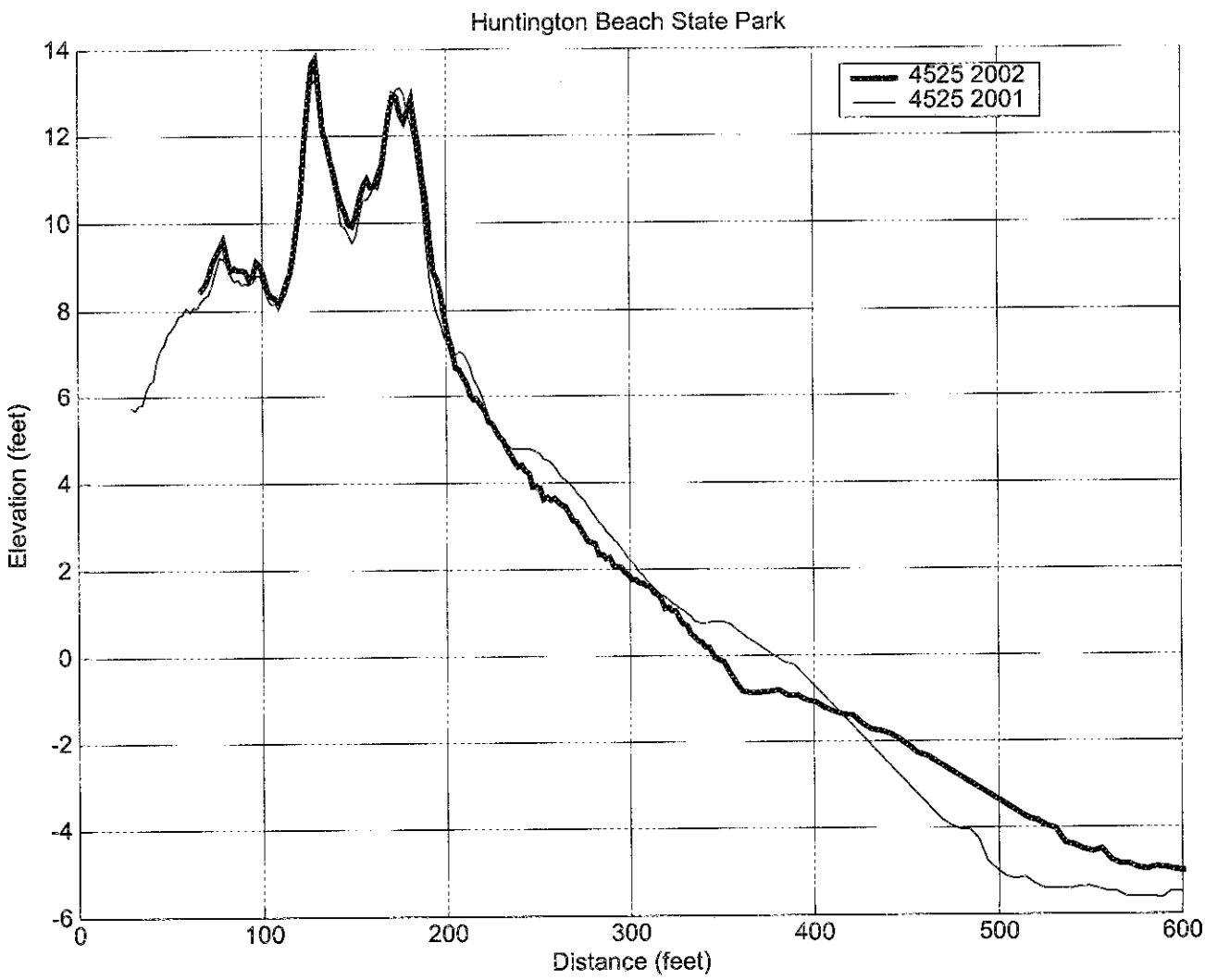
Huntington Beach State Park

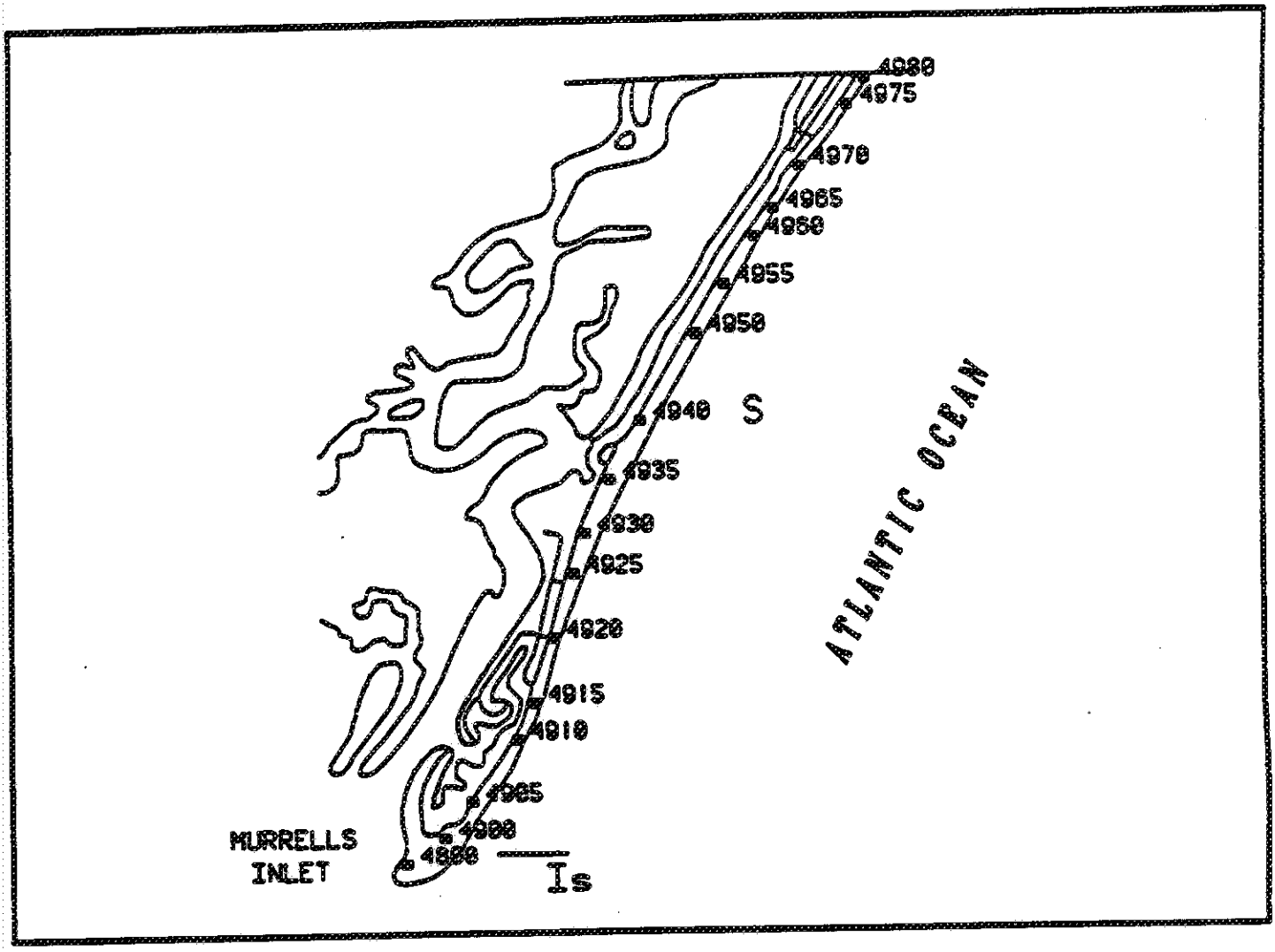
Litchfield Beach/Huntington Beach State Park

Litchfield Beach, North Litchfield, and Huntington Beach State Park represent a continuous, uninterrupted sediment budget compartment. This area is bounded by Midway Inlet to the south, and Murrells Inlet to the north. The southern spit at Litchfield is a low-lying area with a small dune field, while the central portion of this reach contains a large, well-defined primary dune, one of the largest in the state. The long-term shoreline trend is stable for this entire area, and in fact, Litchfield Beach and North Litchfield Beach are among the most stable beaches in South Carolina. All stations here have a significant primary dune that generally shows no sign of erosion from year to year, and changes to the beach profile are usually limited to minor sand gains or losses on the active beach, seaward of the dunes. The northern reach, in the state park, is directly influenced by Murrells Inlet and the south inlet jetty. Beach surveys here were taken at 17 stations in June 2001 and June 2002.

Stations 4315-4390 in Litchfield and North Litchfield showed a stable dune field and some moderate erosion seaward of the dune, on the upper beach and particularly on the intertidal beach. Stations 4500-4565 are located in Huntington Beach State Park. In the southern end of the park, stations 4500, 4515, and 4525 are similar to North Litchfield Beach. They have a stable, well-defined dune, and experienced only minor erosion on the intertidal beach during the past year.

As proximity to Murrells Inlet increases the primary dune becomes somewhat smaller and the shoreline can become more dynamic, although the inlet itself is stabilized by jetties that were constructed in the early 1980's. At station 4535 the primary dune gained some sand while the upper beach eroded slightly. Station 4545 saw some scarping on the seaward face of the primary dune and some moderate upper beach erosion. The last two stations surveyed, 4555 and 4565, in the northern end of the Park and closest to the jetty, showed much more extensive dune erosion. The primary dune was cut back significantly here.


Huntington Beach State Park
4525 2002
4525 2001
Elevation (feet)
Distance (feet)
14
12
10
8
6
4
2
0
-2
-4
-6
0
100
200
300
400
500
600



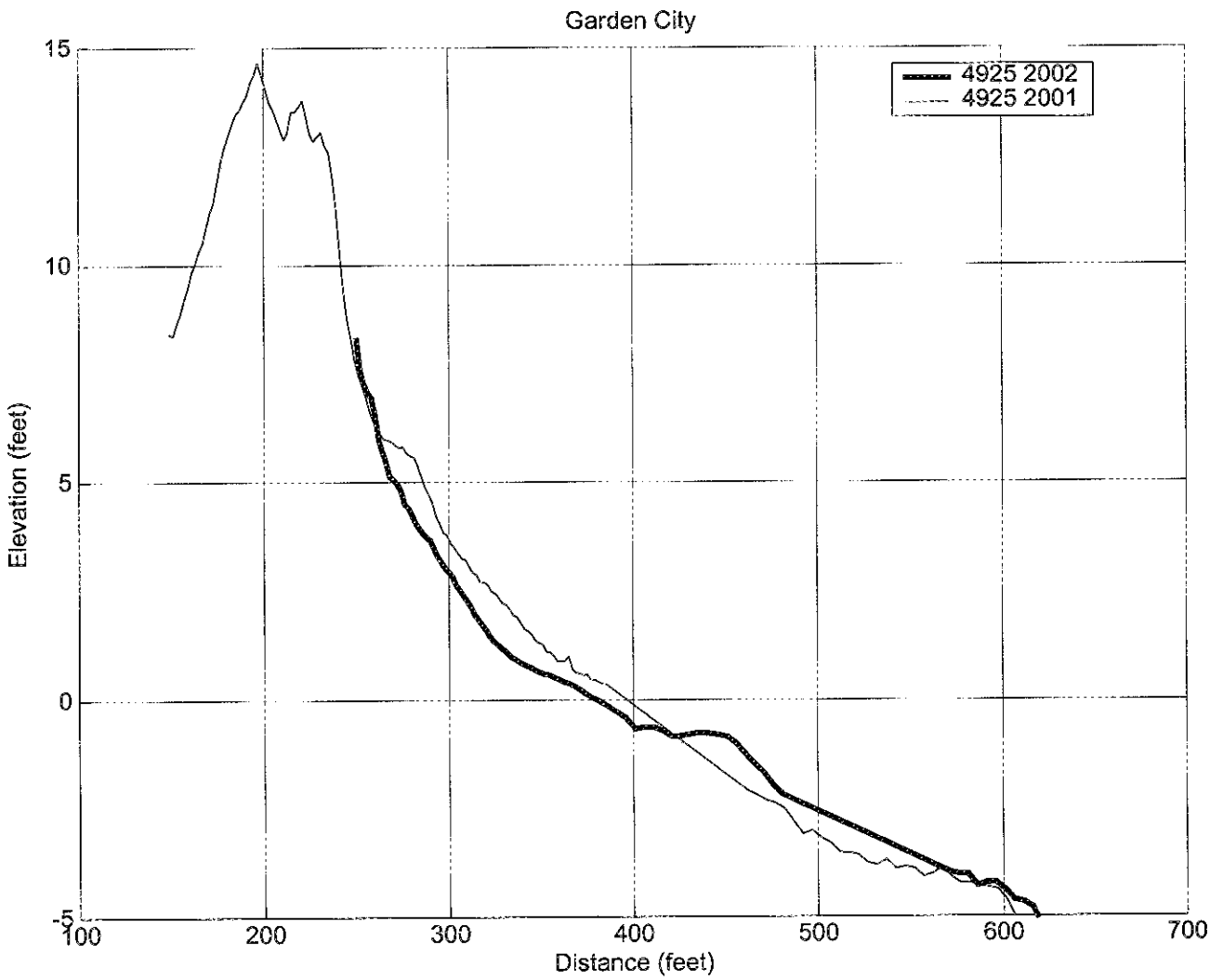
Garden City (Georgetown County)

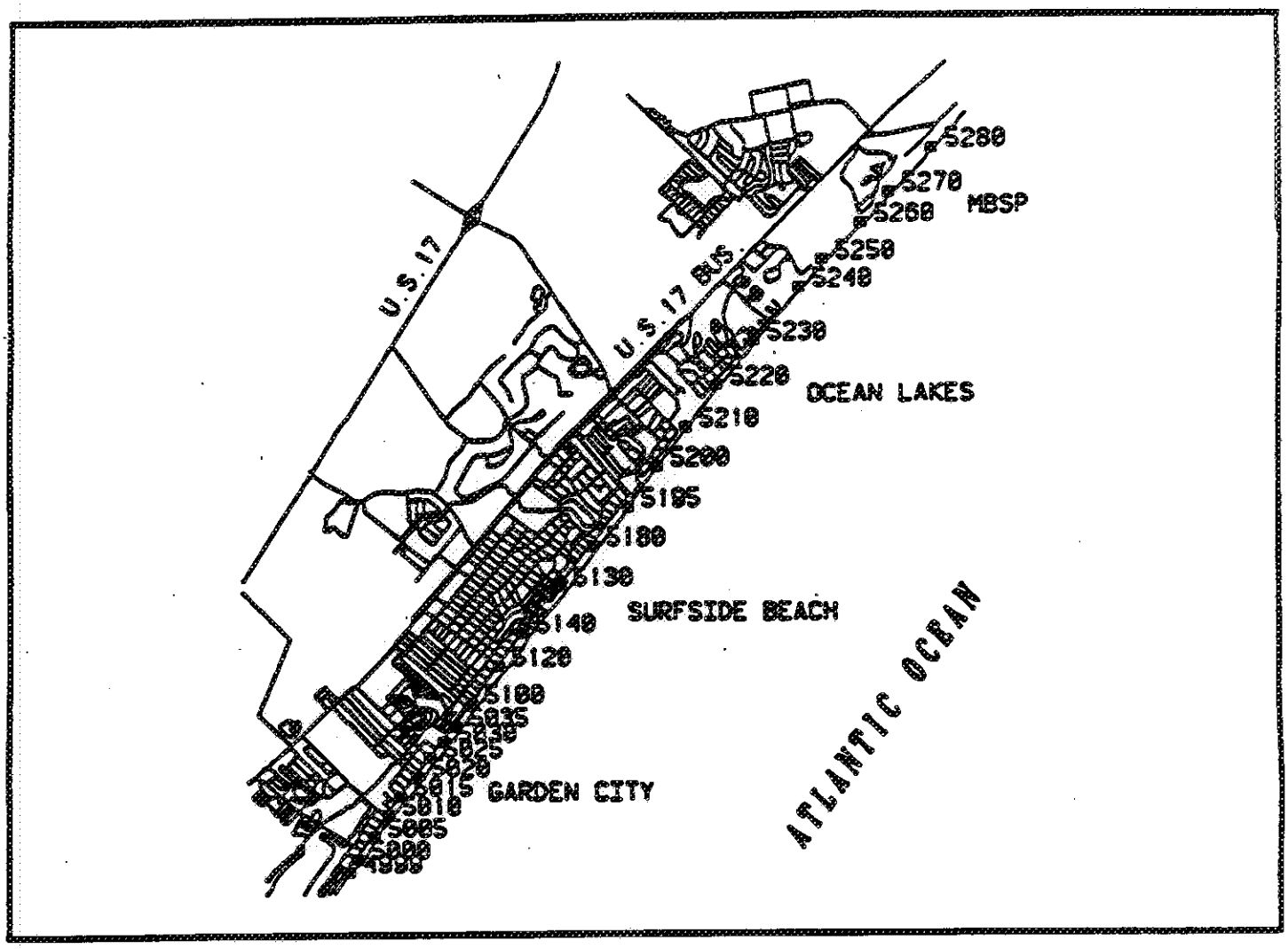
Garden City Beach

This section of shoreline begins at Murrells Inlet and extends northward to the southern limit of the Town of Surfside Beach. The southern half of Garden City, from station 4900 to 4955, contains few shore-protection structures, while in the northern half, between stations 4960 and 5030, seawalls and bulkheads become predominant. Generally, sand volumes are adequate in the unarmored section of Georgetown County, begin to decrease in the armored section of Georgetown County, and reach a minimum in the armored section of Horry County. Much of Garden City was renourished in 1998 as part of the US Army Corps of Engineers Grand Strand Renourishment Project. There are 24 monitoring stations here, which were surveyed in June 2001 and April 2002.

Most stations in the standard zone from 4900 through 4955 are unarmored, have a well-defined dune, and are fairly stable. The exception is found along a 2000 ft section of beach south of Pompano Drive, at stations 4910 and 4915, where the shoreline is armored and bulges out, and the beach is narrower and more vulnerable. A considerable amount of sand has been lost in front of the bulkheads here, which showed an 8-ft vertical drop from top to bottom in April 2002. However since that last survey data was collected a small renourishment project placed about 100,000 cubic yards of sand on the beach and 4 derelict groins were replaced, so as of the date of this report the beach is now in excellent condition. The other monitoring stations in this area experienced minor berm erosion.

North of station 4960 the shoreline is predominantly armored and the beach width decreases. Stations 4965 through 4999, in Georgetown County, and station 5000, in Horry County just south of the pier, still show a minimal dry sand beach seaward of a small dune or bulkhead. During the past year most stations experienced some minor upper-beach erosion, down to mean sea level, but a similar magnitude of accretion below mean sea level. Stations 5005 to 5035, the northernmost section of Garden City in Horry County from the pier to Melody Lane, are mostly armored but lack a dry-sand beach. Profiles here show moderate erosion from the bulkhead to the –5 ft contour. The 1998 renourishment project has not performed as well here, and several commercial structures are located quite close to the active beach with no seawall or sand dune as a buffer.


Garden City
4925 2002
4925 2001
15
10
5
0
-5
100
200
300
400
500
600
700
Elevation (feet)
Distance (feet)



Garden City (Horry County)
Surfside Beach
Unincorporated Horry County--South

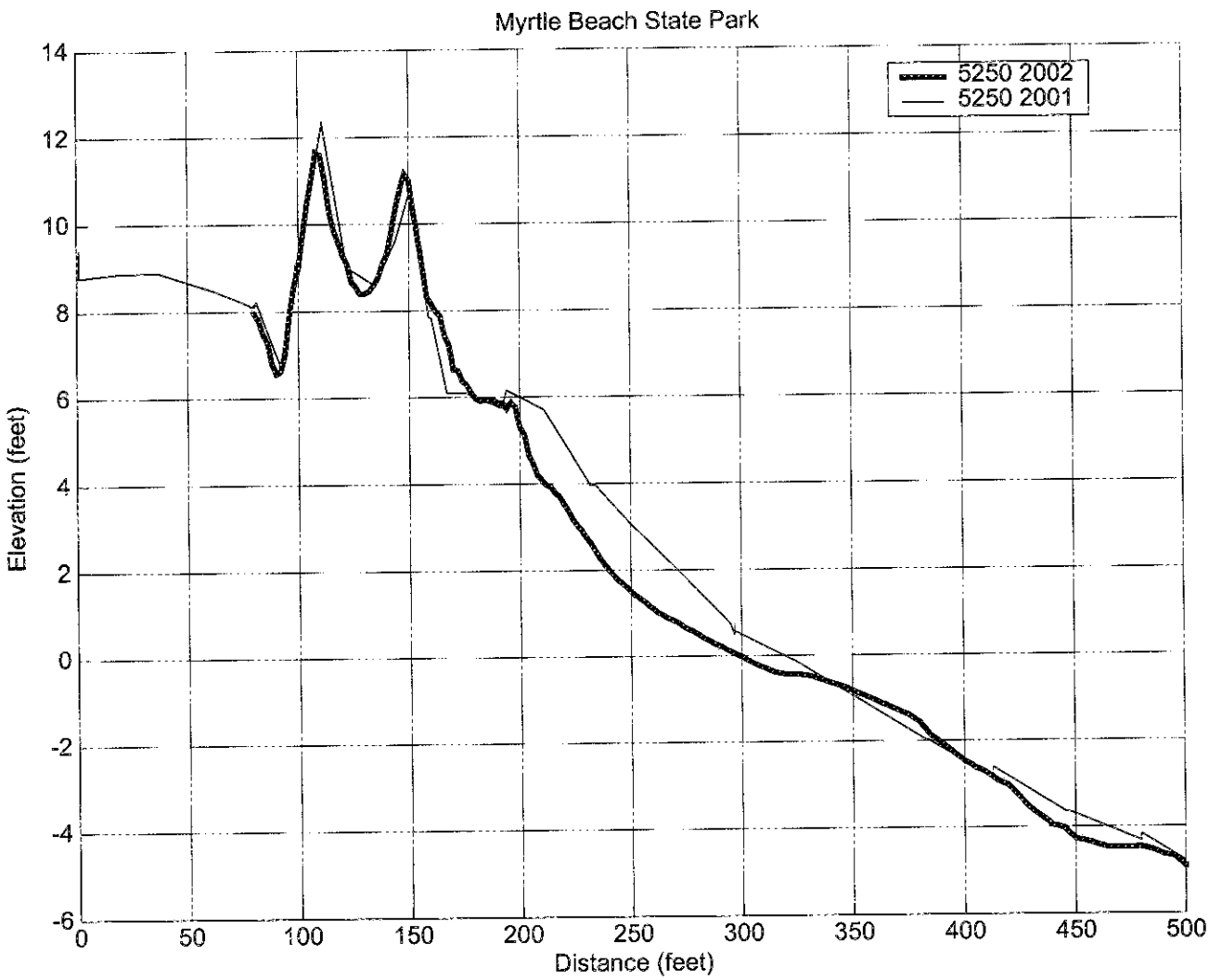
Surfside Beach and Unincorporated Horry County—South

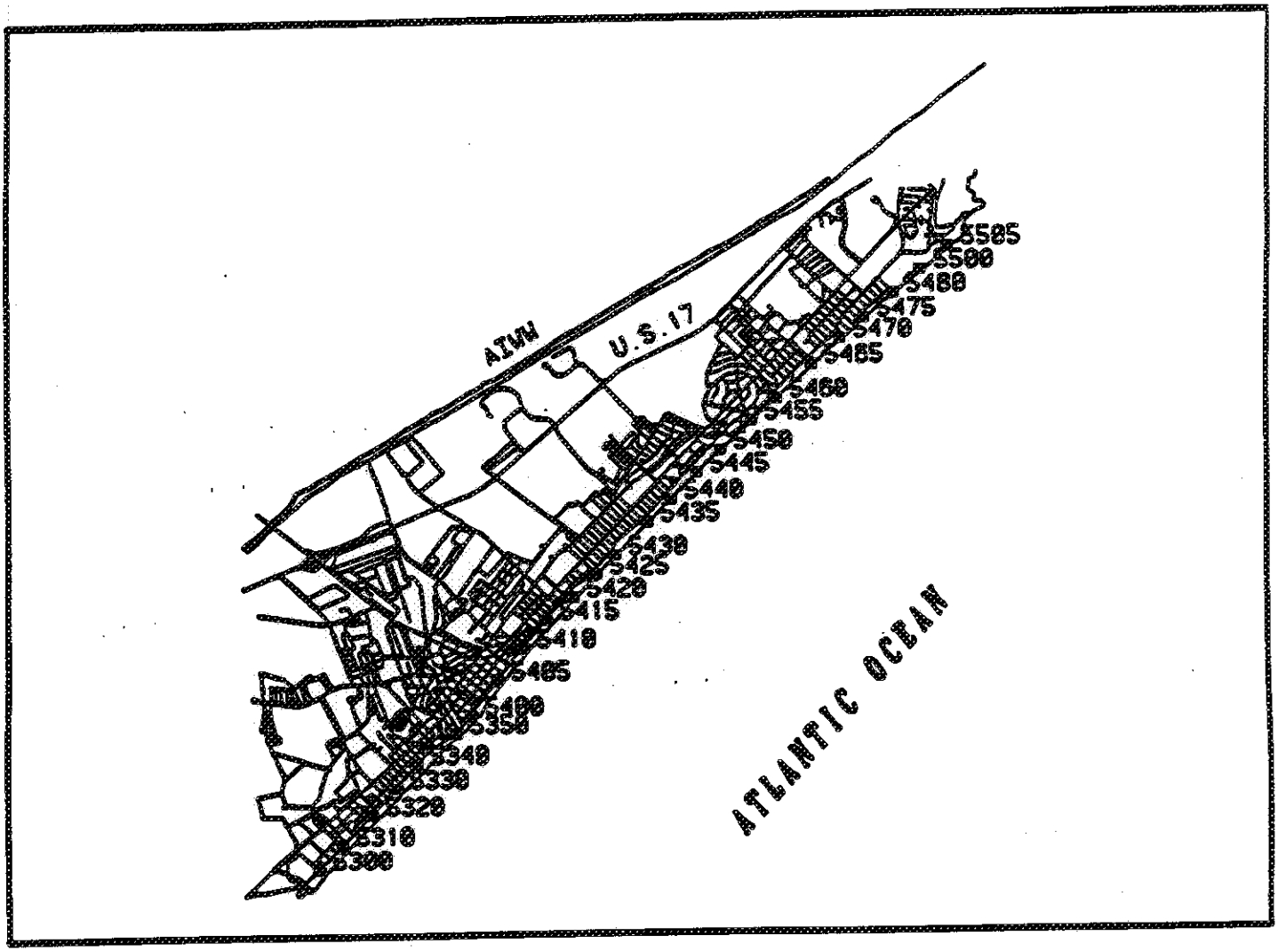
This section of the Grand Strand includes 6 monitoring stations in the Town of Surfside Beach, and 9 stations in the unincorporated region north of Surfside Beach—the campground region, Long Bay Estates, and Myrtle Beach State Park. Surveys here were completed in April 2001 and April 2002.

Stations 5100 at 16th Ave. South through 5195 at 16th Ave. North fall with the Town of Surfside Beach, and with the exception of station 5100, all have a well-established primary sand dune. The beach here has reached equilibrium following the 1998 renourishment project and remained fairly stable during the past year, with a moderately wide dry-sand beach even at high tide. Stations 5140 at 5th Ave. South and 5195 at 16th Ave. North both gained some sand on the seaward side of the primary dune.

Stations 5200 and 5230 are located in the campground section. At 5220, which is armored, the beach profile eroded slightly on the upper beach but gained a significant amount of sand between the +1 and -5 ft contours. Station 5230 has a well-defined primary dune with crest elevation of 12-14 ft. This station gained sand on the seaward face of the dune, as well as between the +1 and -5 ft contours. Station 5240 in Long Bay Estates was fairly stable.

In Myrtle Beach State Park the profiles all have a well-established dune, and the beach is usually very stable. This area was not directly renourished in 1998, although it probably received an indirect benefit from renourishment to the north and south. Stations 5250 to 5270 are located here, and showed only minor changes in 2002. At station 5280, located at the Springmaid fishing pier, the beach profile lost a small amount of sand from an upper beach berm but otherwise was unchanged.


Myrtle Beach State Park
5250 2002
5250 2001
Elevation (feet)
Distance (feet)
14
12
10
8
6
4
2
0
-2
-4
-6
0
50
100
150
200
250
300
350
400
450
500



Myrtle Beach

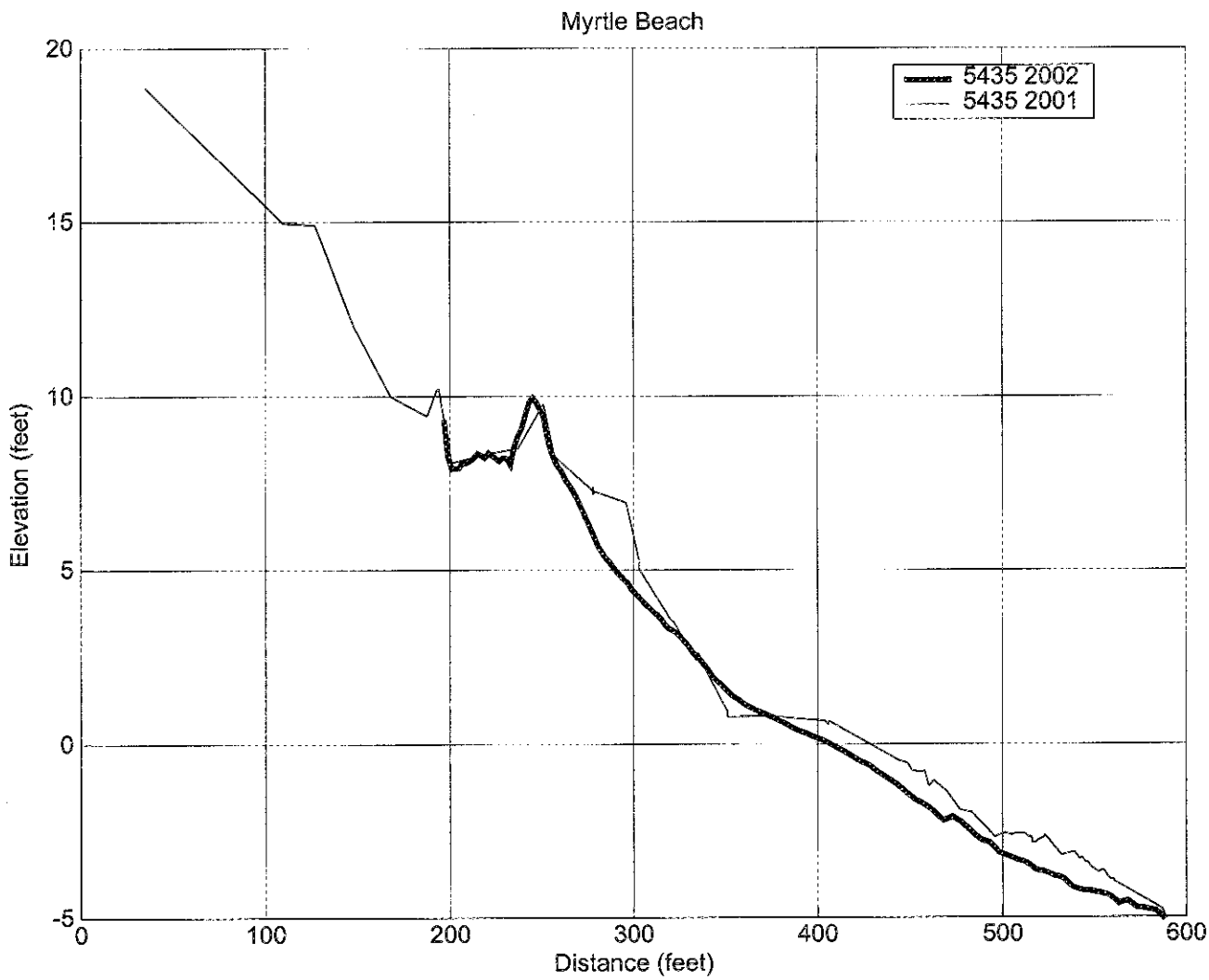
Myrtle Beach

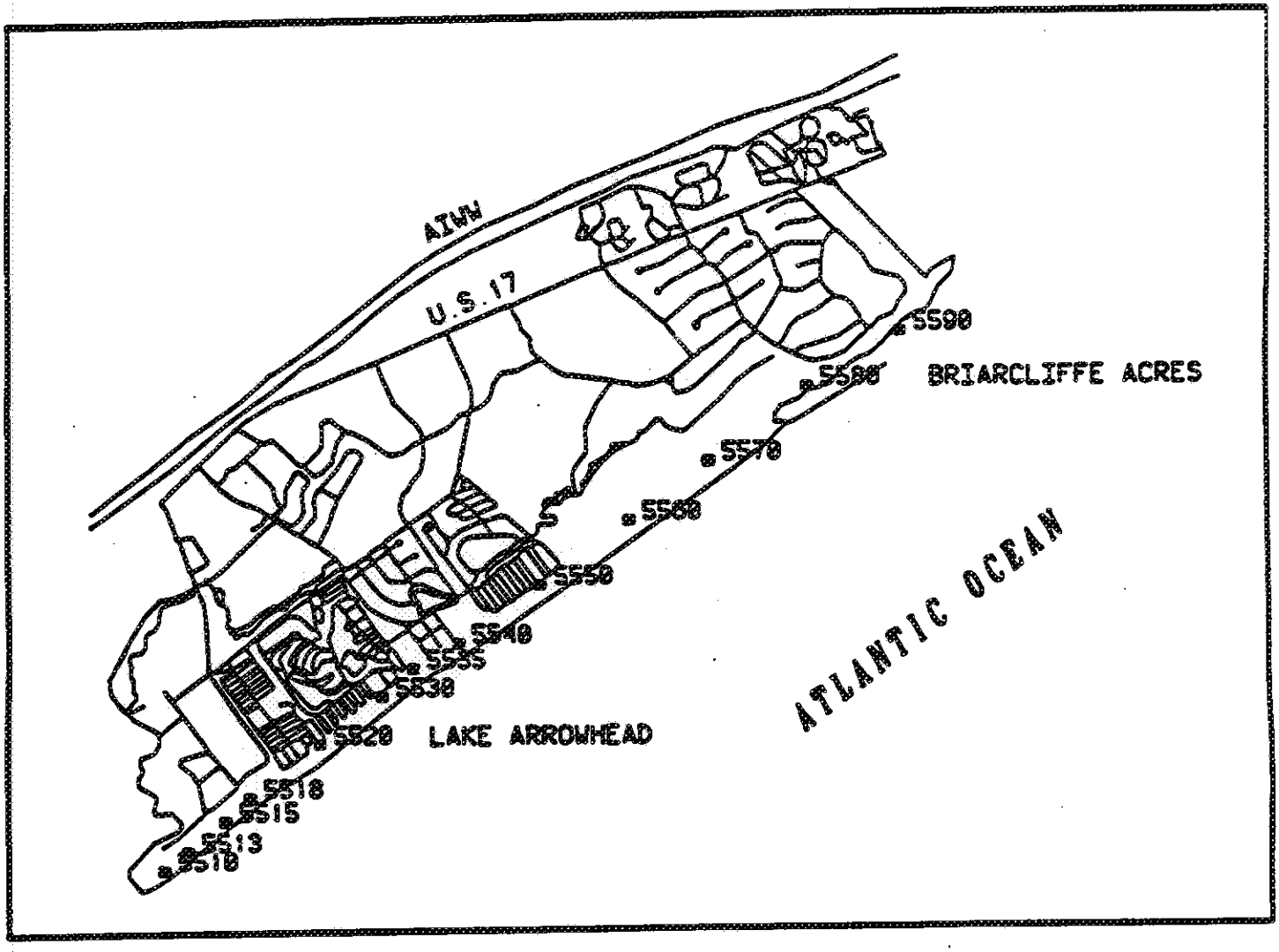
The next area is the eight-mile section of shoreline within the Myrtle Beach city limits. Beach surveys were conducted at 23 monuments in January 2001 and February 2002. Myrtle Beach was renourished between May and December 1997 as part of the US Army Corps of Engineers Grand Strand Renourishment Project; this fill reached equilibrium within a few years, and has since stabilized.

Stations 5300-5430, from 29th Ave. South to 31st Ave. North, are located in the southern commercial district. There are many seawalls and bulkheads in this region, and before renourishment sand volumes were relatively low. The renourishment project stabilized by 2000 and has lost only a minor amount of sand from the upper beach since then. This trend continued during the latest survey period, as most stations lost some sand from the upper beach. But the dry-sand berm width here is still adequate, and continues to provide storm damage protection and a recreational benefit. Sand fencing has also helped to establish a small dune line over the past few years.

The area between stations 5435 and 5465, from 31st Ave. North to 67th Ave. North, is primarily a residential section with some commercial sites. There are few bulkheads or seawalls, and although a primary dune exists in many areas there are also unarmored sections where the highland, usually a residential lawn, simply slopes down to the berm. Most stations experienced some upper beach erosion. The worst occurred at station 5445, near 48th Ave. North, where the berm eroded back by about 50 ft. Several stations showed virtually no change at all.

Stations 5470 - 5480 are located in the northern commercial district, although there are several residential structures here as well. A small but well-defined primary dune exists along most of the beach here. Results were mixed here during the last survey period. Station 5470 at 72nd Ave. North saw 10 to 50 ft of erosion over the entire profile, 5475 experienced some dune erosion but was stable everywhere else, and 5480 at 82nd Ave. North gained 2 ft on the primary dune but was otherwise very stable.


Myrtle Beach
5435 2002
5435 2001
Elevation (feet)
Distance (feet)
20
15
10
5
0
-5
0
100
200
300
400
500
600



Unincorporated Horry County--North

Unincorporated Horry County—North

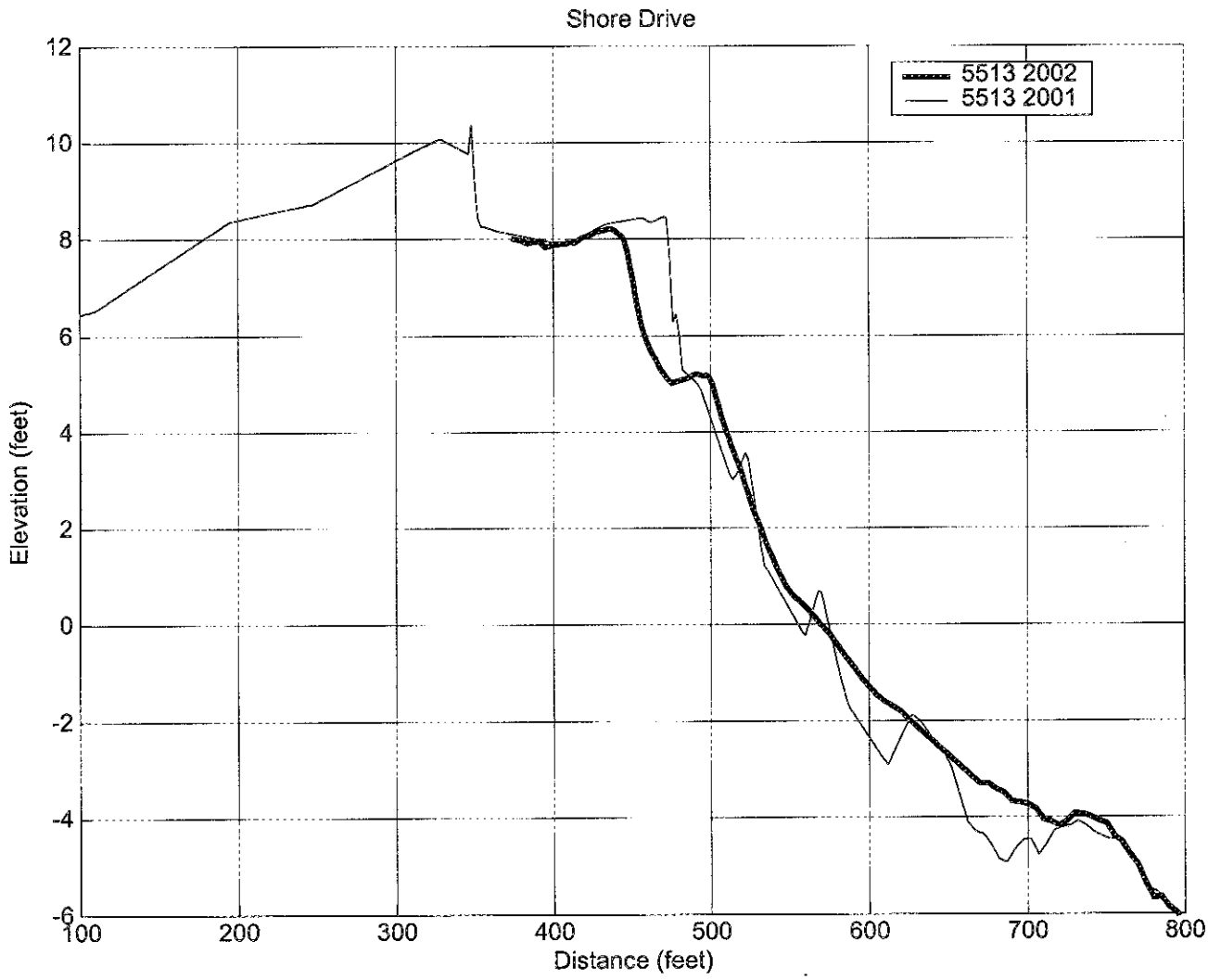
This area of unincorporated Horry County is located between the City of Myrtle Beach and White Point Swash, and includes the Shore Drive section, the campground section, and Briarcliffe Acres. There are 14 beach survey monuments located here, which were surveyed in January 2000 and February 2002.

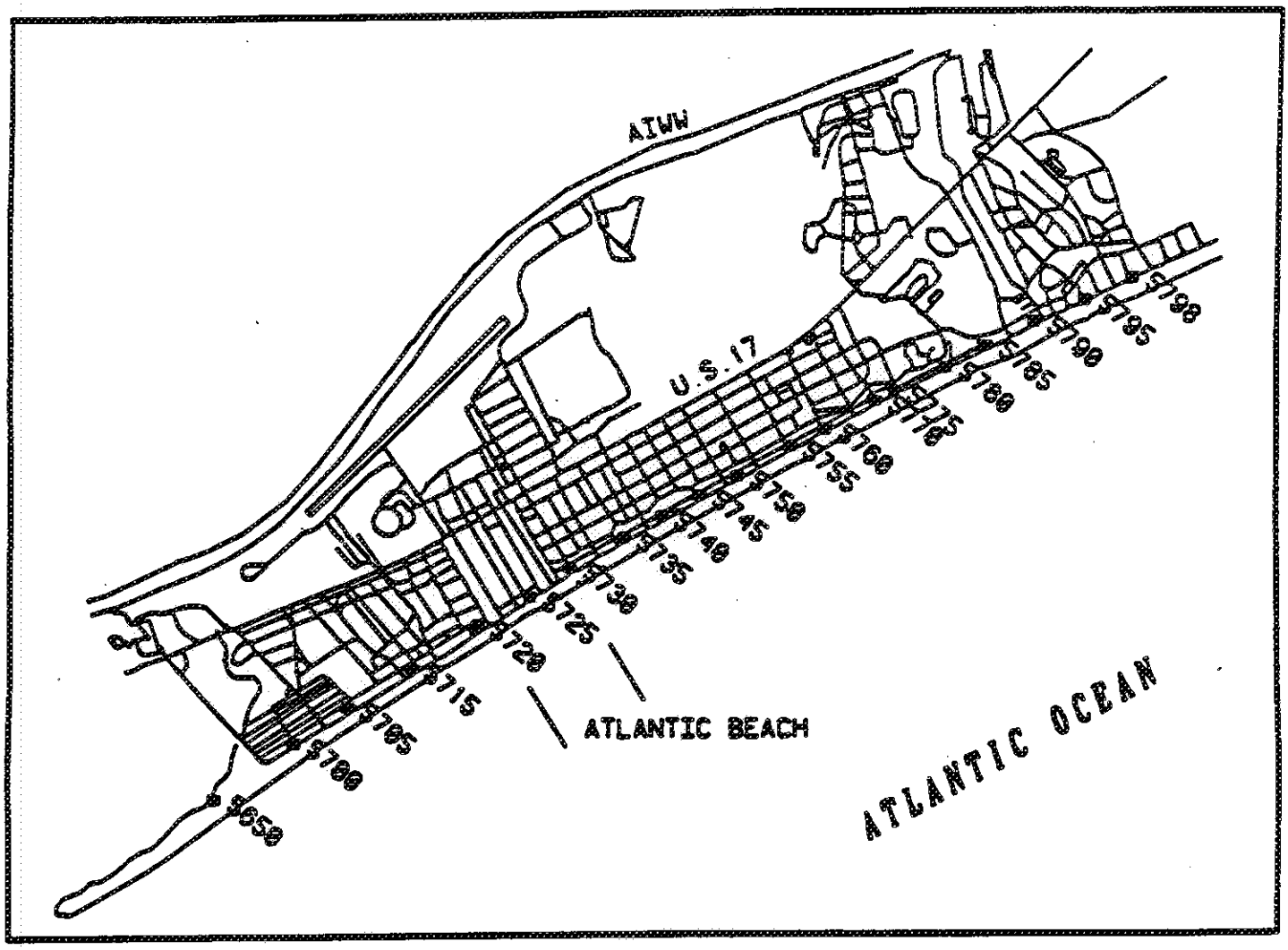
Stations 5500 and 5505 are located on Club Road, just north of the City of Myrtle Beach and south of Singleton Swash, where there is little oceanfront development. The beach here has a well-developed primary dune and the shoreline is usually quite stable from year to year.

Stations 5510 to 5518 are located north of Singleton Swash along Shore Drive, where shoreline armoring is extensive and a dry-sand beach has generally been absent. This area was renourished by Horry County in 1999, when a 150-ft wide dry sand berm was created. The beach profile is still experiencing post-project adjustment, as the berm was eroded by 30 to 50 ft between January 2000 and February 2002. Most stations also gained sand below the mean sea level contour, as the renourishment fill shifted seaward.

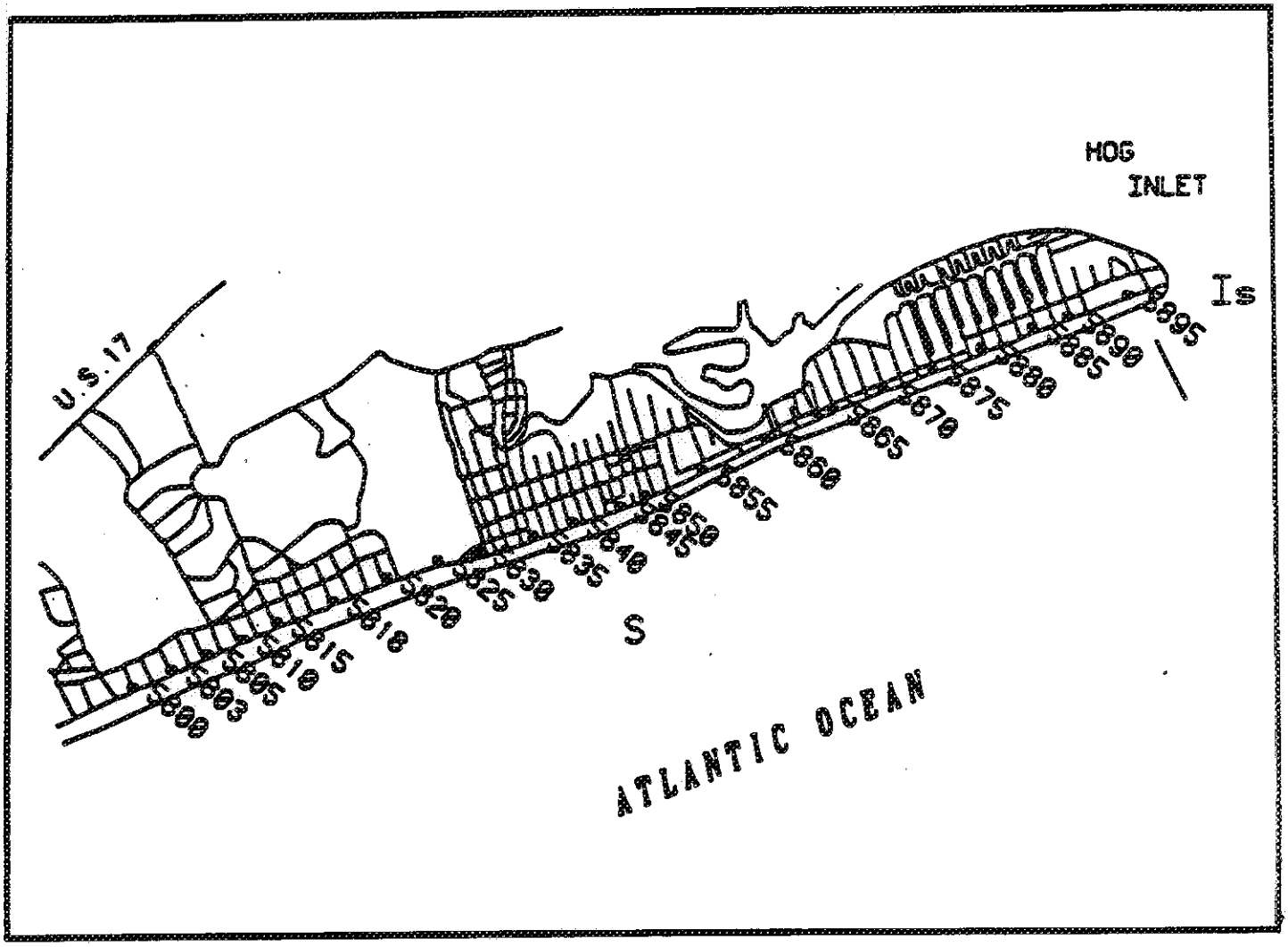
Stations 5520-5550 are located in the campground section, where oceanfront development is a mixture of campsites and resort hotels. Although this section was not renourished it did receive some indirect benefits from the nearby Shore Drive renourishment project. Most stations here showed only minor changes to the profile seaward of the dune. The exception was station 5520, in Apache Campground, where the upper beach profile saw some moderate berm erosion. This may be the leading edge of the erosion associated with the renourishment project immediately to the southwest.

Stations 5560-5590 are located in Briarcliffe Acres, where the oceanfront is undeveloped and a well-defined primary dune exists with virtually no shoreline armoring. This area is usually stable and showed only minor changes to the profile seaward of the dune. The height of the primary dune at station 5570 did increase by about two ft.


Shore Drive
5513 2002
5513 2001
Elevation (feet)
Distance (feet)
12
10
8
6
4
2
0
-2
-4
-6
100
200
300
400
500
600
700
800



North Myrtle Beach--Southern Half



North Myrtle Beach--Northern Half

North Myrtle Beach

This section includes the City of North Myrtle Beach and Atlantic Beach, from White Point Swash to Hog Inlet. The shoreline is heavily developed and much of it is armored, with alternating zones of commercial and residential structures. The beach at North Myrtle Beach is typically very wide and flat, primarily due to the sand size, which is finer-grained than other Grand Strand beaches. There are 43 beach survey monuments here. North Myrtle Beach was renourished by the US Army Corps of Engineers between September 1996 and April 1997, increasing the dry-sand beach width by over 100 ft and unit-width sand volumes by over 70 cubic yards per ft. The renourishment project has since stabilized, and some of the sand still remains on the upper beach.

In Windy Hill, the southernmost portion of North Myrtle Beach from 48th Ave. South to 34th Ave. South, stations 5650-5720 were fairly stable through 2000 and 2001. Station 5650 at White Point Swash experienced some moderate upper beach erosion, while the rest showed only minor fluctuations on the intertidal beach.

Crescent Beach extends from 28th Ave. South to 2nd Ave. North, where monitoring stations 5730 through 5798 are located. Most stations showed only minor changes to the profile during the current survey period, another indication that the 1997 renourishment project has stabilized and the remaining sand on the upper beach and berm is likely to remain. Several stations are showing an increase in the height of the primary sand dune, which provides increased protection from a storm surge.

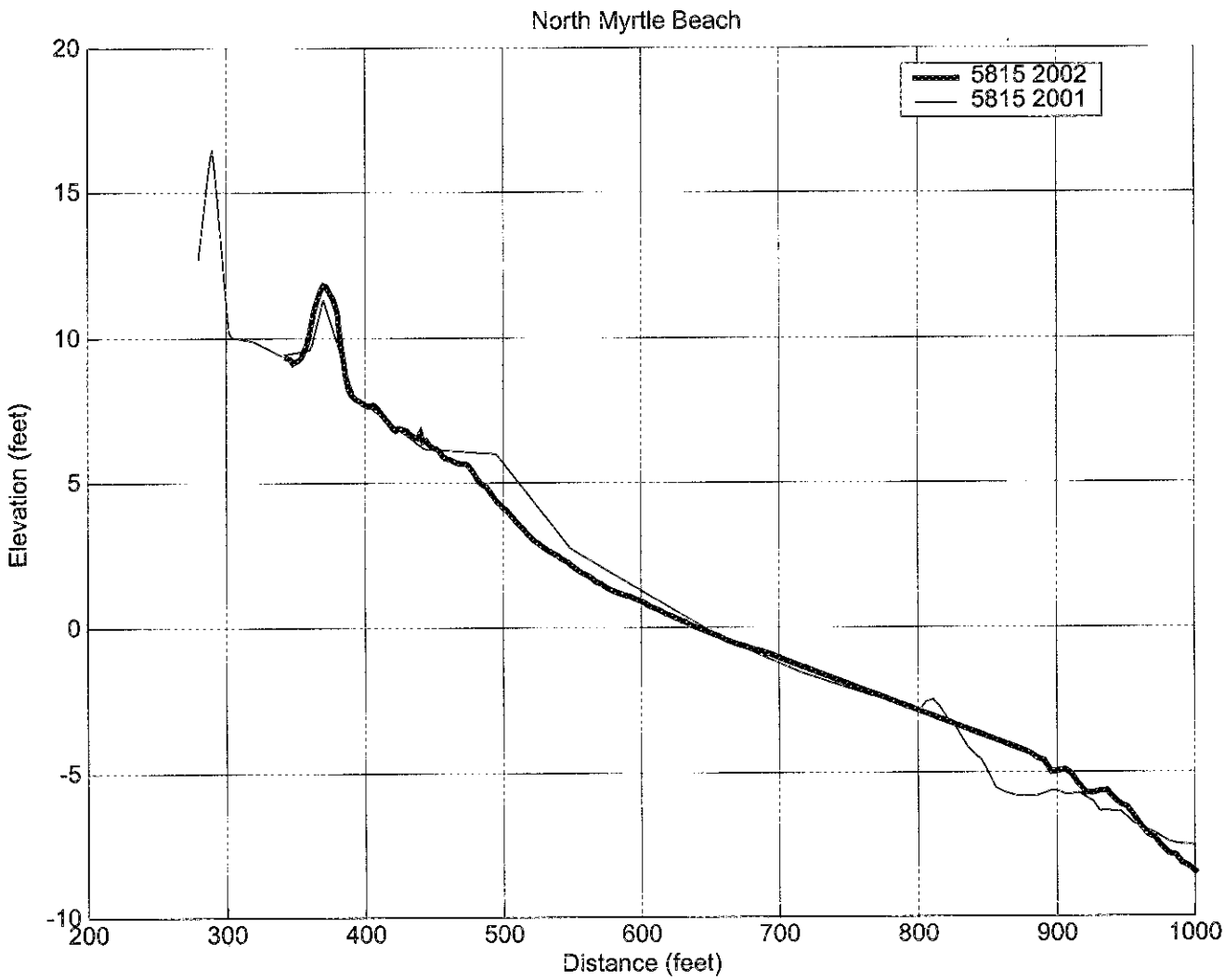
Survey stations 5800 to 5835 are located in Ocean Drive, from 2nd Ave. North to Sea Mountain Highway. Most stations here also showed continued growth of the emerging primary sand dune, and some moderate fluctuations on the intertidal beach. However, most of these stations also showed erosion of the upper beach berm, with the amount of erosion increasing as the distance from Sea Mountain Highway decreases. The magnitude of this berm scarping typically ranged from 20 to 50 ft.

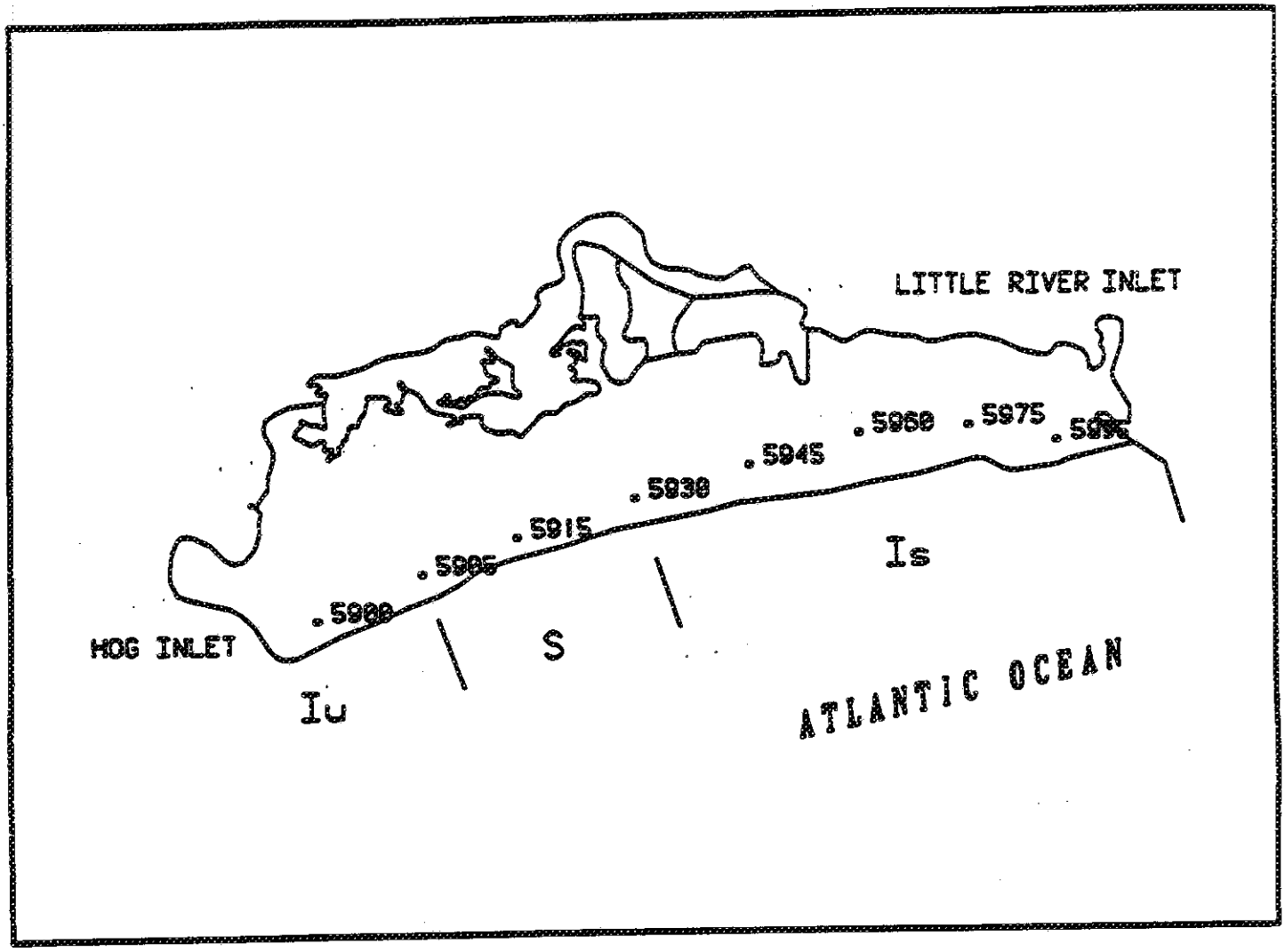
Cherry Grove encompasses the northern section of North Myrtle Beach, from Sea Mountain Highway to Hog Inlet. Survey stations 5840 to 5895 are located here. Much

of this area is armored, and portions of Cherry Grove south of the 35th Ave. North pier experienced chronic sand deficits prior to renourishment. This same 7-block area south of the pier (from 35th Ave. North down to 28th Ave. North) also experienced higher erosion rates following the renourishment project, and the beach here is currently not as wide as the beach north of the pier or south of 28th Ave. North.

Beach survey results for Cherry Grove in 2001 were mixed. Station 5840 at 26th Ave. North experienced erosion along the entire profile. Station 5845 at 30th Ave. North lost about 20 ft off the upper beach, from the top of the profile down to the 2 ft contour. Station 5850 at 32nd Ave. North is closest to the south side of the pier and is most likely to experience erosion. As such it is usually the best indicator station for any erosion problems in Cherry Grove. During the past year the upper beach eroded back by about 25 ft at this station, as the profile developed a more concave shape. There is virtually no beach here at high tide now, and the City of North Myrtle Beach is planning a beach renourishment project to add about 90,000 cubic yards of sand from 22nd Ave. North to 37th Ave. North.

The rest of Cherry Grove north of the pier also experienced some upper beach erosion during the past year. Station 5860 at 42nd Ave. North lost about 30 ft of berm from the upper beach, but gained an equal volume of sand on the lower profile. Station 5870 at 48th Ave. North lost about 50 ft from the berm, but station 5875 at 51st Ave. North experienced only minor changes. The berm erosion picked up again at 5880, where the upper beach cut back by about 35 ft, and at 5885, which lost about 40 ft. The berm erosion tapered off at 5890, near 59th Ave. North. At the last station in North Myrtle Beach, 5895 near Hog Inlet, the upper profile remained quite stable but there is no berm and virtually no high-tide beach.


North Myrtle Beach
5815 2002
5815 2001
Elevation (feet)
Distance (feet)
20
15
10
5
0
-5
-10
200
300
400
500
600
700
800
900
1000

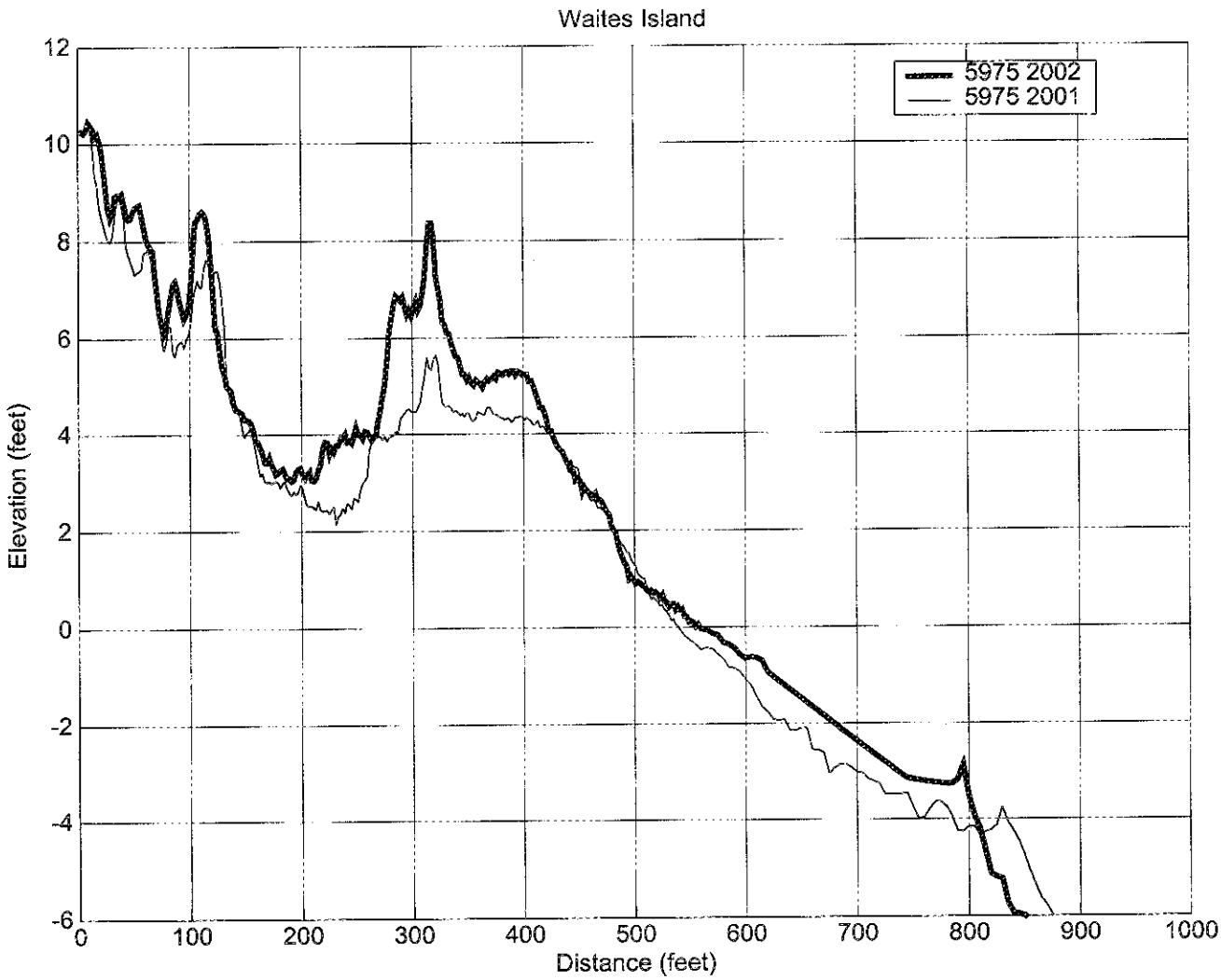


Waites Island

Waites Island

Waites Island is an undeveloped three-mile long barrier island located between Hog Inlet to the southwest and Little River Inlet to the northeast. Little River Inlet was stabilized by the construction of a jetty system between 1981 and 1983. The southwest end of Waites Island is an unstabilized inlet zone, the central portion is a standard zone, and the northeastern section is a stabilized inlet zone. Most of the island has a long-term erosion rate ranging from –4 to -10 ft per year, although jetty construction has helped to stabilize the shoreline and lessen the erosion. During most of the 1990's the Hog Inlet shoreline was extremely erosional, losing several hundred feet, but has changed to an accretional mode in recent years. There are 7 monitoring stations on Waites Island, which were surveyed in May 2001 and May 2002.

During the past year almost all profiles at Waites Island were stable or show signs of accretion. The primary dunes have increased in height and gained sand on their seaward side, and the upper beach profile seaward of the dune line has become wider. The only exception is station 5905, closest to Hog Inlet at the south end of the island, which may be starting to move into an erosional mode. In general, it appears the accretional phase that began on much of the island several years ago has continued during the past year. This may be due to the long-term stabilizing influence of the Little River jetties, which may eventually decrease the officially adopted long-term erosion rates on Waites Island.


Waites Island
5975 2002
5975 2001
Elevation (feet)
Distance (feet)
12
10
8
6
4
2
0
-2
-4
-6
0
100
200
300
400
500
600
700
800
900
1000

State-Wide Summary

The past year was a fairly mild one for the beaches of South Carolina. Moderate northeast storms in May and December 2002 caused some moderate beach erosion. During hurricane season, only Isidore moving in from the Gulf of Mexico and Kyle coming in from the Atlantic, both during September, had any measurable impact on South Carolina's beaches. Each storm produced only minor beach erosion. A strong cold front during the first week of August, with constant northeast winds for several days, probably caused more dune and upper beach erosion than either named tropical system.

There were no major beach renourishment projects constructed in 2002, due in part to a lack of state funding during the July 2002 - June 2003 fiscal year. A small-scale project was performed at southern Garden City in August 2002, using sand removed from Murrells Inlet during maintenance dredging of the navigation channel.

In general the inlet zones, those beaches closest to unstabilized tidal inlets, are the most dynamic beaches and may experience the greatest shoreline erosion or accretion. Other sections of beach away from tidal inlets can still experience chronic beach erosion. Regardless of its designation as an inlet zone or standard zone, any section of beach with a sand deficit and a minimal beach width should be considered at-risk, since the dunes and dry-sand beach provide a buffer between the ocean and high-ground development. For the year 2002, these at-risk beaches with sand deficits include the following areas:

Beaufort County - the southwestern end of Fripp Island (which is protected by a substantial rock revetment), all of Hunting Island, and the northeastern end of Harbor Island.

Colleton County - the northeastern half of Edisto Beach, including the state park.

Charleston County - the central portion of Seabrook Island (which is protected by a substantial rock revetment), the county park at the southwestern end of Folly Beach, and the northeastern end of Sullivans Island on Breach Inlet.

Georgetown County - the southern end of Debidue Beach, including the southern end of the bulkhead, and the southern end of Pawleys Island at the public parking area.

Horry County -- the northern portion of Garden City Beach, and the Cherry Grove section of North Myrtle Beach.

The following represents a ranking of beach renourishment and beach restoration needs based upon DHEC-OCRM Regulation 30-18, which sets forth criteria for evaluating beach renourishment projects. Proposed projects are ranked based upon the environmental impact of the project, the public recreational benefits, the storm damage mitigation benefits to adjacent buildings and structures, the expected useful life of the project, and the extent of support for the project.

First Priority: Hunting Island State Park, Beaufort County

Hunting Island State Park provides some of the best public access to the beach in Beaufort County. Unfortunately, Hunting Island suffers from a chronic erosion problem and needs periodic renourishment. The most recent project placed 1.5 million cubic yards of sand on the beach in 1991, but virtually all of that sand is gone now. The current proposal would place 1.5 million cubic yards of sand on the beach here, at an estimated cost of $9 million. It is anticipated that half this amount will be federally funded, while the other half will be state funded with money that has already been allocated for this purpose. The US Army Corps of Engineers is still engaged in studies of the erosion problem here. It is expected that construction could start no sooner than 2004.

Second Priority: The Town of Edisto Beach and Edisto Beach State Park, Colleton County

Edisto Beach State Park and the Town of Edisto Beach provide the only public beach access in Colleton County, and some of the best public beach access for residents of southern Charleston County. The beach within the Town limits was renourished with

150,000 cubic yards of sand in 1995, but most of that sand has been eroded away. The State Park was not included in this project, and as a result of chronic erosion primarily from winter storms, the park beach is now in a critically eroded state. An emergency renourishment project placed 25,000 cubic yards of sand on the beach here in March 1999, but a longer-term solution is needed. The northeastern portion of the beach within the Town limits is also sand-starved. It is estimated that a renourishment project for both the State Park and the Town would cost $7 million.

Third Priority - Folly Beach, Charleston County

The City of Folly Beach, including Folly Beach County Park, was renourished in 1993. While the project has performed fairly well outside of the county park, erosion within the park has been extreme in recent years. Several small emergency renourishment projects have been constructed here, using sand dredged from the Folly River, but a larger-scale solution is needed as soon as possible. Maintenance renourishment may also be needed for all of Folly Beach within the next 2-3 years, as the 1993 project has reached the end of its 8-year design life. Cost estimates for this work are currently not available.

The following table provides a list of renourishment projects completed during the past ten years, with the State's share of the total project cost, as well as State money that has been allocated for a future project at Hunting Island.

Area	Year	State's Cost	Completed
Hunting Island State Park	1991	$2,900,000	Y
Folly Beach	1993	$3,500,000	Y
Edisto Beach	1995	$1,000,000	Y
Hilton Head Island	1997	$0	Y
Daufuskie Island	1998	$0	Y
Folly Beach County Park	1998	$100,000	Y
Sullivans Island	1998	$230,000	Y
Grand Strand	1998	$10,000,000	Y
Debidue Beach	1998	$0	Y
Pawleys Island	1999	$1,300,000	Y
Edisto Beach State Park	1999	$250,000	Y
Sea Pines - Hilton Head Island	1999	$0	Y
Hunting Island	1999	$2,500,000	N
Hunting Island	2000	$1,700,000	N
Shore Drive, Horry County	2000	$1,000,000	Y
South Garden City	2000	$1,000,000	Y

Total state expenditures for 1991-2000 were $25,480,000, an average of $2,548,000 per year spent on beach renourishment. No state money was allocated for beach renourishment during the 2001-2002 fiscal year, or during the 2002-2003 fiscal year.

This report was printed on DHEC-OCRM's copier at a cost of $2.25 per copy.