South Carolina's Annual State of the Beaches Report

March 2001

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Ocean and Coastal
Resource Management

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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.

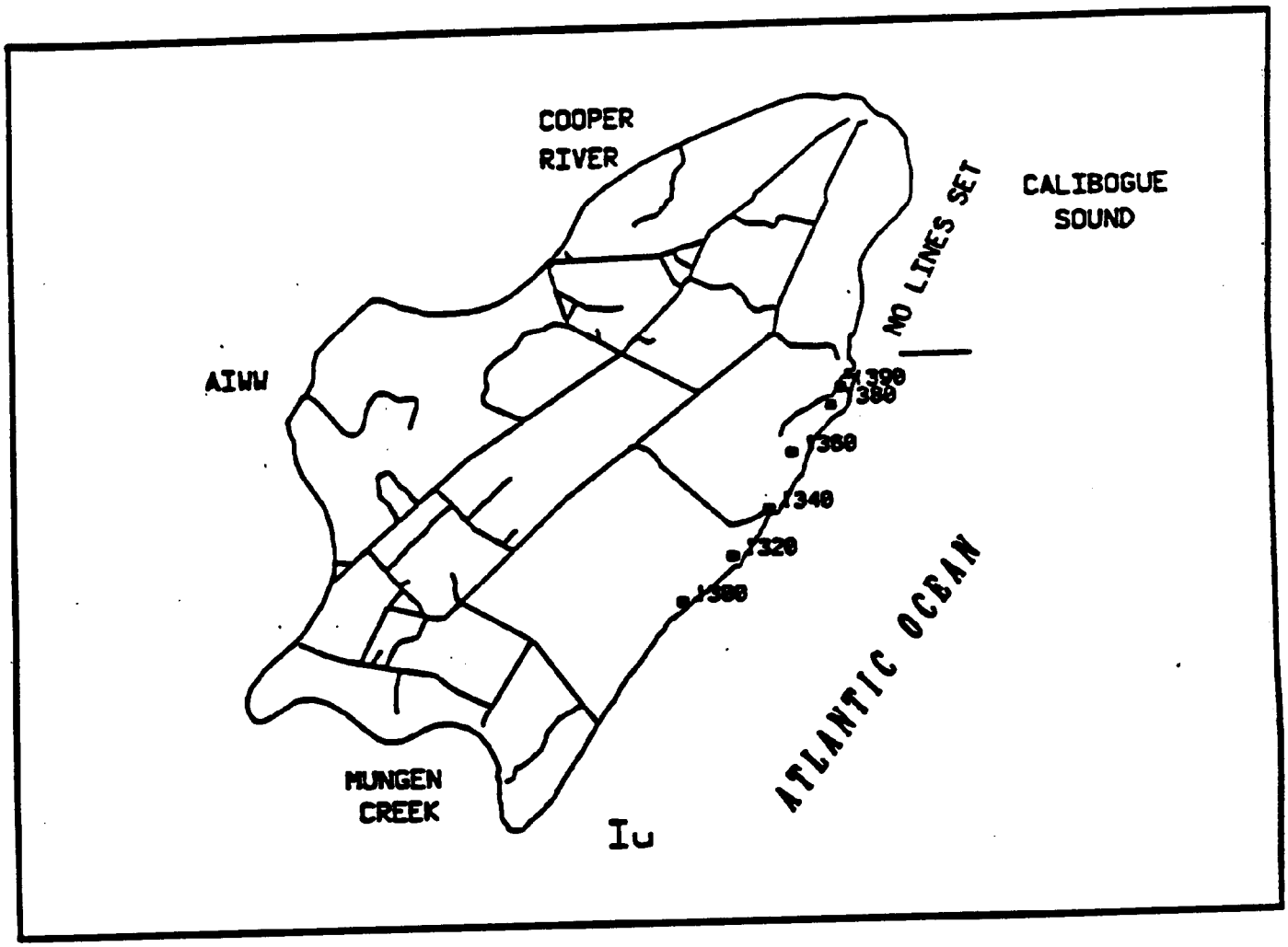
Introduction

The following report summarizes changes to South Carolina's beaches within the past two years. The results are based on beach profile surveys conducted in the spring and fall of 1999 and the spring of 2000, at approximately 400 monitoring stations throughout the state. Surveys start at a benchmark located landward of the primary dune or seawall, and continue down the beach face to a depth 5 feet below mean sea level, or about waist deep at low tide. The actual elevation used for the surveys, and all elevations referenced in this report, is the National Geodetic Vertical Datum of 1929 (NGVD 29), which is approximately the same as mean sea level. The resulting profile shows a cross-section of the beach shape at the time of the survey. Multiple dates can be compared to determine what changes have occurred to the beach profile over time.

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 to the -5 foot contour, per linear foot of shoreline. This sand volume is expressed as cubic yards per linear foot 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, which are commonly referred to as ridge and runnel systems. Berm width is particularly important, since it represents the amount of recreational dry-sand beach 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 sea islands in the Charleston and Beaufort area consist of a standard zone in the central portion of the island, and an inlet zone at either end. 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 two years. Summaries are presented in a south-to-north progression, from Daufuskie Island to Waites Island. 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.



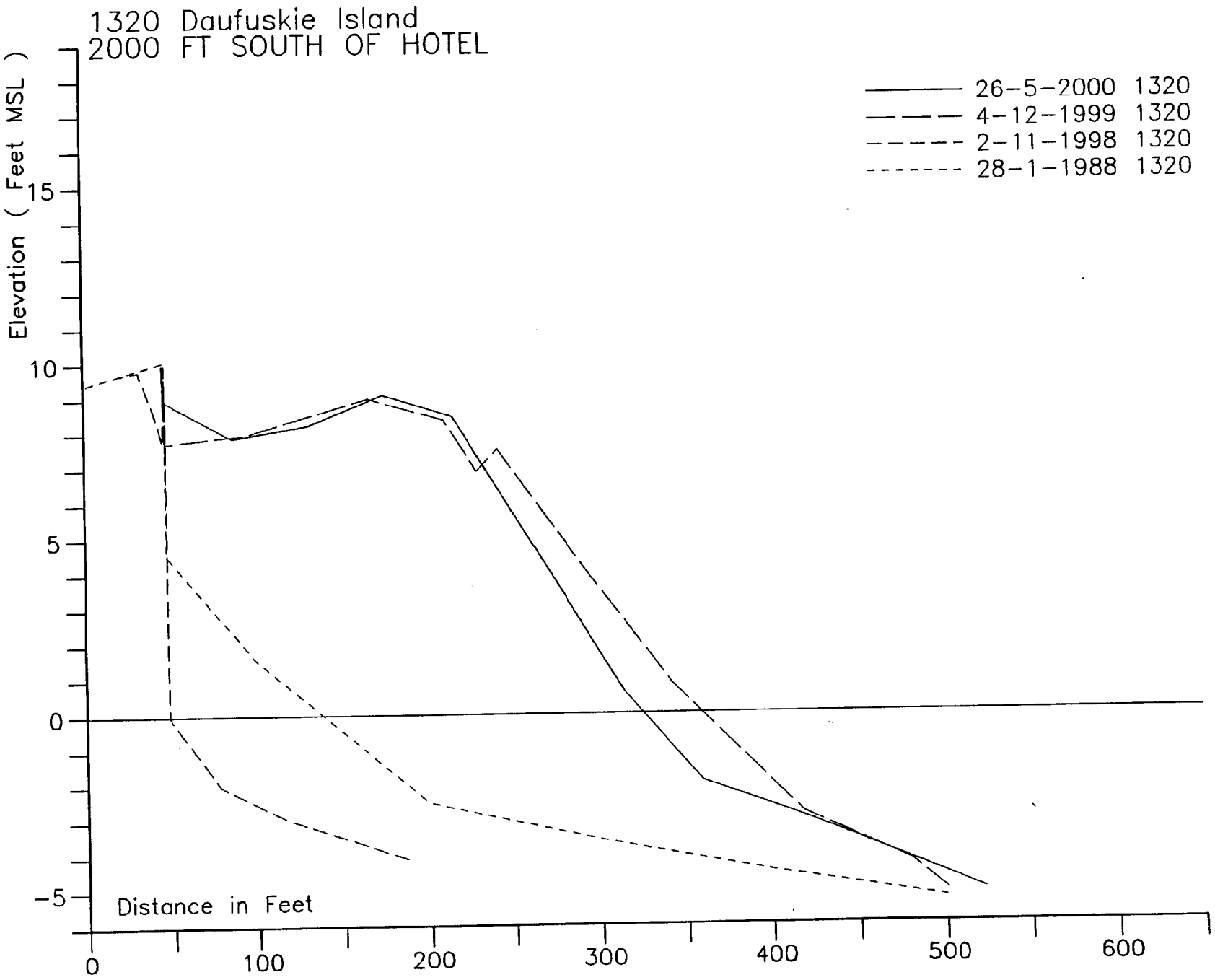
Daufuskie Island

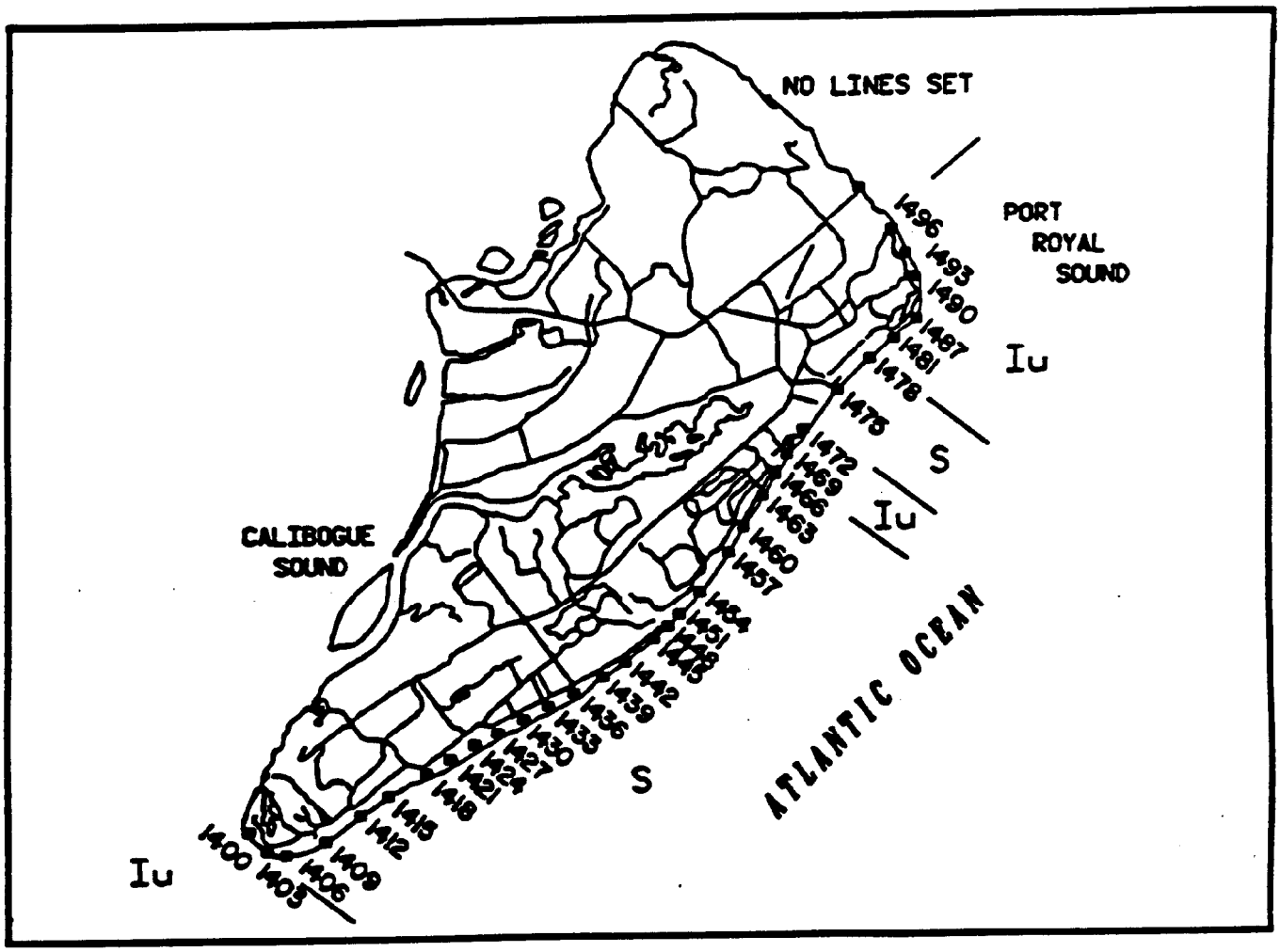
Daufuskie Island

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 feet per year, with the highest rates of -10 to -11 feet per year found at the southern end of the Melrose Tract and the northern end of the Oakridge Tract. A renourishment project was constructed here during December 1998.

Beach surveys on Daufuskie Island date back to January 1988 at some stations. Most recent data was collected in December 1999 and May 2000, and documents the performance of the beach renourishment project. Beginning at the southern end of the island in the Bloody Point tract, the beach at station 1260 increased in width by 63 feet from December 1998 to December 1999, but then lost 47 feet by the following May. Moving to the north, station 1250 gained 51 feet, and then gained an additional 50 feet, during these same time periods. These two stations, particularly 1260, received a smaller amount of renourishment sand than the rest of the island. The next three stations to the north, 1240, 1230, and 1220, gained about 115 feet of beach width between December 1998 and December 1999. These stations also showed a slight gain in beach width, on the order of 10 feet, by the following April. Station 1210, located in the Oak Ridge tract, gained 145 feet in beach width from December 1998 to December 1999. Also in the Oak Ridge tract, station 1300 showed a net gain of 215 feet.

In the Melrose tract, the two stations along the bulkhead also showed substantial increases in beach width. Station 1320 gained 231 feet and station 1340 gained 233 feet between December 1998 and December 1999, while both stations only lost an average of 15 feet by May 2000. North of the bulkhead, station 1360 gained 199 feet and lost only 2 feet over these same time periods. At 1380, the last station to the north, the beach renourishment volume was reduced and the profile showed a net increase in beach width of 98 feet. In general, the beach renourishment project has performed well through May 2000.


1320 Daufuskie Island
2000 FT SOUTH OF HOTEL
26-5-2000 1320
4-12-1999 1320
2-11-1998 1320
28-1-1988 1320
Elevation (Feet MSL)
15
10
5
0
-5
Distance in Feet
0
100
200
300
400
500
600



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 November 1999 and May 2000.

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 feet per year of accretion. This area experienced moderate erosion during the mid 1990's, but was renourished in the winter of 1999. SCCC monuments 1400-1409 are located here. As a result of the renourishment, station 1400 gained over 250 feet in upper beach width between September 1998 and May 2000. Stations 1403 and 1406 gained 90 feet and 80 feet respectively during this same time period. Station 1409 was not renourished and showed a net loss of 8 feet in beach width.

The next zone on Hilton Head is a 10 mile-long standard zone which 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. Most stations in Sea Pines, monuments 1412 through 1424, showed little change during the report period. This area is generally one of the most stable sections of Hilton Head Island. Stations at South Beach Lane, East Beach Lagoon Drive, Sea Pines Beach Club, and Sand Hill Crane Road all showed moderate upper beach accretion. Stations in South Forest Beach, 1427 through 1436, were more dynamic than the Sea Pines stations but still showed a small net gain of sand on the upper beach at most stations. The gain of sand both here and in Sea

Pines is most probably due to the southerly transport of renourishment sand placed on the beach farther to the north in 1997.

In North Forest Beach and Palmetto Dunes the long-term shoreline change rates begin to change from stable to erosional, with 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. Typical losses were on the order of 35 to 50 feet. By November 1999 the project was much closer to equilibrium, and subsequent upper-beach losses through May 2000 were in the range of 5 to 8 feet. It is important to note that much of the sand lost from the upper beach can still be accounted for on the intertidal or subtidal beach, and net volumetric losses to a cutoff depth of –5 feet are only about 10 cubic yards per foot at most stations.

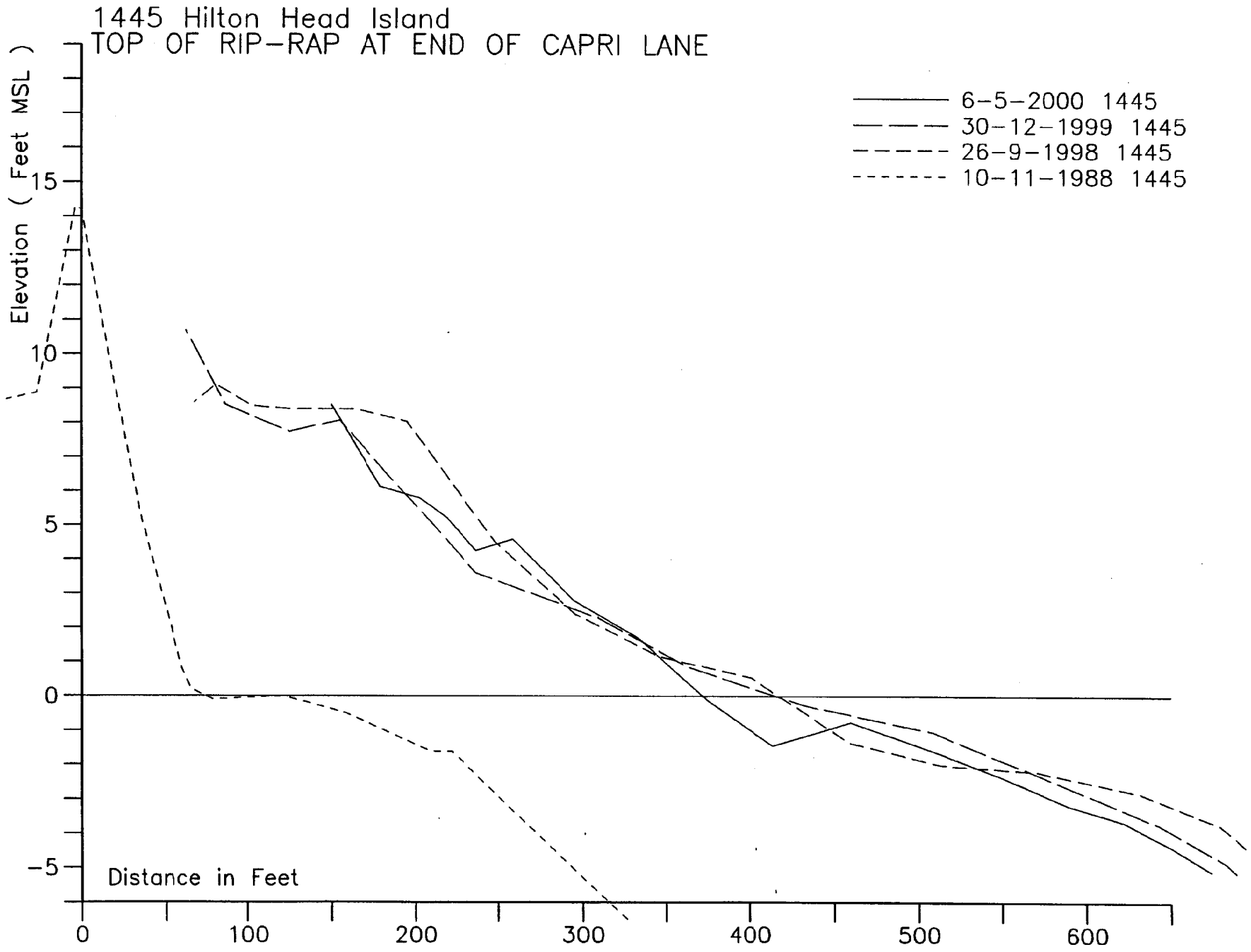
Stations 1451 through 1466 are located in Palmetto Dunes. These stations showed the same general trend as the North Forest Beach stations, although results were more mixed. Station 1457 at Armada St. showed virtually no upper beach erosion following renourishment, while station 1465 at Long Boat St. continued to experience upper beach erosion between November 1999 and May 2000, losing an additional 17 feet of berm width.

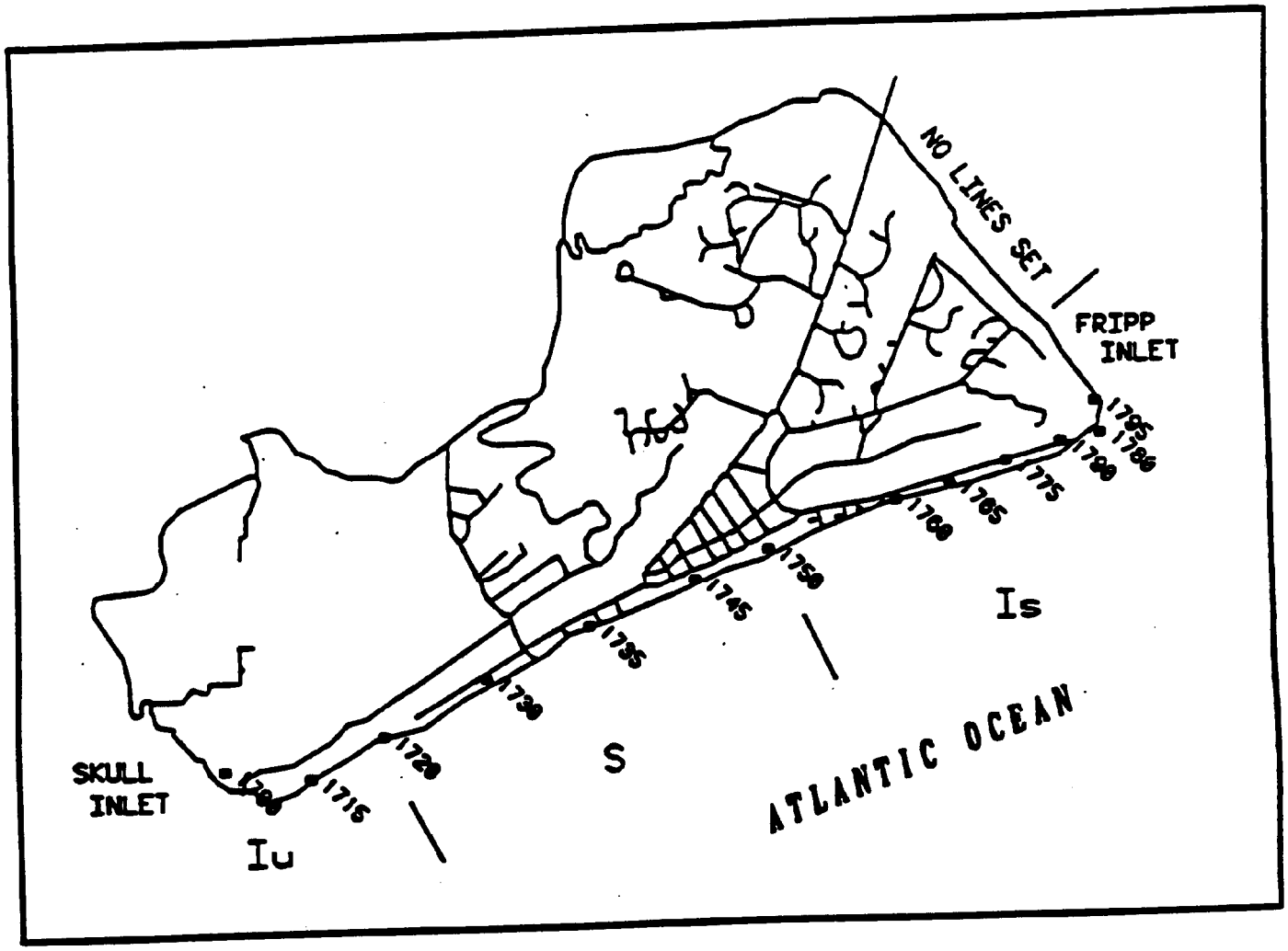
The third zone on Hilton Head is a 2200-foot long unstabilized inlet zone, located on either side of the Folly. Stations 1468, 1469 and 1472 are the monitoring stations in this reach, which historically can be very dynamic because of the inlet channel. However, a small jetty constructed on the south side of the Folly in 1997 has helped stabilize this region. During the study period, stations 1468 and 1469 on Singleton Beach experienced moderate erosion, while 1472 on Burkes Beach showed slight 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. Both station 1474 at the Beach and Tennis Resort and station 1475 at Starfish Drive lost a

moderate amount of upper beach berm between September 1998 and October 1999, then were stable through the following May. Both stations 1477 and 1478 showed a net gain of about 7 cubic yards of sand for the overall time period.

The fifth zone is an unstabilized inlet zone which 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 long-term erosion along Port Royal Sound. On the Atlantic shoreline, station 1481 was stable, while 1484 gained 15 cubic yards of sand. This station has accreted by over 300 feet in the last 12 years. Among the Port Royal stations, 1487 on Ocean Point South lost 15 cubic yards of sand as the upper beach eroded back by 40 feet. Station 1490 at Drayton Place gained over 150 feet in upper beach width as a sand shoal migrated landward and welded onto the beach. Stations 1493 and 1496, farther up the inlet shoreline, were much more stable.


1445 Hilton Head Island
TOP OF RIP-RAP AT END OF CAPRI LANE
6-5-2000 1445
30-12-1999 1445
26-9-1998 1445
10-11-1988 1445
Elevation (Feet MSL)
15
10
5
0
-5
Distance in Feet
0
100
200
300
400
500
600



Fripp Island

Fripp Island

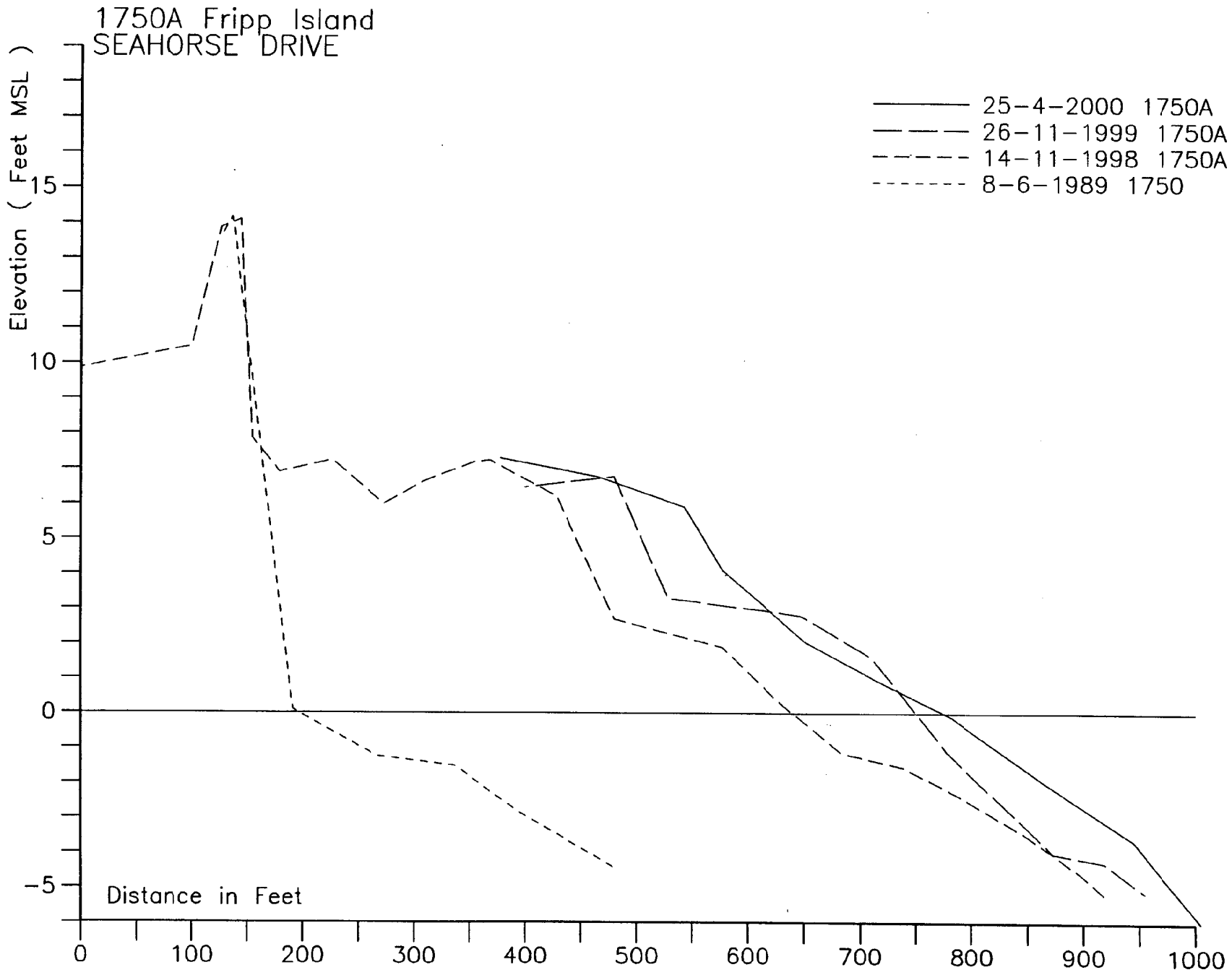
Fripp Island is a three mile long barrier island located between Pritchards Island and Skull Inlet to the southwest, and Hunting Island and Fripp Inlet to the northeast. Development on the island is primarily single family residential, and the island is almost continuously armored with revetments. The 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.

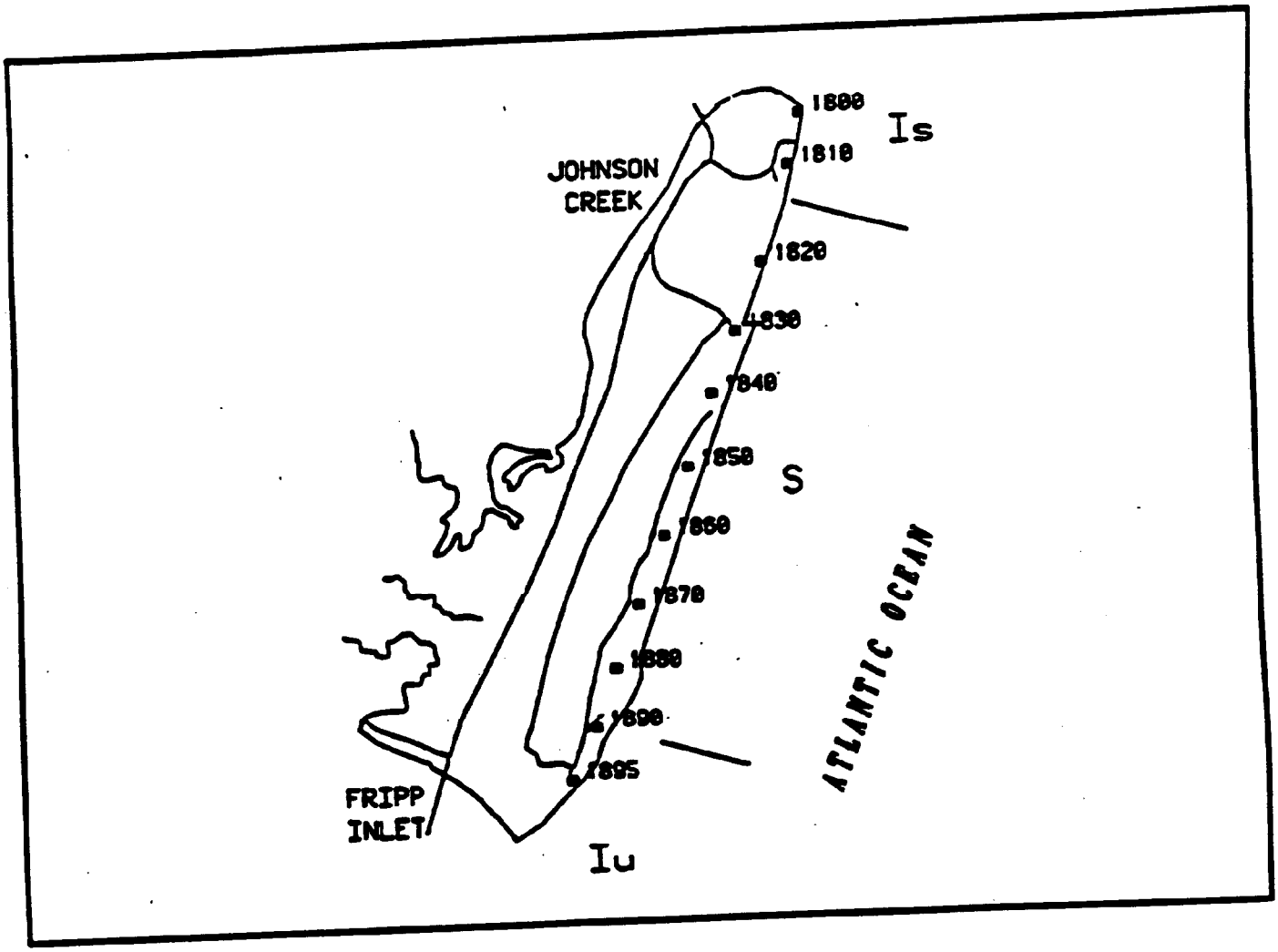
There are 15 beach survey monuments located on Fripp Island, some of them dating back to 1988. Most recent profile data was collected in November 1999 and May 2000. Station 1700, on Skull Inlet, is sheltered from the open ocean and shows virtually no change from year to year. Station 1715 is the first oceanfront station and experienced moderate erosion during the study period, losing 6 cubic yards of sand seaward of the rock revetment. Station 1720 also showed a net loss of 6 cubic yards seaward of the revetment. Stations 1730 and 1735 were more stable, losing 1 cubic yard and gaining 2 cubic yards, respectively. There is still no dry-sand beach along this southern section of Fripp Island.

The beach condition changes at station 1745, on Winter Trout Rd. The beach here has been strongly accretional in recent years, and this trend continued during the current survey period. Station 1745gained 24 cubic yards of sand for the year, and a dry-sand beach seaward of the revetment is present. Station 1750 on Seahorse Drive gained 48 cubic yards, and the dry-sand beach seaward of the revetment increased in width by 120 feet. The accretion was not as sizeable at station 1755, near Drum St., where the sand volume increased by 9 cubic yards per foot. At this point the dry-sand beach seaward of the revetment reaches a maximum width of over 500 feet.

Station 1760, at #763 Marlin Drive, showed virtually no change for the study period, while station 1765, at #785 Marlin Drive, lost 20 cubic yards of sand and also saw

a decrease in upper beach width of 50 feet. The next station, 1790 near the clubhouse, showed significant erosion as it lost 50 cubic yards of sand seaward of the revetment. The next station, 1780, is located near the groin and is the last open Atlantic coast station on Fripp Island. This station also showed significant erosion seaward of the revetment, losing 35 cubic yards of sand per foot. Stations 1795 and 1798, on Fripp Inlet, are steep inlet profiles that show only minor changes over the years.


1750A Fripp Island
SEAHORSE DRIVE
Elevation (Feet MSL)
15
10
5
0
-5
Distance in Feet
0
100
200
300
400
500
600
700
800
900
1000
25-4-2000 1750A
26-11-1999 1750A
14-11-1998 1750A
8-6-1989 1750



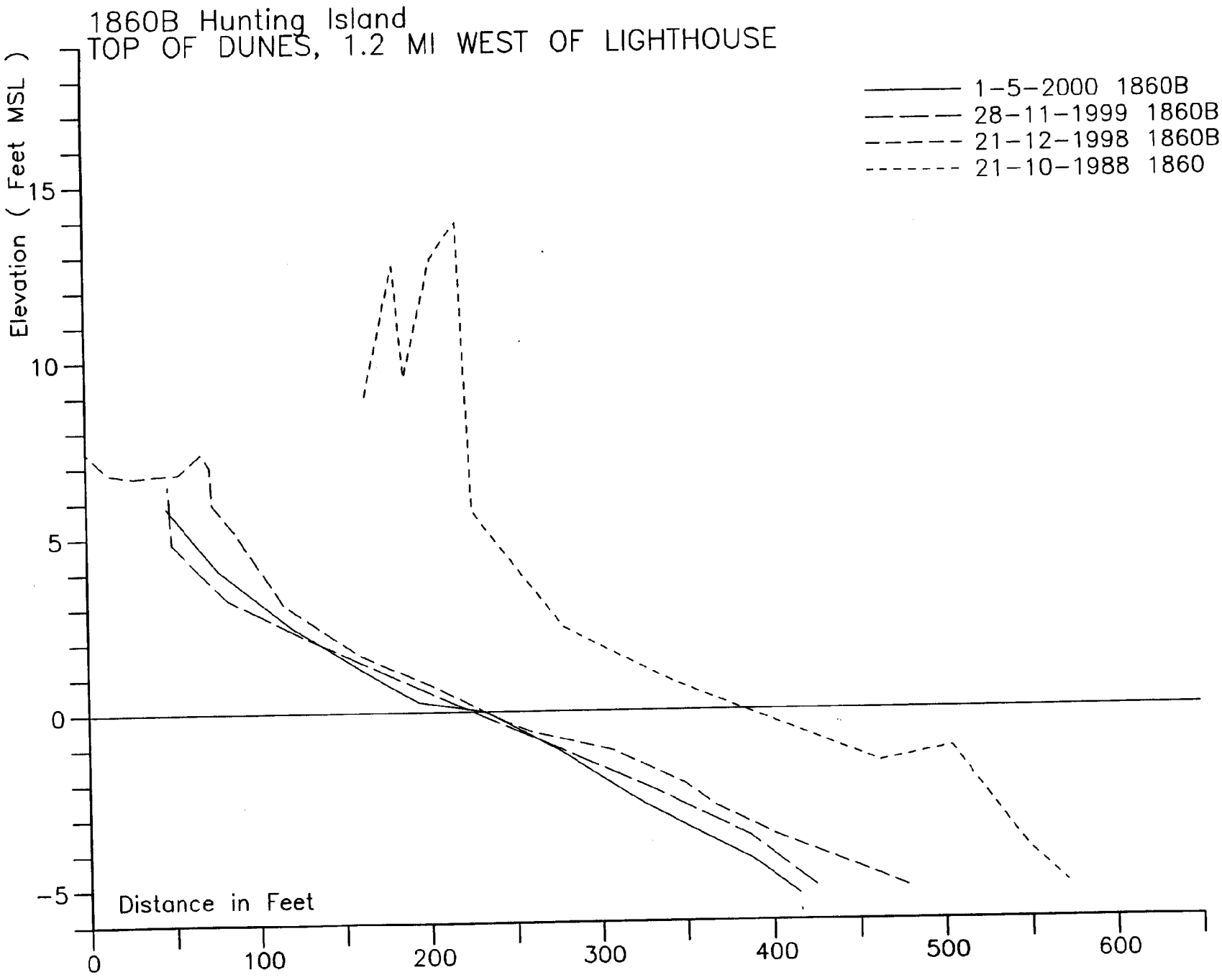
Hunting Island

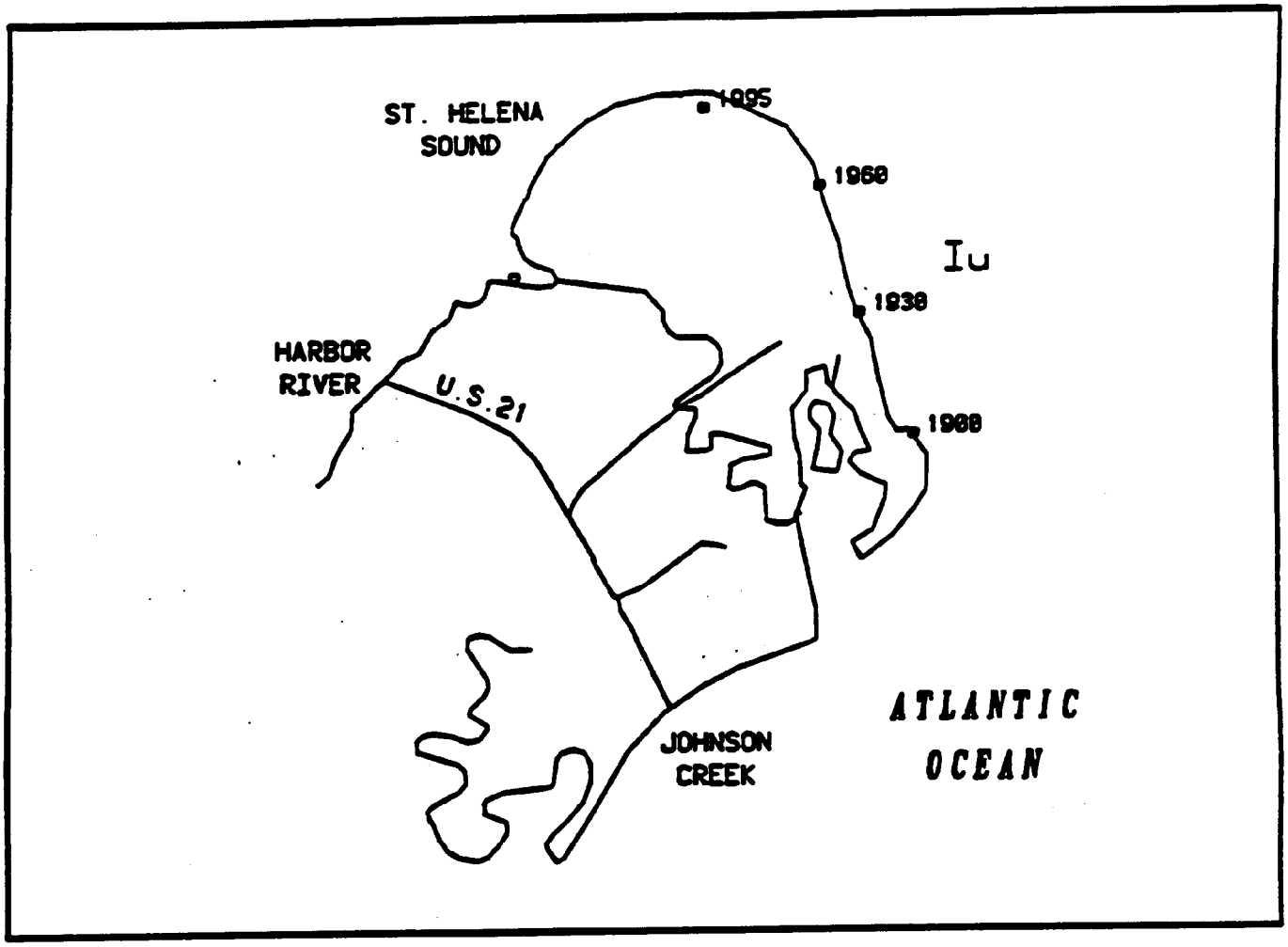
Hunting Island

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 feet 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-foot 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 within the state in that the identification numbers increase from north to south. Most recent surveys were conducted during November 1999 and May 2000. Stations at the southwestern end of the island gained sand for the study period, while the others all lost sand. Station 1800, at the northeastern end of the island, is usually stable but lost 7 cubic yards of sand as the upper beach retreated by 15 feet. At station 1810 the profile lost 12 cubic yards of sand as the upper beach eroded by 30, while station 1820 lost 8 cubic yards and experienced 20 feet of upper beach erosion. These stations are all northeast of the lighthouse.

Station 1830, at the lighthouse, experienced 35 feet of upper beach erosion and a volumetric loss of 8 cubic yards of sand. Southwest of the lighthouse at station 1840 the upper beach erosion was 50 feet, with a corresponding sand volume loss of 13 cubic yards. Station 1850 lost 14 cubic yards of sand as the upper beach eroded back by 44 feet.98. At station 1860, 1.2 miles southwest of the lighthouse, the volumetric loss was 12 cubic yards as the upper beach retreated by 29 feet. The highest volumetric loss occurred at station 1870, losing 24 cubic yards of sand. The magnitude of upper beach retreat here was held to only 27 feet, primarily because this is one of the few areas on Hunting Island with a relatively high back beach, at elevation +10 feet. The general trend of erosion stopped at station 1880, which gained 8 cubic yards of sand, while station 1890 near Fripp Inlet showed the largest change of any Hunting Island station, gaining 56 cubic yards of sand.


1860B Hunting Island
TOP OF DUNES, 1.2 MI WEST OF LIGHTHOUSE
1-5-2000 1860B
28-11-1999 1860B
21-12-1998 1860B
21-10-1988 1860
Elevation (Feet MSL)
15
10
5
0
-5
Distance in Feet
0
100
200
300
400
500
600



Harbor Island

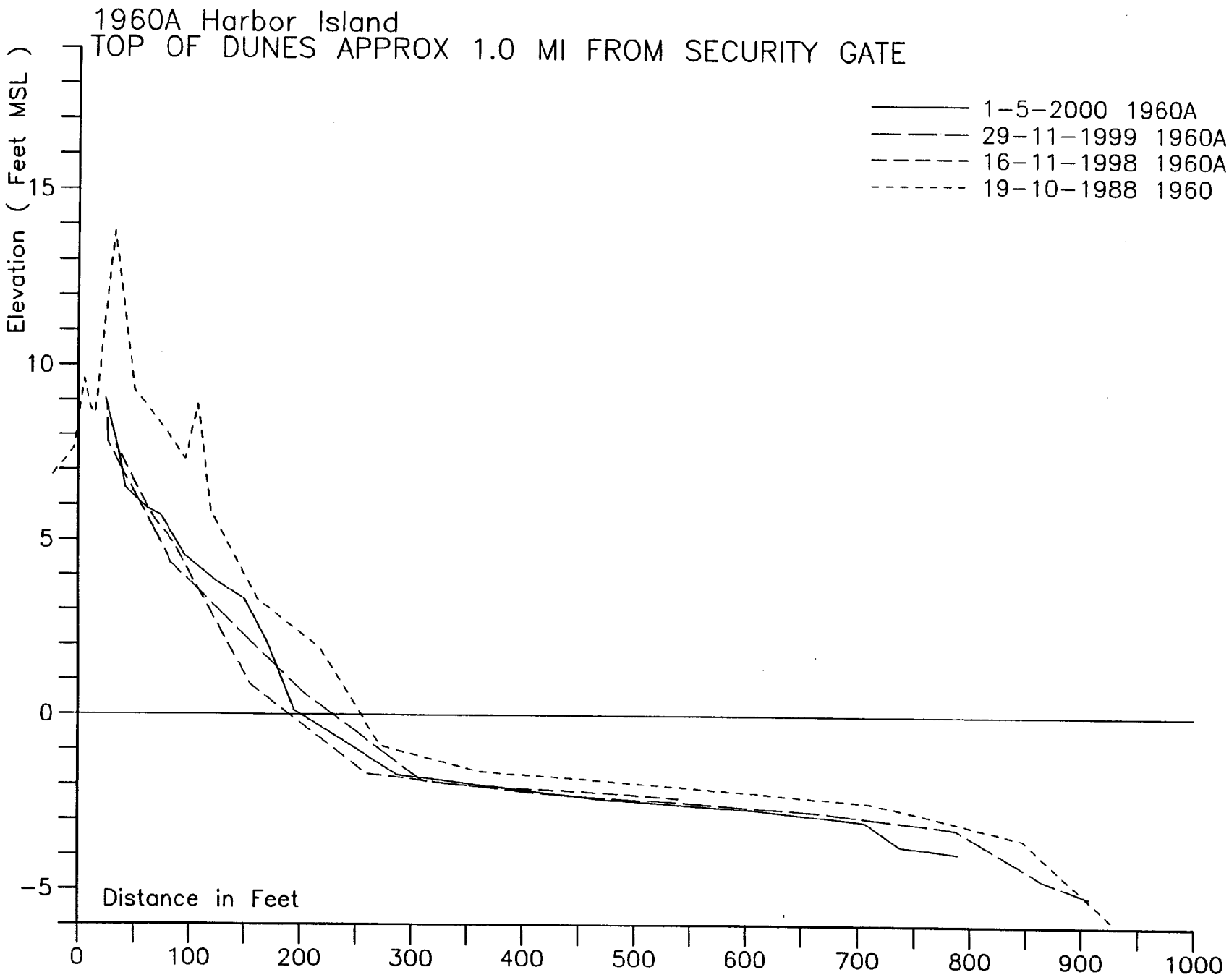
Harbor Island

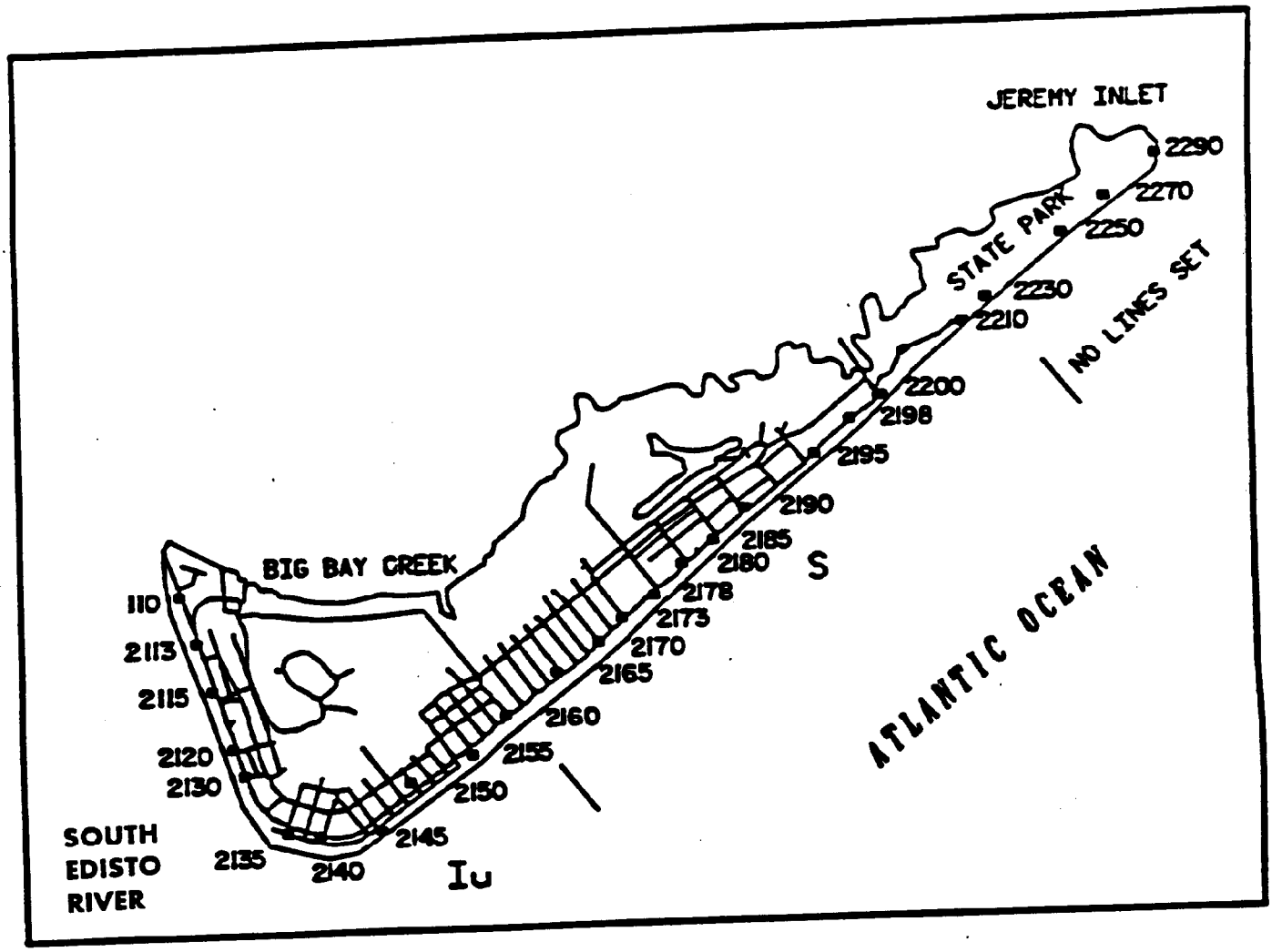
Harbor Island is located between Hunting Island and Johnson Creek to the southwest and St. Helena Sound to the northeast. Beachfront development is primarily single-family residential, with a few condominium buildings. The entire island is classified as an unstabilized inlet zone, and while the shoreline 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, four of which were installed in 1988, with the remaining two installed in June 1990. Most recent surveys were conducted here in November 1999 and May 2000.

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 feet. A series of intertidal sand bars and troughs are constantly shifting back and forth in this area, changing the shape of the profile. At station 1930, near the multi-family units, the sand volume increased by 8 cubic yards as the upper beach showed a moderate increase in width. At station 1960, on Harbor Island Drive North, the beach was erosional several years ago but has since stabilized. The upper beach portion of the profile here was stable during the study period, as sand gains on the intertidal beach resulted in a net volumetric increase of 6 cubic yards per foot.

Stations 1980 and 1995, where the shoreline begins to curve onto St. Helena Sound, showed minor erosion during the past year. While station 1980 lost 2 cubic yards of sand and station 1995 lost 4 cubic yards, there was no upper beach or high ground erosion at either station.

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 showed only minor changes here, with no net volumetric change.


1960A Harbor Island
TOP OF DUNES APPROX 1.0 MI FROM SECURITY GATE
1-5-2000 1960A
29-11-1999 1960A
16-11-1998 1960A
19-10-1988 1960
Elevation (Feet MSL)
15
10
5
0
-5
Distance in Feet
0
100
200
300
400
500
600
700
800
900
1000



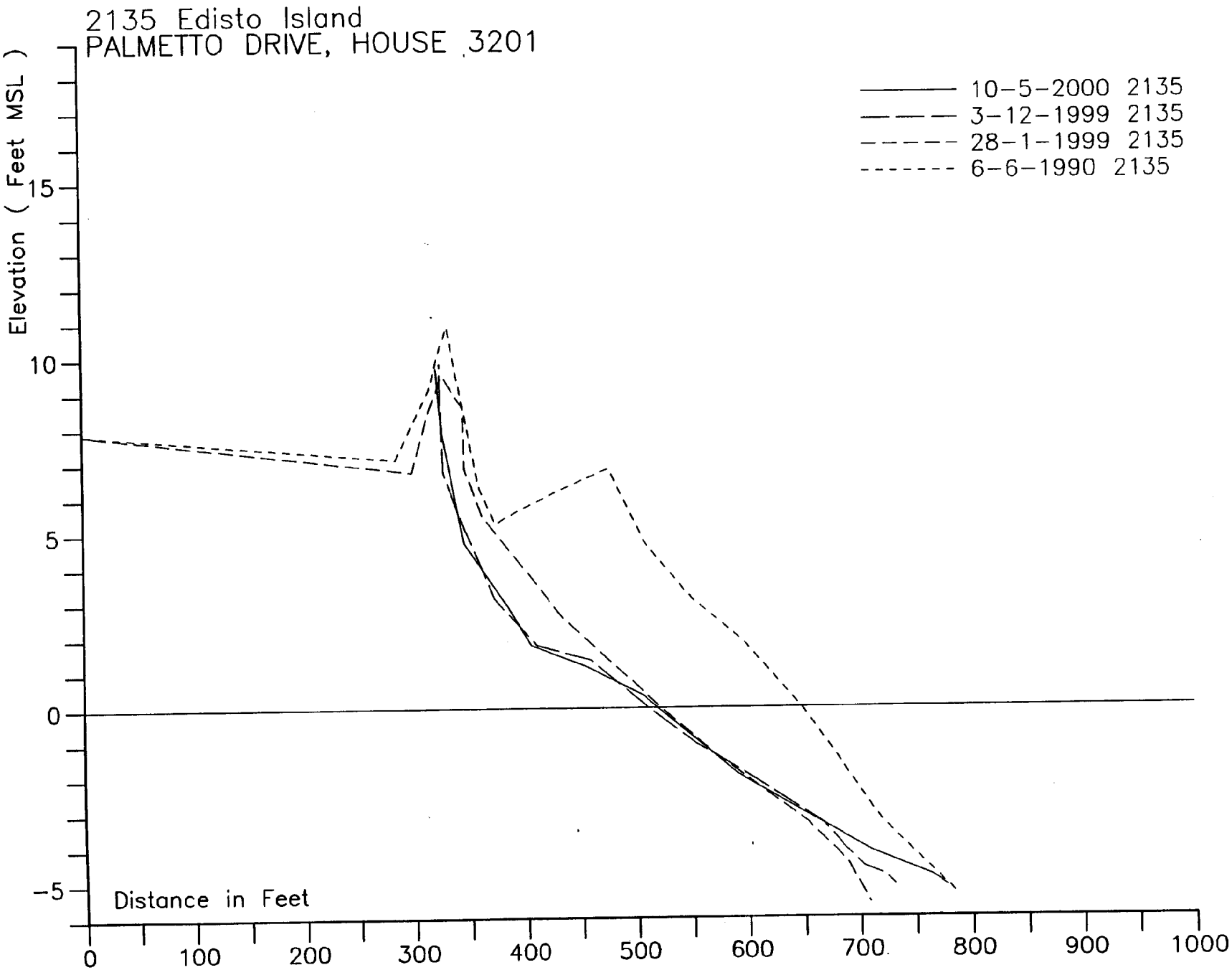
Edisto Beach

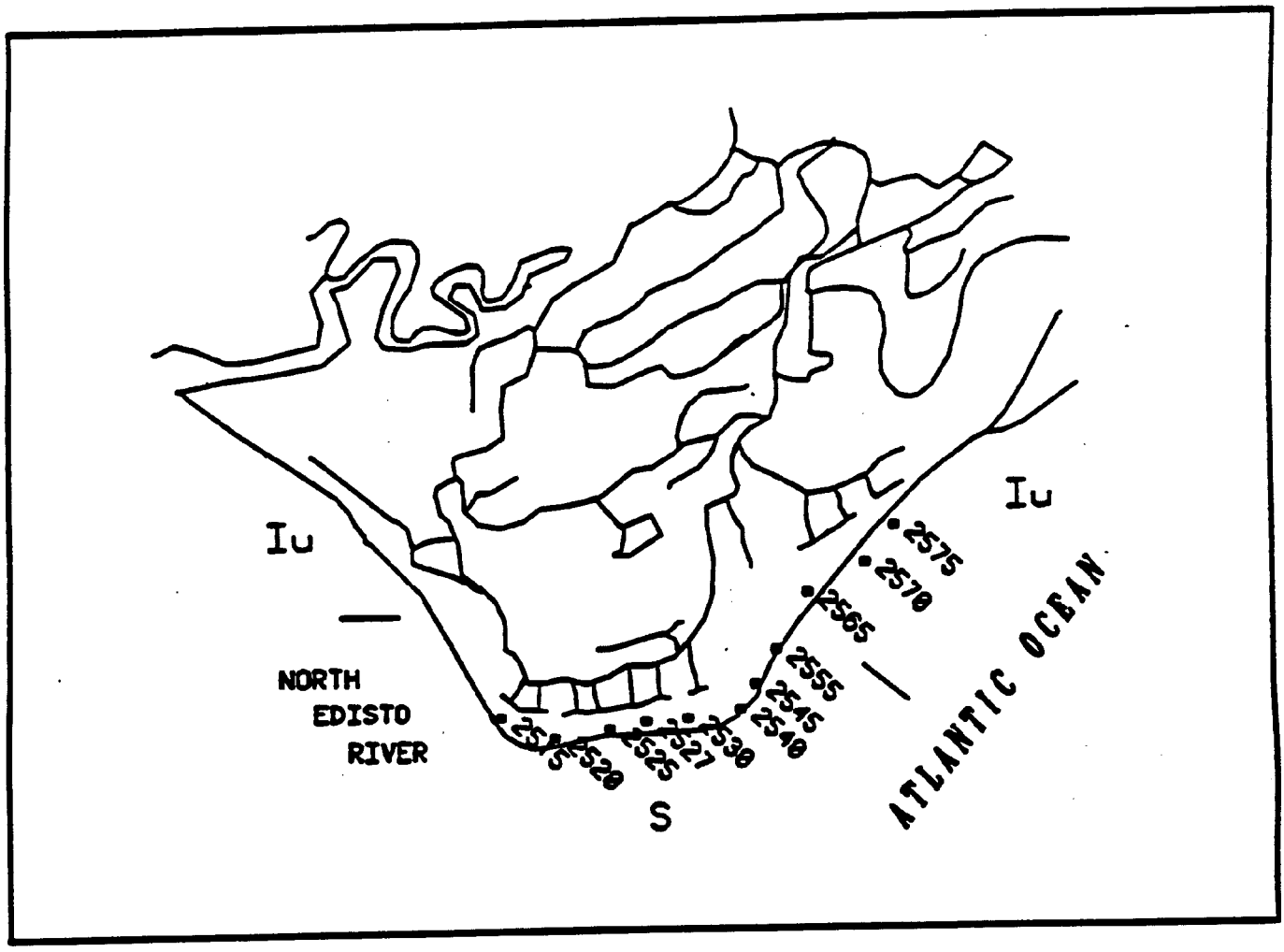
Edisto Beach

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 December 1999 and May 2000.

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. During the past year, a localized erosion hot spot developed in this reach between Mikell and Edisto Streets. Station 2110 showed the greatest volumetric change, gaining 11 cubic yards of sand. Other stations gained or lost 2 to 8 cubic yards over the profile. 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. During the current study period, station 2135 lost 7 cubic yards of sand as the upper beach retreated by 20 feet during 1999. Station 2140 showed a net gain of 5 cubic yards of sand but the upper beach eroded by 29 feet between December 1999 and May 2000.

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 volume changes for the year. The only exception was 2150 at Murray St., which lost 24 cubic yards of sand as the profile retreated by 20 feet. The northern half of developed Edisto Beach, from station 2170 to station 2200 at the Pavilion, is the most critically eroded section of the island. All stations here remained fairly stable, although the beach in the State Park, north of the first groin, continues to erode.


2135 Edisto Island
PALMETTO DRIVE, HOUSE 3201
10-5-2000 2135
3-12-1999 2135
28-1-1999 2135
6-6-1990 2135
Elevation (Feet MSL)
15
10
5
0
-5
Distance in Feet
0
100
200
300
400
500
600
700
800
900
1000



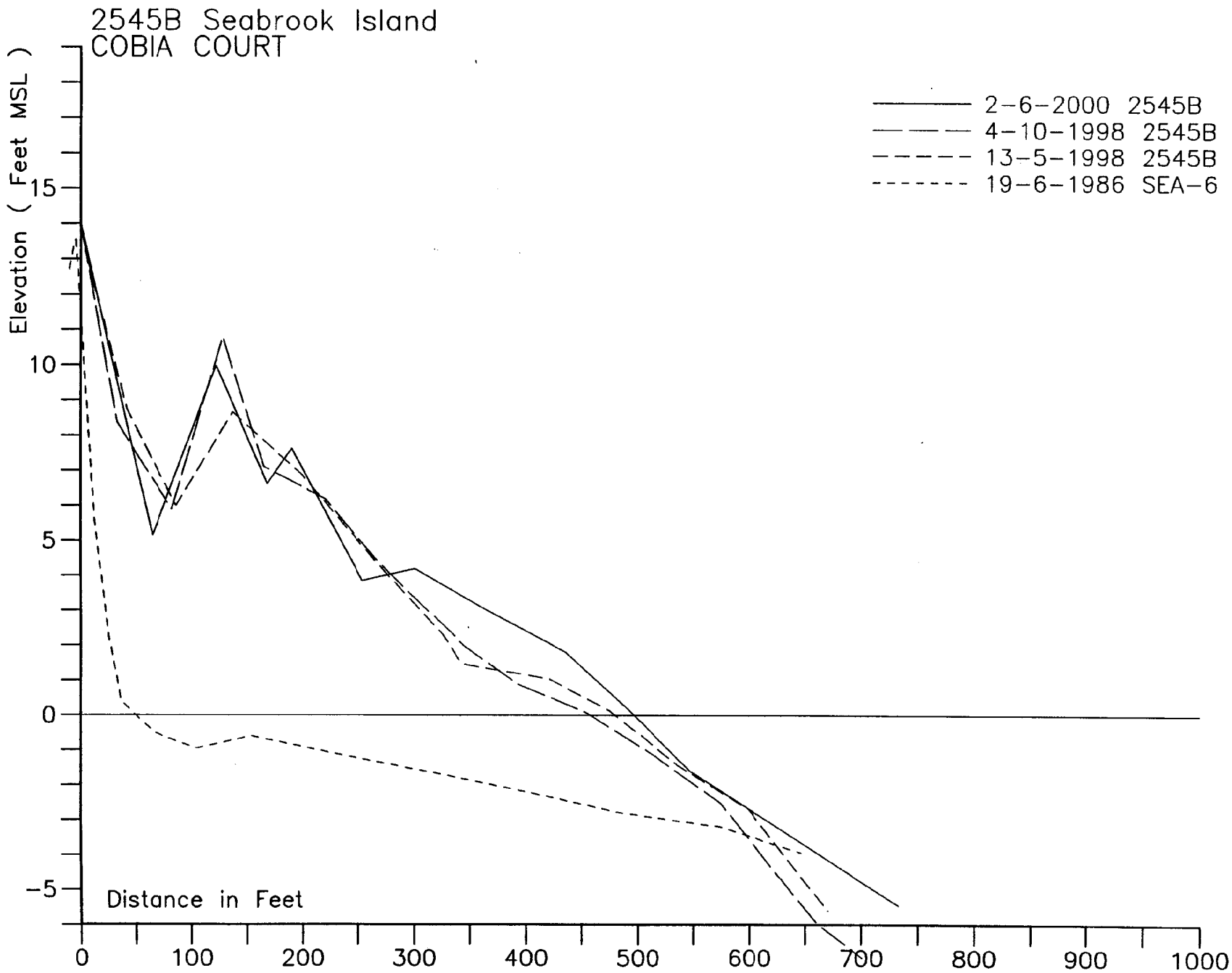
Seabrook Island

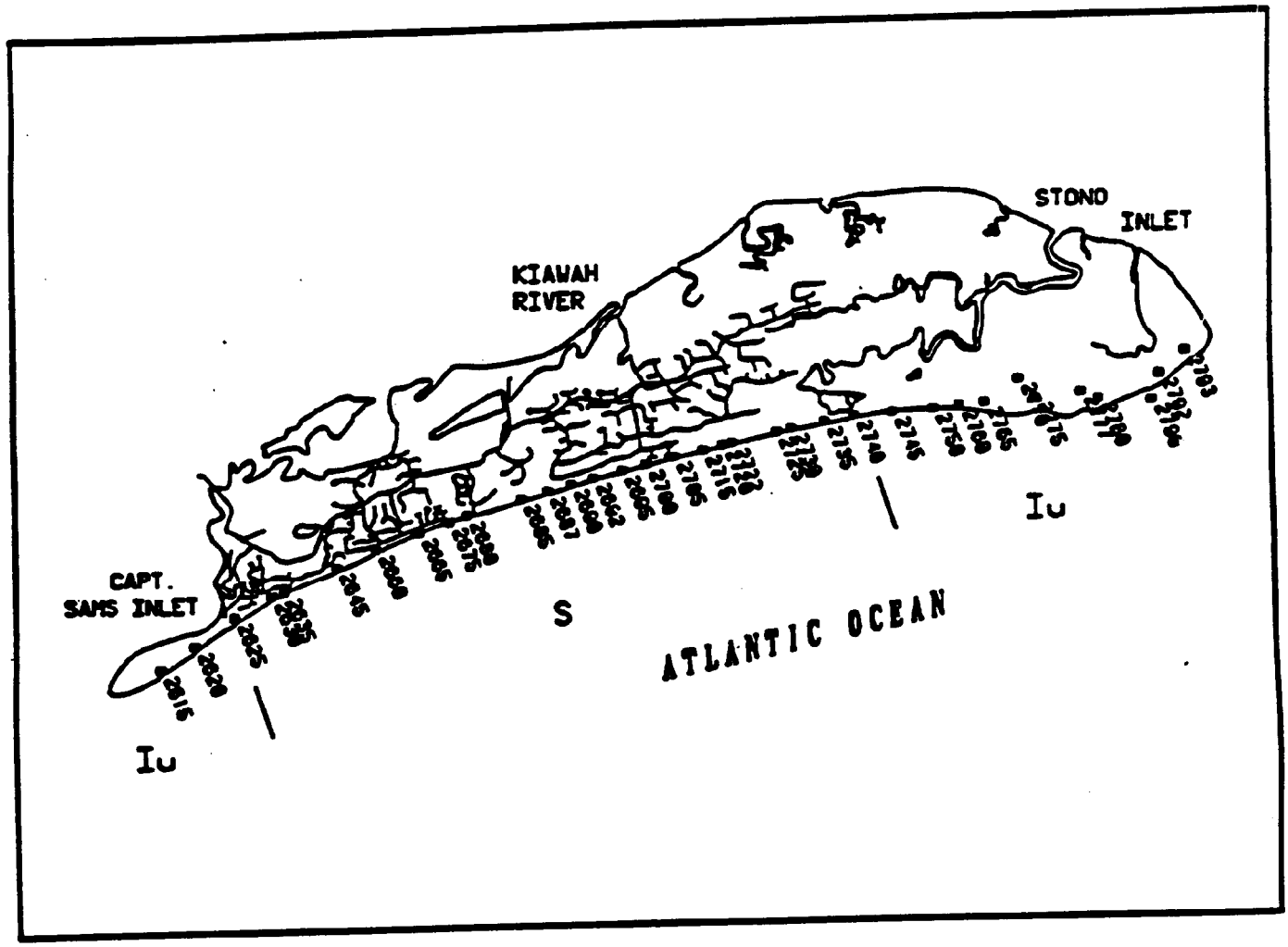
Seabrook Island

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-foot 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 here, which were surveyed during November 1999 and May 2000.

Station 2515, at Beach Club Villas along the North Edisto River, lost 5 cubic yards of sand for the study period. Stations 2520 through 2540 are located along the revetment. Both stations 2520 at the Beach Club and 2525 at the boat ramp showed minor changes in profile shape seaward of the revetment, with a small loss of sand at 2520 and a small gain at 2525. The biggest change in the reach occurred at station 2527 on Seabrook Island Road, which gained 6 cubic yards as the lower beach build seaward by 50 feet. Station 2530 on Beach Court and station 2540 at Renken Point showed only minor profile changes during the year.

In the North Beach area, from station 2545 to 2575, the high-tide beach averages over 500 feet in width. This area can be very dynamic and has experienced some erosion during the past several years, but was accretional during the current study period. At station 2545 on Cobia Court the profile gained 14 cubic yards of sand from October 1998 through June 2000, mostly on the upper intertidal beach. Station 2555 on Pompano Court gained 55 cubic yards of sand for the year as the entire 800 foot long profile shifted seaward by about 50 feet. Station 2565 at Seascape Court was more stable and gained 10 cubic yards of sand. On Catesby Bluff, station 2570 showed a net gain of 25 cubic yards of sand. Finally, station 2575 on Rolling Dunes Road gained 26 cubic yards of sand as a new primary dune formed here.


2545B Seabrook Island
COBIA COURT
2-6-2000 2545B
4-10-1998 2545B
13-5-1998 2545B
19-6-1986 SEA-6
Elevation (Feet MSL)
15
10
5
0
-5
Distance in Feet
0
100
200
300
400
500
600
700
800
900
1000



Kiawah Island

Kiawah Island

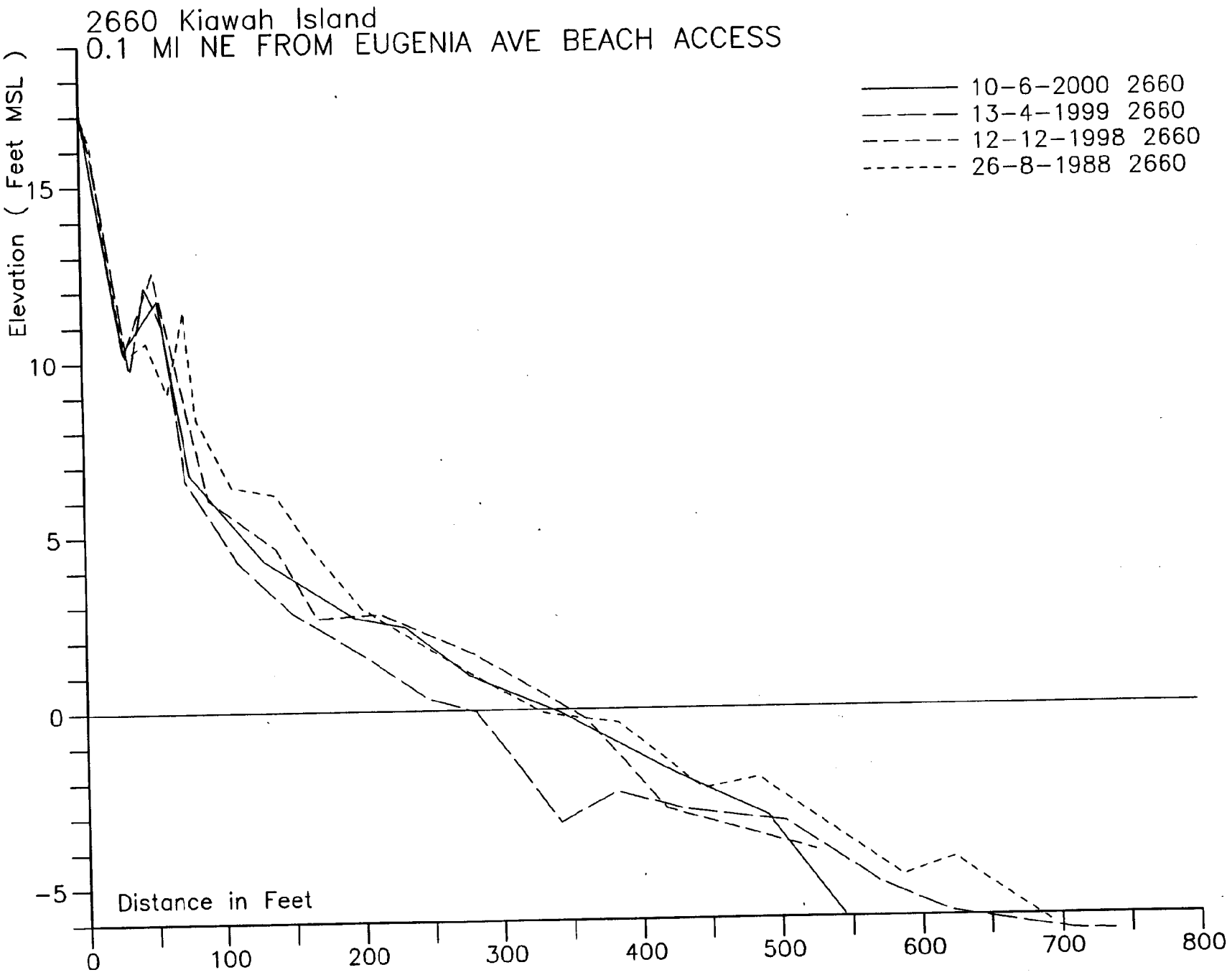
Kiawah Island is a ten-mile long barrier island, located between Seabrook Island and Captain Sams Inlet to the west, and Stono Inlet and Folly Beach to the east. Kiawah is one of the most stable barrier islands in the state, although the eastern and western ends of the island are more dynamic due to their proximity to inlets.

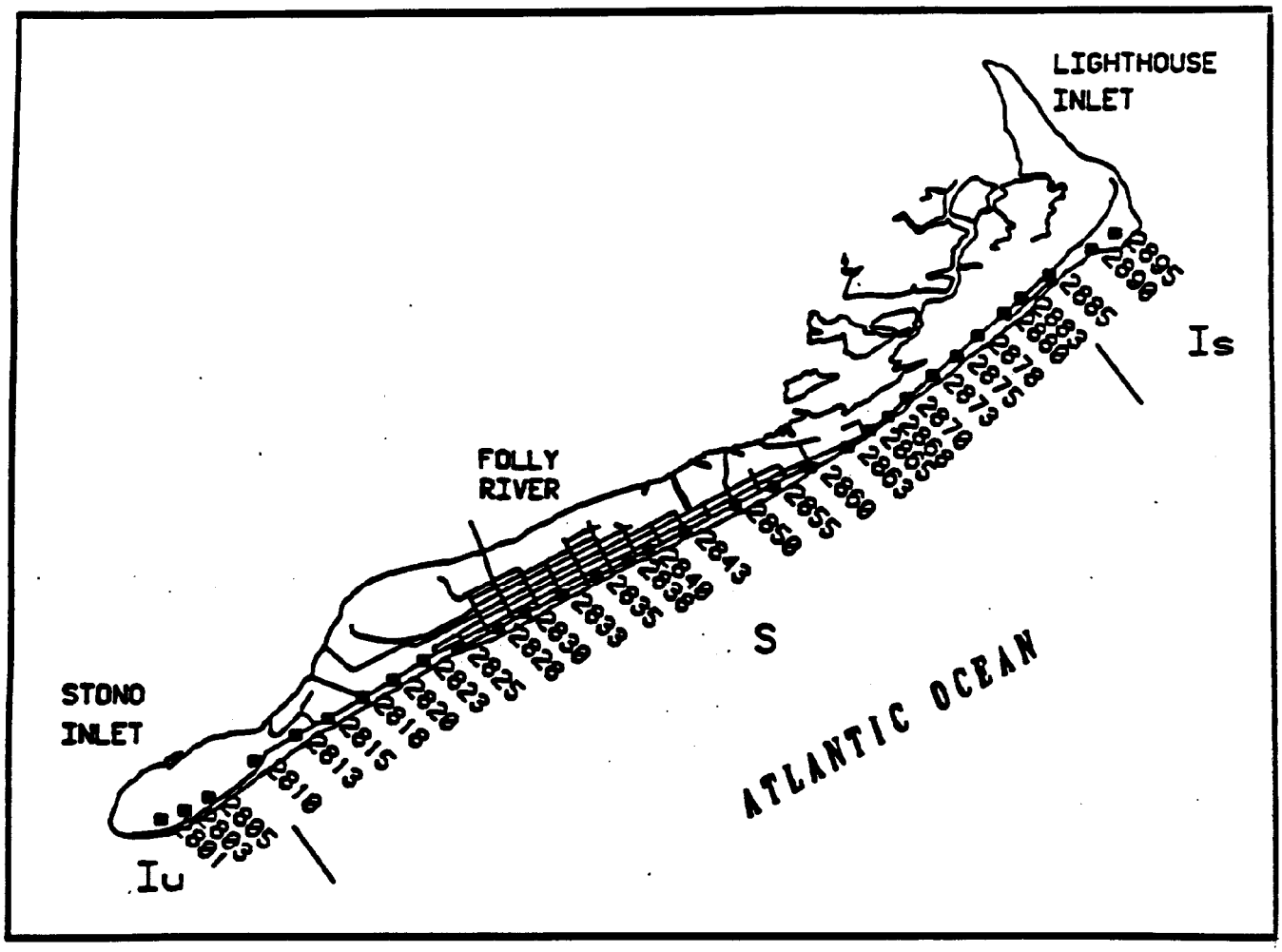
The 25 beach monitoring stations on Kiawah Island were surveyed in April 1999 and June 2000. Stations 2615 through 2645 are located at the western end of Kiawah, where land use consists of undeveloped property, single family homes, and some multi-family structures. At almost all stations in this reach the primary dune was stable and the beach profile seaward of the dune was accretional, gaining an average of 14 cubic yards of sand. The only exception was station 2645, 1300 feet south of the Eugenia Ave. beach access, where a small primary dune seaward of a much larger dune was eroded away.

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, then stabilized in 1997. From December 1998 through May 2000 these stations showed net volumetric changes of only a few cubic yards, with virtually no dune erosion. Other stations farther to the north, from 2682 on North Sea Forest Drive to 2720 on Flyway Drive, showed only minor seasonal changes on the intertidal beach.

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 stations 2725-2760, from Flyway Drive to the Ocean Course, showed only minor volumetric changes on the order of 4-6 cubic yards. The only exception was station 2735, near the Beach Club, which gained 18 cubic yards of sand on the intertidal beach between December 1998 and April 1999.

Stations 2780 and 2785 are closest to Stono Inlet and historically are the most dynamic. Both experienced significant profile changes seaward of the dune from December 1998 through June 2000, primarily as the result of the movement of intertidal sand bars associated with the inlet.


2660 Kiawah Island
0.1 MI NE FROM EUGENIA AVE BEACH ACCESS
10-6-2000 2660
13-4-1999 2660
12-12-1998 2660
26-8-1988 2660
Elevation (Feet MSL)
15
10
5
0
-5
Distance in Feet
0
100
200
300
400
500
600
700
800


LIGHTHOUSE
INLET
FOLLY
RIVER
STONO
INLET
ATLANTIC OCEAN
S
Is
Iu
2895
2890
2885
2883
2880
2878
2875
2873
2870
2868
2865
2863
2860
2855
2850
2843
2840
2838
2835
2833
2830
2828
2825
2823
2820
2818
2815
2813
2810
2805
2803
2801

Folly Beach

Folly Beach

Folly Beach is located between Stono Inlet and Lighthouse Inlet. Nearly all of Folly's shoreline is armored and contains groin fields. There are 33 monitoring stations here that were surveyed in April 1999, with the previous survey conducted in August 1997.

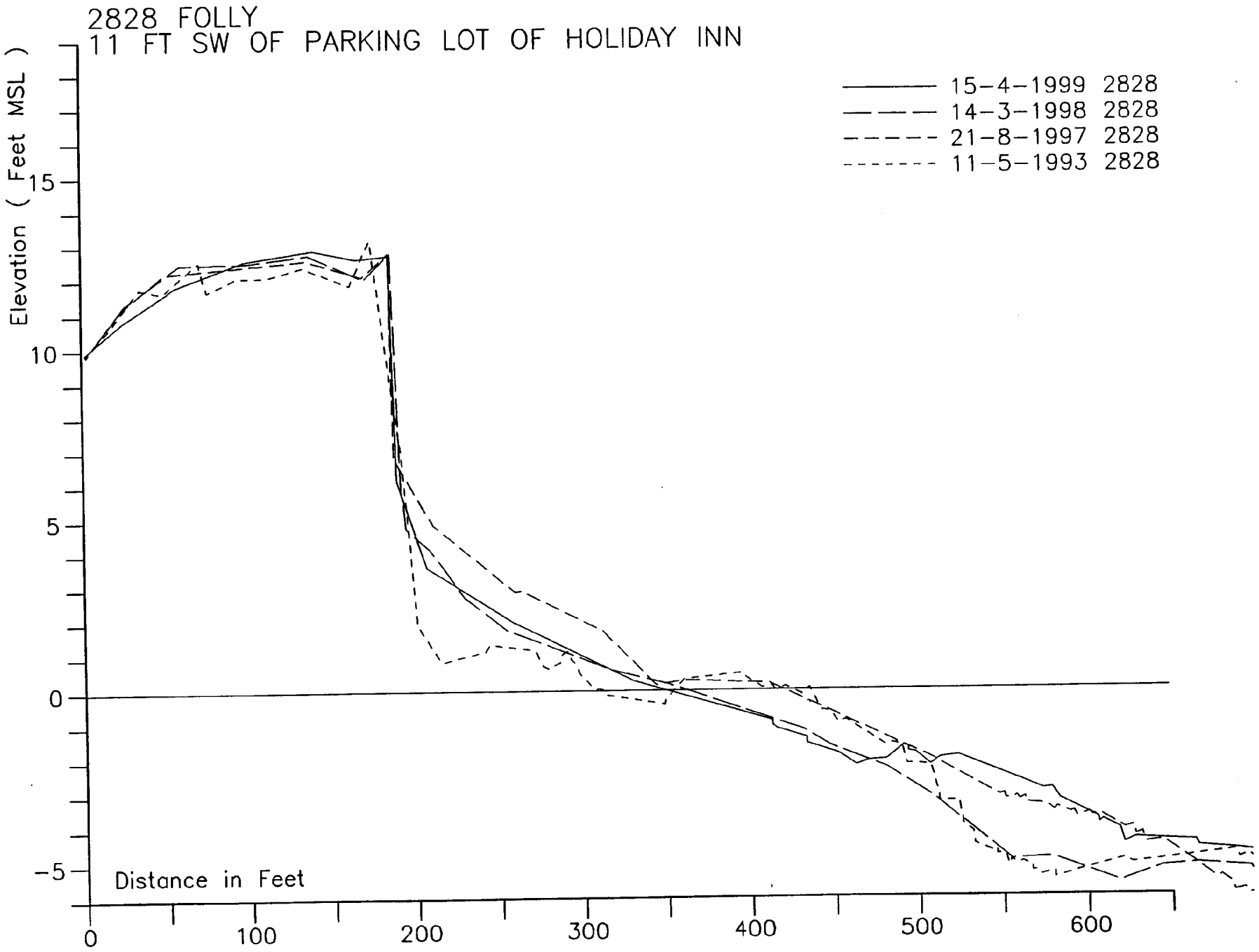
At the western end of the island in the county park, stations 2803 and 2805 continued to experience a trend of significant erosion that began in 1995. The upper beach at both stations has eroded back by over 300 feet since the 1993 renourishment project, and is now critically eroded. Station 2810, at the park gatehouse, experienced 33 feet of upper beach and dune erosion. Just outside the park, the dune and upper beach at station 2815 eroded by 18 feet. The rest of the profiles on the western side of the island, from station 2818 at 7th Street West to station 2825 at 3rd Street West, all showed erosion of sand from the upper beach ranging in magnitude from 1 to 25 feet of retreat.

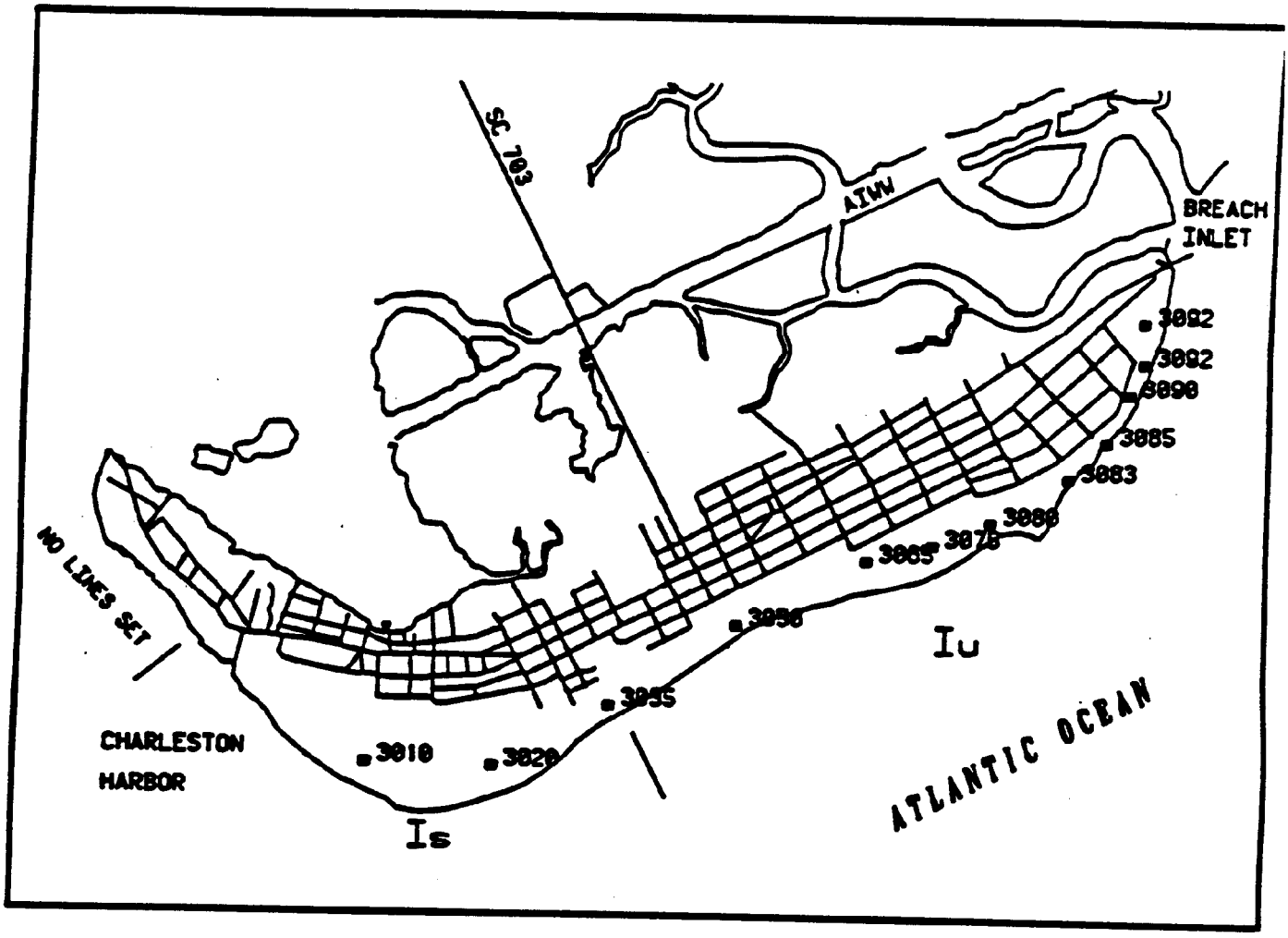
Station 2828, in front of the Holiday Inn seawall, lost 43 cubic yards of sand from the entire profile to a depth of -5 feet. Station 2830, which runs alongside the wingwall on the northeast end of the seawall, showed only minor berm changes. This station is immediately upcoast from the fishing pier, which may help stabilize the beach here.

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. Almost all profiles in this area show upper beach accretion, averaging about 10 feet, but volumetric changes down to the –5 foot contour were mixed, ranging from a gain of 8 cubic yards to a loss of 12 yards.

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. All stations here were relatively stable for the time period from August 1997 through April 1999 with the exception of 2873, the last Washout station, where the beach gained 26 cubic yards of sand down to the –5 foot contour.

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 magnitude of erosion increasing with movement toward the eastern end. At station 2878 the beach actually gained a minor amount of sand as the primary dune accreted, but station 2880 lost 4 cubic yards of sand, station 2883 lost 22 cubic yards of sand, and station 2885 lost 39 cubic yards of sand. This trend of increasing erosion with movement to the east reached a maximum at station 2890, located on the former Coast Guard property, where two rows of dunes were lost as the ocean eroded through 175 feet of dune field. Volumetric loss down to the –5 foot contour here was 88 cubic yards of sand.


2828 FOLLY
11 FT SW OF PARKING LOT OF HOLIDAY INN
15-4-1999 2828
14-3-1998 2828
21-8-1997 2828
11-5-1993 2828
Elevation (Feet MSL)
15
10
5
0
-5
Distance in Feet
0
100
200
300
400
500
600



Sullivans Island

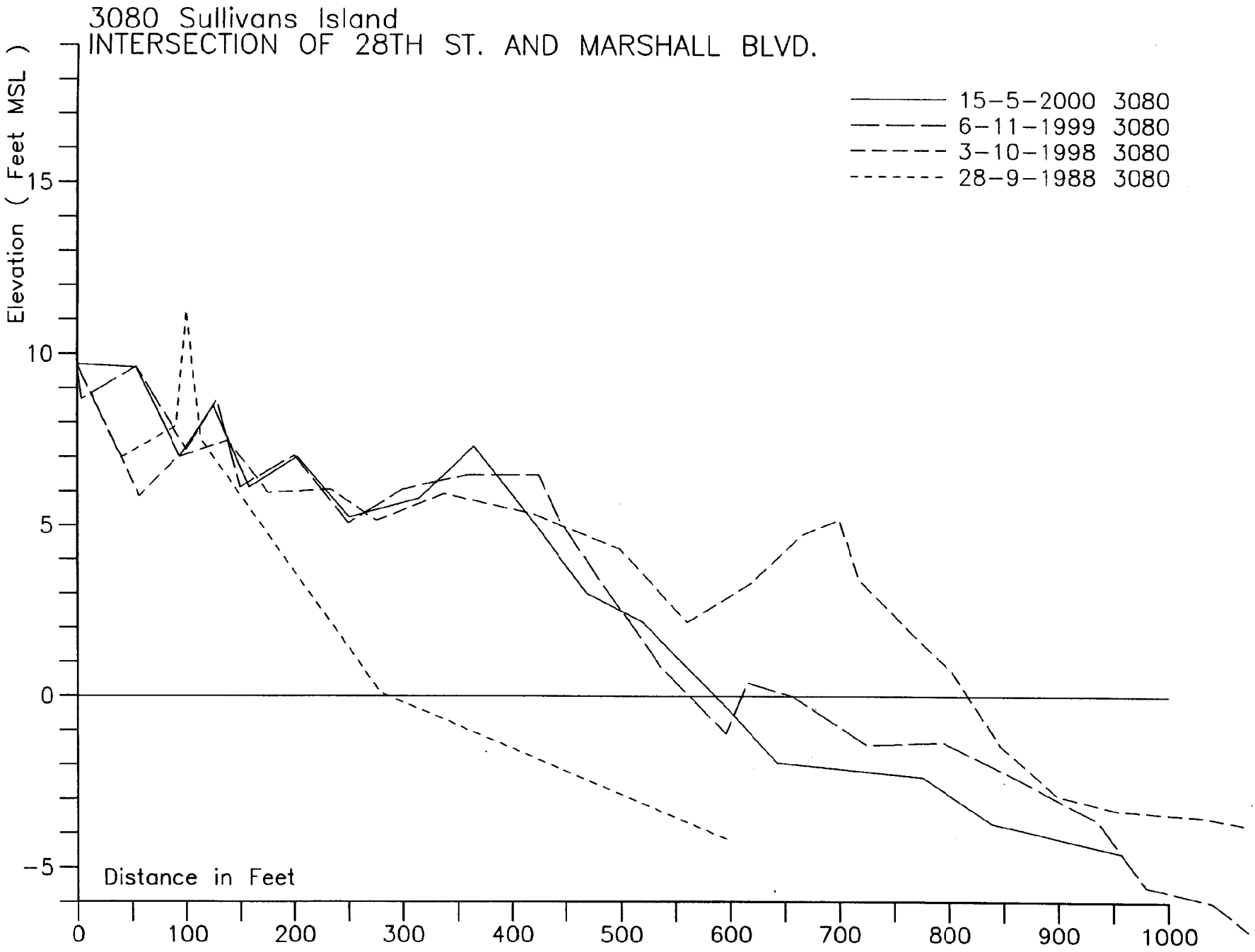
Sullivans Island

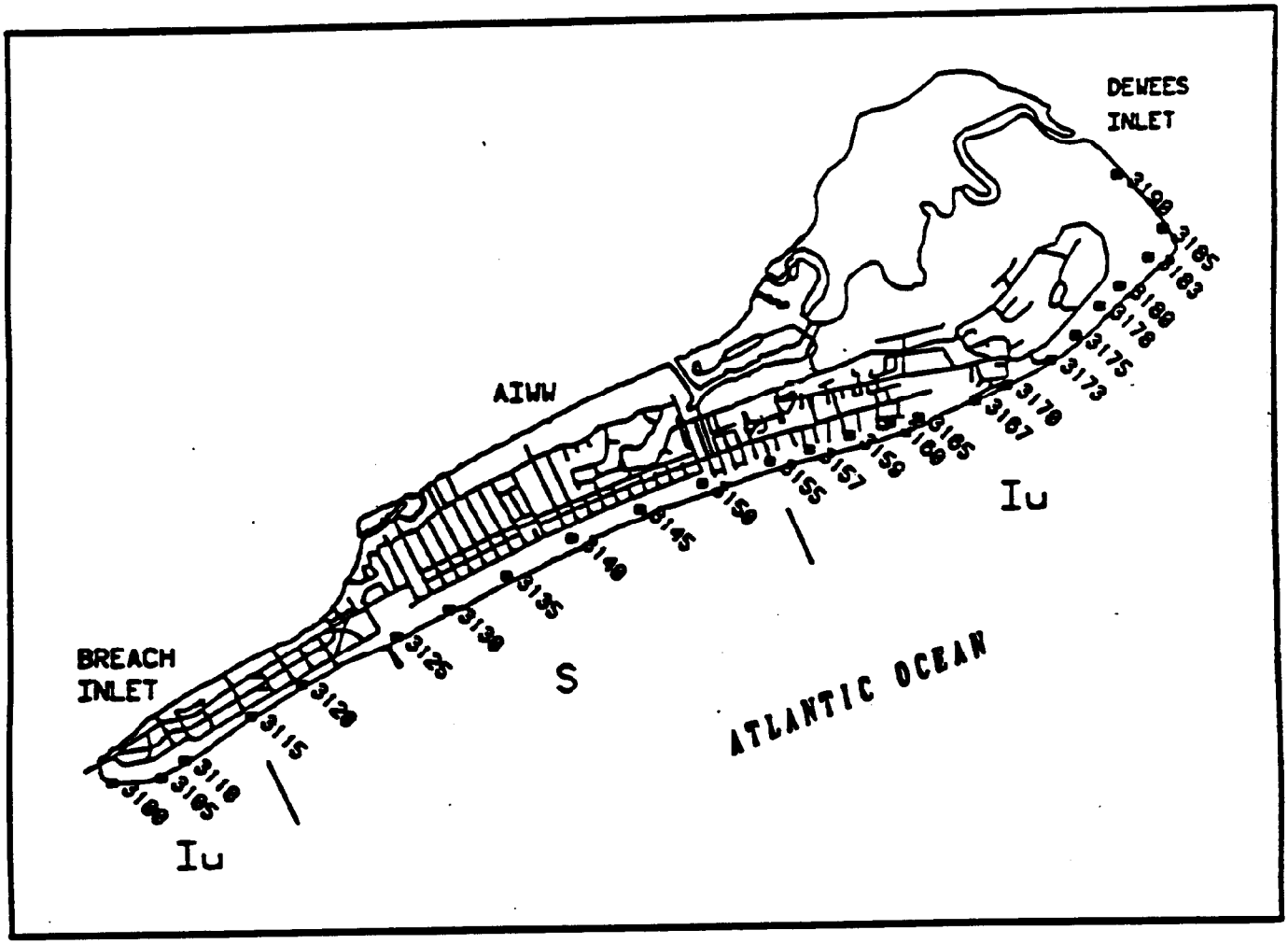
Sullivans Island is located between Charleston Harbor and Breach Inlet. The Charleston Harbor north jetty, which comes ashore on Sullivans Island, has caused the long-term shoreline trend to be stable or accretional for much of the island, although periodic shoal attachment at Breach Inlet can cause the shoreline in this region to be quite dynamic. Beach surveys were conducted in November 1999 and May 2000.

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 or even erosional for the past several years. Monument 3010 at Station 16 lost 36 cubic yards of sand as the upper beach retreated by 118 feet between October 1998 and May 2000. At monument 3020 near the Sand Dunes Club, the beach profile lost 20 cubic yards of sand as the upper beach eroded by 93 feet over this same time period. Monument 3035 at Station 19 was accretional, and gained 42 cubic yards of sand over the entire profile seaward of the primary dune.

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 beach lost 26 cubic yards of sand seaward of the dune. At 3065, near Station 26, the intertidal portion of the profile changed significantly, resulting in a sand volume gain of 50 cubic yards. This gain was almost exactly matched by a loss of 58 cubic yards of sand at 3080, near Station 28, as a large intertidal sandbar dissipated.

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. This area reversed a recent trend of erosion and gained sand between October 1998 and May 2000. The beach profile at 3083, near Station 29, gained 75 cubic yards of sand, while 3085, located near Station 30, gained 25 cubic yards. Monuments 3090 at Station 31, 3092 at Station 31½, and 3095 at Station 32, all located close to Breach Inlet, were stable to slightly erosional for the study period.


3080 Sullivans Island
INTERSECTION OF 28TH ST. AND MARSHALL BLVD.
15-5-2000 3080
6-11-1999 3080
3-10-1998 3080
28-9-1988 3080
Elevation (Feet MSL)
15
10
5
0
-5
Distance in Feet
0
100
200
300
400
500
600
700
800
900
1000



Isle 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 December 1999 and May 2000. 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. At 3100 on Breach Inlet, the profile seaward of the dune gained 50 cubic yards of sand between November 1998 and December 1999. Near 2nd Ave. station 3105 gained sand on the upper beach but lost a significant amount of sand below mean sea level, for a net loss of 24 cubic yards over the same time period. Station 3110 at 3rd Ave. was also quite dynamic but showed a net gain of only 3 cubic yards between October 1998 and May 2000.

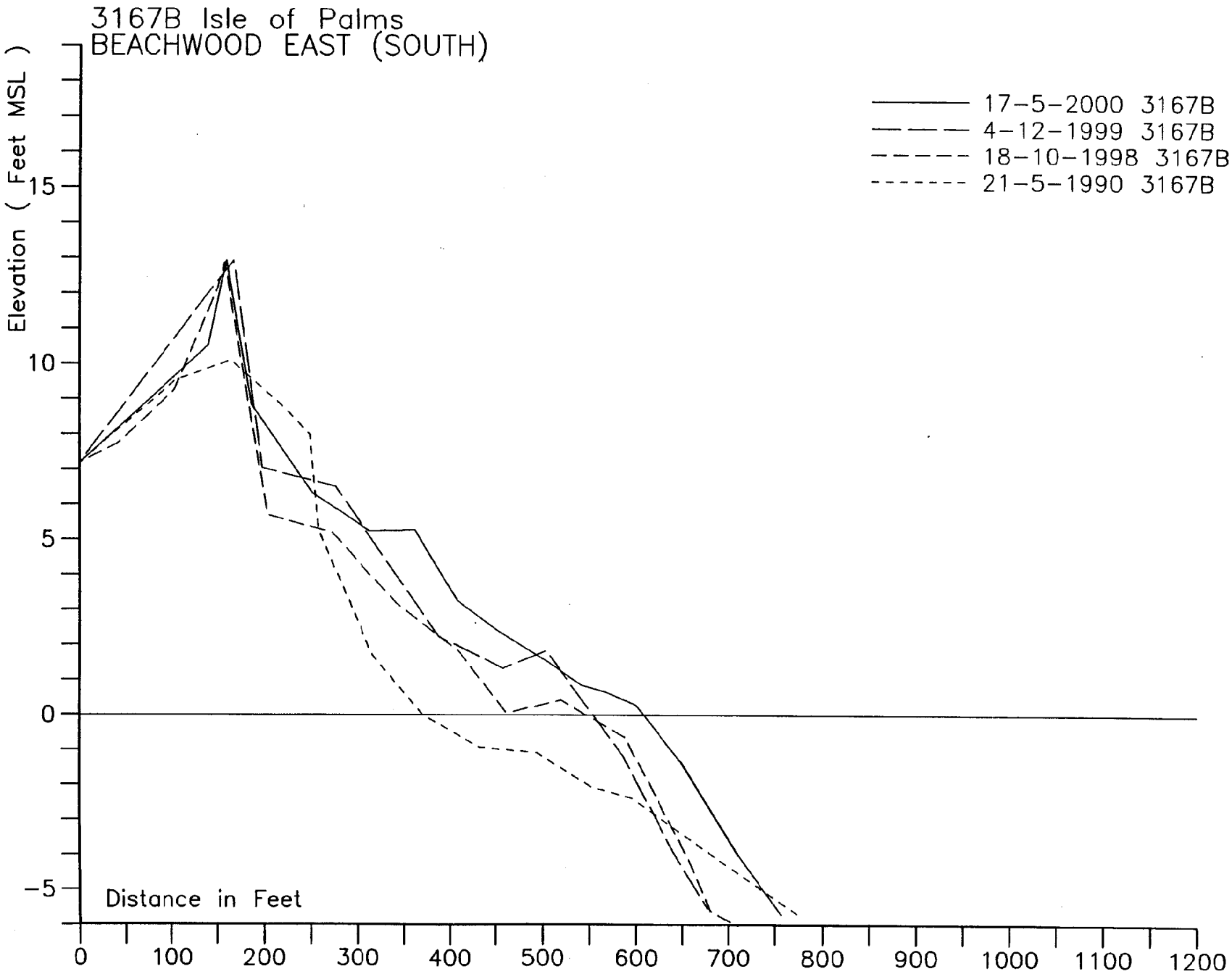
Stations 3115-3157, from 6th Ave. to 50th Ave., are located along the more stable portion of shoreline in the center of the island. Beach profiles here typically show minor to moderate seasonal variations from year to year, although several stations were more dynamic than usual for the current report period. Two of the greatest changes occurred at station 3140, near 31st Ave., which gained 22 cubic yards of sand, and station 3145, near 36th Ave., which gained 44 cubic yards of sand. Station 3157 at 50th Ave. picked up 14 cubic yards of sand.

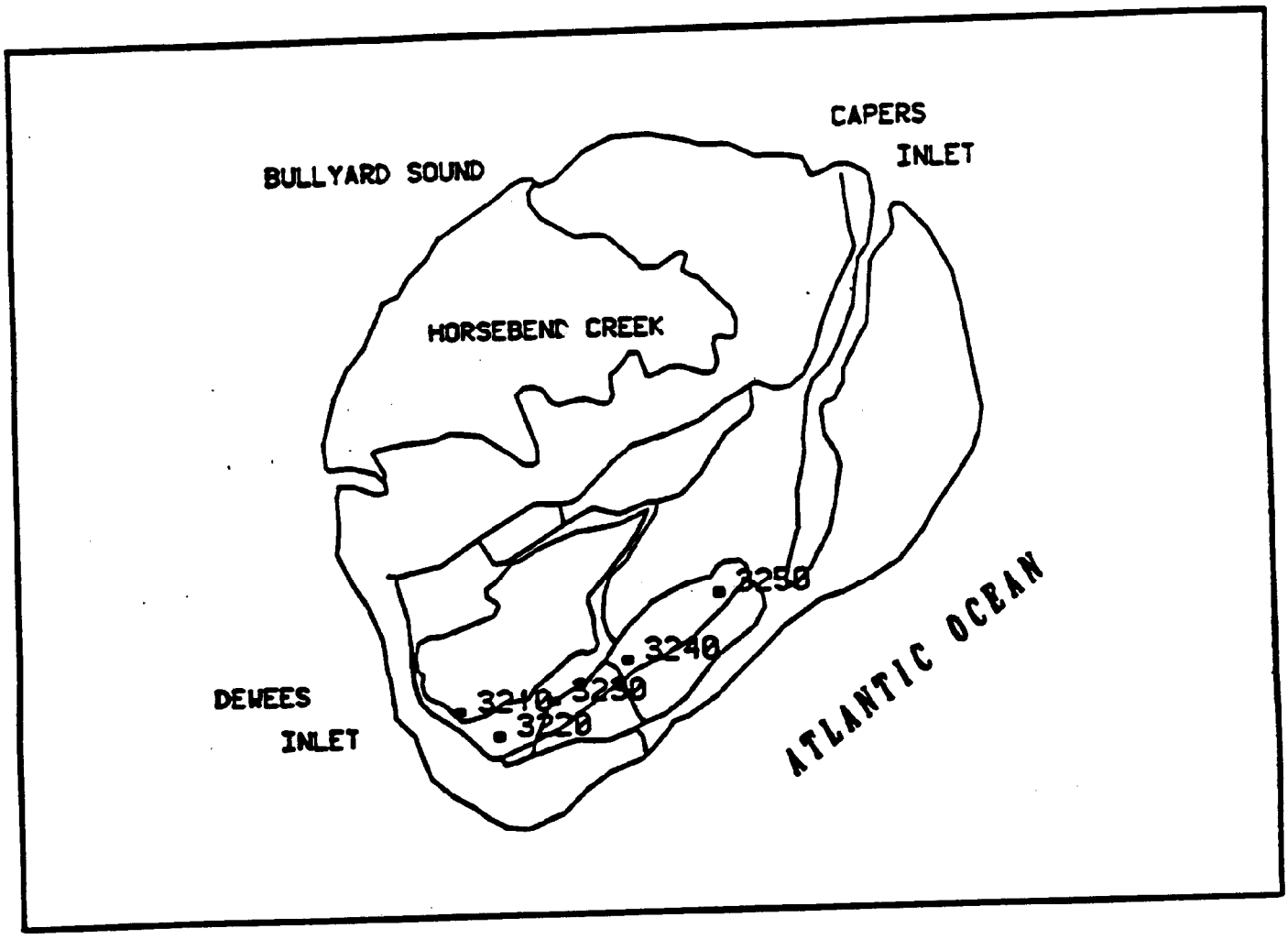
Beginning at station 3159 near 53rd Ave. and continuing on into Wild Dunes, beach profiles are close enough to Dewees Inlet to be effected by periodic bar bypassing from the inlet shoal complex, and as a result profiles here are more dynamic than the rest of the island. These shoal attachment episodes 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, with the most recent event terminating in the fall of 1996.

For the current report period, station 3159 at 53rd Ave. gained 40 cubic yards of sand. At 57th Ave., station 3165 gained 11 cubic yards of sand. This accretional trend extended as far north as station 3167, at the southwest end of Beachwood East, which gained 31 cubic yards of sand. Station 3170, at the northeast end of Beachwood East, showed a net loss of 36 cubic yards but gained a considerable amount of sand on the upper beach as a sand ridge coalesced and attached to the shore.

Station 3173 at Beach Club Villas was the site of the 1996 shoal attachment. The beach here gained in width tremendously during 1995 and 1996, but began to lose sand in 1997. This trend continued as the beach profile here lost 84 cubic yards of sand between October 1998 and May 2000. Station 3175 at Mariners Walk has been extremely dynamic in recent years. This area experienced almost 200 feet of erosion in 1996, gained 147 cubic yards of sand in 1997, lost 72 cubic yards of sand in 1998, and then lost 42 cubic yards of sand through May 2000. Station 3178 at Summer House also experienced some of the worst erosion on the northeast side of the sand shoal in 1996, but gained 79 cubic yards of sand in 1998 and then an additional 60 cubic yards through May 2000. At station 3180, Port O'Call, the beach gained 25 cubic yards in 1998 and then added 98 cubic yards of sand through May 2000. Station 3183, the last true oceanfront station, was not significantly effected by the 1996 sand shoal attachment and related erosion. The beach profile here did lose 10 cubic yards of sand between October 1998 and May 2000.

Stations 3185 and 3190 are located along Dewees Inlet, where wave energy is generally lower and beach profiles are steeper. Station 3185, at the golf course 18th fairway, experienced some extreme erosion between October 1997 and May 1998 and lost 106 cubic yards of sand as the entire profile shifted landward by 200 feet. Between May and November 1998 the upper beach profile was stable and the lower beach gained 5 cubic yards of sand. This slightly accretional trend continued as the profile here gained 6 cubic yards of sand through May 2000. At station 3190, farther up the inlet, the dune and upper beach profile was stable as the lower beach gained 10 cubic yards between October 1998 and May 2000.


3167B Isle of Palms
BEACHWOOD EAST (SOUTH)
17-5-2000 3167B
4-12-1999 3167B
18-10-1998 3167B
21-5-1990 3167B
Elevation (Feet MSL)
15
10
5
0
-5
Distance in Feet
0
100
200
300
400
500
600
700
800
900
1000
1100
1200



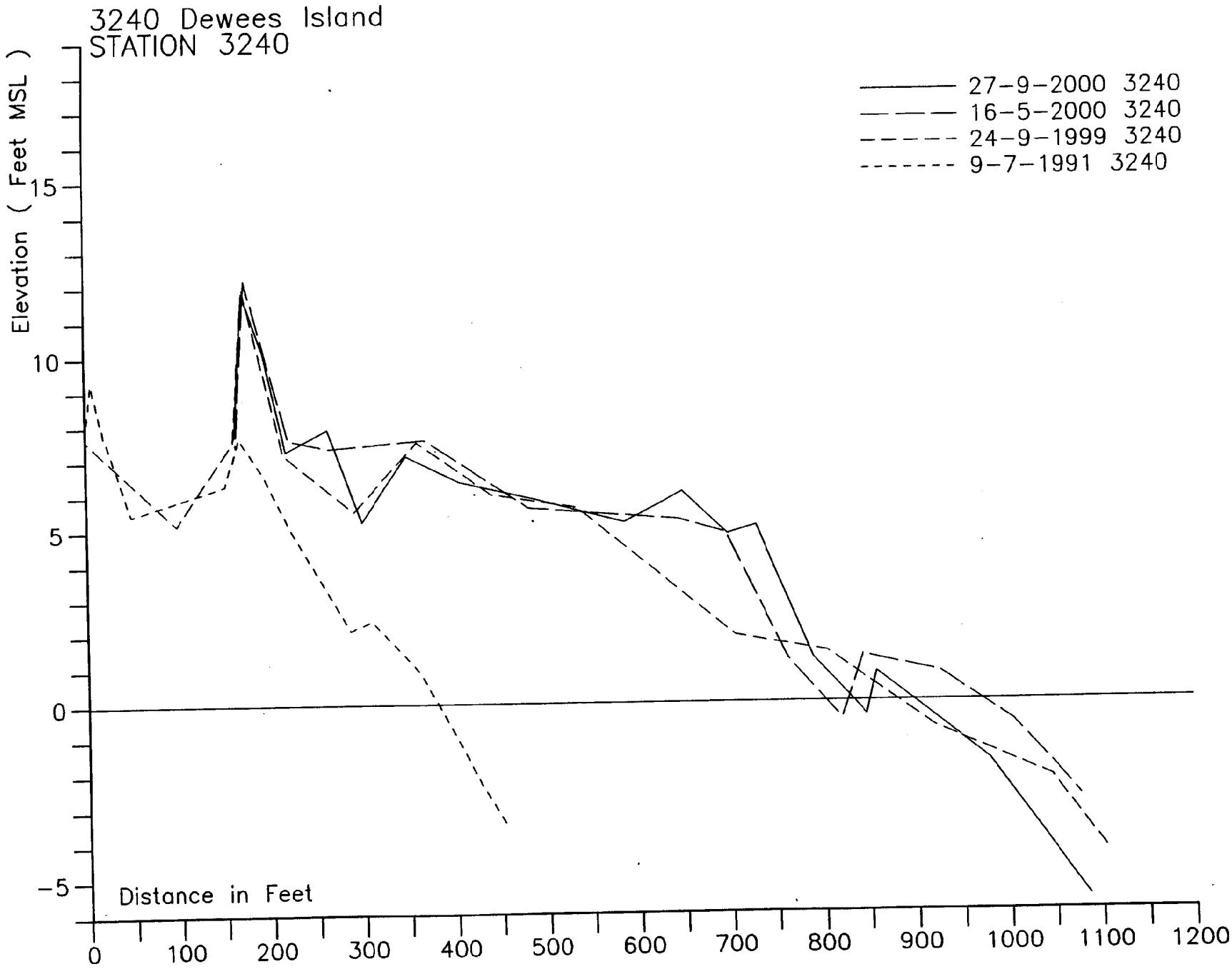
Dewees Island

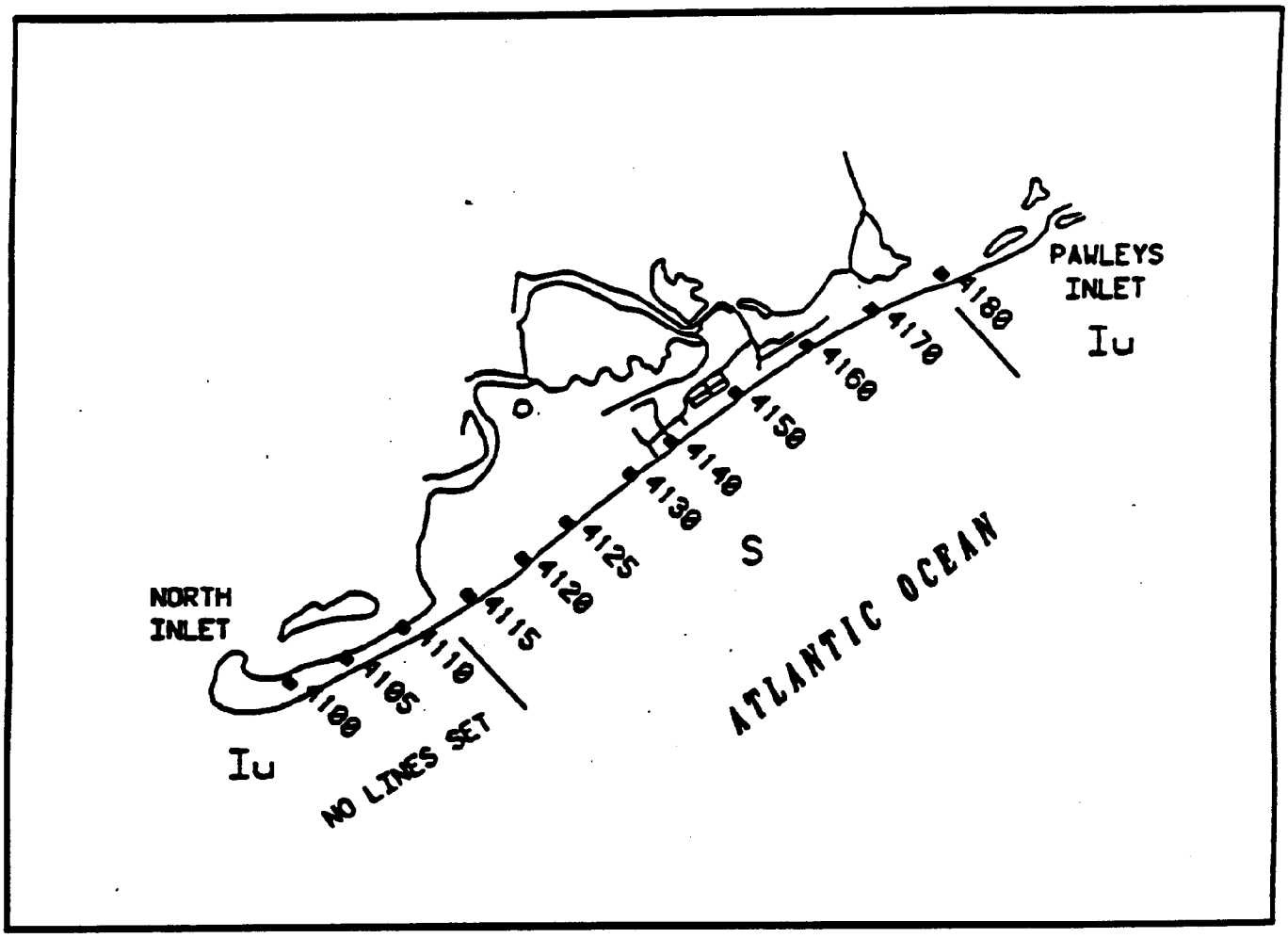
Dewees Island

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 feet 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 September 1999, May 2000, and September 2000.

Station 3220 is located on top of a bluff along Dewees Inlet. After a strong erosional trend in 1997 and 1998 the beach profile here stabilized in 2000, gaining some sand on the developing dunes 500 feet seaward of the bluff but losing some intertidal beach width. All other stations on the southwest side of the dike showed sand gains during 2000. Station 3230 showed the biggest increase with an additional 47 cubic yards of sand over most of the profile seaward of the primary dune. Station 3240 gained 11 cubic yards of sand as the berm width increased by over 100 feet. The last station southwest of the dike, 3250, gained 7 cubic yards of sand as the berm width increased by about 80 feet. In general, this section of beach southwest of the dike has increased in width by 300 to 400 feet during the past 9 years.

On the dike at station 3255, the sand volume decreased by 5 cubic yards as the profile below the high tide line cut back slightly. This trend of sand volume loss continued at station 3260, which lost 22 cubic yards, and reached a maximum at station 3270, which lost 39 cubic yards of sand. At both these stations the loss was primarily the result of profile steepening seaward of the high tide line. This erosional trend lessened at station 3280 which lost 20 cubic yards of sand, again below the high tide line. Finally, at station 3290 the sand volume increased by 53 cubic yards. This substantial volume increase was due to the continuing development of a large intertidal sand flat, which has now expanded the profile width to over1200 feet.


3240 Dewees Island
STATION 3240
27-9-2000 3240
16-5-2000 3240
24-9-1999 3240
9-7-1991 3240
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

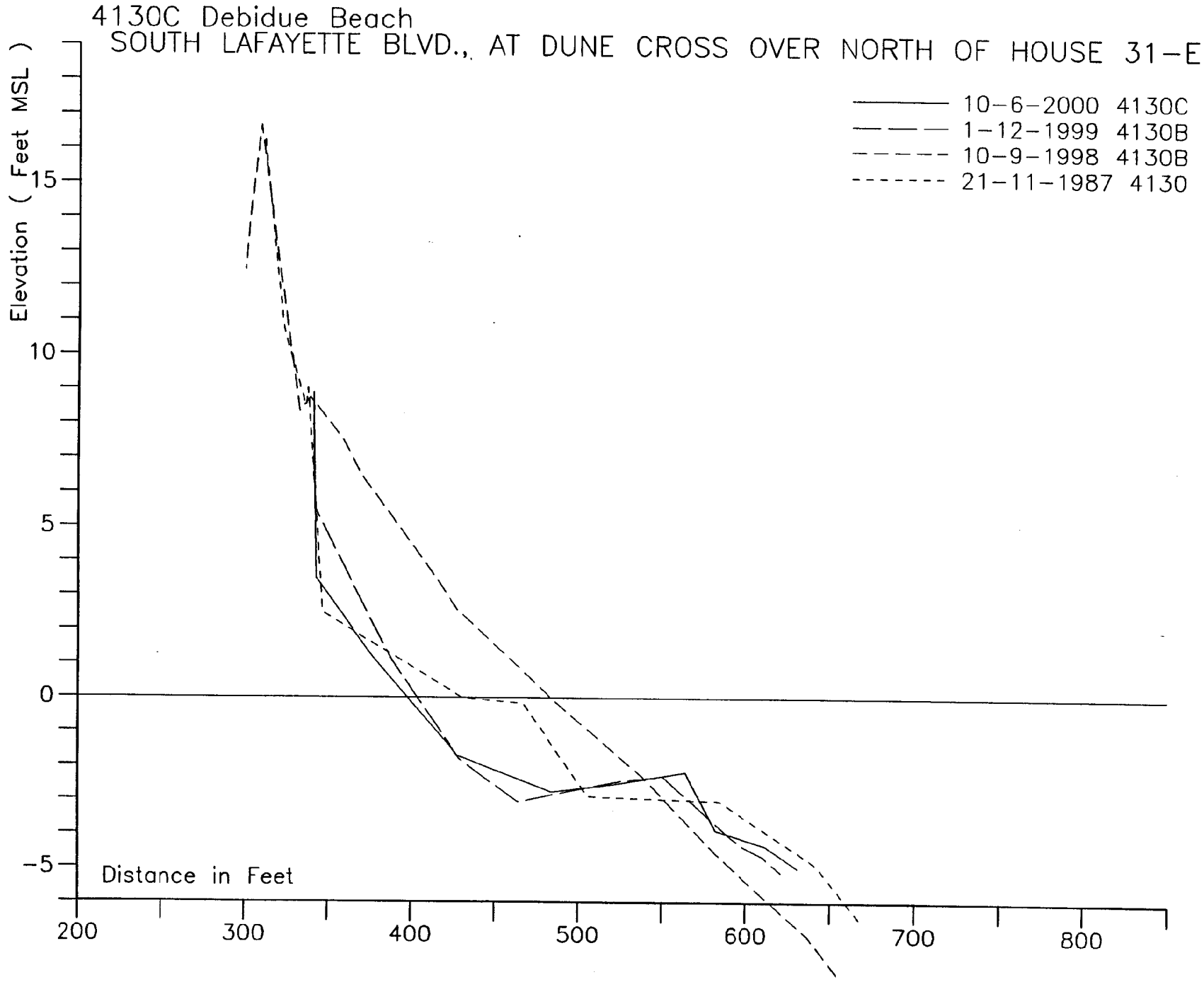
Debidue Beach

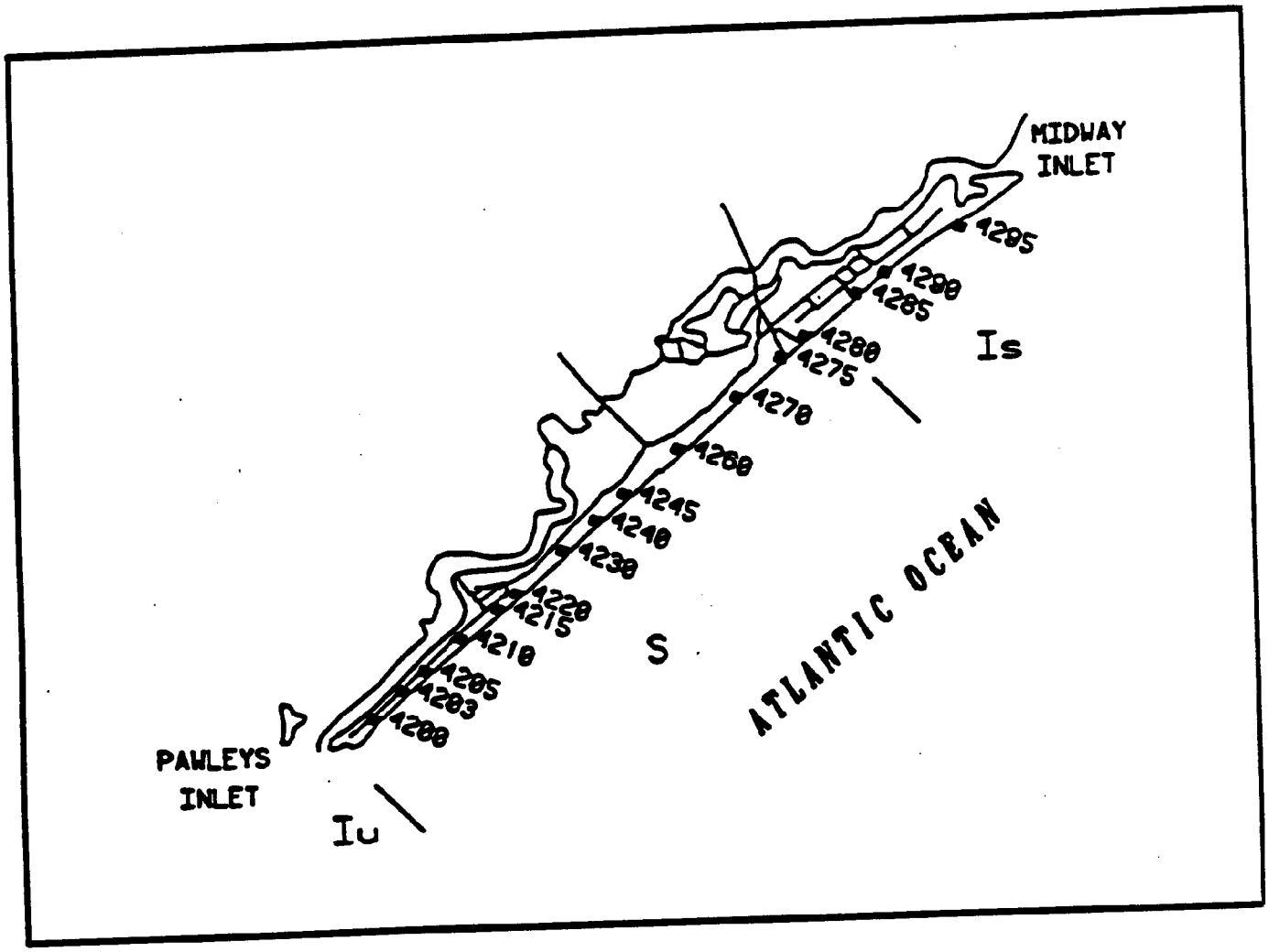
Debidue Beach, located between North Inlet and Pawleys Inlet, is the southernmost of the Grand Strand beaches. The central portion of Debidue is armored with a continuous 4500-foot long bulkhead. The area south of the bulkhead has experienced long-term erosion rates of -8 to -12 feet per year, while the area north of the bulkhead is stable to accretional. A renourishment project placed about 250,000 cubic yards of sand on the beach here during the winter and spring of 1998. There are ten survey stations at Debidue, which were surveyed in December 1999 and May 2000.

The southern end of Debidue continues to erode. At monument 4100, closest to North Inlet, the dune and upper beach decreased in width by 14 feet between December 1999 and May 2000, while at 4115 the dune held steady but the upper beach seaward of the dune retreated by 34 feet. At 4120 the dune experienced some erosion but the net volumetric change was negligible. Station 4125, the last station south of the bulkhead and the first station within Debordieu Colony, lost 4 cubic yards of sand from the intertidal beach as the dune remained stable.

At the south end of the bulkhead station 4130 lost 23 cubic yards of renourishment sand, as the beach dropped 5 feet at the base of the bulkhead. The degree of erosion lessened at station 4140, near the northern end of the bulkhead, which lost 16 cubic yards of sand from the intertidal and subtidal beach. This bulkhead section of beach, particularly the southern end of the bulkhead, has historically been the most critically sand-starved beach profile at Debidue.

Stations 4150-4180 are located north of the bulkhead. This is a mostly undeveloped, accretional area with an extensive dune field. Station 4150, at the northern end of Pioneer Court, lost 6 cubic yards of sand from the lower beach as the dune and berm held steady. This trend was repeated at station 4160, which lost 5 cubic yards of sand, also from the lower beach. The last two stations were more dynamic, as 4170 gained 43 cubic yards of sand through extensive accretion seaward of the dune. Finally station 4180, closest to Pawleys Inlet, lost 30 cubic yards of sand along the entire profile seaward of the dune.


4130C Debidue Beach
SOUTH LAFAYETTE BLVD., AT DUNE CROSS OVER NORTH OF HOUSE 31-E
10-6-2000 4130C
1-12-1999 4130B
10-9-1998 4130B
21-11-1987 4130
Elevation (Feet MSL)
15
10
5
0
-5
Distance in Feet
200
300
400
500
600
700
800



Pawleys Island

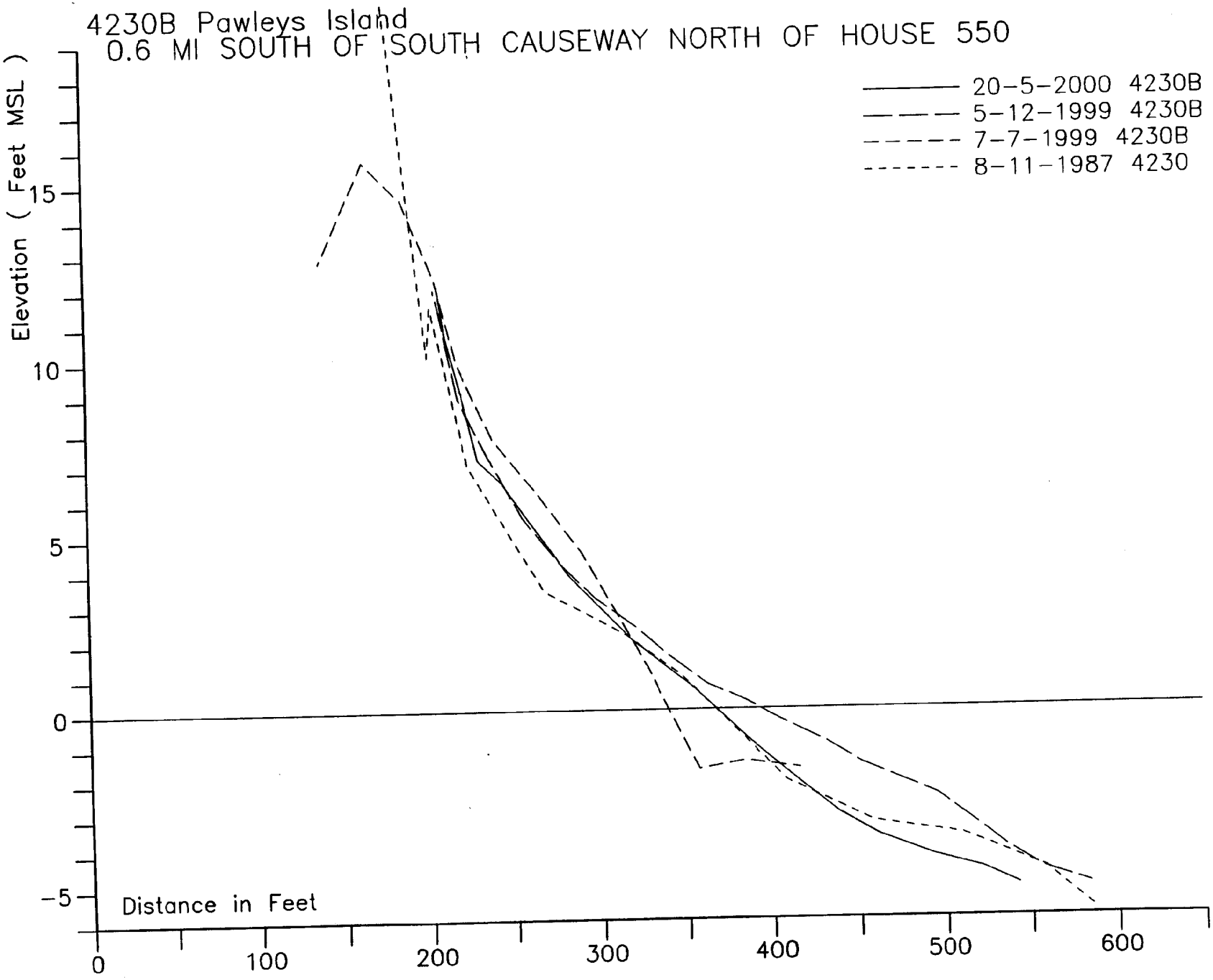
Pawleys Island

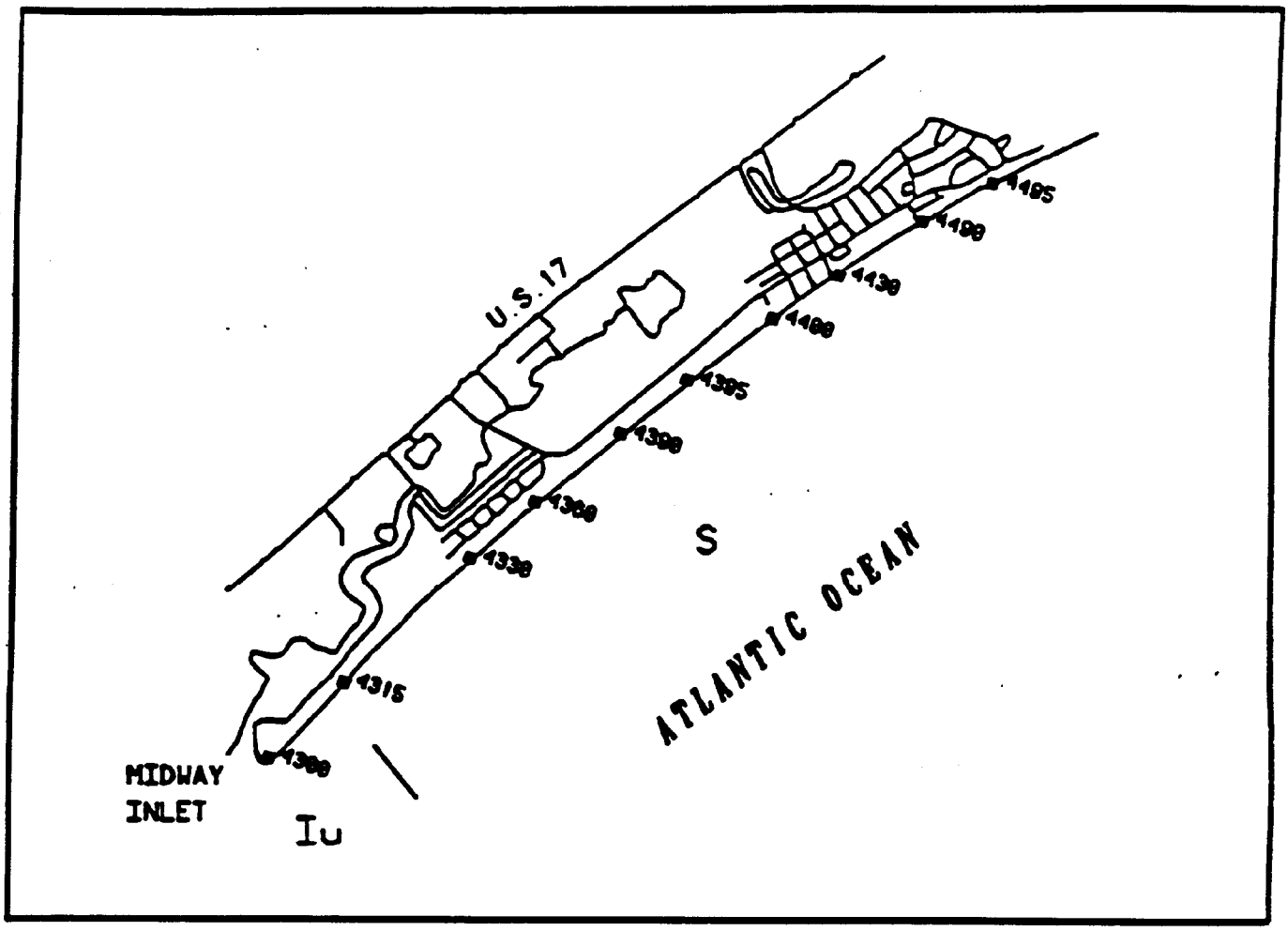
Pawleys Island is located between Pawleys Inlet and Midway Inlet. Groin fields on Pawleys have counteracted a slight erosional trend to produce a stable shoreline. The southern portion of Pawleys is low-lying, with little or no sand dunes. The central portion has some of the highest dunes in the state, while the northern, accretional end has a wide field of low dunes. A beach renourishment project was started here during 1998 and completed in 1999. Sixteen monitoring stations at Pawleys were surveyed in December 1998, July 1999, December 1999, and May 2000.

Stations 4200-4220 are the 6 monitoring points located at the low-lying southern end of Pawleys Island. Stations 4200 and 4203 were the most active, gaining 12 cubic yards and losing 12 cubic yards of sand respectively. The next most active profile was at station 4210, which gained 6 cubic yards of sand. The other 3 monitoring stations here showed virtually no volumetric change for the survey period. In general, the public parking area south of the first groin shows some dune erosion but the rest of this section of beach has begun to establish a new primary sand dune.

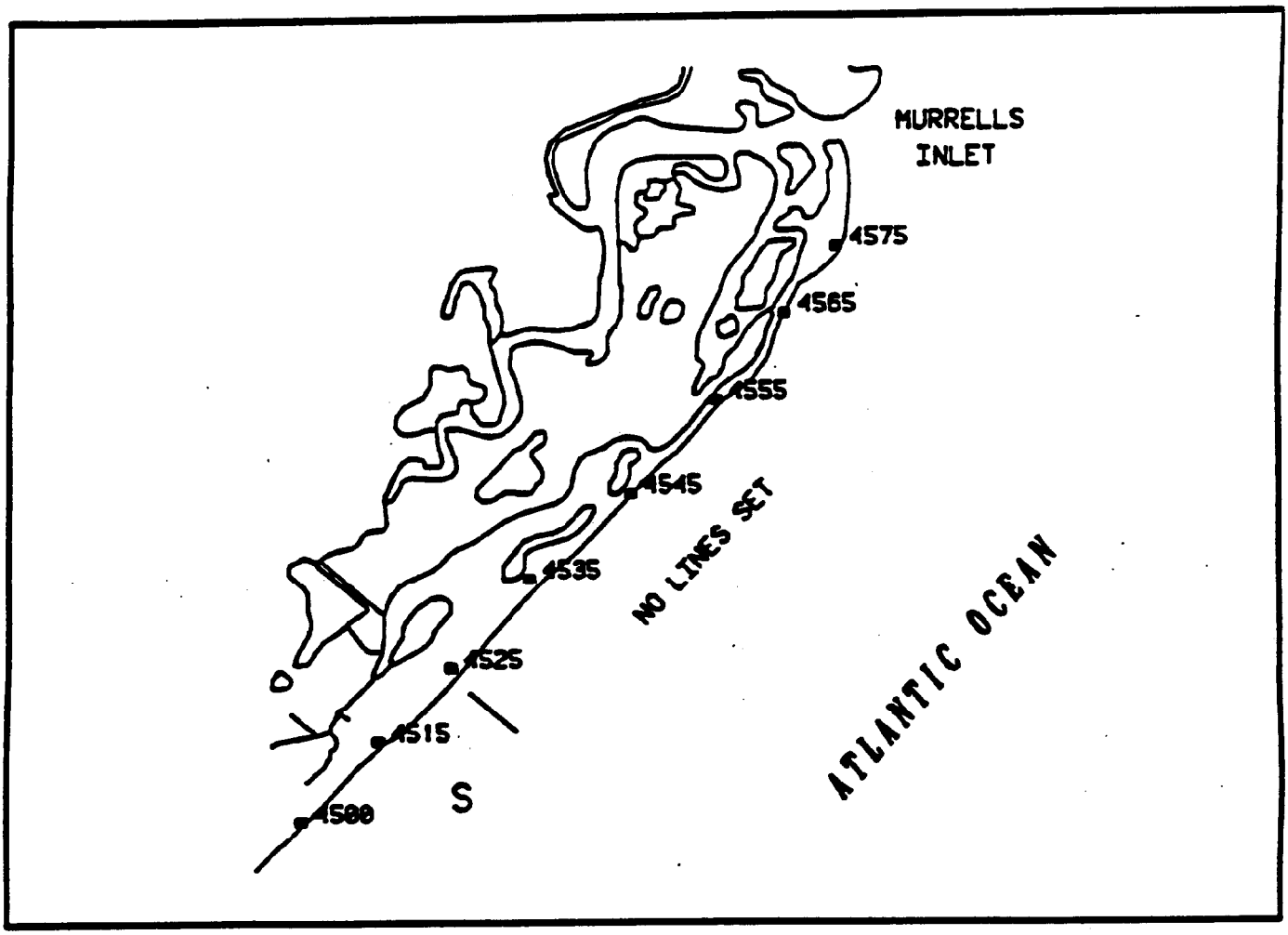
The central portion of Pawleys Island, with a large primary dune, is represented by stations 4230-4280. Most of the 7 profile stations here were fairly stable, gaining or losing less than 5 cubic yards of sand from the beach seaward of the primary dune. The two exceptions were 4230, located just north of the south causeway, and 4270, located south of the north causeway. These stations lost 21 and 18 cubic yards of sand respectively from the time of renourishment through May 2000. However, this entire section of beach still 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. Station 4285 showed minor changes from July 1999 to May 2000, while station 4290 experienced moderate upper beach erosion and lost 15 cubic yards of sand. At station 4295, at Midway Inlet, the upper beach width seaward of the dune increased substantially.


4230B Pawleys Island
0.6 MI SOUTH OF SOUTH CAUSEWAY NORTH OF HOUSE 550
20-5-2000 4230B
5-12-1999 4230B
7-7-1999 4230B
8-11-1987 4230
Elevation (Feet MSL)
15
10
5
0
-5
Distance in Feet
0
100
200
300
400
500
600



Litchfield Beach



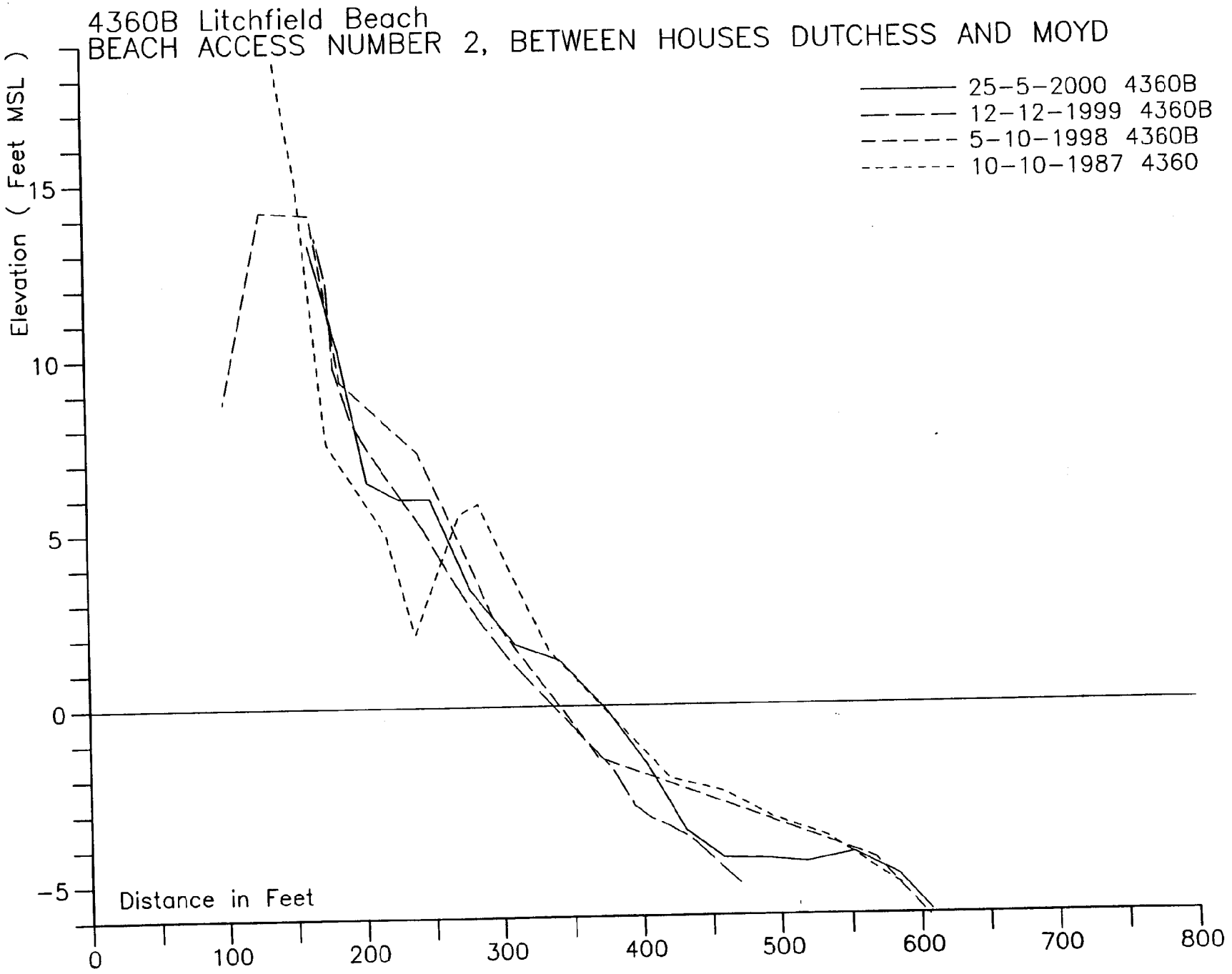
Huntington Beach State Park

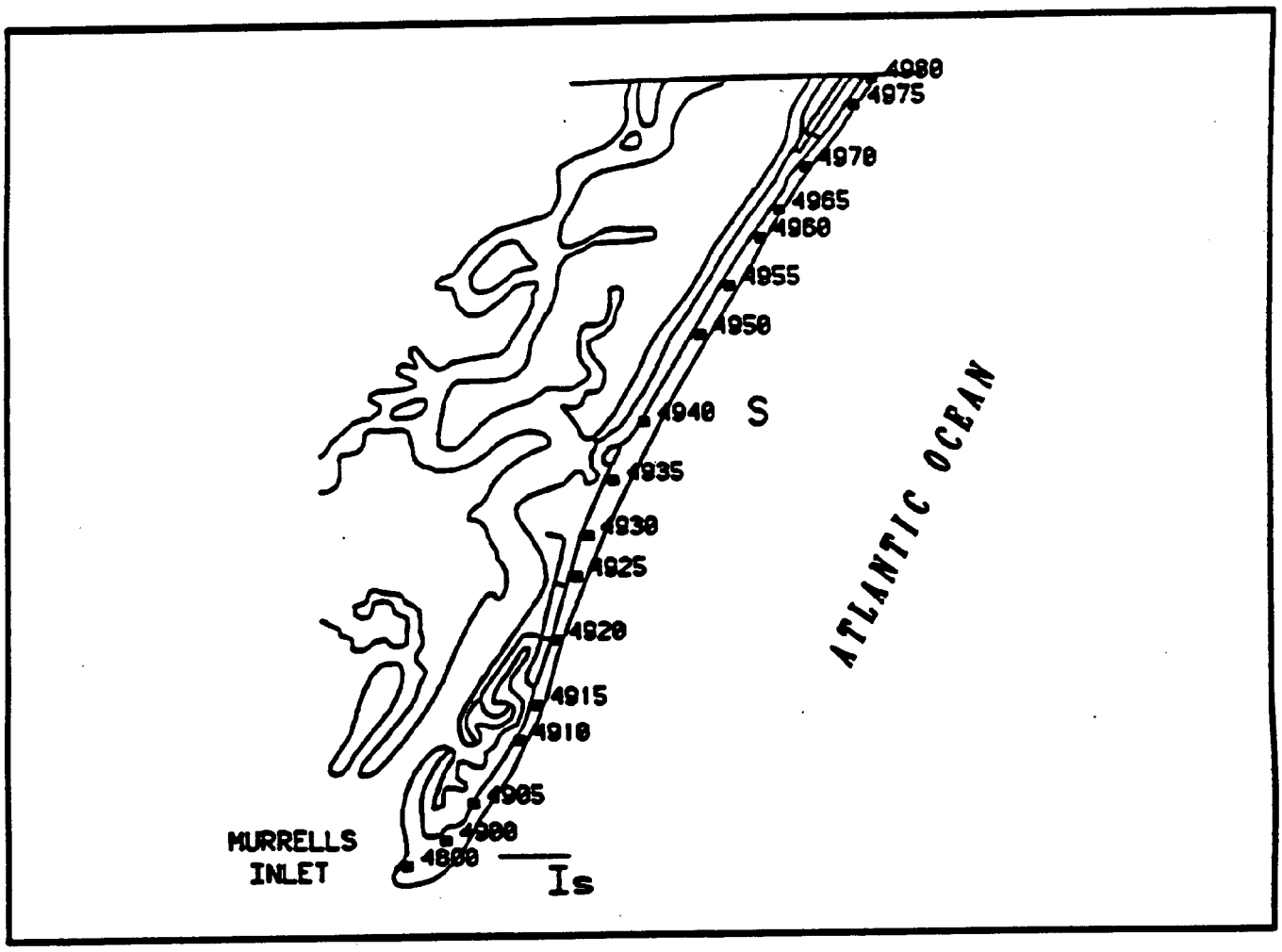
Litchfield Beach/Huntington Beach State Park

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 northern reach, in the state park, is directly influenced by Murrells Inlet and the south inlet jetty. Beach surveys were taken at 17 stations in December 1999 and May 2000.

The long-term shoreline trend is stable for this entire area. Station 4300, closest to Midway Inlet, gained 9 cubic yards per foot between October 1998 and May 2000. Station 4315 showed the greatest volumetric increase, gaining 20 cubic yards of sand for the study period as the intertidal and lower beach profile shifted seaward by almost 100 feet. The other stations in Litchfield Beach and Litchfield by the Sea, 4330 through 4490, all lost from 1 to 13 cubic yards of sand as the beach profile experienced moderate seasonal changes. All stations here have a significant primary dune that showed no sign of erosion. The last station in North Litchfield, station 4400, reversed the erosional trend and showed a slight gain of sand.

Survey results were mixed in Huntington Beach State Park. The 3 stations in the southern end of the park, 4500, 4515, and 4525, were all stable through May 2000. Station 4535 gained 12 cubic yards of sand seaward of the primary dune, while station 4545 lost 12 cubic yards of sand. Part of this loss was due to erosion at the base of the primary dune, which retreated about 25 feet. The next station to the north, 4555, also lost sand. Here the erosion totaled 14 cubic yards, which came primarily from the upper intertidal beach. Station 4565 showed virtually no change, while 4575, just south of the jetty, was also stable through May 2000.


4360B Litchfield Beach
BEACH ACCESS NUMBER 2, BETWEEN HOUSES DUTCHESS AND MOYD
25-5-2000 4360B
12-12-1999 4360B
5-10-1998 4360B
10-10-1987 4360
Elevation (Feet MSL)
15
10
5
0
-5
Distance in Feet
0
100
200
300
400
500
600
700
800



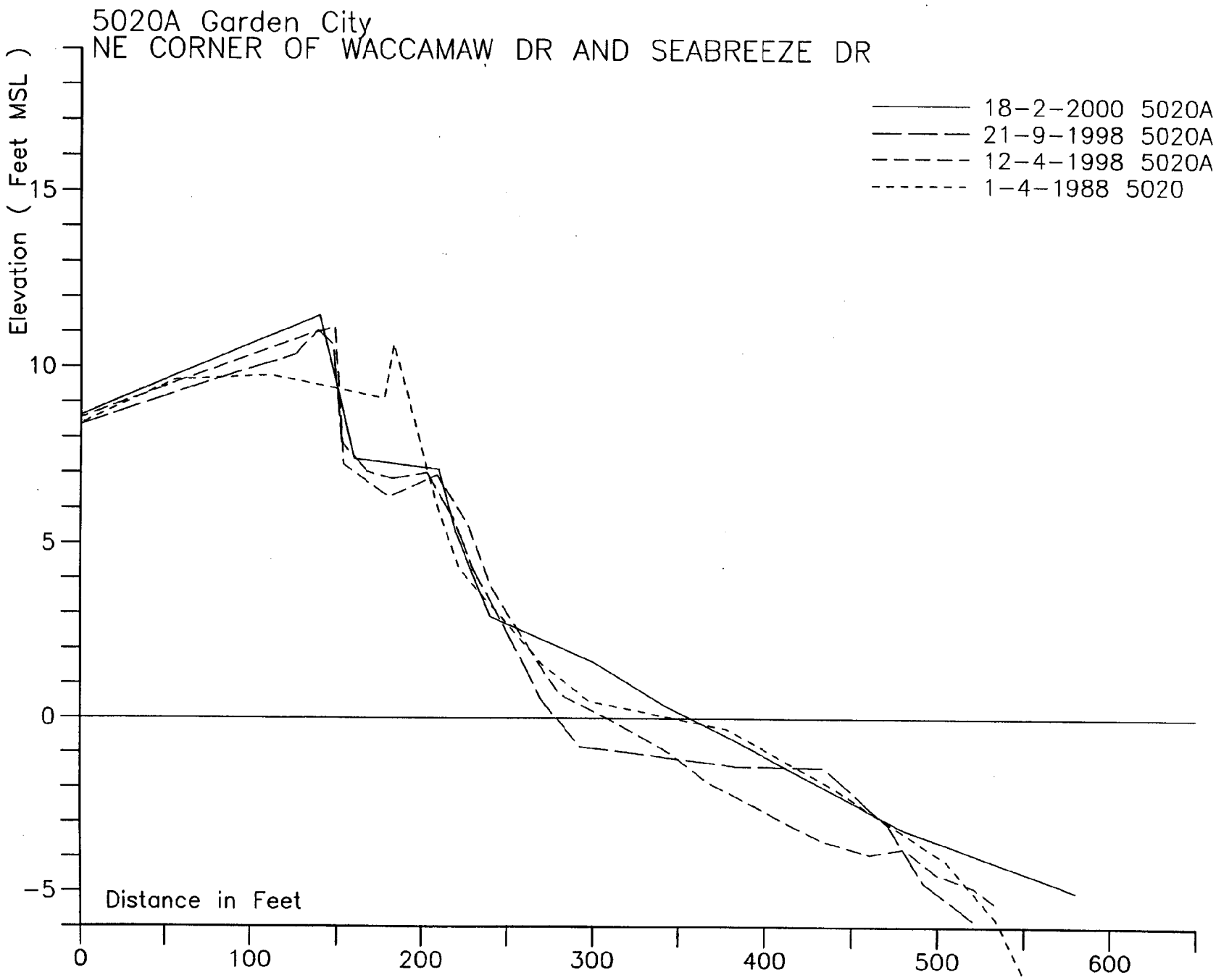
Garden City (Georgetown County)

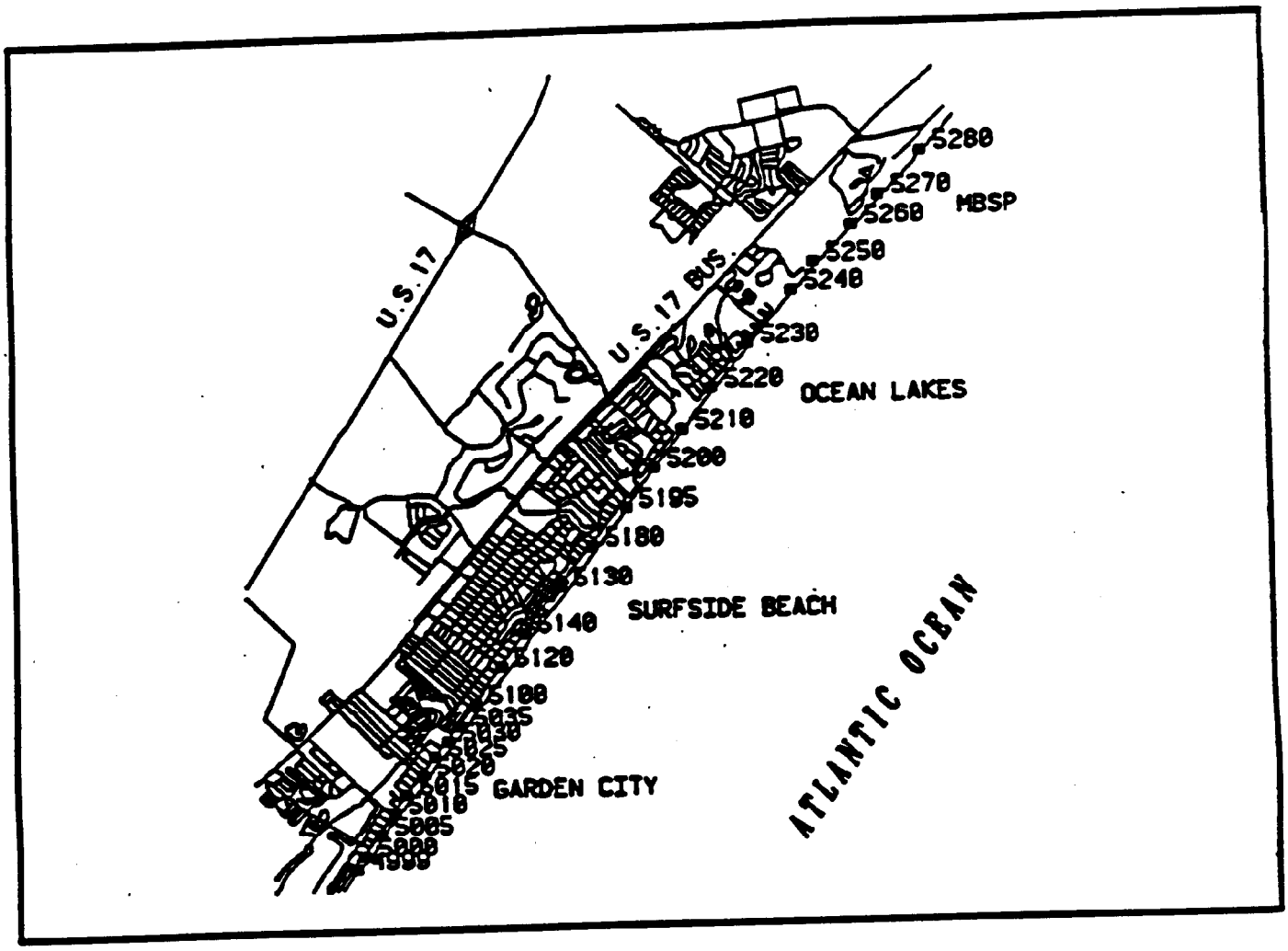
Garden City Beach

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 contains few shore-protection structures, while in the northern half, between stations 4960 and 5030, seawalls and bulkheads become predominant. This section also contains a groin field. Historically, 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 included in the US Army Corps of Engineers Grand Strand Renourishment Project. There are 24 monitoring stations in Garden City, which were surveyed fully in September 1999 and partially in March 2000.

Most stations in the unarmored standard zone from 4900 through 4955 are fairly stable, and experienced minor to moderate variations to the beach profile during the past year. The greatest accretion occurred at stations 4900, which gained 20 cubic yards of sand. The other stations here all lost sand seaward of the dune, typically in the range of 3 to 8 cubic yards. Renourishment sand can be seen on the October 1998 profiles starting at station 4955 and continuing to station 5000. This is the armored shoreline section in Georgetown County. Between October 1998 and September 1999, all profiles here experienced upper beach erosion of the renourishment berm. Typically the upper beach portion of the profile cut back about 80 feet, although the volumetric loss was only about 15 cubic yards as some of the sand eroded from the renourishment berm simply shifted lower down on the profile. At 4999, the only station here with April 2000 data, the upper profile continued to erode slightly and showed a net loss of 5 cubic yards of sand.

For the northernmost section of Garden City, the armored shoreline in Horry County, profiles between September 1998 and February 2000 all show the addition of renourishment sand for a net gain of 10-15 cubic yards. Most stations here show a volumetric increase of 15-20 cubic yards between September 1998 and September 1999, and then a loss of about 5 cubic yards through the following February.


5020A Garden City
NE CORNER OF WACCAMAW DR AND SEABREEZE DR
18-2-2000 5020A
21-9-1998 5020A
12-4-1998 5020A
1-4-1988 5020
Elevation (Feet MSL)
15
10
5
0
-5
Distance in Feet
0
100
200
300
400
500
600



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

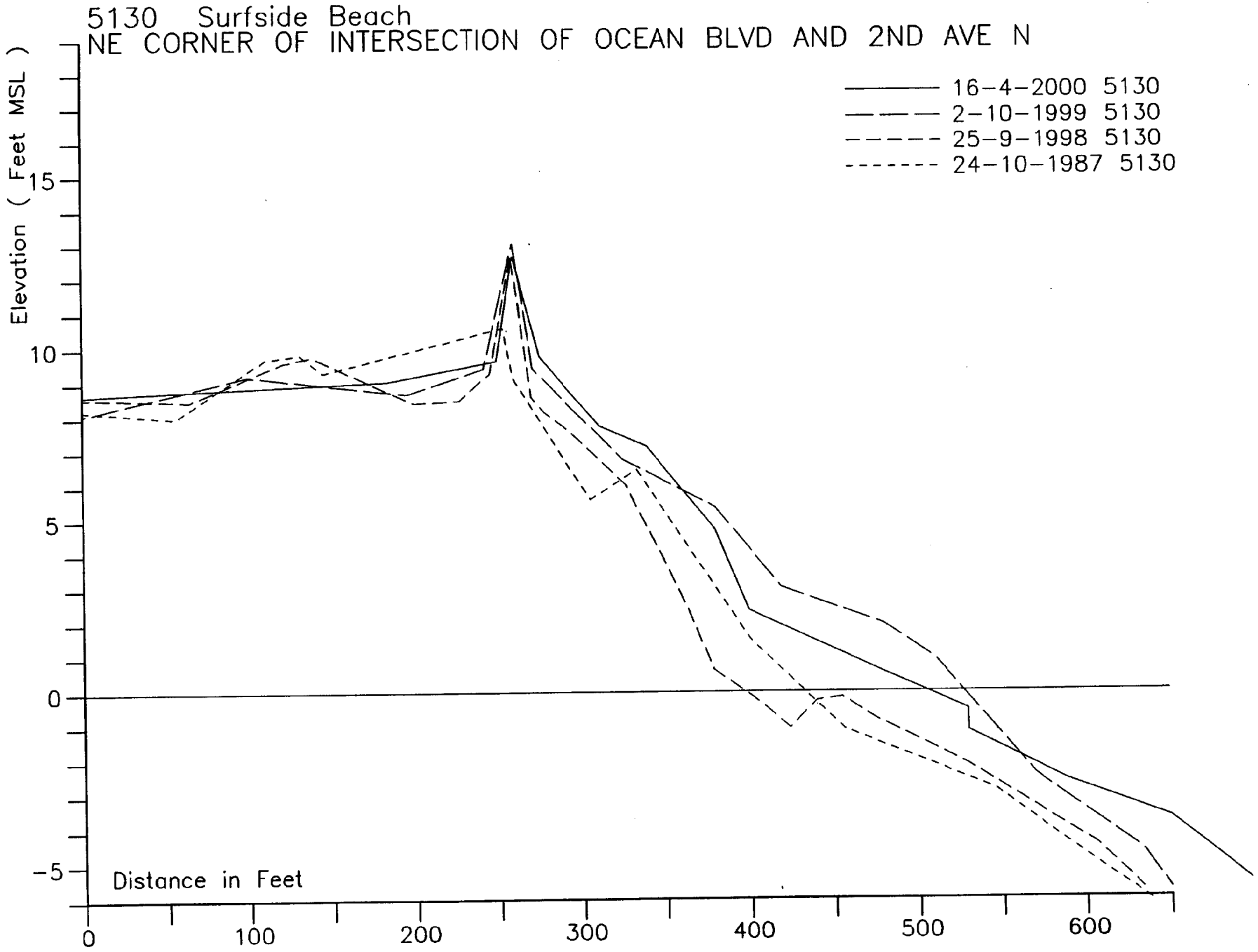
Surfside Beach and Unincorporated Horry County—South

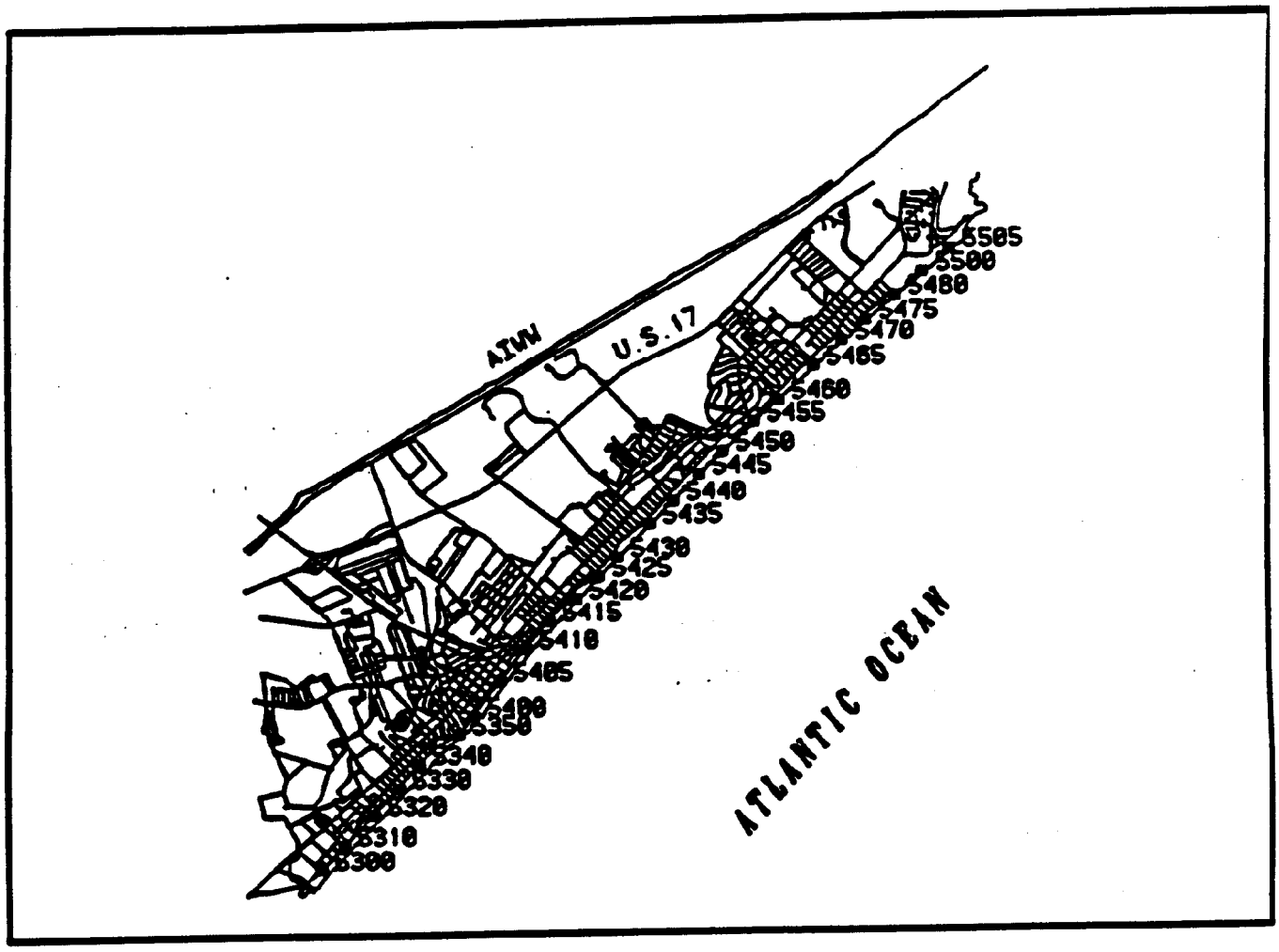
This section of the Grand Strand includes 6 monitoring stations in the Town of Surfside Beach, and 9 stations in the unincorporated region north of Surfside Beach—the campground region, Long Bay Estates, and Myrtle Beach State Park. Surveys here were completed in September 1999 for all stations, and also in April 2000 for the 6 stations within Surfside Beach.

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. Profiles here show renourishment sand placed on the beach between September 1998 and October 1999, and then a subsequent loss of sand through April 2000 as the renourishment profile adjusted to an equilibrium position. A typical profile is station 5180, at 9th Ave. North, which gained 32 cubic yards of sand between September 1998 and October 1999, then lost 13 cubic yards of sand through April 2000 as the upper beach berm eroded back by about 30 feet.

Stations 5200-5230 are located in the campground section. All stations except for 5220, which is armored, have a well-defined primary dune with crest elevation of 12-14 feet. Stations in this region gained about 30 cubic yards of sand between September 1998 and September 1999 as a result of the renourishment project, which increased the berm width by 25 to 50 feet.

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, although station 5250 at the south end of the park gained 10 cubic yards of sand between October 1998 and October 1999, probably an indirect benefit of the nearby renourishment to the south. Station 5260 at the state park pier showed no volumetric change but did experience some dune scarping, which is fairly unusual for this area. At 5280, located at the Springmaid fishing pier, the profile gained 2 cubic yards of sand but the dune here has remained remarkably stable.


5130 Surfside Beach
NE CORNER OF INTERSECTION OF OCEAN BLVD AND 2ND AVE N
16-4-2000 5130
2-10-1999 5130
25-9-1998 5130
24-10-1987 5130
Elevation (Feet MSL)
15
10
5
0
-5
Distance in Feet
0
100
200
300
400
500
600



Myrtle Beach

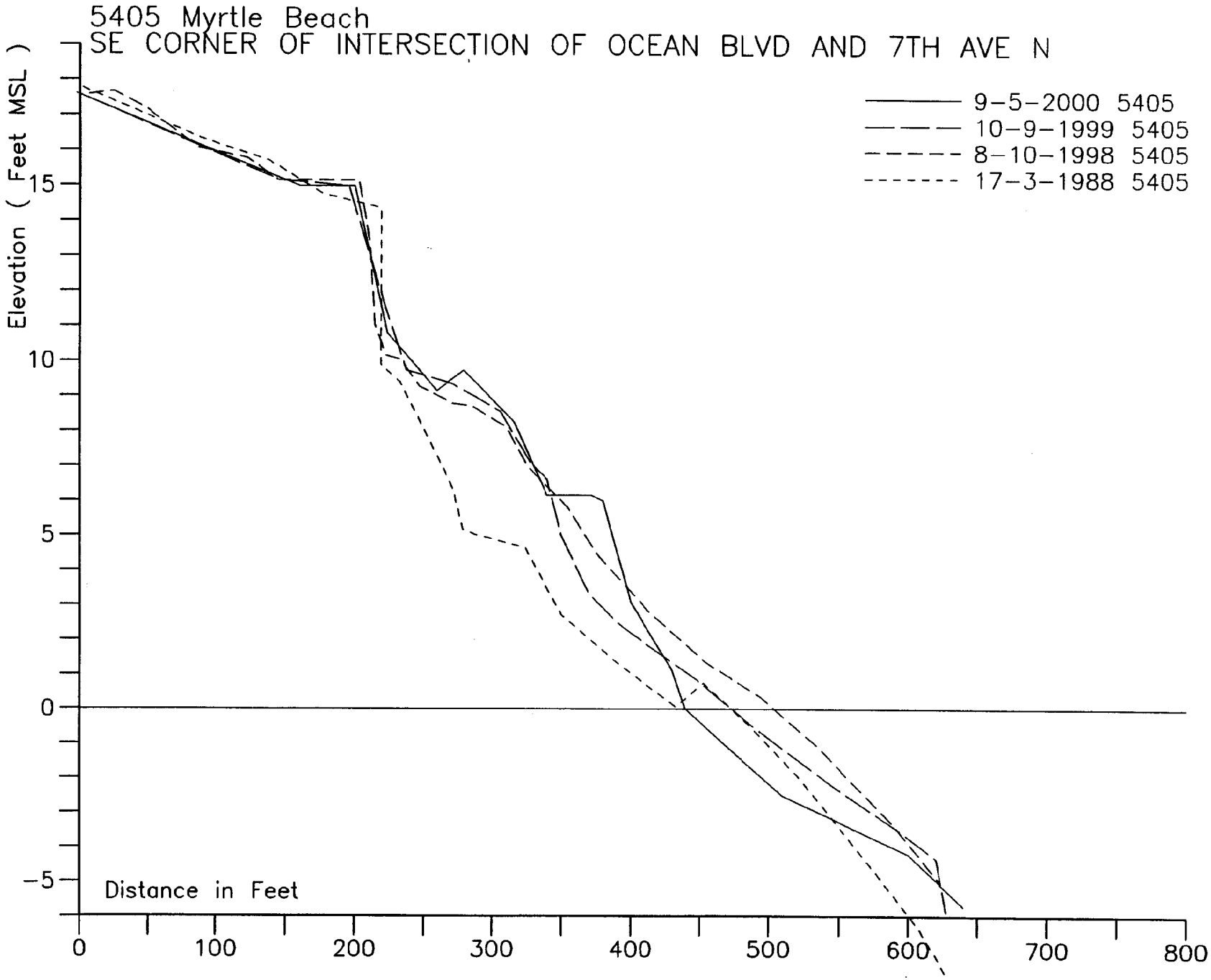
Myrtle Beach

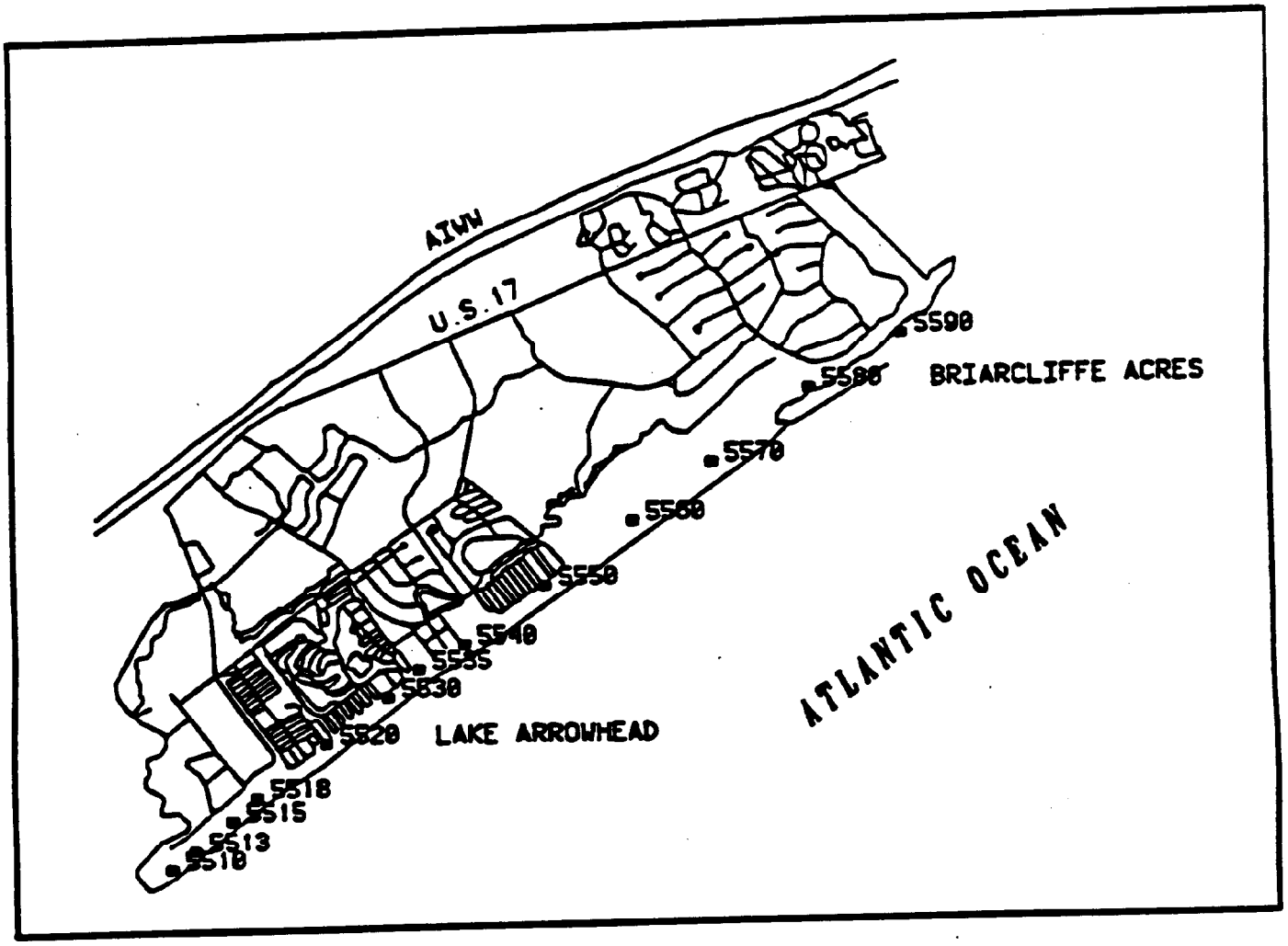
The next area discussed is the eight-mile section of shoreline within the Myrtle Beach city limits. Beach surveys were conducted at 23 monuments in October 1999 and, for most stations, May 2000. Myrtle Beach was renourished between May and December 1997 as part of the U.S. Army Corps of Engineers Grand Strand Renourishment project, so the more recent surveys show post-renourishment profile adjustment.

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. From May 1998 through May 2000, most profiles show a volumetric loss averaging around 10 cubic yards. Most of this loss occurred between May 1998 and November 1999, as the beach renourishment project experienced accelerated erosion rates and then stabilized.

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. Results between March 1998 and July 2000 were mixed, as most stations showed virtually no change except for 5440, at 43rd Ave. North, which lost 21 cubic yards of sand, and 5465, at 67th Ave. North, which lost 10 cubic yards.

Stations 5470 and 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. Between March 1998 and October 1999, station 5475 at 77th Ave. North lost 13 cubic yards of sand as the renourishment project stabilized. At station 5480 near 82nd Ave. North, the beach showed a net gain of 2 cubic yards of sand between March 1998 and May 2000.


5405 Myrtle Beach
SE CORNER OF INTERSECTION OF OCEAN BLVD AND 7TH AVE N
9-5-2000 5405
10-9-1999 5405
8-10-1998 5405
17-3-1988 5405
Elevation (Feet MSL)
15
10
5
0
-5
Distance in Feet
0
100
200
300
400
500
600
700
800



Unincorporated Horry County--North

Unincorporated Horry County—North

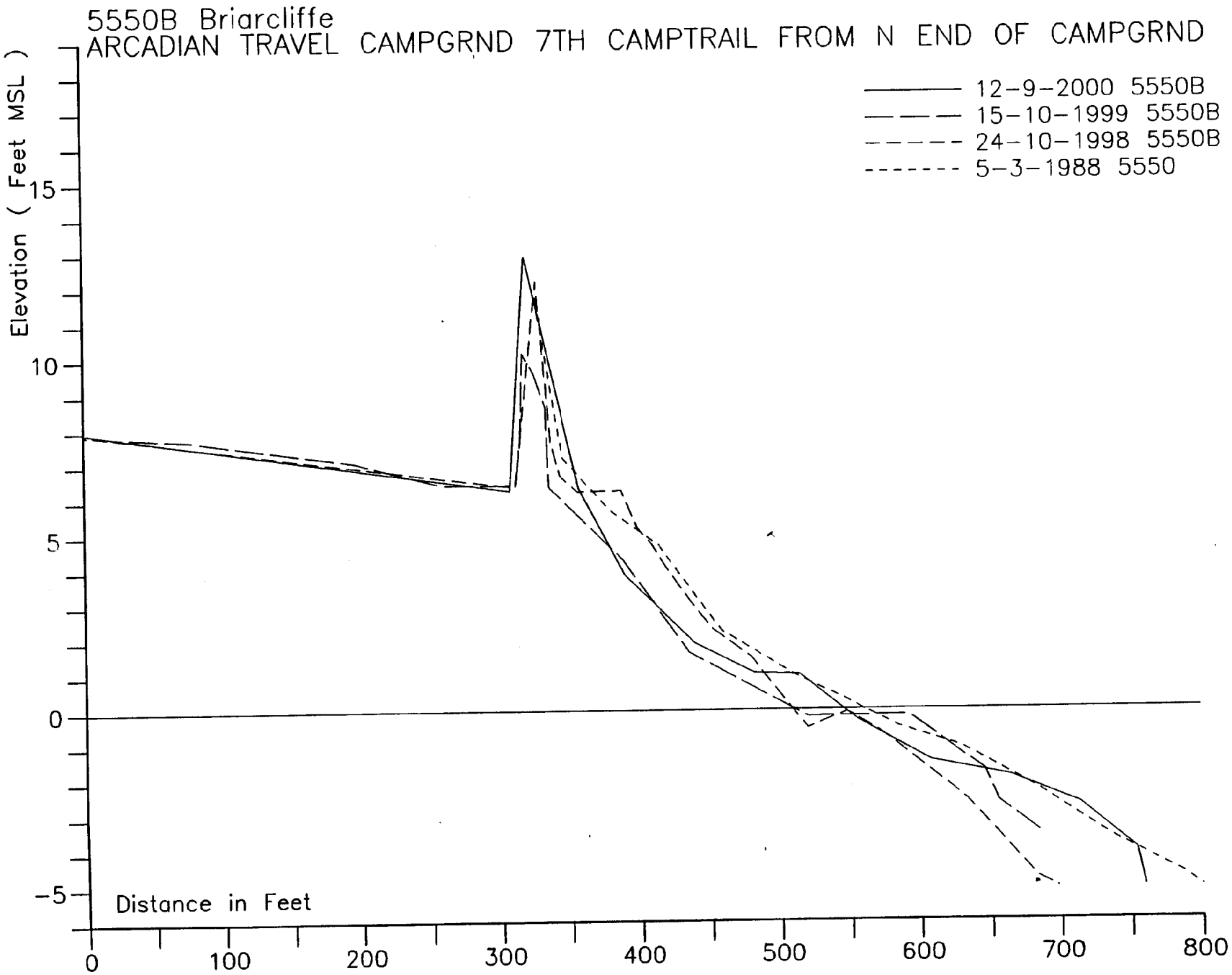
This area of unincorporated Horry County is located between the City of Myrtle Beach and White Point Swash, and includes the Shore Drive section, the campground section, and Briarcliffe Acres. There are 14 beach survey monuments located here, which were surveyed in January and September 2000.

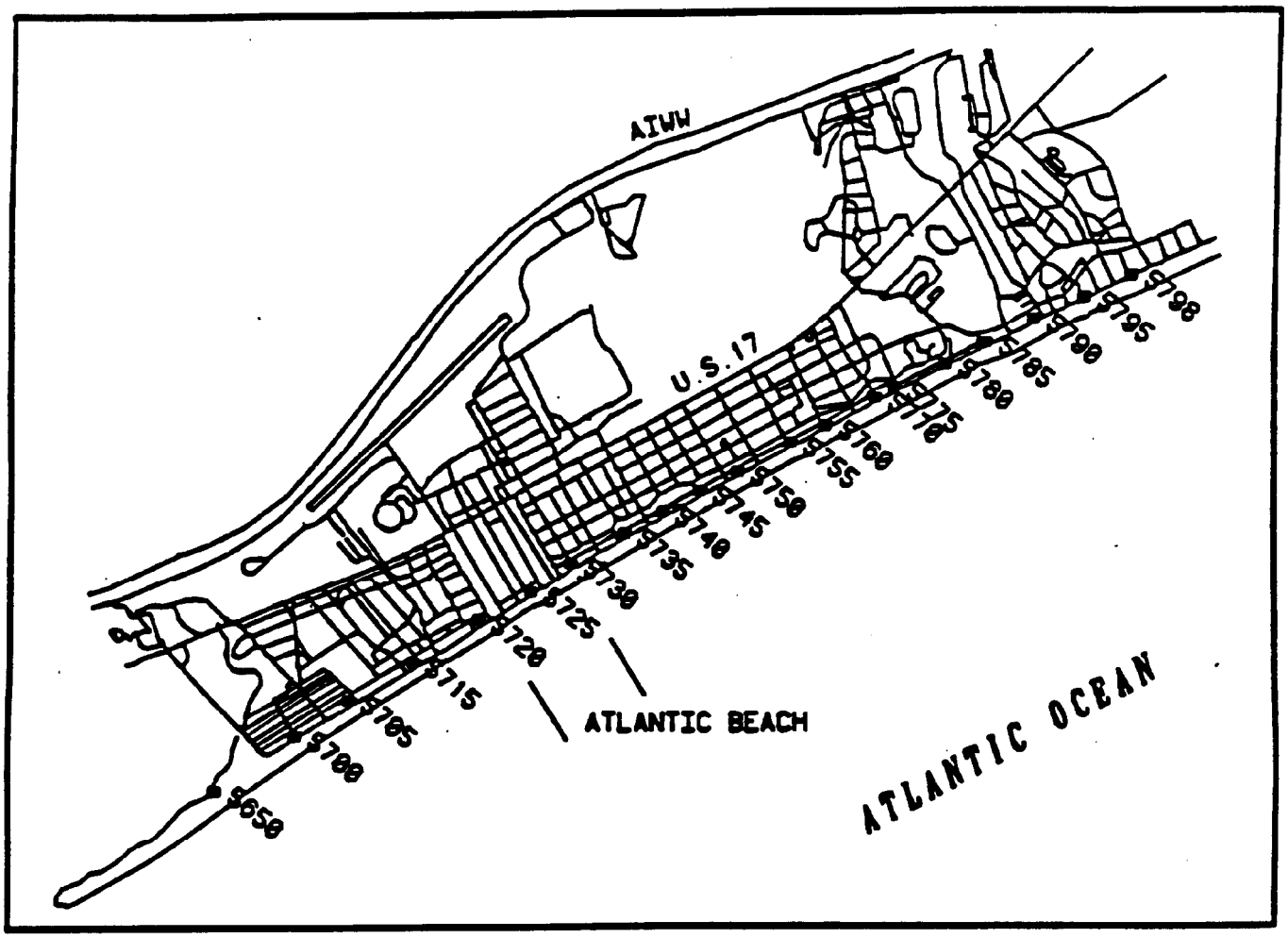
Stations 5500 and 5505 are located on Club Road, just north of the City of Myrtle Beach. From October 1998 to September 2000, station 5500 showed a net loss of 10 cubic yards of sand, while station 5505 gained 14 cubic yards of sand. These changes occurred on the intertidal and subtidal profile, while the dune remained stable.

Stations 5510 to 5518 are located north of Singleton Swash along Shore Drive, where shoreline armoring is extensive. This area was renourished in 1999. At Brigadune, station 5513 gained 74 cubic yards of sand between October 1998 and September 2000, while station 5515 at Sands Ocean Club gained 86 cubic yards of sand over this same time period. Station 5518 at A Place at the Sea showed a net gain of 40 cubic yards as well. All the accretion here is the result of the renourishment, which built a dry-sand berm about 150 feet wide at an elevation of +10 feet.

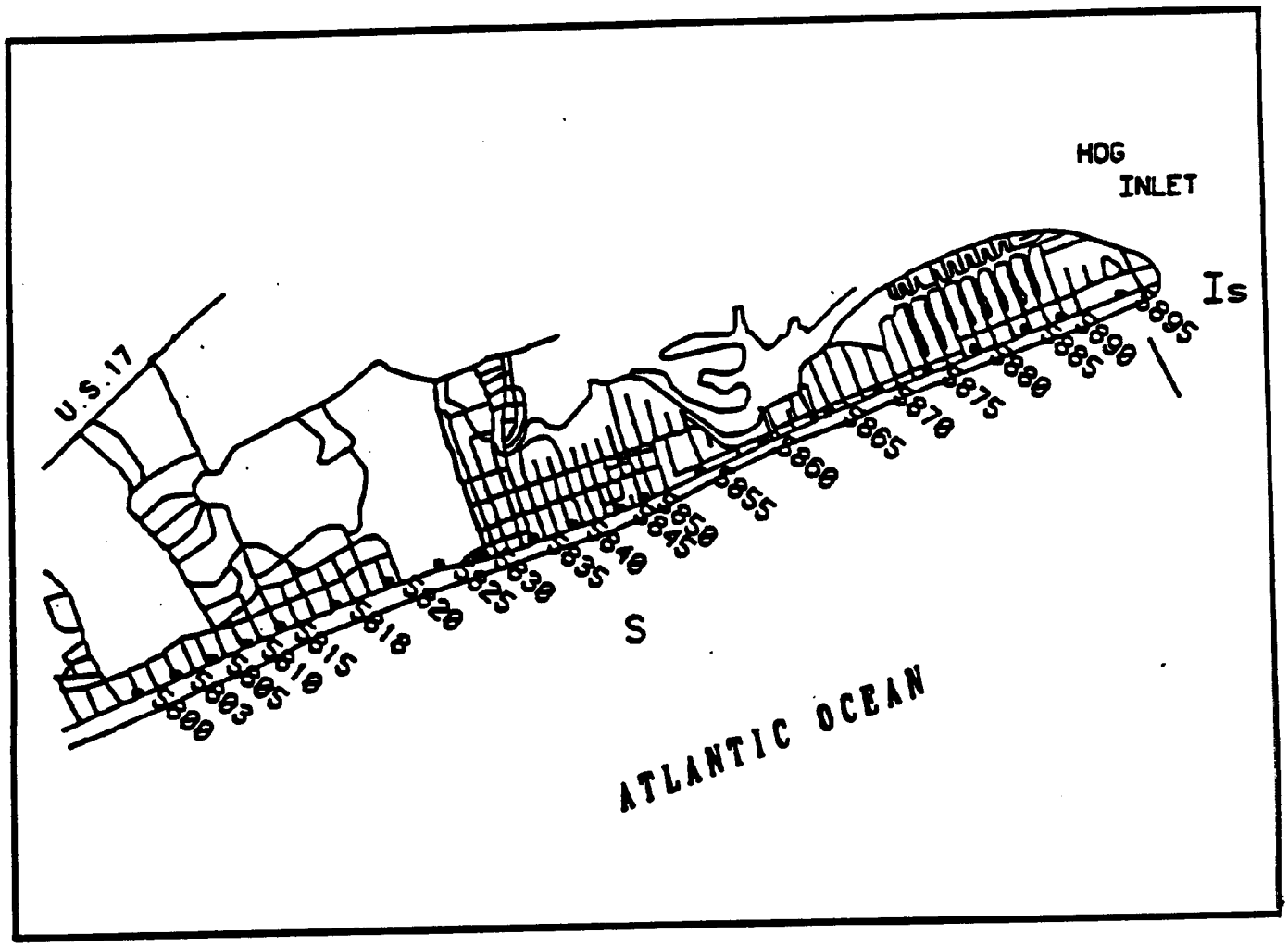
Stations 5520-5550 are located in the campground section, where oceanfront development is a mixture of campsites and resort hotels. Station 5520 at Apache Campground also showed the beneficial effects of the Shore Drive renourishment and gained 98 cubic yards of sand. Stations farther to the north were not renourished, and as a result, station 5530 at the Radisson and 5535 at the Hilton showed no net volumetric change. At the Arcadian, 5540 lost 18 cubic yards of sand seaward of the wall. At the Travel Campground, station 5550 gained 6 cubic yards of sand.

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 showed some increase in dune height and also experienced minor seasonal changes below the dune.


5550B Briarcliffe
ARCADIAN TRAVEL CAMPGRND 7TH CAMPTRAIL FROM N END OF CAMPGRND
12-9-2000 5550B
15-10-1999 5550B
24-10-1998 5550B
5-3-1988 5550
Elevation (Feet MSL)
15
10
5
0
-5
Distance in Feet
0
100
200
300
400
500
600
700
800



North Myrtle Beach--Southern Half



North Myrtle Beach--Northern Half

North Myrtle Beach

This section of beach 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. There are 43 beach survey monuments here, which were surveyed in November 1999 and June 2000. 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. North Myrtle Beach was renourished by the Army Corps of Engineers between September 1996 and April 1997, increasing the dry-sand beach width by over 100 feet and unit-width sand volumes by over 70 cubic yards per foot.

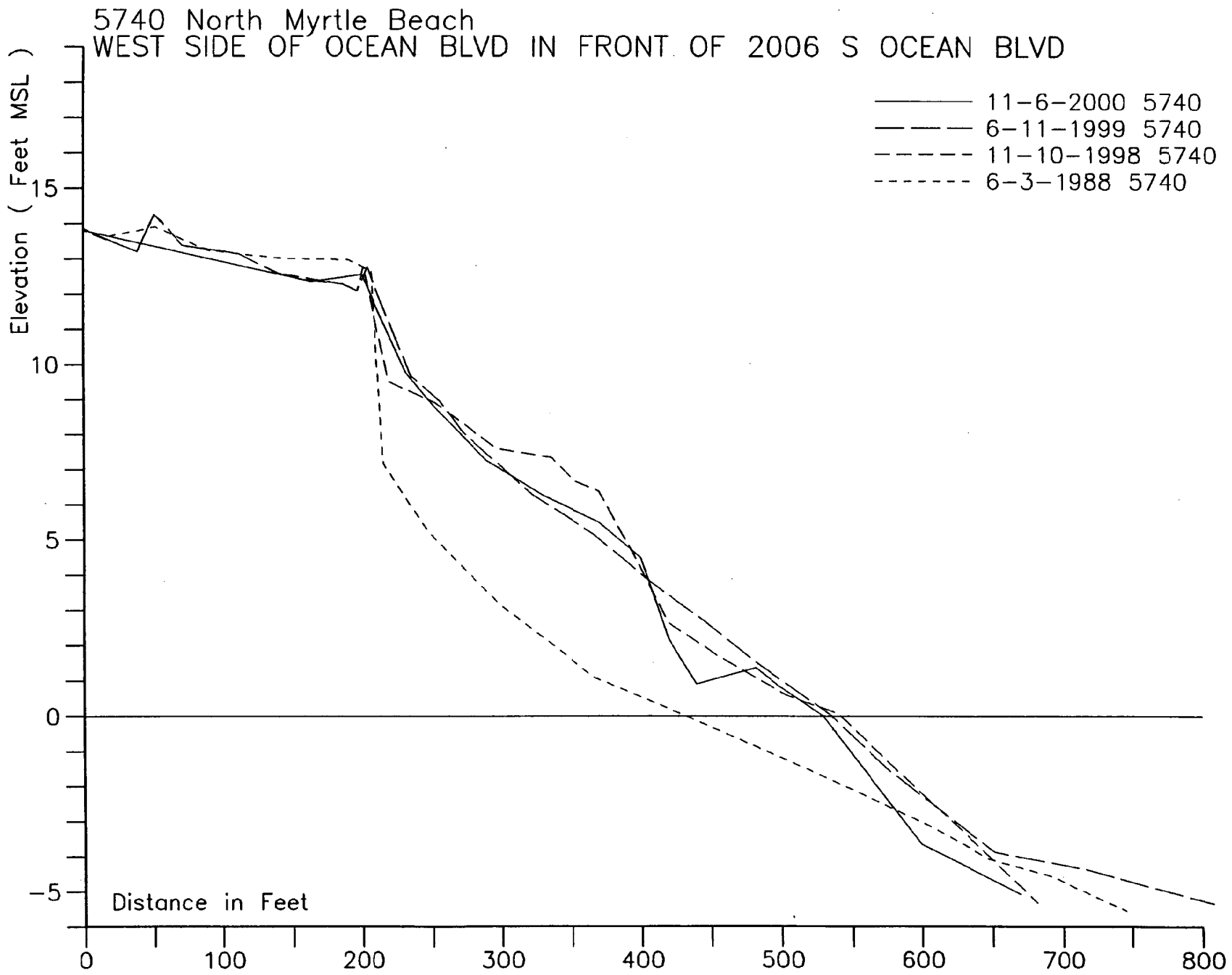
In Windy Hill, the southernmost portion of North Myrtle Beach from 48th Ave. South to 37th Ave. South, stations 5650-5715 were fairly stable through 1999 and 2000. A typical profile change was found at station 5705, near 45th Ave. South, which gained 3 cubic yards between October 1998 and June 2000. In Atlantic Beach, from 37th Ave. South to 28th Ave. South, station 5725 was stable between October 1998 and November 1999, then lost 11 cubic yards of sand by June 2000.

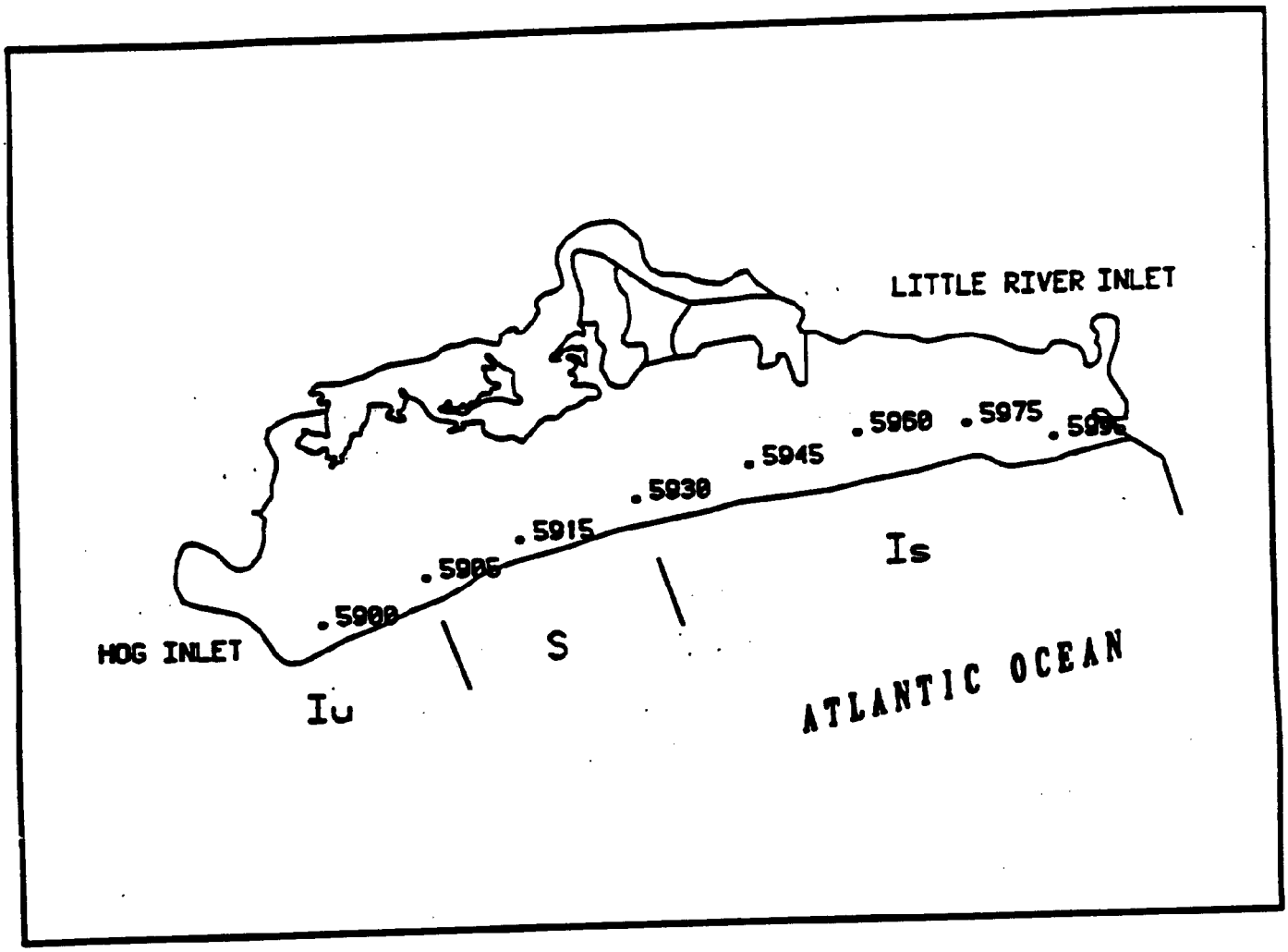
Crescent Beach extends from 28th Ave. South to 2nd Ave. North, where monitoring stations 5730 through 5798 are located. Most stations showed moderate erosion between October 1998 and June 2000, with typical values such as -8 cubic yards at station 5740, near 20th Ave. South, and -2 cubic yards at 5795, near 2nd Ave. South. Two stations in Crescent Beach did show a net gain of sand for this time period—station 5780 at 9th Ave. South gained 2 cubic yards, while 5785 near 7th Ave. South gained 6 yards of sand.

Survey stations 5800 to 5835 are located in Ocean Drive, from 2nd Ave. North to Sea Mountain Highway. Beach changes here were similar to Crescent Beach, with most profiles showing a moderate loss of sand from the intertidal beach similar in magnitude to the typical seasonal changes seen on unrenourished beaches. The average unit-width sand volume change was a loss of about 7 cubic yards for the year. Individual station losses ranged from 2 cubic yards of sand to 19 cubic yards of sand, with the highest sand

loss experienced at station 5820, at 17th Ave. North. One station, 5800 at 3rd Ave. North, showed a slight gain of sand from October 1998 through July 2000.

Cherry Grove encompasses the northern section of North Myrtle Beach, from Sea Mountain Highway to Hog Inlet. 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. Beach profiles for 1999 and 2000 showed two distinct trends here. Station 5845 at 30th Ave. North, 5850 at 32nd Ave. North, and 5855 at 37th Ave. North all lost about 12 cubic yards of sand between October 1998 and July 2000. Station 5860 at 42nd Ave. North and 5885 at 57th Ave. North were stable for this time period, but station 5875, located between the two at 51st Ave. North, lost 15 cubic yards of sand. The most erosional station was 5895, located at 6204 North Ocean Blvd just southwest of the rock revetment on Hog Inlet. This station lost 22 cubic yards of sand between October 1998 and January 2000, then another 13 cubic yards of sand between January and July 2000.


5740 North Myrtle Beach
WEST SIDE OF OCEAN BLVD IN FRONT OF 2006 S OCEAN BLVD
11-6-2000 5740
6-11-1999 5740
11-10-1998 5740
6-3-1988 5740
Elevation (Feet MSL)
15
10
5
0
-5
Distance in Feet
0
100
200
300
400
500
600
700
800

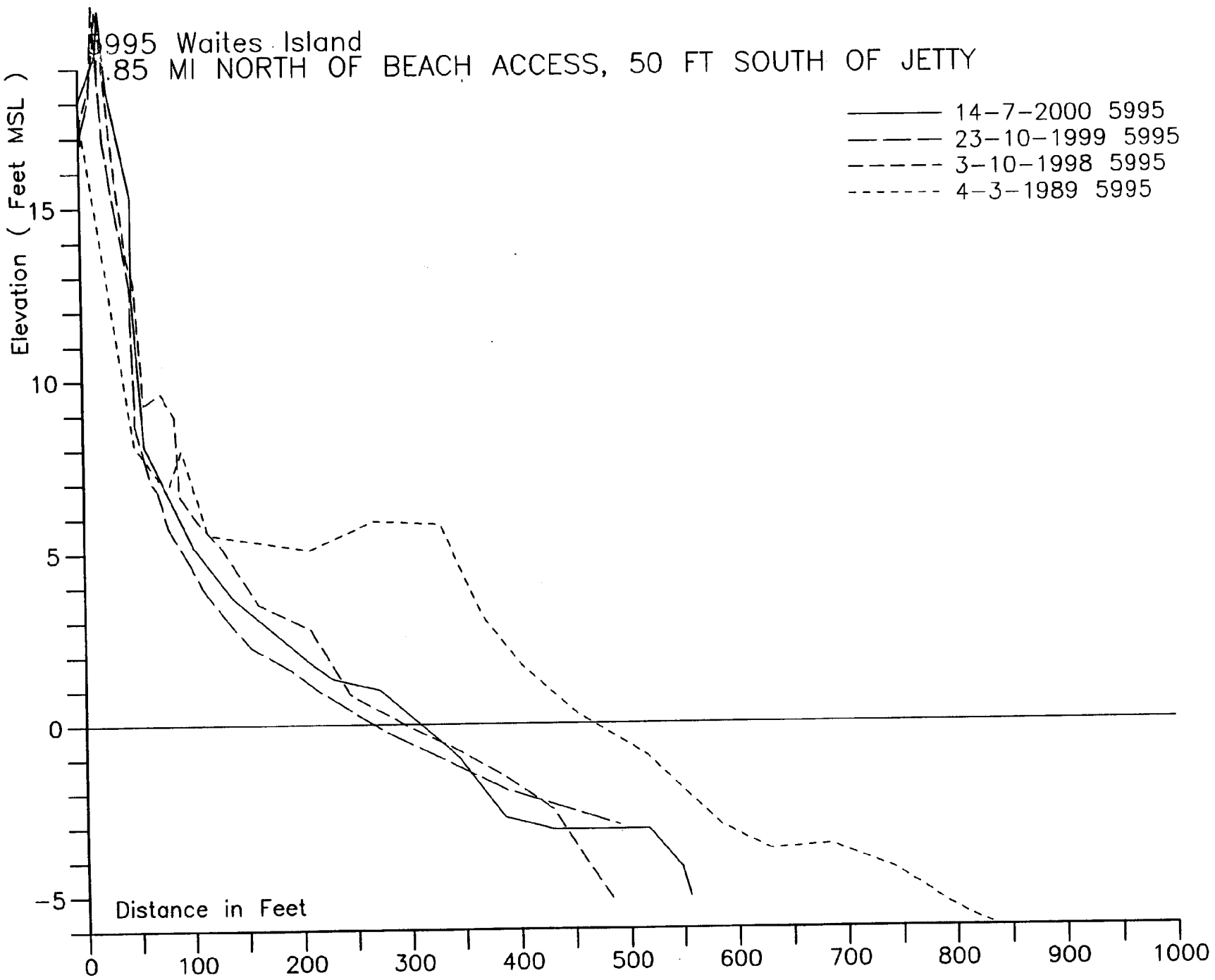


Waites Island

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. There are 7 monitoring stations on Waites Island, which were partially surveyed in October 1999 and July 2000.

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. Monitoring station 5900, located on the inlet, was lost to erosion several years ago. At station 5905, located on the Atlantic shoreline, the two rows of dunes were stable and the lower intertidal beach lost 10 cubic yards of sand between October 1998 and July 2000. At station 5915 the primary dune increased in height by 3 feet between October 1998 and October 1999, while the rest of the profile showed minor changes. For station 5930, a newly forming primary dune continued to increase in size, while the rest of the profile also showed minor changes. The beach at station 5945 experienced moderate seasonal changes but no net gain or loss of sand. Station 5960 showed some minor erosion at the base of the primary dune as well as some moderate erosion over most of the profile, resulting in a net volumetric loss of 19 cubic yards of sand. Erosion was greatest at station 5975, where the primary dune was almost completely eroded away between October 1998 and July 2000 and 29 cubic yards of sand were removed from the profile. The final station is 5995, located closest to Hog Inlet and 50 feet south of the south jetty. The primary dune here, with a crest elevation of over 20 feet, remained stable for the year, while on the intertidal beach the profile showed minor seasonal changes.


5995 Waites Island
.85 MI NORTH OF BEACH ACCESS, 50 FT SOUTH OF JETTY
14-7-2000 5995
23-10-1999 5995
3-10-1998 5995
4-3-1989 5995
Elevation (Feet MSL)
15
10
5
0
-5
Distance in Feet
0
100
200
300
400
500
600
700
800
900
1000

State-Wide Summary

The years 1999 and 2000 were fairly mild for the beaches of South Carolina. Although hurricane Floyd appeared to be headed for the state in September 1999, it ultimately made landfall in North Carolina and caused only minor to moderate beach erosion along South Carolina's coast. A moderate northeast storm caused some beach erosion during March 2000. In September 2000, Hurricane Gordon moved from the Gulf of Mexico up the southeastern US coast, also causing some minor beach erosion in South Carolina.

Beach renourishment projects completed during 1999 included a 250,000 cubic yard sand scraping project at Pawleys Island, as well as a renourishment project in Sea Pines Plantation on the southern end of Hilton Head Island. There were no major renourishment projects during 2000.

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. Areas with chronic sand deficits and a minimal beach width, which provides a buffer between the ocean and high-ground development, include the following:

Beaufort County - the northeastern end of Fripp Island, all of Hunting Island, and the northeastern end of Harbor Island.

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

Charleston County - the central portion of Seabrook Island, 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, the southern end of Pawleys Island, and the southern end of Garden City.

The following represents a ranking of beach renourishment and beach restoration projects by priority based upon OCRM Regulation 30-10, which deals with state funding of beach 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. Construction could start in 2002.

Second Priority: 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 the State Park was not included in this project. As a result of 1999 winter storm erosion the beach within the park 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 as well within the next 2-3 years, as the 1993 project reaches the end of its 8-year design life. Cost estimates for this work are currently not available.

For comparison purposes, the following table provides a list of renourishment projects completed during the 1990's with the State's share of the total project cost.

Area	Completion Date	State's Cost
Pawleys Island	1999	$1,300,000
Edisto Beach State Park	1999	$250,000
Sea Pines - Hilton Head Island	1999	$0
Debidue Beach	1998	$0
Grand Strand	1998	$10,000,000
Sullivans Island	1998	$230,000
Folly Beach County Park	1998	$100,000
Daufuskie Island	1998	$0
Hilton Head Island	1997	$0
Edisto Beach	1995	$1,000,000
Folly Beach	1993	$3,500,000
Hunting Island State Park	1991	$2,900,000
Seabrook Island	1990	$0
Debidue Beach	1990	$0
Hilton Head Island	1990	$8,000,000
TOTAL*		$27,280,000

* The State of South Carolina has spent an average of $2,728,000 per year on beach renourishment projects during the 1990's.

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