



New Jersey Beach Profile Network

Ocean County

Manasquan Inlet
to Little Egg Inlet

NJBPN Profile #'s
156 - 234

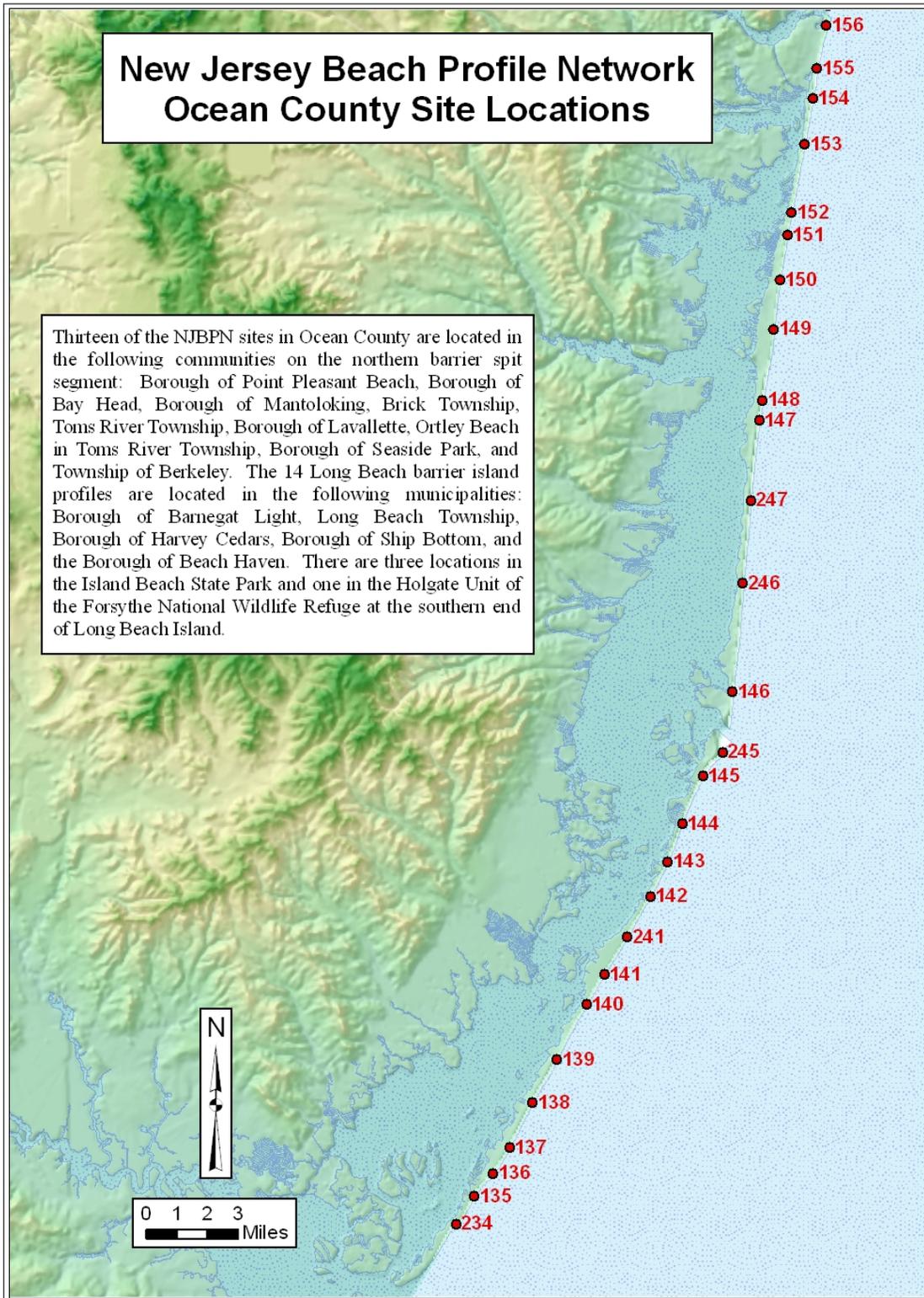


Figure 41. Locations of the 27 NJBPN profile stations in Ocean County, NJ.

OCEAN COUNTY SPRING 2007 to FALL 2008

A Federal beach nourishment project was completed on Long Beach Island in 2007 when sand was pumped onto Surf City and part of Ship Bottom, Long Beach Island starting in late 2006. This effort was not without serious setbacks unrelated to storm activity or erosion events. Unfortunately a major segment of the Ocean County shoreline remains under private ownership. Elsewhere most communities acquired title to the beachfront as the municipality evolved in the late 19th Century or early 20th Century. This private ownership extending to the high water line produced the necessity for each lot owner to provide the State with an easement granting access and for the placement of sand on the property in “perpetuity”. This did not appeal to many owners plus rumors circulated alleging that each owner “would be forced to allow unlimited access across the entire private lot; be required to allow placement of porta-potties for beach visitors; the project would ruin the view of the ocean; and limit the private owner’s rights in various and sundry other ways”.

This conflict held up and finally forced the ACOE to suspend the proposed multi-community project on Long Beach Island after completing Surf City by April 2007. The second setback was the discovery of obsolete military munitions and associated metal hardware in the sediment pumped onto the Surf City beaches just before the Memorial Day weekend. The press employed the term “BOMB”, which further fed the fires of discontent with beach nourishment. The “I had a BLAST on LBI” tee-shirts did not help either. The ACOE was forced to appropriate \$15.7 million sweeping the new beach for metal parts (Munitions and Explosives of Concern (MEC)) (fuses, detonators and other munitions hardware from WW I) then proceed to excavate the beach and sort the sand for buried ordinance. This project now completed was an effort to excavate the entire deposit and process the sand to catch anything that passed through the dredge. The munitions were carelessly dumped at sea prior ecological awareness. Years later the metal was sucked up off the sea bottom, went through the pumps into the transfer ship, then was re-pumped through the pipeline onto the beach. New requirements for screens on the dredge and to the end of the discharge pipe to catch such items should preclude this problem from reoccurring.

The decline in Federal funding for beach nourishment combined with increased hurricane frequency and intensity is cause for concern for the immediate future. Ocean County continues to have many of the more vulnerable areas within the state because no concerted effort has materialized to generate an “issue-free” project along the county shoreline. *This project was authorized in the 2007 Water Resources Development Act. The initiation of initial construction is dependent on the establishment of an adequate funding stream. The next steps toward initial construction once adequate funding is received is to initiate and complete the Limited Reevaluation Report; develop, approve and execute the Project Partnership Agreement; acquire the necessary real estate; complete plans and specifications; and advertise and award the construction contract. To date the FY 09 budget has not been approved. If this project receives funding in FY 09 project tasks will be determined based on the level of funding.* <http://www.nap.usace.army.mil/cenap-dp/projects/factsheets/NJ/Manasquan%20to%20Barnegat.pdf>

22- Year Sand Volume Changes at Site 154, 1117 Ocean Ave. Mantoloking

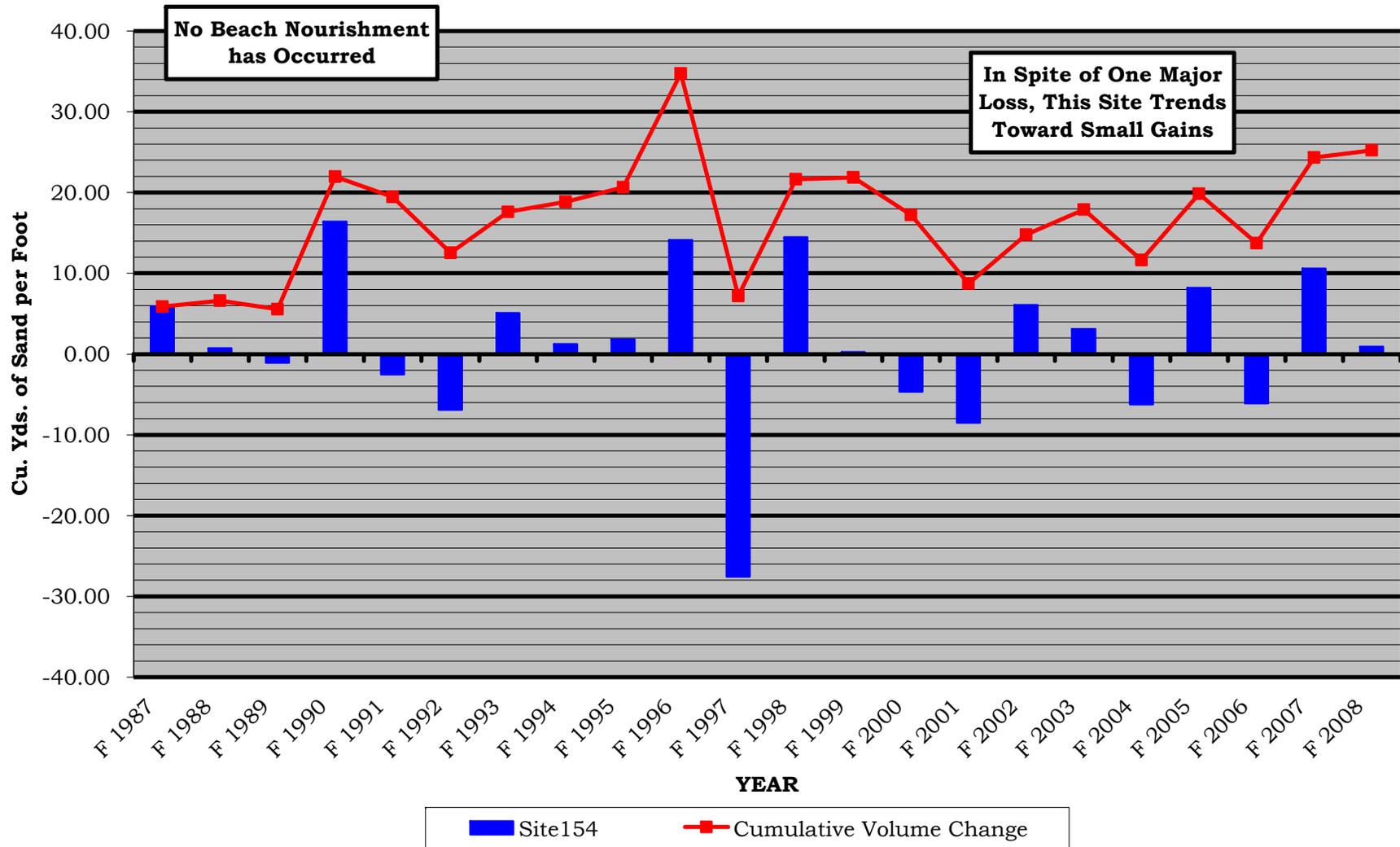


Figure 42. The Borough of Mantoloking has labored tirelessly toward gaining a Federally-sponsored shore protection project for Northern Ocean County, but funding difficulties, real estate issues, and organizing uniform northern Ocean County enthusiasm for the project produced very slow results. The site, centrally located in the Borough, varied in sand volume without much of a pattern in spite of two significant storms in 1991 and late 1992 (both negative above). The 1997 loss is unexplained by storm effects. In 22 years this site is about 25 cubic yards of sand per foot of shoreline ahead of the 1986 situation.

22- Year Sand Volume Changes at Site 138, Old Whaling Road, Long Beach Island

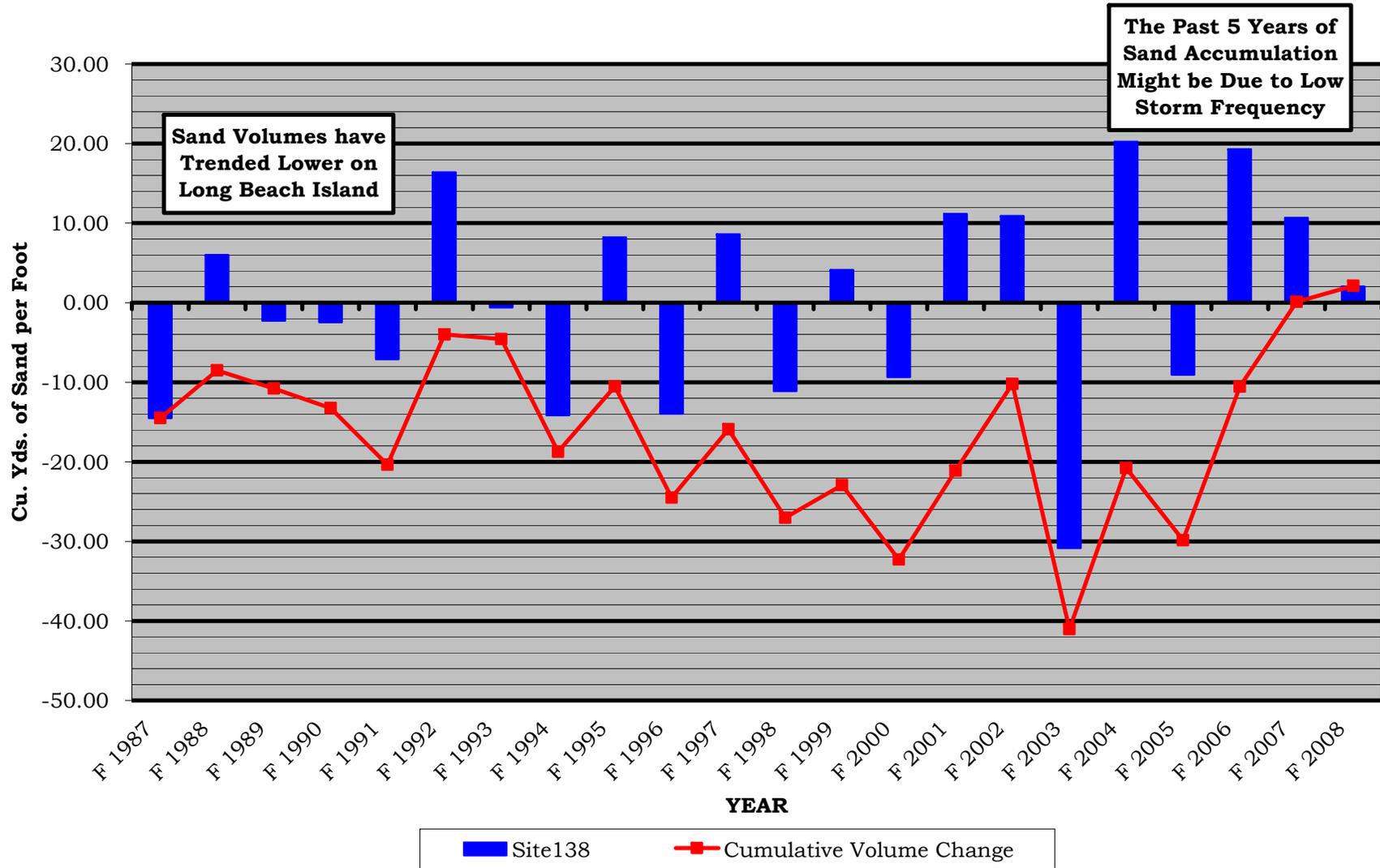


Figure 43. The Old Whaling Road site was selected to illustrate the degree of instability present along the Long Beach Island shoreline. The 1991 completion of the realignment of the Barnegat Inlet south jetty produced massive accumulation at the two northern sites surveyed (145 and 245). Here at the southern end of the island, the rate of loss was low, but easily magnified by storm activity. The 2003 minimum unraveled two years of modest gains and the following 4 of 5 years restored this loss to a 2.0 cubic yards of sand gain over 22 years.

AVERAGE BEACH SAND VOLUME CHANGE for 27 PROFILES in OCEAN COUNTY 1987 - 2008

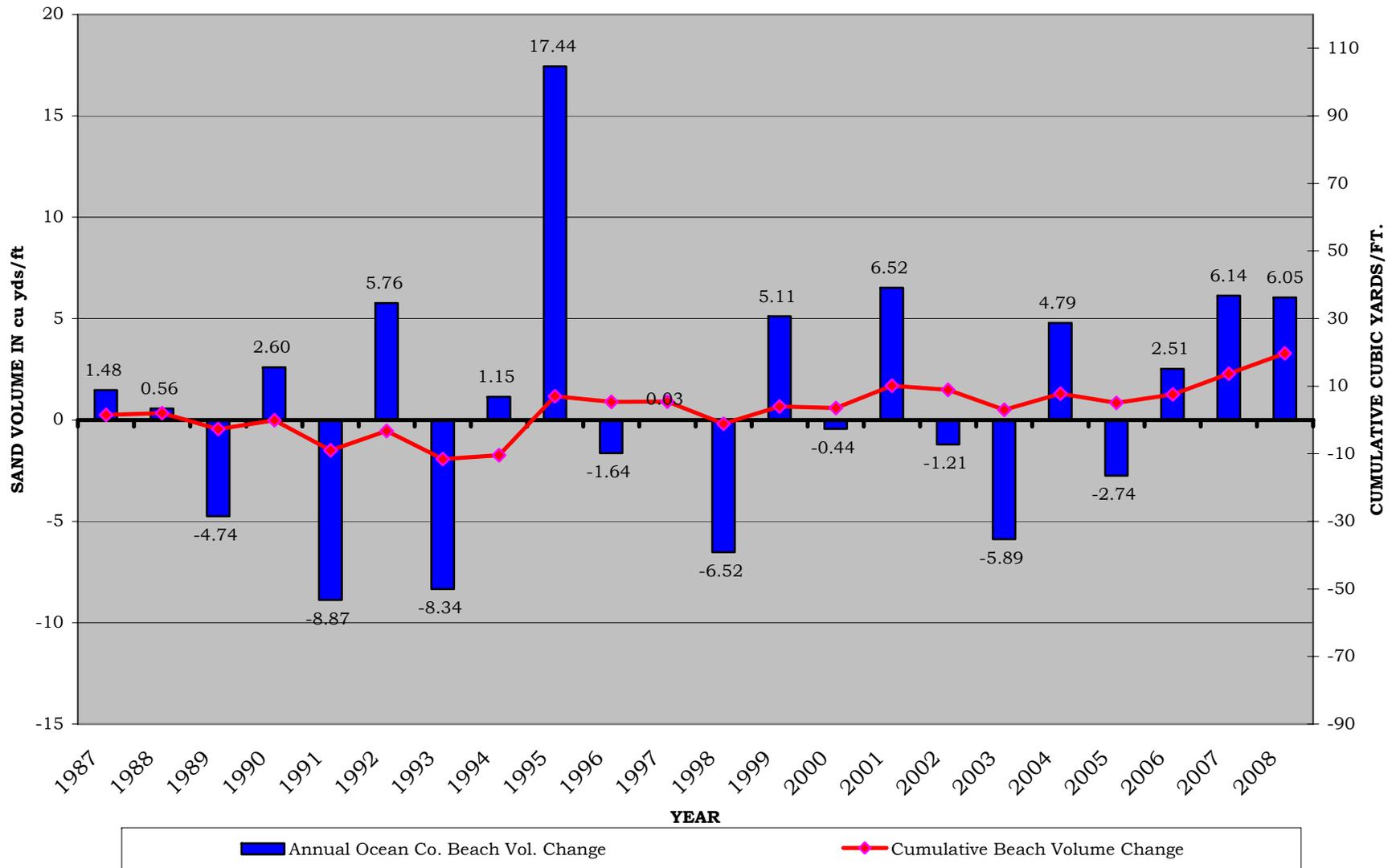


Figure 44. The average sand volume changes observed in Ocean County have ranged within the neutral range of plus or minus 2-5 yds³/ft. for many years. Recently the trend has been upward driven in part by the impact of the ACOE Surf City project in 2007. This was the first Federal project in Ocean County. There was no similar fill project in 1995 to explain the highest value documented over the past 22 years but recovery following the 1991 and 1992 northeast storms could have been delayed until 1995.

The two sites above show the trend difference seen along the Ocean County shoreline where small gains accumulate over multiple years without storms. Some sites do not accumulate sand in any significant quantity in spite of very few storms. The Federal project was started in Surf City in 2007, but the effect is limited to a small fraction of the Ocean County shoreline. The degree of storm vulnerability varies between significant end members where damage from a Category 3 hurricane would be unlikely to total overwash of the island by a 10-year northeast storm event. Most of the county's shoreline is vulnerable to an event with a 20-year recurrence interval probability.

The 18-month time period reflected in this study's data was one without significant northeast storms and no Atlantic coast hurricane activity impacting New Jersey. The worst storm was on May 12, 2008 and saw dune toe erosion and severe flattening of the dry beach slope seaward. The worst affected municipalities employed the time-honored methodology of either trucking in sand to restore the worst areas of dune erosion or using the bulldozer to harvest sand from the berm as recovery after the storm put sand back on the beach. The Borough of Mantoloking performed a "Borough-wide" dune toe restoration by pushing between 4 and 6 cubic yards of sand per foot of shorefront back to the scarp cut into the dunes. This community has a proactive monitoring program and can require the owners of the private beach to undertake this work by ordinance.

On Long Beach Island the arduous task of sieving the entire 2007 deposit of sand on Surf City and Ship Bottom was recently finished while the remainder of the proposed \$71 million beach restoration plan for the island is held in abeyance due to funding shortfalls and the lack of complete real estate documents within the privately held portions of the island's shoreline.

WATER STREET, POINT PLEASANT BEACH - SITE 156



The Manasquan Inlet is located a short distance to the north of this site, therefore often reflects dominant littoral transport toward or away from the inlet jetties. On March 12th 2007 this view to the south shows the wide beach with no dune that lies in front of the Point Pleasant Beach boardwalk.



By October 15th 2008 the trend observed elsewhere (Site #155 for example) adds confidence to the statement that southeast waves have been dominant for some time due to the large volume of sand added to this shoreline since March 2007. The lack of northeast storm activity is certainly a factor. The beach gained 43.45 yds³/ft. and the shoreline advanced 41 feet seaward as sand reached the jetties and backed up as a wedge deposited from the jetties tapering to the south.

New Jersey Beach Profile Network

#156 - Water Street, Point Pleasant, Ocean County

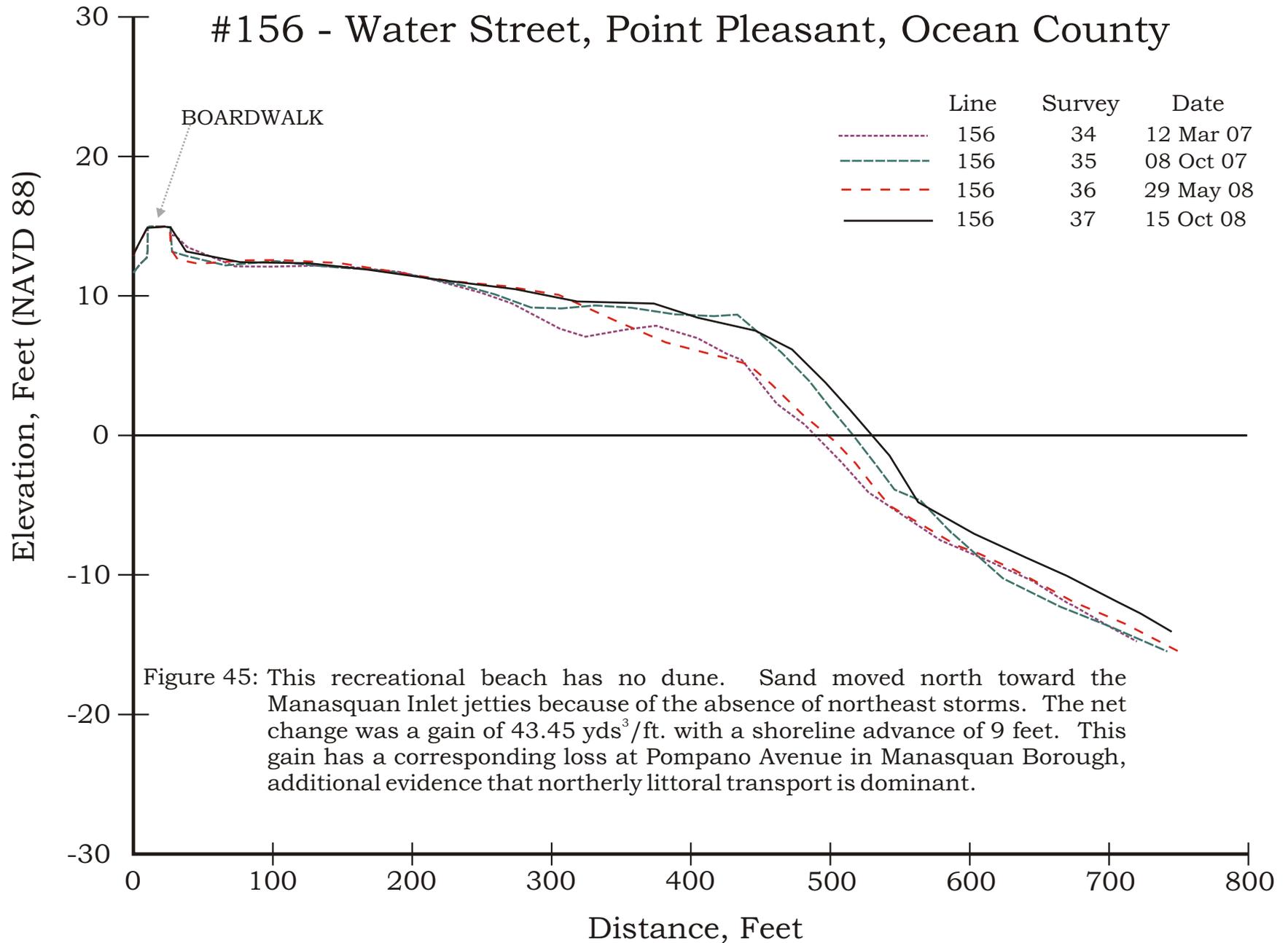


Figure 45: This recreational beach has no dune. Sand moved north toward the Manasquan Inlet jetties because of the absence of northeast storms. The net change was a gain of 43.45 yds³/ft. with a shoreline advance of 9 feet. This gain has a corresponding loss at Pompano Avenue in Manasquan Borough, additional evidence that northerly littoral transport is dominant.

MARYLAND AVENUE, POINT PLEASANT BEACH - SITE 155



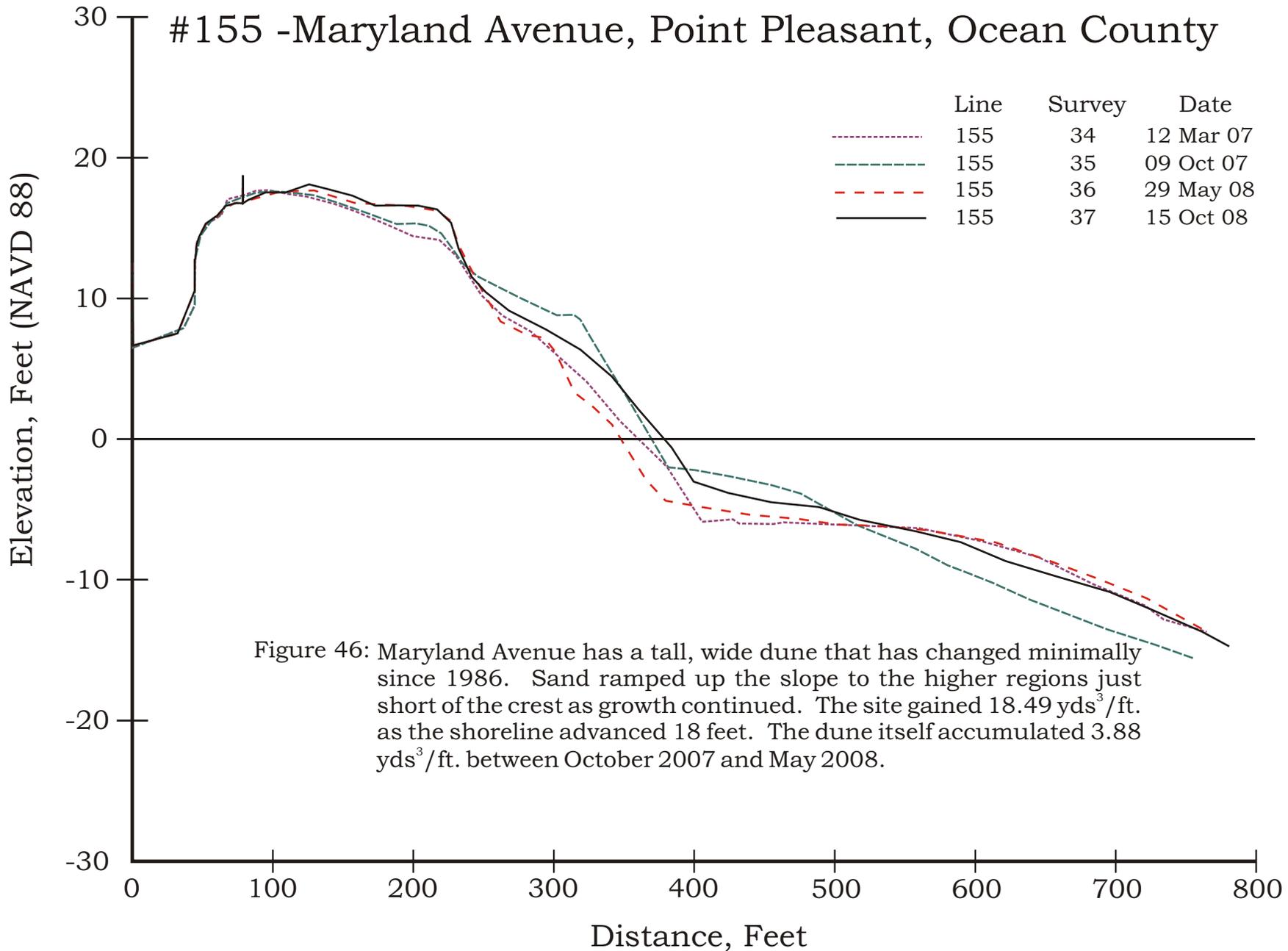
This view to the south on March 12th 2007 shows the first groin in Bay Head producing a significant offset to the south. This is common when waves move sand toward the north along this beach segment.



By October 15th 2008 the groin offset was nearly equal and this beach had become wider by 18 feet with 18.79 yds³/ft. of additional sand present on the beach (21.83 yds³/ft. at the beach). This cyclic nature of the groin offsets is most common in the Northern Ocean County coast because there is a near equal incidence of littoral sand transport in either direction. Northeast storms move sand south, followed by the southeast winds acting to move sand back to the north. The groin offset simply shows which direction is dominant at any one time.

New Jersey Beach Profile Network

#155 - Maryland Avenue, Point Pleasant, Ocean County



JOHNSON AVENUE, BAY HEAD - SITE 154



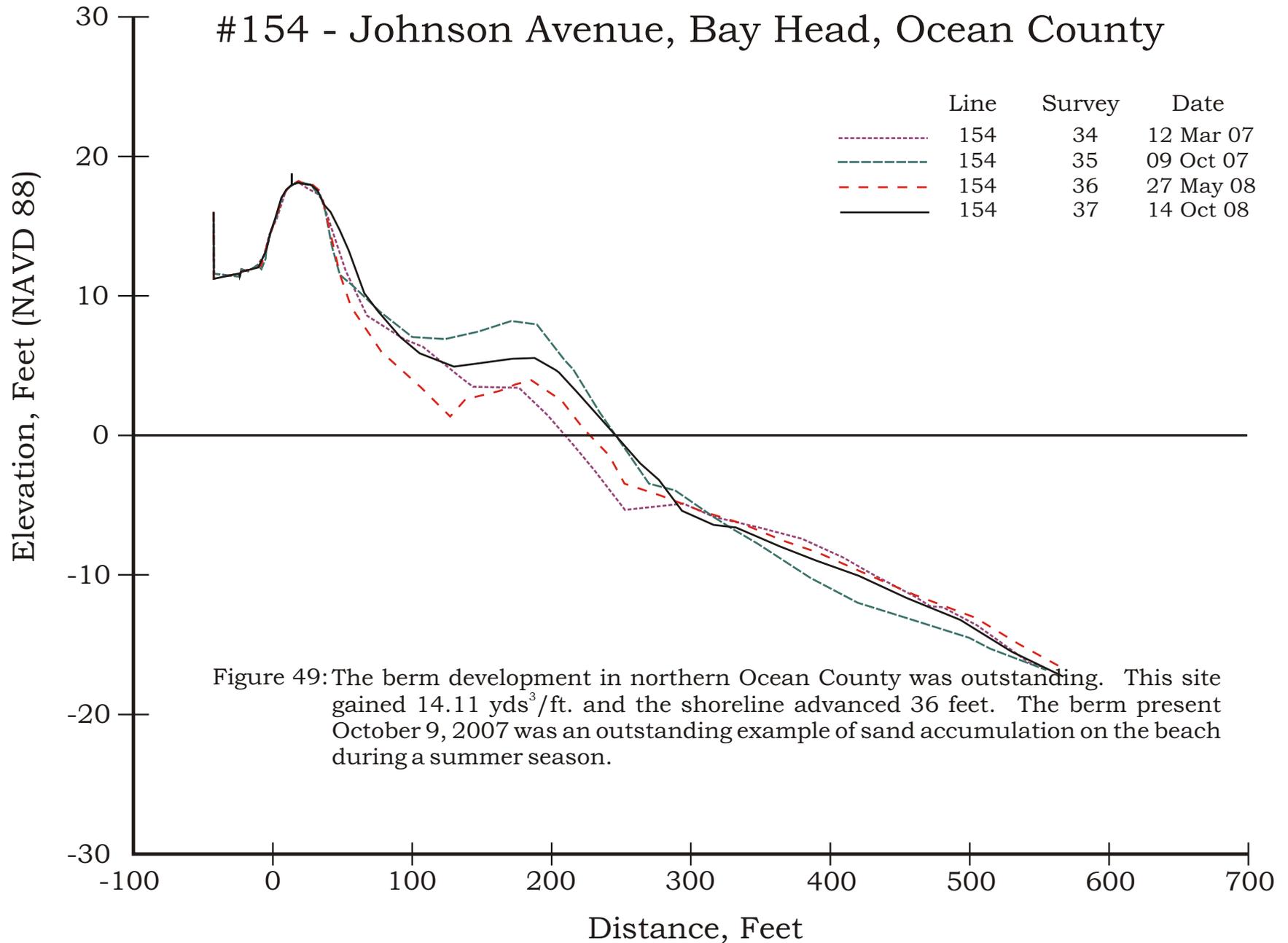
The Bay Head beach mantles a rock revetment below the dune crest that has not been seen since December 1992. On March 12, 2007 the beach was relatively wide as early accretion produced a berm and offshore sand deposits moved landward.



The October 14, 2008 photograph looking south shows a recently welded berm (note the incompletely filled pond in the middle ground along the back of the berm slope) and some additional grass growth over time. The site gained 14.11 yds³/ft. and the shoreline was 36 feet wider to the zero elevation position.

New Jersey Beach Profile Network

#154 - Johnson Avenue, Bay Head, Ocean County



1117 OCEAN AVENUE, MANTOLOKING - SITE 153



The Mantoloking site is surveyed quarterly for the specific interests of the municipal officials along with four other sites along the Borough oceanfront. By September 25 2006 this site was restored by transferring sand from the berm up the seaward dune slope to restore winter erosion into the dune. This view shows the straight sand fencing installed by individual property owners, but no grass plants installed by mid-September. Plants are made available to owners by early November to stabilize the wind transport of sand beyond the crest of the dune.

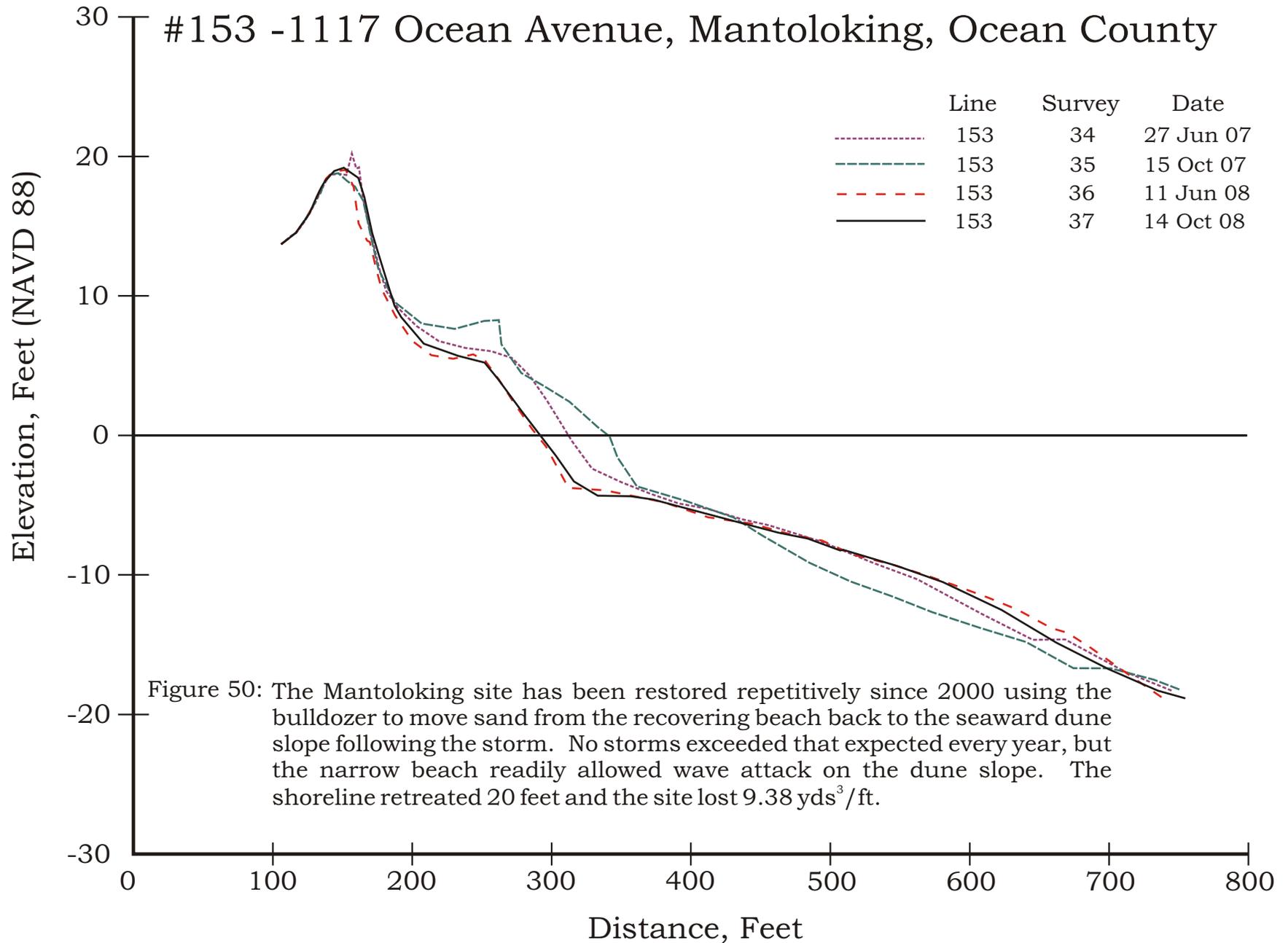


On October 14th 2008 the last of the bulldozing following the May 12, 2008 northeaster is underway for those owners who procrastinated earlier. This owner did not install new grass yet, but the sand slope has been renewed by subsequent bulldozing in the spring of 2008. Post-winter dune slope restoration has been on-going for 5 of the past 6 years as mild northeasters cut into the dune toe reducing its width. Since the dune system is fairly narrow in Mantoloking and the beach width is reduced back to the base of the dune toe by very modest storm activity, the Borough officials passed an ordinance requiring all oceanfront owners to participate in the bulldozing effort in May/June to maintain the maximum shore protection level possible with the beach width and dune height the existing sand volume will permit.

The site lost 9.38 yds³/ft. during the past 18 months with a 20-foot shoreline retreat.

New Jersey Beach Profile Network

#153 -1117 Ocean Avenue, Mantoloking, Ocean County



PUBLIC BEACH #3, BRICK TOWNSHIP - SITE 152



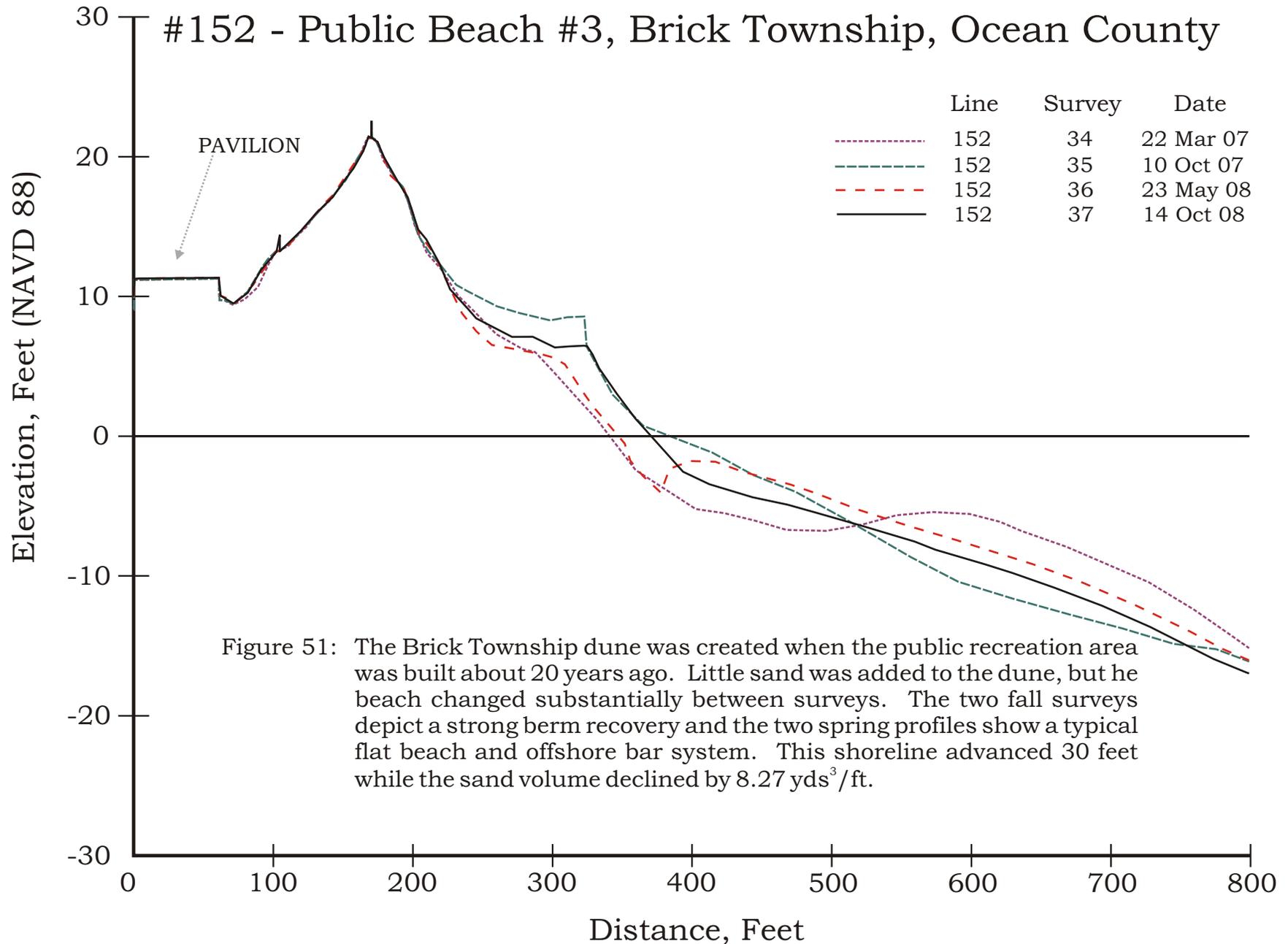
The public beach in Brick Township has developed a sizable dune between the beach and the recreational area parking lot and service building. This March 22nd 2007 view to the north shows that sand has partially buried the access ramp and stairs.



By October 14th 2008 the railings were nearly buried as almost 3 feet of new sand was added. The net change was a small loss however, (-8.27 yds³/ft., but with a 30-foot shoreline advance) as material was contributed by the offshore to the beach (-17.66 yds³/ft. between 540 and 825 feet from the reference position).

New Jersey Beach Profile Network

#152 - Public Beach #3, Brick Township, Ocean County



1st AVENUE, NORMANDY BEACH - SITE 151



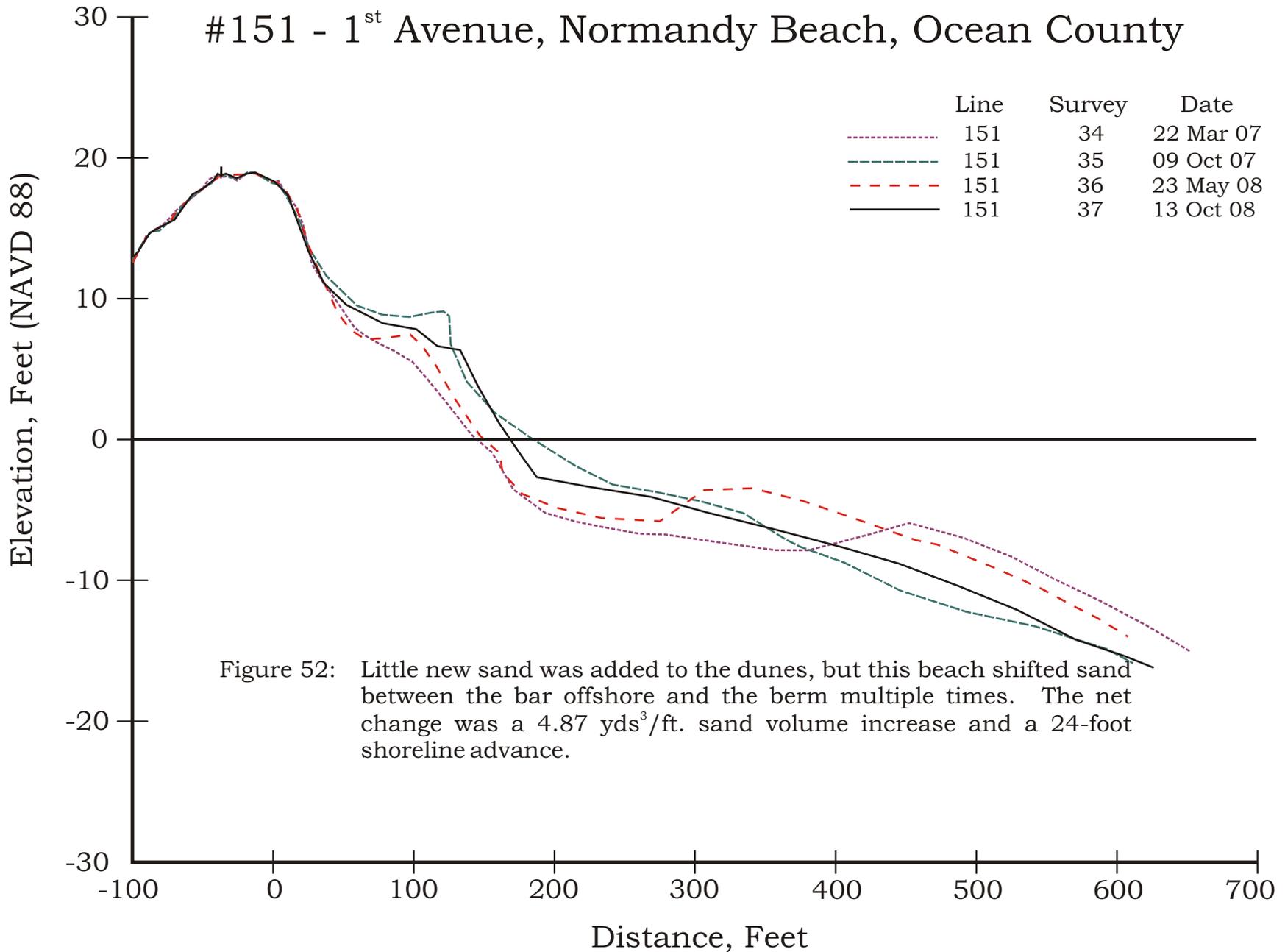
Looking south along the seaward dune slope at Normandy Beach on March 22nd 2007. This site has smaller dunes than would be desired, but the beach appears to be stable.



Eighteen months later on October 13th 2008, the same view shows little change. The sand volume rose by 4.87 yds³/ft. and the shoreline advanced by 24 feet. These changes are all within the realm of normal variations within any season examined.

New Jersey Beach Profile Network

#151 - 1st Avenue, Normandy Beach, Ocean County



WHITE AVENUE, LAVALLETTE - SITE 150



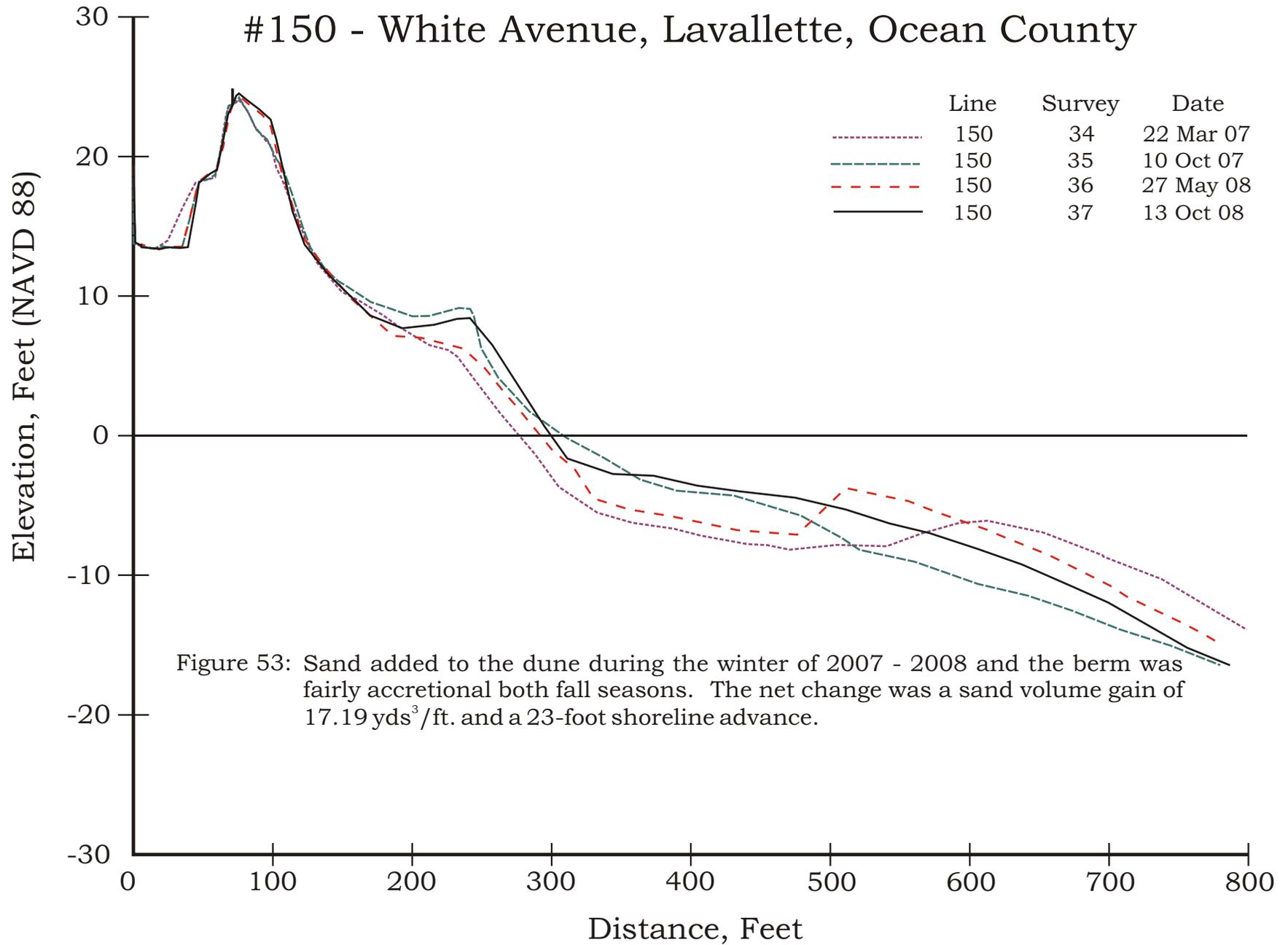
The dry beach in Lavallette remains relatively wide and stable. This March 22nd 2007 view shows the groin to the north and a decent berm for this time of year.



The October 13th 2008 view near the toe of the dune slope shows the dune rising above the beach. The changes amounted to a gain of 17.19 yds³/ft. and a 23-foot shoreline advance. Most of the northern Ocean County beaches demonstrated either stability or moderate gains in sand volume with advances seaward in the shoreline position.

New Jersey Beach Profile Network

#150 - White Avenue, Lavallette, Ocean County



8th AVENUE, ORTLEY BEACH - SITE 149



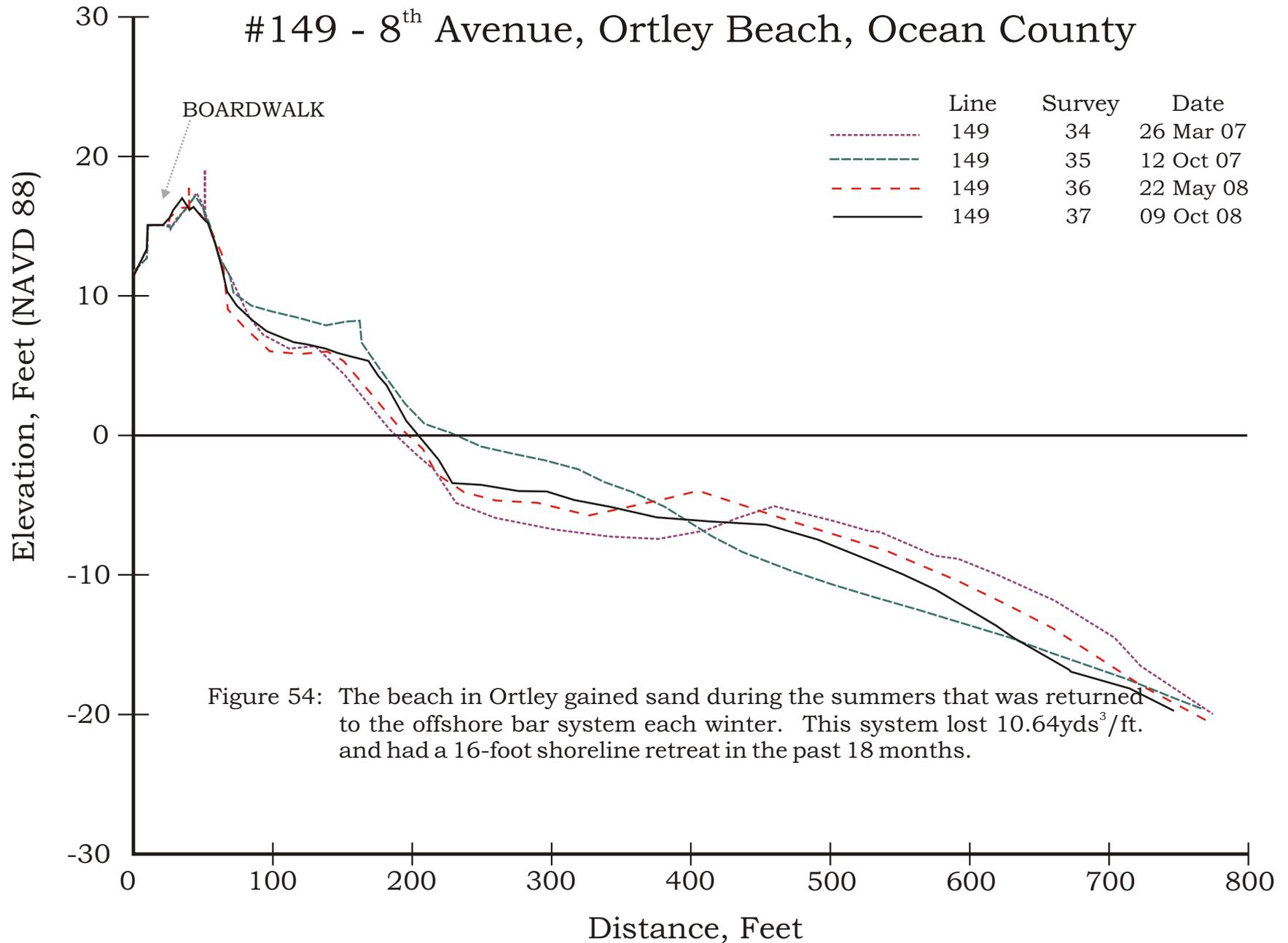
The Ortley Beach location has a dune, but the close proximity of the beach road limits the landward extent. This March 26th 2007 view from the dune toe slope north shows the recreational services papillon that occupies the dune's natural position.



By October 9th 2008 the beach was minimally wider by 16 feet, but the sand volume had declined by 10.64 yds³/ft. These changes reflect stability to the shoreline.

New Jersey Beach Profile Network

#149 - 8th Avenue, Ortley Beach, Ocean County



4th AVENUE, SEASIDE PARK - SITE 148



The Fourth Avenue site in Seaside Park has a low relief, but wide dune protecting the property landward. This March 26th 2007 picture shows a sparsely vegetated dune along this shoreline.



By October 9th 2008 the grass had spread more widely and growth rates are pretty significant. The toe looks as if a trimming took place during the May 12, 2008 event. Sand has accumulated on the berm adding 25.59 yds³/ft. in sand volume combined with a decent 46 feet of shoreline advance.

New Jersey Beach Profile Network

#148 - 4th Avenue, Seaside Park, Ocean County

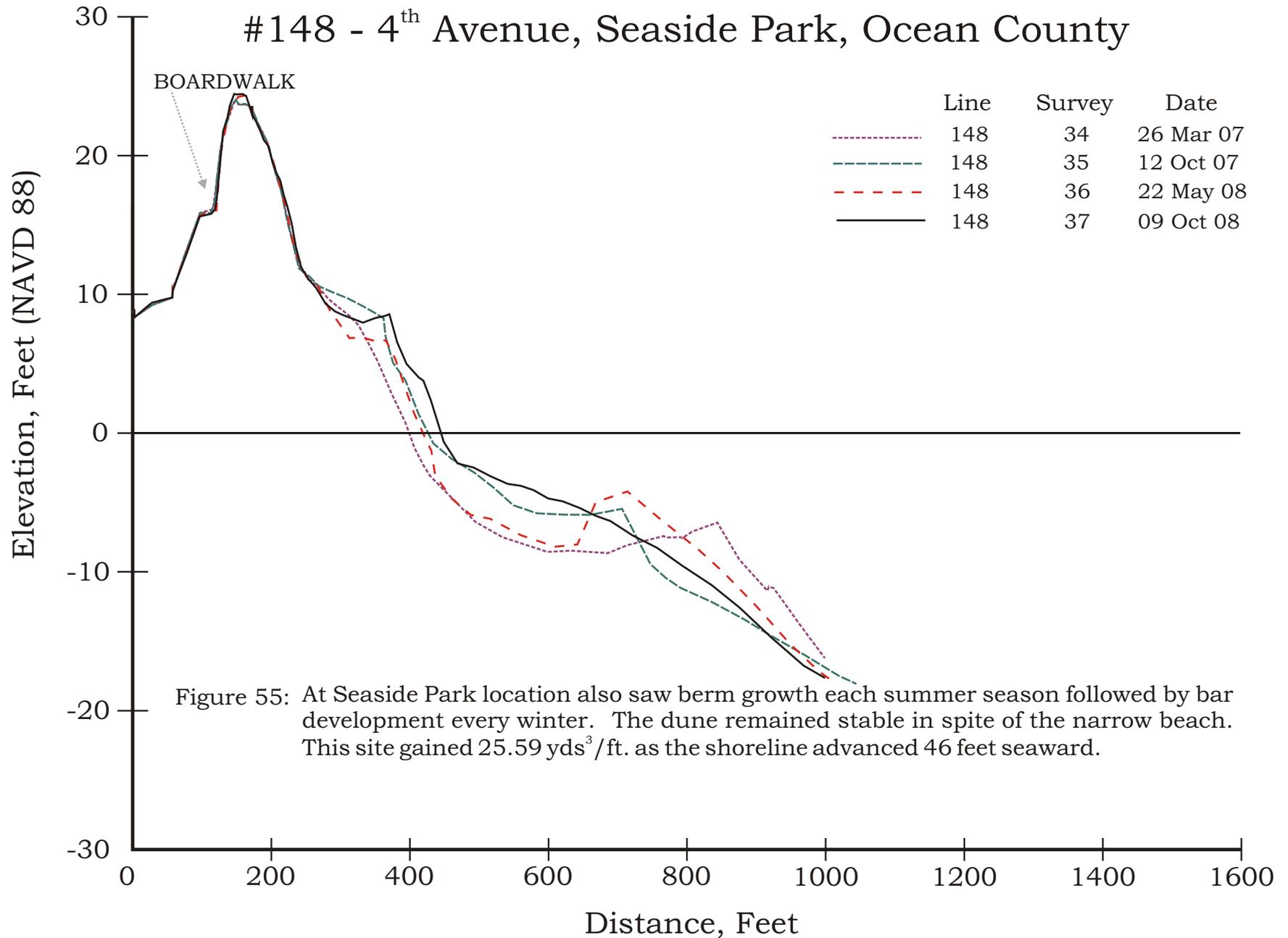


Figure 55: At Seaside Park location also saw berm growth each summer season followed by bar development every winter. The dune remained stable in spite of the narrow beach. This site gained 25.59 yds³/ft. as the shoreline advanced 46 feet seaward.

6th LANE, MIDWAY BEACH - SITE 347



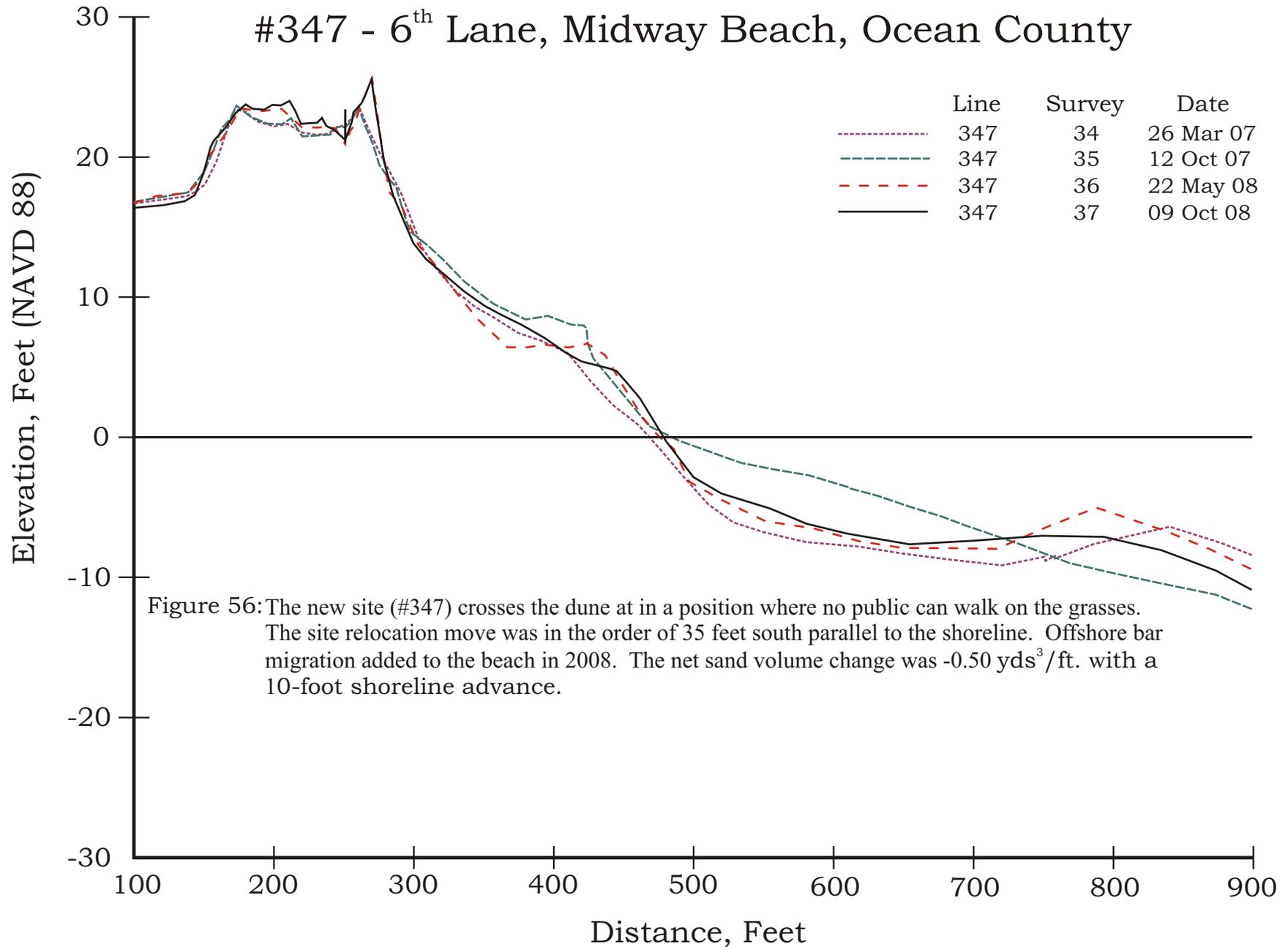
This site was moved south off the pedestrian pathway to allow the survey of the changes to the dune. When the site was established in 1986, there was no dune at all. By March 26th 2007 the accumulation of sand around fencing had produced a significant feature to increase the level of storm protection here.



This October 9th 2008 picture shows some grass growth, but minimal attempts to either vegetate the dune or increase sand accumulation by adding rows of fencing to trap sand. The 18-month time frame produced a tiny loss of 0.50 yds³/ft. in sand volume with a 10-foot shoreline advance. The seasonal shifts in sand cancelled out at the end of the interval used for this report.

New Jersey Beach Profile Network

#347 - 6th Lane, Midway Beach, Ocean County



NORTH END, ISLAND BEACH STATE PARK - SITE 247



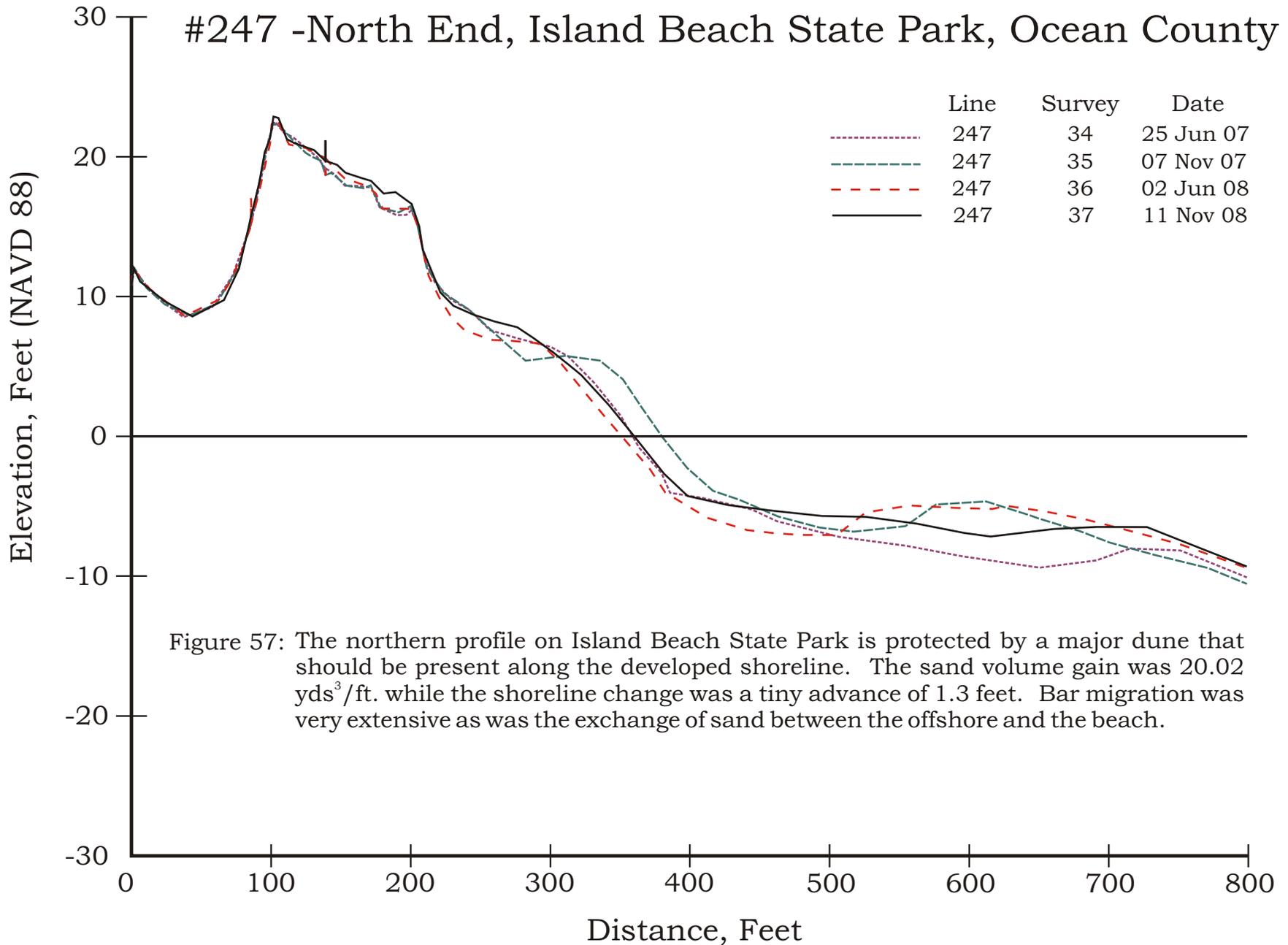
The dunes continue north the border with development as complex ridges and swales supporting a variety of vegetation. Further landward the maritime forest grows on older segments of this shoreline. The photograph on the left was taken April 25th 2007.



Looking across the dune crest to the south on November 11th 2008, the natural beauty of these park profile sites is outstanding. This site gained 20.02 yds³/ft. as the shoreline position remained nearly the same (+1.26 feet advance). It has been considerable time since any storm has carved a scarp into the dunes of Island Beach State Park.

New Jersey Beach Profile Network

#247 -North End, Island Beach State Park, Ocean County



ISLAND BEACH STATE PARK - SITE 246



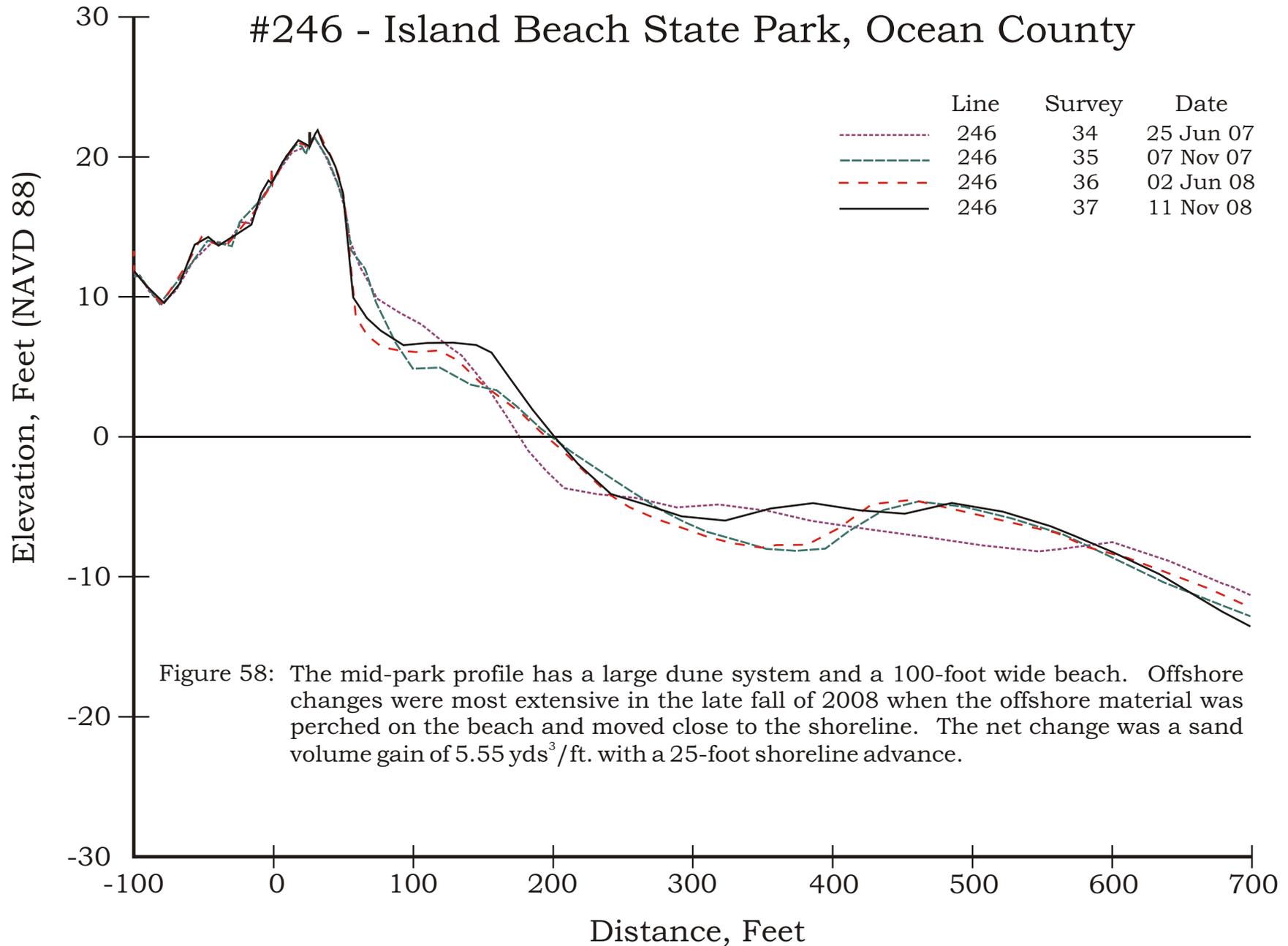
The middle profile on Island Beach State Park also traverses a massive dune field to a wide beach. The gap just south is natural and typifies a “blow-out” gap in the dunes. The April 25th 2007 photograph shows an accretional beach that protects the dune toe from minor storm erosion.



On November 11th 2008, the beach was 25 feet wider and contained 5.55 yds³/ft. additional sand volume. Not much of a change for this natural site, but indicative of the trend that has been continuing for over 20 years.

New Jersey Beach Profile Network

#246 - Island Beach State Park, Ocean County



SOUTH END, ISLAND BEACH STATE PARK - SITE 146



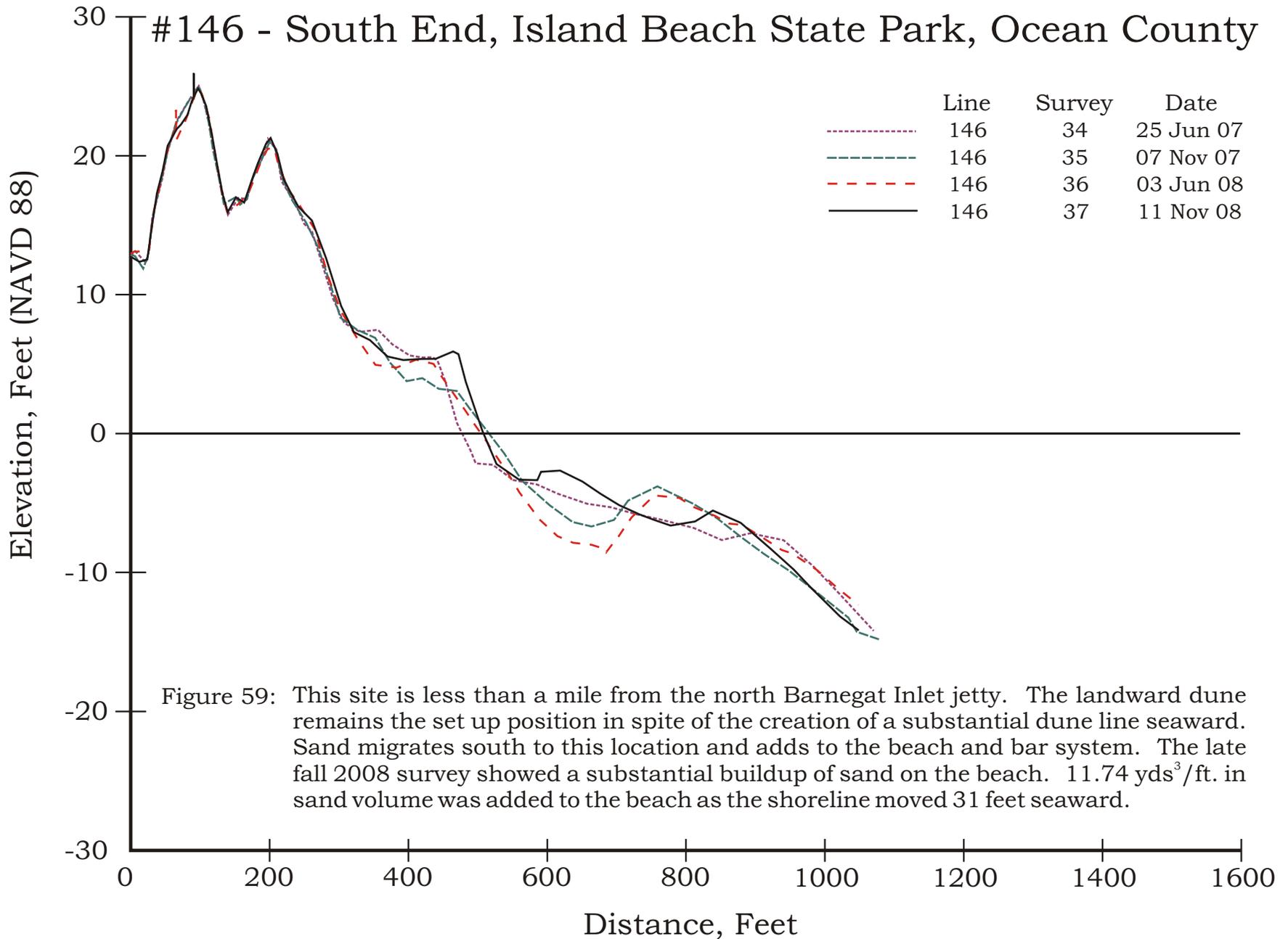
The southern end of the Island Beach State Park has no human modification including the road. Access is by the beach to this site. The March 26th 2007 view across the seaward dune field is truly impressive.



This November 11th 2008 view on the left shows the autumn view across the dune field with dried grasses. The site gained 11.74 yds³/ft. and the shoreline advanced 31 feet. The north jetty to Barnegat Inlet traps sand moving south and produces this expanding beach that has grown wider almost every year since 1986.

New Jersey Beach Profile Network

#146 - South End, Island Beach State Park, Ocean County



10th STREET, BARNEGAT LIGHT - SITE 245



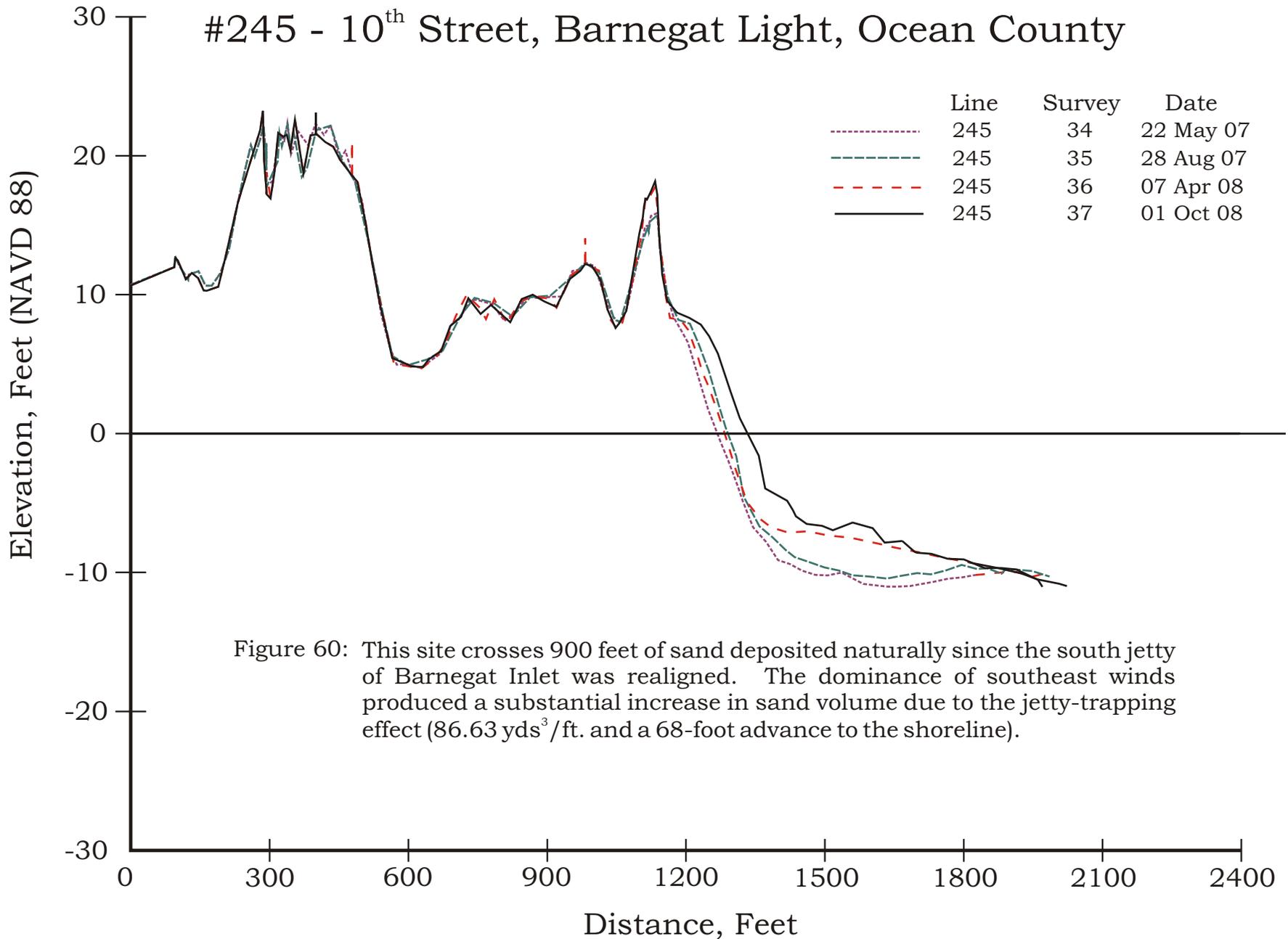
In the northern segment of the Barnegat Light Borough shoreline lies in what will become a major maritime forest eventually. This site is positioned just south of the old “arrowhead jetty” configuration. There was a wide beach here previously due to the rock jetty making its attachment to the land nearby, but the new structure makes landfall at the Barnegat Light tower. The intervening distance was converted from tidal sand flats extending away from the main channel to a dry sand beach with a complex of dune ridges extending nearly to the seaward end of the new jetty. This photo to the right was taken May 22nd 2007 and shows the seaward slope of the dunes to the beach.



By October 1st 2008 the northerly movement of additional sand had added 86.63 yds³/ft. and extended the shoreline another 68 feet seaward. To the southwest of this location a steel ship's mast extends out of the dune (about 300 feet landward of the beach) attached to a fishing vessel that sank in the inlet channel prior to the new jetty construction. This relict is now further landward of the dune crest than most of the other homes built on Long Beach Island. This site was established in 1994 several years following the massive accumulation of sand that immediately followed the completion of the jetty.

New Jersey Beach Profile Network

#245 - 10th Street, Barnegat Light, Ocean County



26th STREET, BARNEGAT LIGHT - SITE 145



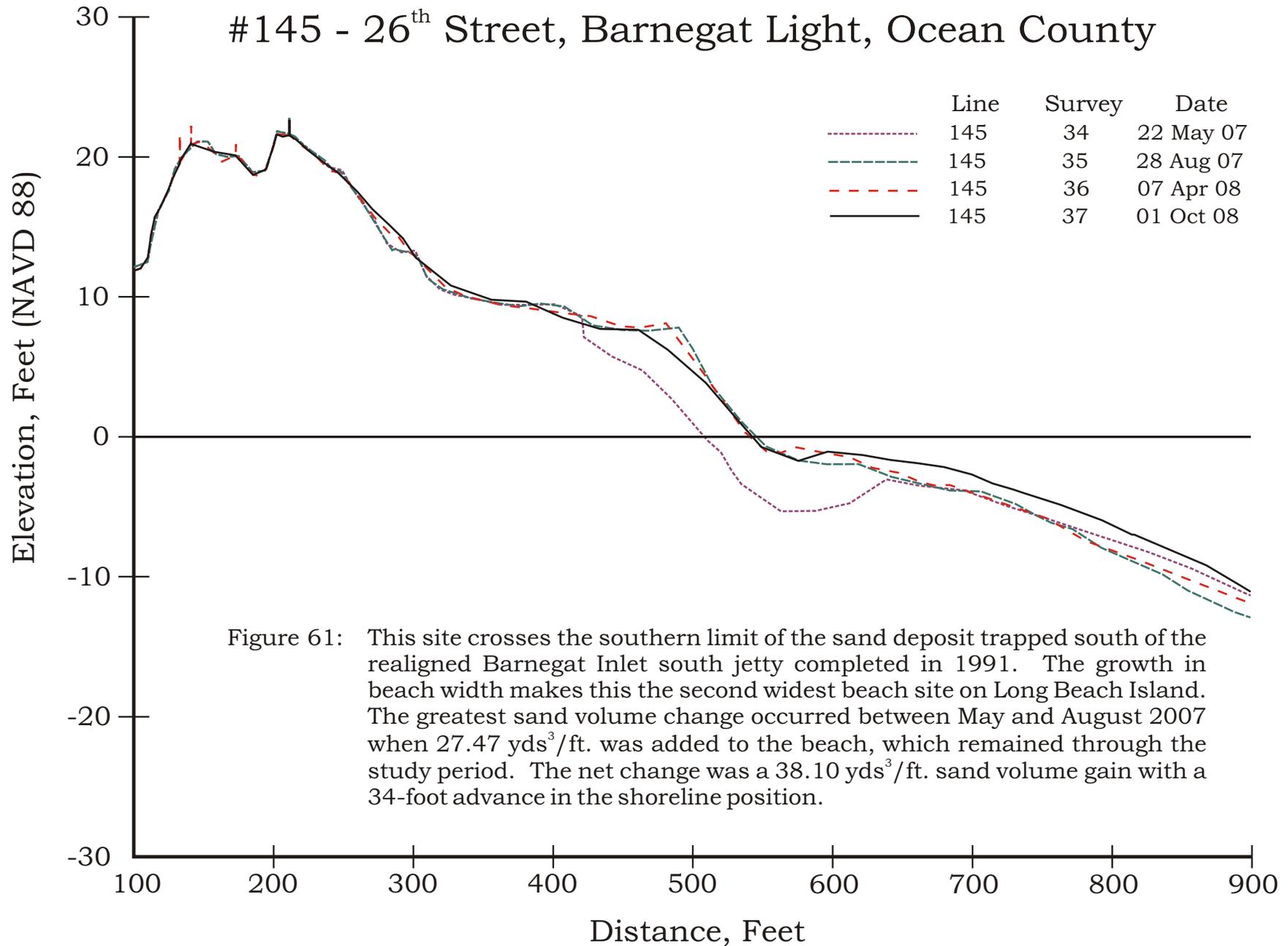
This site in southern Barnegat Light lies within the accretional wedge of shoreline extending from nearly to the La Baia Street site to the Barnegat Inlet jetty that was re-constructed in a new location beginning in 1988. By May 7, 2007 the dune had nearly doubled in width and the beach was well supplied with sand.



This October 1, 2008 photograph at the end of the summer shows greater vegetation growth with an increased sand volume of 38.10 yds³/ft. and a 34-foot advance in the shoreline position. The new jetty produced a profound shift in shoreline position between the jetty, tapering to zero change south of this location. Since the jetty was completed in 1990 the shoreline has advanced 220 feet seaward as sand moved onto the beach from the old ebb-tidal delta position offshore. This expansion grows wider to the north, reaching a maximum of 2,400 feet at the jetty. The storm hazard to homes from ocean waves have declined dramatically along this communities coast.

New Jersey Beach Profile Network

#145 - 26th Street, Barnegat Light, Ocean County



LA BAI STREET, LOVELADIES - SITE 144



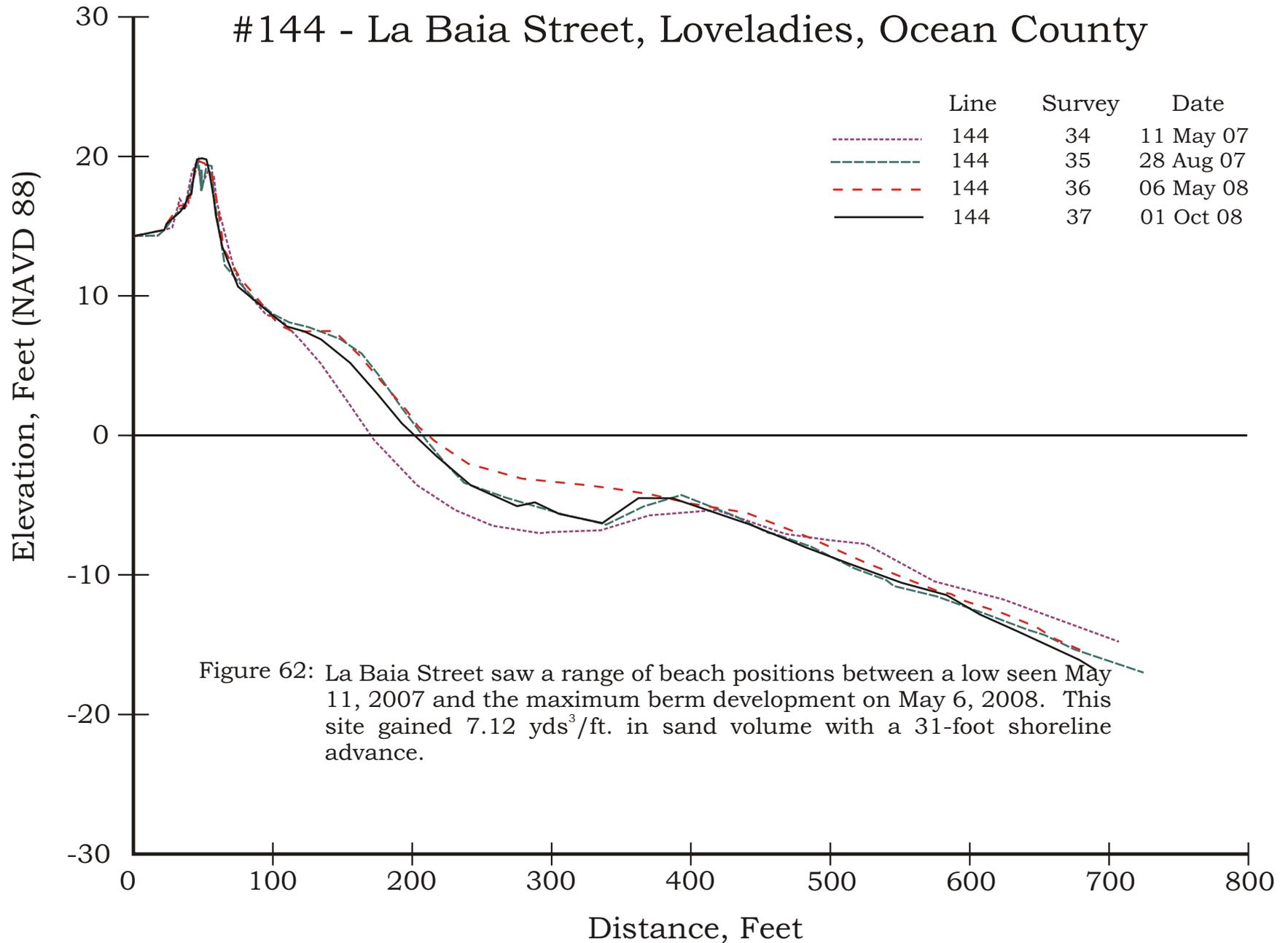
The dune in Loveladies is much narrower with the homes built into the landward toe so that any breach means that wave energy will accelerate landward into the buildings. This May 11th 2007 photograph shows a steep, narrow beach as well.



Changes by October 1st 2008 define a substantial summer berm in place between the vehicle in the photograph and the shoreline. The berm represents a gain of 21.06 yds³/ft. between the beach (+8.28 foot elevation) and the offshore (-5.40 feet). Loss further seaward reduced the gain to 7.12 yds³/ft. combined with a shoreline advance of 31 feet. This change is typical of summer accretion along the Long Beach Island coast.

New Jersey Beach Profile Network

#144 - La Baia Street, Loveladies, Ocean County



73rd STREET, HARVEY CEDARS - SITE 143



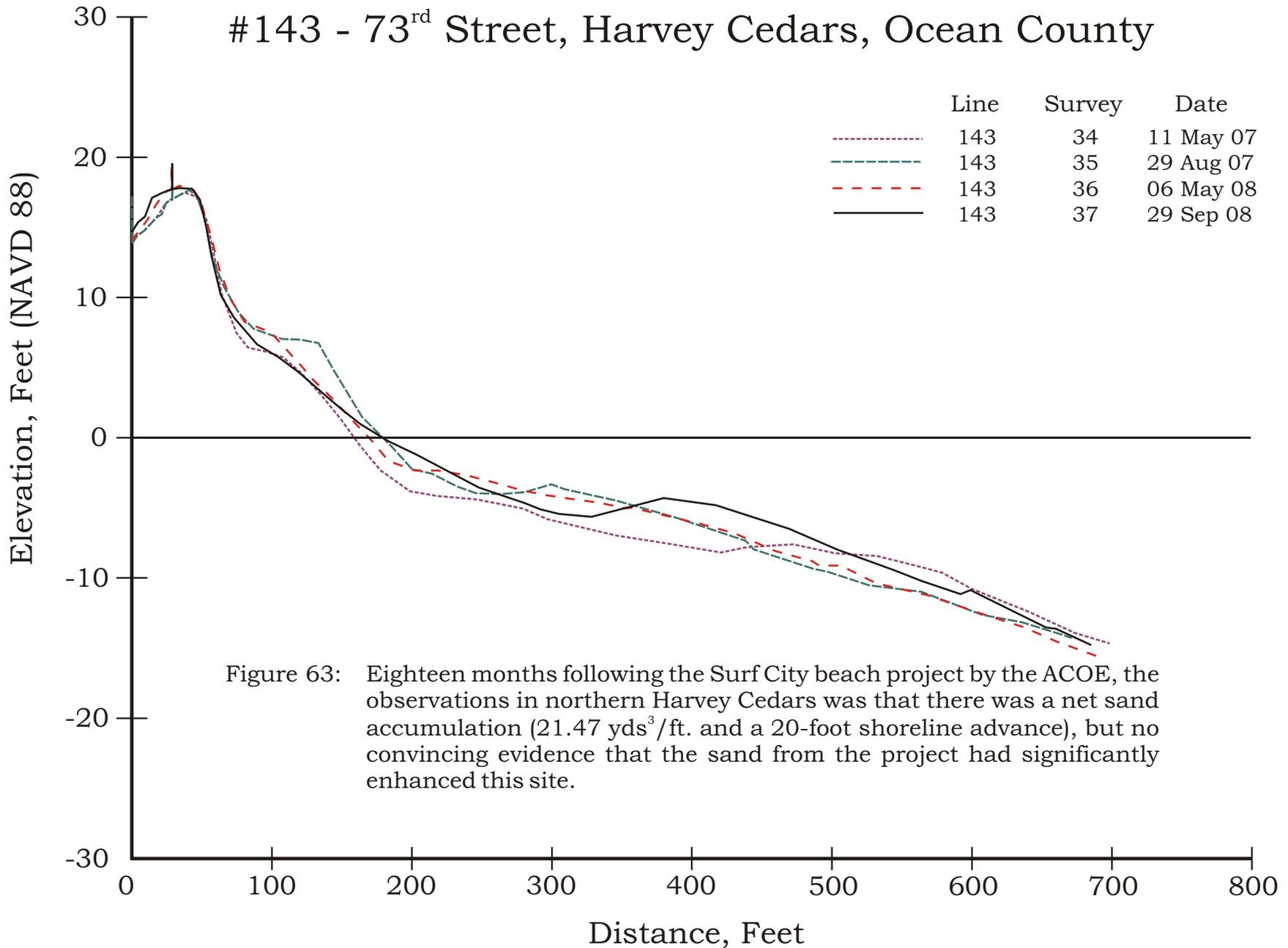
The northern Harvey Cedars site has a substantial dune and a moderately wide beach shown to the left on May 11th 2007. The dune crest vegetation is sparse, but the dune appears to have gained sand trapped at the straight fencing near the seaward toe.



By September 29th 2008 this beach had gained 21.47 yds³/ft. and the shoreline had advanced 20 feet seaward. The seasonal changes were strong each summer with a tiny loss representing the winter of 2007 to 2008 (-1.82 yds³/ft.).

New Jersey Beach Profile Network

#143 - 73rd Street, Harvey Cedars, Ocean County



TRANQUILITY DRIVE, HARVEY CEDARS - SITE 142



No sand was pumped onto the Harvey Cedars shoreline due to the lack of real estate easements to allow the work to proceed. Waves easily reach the dune toe and appear to have done so in this May 11th 2007 photograph. The storm frequency was greatest during the months of March and April in 2007 leading to a flat, narrow beach in the picture to the right.



By September 29th 2008 this shoreline saw a 16-foot retreat and the beach was lower and flatter. No dune erosion occurred, but the net change was a small sand volume gain of 2.42 yds³/ft. Bar migration produced a shift in position for the bar, but little net sand volume change. The sand from the ACOE project to the south in Surf City did not dramatically influence the shoreline position or shape in Harvey Cedars. The seasonal changes over the 18-month interval were all uniformly small.

New Jersey Beach Profile Network

#142 - Tranquility Drive, Harvey Cedars, Ocean County

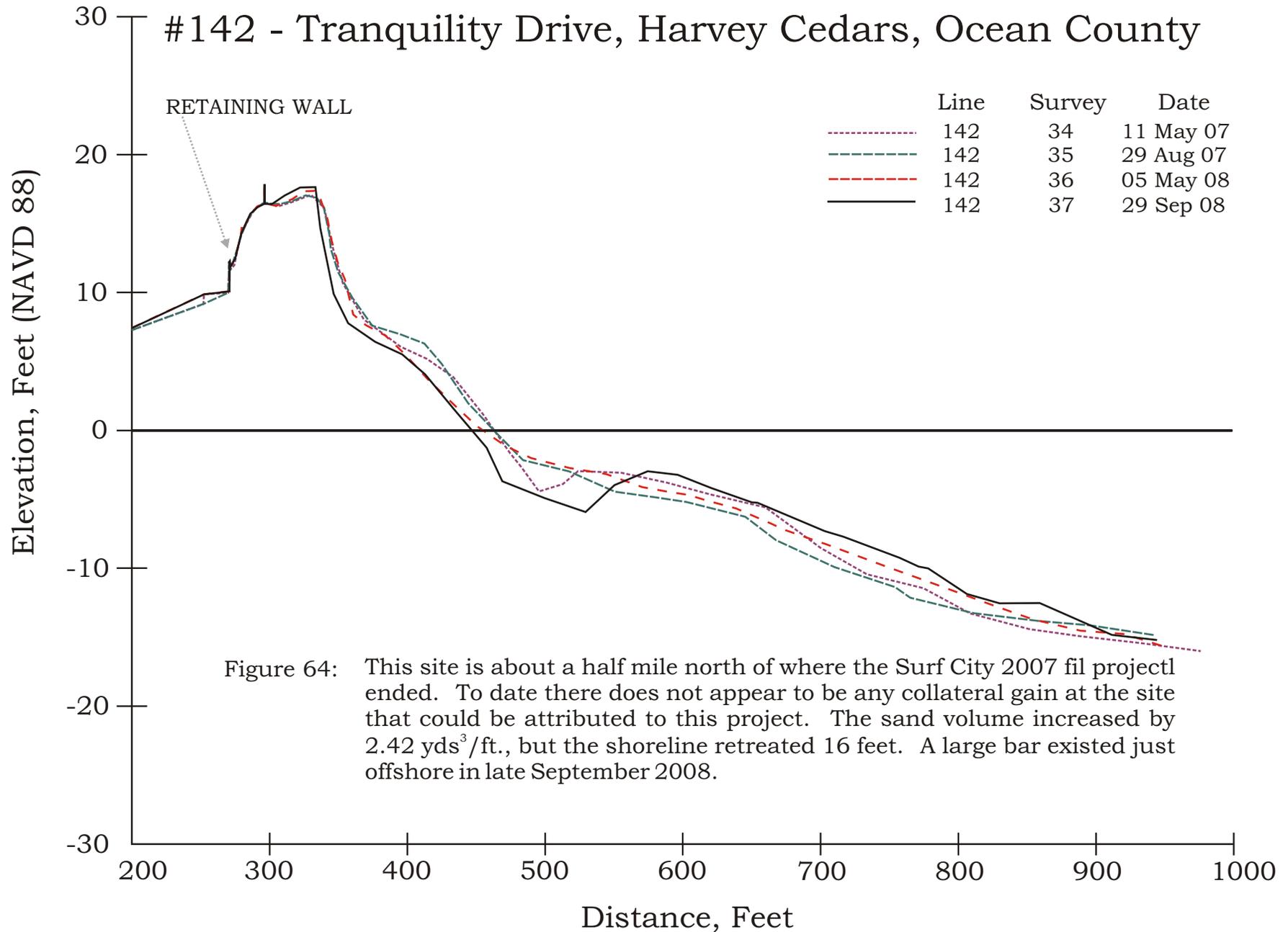


Figure 64: This site is about a half mile north of where the Surf City 2007 fil projectl ended. To date there does not appear to be any collateral gain at the site that could be attributed to this project. The sand volume increased by 2.42 yds³/ft., but the shoreline retreated 16 feet. A large bar existed just offshore in late September 2008.

20th STREET, SURF CITY - SITE 241



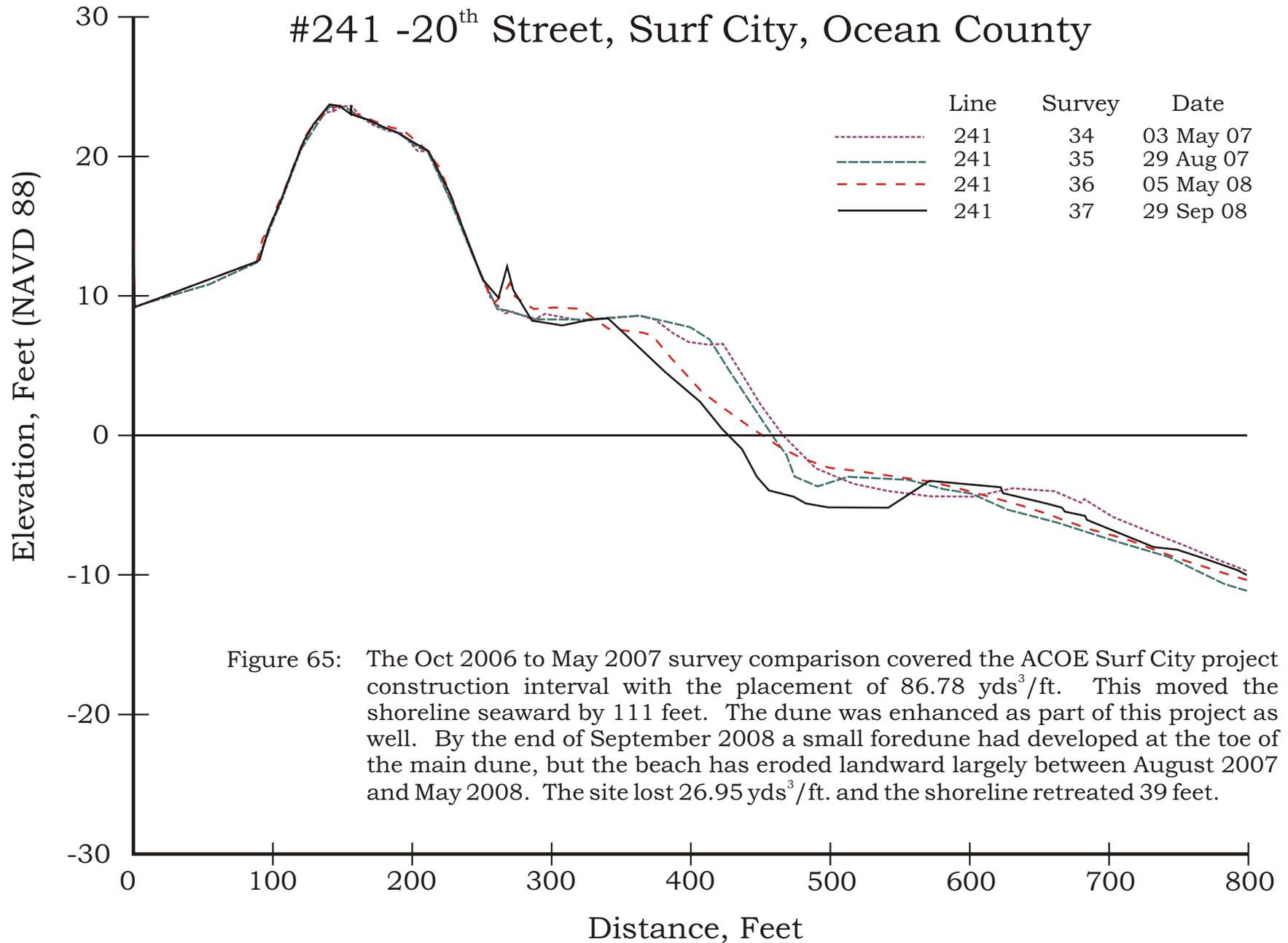
The Surf City beaches were the recipient of the US Army Corps Shore Protection project that was completed in early 2007 prior to the May 3rd 2007 photograph shown to the right. The project beach shows as a wide, flat surface leading to a 22-foot elevation dune that provides excellent protection for the homes landward. A bar had formed offshore as the beach adjusted to wave conditions. the net change was a loss of 26.95 yds³/ft. in sand volume with a 39-foot shoreline retreat between April 2007 and September 29, 2008. Seasonal changes were as expected (summer 2007 = -16.37 yds³/ft.; winter 2007-8 = +1.79 yds³/ft.; and summer 2008 = -13.12 yds³/ft.). Early adjustment the first summer produced a minor loss, but a mild winter left the project at the same volume the next spring. The summer of 2008 produced another minor loss. This project was built in isolation along the 18-mile Long Beach Island shoreline due to the lack of unanimity among oceanfront property owners in many other towns on the island. This prevented the ACOE from proceeding to build the entire project as proposed.



By September 29th 2008 the beach was narrower, but still looking quite good with no damage to the dunes, which show the growth of vegetation planted following the project. There should be extensive “end-effect” losses to the north and south as sand is transported into areas not nourished adjacent to Surf City.

New Jersey Beach Profile Network

#241 -20th Street, Surf City, Ocean County



8th STREET, SHIP BOTTOM - SITE 141



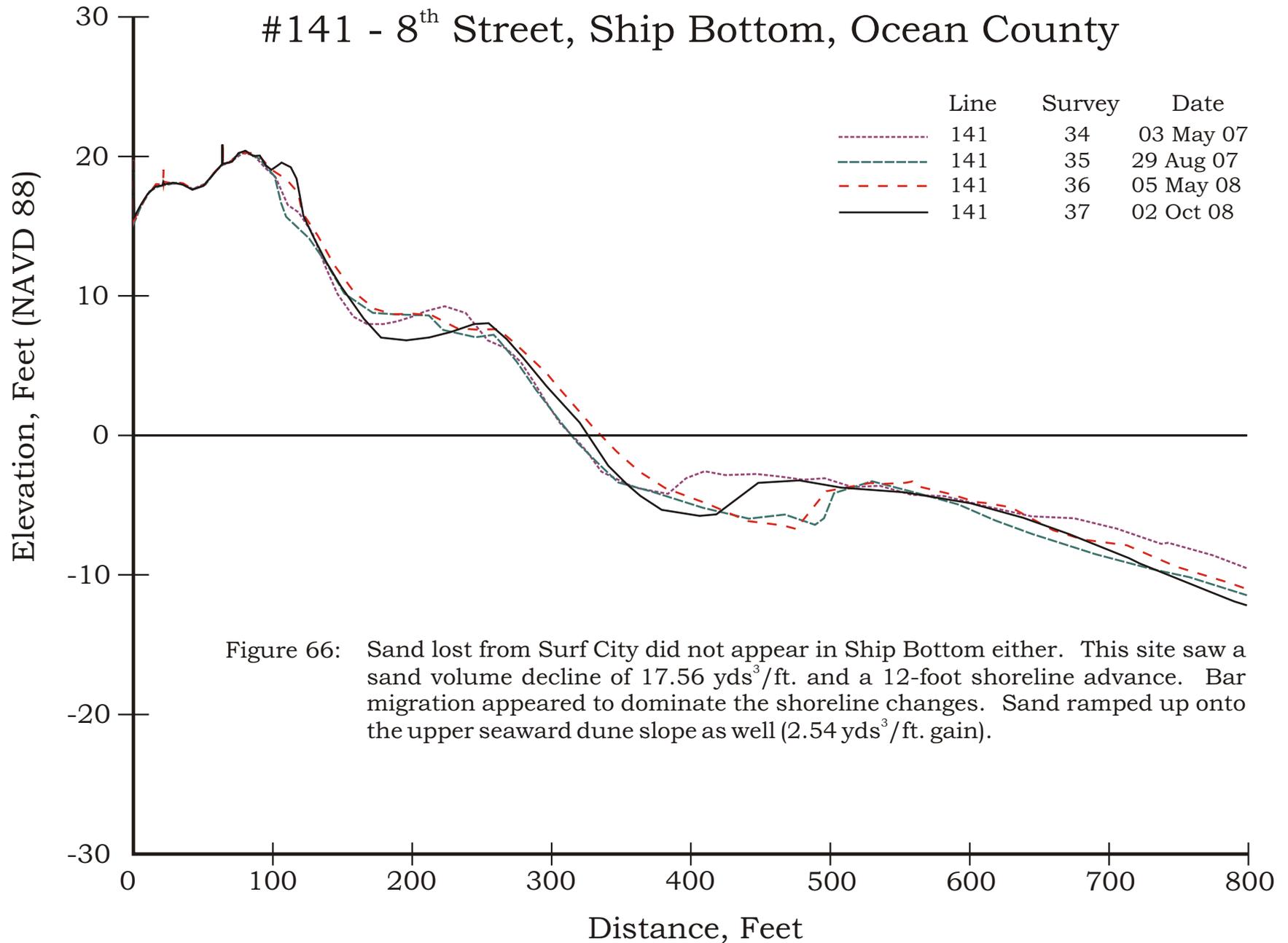
This March 30th 2007 photograph of the Ship Bottom beach shows a wider feature at this location than is found further south. The dunes are wider, but not much higher than elsewhere. The greater width does improve storm protection significantly.



By October 2nd 2008 this cross section lost 17.56 yds³/ft., but the shoreline advanced 12 feet seaward. The minor storms during the spring of 2008 did not reach the dunes and cause any loss to the dune toe. Seventy five percent of the 18-month loss occurred beyond 550 feet from the reference position starting in -4 feet of water, extending to the ending depth of the profile (-11.75 feet).

New Jersey Beach Profile Network

#141 - 8th Street, Ship Bottom, Ocean County



32nd STREET, LONG BEACH TOWNSHIP - SITE 140



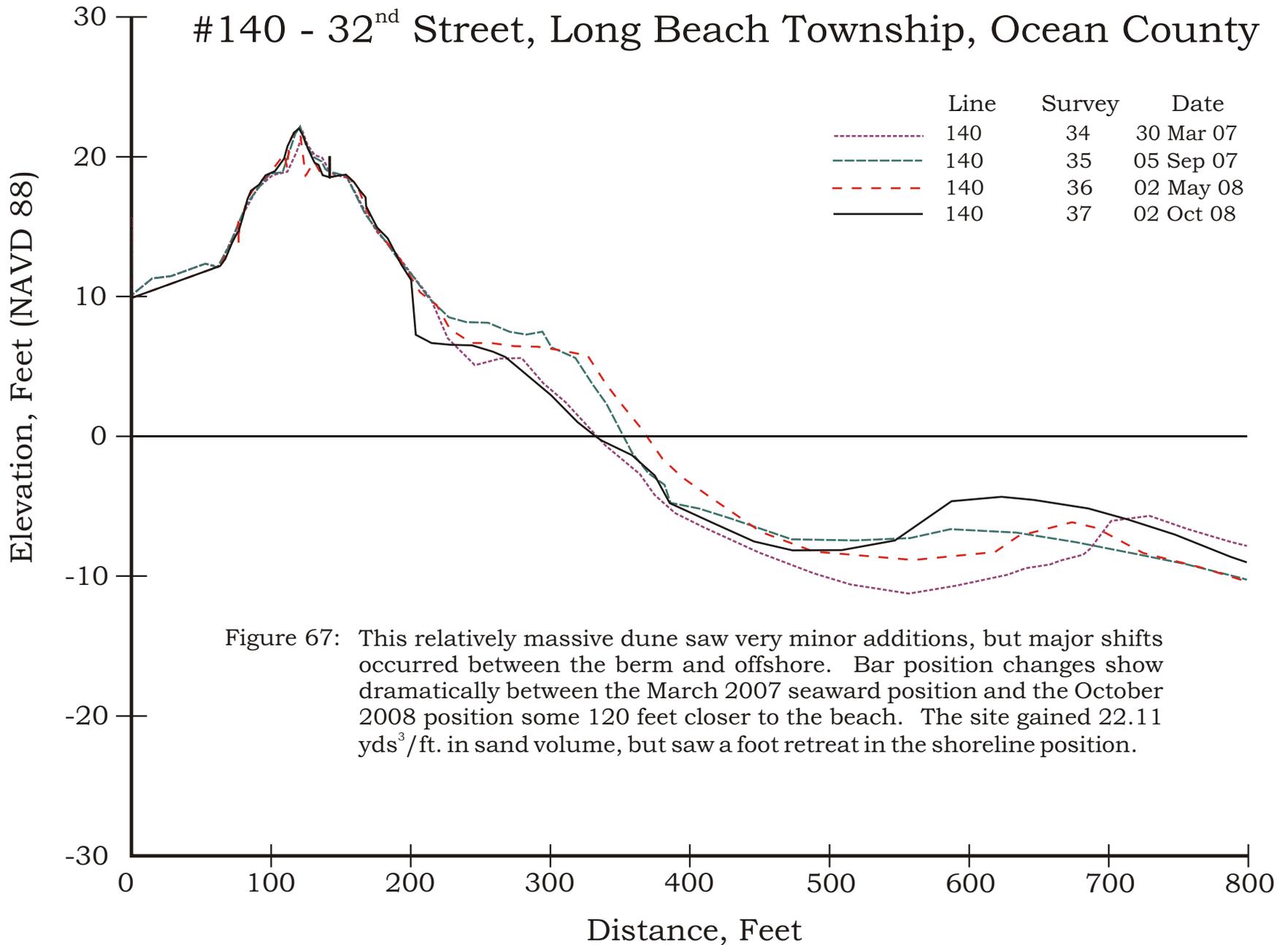
This March 30th 2007 photograph shows a beach with a wider dune field, but not much of a beach. A small, healed scarp shows at the base of the dune toe.



In the October 2nd 2008 photograph, the impact of the May 12, 2008 northeaster shows as a bare, steep slope to the fencing, which shows the storm impact damage at the extreme left edge of the photograph. The beach is narrow, but the net change in sand volume was a gain of 22.11 yds³/ft., most of which was accumulated just seaward of the zero elevation position (+36.94 yds³/ft.). The shoreline suffered a 1-foot retreat in 18 months.

New Jersey Beach Profile Network

#140 - 32nd Street, Long Beach Township, Ocean County



81st STREET, LONG BEACH TOWNSHIP - SITE 139



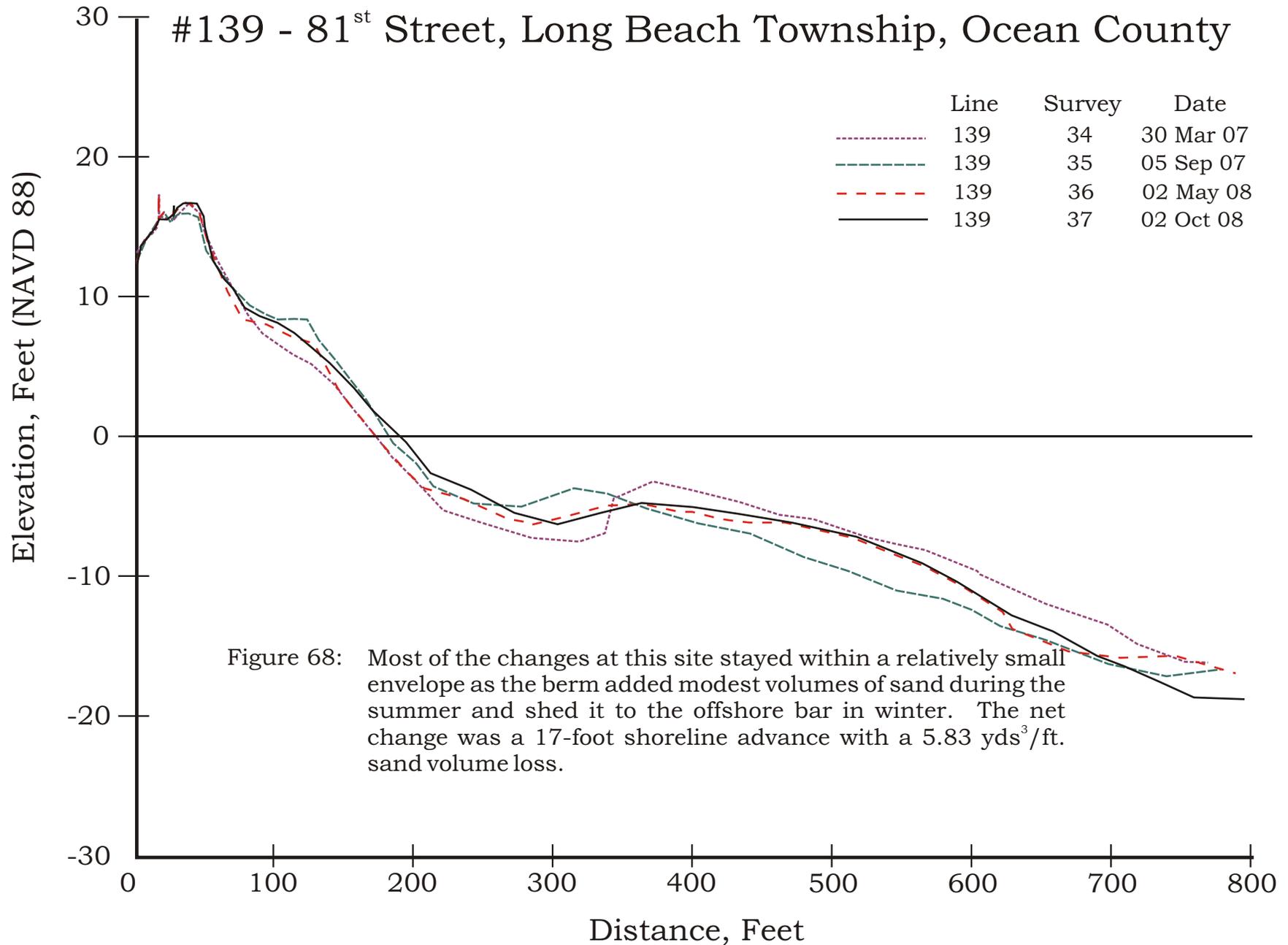
The site has a minimal dune landward of a narrow beach. This March 30th 2007 photograph looks north to the groin. The sand has not been disturbed by storms in some time, but the threat still persists that waves could breach this defensive array.



By October 2nd 2008 the beach had lost 5.83 yds³/ft., but gained 17 feet as the shoreline advanced seaward. No further effort was expended on adding to the dune width or height using snow fencing to trap more sand.

New Jersey Beach Profile Network

#139 - 81st Street, Long Beach Township, Ocean County



OLD WHALING ROAD, LONG BEACH TOWNSHIP - SITE 138



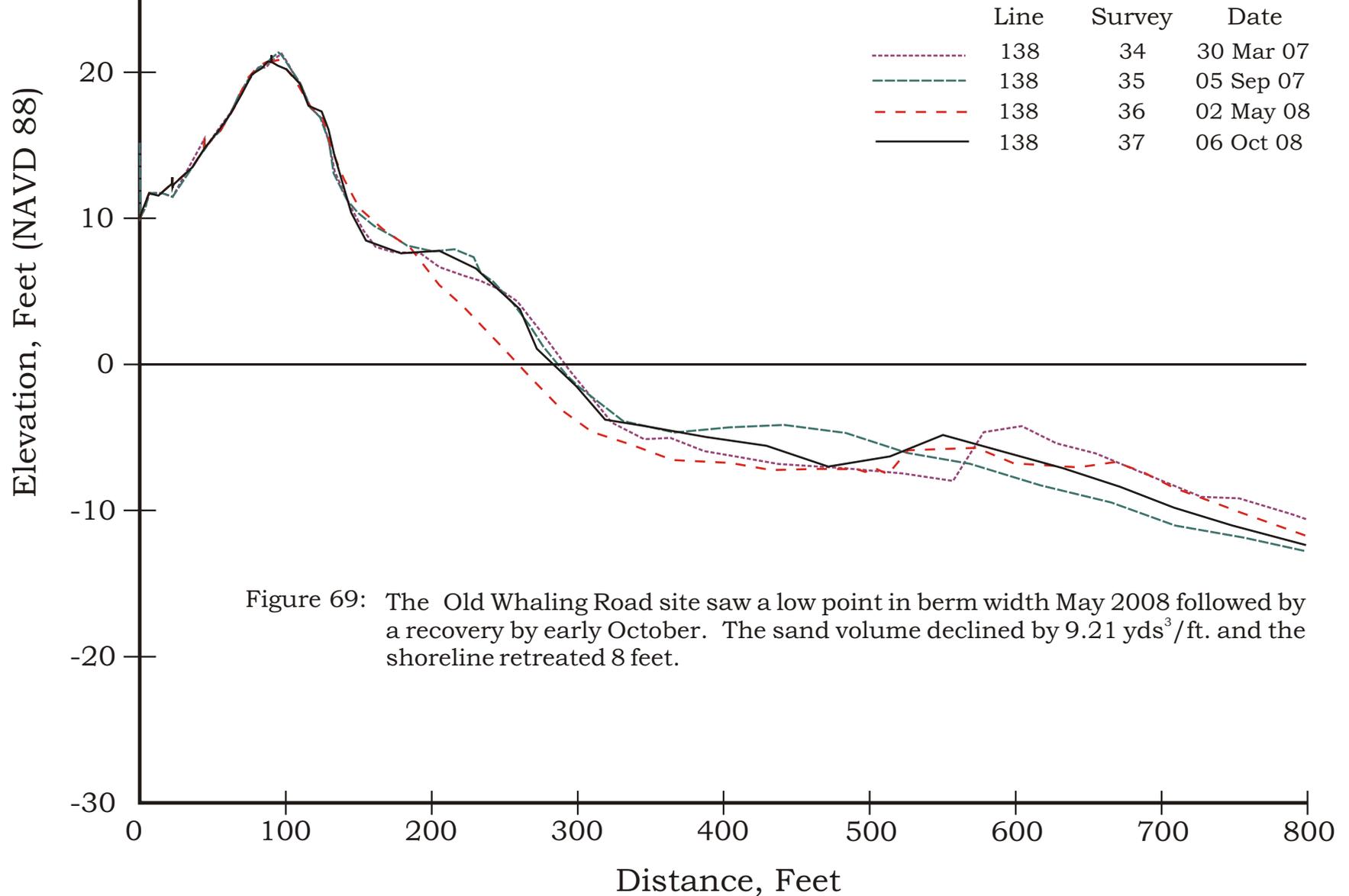
On March 30th 2007 Old Whaling road beach was showing the effects of new sand deposition up the seaward dune slope in the foreground. Sparse vegetation mantles the dune with a single row of fencing.



The October 6th 2008 photograph shows some new grass growth on the dune, but generally the same configuration in terms of height and width. The sand volume declined by 9.21 yds³/ft. and the shoreline retreated 8 feet in 18 months. These losses were spread relatively uniformly across the entire interval.

New Jersey Beach Profile Network

#138 - Old Whaling Rd., Long Beach Township, Ocean County



TAYLOR AVENUE, BEACH HAVEN - SITE 137



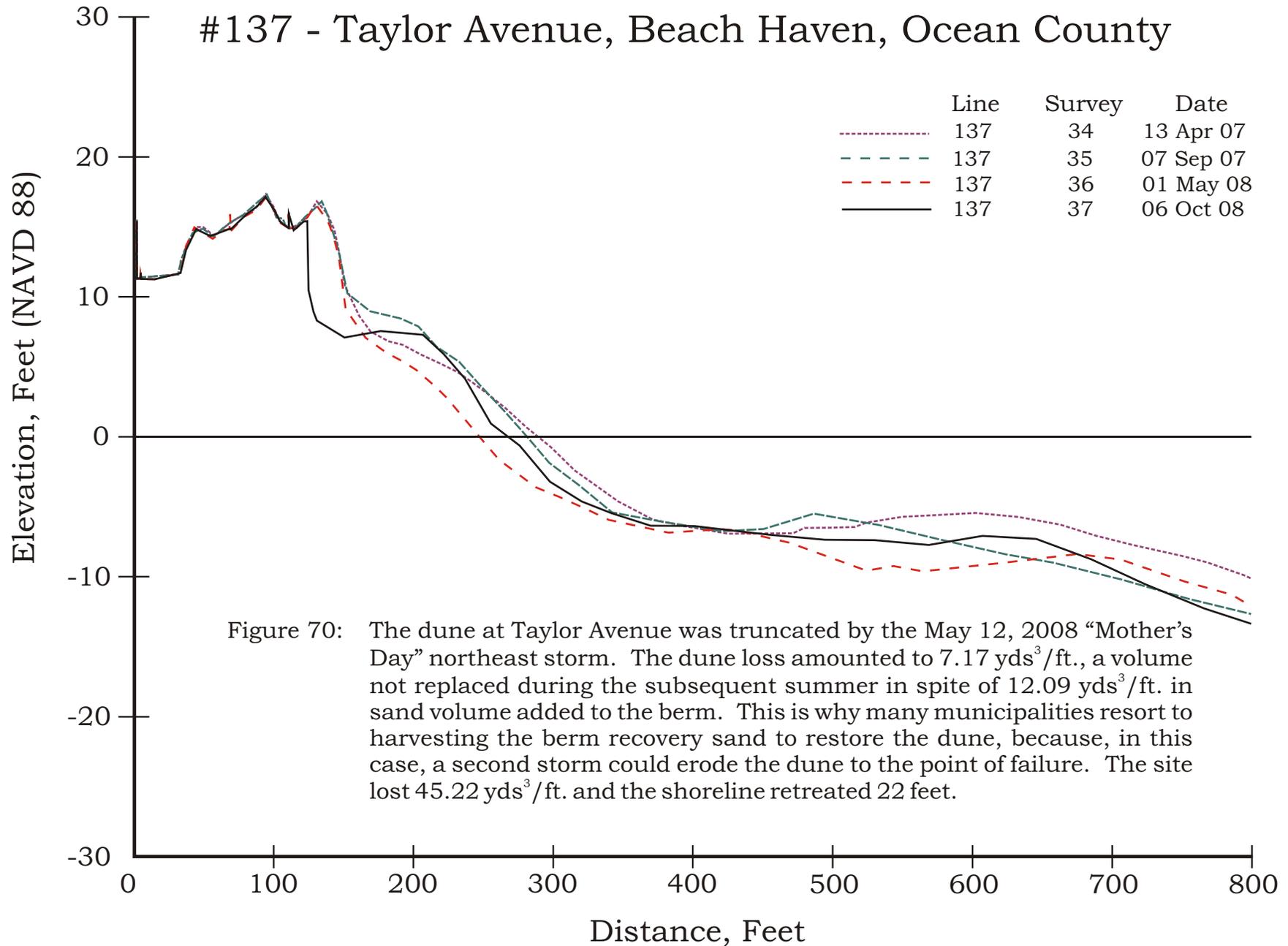
The shoreline is relatively narrow at this site with a slightly wider dune between the dry beach and the residences. On April 13th 2007 the shoreline shows that the wave runup has not reached the toe of the dune recently and a small berm has been deposited.



By October 6th 2008 the beach was higher and wider, but at the expense of sand volume contributed from offshore. The shoreline had retreated 22 feet and the largest sand volume loss occurred between 450 and 875 feet from the reference position behind the dunes (-30.64 yds³/ft.). The entire cross section lost 45.22 yds³/ft. over 18 months, all prior to the summer of 2008.

New Jersey Beach Profile Network

#137 - Taylor Avenue, Beach Haven, Ocean County



DOLPHIN AVENUE, BEACH HAVEN - SITE 136



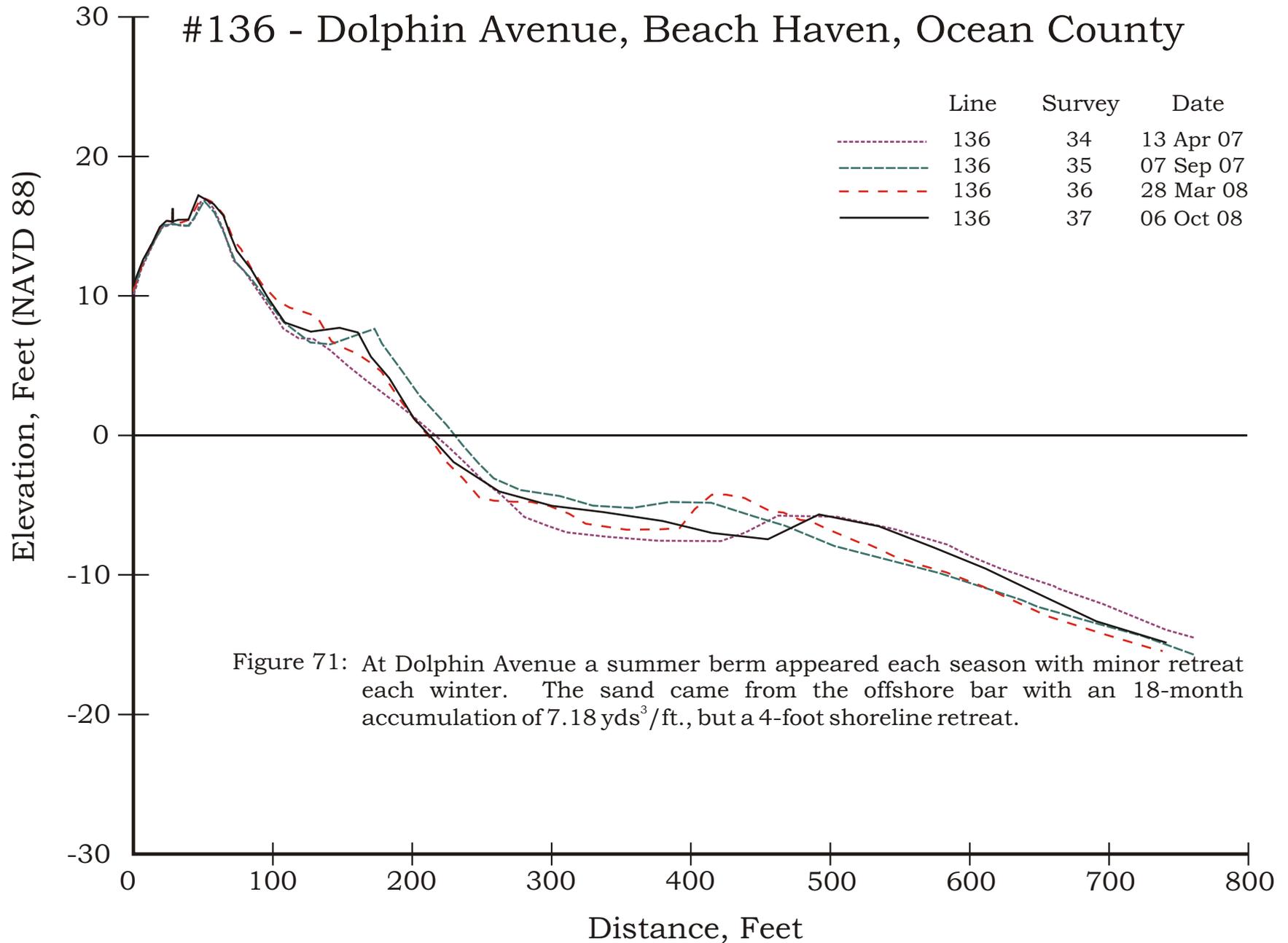
On April 13th 2007 the Dolphin Avenue site maintained a moderate-width beach with some growth in the dunes provided by three lines of fencing to trap sand. This situation is stable as long as moderate-intensity storm events do not occur.



By October 6th 2008 some vegetation has invaded the new sand deposited among the three fences, but no sizable growth is evident. The net change was a gain of 7.18 yds³/ft., but with a 4-foot shoreline retreat. This reflects stability at this site.

New Jersey Beach Profile Network

#136 - Dolphin Avenue, Beach Haven, Ocean County



WEBSTER AVENUE, LONG BEACH TOWNSHIP - SITE 135



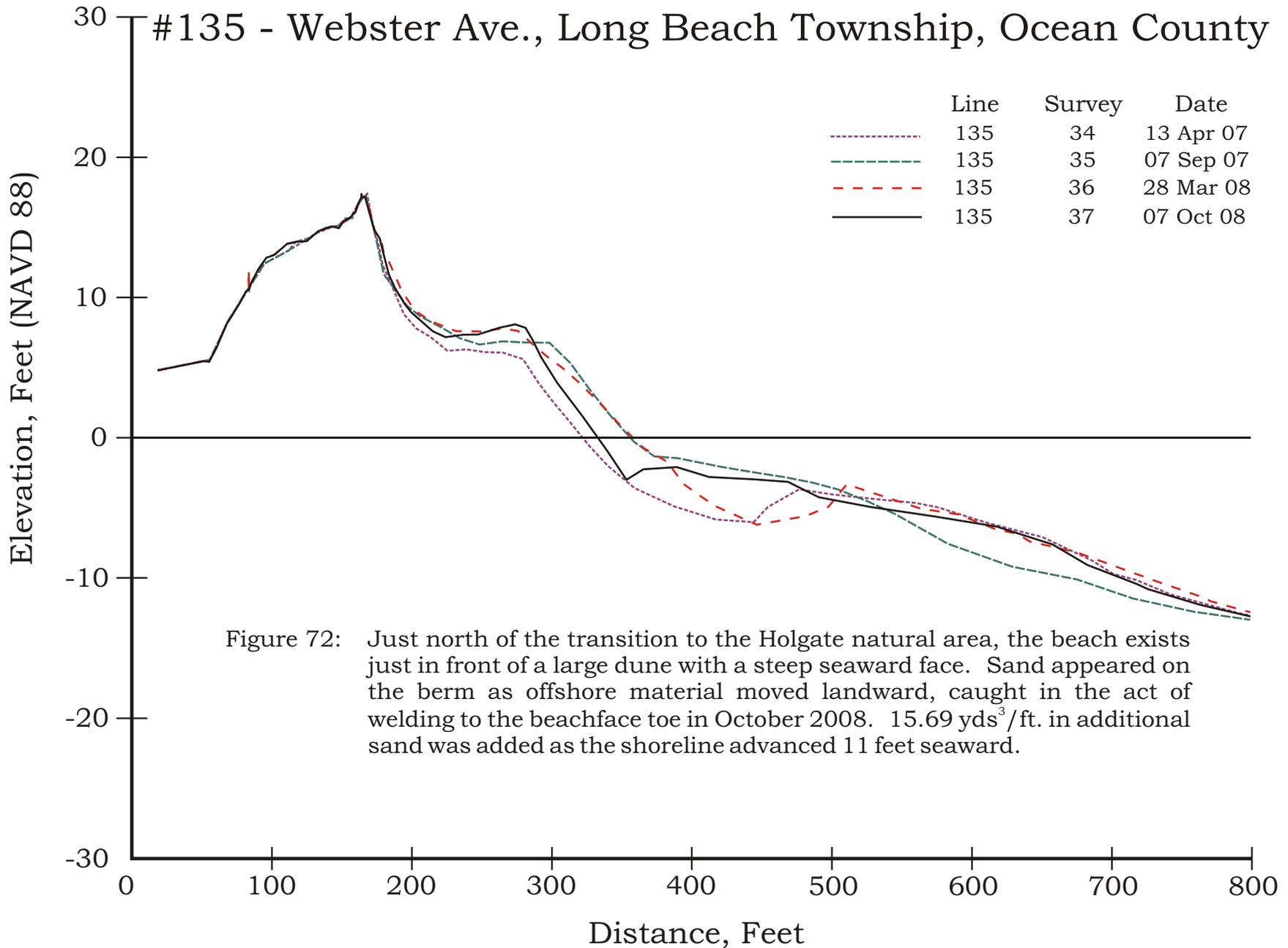
The Webster Avenue site has a tall, but narrow dune with a beach that slopes seaward from the dune toe. Bar migration is important to building a summer berm, which appears at the water's edge to the left on April 13th 2007



This October 7th 2008 view shows the results of summer accumulation of sand and a net gain for the 18 months of 15.89 yds³/ft. with an 11-foot shoreline advance. The minimal number of northeast storms allowed this site to remain relatively stable.

New Jersey Beach Profile Network

#135 - Webster Ave., Long Beach Township, Ocean County



NATURAL AREA, LONG BEACH TOWNSHIP - SITE 234



On March 5th 2007 this view toward the terminal groin shows a narrow beach with considerable exposure of the rocks. Northeast storms act to move sand around this groin where post-storm waves move it onto the beach after the storm. In the absence of northeasters sand will move up the beach from the south if southeast wave conditions prevail for extended periods of time.



By October 7th 2008 sand has moved into the pocket between the groin and the profile line producing a 5-foot advance in the zero elevation position toward the ocean. The net sand volume was shifted offshore as the beach flattened (-13.08 yds³/ft.) and the offshore region gained 9.54 yds³/ft. The net change was a loss of 2.78 yds³/ft.

The final season saw the strongest recovery at this site as the shoreline advanced 56 feet seaward and the sand volume increased by 24.47 yds³/ft. between February 25 and October 7, 2008. This was driven by strong sand transport to the north by southeast wave sets.

New Jersey Beach Profile Network

#234 - Natural Area, Long Beach Township, Ocean County

Line	Survey	Date	
.....	234	34	05 Mar 07
- - - - -	234	35	07 Sep 07
- - - - -	234	36	25 Feb 08
—————	234	37	07 Oct 08

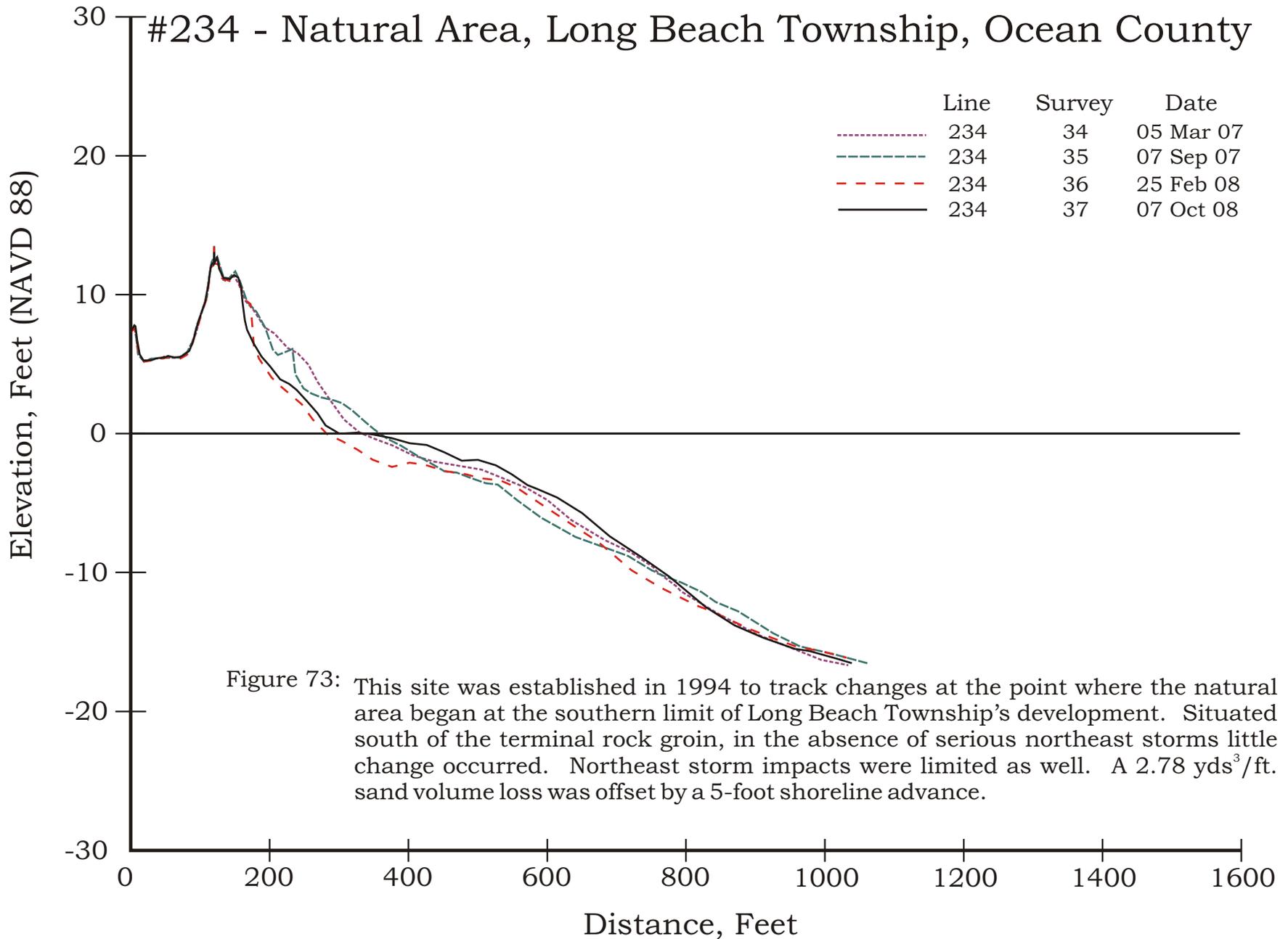


Figure 73: This site was established in 1994 to track changes at the point where the natural area began at the southern limit of Long Beach Township's development. Situated south of the terminal rock groin, in the absence of serious northeast storms little change occurred. Northeast storm impacts were limited as well. A 2.78 yds³/ft. sand volume loss was offset by a 5-foot shoreline advance.