

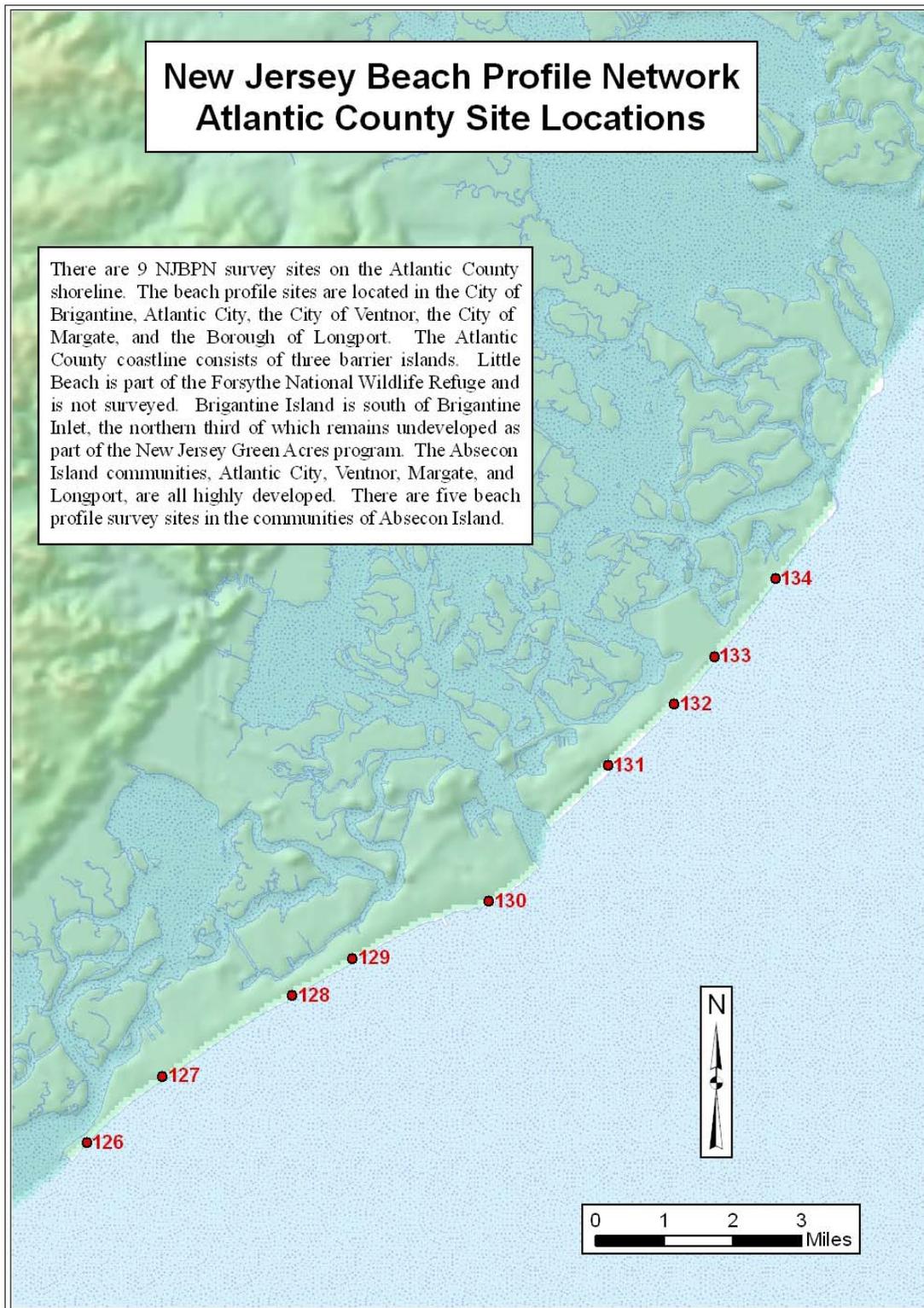


New Jersey Beach Profile Network

Atlantic County

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

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



**Figure75. Location map for the 9 NJBPN profile sites in Atlantic County, NJ
ATLANTIC COUNTY – SPRING 2008 to FALL 2009**

The Atlantic County oceanfront shoreline consists of three barrier islands. Between Little Egg Inlet and Brigantine Inlet the island of Little Beach belongs to the Forsythe National Wildlife Refuge. Brigantine Island is divided into a northern third that is undeveloped and owned by NJ Green Acres Program with the City of Brigantine, developed on the remainder. Absecon Island is home to Atlantic City, Ventnor City, Margate City, and the Borough of Longport. All Atlantic County communities have been the direct or indirect beneficiaries of federally sponsored beach nourishment projects that have substantially added to the beach width, sand volume on the beach and enhanced the dune protection for landward properties. The Absecon Island project was completed between fall 2003 and spring 2004 with sand derived from Absecon Inlet. The refusal of Margate City and Longport to participate in the project has resulted in a significant loss of sand from the southern third of Ventnor City beaches through end-effect erosion. Sand is transported (south) to the areas not initially replenished causing the fill to deteriorate on the southern Ventnor beach. The NJBPN surveys have documented substantial increases in sand volume at Benson Avenue in Margate and a minor increase all the way south at 17th Street in Longport. The Ventnor City profile is located in the middle of the municipal shoreline and has remained stable because it is well north of the project's termination at the border with Margate City. End-effect erosion from fill projects is a significant reason to have continuity of projects across an entire barrier island or between inlets.

The fall 2009 series of northeast storms were captured by the 2009 survey that took place in December following four of the six major events. The northern end of Absecon Island suffered dune losses and a much narrower beach as a result of numerous northeast storms. Sand accumulated at both barrier islands' southern ends as strong northeast driven littoral currents moved sand south along the beachfront. At the Absecon Inlet jetty on the Brigantine side, the shoreline advanced 75 feet as over 30 cubic yards of sand per foot of beachfront accumulated due to this southerly sand transport.

The City of Brigantine received beach sand derived from Brigantine Inlet during 2006 to renourish the erosional area located at the northern end of the development on the island. This area has been the site of three projects in 1997, 2001 and 2006. The first two were NJ State and locally sponsored with the 1997 initial fill amounting to 1,000,000 cubic yards of new sand. Lesser amounts have been added subsequently during maintenance projects, but the segment at the extreme north end of development in the City of Brigantine is a continuing zone of instability. Sand moves south toward the north jetty at Absecon Inlet creating a massive beach seaward of the development at the 43rd Street profile site. The loss of sand to the north has been a direct benefit to the City beaches to the south. This past year the transfer rate to the south dramatically increased as a result of increased storm frequency. If the 33 cubic yards per foot between 43rd Street and the jetty remained constant for the distance between 43rd Street and the jetty, the total volume added south of 43rd Street becomes 213,345 cubic yards of new sand arriving at the beach immediately north of the jetty (43rd St. is 6,456 feet north of the jetty). This sand volume is being added to a shoreline segment that could act as a source of sand if pumping it were permitted either back north to the zone of erosion on Brigantine Island, or transferring it across the inlet to the northern Atlantic City beaches.

On Absecon Island the sand supply provided by the ACOE in 2003 has been depleted to the point where the erosion is shifting south beyond the Steel Pier, located just north of the North Carolina profile site. The northeast storm-enhanced sand volume redistribution from the northern beaches to the south ends of each island is also documented by comparing the data from No. Carolina Avenue vs. 17th Street in Longport. The March 2010 northeast storm put salt water in the basement of the Showboat Casino in Atlantic City due to the complete loss of the dunes.

23- Year Sand Volume Changes at Site 132, 15th Street, Brigantine

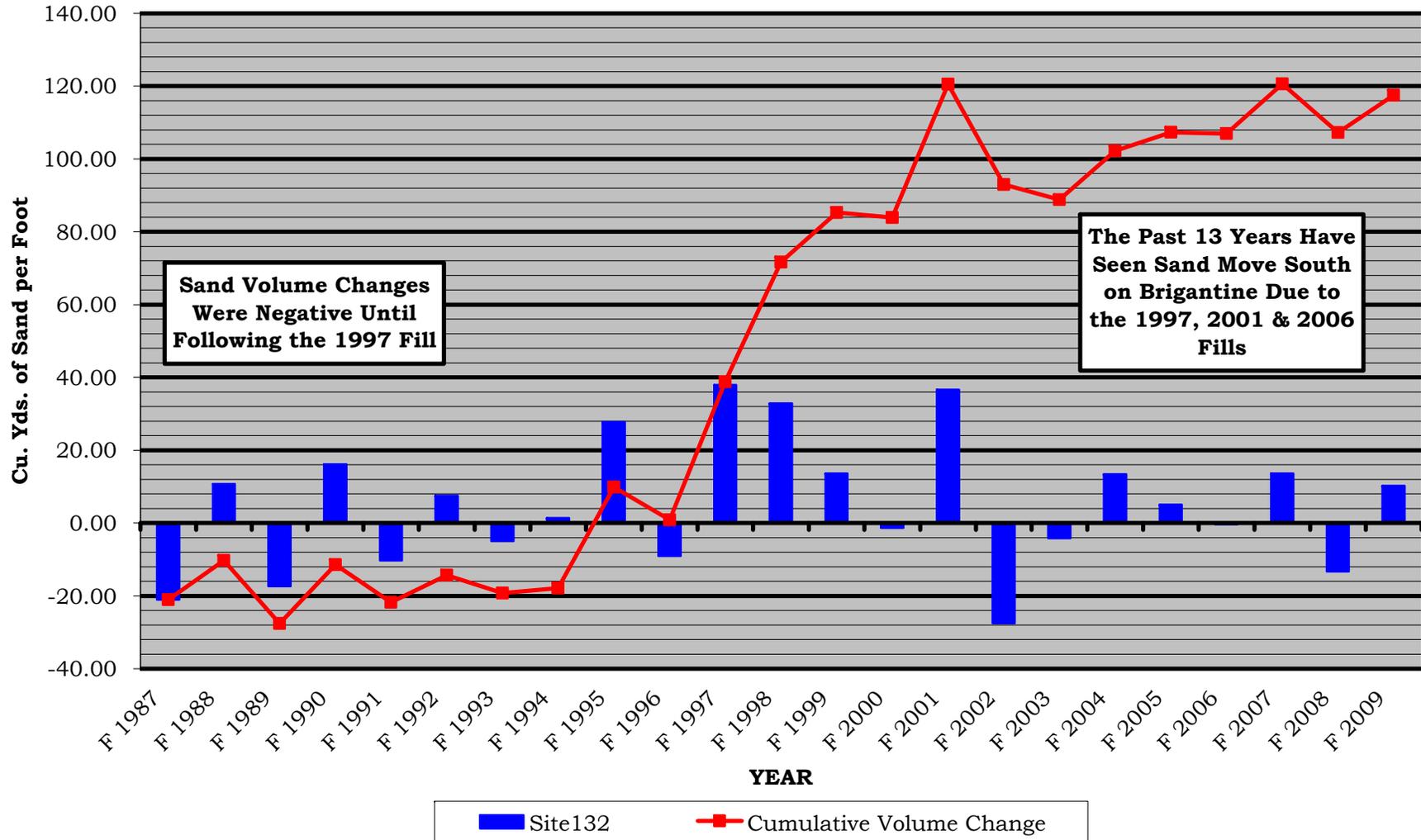


Figure 76. Brigantine Island is about three quarters developed with the northern section preserved in the NJ Green Acres program. This site lies in the center of development and about a mile south of the end of sand placement by the ACOE. The negative sand volume between 1987 and 1996 reflected sediment supply conditions at this location. Sand was pumped onto the northern third of Brigantine three times and southerly transport transferred over a 100 yds³/ft. to this location since 1997. The Absecon Inlet jetty traps enough sand to have effects here.

23- Year Sand Volume Changes at Site 130, No. Carolina Ave., Atlantic City

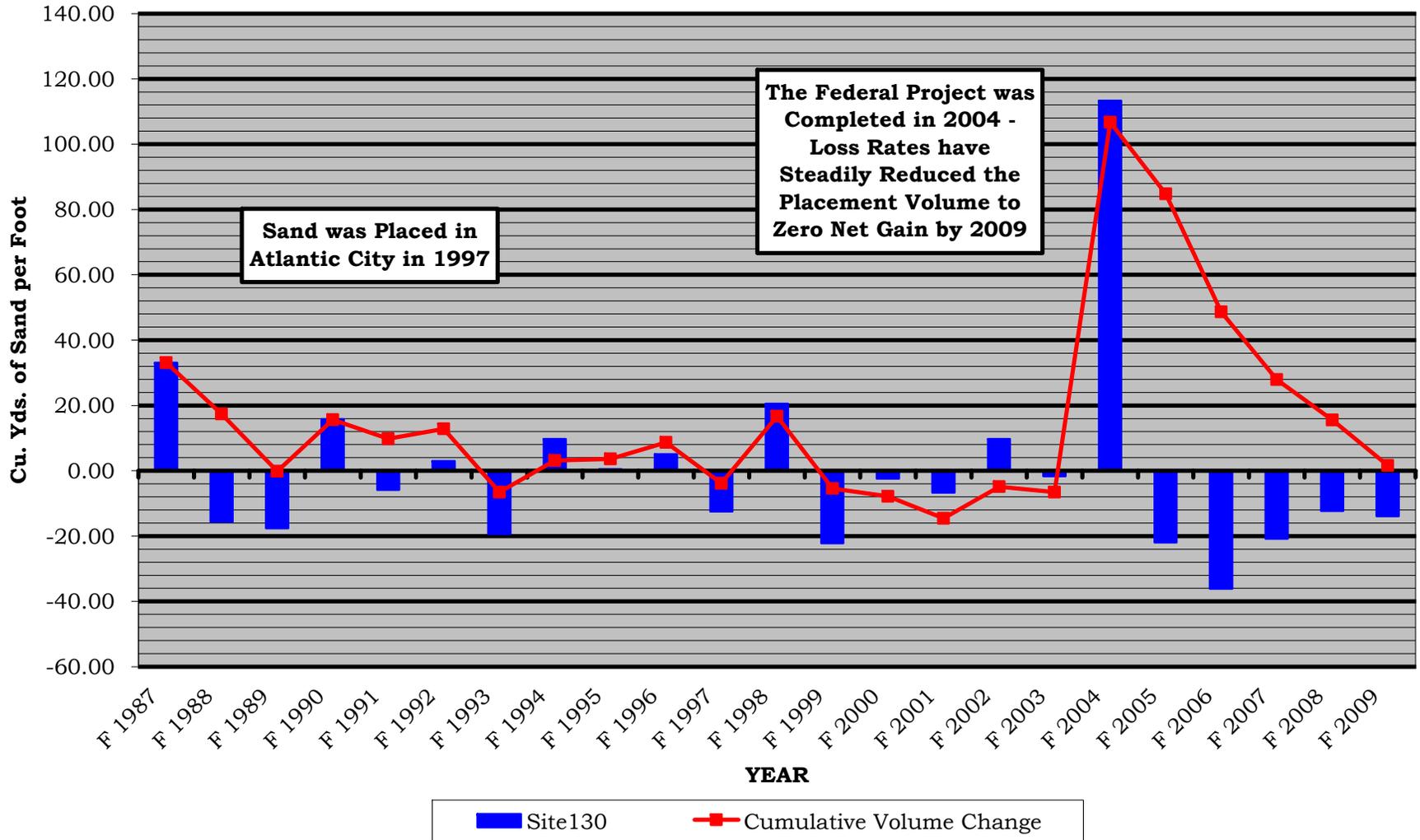


Figure 77. Comparison of the sites at opposite ends of Absecon Island shows the difference in shoreline stability with regard to beach nourishment projects. The placement volume was nearly 120 yds³/ft., but loss rates removed all that material by 2009. The 2009 losses would have been more had the sand been on the shoreline to erode, but the situation is becoming critical as the high tide line is pushing under the boardwalk north of the Steel pier in Atlantic City.

23- Year Sand Volume Changes at Site 129, Raleigh Ave. Ventnor City

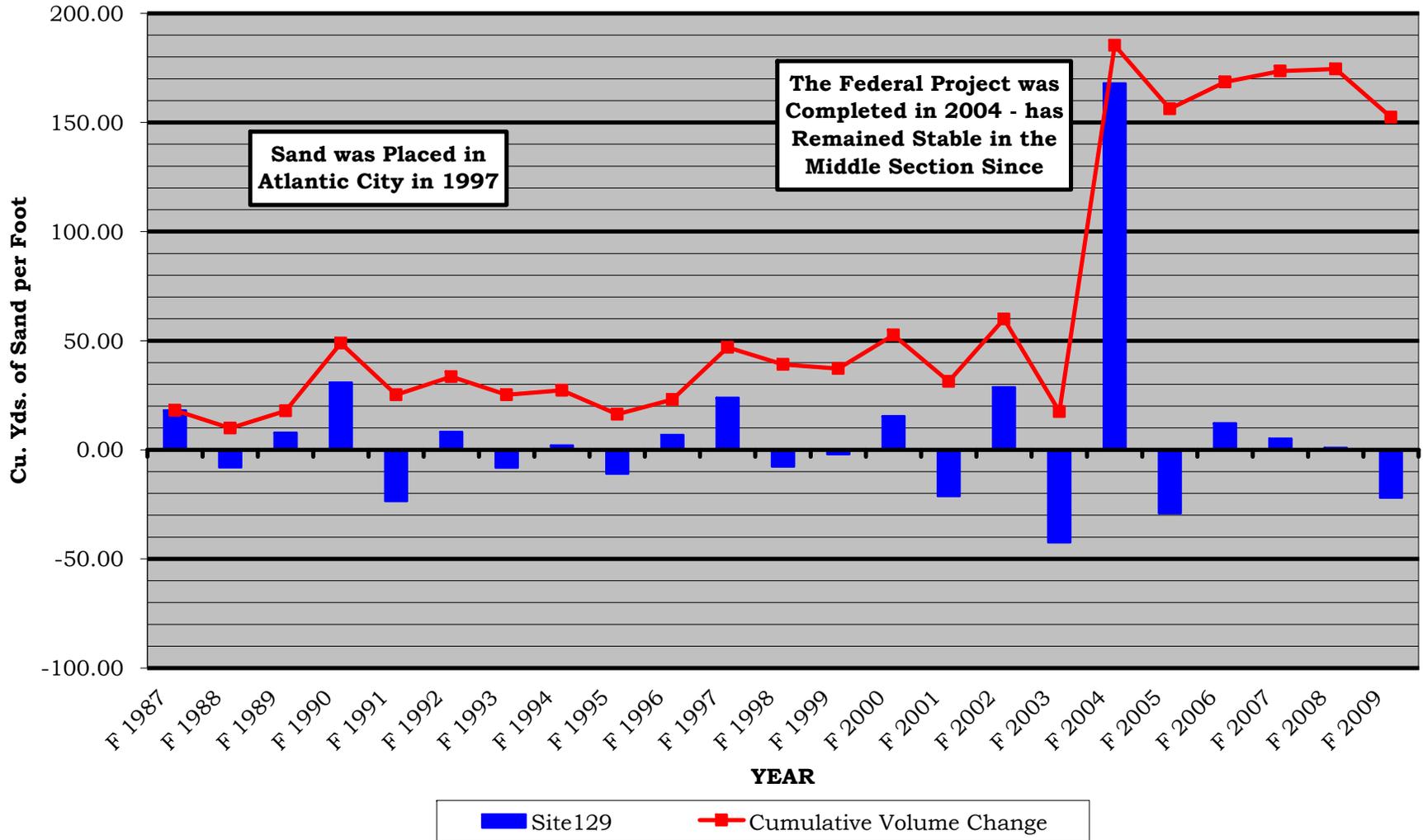


Figure 78. The Raleigh Avenue site is located near the boundary with Atlantic City. Atlantic City pumped sand onto its shoreline in 1984 and again in 1997 prior to the 2003-2004 Federal project. The dramatic gain shows in the 2004 fall survey as a 167 yds³/ft. sand volume placement. Losses since have been minimal at this location near the project’s center. The two communities at the southern end of the island elected not to participate in the project. Even the storms of 2009 had minimal impact on the total sand volume remaining.

23- Year Sand Volume Changes at Site 126, 17th Street, Longport

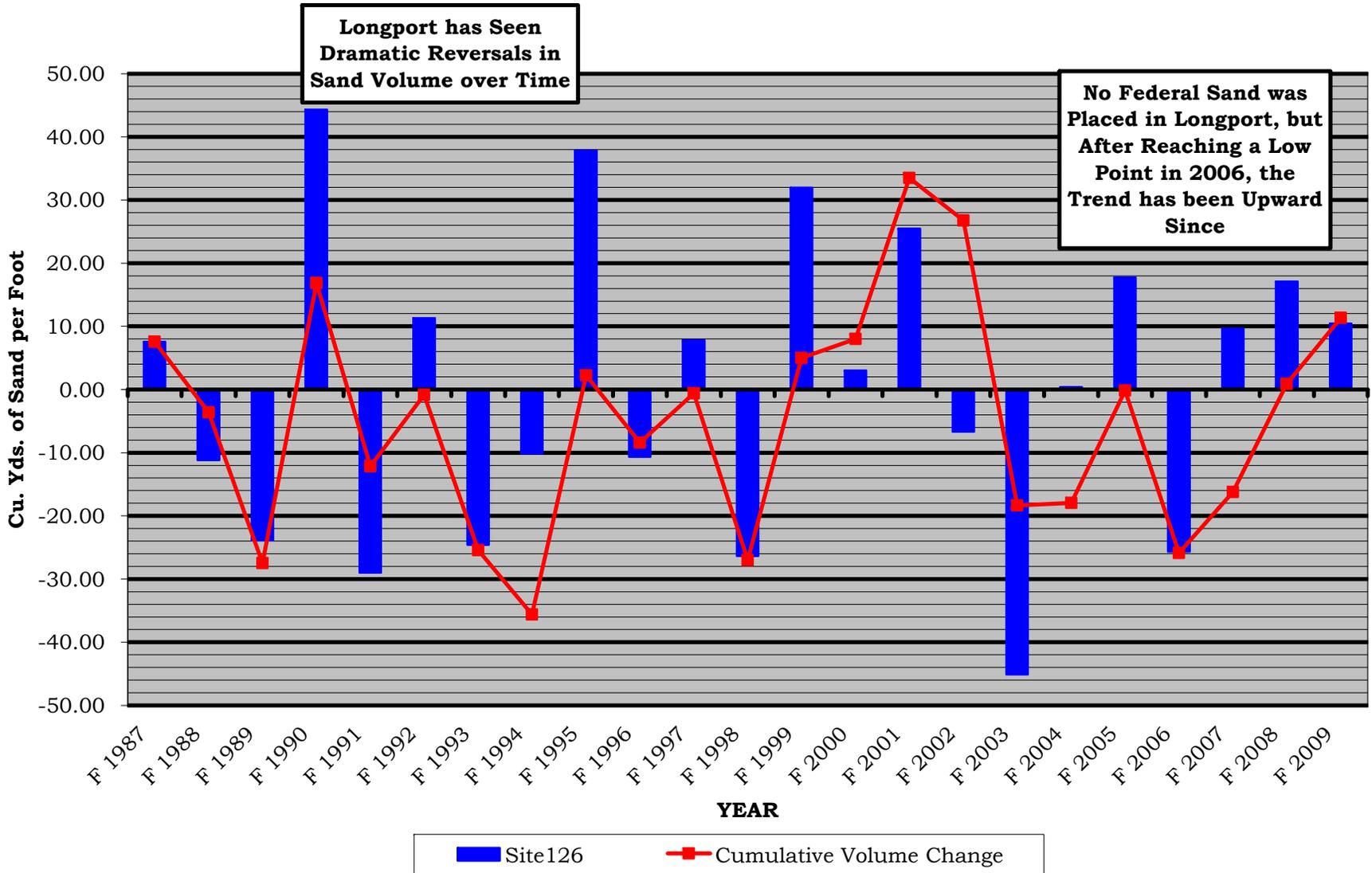


Figure 79. The situation at Longport shows how volatile the southern barrier beach can be on an island with groins, a terminal jetty and a concrete seawall. The 1990 spike was a modest sand placement by the State of NJ, the 1993 loss was the December 1992 storm. The 2003 loss is unexplained, but the three years of modest gains from 2007 to 2009 may be the result of Federal project sand reaching the southern end of the island. The 2009 gain was storm-driven deposition.

ANNUAL & CUMULATIVE OCEANFRONT SHORELINE SAND VOLUME CHANGES, ATLANTIC COUNTY 1987 to 2009

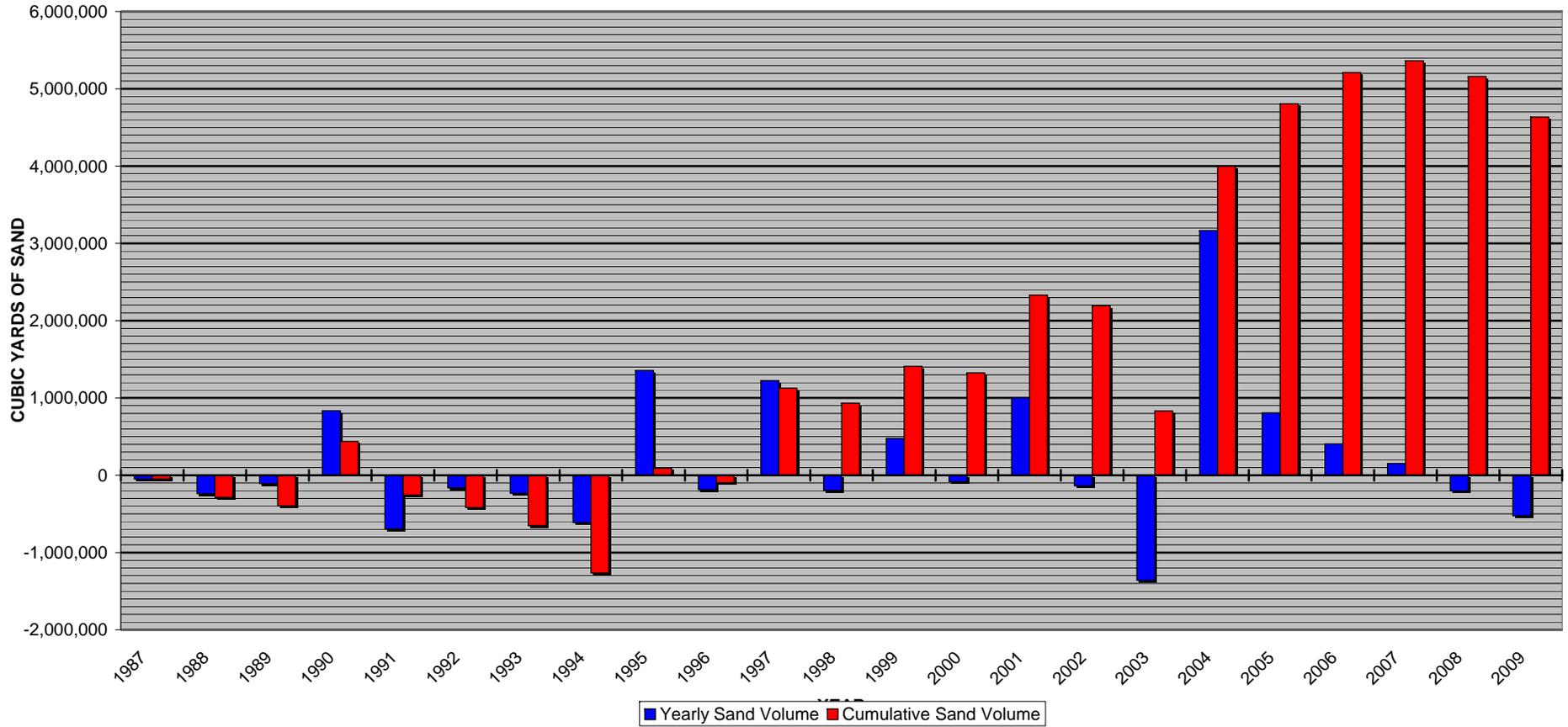


Figure 80. The 23-year countywide average sand volume change data support the improvement made by the three Brigantine nourishment efforts and the two in Atlantic City, 1997 and 2004 (Federal). The trend between 1987 and 1994 was downward, and then with the major projects starting, the trend reversed into positive territory. 2009 was the second year post-Federal fill that the average sand volume declined in Atlantic County, likely due to the storm frequency’s impact across the regional shoreline.

In summary the Absecon Island project is three years beyond its first maintenance date and the erosion is getting serious between Massachusetts and New Jersey Avenues extending south to Steel Pier at Trump's Taj Mahal Casino. While the State is capable of providing project funding the municipal share becomes 25% of the project cost instead of 8.75% under a Federal, State and local partnership (25% of the 35% State/local share of a federally-funded project). There is potential for ACOE-funded work on the Absecon Island project in 2010-2011, but bureaucratic and procedural delays mean the possibility of another winter without maintenance for the northern beaches on Absecon Island.

GREEN ACRES SITE - SITE 134



Photo taken December 8, 2008. View to the north.

Located near Brigantine Inlet on the undeveloped segment of Brigantine Island, this site has been monitored since the fall of 1971 when Stockton conducted its initial semester of courses.

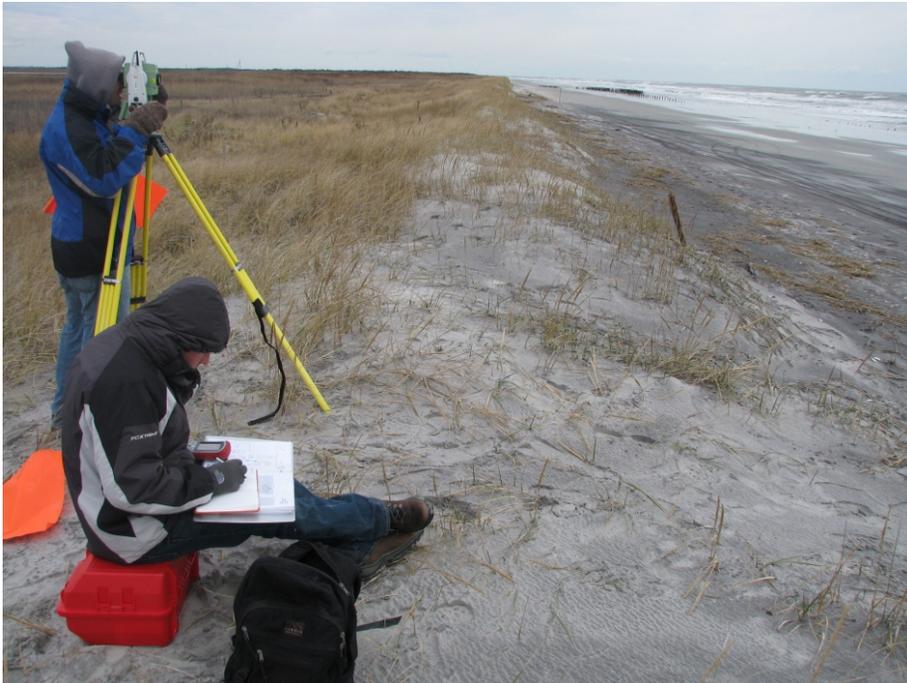
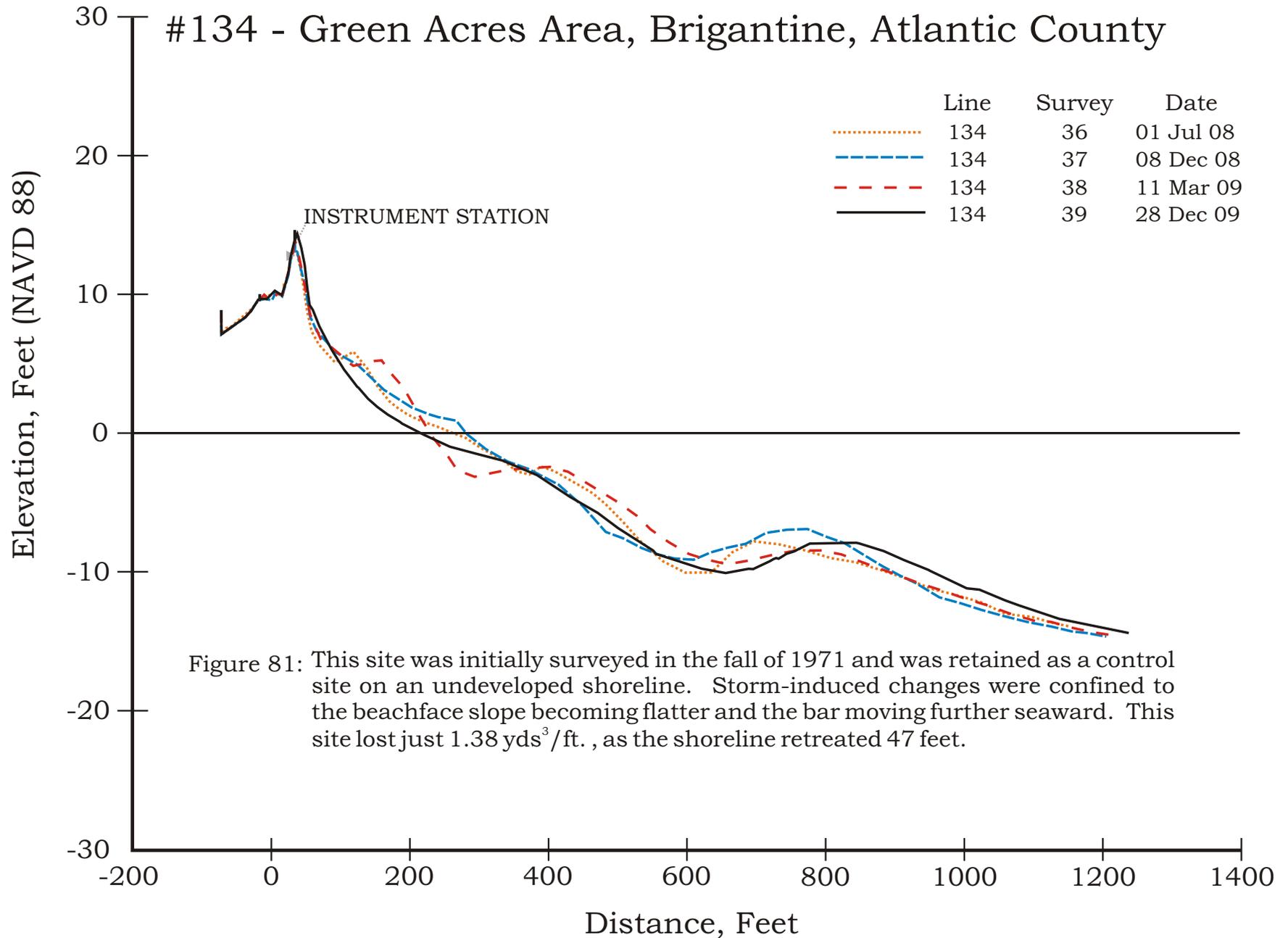


Photo taken December 28, 2009. View to the north.

Comparing the profiles over the one-year time period, the profile location lost volume (-6.17 cu yd/ft) and the shoreline moved landward (-65.50 ft).

New Jersey Beach Profile Network

#134 - Green Acres Area, Brigantine, Atlantic County



4th STREET NORTH, BRIGANTINE - SITE 133



Photo taken December 8, 2008. View to the north.

The 4th Street North site is located near the northern limit of development on Brigantine and at the southern edge of the 1997/2001 beach restoration projects. The ACOE fill included this site and extended 10 blocks further south in 2006. This site benefits from a dominant transport of sand from north to south along this shoreline.

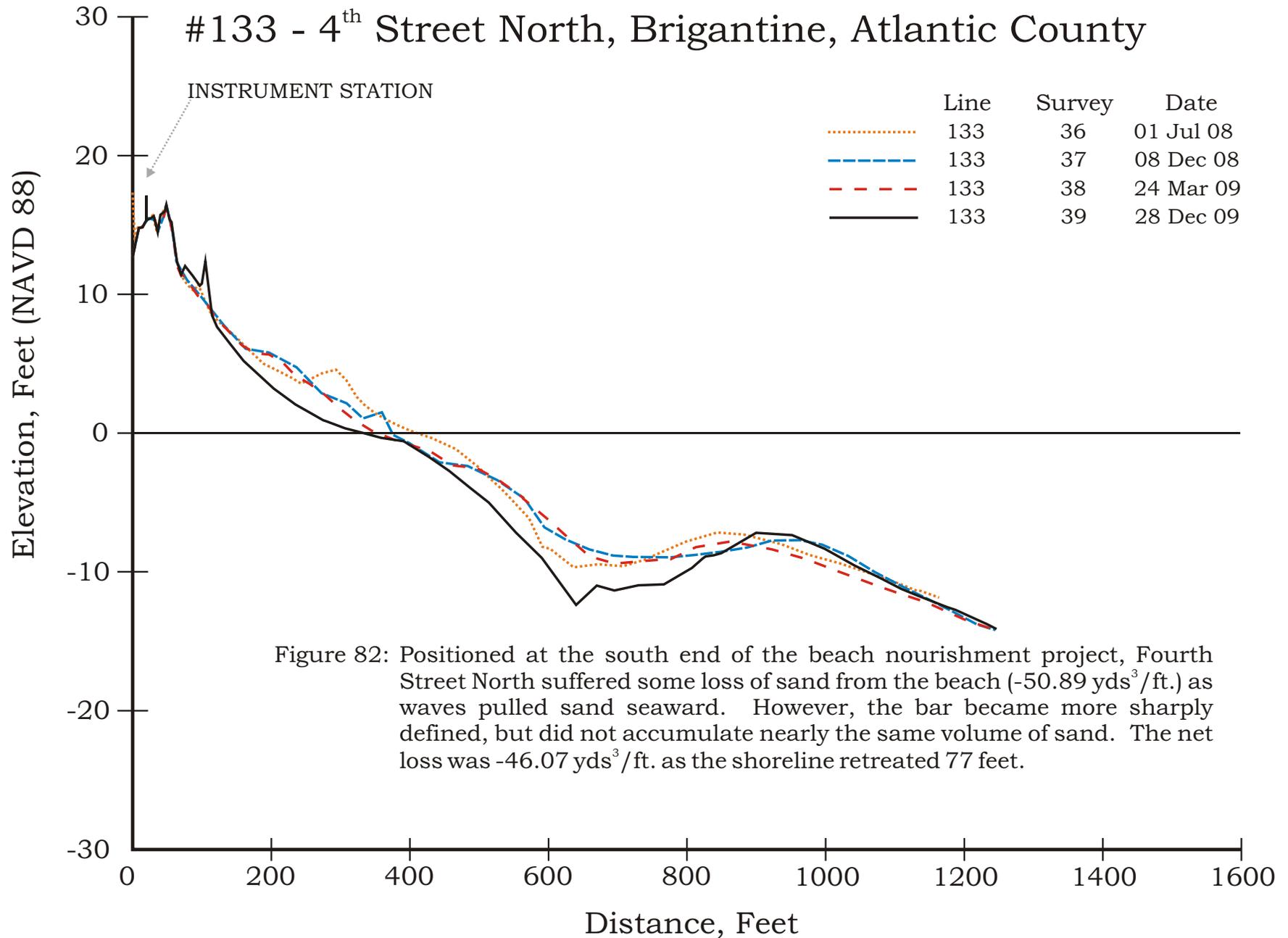


Photo taken December 28, 2009. View to the north.

Comparing the profiles over the one-year time period, the profile location lost volume (-44.54 cu yd/ft) and the shoreline moved landward (-40.73 ft).

New Jersey Beach Profile Network

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



15th STREET SOUTH, BRIGANTINE - SITE 132



Photo taken December 16, 2008. View to the south.

The isolated dune to the left has developed around a beach raking pile of debris over the past several years and the absence of strong northeast storm events has allowed it to grow in size.

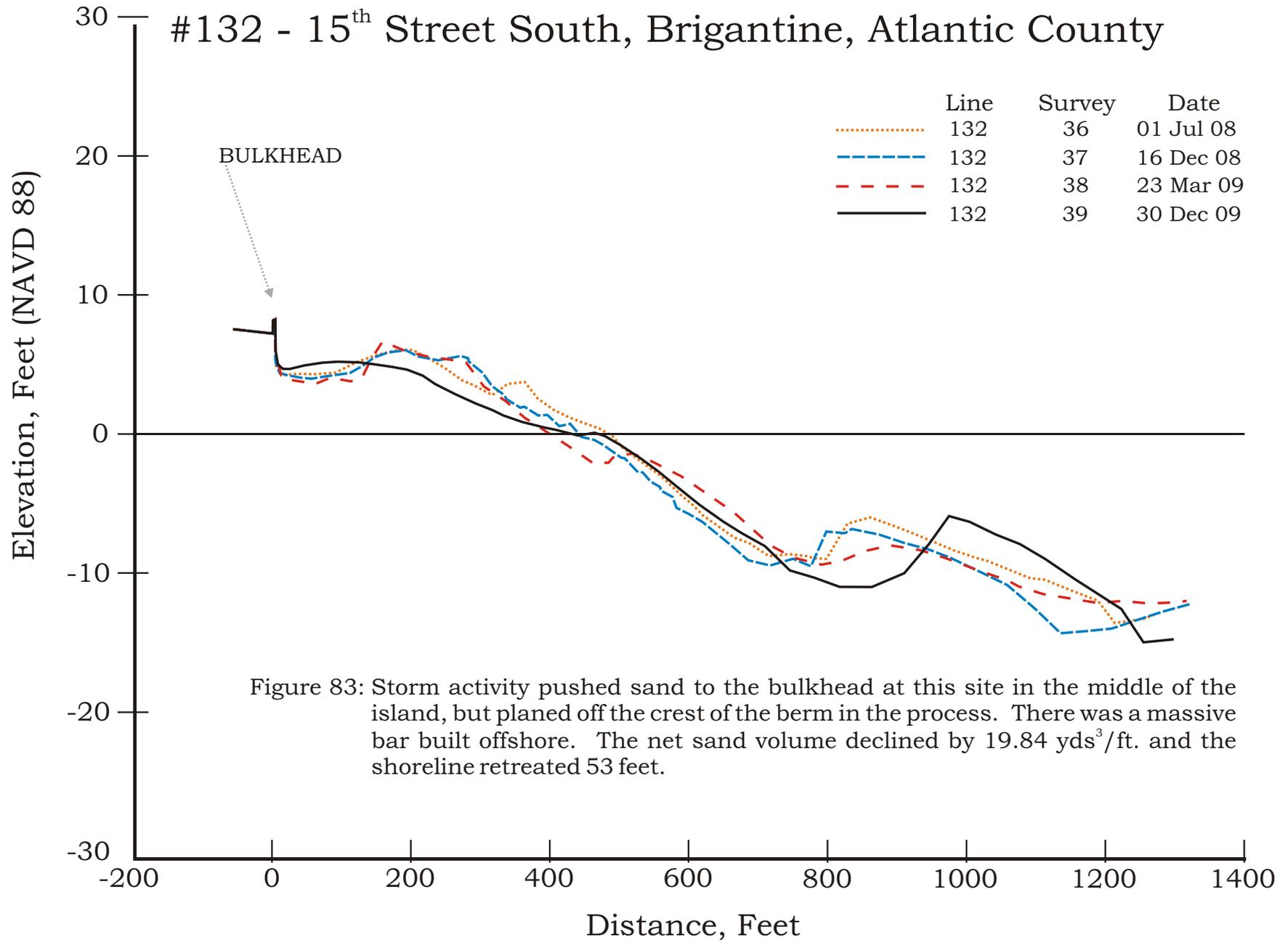


Photo taken December 30, 2009. View to the south.

.Comparing the profiles over the one-year time period, the profile location gained volume (10.24 cu yd/ft) and the shoreline moved landward (-9.11 ft).

New Jersey Beach Profile Network

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



43rd STREET SOUTH, BRIGANTINE - SITE 131



Photo taken December 9, 2008. View to the south.

At 43rd Street South the beach width has become more easily expressed in fractions of a mile between the development and the shoreline. This view shows the wide, dry beach, due to the sediment trapping effect of the north Absecon Inlet jetty.

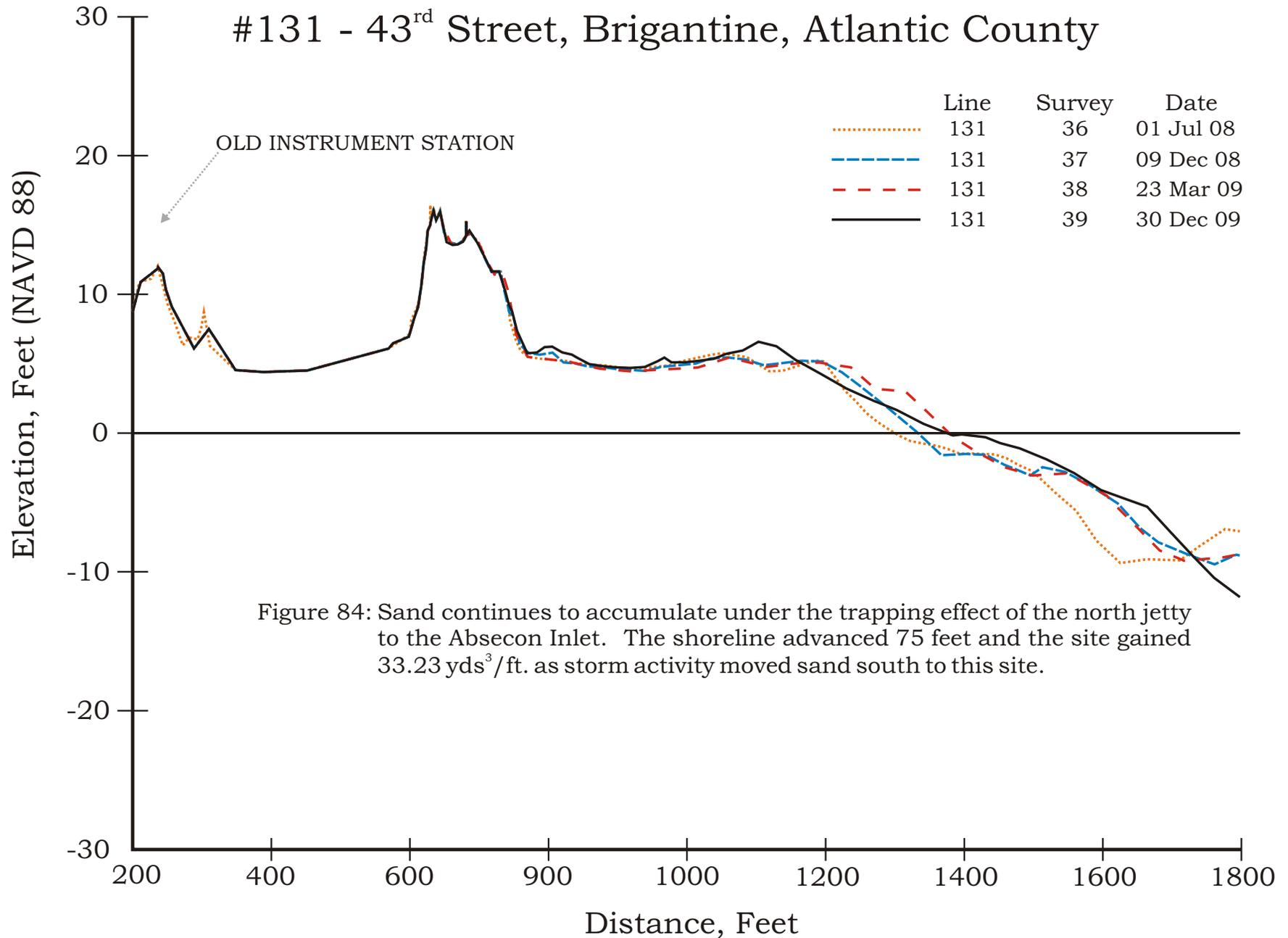


Photo taken December 30, 2009. View to the south.

Comparing the profiles over the one-year time period, the profile location lost volume (-2.01 cu yd/ft) and the shoreline moved seaward (41.79 ft).

New Jersey Beach Profile Network

#131 - 43rd Street, Brigantine, Atlantic County



NORTH CAROLINA AVENUE, ATLANTIC CITY - SITE 130



Photo taken November 26, 2008. View to the north.

Looking north toward the Steel Pier in Atlantic City on April 7th 2007 shows the dune built following the 2002 Federal beach restoration effort. Some recession has been seen in the shoreline position since then, but the worst erosion is further north of the pier.

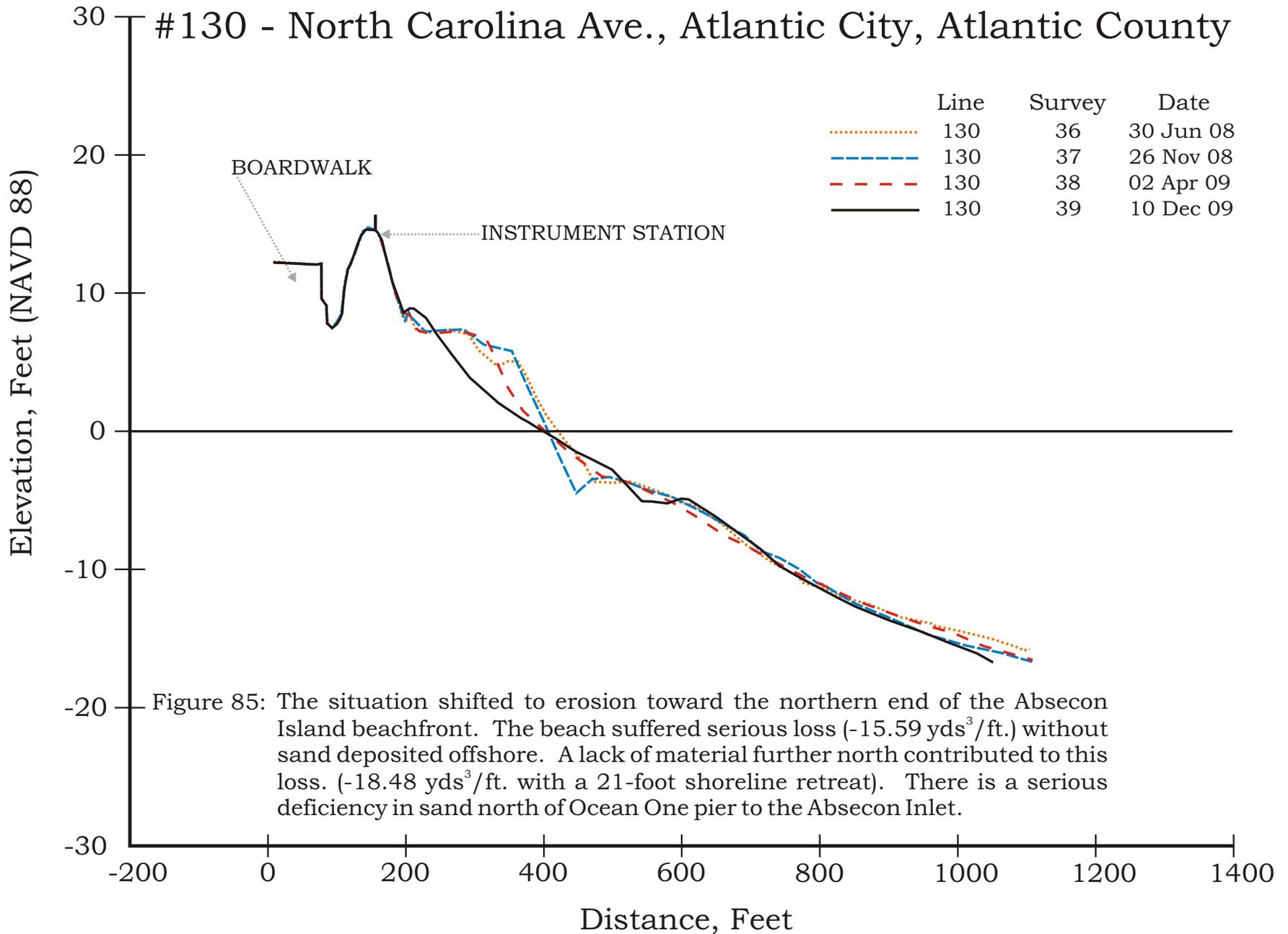


Photo taken December 10, 2009. View to the north.

Comparing the profiles over the 13 month time period, the profile location lost volume (-13.91 cu yd/ft) and the shoreline moved landward (-6.7 ft).

New Jersey Beach Profile Network

#130 - North Carolina Ave., Atlantic City, Atlantic County



RALEIGH AVENUE, ATLANTIC CITY - SITE 129



Photo taken November 19, 2008. View to the north.

The Raleigh Avenue site received beach material in 2002 and the dune was re-configured wider and higher. The beach width still reflects the 2002-03 ACOE project as sand lost to the south has been compensated by sand moving into this area from further north. This vegetation was planted in the fall of 2007 and has done well.

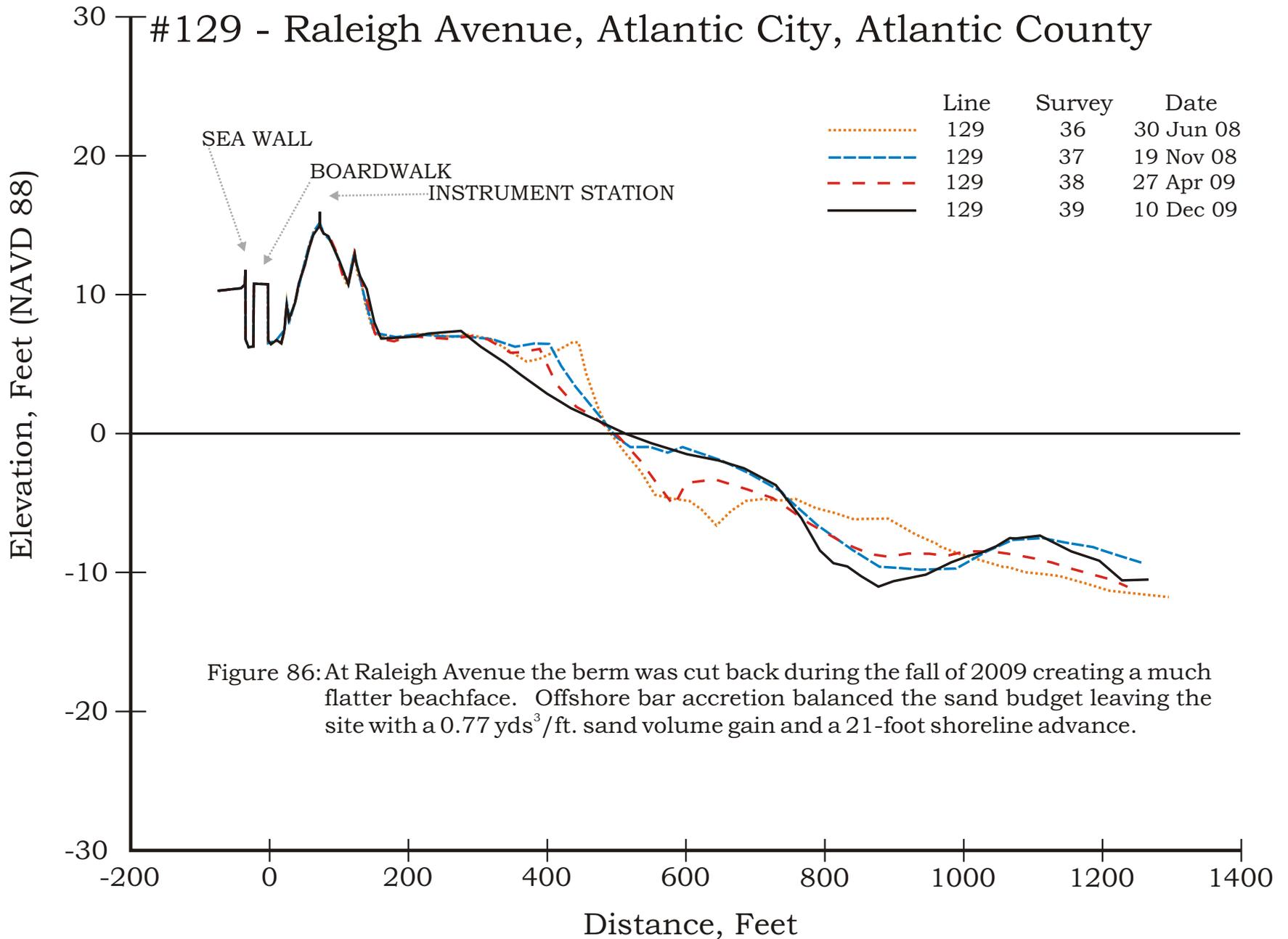


Photo taken December 10, 2009. View to the north.

Comparing the profiles over the 13 month time period, the profile location lost volume (-22.06 cu yd/ft) and the shoreline moved seaward (17.48 ft).

New Jersey Beach Profile Network

#129 - Raleigh Avenue, Atlantic City, Atlantic County



DORSET AVENUE, VENTNOR - SITE 128



Photo taken June 27, 2008. View to the south.

The Dorset Avenue site was nourished during 2002/03. There was a new dune built and vegetated. The photograph shows the beach at the berm with the fishing pier in the distance. The dune was re-established seaward of the original feature which was positioned just seaward of the boardwalk.

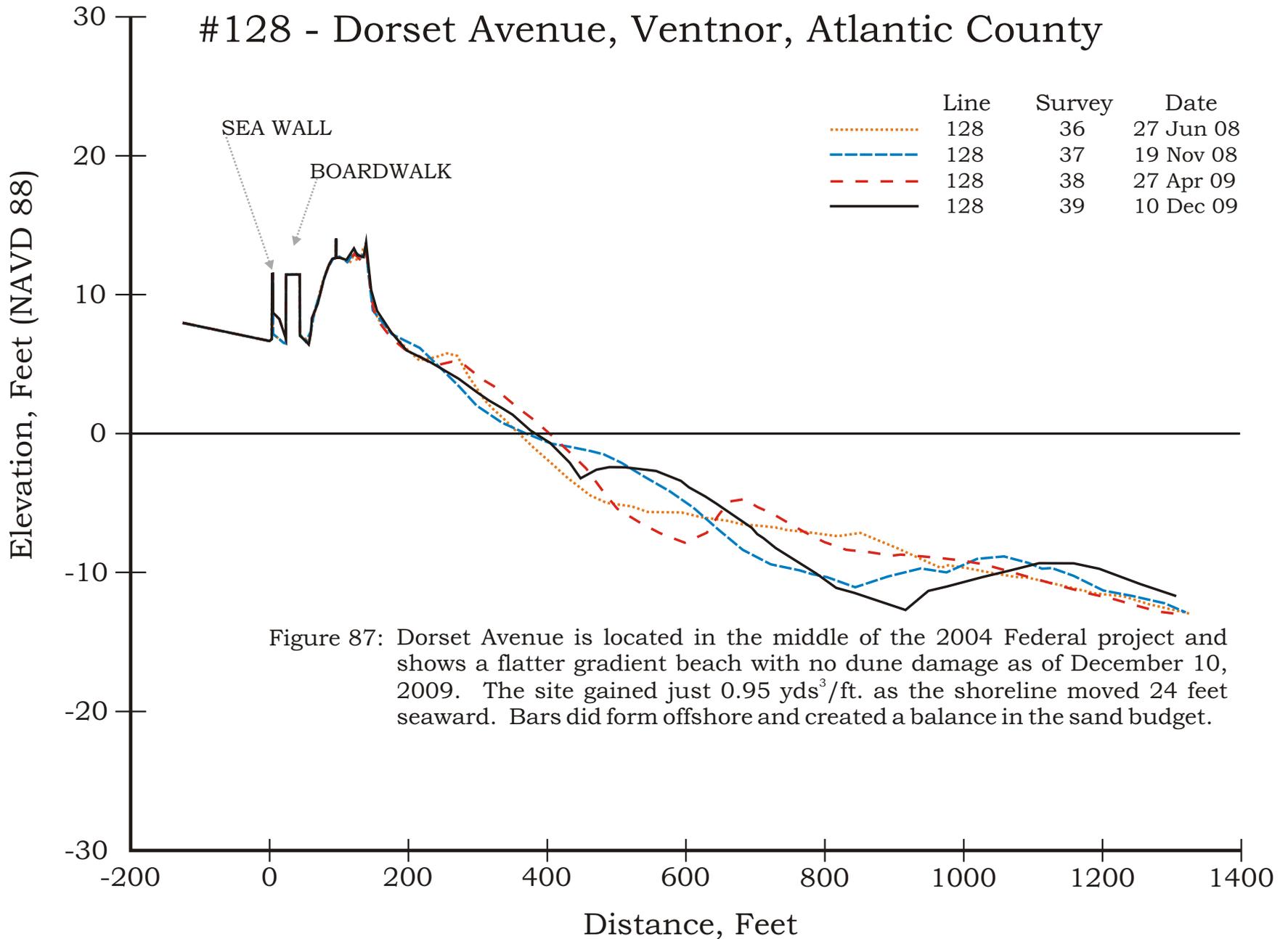


Photo taken December 10, 2009. View to the south.

Comparing the profiles over the 18 month time period, the profile location gained volume (0.95 cu yd/ft) and the shoreline moved seaward (23.71 ft).

New Jersey Beach Profile Network

#128 - Dorset Avenue, Ventnor, Atlantic County



BENSON AVENUE, MARGATE - SITE 127



Photo taken June 26, 2008. View to the north.

Benson Avenue in Margate City lies about a mile south of the terminus of the ACOE beach restoration project because neither Margate or the Borough of Longport chose to participate in the project. This beach has accumulated sand since 2003 and was derived from Ventnor City to the north.

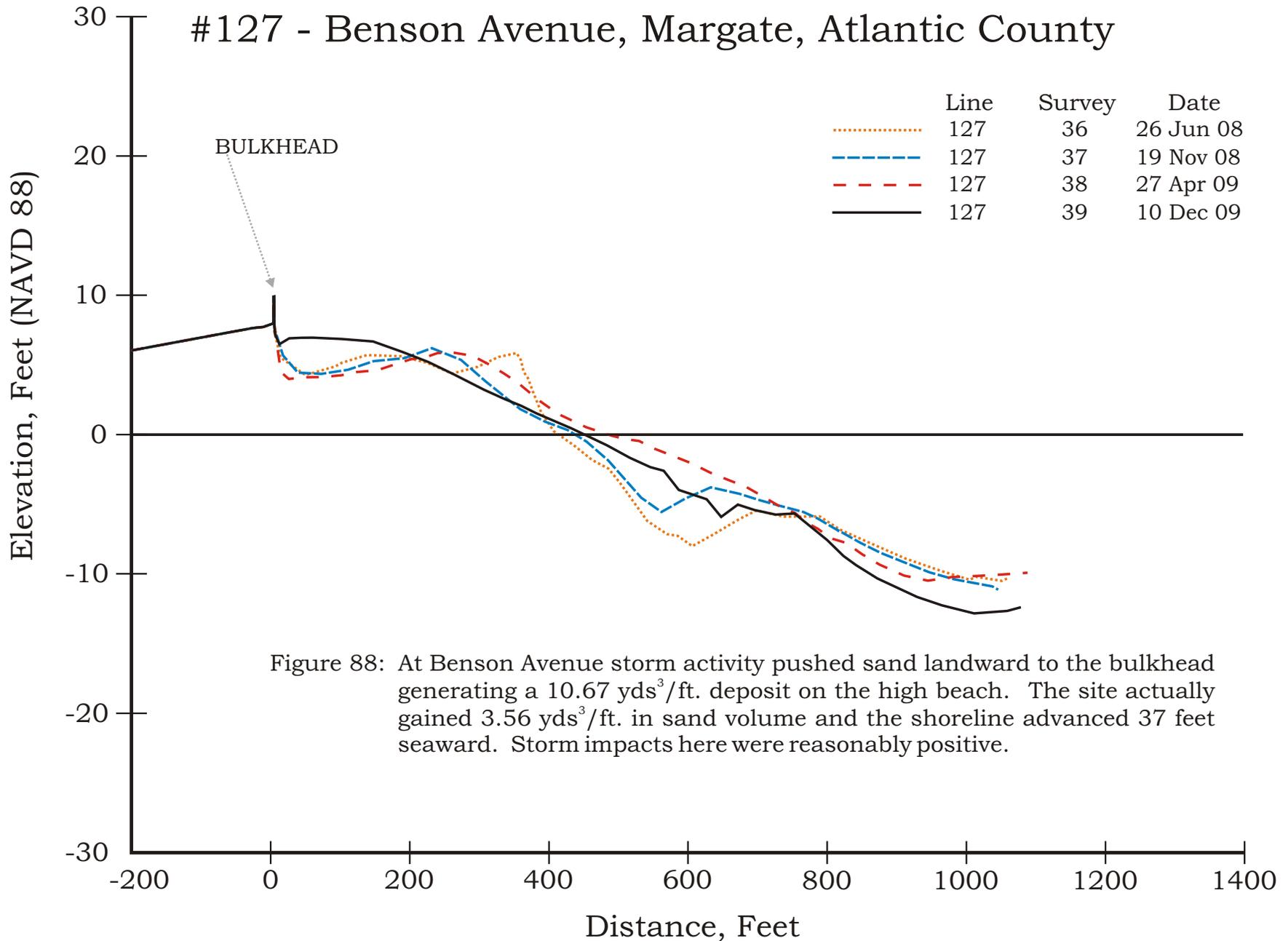


Photo taken December 10, 2009. View to the north.

Comparing the profiles over the 18 month time period, the profile location gained volume (3.56 cu yd/ft) and the shoreline moved seaward (37.42 ft).

New Jersey Beach Profile Network

#127 - Benson Avenue, Margate, Atlantic County



17th STREET, LONGPORT - SITE 126



Photo taken June 27, 2008 . View to the south.

The Longport site is about 15 blocks from the terminal jetty to Great Egg Inlet at 11th Street. This photograph shows the concrete seawall and armor stone seaward of the wall's base. Insufficient beach width exists to establish a dune along this segment of shoreline.



Photo taken December 29, 2009. View to the south.

Comparing the profiles over the 18 month time period, the profile location gained volume (23.59 cu yd/ft) but the shoreline moved landward (-26.31 ft).

New Jersey Beach Profile Network

#126 - 17th Street, Longport, Atlantic County

