



New Jersey Beach Profile Network

Atlantic County

**Little Egg Inlet
to Great Egg Harbor Inlet**

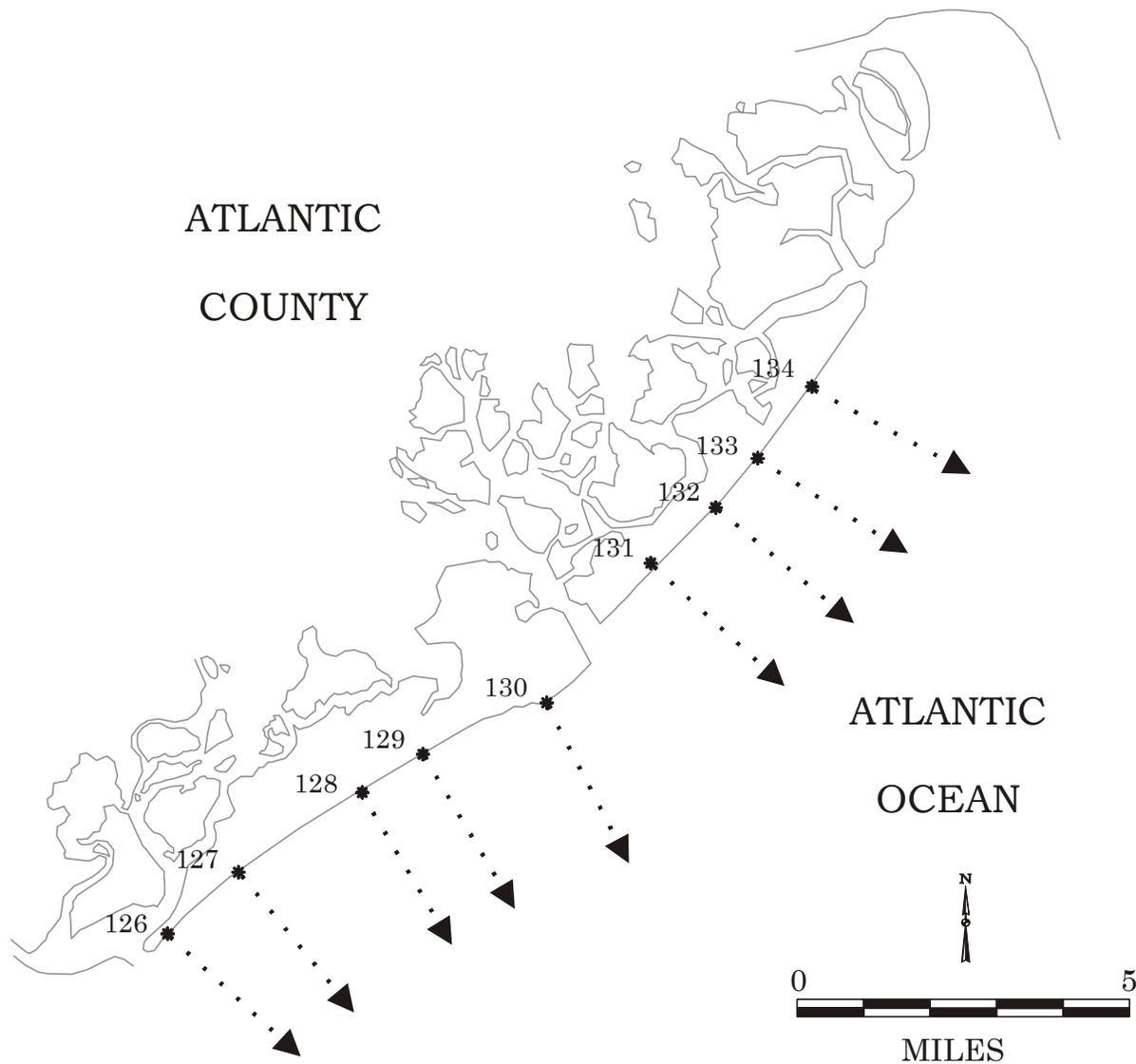
**NJBPN Profile #'s
134 - 126**



New Jersey Beach Profile Network Atlantic County Profile Site Locations

Figure 128

There are nine NJBPN survey sites on the Atlantic County shoreline. The beach profile sites are located in the City of Brigantine, Atlantic City, the City of Ventnor, the City of Margate, and the Borough of Longport. The Atlantic County coastline consists of three barrier islands. Little Beach is bordered by Little Egg Inlet to the north and by Brigantine Inlet to the south. Little Beach is part of the Forsythe National Wildlife Refuge and is not surveyed. Brigantine Island is south of Brigantine Inlet, the northern third of which remains undeveloped as part of the New Jersey Green Acres program. There is one survey site along the undeveloped portion of the Brigantine shoreline and three additional sites on the developed portion. Absecon Inlet separates Brigantine Island from Absecon Island. The Absecon Island communities, Atlantic City, Ventnor, Margate, and Longport, are all highly developed. There are five beach profile survey sites in the communities of Absecon Island.



Interpreting the Data

A 20-year analysis of each site location in Monmouth County is presented in the following pages. The analysis for each site includes: a 20-year shoreline trend graph designed to show yearly changes (fall) in the position of the shoreline with respect to the survey monument for each site plus a cumulative summation of the change over time to 2006 with a power function trend line generated by the data. Next there is a cross-section plot for each site comparing 1986 and 2006 data, with two comparison photographs with text.

Shoreline Trend Graph

The shoreline trend graph includes several useful pieces of information. The red and green bars on each graph show the annual shoreline change for each year. The red bars indicate a shoreline retreat and the green bars indicate a shoreline advance. The blue line towards the top of each graph shows the summation of all shoreline positions throughout the 20-year study period. The black line shows the median trend for the profile's annual shoreline position changes. The reference position for each profile is variable resulting in a variety of scaling options used to represent the changes in feet from reference position for each graph. This may result in the graph bars appearing smaller or larger depending on the required scale for each location. This does not affect the value for the shoreline change calculated for each site since this is simply the difference between the distances from the reference position to the shoreline point for each survey.

Comparison Photographs

At least two photographs were selected for each profile location. An early photograph (usually taken between 1986 and 1991) and a more recent photograph taken in 2006 is included for each profile. The photographs are then followed by text explaining what is seen in each photograph along with the year in which it was taken.

Cross-section Plot

The cross-section plots compare data collected in 1986 to 2006 data. They provide a visual comparison of changes that occurred over the study period both above and below the shoreline position (zero datum, NGVD 29). Profiles that were added to the project at a later date only compare 1995 data to 2006 data. The solid black line shows the data that was collected during the fall 2006 survey. The red-dotted line, except in cases where the profile was added at a later date, shows the data that was collected during the fall 1986 survey.

Shoreline Trends at the Green Acres Tract, Brigantine, NJ

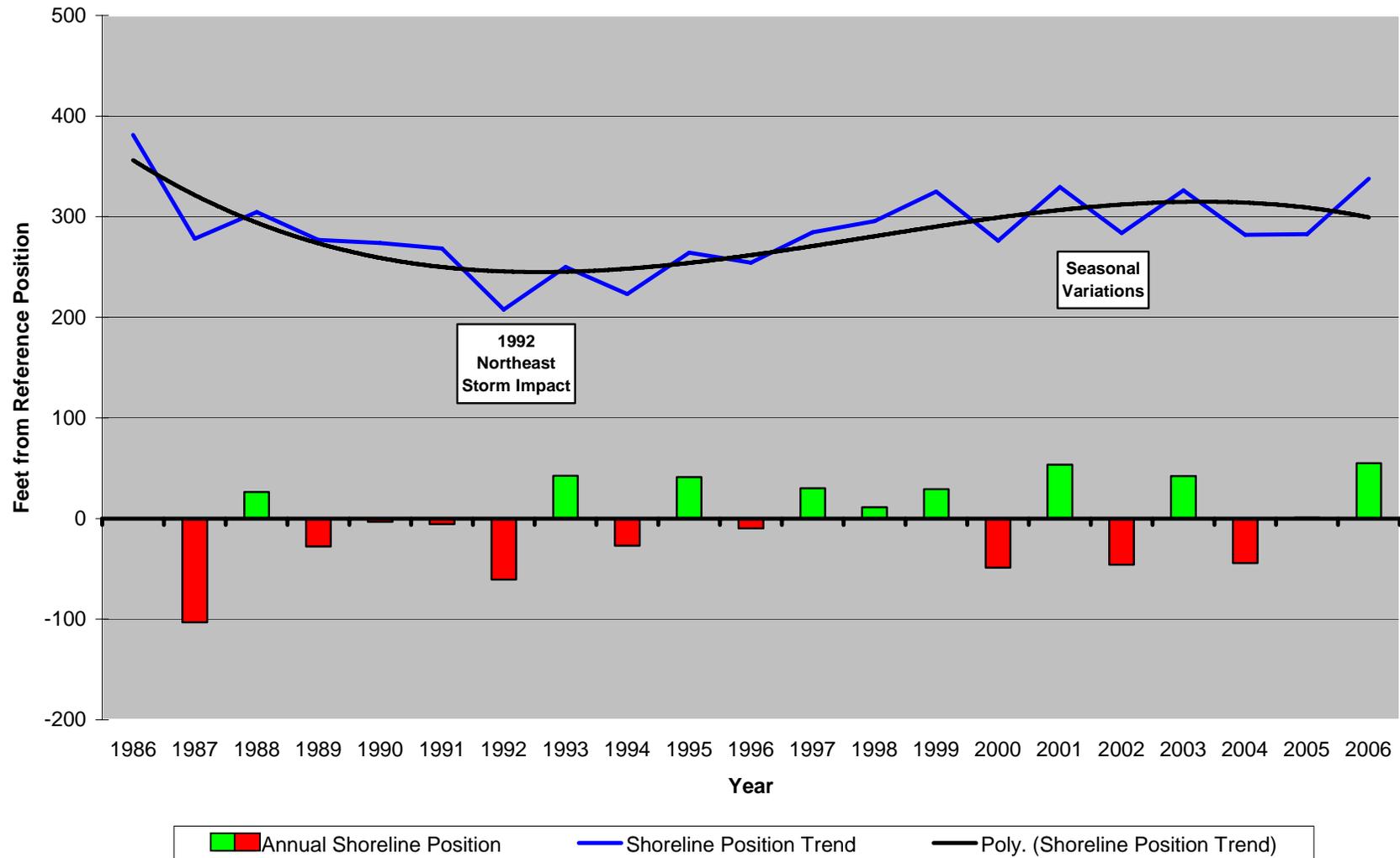


Figure 129 – Site 134. The northern end of Brigantine Island is undeveloped and subject to natural processes only. The storm impacts produced considerable shoreline retreat as overwash into the bay moved sand landward in 1987, 1991 and 1992. These events produced a 174-foot shoreline retreat by 1992. Subsequently, the beach has slowly recovered and generated a dune system around a

single line of fence erected following the December 1992 northeaster. This trend shows as a positive, seaward movement in the shoreline position nearly back to the 1986 position.



20-Year Comparison Photographs – Site 134, Green Acres Tract, Brigantine

The dune at this site was completely destroyed by the 1991 and 1992 northeast storm events forming an overwash fan that intruded onto the bay marsh. Since the 1992 northeast storm wash-over event the dunes recovered from near total annihilation developing around an installed fence line. Once sand had accumulated over the salt-marsh dune grasses and other various species established a foot hold then propagated seaward acting to collect and stabilize the accumulating sand into a thriving new dune system. The source of this dune sand is aeolian transport from the beach. The beach is supplied with new sand derived from the Brigantine Inlet tidal shoals where material is diverted and transported by littoral currents to the southern shoreline then continues to move south towards the developed shoreline region.

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#134 - Green Acres Area, Brigantine, Atlantic County

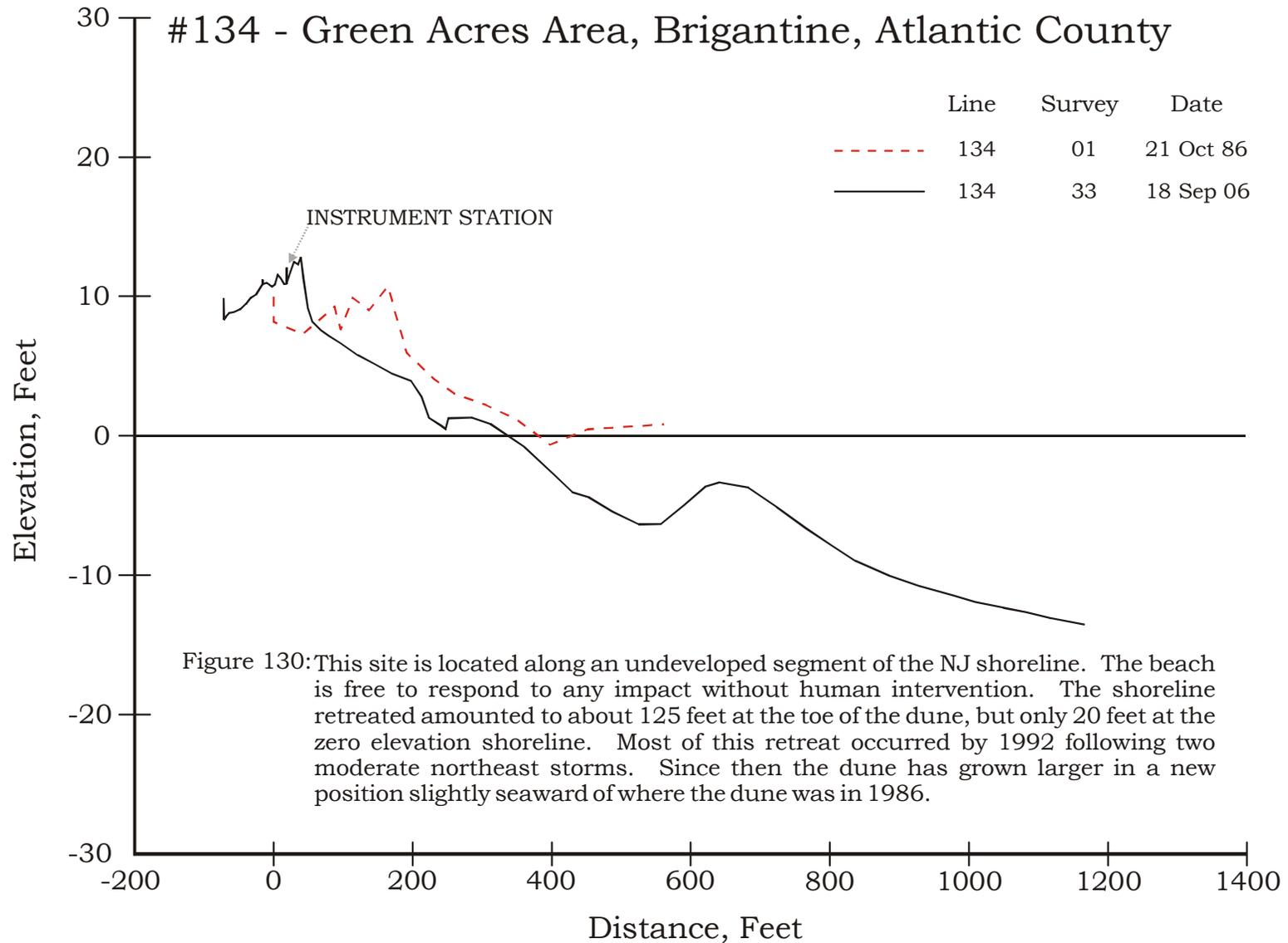


Figure 130: This site is located along an undeveloped segment of the NJ shoreline. The beach is free to respond to any impact without human intervention. The shoreline retreated amount to about 125 feet at the toe of the dune, but only 20 feet at the zero elevation shoreline. Most of this retreat occurred by 1992 following two moderate northeast storms. Since then the dune has grown larger in a new position slightly seaward of where the dune was in 1986.

Shoreline Trends at 4th Street North, Brigantine, NJ

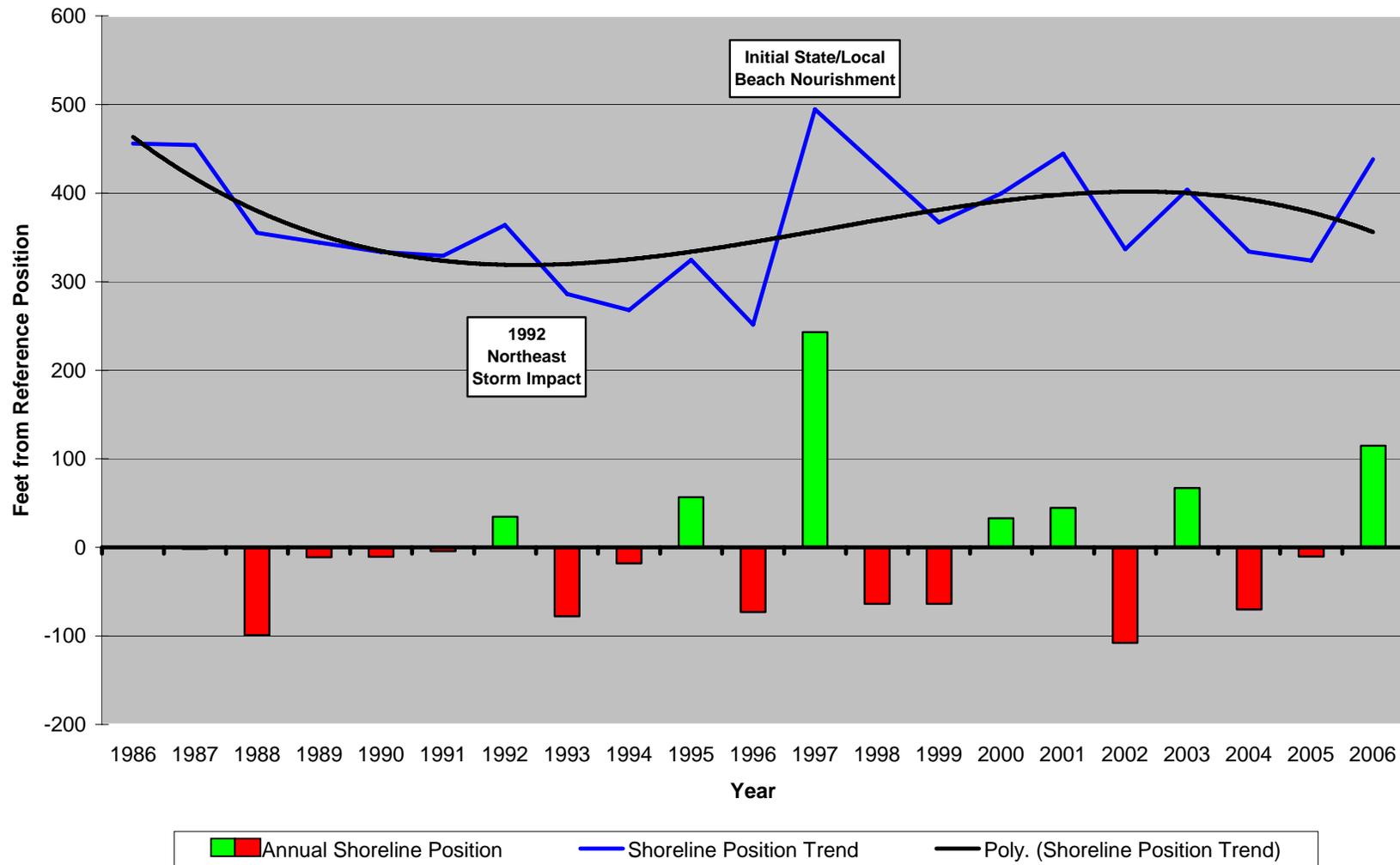


Figure 131 – Site 133. This site is positioned within the shoreline segment selected for the initial City of Brigantine – NJ State-sponsored beach replenishment in 1997, when a million cubic yards of sand were pumped south along the beach from Brigantine Inlet. Post-project beach performance was somewhat better than that observed between 1986 and 1996, but additional sand was added north of this site in 2001 partly as a result of storm disaster relief funding from FEMA due to the early 1998 storm events. The 2006

advance in the shoreline was a direct result of the construction of the Federal Brigantine Shore Protection Project. The 2003 shoreline advance was natural and likely derived from the feeder beach built as part of the project 1,600 feet north of development.



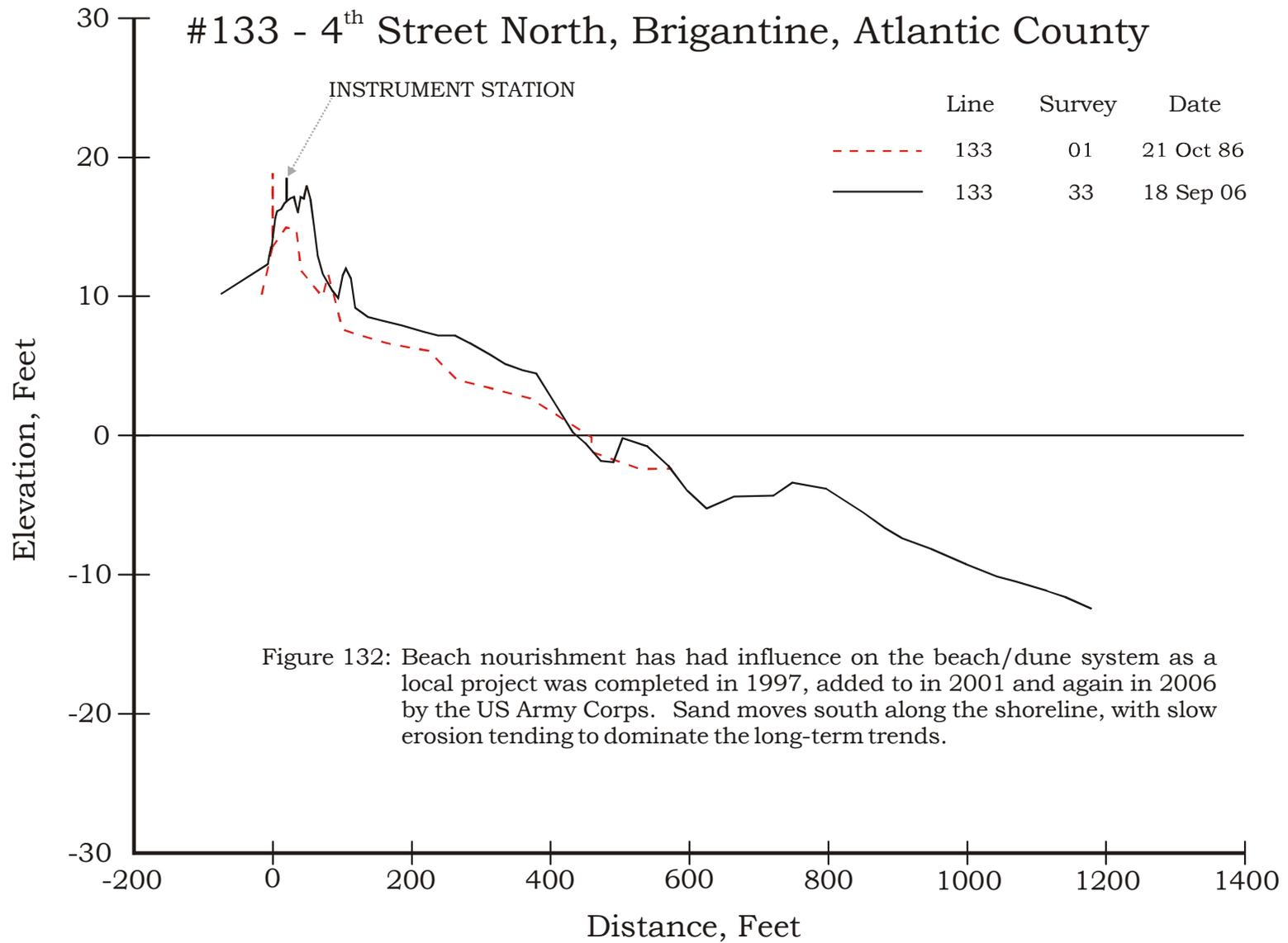
20-Year Comparison Photographs – Site 133, 4th Street North, Brigantine

The photograph on the left was taken during the fall 1991 survey just prior to the Halloween storm in 1991 and December storm of 1992 that caused extensive erosion along most of the Jersey shore. The foredune seen in this photo was destroyed during this series of storms and the beach retreated. The resulting narrow low elevation beach and tiny dune left the adjacent ocean front condos vulnerable to storm damage. The 2006 view (right) to the south across the dunes and beach shows the condition of the beach following the Federal nourishment project and two local & state sponsored projects had restored and enhanced the dune system and beach. The dunes migrated seaward following the 1997 fill and began to develop into a foredune area now vegetated and growing larger.

It is evident from the NJBPB monitoring and quarterly monitoring done for Brigantine that erosion propagates north to south along the developed region of this shoreline. Dominant littoral drift is to the south moving sand north to south along the shoreline. This process leads to erosion on the northern beaches while feeding sand to the south, once the erosion reaches the seawall at the north end the source of sand feeding this southerly drift dramatically diminishes accelerating erosion further south creating a domino effect that propagates south along the currently buried seawall. While at the southern end of Brigantine where the southerly drift ends sand accumulates along the Brigantine Inlet jetty creating wider beaches and an expansive dune system.

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#133 - 4th Street North, Brigantine, Atlantic County



Shoreline Trends at 15th Street South, Brigantine, NJ

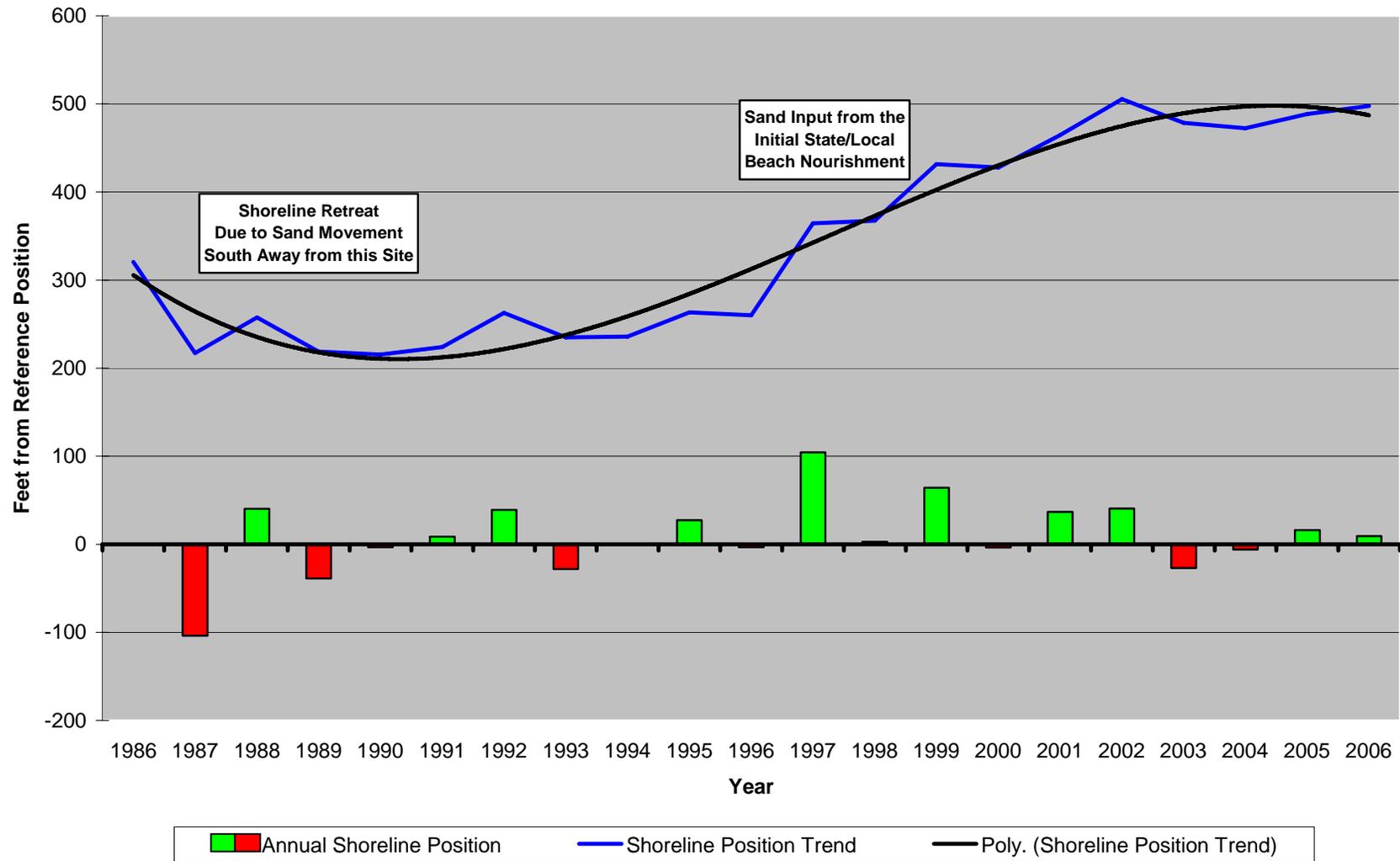


Figure 133 – Site 132. Located near the middle of the developed segment of Brigantine, the beach suffered significant retreat between 1986 and 1996. The minimum beach width is visible in 1990. No sand was placed within a mile of this location in 1997, but by the fall of the year the shoreline had advanced just over 100 feet due to sand arriving via littoral transport to the south. This trend

has continued for 8 out of the 10 years leading up to 2006, moving the shoreline seaward a total of 237 feet or double the distance of what was measured in 1990.

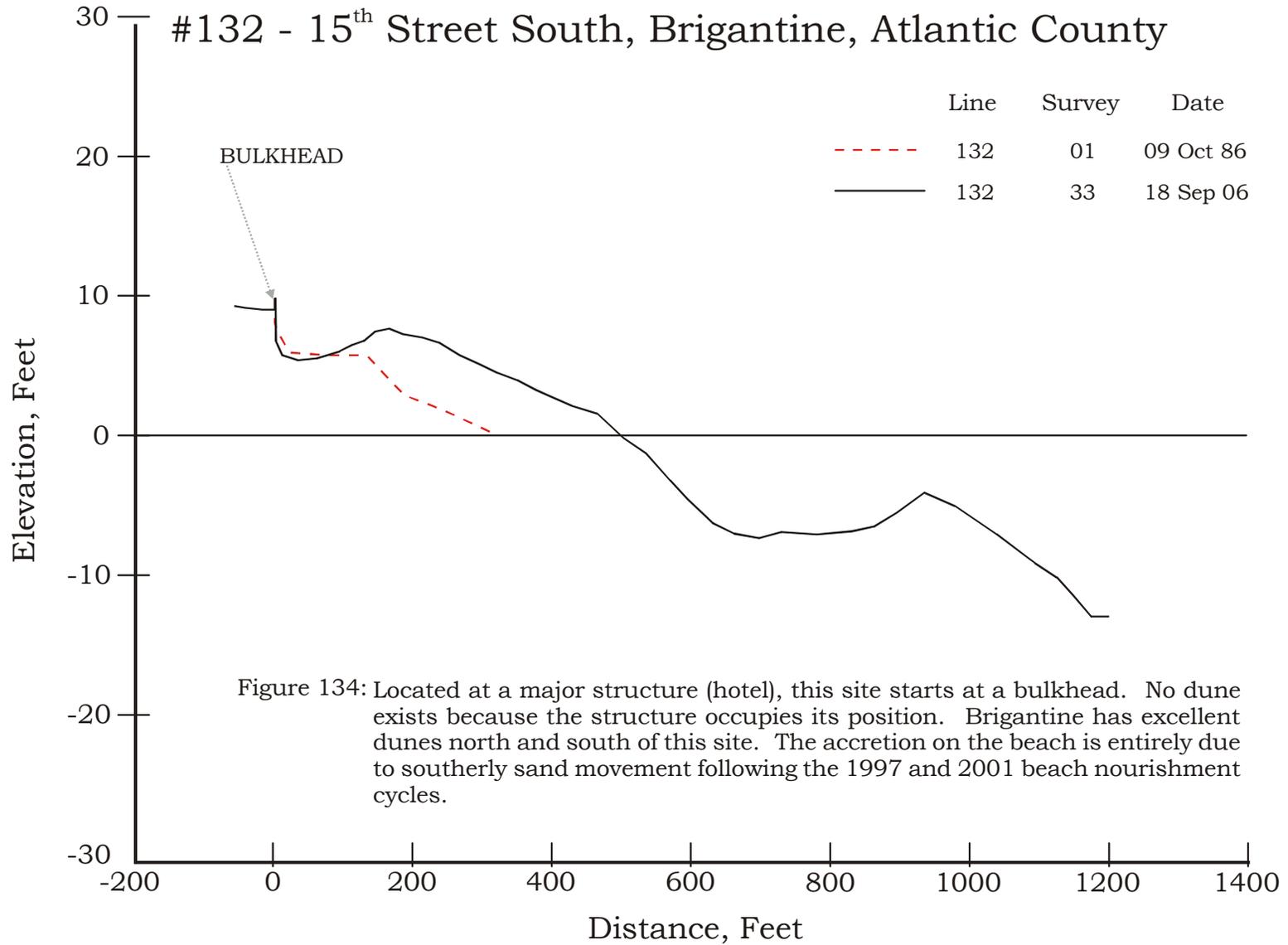


20-Year Comparison Photographs – Site 132, 15th Street South, Brigantine

The photograph taken in 1991 (left) shows the relatively narrow beach present during that survey. Wave run up routinely washed over the low elevation beach and reached the bulkhead during higher tide cycles where the absence of a dune resulted in storm related damage and flooding during storm events. The photograph, taken in 2006 (right), shows the significantly wider beach that was present at the time of that survey. No sand was placed on this beach by any of the afore mentioned projects but littoral drift has transported substantial volumes of sand from the project area south to these beaches creating wider and higher beaches. This increase in beach volume and width enhances storm protection although dune development at this site is discouraged by a high number of summer beach patrons heavily using this region of the beach and the foot print of the adjacent structure. An expansive dune system has developed since 1997 north and south of the site and is providing substantial storm protection for ocean front properties.

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#132 - 15th Street South, Brigantine, Atlantic County



Shoreline Trends at 43rd Street South, Brigantine, NJ

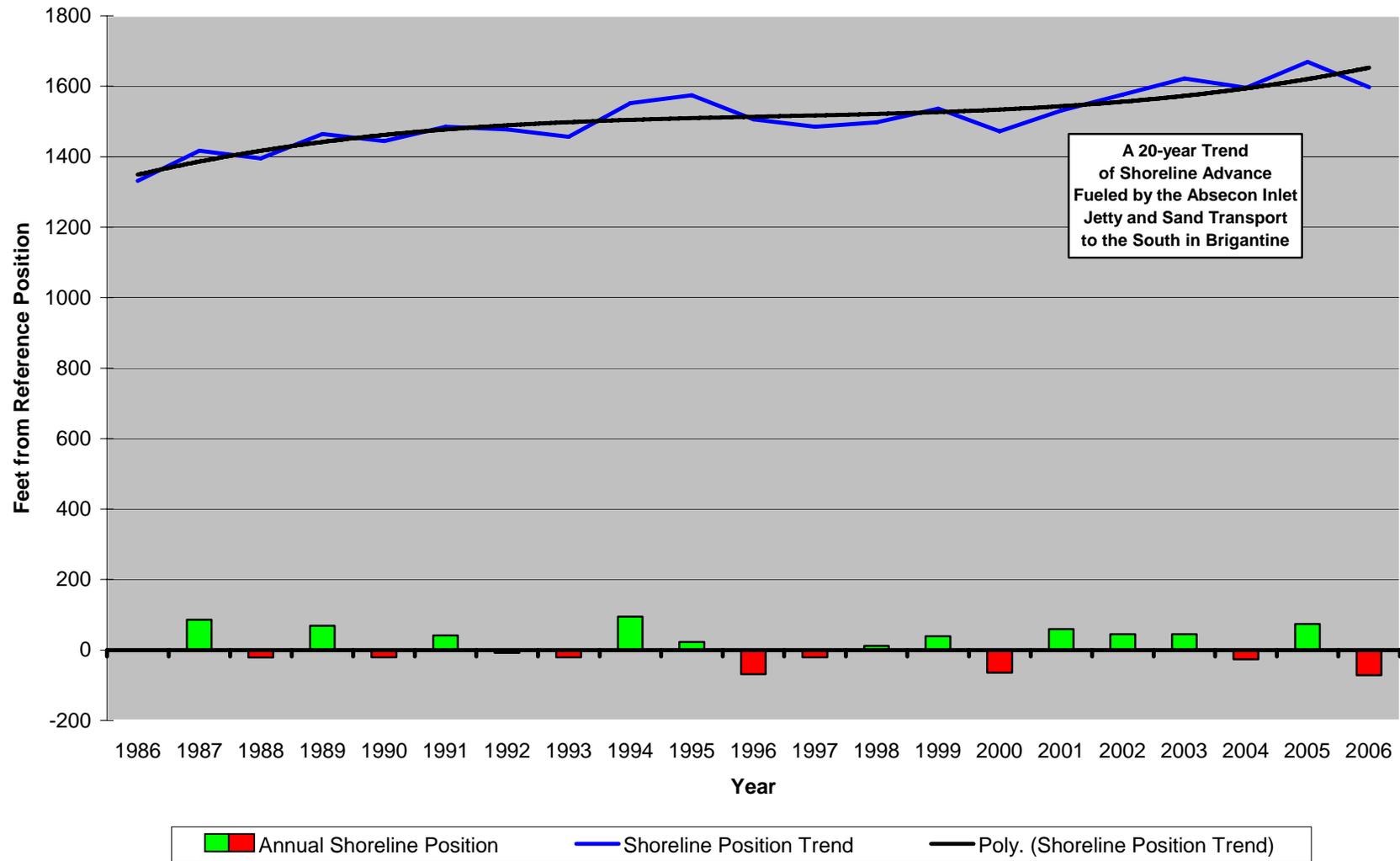


Figure 135 – Site 131. At the southern end of Brigantine Island a great deposit of sand has produced a half-mile of shoreline advance since the north jetty was completed in the 1940’s and extended several times due to the deposition of sand. The 1986 reference position was established at the 43rd Street end and a template was surveyed across the dunes to a forward instrument position. The net change was an advance of 266 feet in the position of the zero elevation shoreline over 20 years.

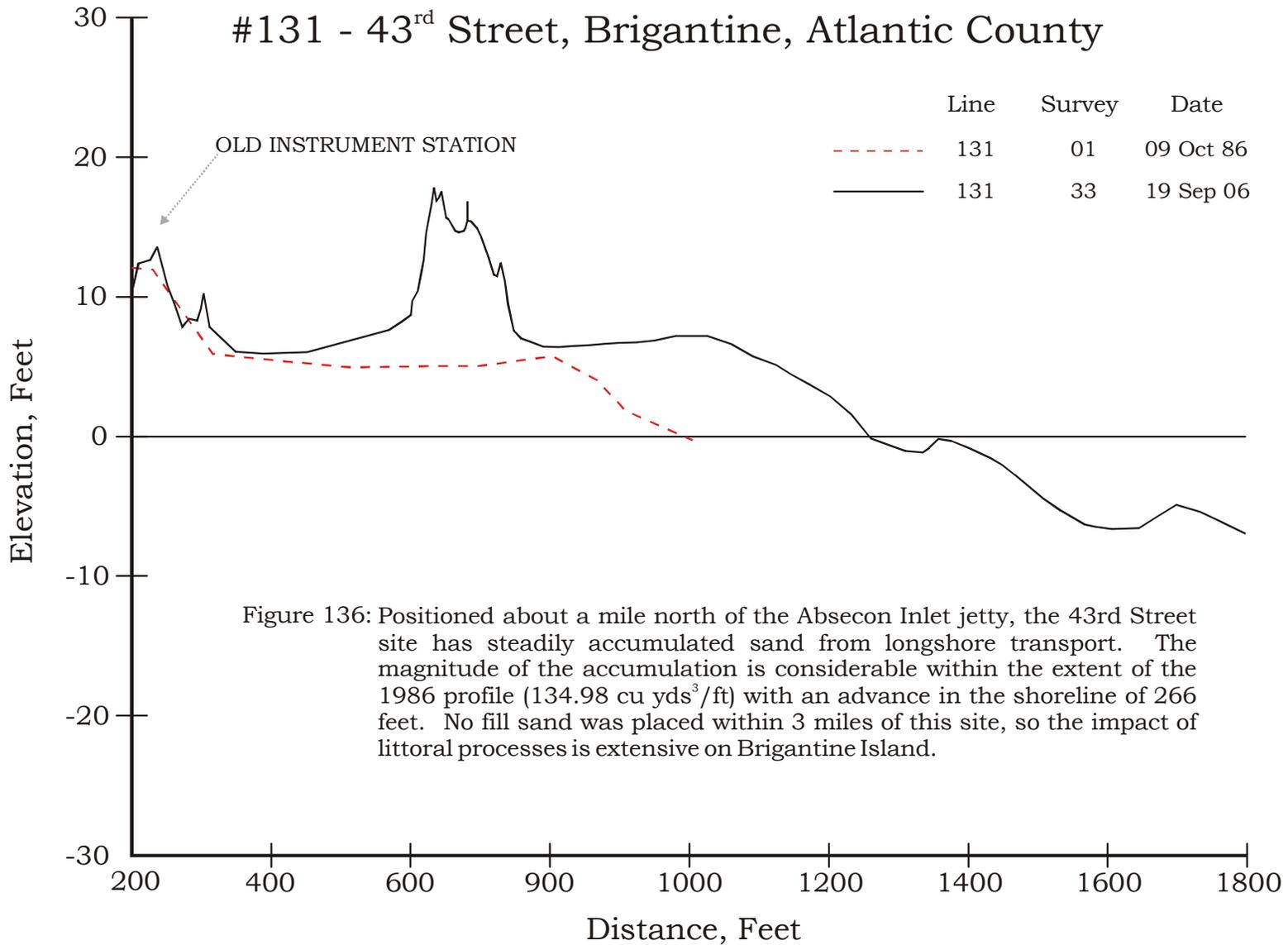


20-Year Comparison Photographs – Site 131, 43rd Street, Brigantine

The view to the north (right, taken 2006), attempts to show the scope of the width in shoreline vegetation, dunes and beach width present along the southern Brigantine shoreline. This entire area now covered in dune grass was bare beach in 1986, while the dark vegetation (bayberry) was dune grass on the initial primary dune at that time. The picture on the left was taken in fall 1991. The scope of this expanse of dunes is difficult to portray without comparison aerial photographs. The advance is entirely due to the Absecon Inlet jetty construction in the 1940's with an extension completed in the 1970's.

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#131 - 43rd Street, Brigantine, Atlantic County



Shoreline Trends at North Carolina Avenue, Atlantic City, NJ

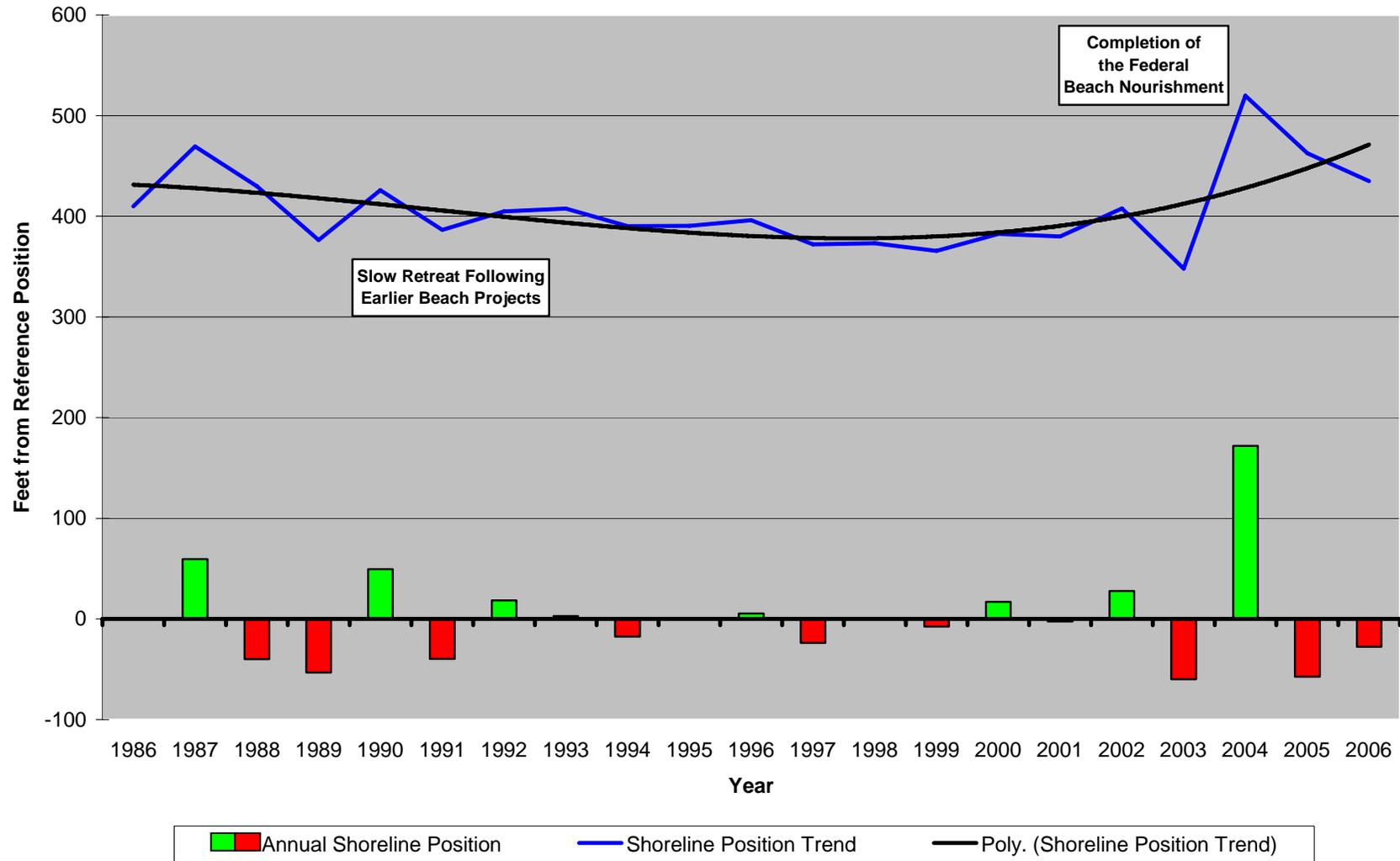


Figure 137 – Site 130. A long, slow trend of shoreline retreat was reversed by the Federal Shore Protection Project completed in 2004 on the northern half of Absecon Island.



A.



B.

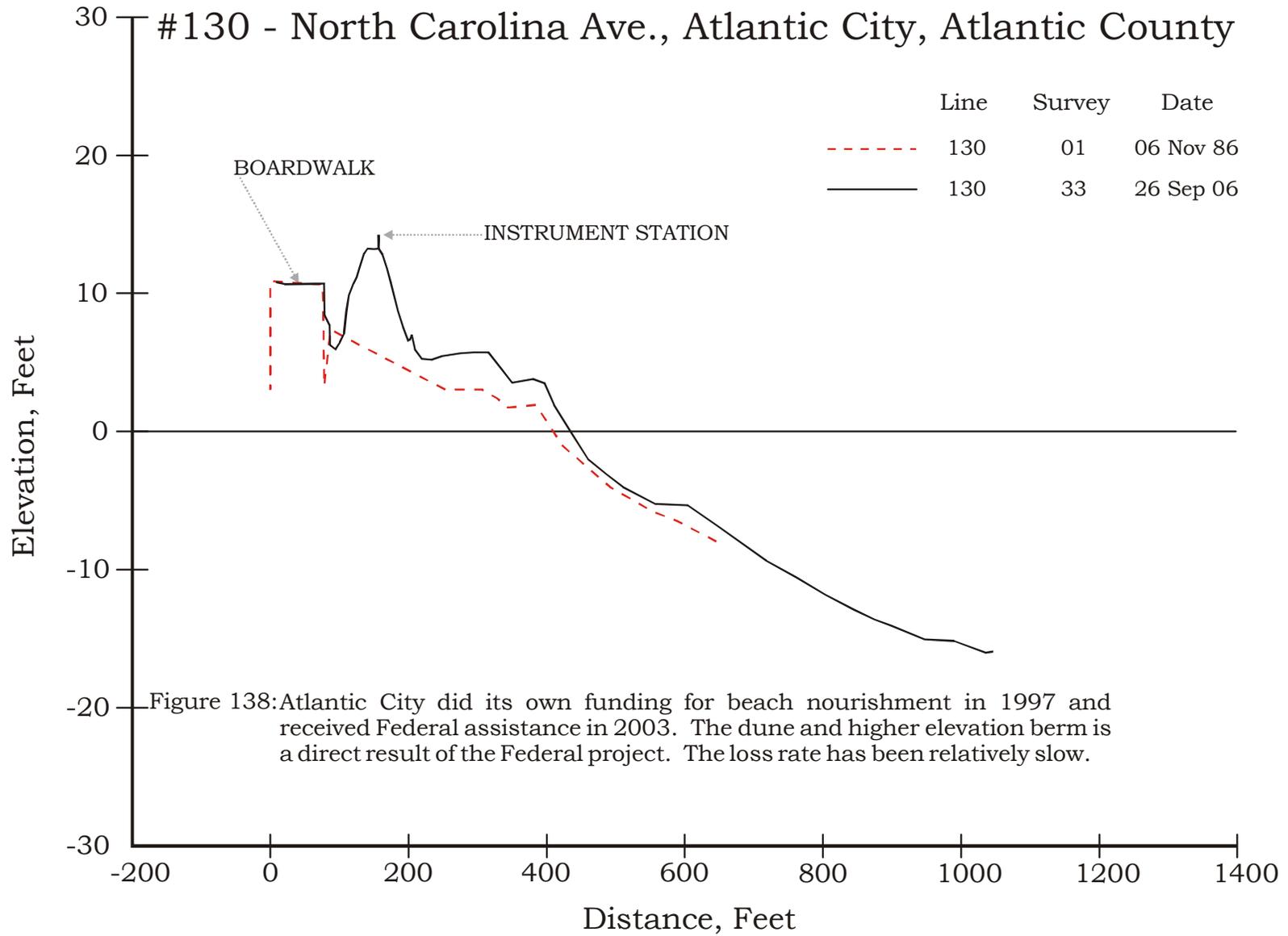


C.

20-Year Comparison Photographs – Site 130, North Carolina Avenue, Atlantic City

Photo A shows the conditions of the beach at this location in 1991. At that time the dry beach extended all the way up to the toe of the boardwalk. Photos B and C show views to the south from the dune crest and toe 2006.

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Shoreline Trends at Raleigh Avenue, Atlantic City, NJ

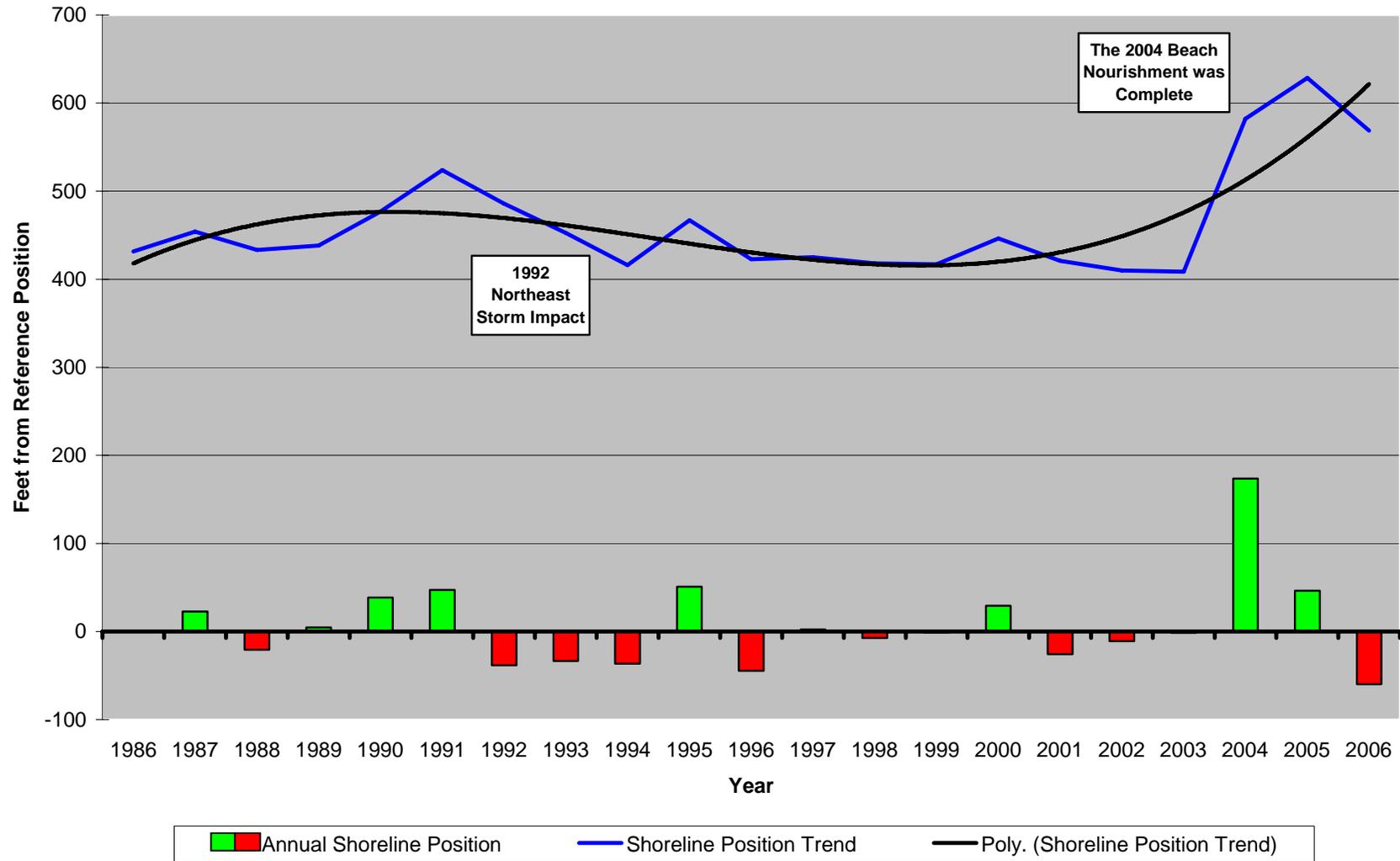


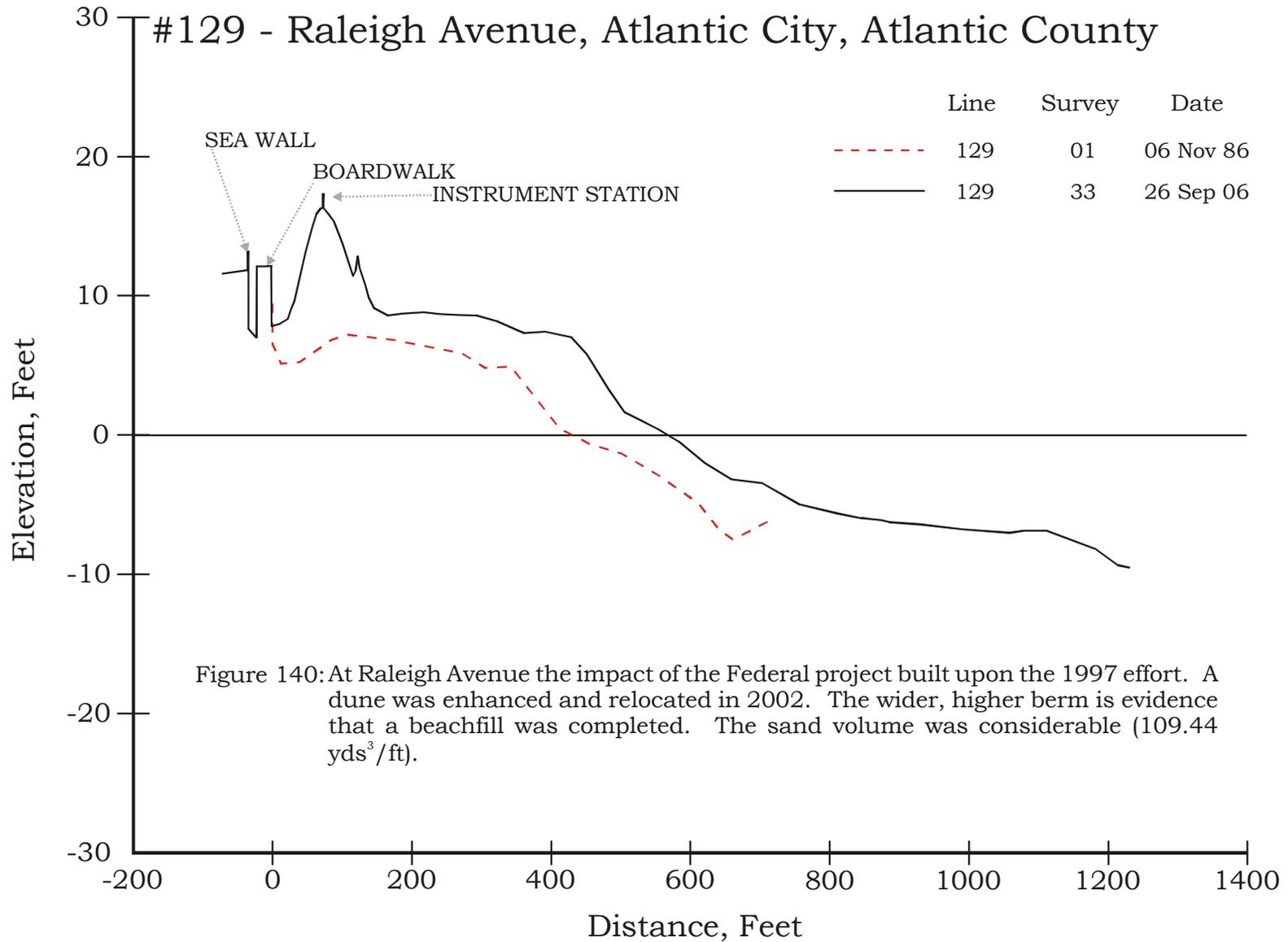
Figure 139 – Site 129. The mid-section of the Atlantic City shoreline was negatively impacted by the 1992 storm and did not recover until the Federal project was complete. Minor retreat occurred in 2006, but the beach appears to be stable.



20-Year Comparison Photographs – Site 129, Raleigh Avenue, Atlantic City

The 2006 view (right) shows the enhanced dune and the wide beach all related to the 2004 Federal – State and local beach nourishment project. The picture on the left shows the conditions of the beaches in 1991. The existing dune was reconstructed as a more extensive feature during the Federal project.

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Shoreline Trends at Dorset Avenue, Ventnor City, NJ

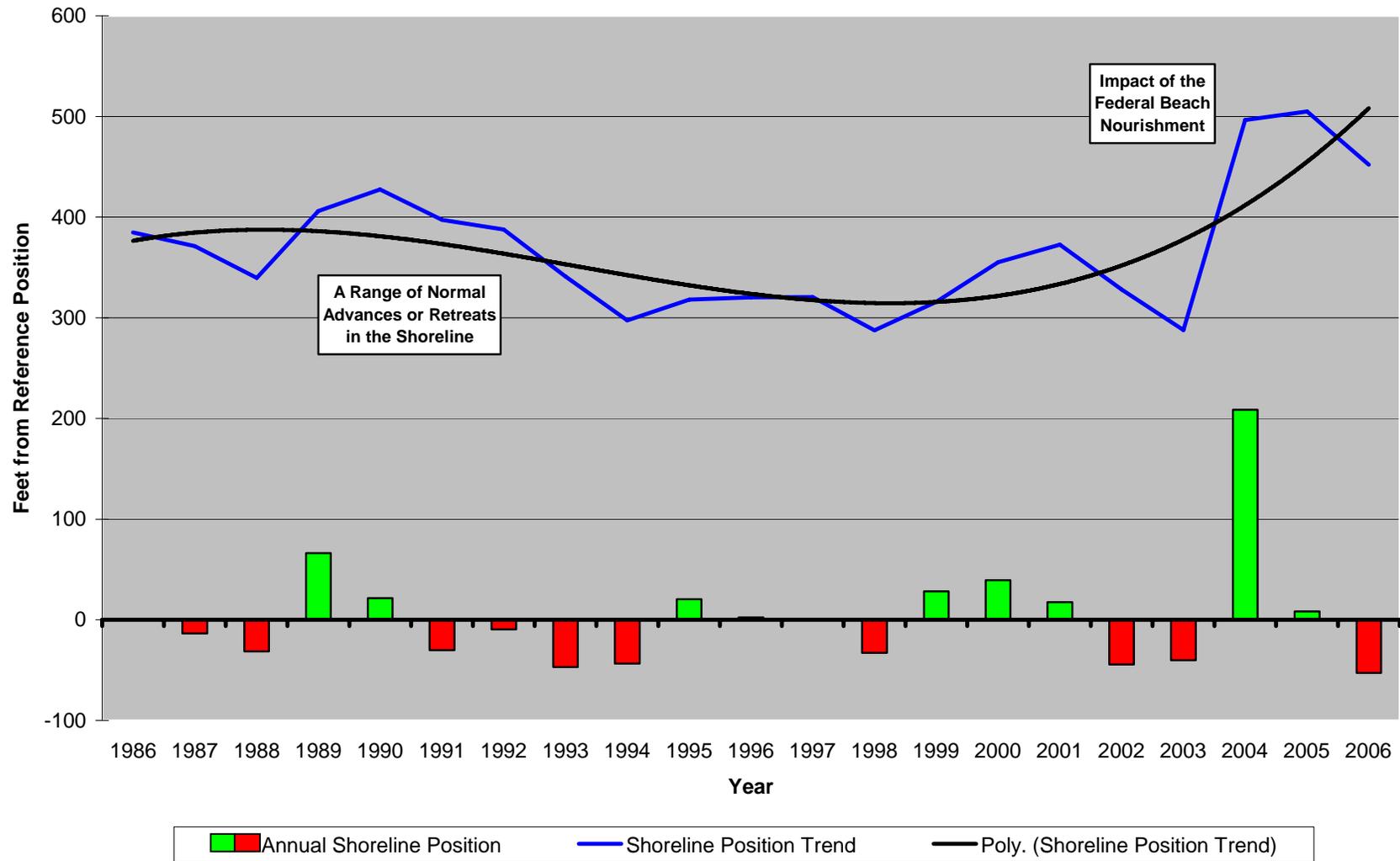


Figure 141 – Site 128. Ventnor City entered the agreement for the federally-sponsored project and the change in shoreline location in 2004 reflects that build-up of sand pumped from Absecon Inlet. A 200-foot shoreline advance in one year is impressive, especially when it was still 150 feet wider in 2006.

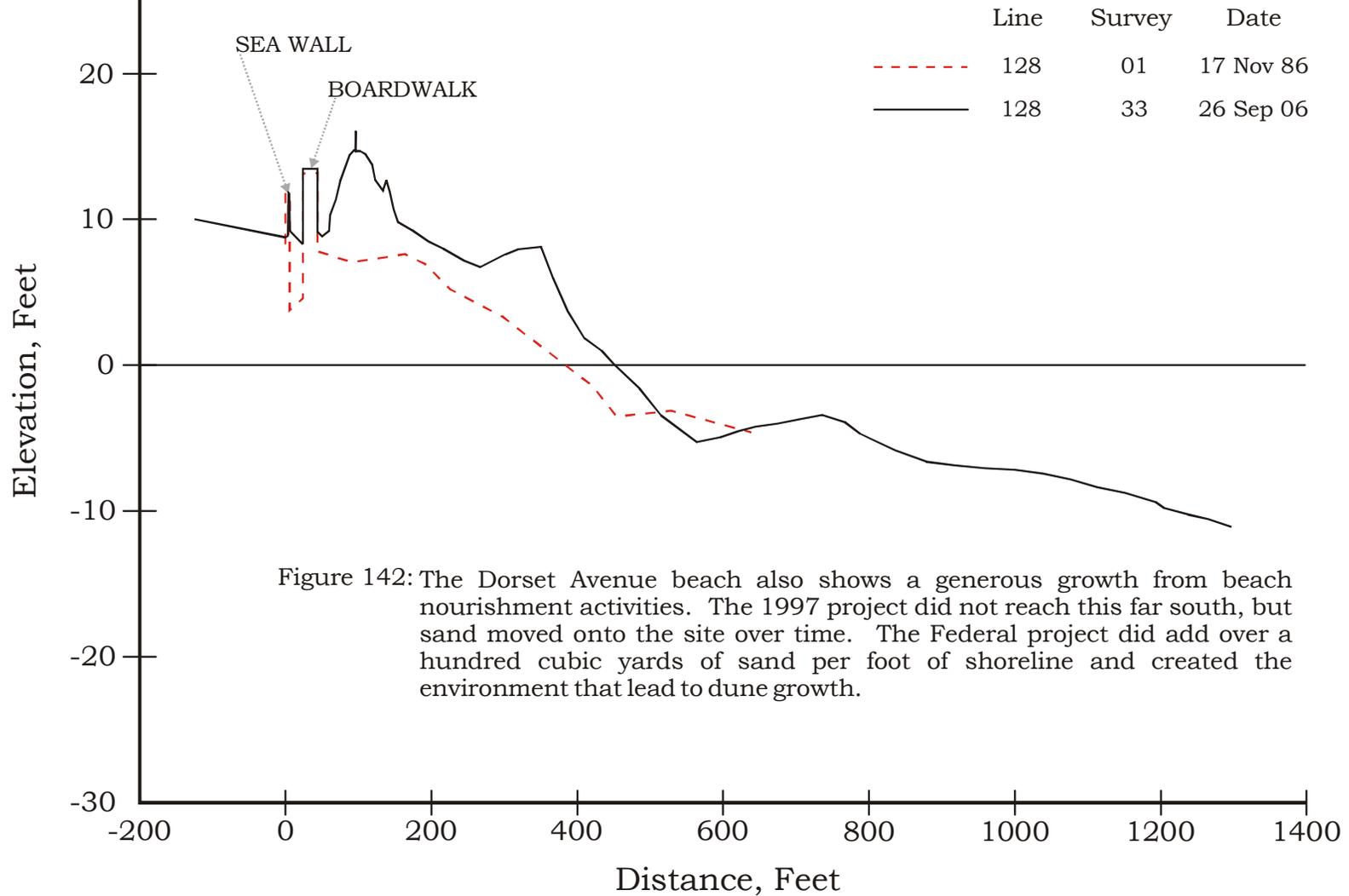


20-Year Comparison Photographs – Site 128, Dorset Avenue, Ventnor City

The 2006 view (right) to the north shows the redeveloped dune and wider beach. The picture on the left, taken in 1990, shows the insignificant dune system near the toe of the boardwalk and the smaller beach present at that time.

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#128 - Dorset Avenue, Ventnor, Atlantic County



Shoreline Trends at Benson Avenue, Margate City, NJ

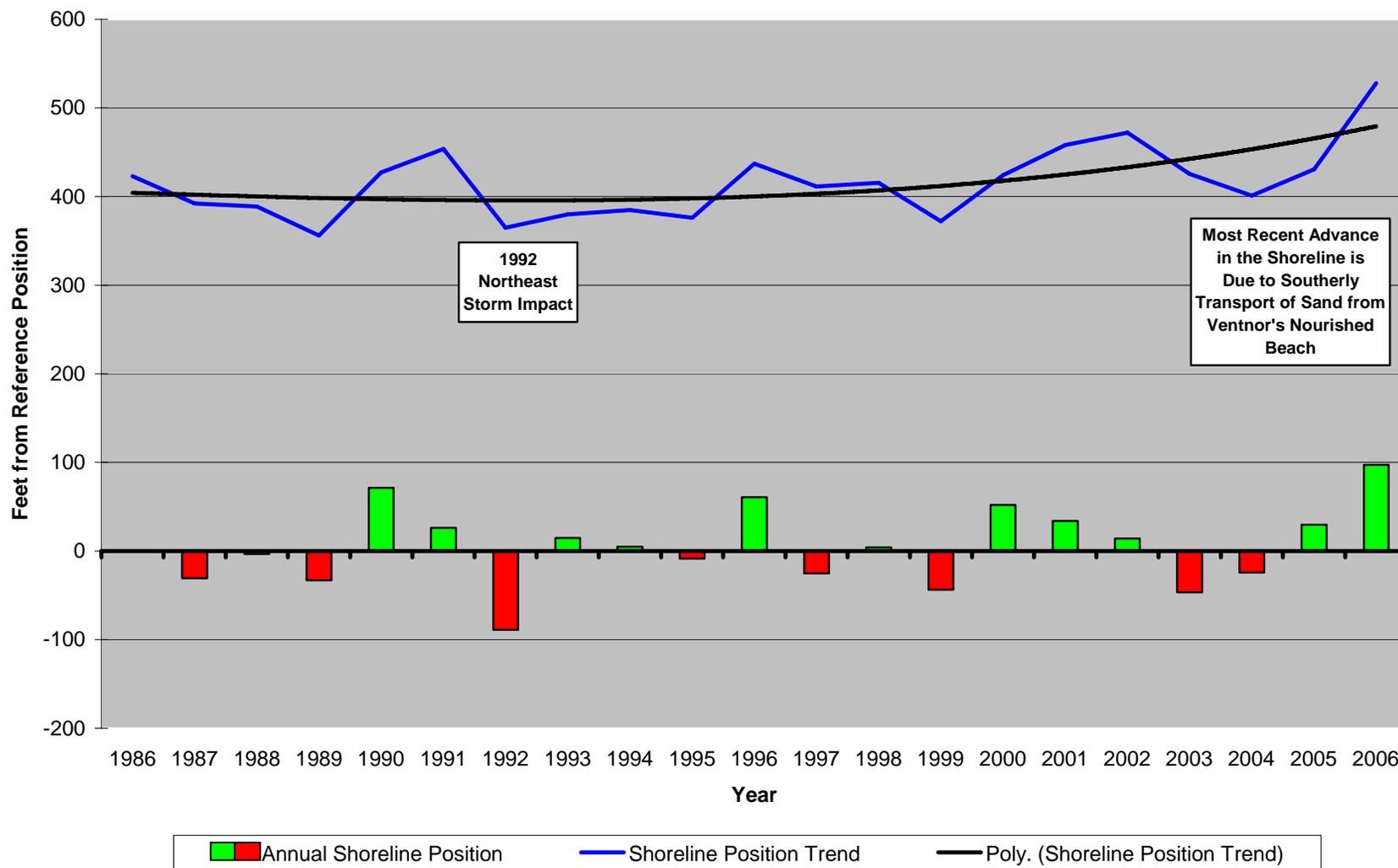


Figure 143 – Site 127. Both Margate City and the Borough of Longport declined to participate in the 2004 Federal Shore Protection Project. However, losses from the southern end of the completed beach in Ventnor have produced a significant up-trend (127-foot advance) in the shoreline position as it advanced seaward.

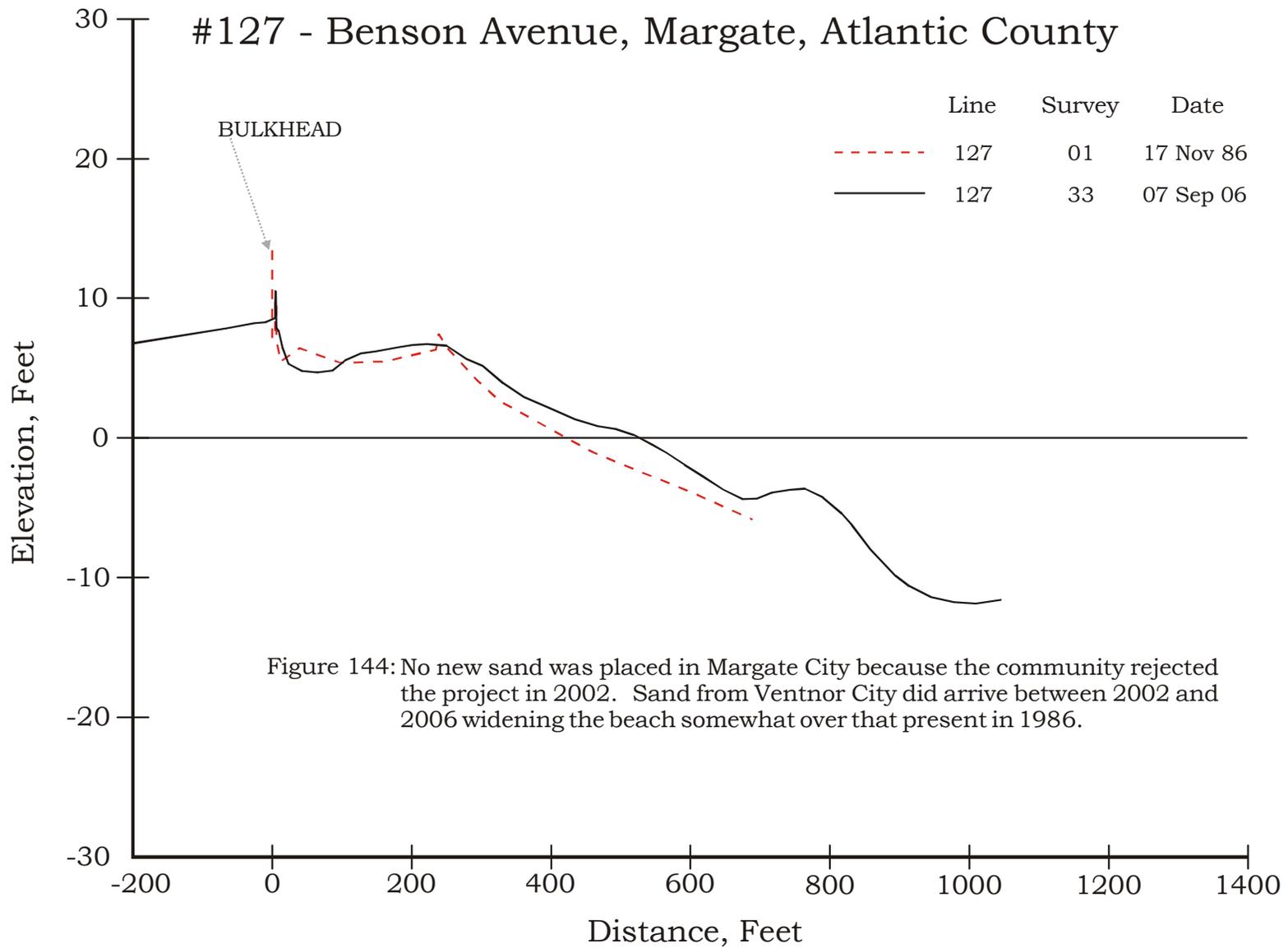


20-Year Comparison Photographs – Site 127, Benson Avenue, Margate City

The Benson Avenue beach has benefited indirectly from the 2004 beach nourishment effort. The groin in the picture north of the profile line is nearly buried by sand in 2006 (right). The same groin is submerged by water in the 1991 picture on the left.

New Jersey Beach Profile Network

#127 - Benson Avenue, Margate, Atlantic County



Shoreline Trends at 17th Street, Longport, NJ

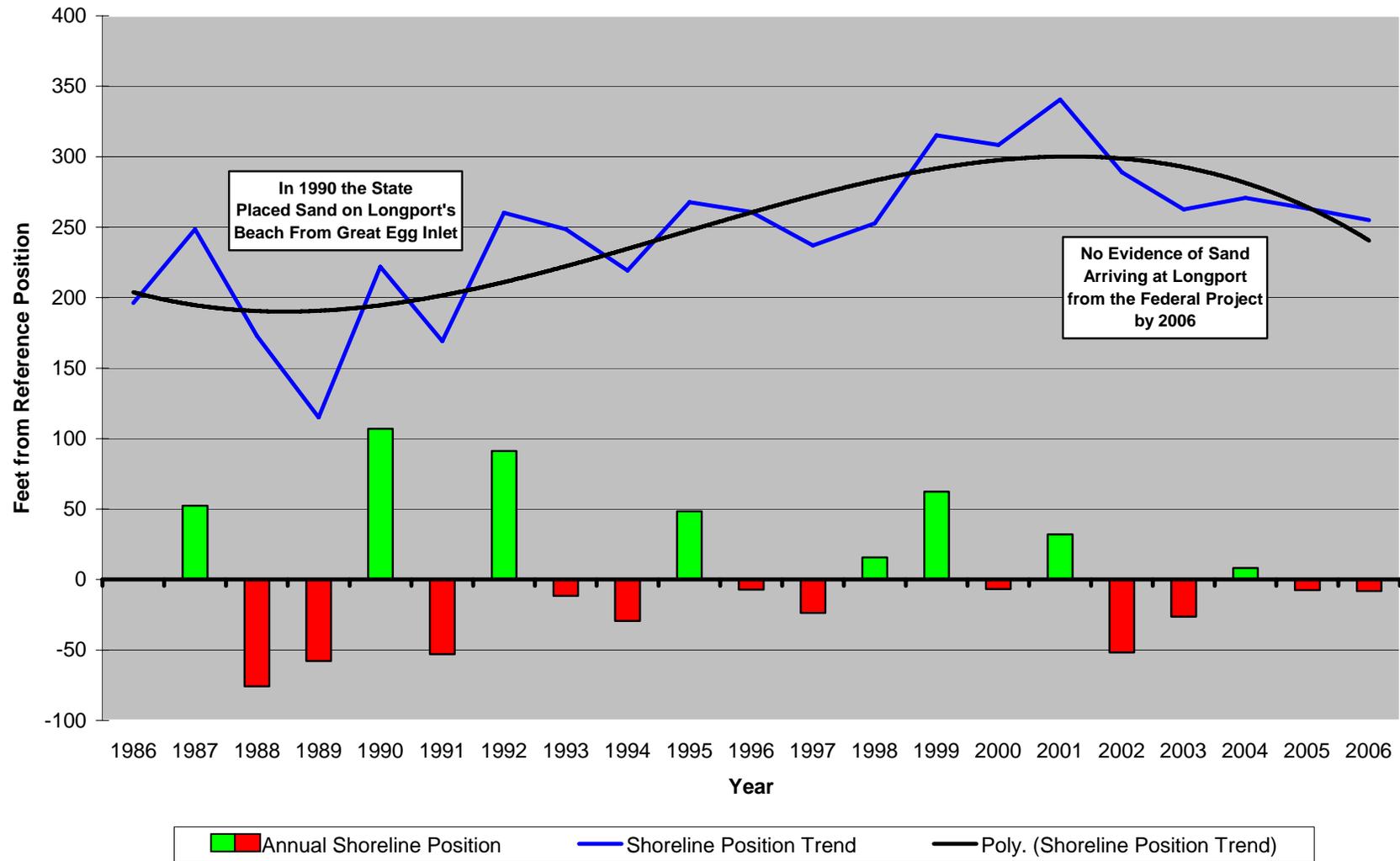
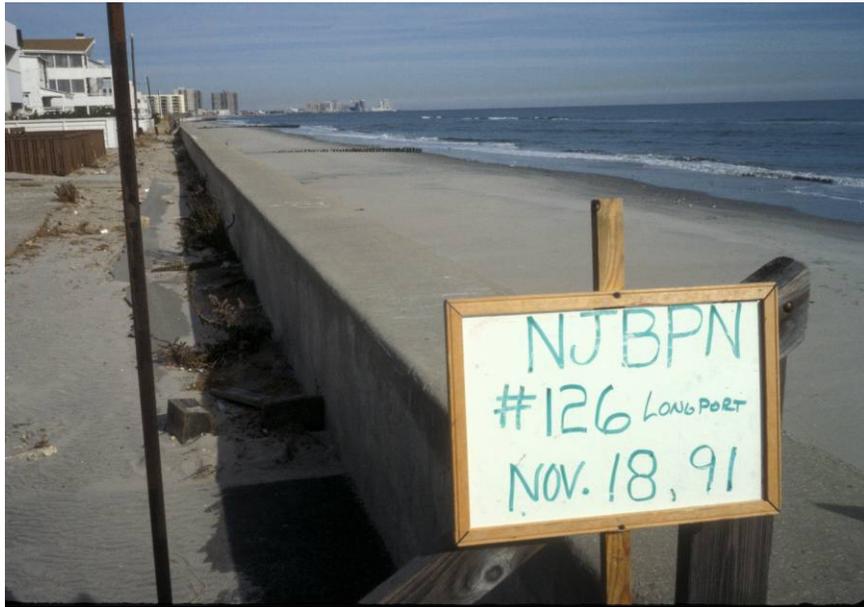


Figure 145 – Site 126. Sand deposition as a function of shoreline advance was on an up-trend following the 1991 storm events. In spite of oscillatory swings the trend continued positive (seaward advance) until 2001 when the trend reversed in 4 of 5 subsequent years. The seawall acts to protect the development landward, but a wider beach is additional storm insurance.

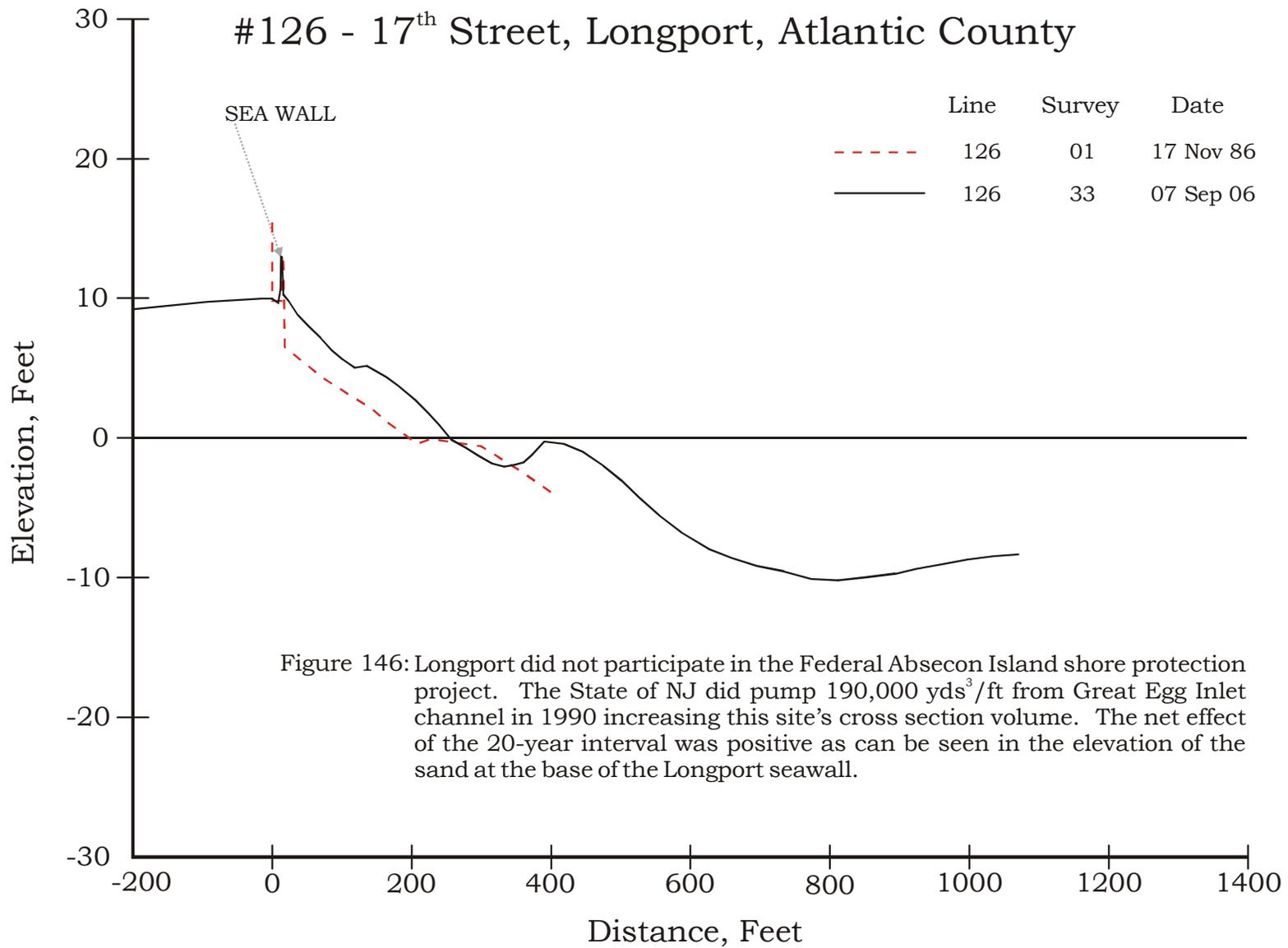


20-Year Comparison Photographs – Site 126, 17th Street, Longport

The pictures show a view to the south from 17th Street at the seawall. Little in the way of dune development is possible due to a narrow beach. The beach at this site has seen some marginal gains over the 20-year study interval. The pictures above were taken in 1991 (left) and 2006 (right).

New Jersey Beach Profile Network

#126 - 17th Street, Longport, Atlantic County



SUMMARY OF ATLANTIC COUNTY:

Beach nourishment has been important in Atlantic County for decades. The majority of the projects were completed in Atlantic City since 1936 where 7,085,000 cubic yards of sand had been placed up to 1986 (Pilkey and Clayton 1989). In 1991 the State provided about 190,000 cubic yards of sand to the southern beaches in Longport derived from the Little Egg Inlet borrow zone used for Ocean City by the Federal project. This project was intended as an inlet channel clearing effort, not a beach project. Atlantic City conducted its own beach nourishment program in the summer of 1997 adding 640,000 cubic yards of sand between Illinois and Iowa Avenues.

Brigantine Island joined the ranks of communities undertaking beach nourishment in 1997 with a State – locally sponsored 999,827 cubic yard effort derived from Brigantine Inlet shoals. Sand was placed on the northern end of the island starting within the undeveloped portion to act as a feeder beach to the developed region. The fill continued south for 2,500 feet to just south of 4th Street North. Sand moved rapidly south along the oceanfront adding to beaches over a mile south of the project. More recently, beach restoration activity in Brigantine produced a spring 2001 maintenance project completed with 615,000 cubic yards of sand placed on the majority of the initial project's north end shoreline. This State-local phase of this project was modeled after the design plan for Brigantine selected by the US Army Corps of Engineers. In both cases sand movement to the south was seen with positive results along the entire Brigantine shoreline. The ACOE completed its Federal project for Brigantine in 2006 adding about 638,000 cubic yards to the northern beach restoring its position to that established in 1997.

The commencement of the Philadelphia District Army Corps of Engineers Absecon Island Beach Restoration Project began in 2004. Below is the Philadelphia District's website description of the Atlantic County projects.

Atlantic City: Construct a 200-foot wide beach with a dune (2-3 feet above boardwalk). Initial beachfill volume is approximately 3.2 million cubic yards. Construct outfall extensions and at Absecon Inlet replace 2 bulkheads with revetment (total 1600 ft.)

Ventnor: Construct a 100-foot wide beach with dune (1 foot above boardwalk). Initial beachfill volume is approximately 1.3 million cubic yards.

Margate: Construct a 100-foot wide beach with dune (2-2.5 feet above bulkheads). Initial sand volume will be determined just prior to construction. **PROJECT NOT DONE IN MARGATE.**

Longport: Construct a 100-foot wide beach with dune (2-2.5 feet above bulkheads). **NOT DONE.**

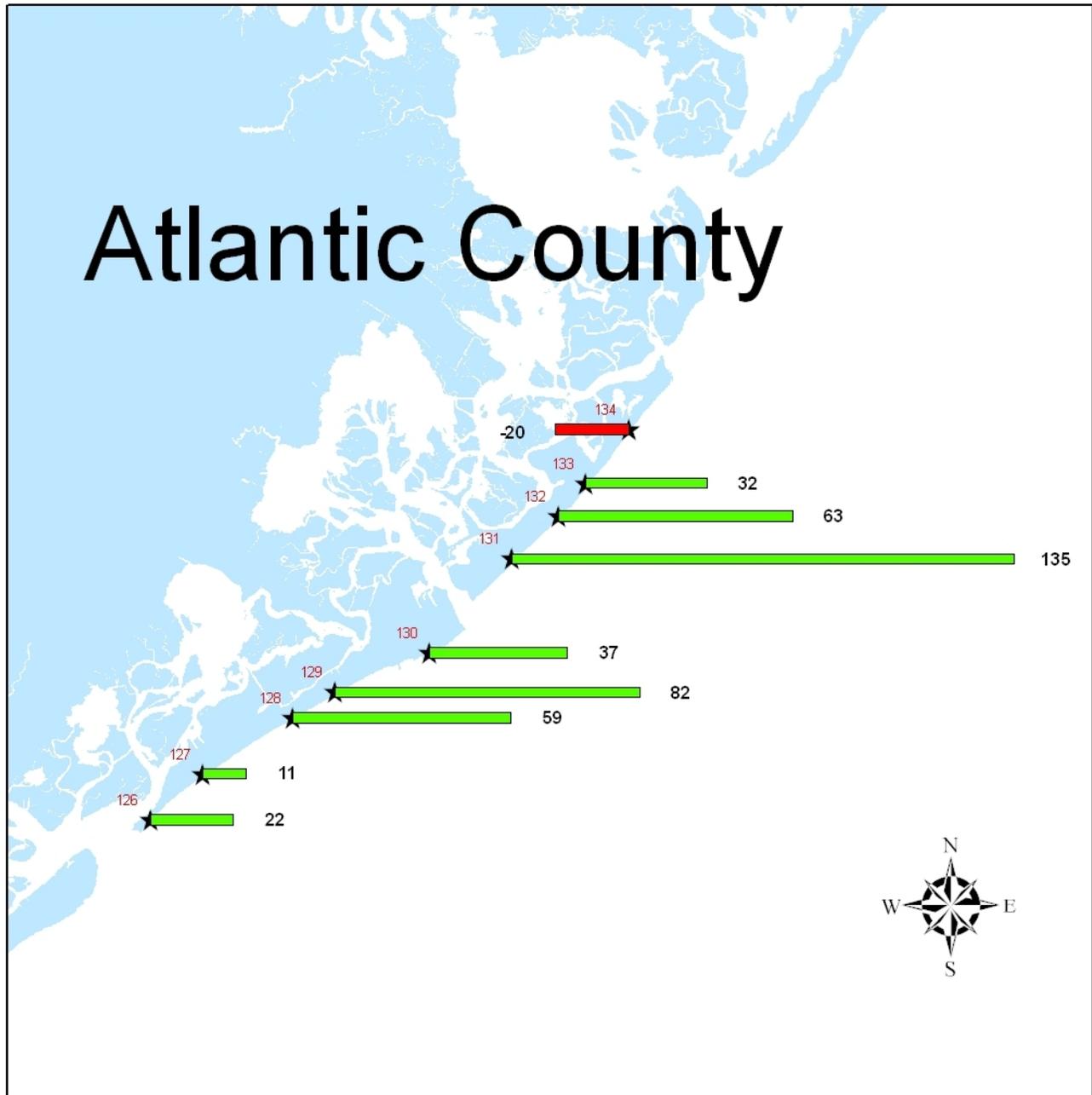
1.7 million cubic yards of sand will be utilized for periodic nourishment every 3 years for the 50-year project life. Sand source has been a borrow area in Absecon Inlet. (Thus far no maintenance has been offered by the ACOE).

Phase I officially began October 22, 2003 when the Notice to Proceed was issued to Great Lakes. Sand placement in Atlantic City began December 25, 2003 and is scheduled to conclude in March 2004. Crossovers, sand fencing, planting of dune grass and outfall extensions will be completed in May 2004 in Atlantic City. Construction will proceed from the northeast end of Atlantic City southwest through Ventnor. Sand placement in Ventnor is scheduled to begin in March 2004 and conclude in May 2004. Construction of crossovers and sand fencing will be completed in June

2004 in Ventnor. Dune grass planting will be completed by December 2004 due to November-April planting “window”. The District considers Phase II to consist of the communities of Margate City and Longport that did not agree to participate in the initial project construction.

The Brigantine Island feasibility study was completed in August 1998, and the nourishment of this island is scheduled to start prior to October 2005 to be able to utilize the last funds available in the expiring Water Resources Development Act of 2002. Congress has acted to add \$500,000 to FY 04 for construction despite no presidential request. This funding is to be used to start construction in the spring of 2005. On October 12, 2004 the ACOE sponsored a public signing ceremony in Brigantine to inaugurate the construction phase of this project. This project actually began in late January 2006, finishing up in March 2006. (ACOE website, 2006).

The summary illustrations below show the positive impact of multiple local – State projects that started in 1997 on Brigantine Island, then was followed by the Federal projects. The trend in shoreline position moved seaward at all but the northern site on Brigantine Island (undeveloped control location). The south end of Brigantine’s advance was due to sediment trapping by the north jetty to Absecon Inlet. The Federal fill on Absecon Island shows on the northern three sites where the project was conducted. The second illustration shows the dramatic up-turn in sand volume average in the county as the Federal project added the most sand of any of the beach fills. The 1997 Brigantine sand volume was a million cubic yards however, sponsored by the State and local governments.

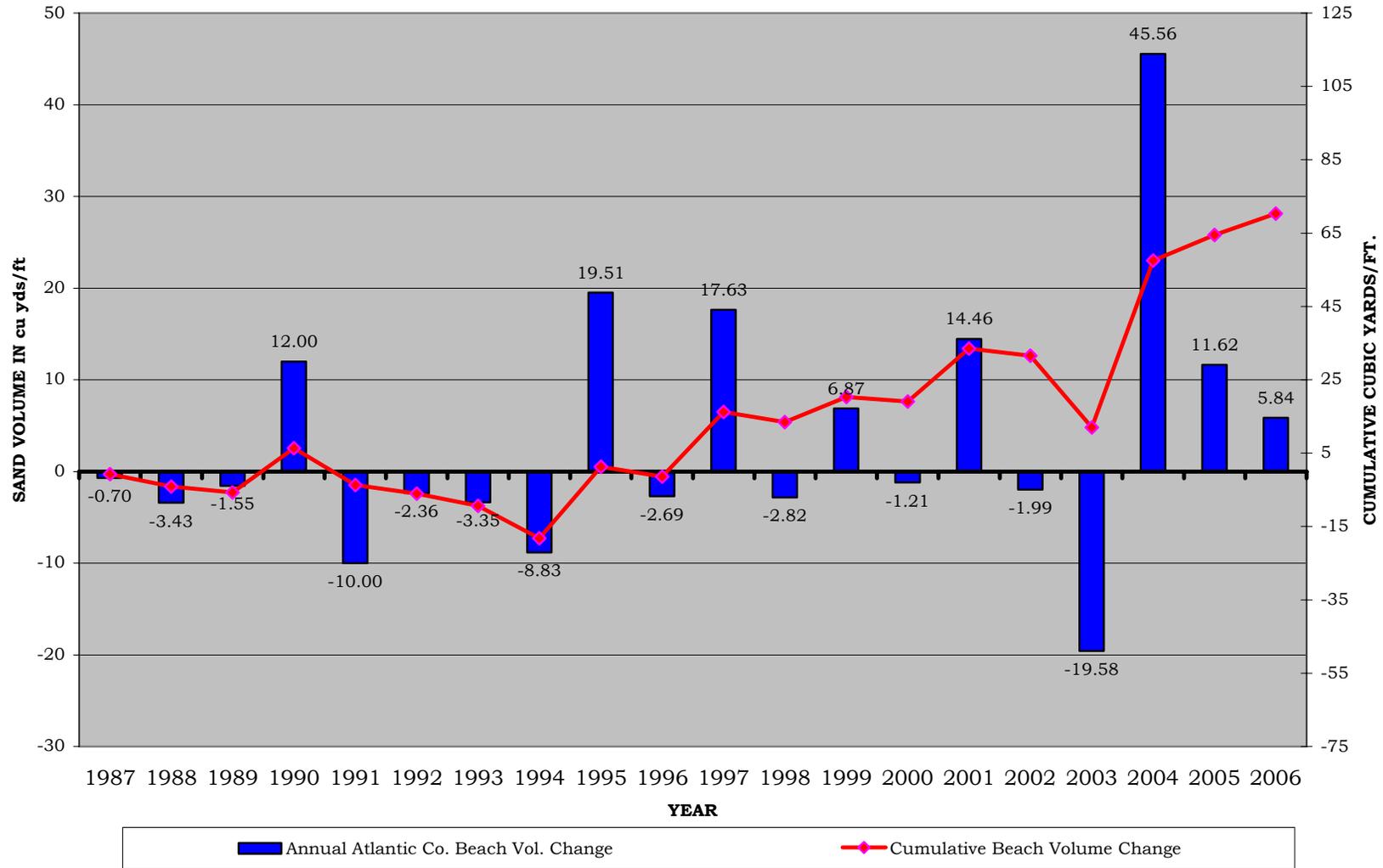


Summary Illustration 5: The Atlantic County shoreline received Federal support for shoreline protection using beach replenishment for the northern part of the developed Brigantine beach and half of the Absecon Island oceanfront (Atlantic City and Ventnor City). Those results show in significant shoreline advances over the past 20 years of monitoring.

Brigantine Island’s shoreline has been rotating toward the northeast wave approach as the undeveloped northern segment retreated and sand built up at the north jetty to Absecon Inlet (site 131). The general trend from retreat at site 134, to increasing amounts of shoreline advance to the south documents this trend.

The three northern Absecon Island survey sites were within the fill placement area, the southern two were in Margate City and Longport. No surveys were conducted on the northern barrier island in Atlantic County due to it belonging to the Federal Forsythe Wildlife Refuge.

AVERAGE BEACH SAND VOLUME CHANGE for 9 PROFILES in ATLANTIC COUNTY 1987 - 2006



Summary Illustration 6: Beach nourishment in Atlantic County was done locally with most using State assistance until the Federal project in 2004 on Absecon Island, followed by Brigantine in 2006. This shows in the strong upward trend starting in 1997. The final cumulative sand volume was 70.33 yds³/ft. gain for the 9 Atlantic County sites.

Atlantic County New Jersey Beach Volume Changes Fall 1986 to Fall 2006 for 9 Sites – Taken From NJBPN Reports

Site Number	Fall Beach Sand Volume Change Each Year																				86-06	Beach	PROFILE			
	PROFILE	F 1987	F 1988	F 1989	F 1990	F 1991	F 1992	F 1993	F 1994	F 1995	F 1996	F 1997	F 1998	F 1999	F 2000	F 2001	F 2002	F 2003	F 2004	F 2005	F 2006	AVERAGE		(cu feet)/ft		
134		-55.58	11.32	-17.53	5.18	-2.93	-29.41	54.88	-65.45	27.52	11.24	18.02	19.43	0.73	-9.01	20.04	-20.00	2.83	1.23	-12.76	8.14	-1.61		-19.84	134	
133		2.97	-28.85	2.91	3.64	-9.73	1.47	-27.68	-20.88	26.35	-23.38	116.24	-13.15	-24.88	-24.93	41.78	-33.84	-2.16	-20.56	-6.66	96.45	2.76		32.48	133	
132		-21.06	10.78	-17.35	16.18	-10.33	7.47	-4.94	1.37	27.78	-9.05	37.93	32.89	13.60	-1.34	36.64	-27.56	-4.16	13.40	5.09	-0.38	5.35		63.00	132	
131		29.48	7.29	28.92	-23.25	12.88	11.89	-5.31	37.28	24.53	-6.62	-30.17	-4.30	34.49	-20.29	27.28	11.55	18.48	-2.12	37.02	-2.39	9.33		134.98	131	
130		33.08	-15.64	-17.58	15.81	-5.84	2.98	-19.38	9.71	0.47	5.03	-12.51	20.56	-22.14	-2.40	-6.71	9.69	-1.66	113.28	-21.92	-36.15	2.43		37.01	130	
129		18.11	-8.13	7.94	30.89	-23.59	8.25	-8.26	2.02	-10.96	6.75	23.89	-7.73	-2.03	15.49	-21.34	28.62	-42.47	167.94	-29.13	12.24	8.43		81.96	129	
128		-8.74	-0.68	25.59	5.46	-13.74	-5.62	-34.24	-12.92	48.92	-27.61	15.67	-47.35	44.60	5.05	-1.46	3.46	-60.73	150.19	37.70	-17.46	5.30		58.60	128	
127		-12.13	4.24	-2.98	9.73	-7.71	-29.53	39.35	-20.42	-6.83	30.12	-18.17	0.63	-14.57	23.58	8.40	16.90	-41.27	-13.75	35.58	17.79	0.95		11.48	127	
126		7.58	-11.18	-23.87	44.33	-29.00	11.28	-24.60	-10.14	37.84	-10.66	7.81	-26.38	31.99	3.00	25.48	-6.71	-45.10	0.40	17.76	-25.70	-1.29		22.26	126	
																								86-06	86-06 BEACH	
ATLANTIC AVERAGE		-0.70	-3.43	-1.55	12.00	-10.00	-2.36	-3.35	-8.83	19.51	-2.69	17.63	-2.82	6.87	-1.21	14.46	-1.99	-19.58	45.56	6.96	5.84	3.52				
CUMULATIVE VOLUME		-0.70	-4.13	-5.68	6.32	-3.68	-6.04	-9.39	-18.22	1.30	-1.39	16.25	13.42	20.29	19.08	33.54	31.55	11.97	57.53	64.49	70.33	73.85		46.88		

Table 5 - Each of these tables is designed to provide the reader/viewer with all the information distilled from 20 years of beach surveys at the 100 NJBPN sites along the coast of New Jersey. The red columns represent the site locations, which are presented in the County Site Map (figure 73). The data are the calculated dune, beach and offshore sand volume changes for each site for each year. These data are averaged across time at the right-hand, black-typeface column (labeled “86-06 AVERAGE”) to give the average sand volume for each site over 20 years time. The blue column is the sand volume change for just the beach to the zero elevation datum (NGVD29). A set of new sites was added in 1995 to fill gaps in coverage or cover beaches close to each NJ inlet.

The two bottom rows of numbers represent:

- a) The average annual Monmouth County sand volume change.
- b) The cumulative sum of these averaged changes.

Atlantic County New Jersey Shoreline Changes Fall 1986 to Fall 2006 for 9 Sites – Taken From NJBPN Reports

Site Number	Fall Shoreline Position Change Each Year																				86 to 06 change in the shoreline		
	PROFILE	F 1987	F 1988	F 1989	F 1990	F 1991	F 1992	F 1993	F 1994	F 1995	F 1996	F 1997	F 1998	F 1999	F 2000	F 2001	F 2002	F 2003	F 2004	F 2005	F 2006	AVERAGE	(feet)
134	-103.14	26.38	-27.58	-3.20	-5.60	-60.57	42.38	-27.00	41.20	-9.88	30.11	11.17	29.25	-48.75	53.42	-45.77	42.29	-44.20	0.90	55.02	-2.18	-43.52	134
133	-1.62	-99.11	-11.14	-10.64	-4.14	34.71	-77.89	-18.12	56.59	-72.85	242.90	-63.82	-63.80	32.70	44.71	-107.67	67.16	-70.10	-10.14	114.65	-0.88	-17.63	133
132	-103.59	40.41	-38.76	-3.46	8.62	39.03	-28.00	0.93	27.42	-3.29	104.39	2.93	64.10	-3.61	36.89	40.73	-27.06	-5.90	16.09	9.15	8.85	235.32	132
131	85.67	-21.33	68.54	-20.07	41.57	-8.17	-20.59	94.95	22.88	-68.61	-20.63	11.77	39.33	-64.49	59.27	44.88	45.26	-25.86	73.67	-71.66	13.32	266.40	131
130	59.58	-39.82	-53.23	49.52	-39.64	18.49	2.81	-17.39	0.20	5.50	-23.76	0.97	-7.50	16.84	-2.50	27.70	-59.78	171.91	-57.23	-27.59	1.25	25.10	130
129	22.64	-20.71	4.77	38.52	47.17	-38.06	-33.32	-36.37	50.97	-44.41	2.40	-7.08	-1.04	29.42	-25.46	-10.97	-1.40	173.73	46.19	-59.77	6.86	137.21	129
128	-13.44	-31.42	66.25	21.42	-30.08	-9.55	-46.87	-43.35	20.50	2.36	0.15	-32.91	28.26	39.31	17.38	-44.50	-40.19	208.58	8.52	-52.81	3.38	67.59	128
127	-30.77	-3.51	-32.85	71.44	26.18	-88.66	14.83	4.95	-8.61	60.82	-25.31	4.02	-43.63	52.10	33.91	14.16	-46.54	-24.48	29.67	97.11	5.24	104.79	127
126	52.28	-75.71	-57.74	107.00	-52.91	91.13	-11.61	-29.33	48.46	-7.05	-23.67	15.70	62.41	-6.68	32.10	-51.64	-26.41	8.23	-7.43	-8.21	2.95	58.93	126
AVERAGE	-3.60	-24.98	-9.08	27.84	-0.98	-2.41	-17.58	-7.86	28.85	-15.27	31.84	-6.36	11.93	5.20	27.75	-14.79	-5.19	43.55	11.14	6.21	4.31	92.69	AVERAGE

Table 6 - The individual change in the position of the zero elevation point along each survey profile at each site shows the variation in shoreline location with time and as a result of major beach restoration efforts or storm events. This position is derived from the topography on the beach relative to the location of the site reference monument. This “shoreline” is located where the surveyed profile line crosses the zero datum elevation defined by the National Geodetic Vertical Datum of 1929 (the datum used when NJBPN was established in 1986). The red columns are the site location numbers, the black columns are each year’s shoreline position movement landward (-) or seaward (+) from the previous year. The last black type column is the average shoreline movement over the 20-year period, and the blue column is a direct comparison of the shoreline position in 1986 with that present in 2006. This shoreline change comparison covers the entire 20 years in one step.