



New Jersey Beach Profile Network

Ocean County

**Manasquan Inlet
to Little Egg Inlet**

**NJBPN Profile #'s
156 - 234**

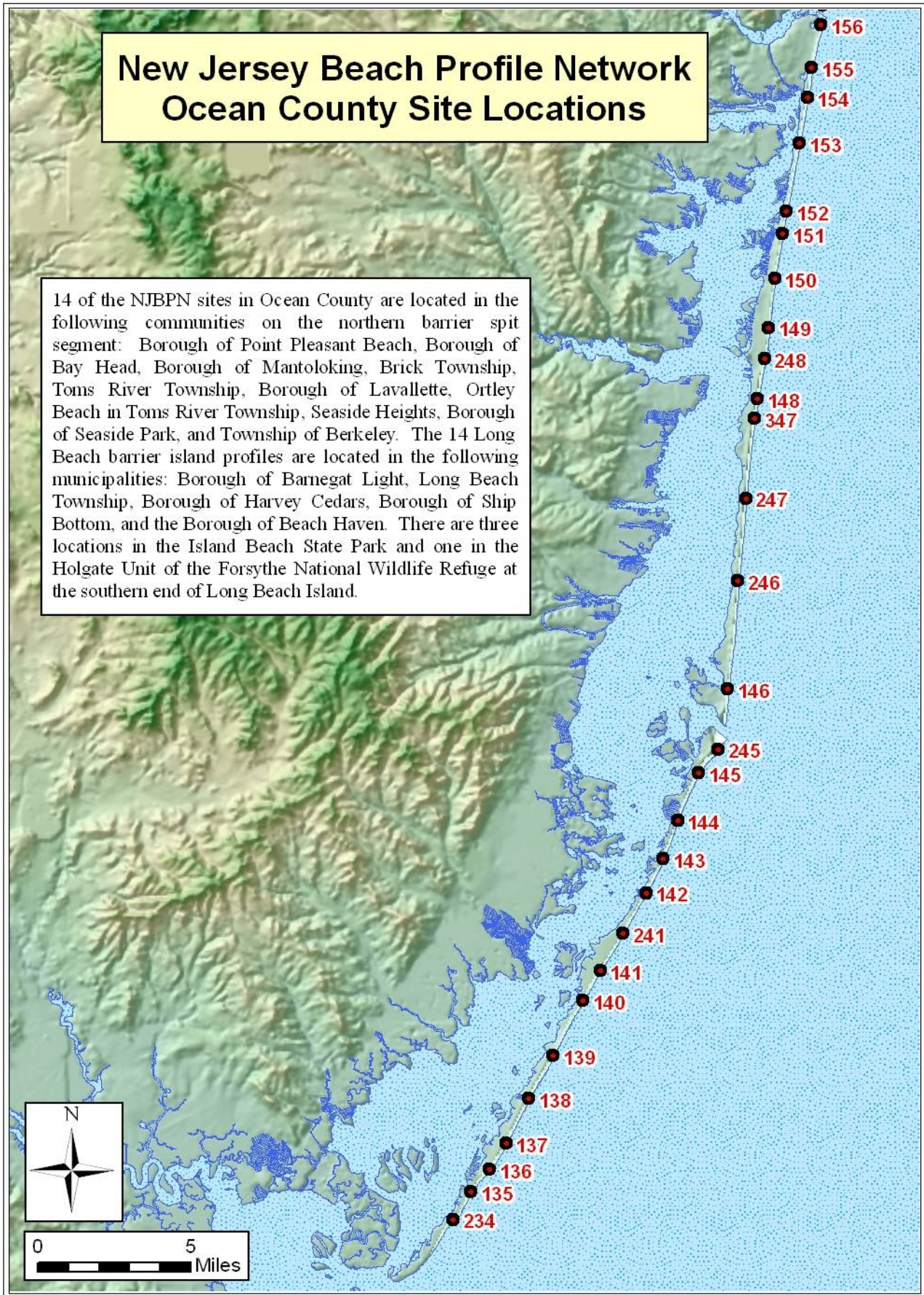


Figure 38. Locations of the 28 NJBPN profile stations in Ocean County, NJ.

Individual Site Descriptions:

Northern Ocean County recovered its beaches approaching pre-Hurricane Sandy elevation or width, but many dunes at the 28 locations surveyed are between 50 and 60% of what they were prior to the storm. Dune survival in Northern Ocean County was under 25% of the cases and interest focused on a privately developed dune system at Midway Beach where no overwash occurred because of long-term owner efforts to build a major feature since 1986 when the CRC initial beach surveys show no dune of any kind at the location. The wide beach near Manasquan Inlet served to minimize structural damage from waves, but did little to prevent overwash and tidal surge flooding inland. The rock revetment protecting part of Bay Head reduced structural damages to beachfront homes but also did not prevent massive surge flooding. Mantoloking and Ortley Beach suffered the greatest damage due to narrow beaches and buildings very close to or within the landward dune slope area.

The US Army Corps of Engineers had completed three segments of its Long Beach Island project prior to Sandy. These included Surf City in 2007, Harvey Cedars in 2009 and Brant Beach in 2012. The berm width at 8.5 feet elevation (NAVD88 datum) was set at 100 feet accompanied by a dune with a crest elevation of 22 feet and a 25-foot width. There are 1:5 slopes landward and seaward to the existing beach and landward surfaces. The 22-foot elevation was designed to be high enough to prevent the 1% annual chance storm (100 year event) wave from over-topping the feature. The design worked as planned in all cases where the project had been completed. Comparable natural dunes with at least a 50-foot wide dry beach also prevented overwash especially in Barnegat Light Borough on the north end of Long Beach Island. There a re-alignment of the Barnegat Inlet south jetty in 1990 produced extensive beach accretion south into Loveladies greatly increasing the local storm protection.

From Beach Haven south into Holgate dune loss and severe overwash of the entire island's width was common. Recovery efforts immediately focused on hauling the deposited sand back to the shoreline to re-create a dune with some level of shoreline protection. In addition, extensive and persistent efforts were made by local government to obtain property easements necessary for the federal shore protection effort to continue leading to success in the Beach Haven to Holgate segment. The NJ Governor's administration also made dune construction a requirement for post-Sandy restoration along the entire NJ coastline.

Point Pleasant Beach;

Significant beach recovery took place, but no dune yet at Water Street. The restoration is relatively complete south of the boardwalk to the dunes. All recovery is due to natural migration of Sandy-generated deposits back toward the beach.

Bay Head;

The beach was enhanced by hauling as much overwash sand as possible back to restore the dunes. In addition the rock revetment started after the 1962 NE storm was extended south into Mantoloking to Cargee Street. No beach sand was pumped in beyond that hauled back from overwash deposits.

Mantoloking;

A massive effort closed the three breaches within 6 days and the year was spent demolishing the homes found too badly damaged to restore. Route 35 work continued for months along with all types of utility work to restore the lost infrastructure. A continuation of the rock revetment completed in Bay Head is planned to start

shortly that will install a sheet steel bulkhead along the entire Mantoloking oceanfront south into Brick Township promoted as a final line of defense for the NJ State highway 35. The dune will be restored covering this structure. All the sand hauled back to the beach was utilized to construct a dune. The sand brought in to close the breaches did add new material to the shoreline, but far less than is necessary.

Brick Township;

A lower level of damage occurred along this shoreline, but frequent dune breaches put sand inland that had to be cleaned up. Extensive re-construction is also taking place on Route 35 south to Seaside Park.

Toms River Township (Normandy Beach, Ortley Beach);

Overwash, dune loss and extensive structural damage occurred along this segment of Northern Ocean County. Ortley Beach was particularly hard hit. No tidal inlet breach occurred, but overwash took many homes as well as the dune and beach. Sand was hauled back to generate a dune and sand migrated back to the shoreline from Sandy-generated deposits offshore.

Lavallette;

Dune breaching was repaired with sand hauled back from inland and sand moved landward onto the beach naturally.

Seaside Heights;

Infrastructure was damaged, repaired than lost to fire. The beach saw sand move landward from offshore.

Seaside Park;

Recovery here was in the form of sand movement back to the shoreline and some dune rebuilding.

Midway Beach (Berkeley Township);

The private dune here was wide and high enough to be an island of low damage in an otherwise devastated region.

Island Beach State Park;

Beach recovery from offshore sand deposits helped widen the beaches. Dune cuts were not mechanically restored and remain essentially as the storm left them. It takes some time for the wind to effect full restoration.

Barnegat Light Borough;

Recovery was essentially complete since there had been little damage due to the southern orientation of the shoreline and the huge sand volume added since the jetty realignment in 1990.

Long Beach Township (Loveladies);

Loveladies recovered some beach material from offshore and restored dunes using sand hauled back to the beach.

Harvey Cedars;

The ACOE returned to place sand on the beach to restore the project to design specifications.

Long Beach Township (North Beach);

Dune reconstruction was done, beach widths increased due to landward migration of sand.

Surf City;

Surf City was the location of the initial Army Corps project effort in 2007. The project was restored to design specifications during 2013.

Ship Bottom;

Recovery was limited to landward migration of offshore deposits created from sand eroded during Sandy from beaches and dunes.

Long Beach Township (Brant Beach, Beach Haven Crest, Spray Beach);

Brant Beach was the most recent segment of LBI to receive the Army Corps beach replenishment project completed in early 2012. This site showed similar results as seen in Harvey Cedars and Surf City where the dune and beach took the impact with losses to the beach width and elevation and erosion to the seaward dune slope. The ACOE restored this segment to design specifications as well

Sand hauled back to the beach from all sorts of sites where overwash transported it generating dunes from between 90% to 50% of the pre-Sandy proportions. Sand did return to the beaches from offshore.

Beach Haven;

Both survey sites in Beach Haven suffered dune failure. Sand was hauled back to the beach to provide dune protection. The ACOE is planning to include Beach Haven to Holgate in future beach nourishment under the authorized LBI project.

Long Beach Township (Holgate);

Efforts continue to enhance the dunes and folks earnestly await the ACOE project to widen the beach.

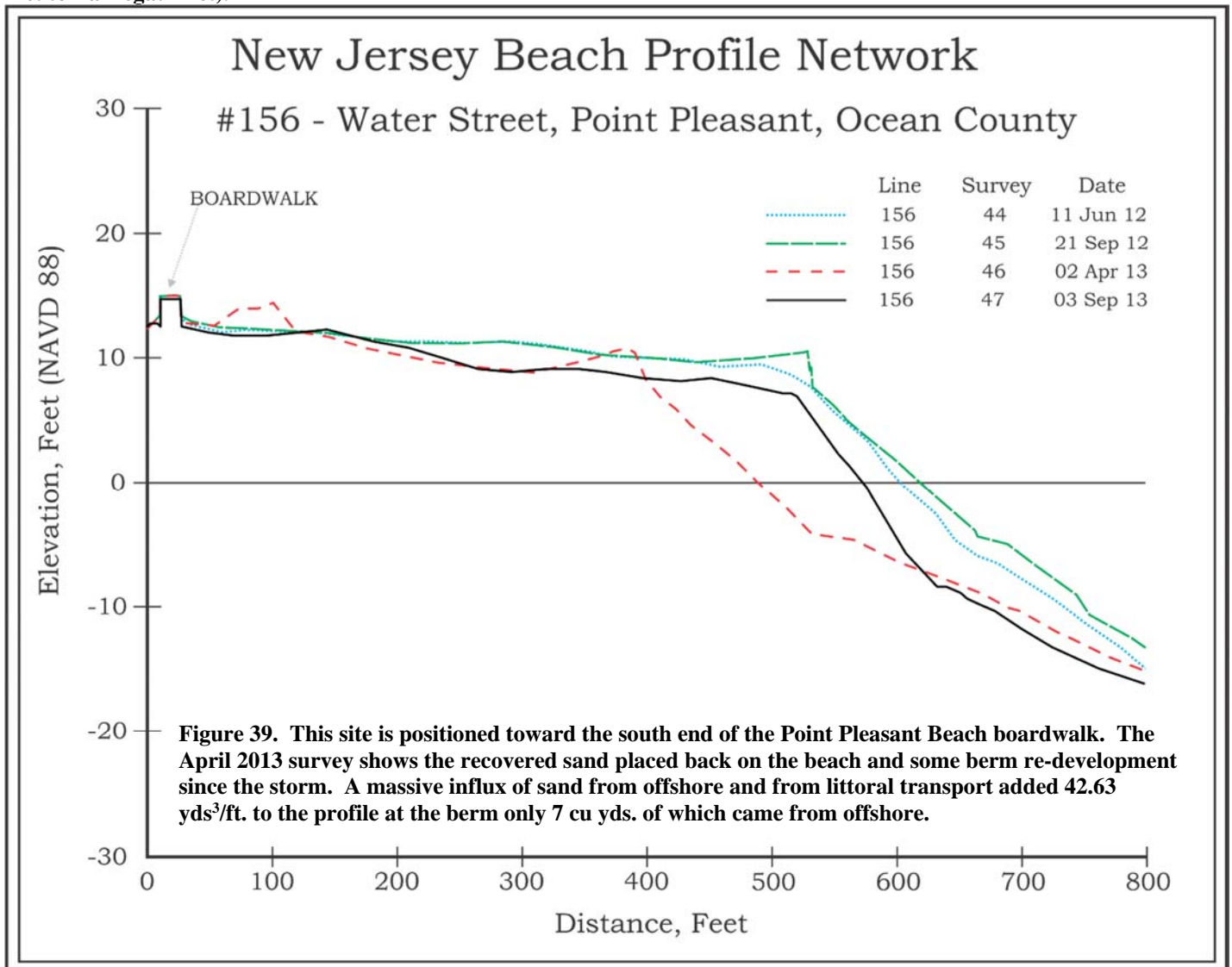
Forsythe Wildlife Refuge site;

Total overwash occurred all along the refuge zone spread clean sand across the vegetation and into Barnegat Bay. Recovery will be slow while the shorebirds have a wide open habitat for some time. No tidal inlet breach occurred, so Long Beach Island retains its pre-Sandy dimensions.

NJBPN 156 – Water Street, Point Pleasant



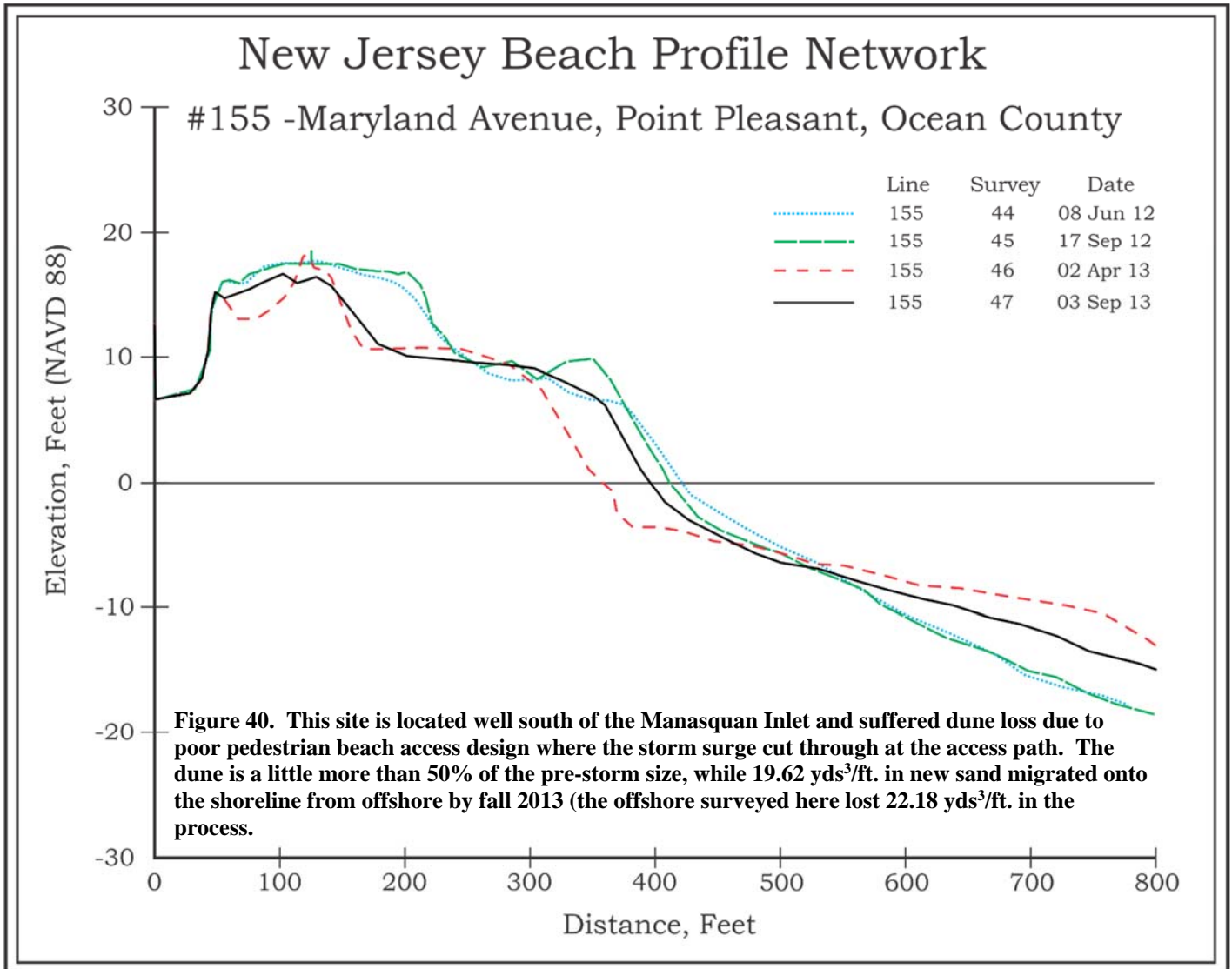
The photograph on the left was taken November 12, 2012. During Hurricane Sandy, this urban beach did not have a dune system and overwashed sediments spilled landward, but was spared from more severe damages by the over 600-foot protective berm. The photo on the right (taken September 3, 2013) shows the backshore nearly a year after the storm as a result of local efforts in maintaining the shoreline. This beach is included in the proposed Federal shore protection project (Manasquan Inlet to Barnegat Inlet).



NJBP 155 – Maryland Avenue, Point Pleasant



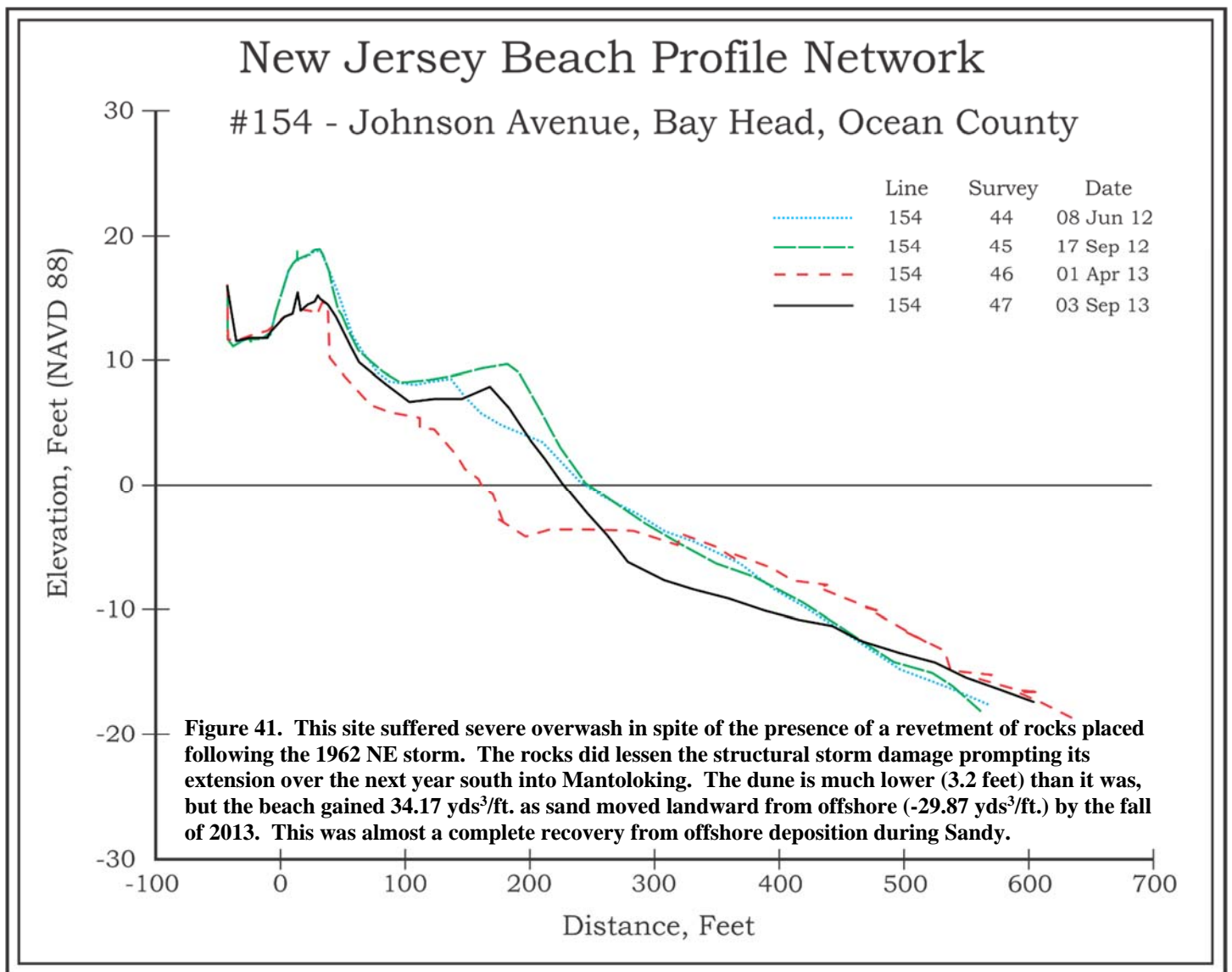
The photograph on the left shows the damages from H. Sandy and local restoration efforts to restore the former dune (taken on November 12, 2012). Here at Maryland Ave, the lower elevation, shore-perpendicular access ways channeled wave activity landward. By the time of the post-storm survey, the municipality had begun relocating sand from the berm to the former dune location. The photo on the right (taken September 3, 2013) shows a debris-free beach with some wind-deposited sand at the dune toe.



NJBPN 154 – Johnson Avenue, Bay Head

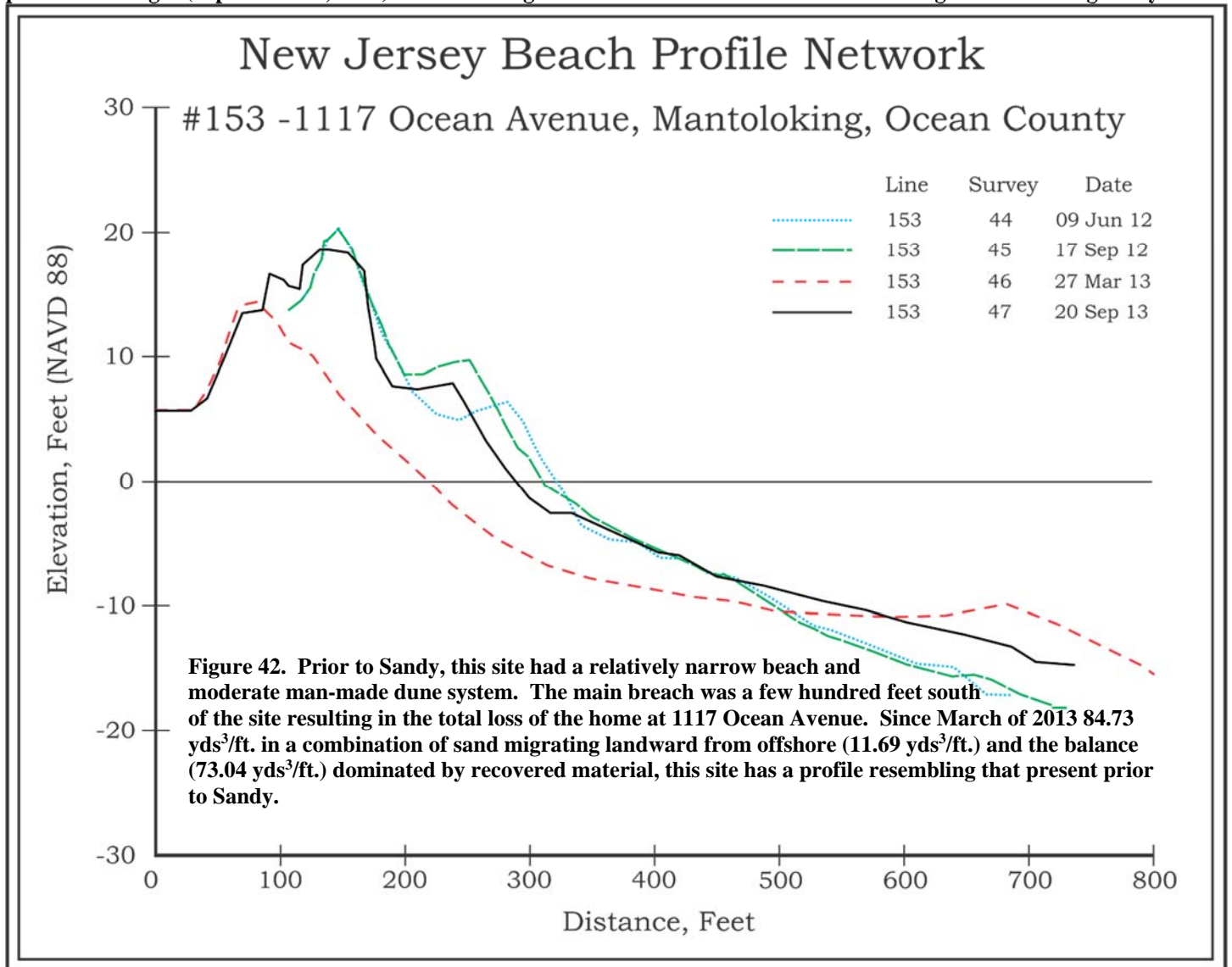


The community of Bay Head experienced wide-scale overwash during H. Sandy stripping away the low dunes and exposing the 5,500-foot rock revetment that was constructed after the 1962 northeast storm (left photo taken November 12, 2012). On the right, (September 3, 2013) sand recovered from the overwash deposits inland was returned to the beach to cover the rocks once again.





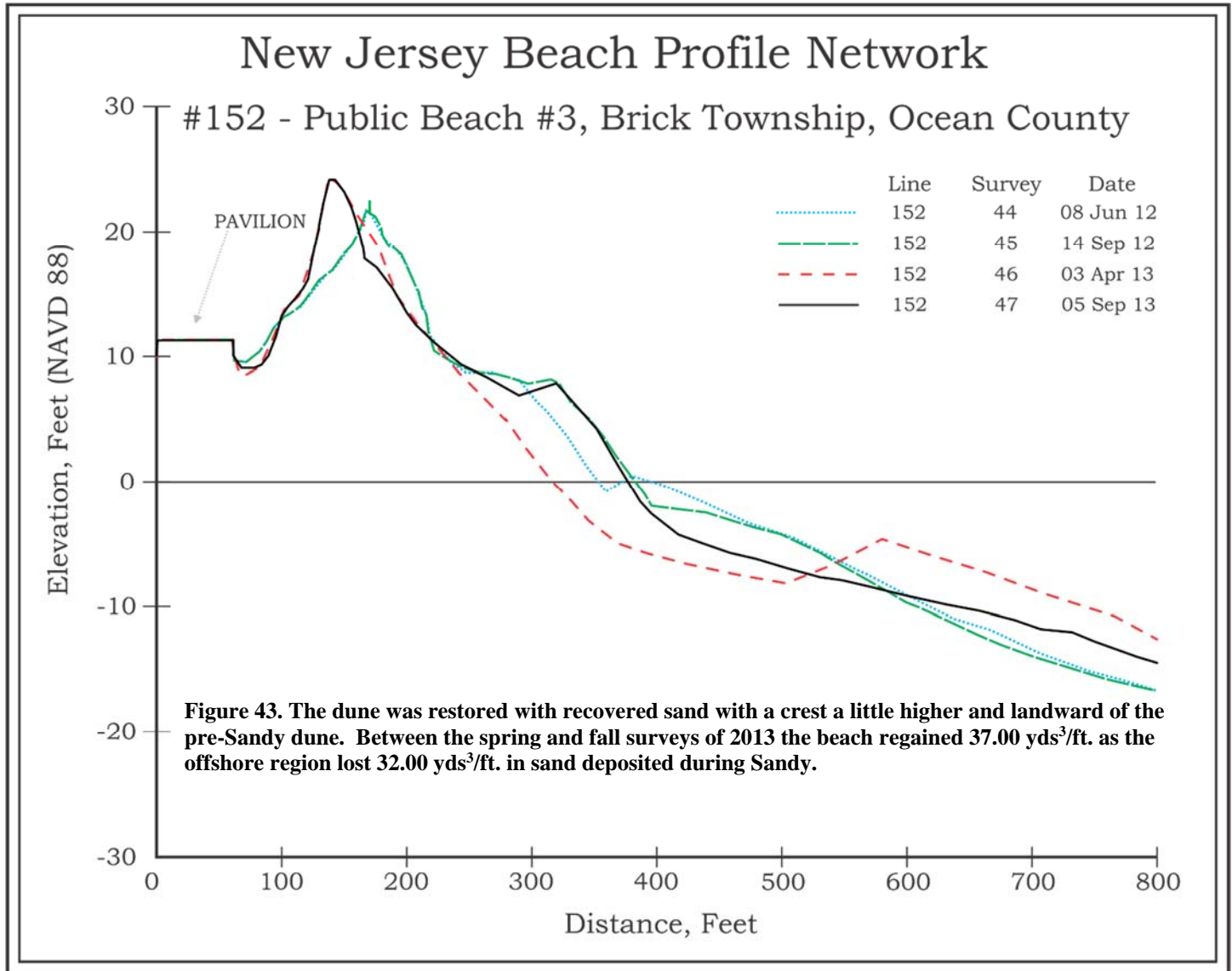
The November 5, 2012 (left) was taken within 300 feet from the temporary breach that opened during Sandy. The home at 1117 Ocean Avenue was completely removed from its location and the residence in the photograph was also destroyed. The photo on the right (September 20, 2013) shows the ridge of recovered sand from inland and dredged from Barnegat Bay.



NJBPN 152 – Public Beach #3, Brick Township



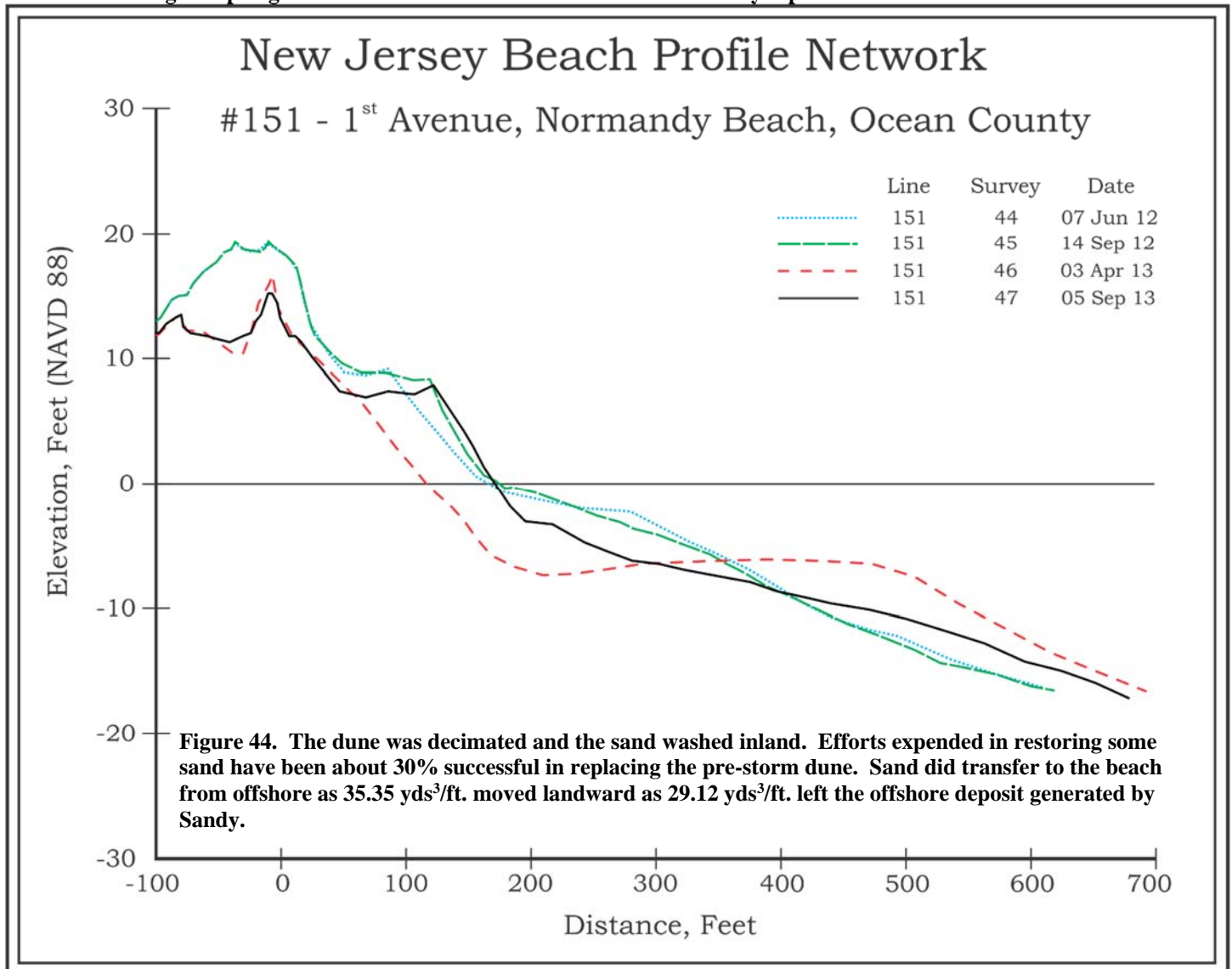
The post-H. Sandy photo on the left (November 8, 2012) shows municipal efforts in protecting what was left of the former dunes. On the right (taken September 5, 2013) shows a restored dune cross section combined with a berm deposited over the summer of 2013.



NJBPN 151 – 1st Avenue, Normandy Beach



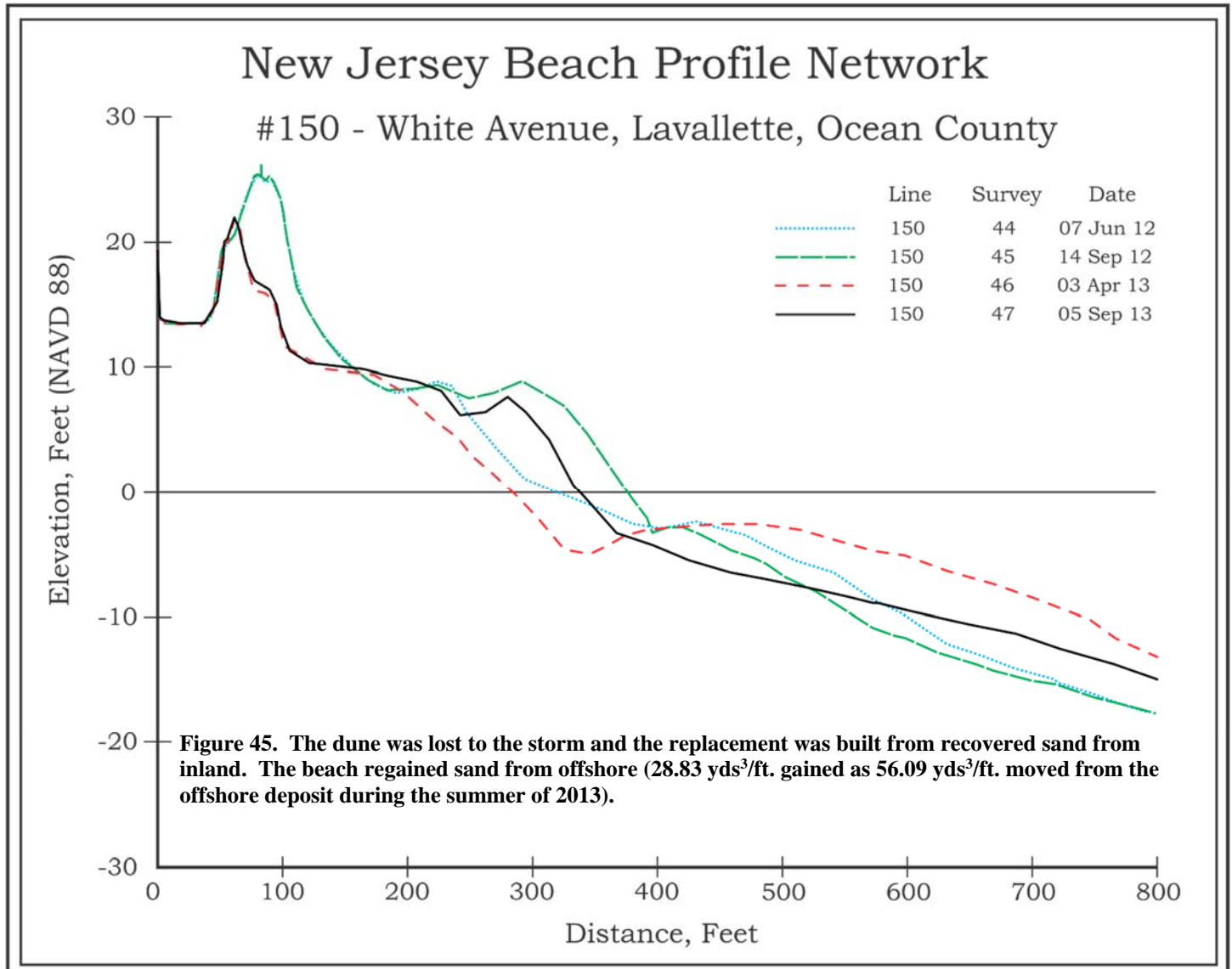
The photo on the left (November 8, 2012), shows damages to structures and exposure of once-buried bulkheads following H. Sandy. Significant overwash occurred at this site and many oceanfront and landward homes were damaged. On the right (September 5, 2013), and nearly a year later, oceanfront homeowners were still in the clean-up process. The municipality pushed sand into a small continuous berm just seaward of the structures. The appearance of a wide berm reflects the calm conditions during the spring/summer months that allow the beach to naturally replenish.



NJBPN 150 – White Avenue, Lavallette



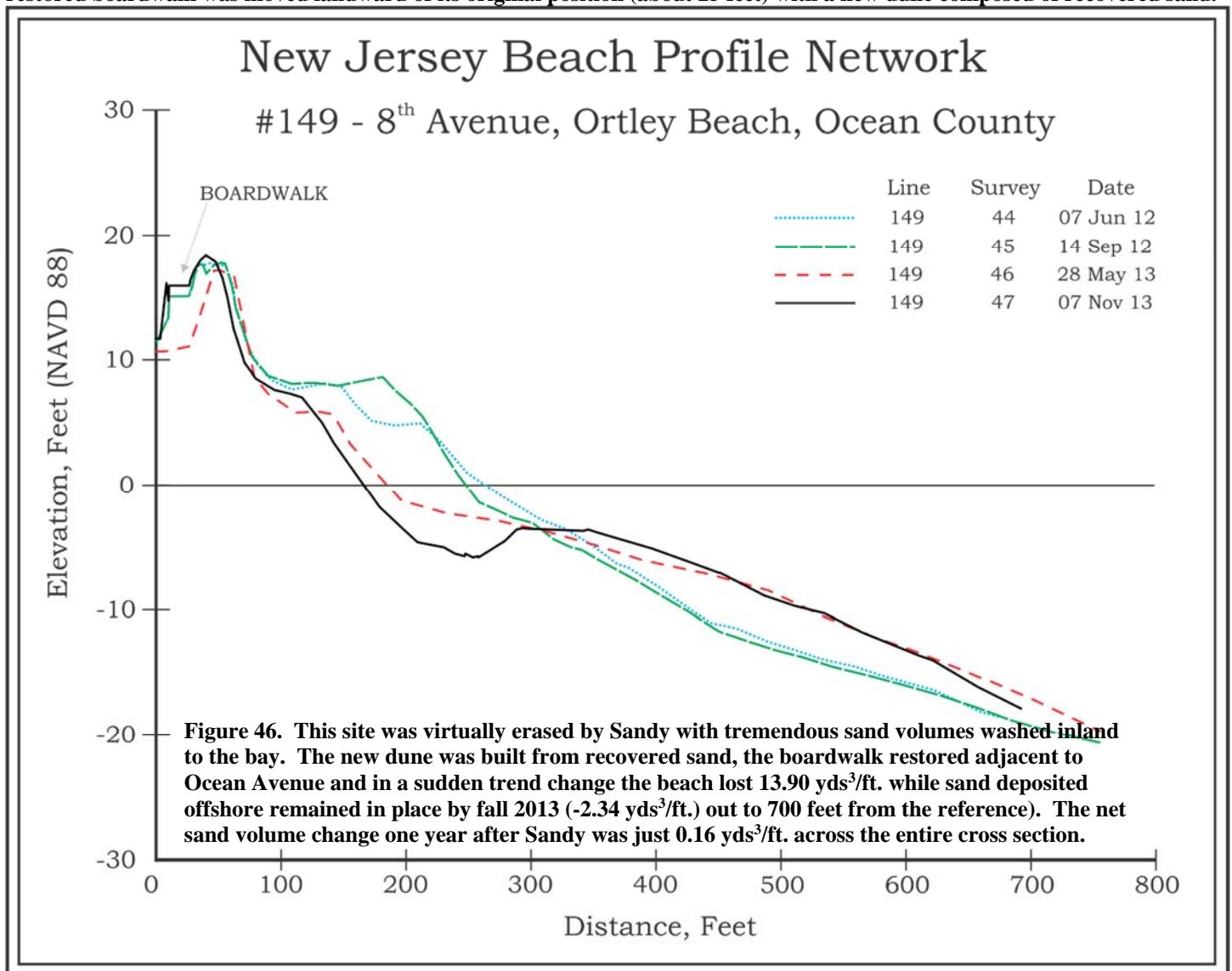
The photograph on the left (November 8, 2012) shows the losses of the berm and dune removed during H. Sandy (51.1 yds³/ft). Some dunes remained intact preventing overwash which was mainly channeled through lower elevation dunes and access ways. On the right (September 5, 2013), sand was pushed up against the boardwalk in an effort to maintain a continuous dune line.



NJBPN 149 – 8th Avenue, Ortley Beach



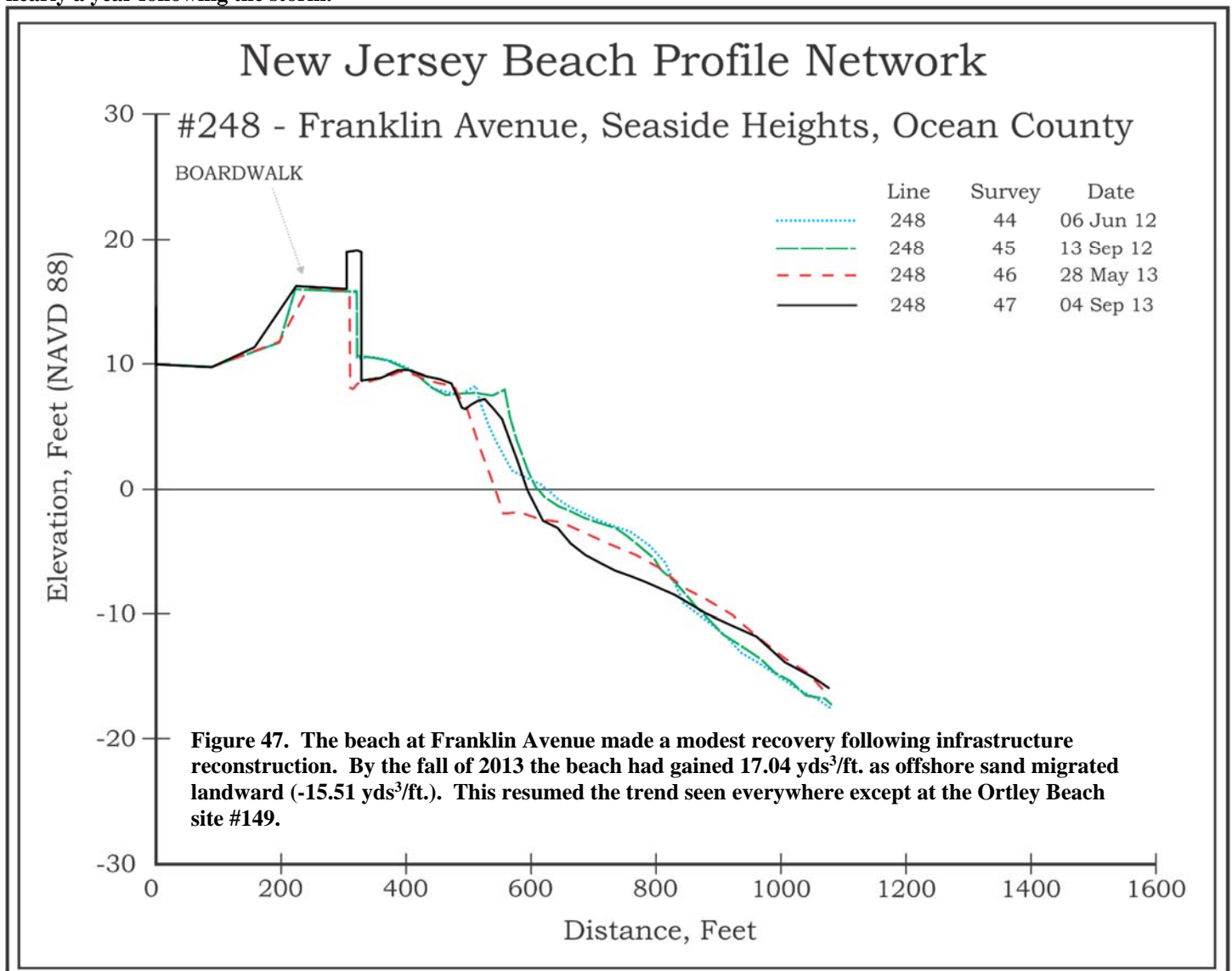
The photograph on the left (November 8, 2012) shows the beach following the removal of 68.7 yds³/ft. of berm and dune during Sandy. Over 10 feet of dune height was pushed landward in overwash deposits. On the right, (taken November 7, 2013) the restored boardwalk was moved landward of its original position (about 25 feet) with a new dune composed of recovered sand.



NJBPN 248 – Franklin Avenue, Seaside Heights



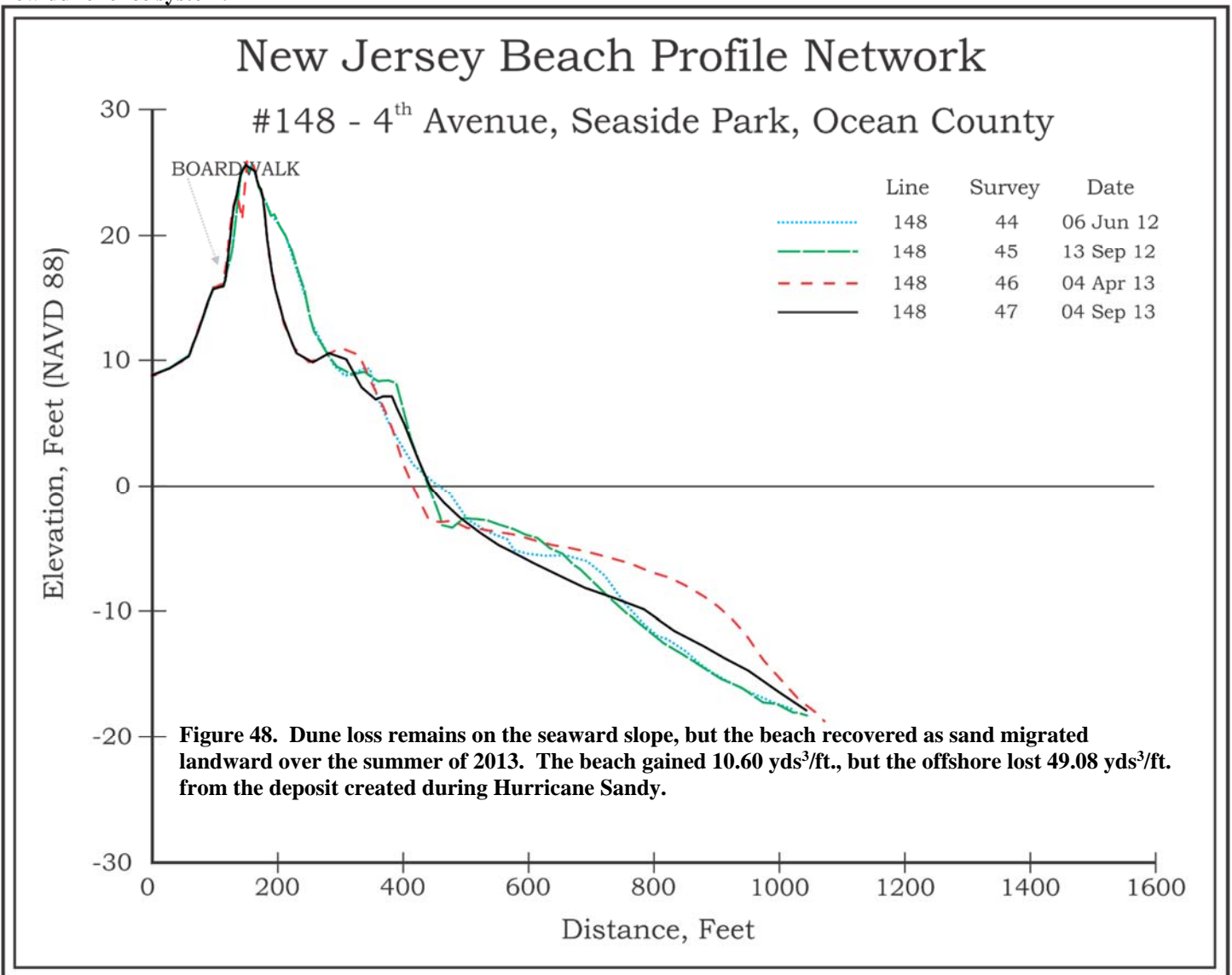
The November 8, 2012 post- H. Sandy beach (left photo) did not have a dune system prior to the storm resulting in damages to the pier and amusements. The photo on the right (taken September 4, 2013) shows the general location of the shoreline after nearly a year following the storm.



NJBPN 148 – 4th Avenue, Seaside Park



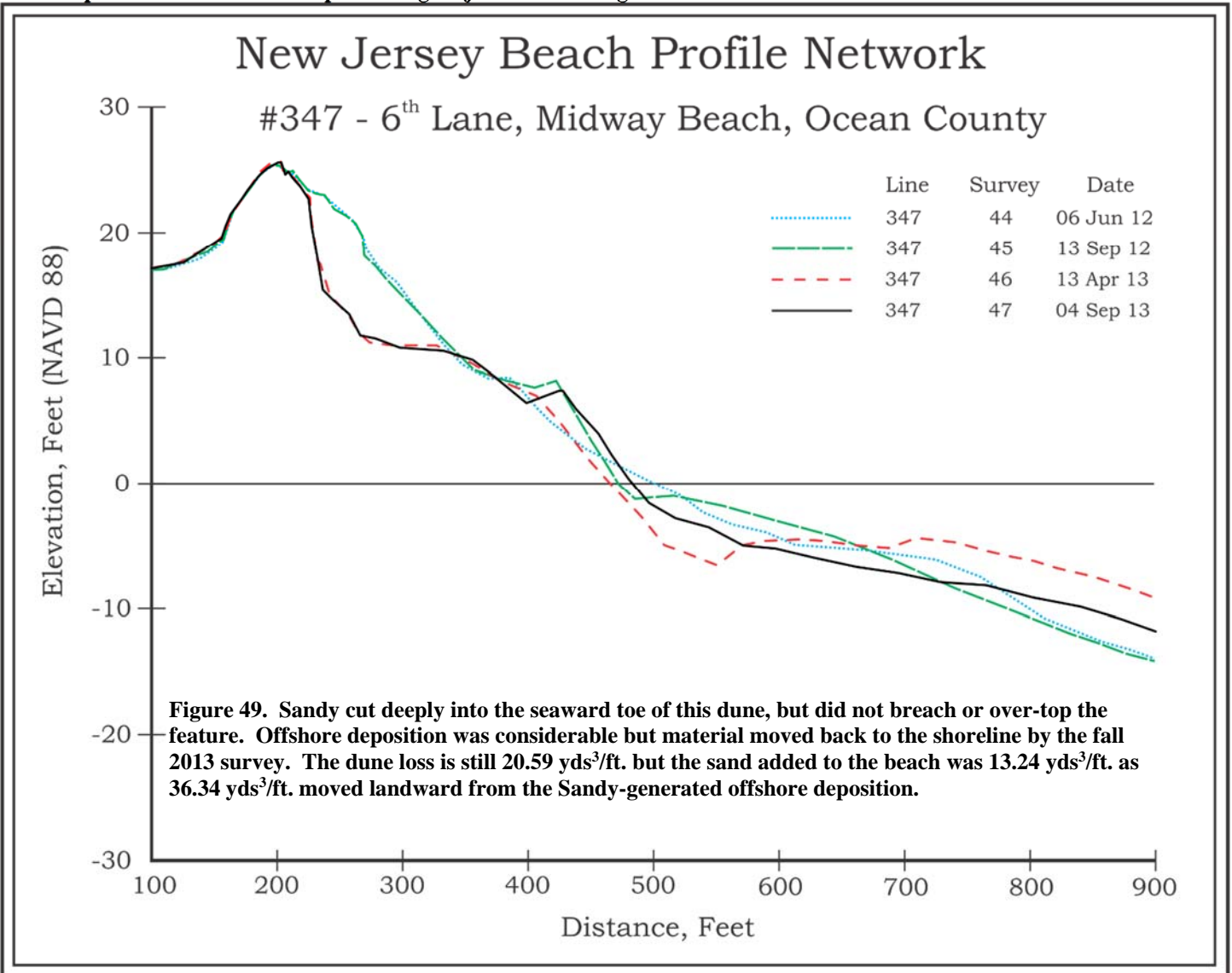
The left photograph was taken on November 8, 2012 after a northeast storm had dumped snow on the shoreline nearly a week after H. Sandy's landfall. There was some loss of the dune, but no overwash occurred at this location from the hurricane. The photo on the right (taken September 4, 2013) shows the results of local efforts to restore the eroded dune and trap sand at a new dune fence system.



NJBPN 347 (originally 147) – 6th Lane, Midway Beach

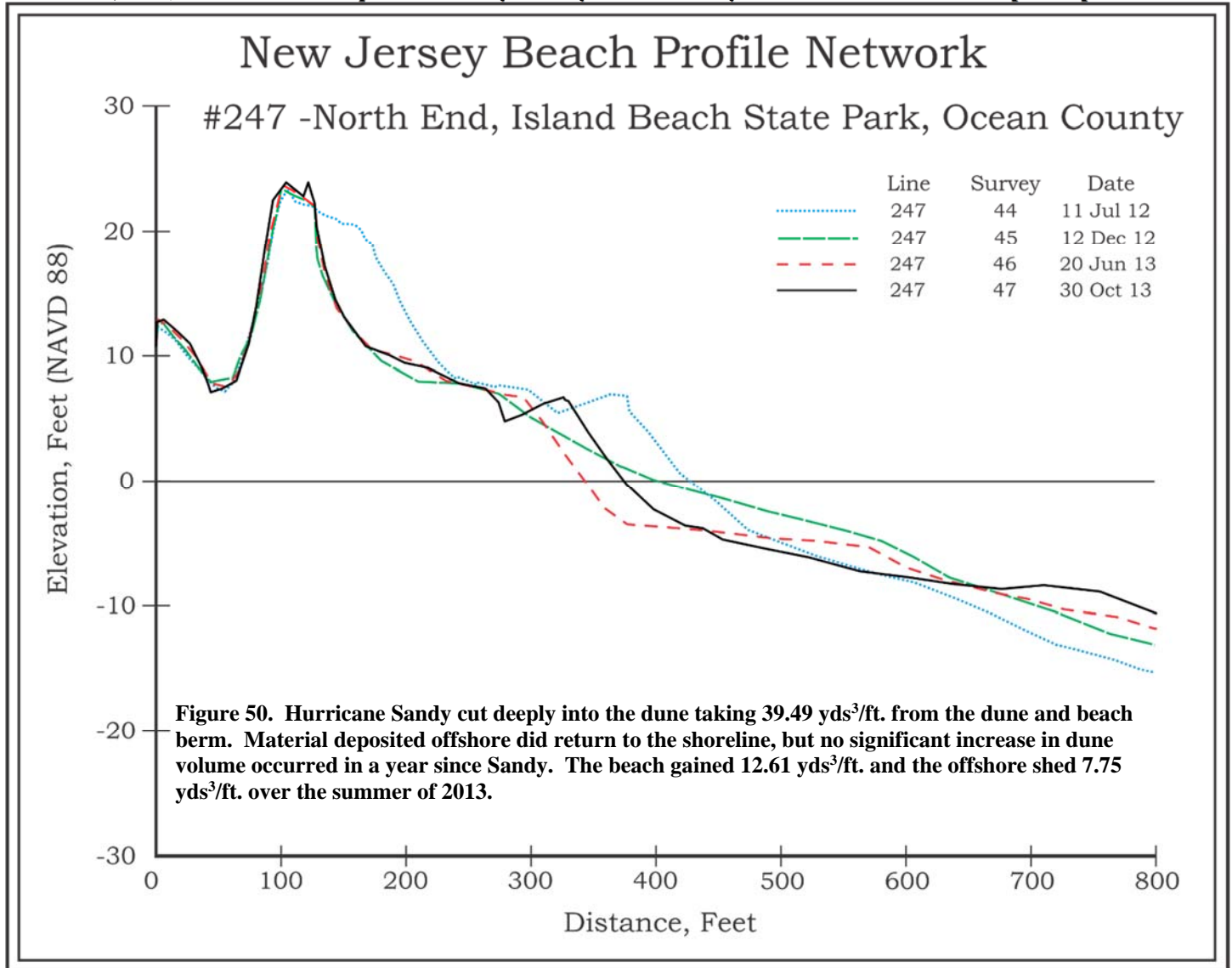


The left photograph was taken on November 8, 2012 following a northeast storm that had dumped snow on the shoreline nearly a week after Sandy's landfall. On the right (photo taken on September 4, 2013), sand fencing and dune grass plants were added to trap additional sand to allow natural dune growth. This site was a dramatic testimony to the effect local efforts in shore protection could have in preventing major storm damages.





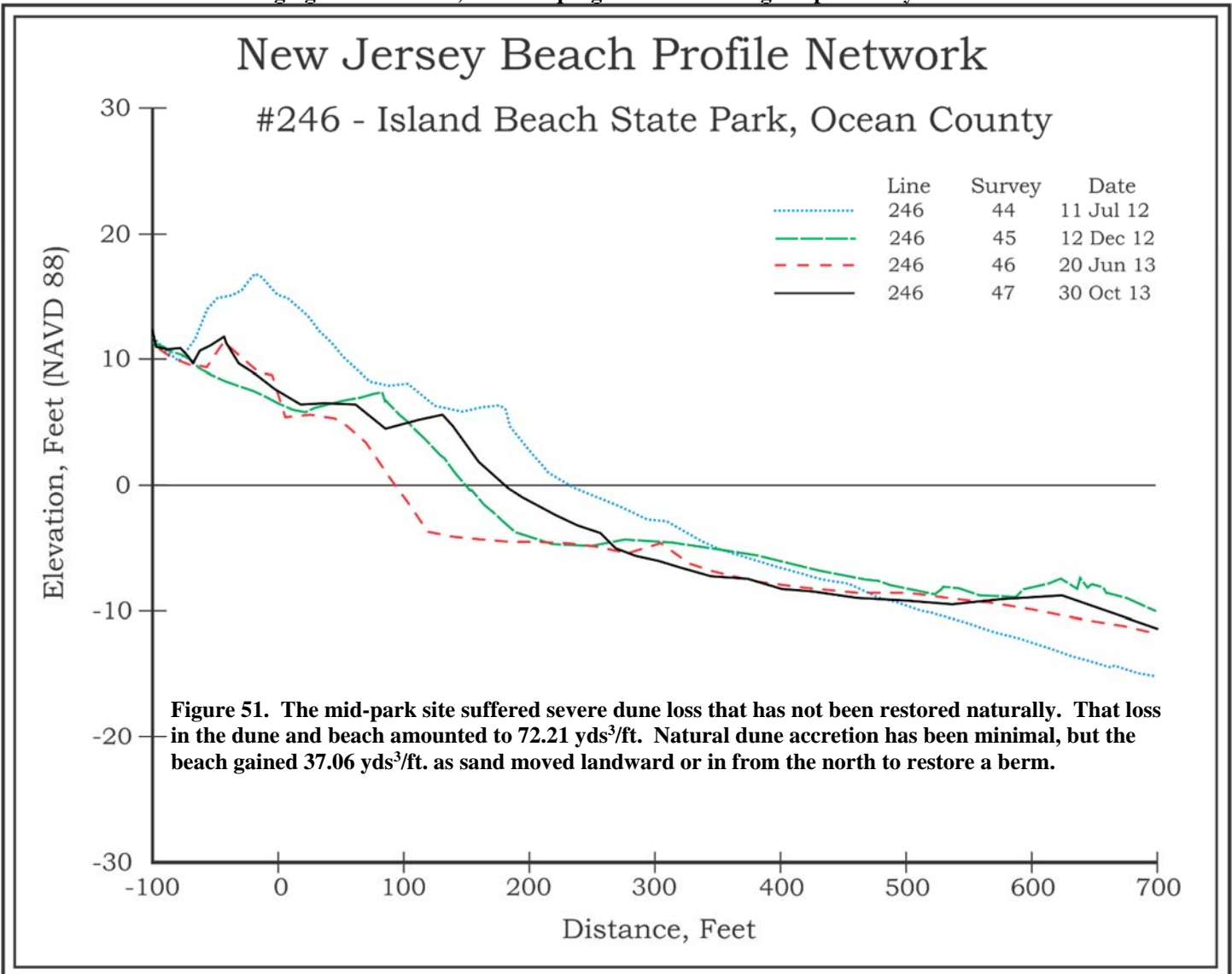
The left photograph was taken on December 12, 2012 and shows the beach and remaining dune. The right photo (taken October 30, 2013) shows the cut scarp in the dune system a year after Sandy that is demonstrated in the profile plots below.



NJBPN 246 – Parking Lot A7, Island Beach State Park

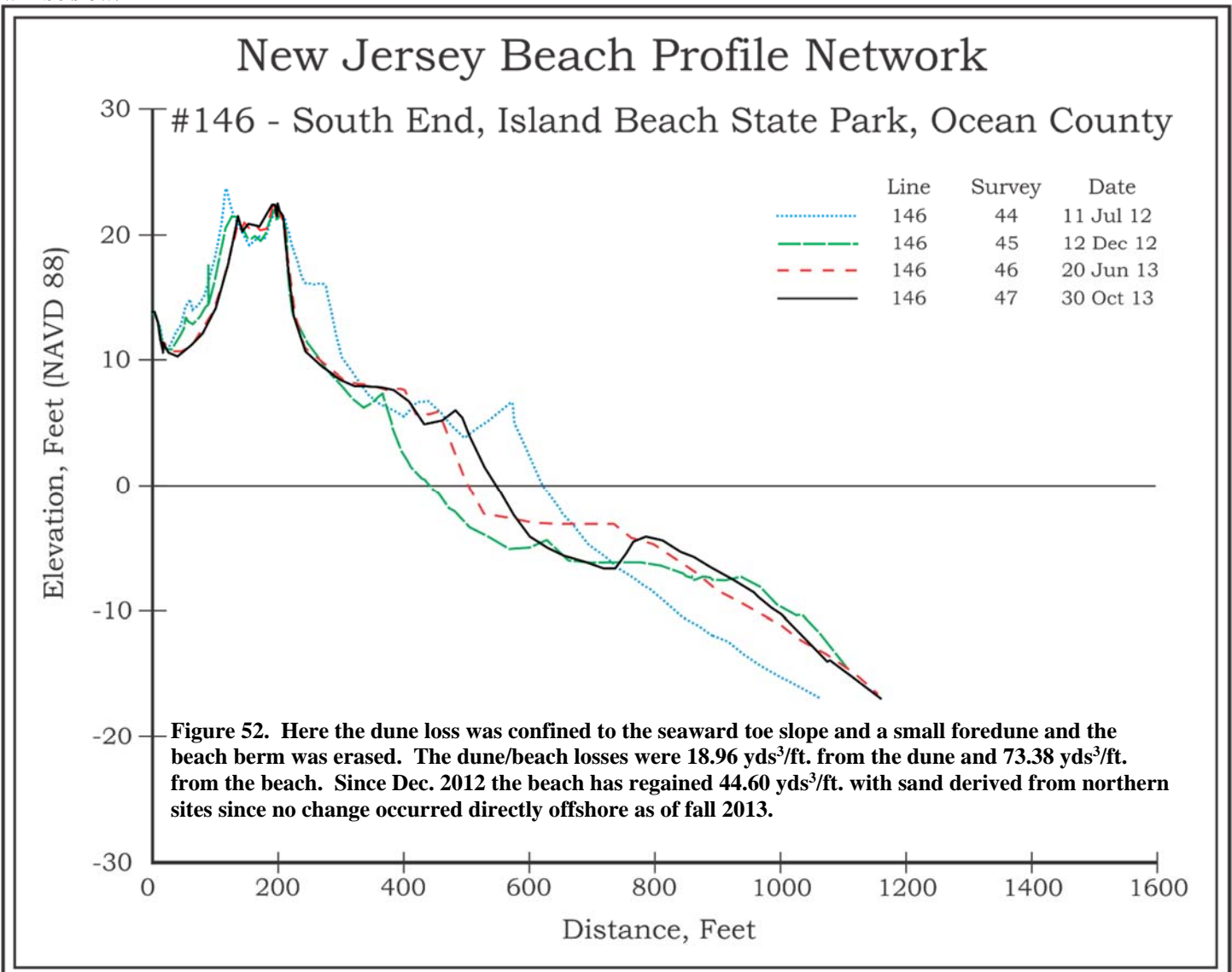


The left photograph was taken on December 12, 2012 and shows the post-Sandy beach. By October 30, 2013 sand had returned from offshore bringing a wider beach, but little progress in rebuilding the pre-Sandy dune.





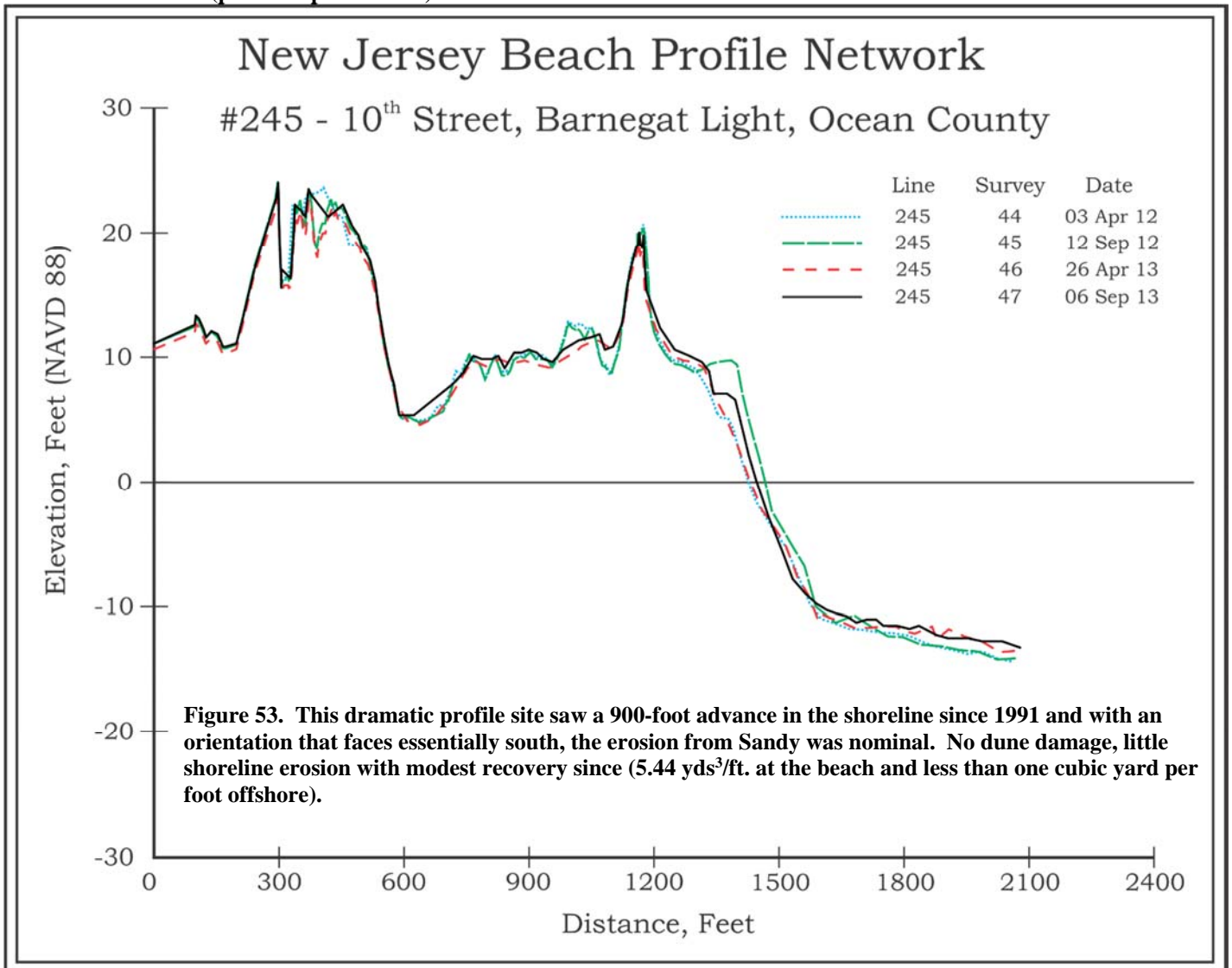
This site within the state protected area is less than a mile from the north Barnegat Inlet jetty. The left photograph was taken on December 12, 2012 and shows the narrower beach. The photo on the right, a years after Sandy (October 30, 2013) shows a wider beach and berm, but little growth in the dunes. This dune was cut less than the northern two sites, but natural recovery will be slow.



NJBPN 245 – 10th Street, Barnegat Light



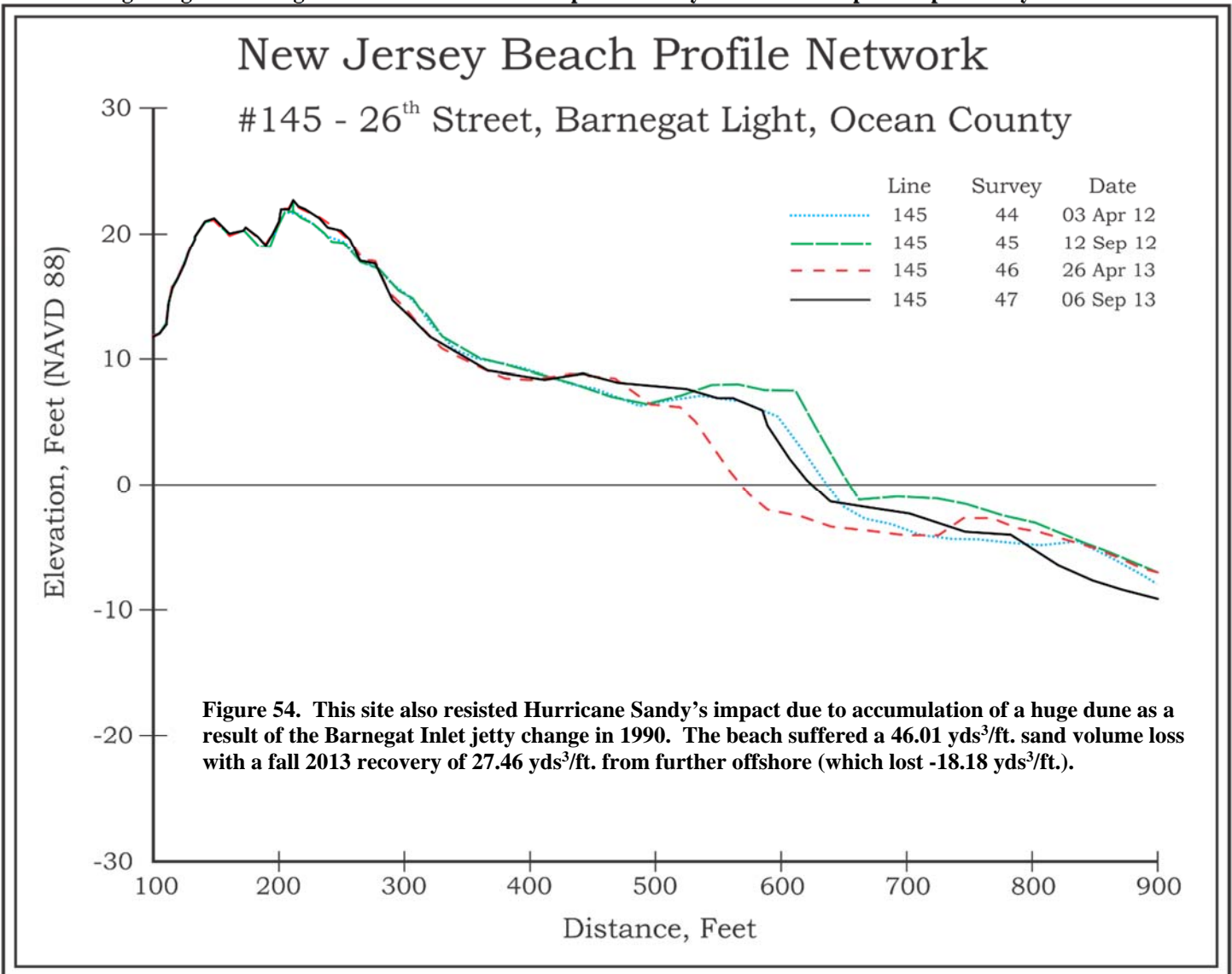
This site is located approximately 1500 feet south of the Barnegat Inlet south jetty and was established to monitor the changes at the inlet. The left photo (taken on November 2, 2012) shows the immediate post-Sandy conditions with sand blown over the grass and minor dune toe erosion. The photo on the right (taken on September 6, 2013) shows that the vegetation recovered well and sand smoothed out the seaward slope. The vertical “pole” in both pictures is the mast of a fishing vessel that sank offshore in the 1980’s (profile caption below).



NJBPN 145 – 26th Street, Barnegat Light

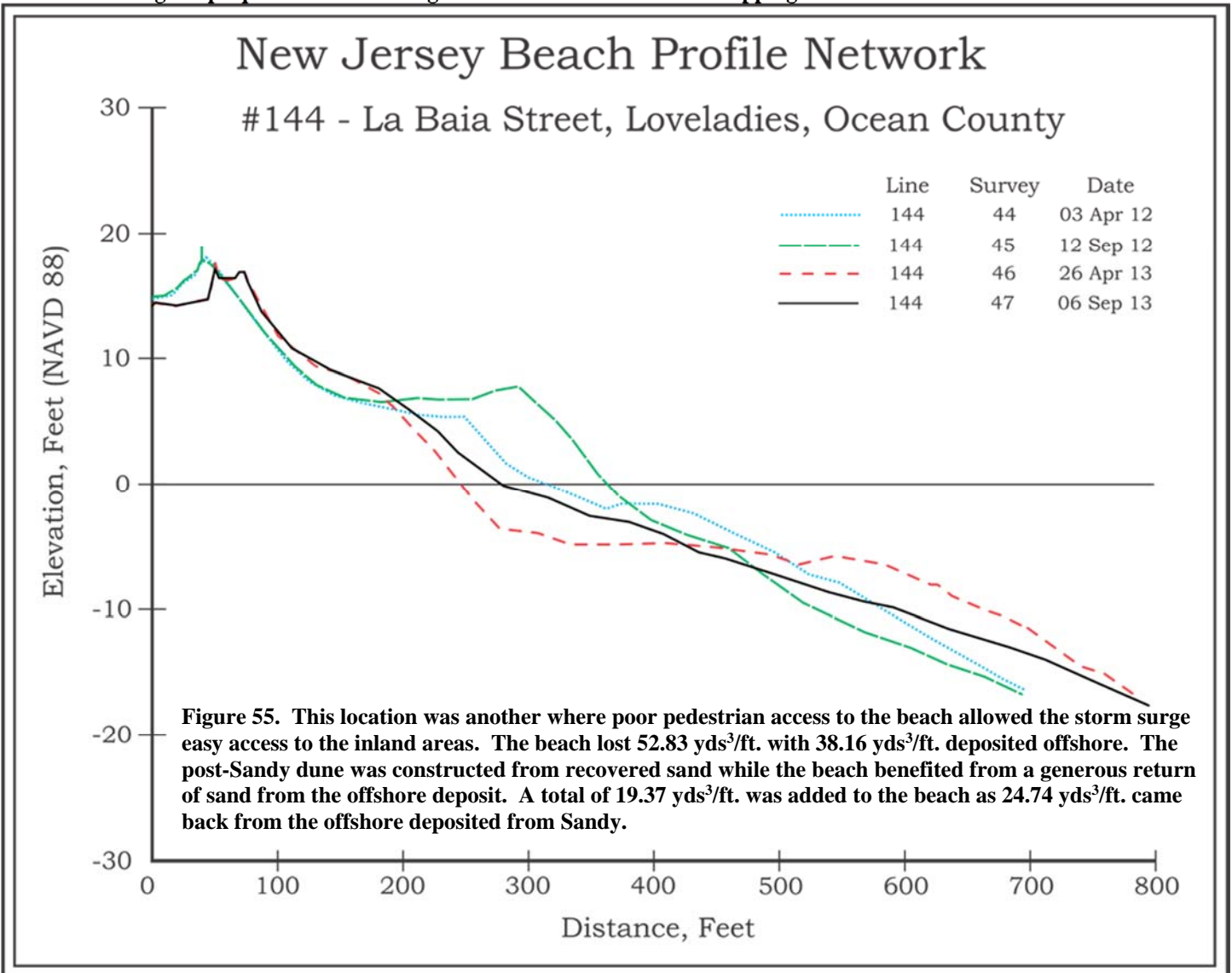


The photo on the left was taken on November 2, 2012 and shows the post-Sandy beach/dune condition where minor toe erosion and wind transport inland among the vegetation had occurred. By September 6, 2013 the vegetation was spreading, sand was accumulating along the fencing and the berm had redeveloped naturally to 65% of that present pre-Sandy.



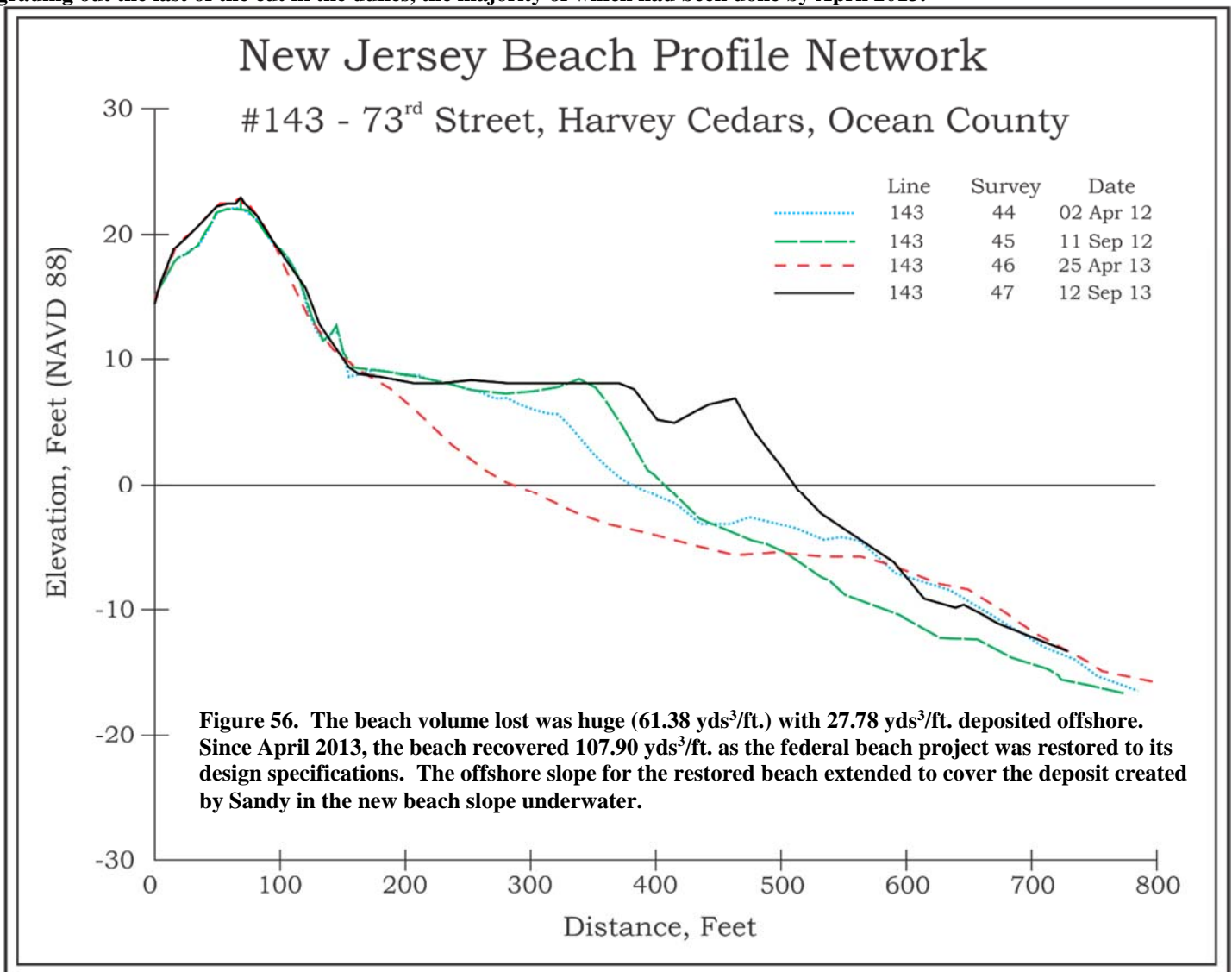


Above are two photos taken at La Baia Street immediately after Hurricane Sandy (Nov. 2, 2012) and almost a year later (Sept. 6, 2013). The overwash cut-through at the pedestrian access pathway was restored and the sand recovered to make a small dune along the properties. The fencing was added to enhance sand trapping from the wider berm.



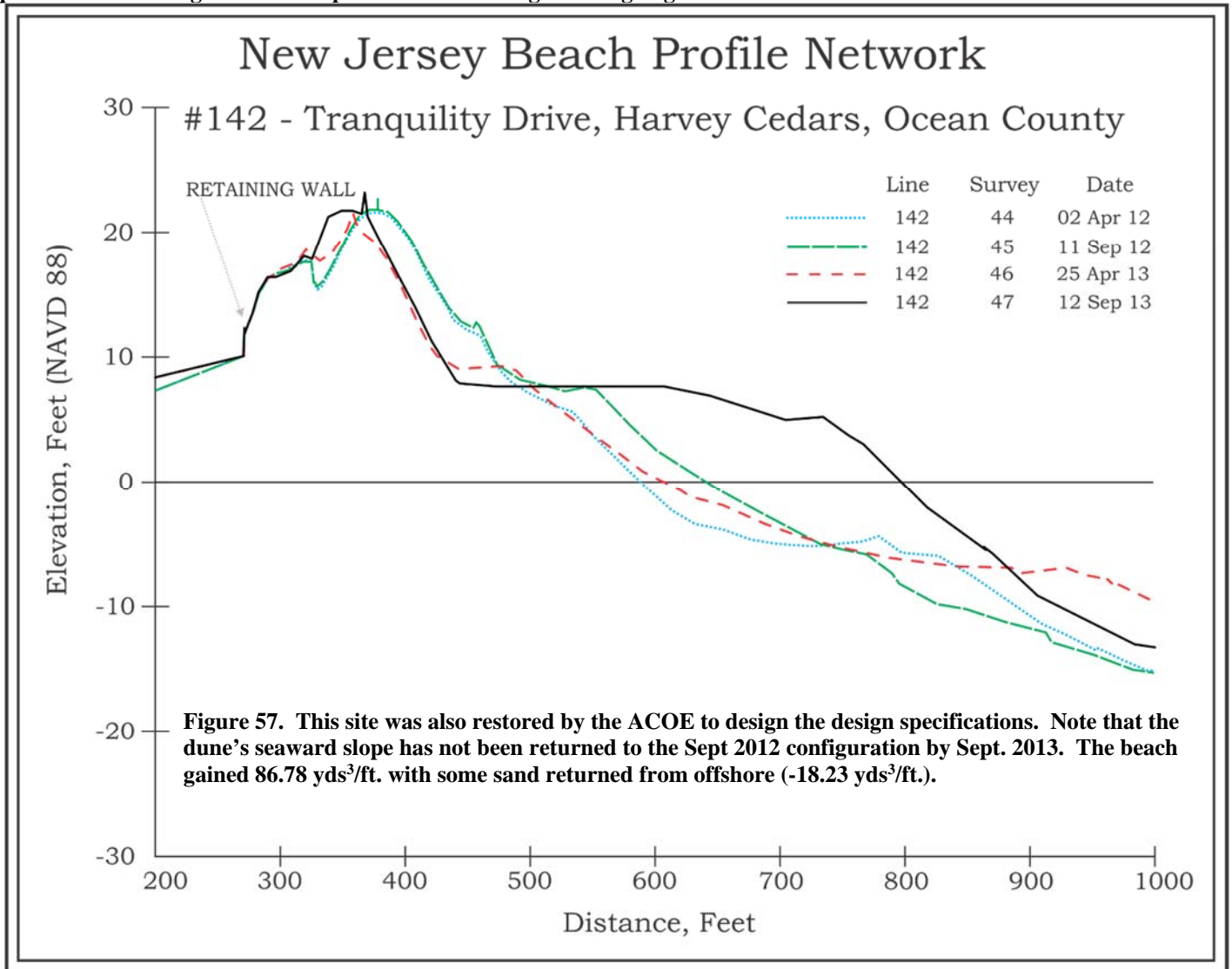


The photo on the left was taken on November 2, 2012 while the photo on the right was taken on September 12, 2013 from a similar location looking north. This site had received sand as part of the 2010 USACE beach nourishment project for Long Beach Island. By the fall of 2013 sand had been pumped back onto this part of the ACOE project restoring the berm and grading out the last of the cut in the dunes, the majority of which had been done by April 2013.



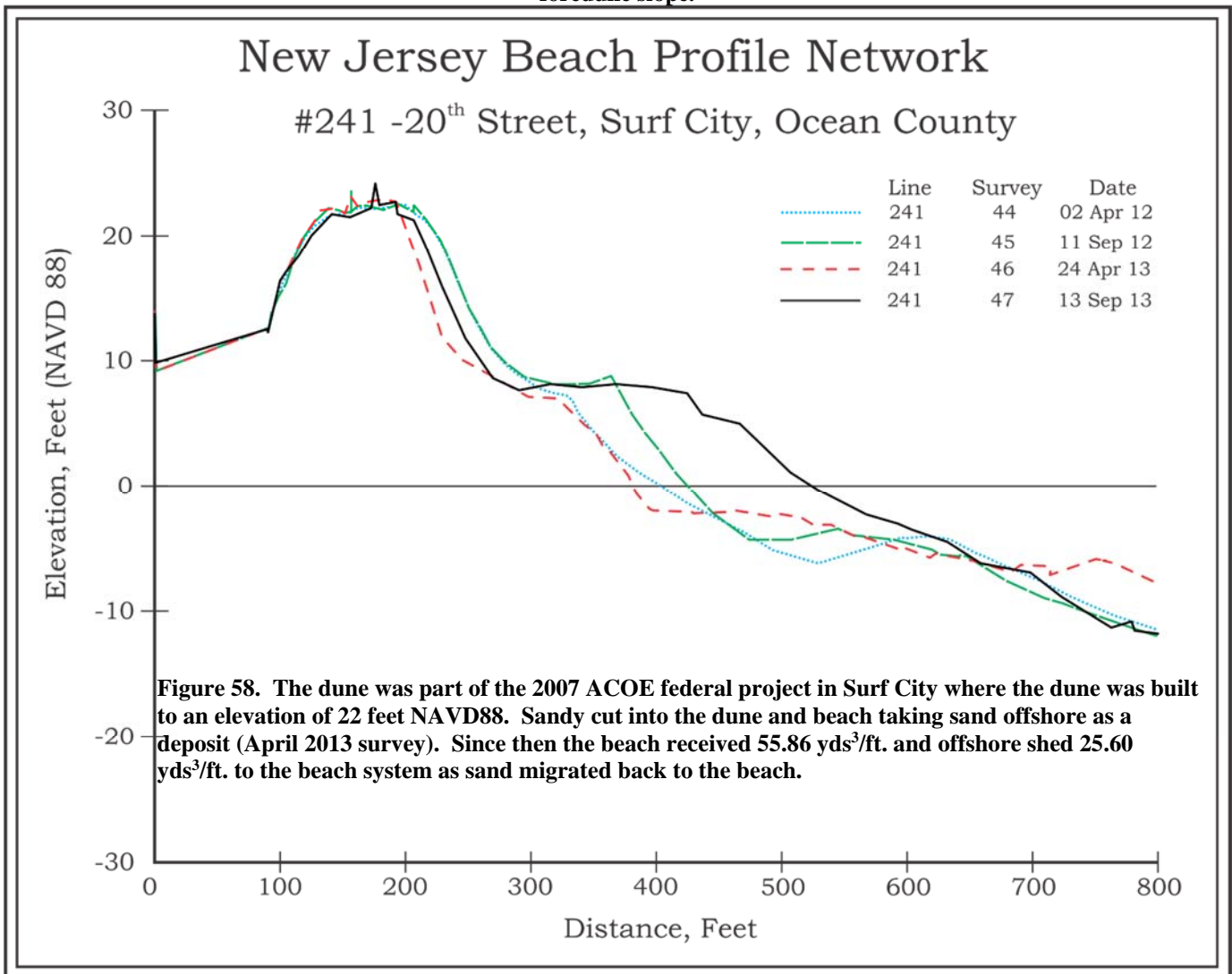


The Tranquility Drive site was included in the 2010 USACE beach nourishment project. The photo on the left was taken on November 2, 2012 and shows the dune and beach conditions immediately after Sandy. On the right, the photo (taken on September 12, 2013 – a year post-Sandy) shows the results of ACOE efforts in restoring the dune and berm to design template specifications. New grass and completion of the fencing was on-going.





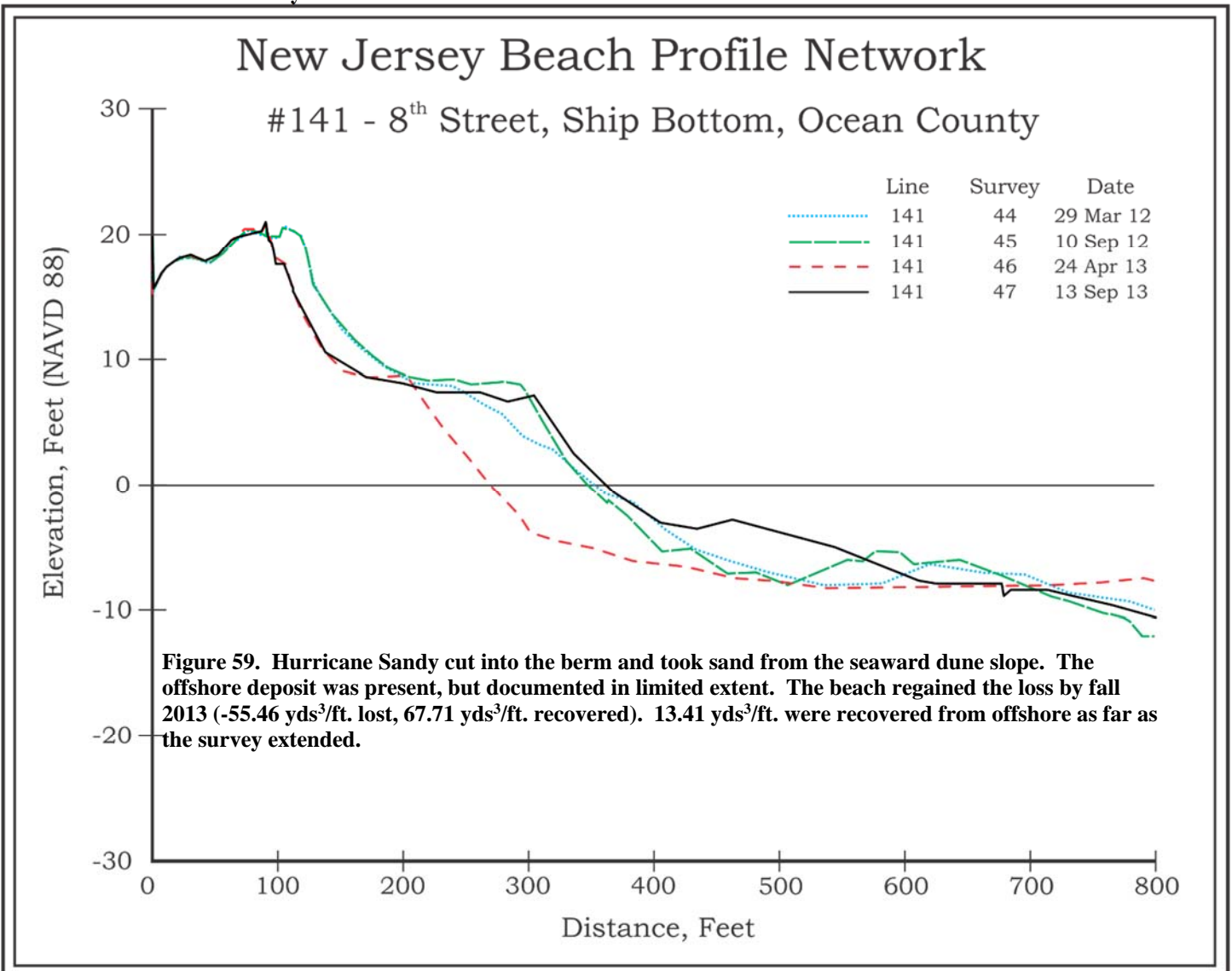
The photographs above were taken on November 1st, 2012 (left) and September 13, 2013 (right). Both images show the view of 20th Street (site 241) looking south. This location in Surf City received a beach replenishment in 2007 and was in the process of being restored to design specifications in Sept. 2013. The process was incomplete a year later as can be seen in the position of the split rail fencing being identical in both photographs. The sand, however, was back on the beach with some recovery to the foredune slope.



NJBPN 141 – 8th Street, Ship Bottom



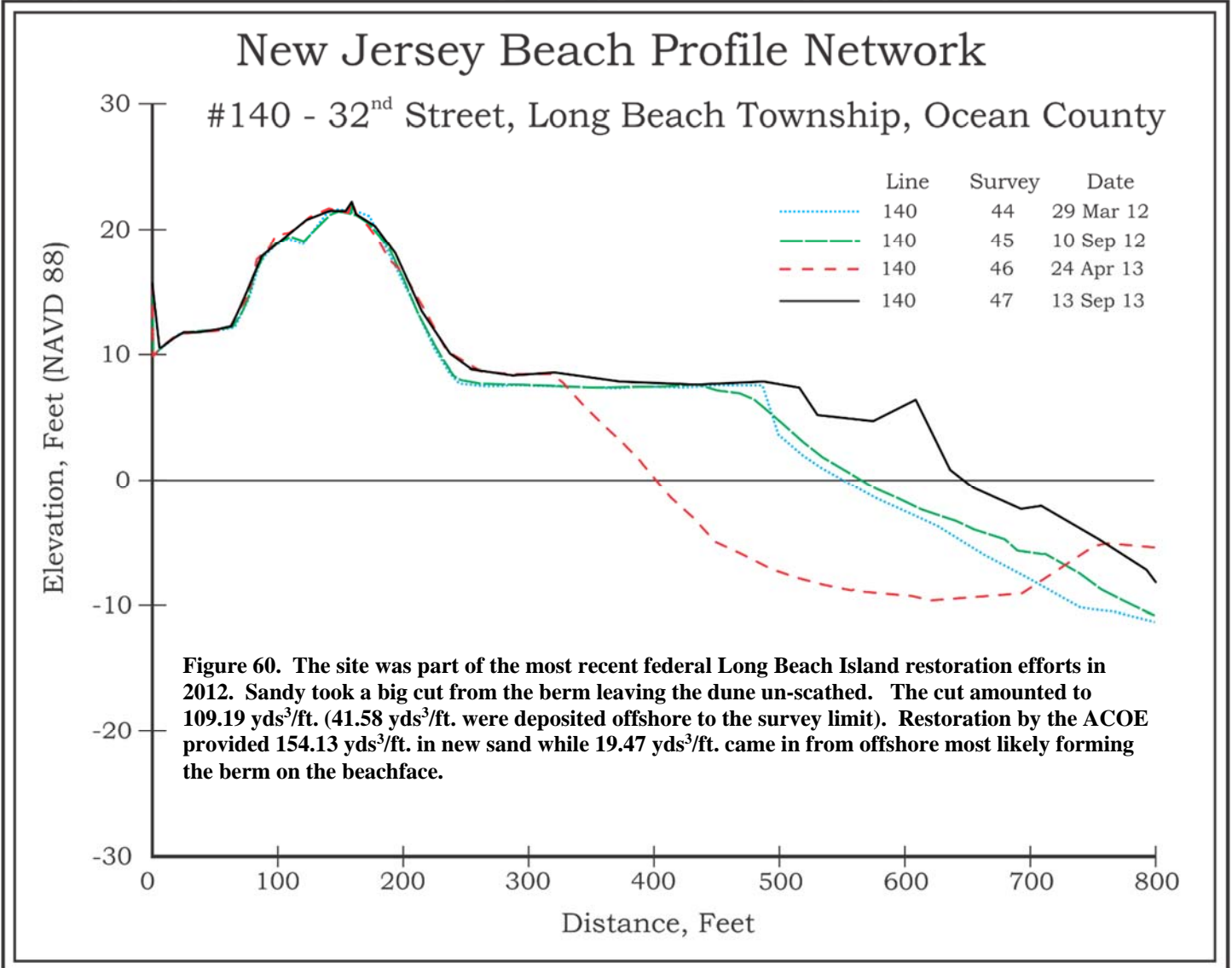
The photographs above were taken on November 1, 2012 (left) and September 13, 2013 (right). Both images show the view of 8th street (site 141) looking north. The beach recovered substantially by the fall of 2013, new fencing was installed, but the dune volume remains as Sandy left it.



NJBPN 140 – 32nd Street, Long Beach Township



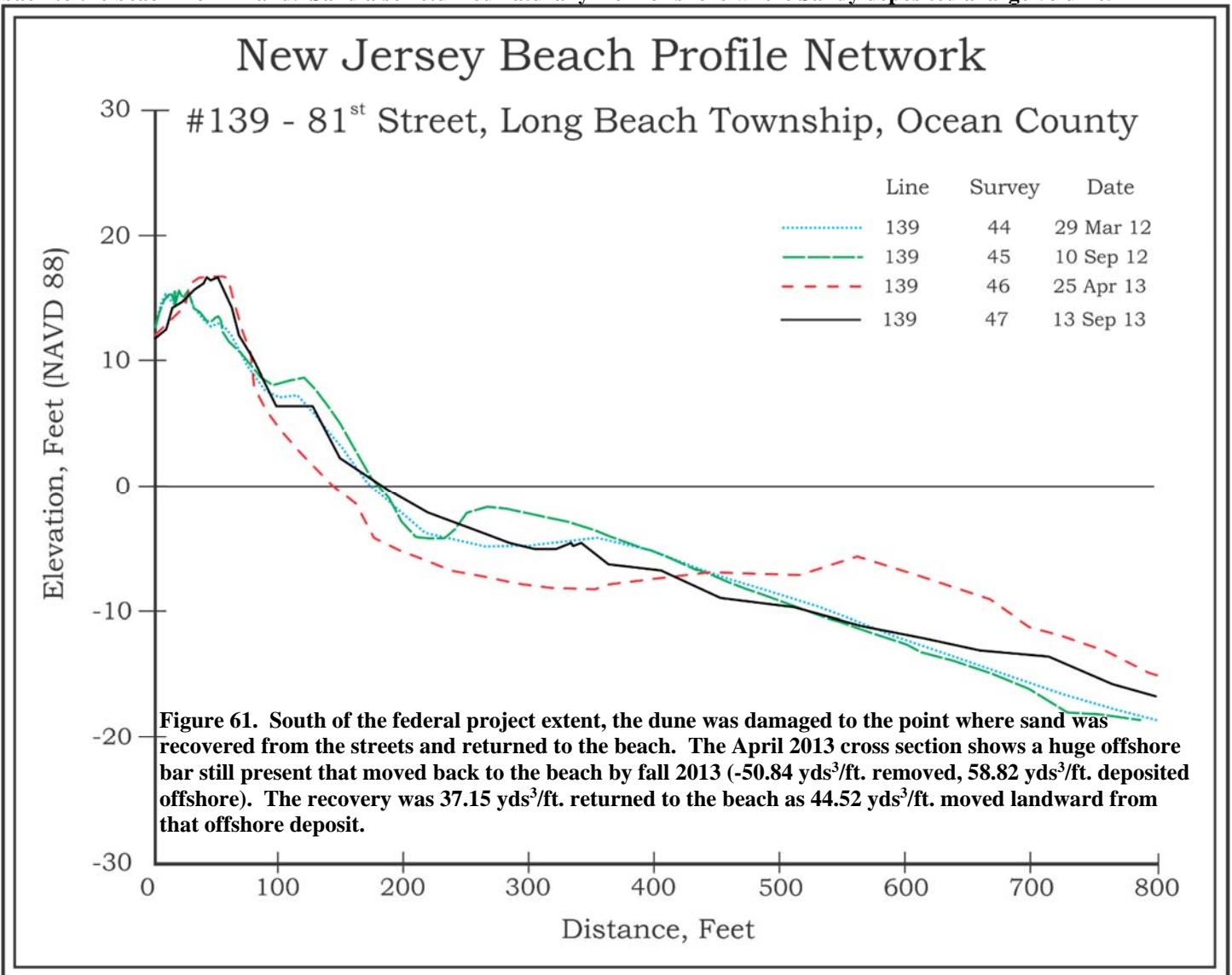
The photographs above were taken on November 1, 2012 (left) and September 13, 2013 (right). Both images show the view of 32nd street (site 140) looking north. This location in the Brant Beach section of Long Beach Township received beach replenishment in spring 2012 just in time. The damage immediately after the storm is evident to the left with the restoration showing on the right. The berm recovered and the post-Sandy volume added was quite large.



NJBPN 139 – 81st Street, Long Beach Township



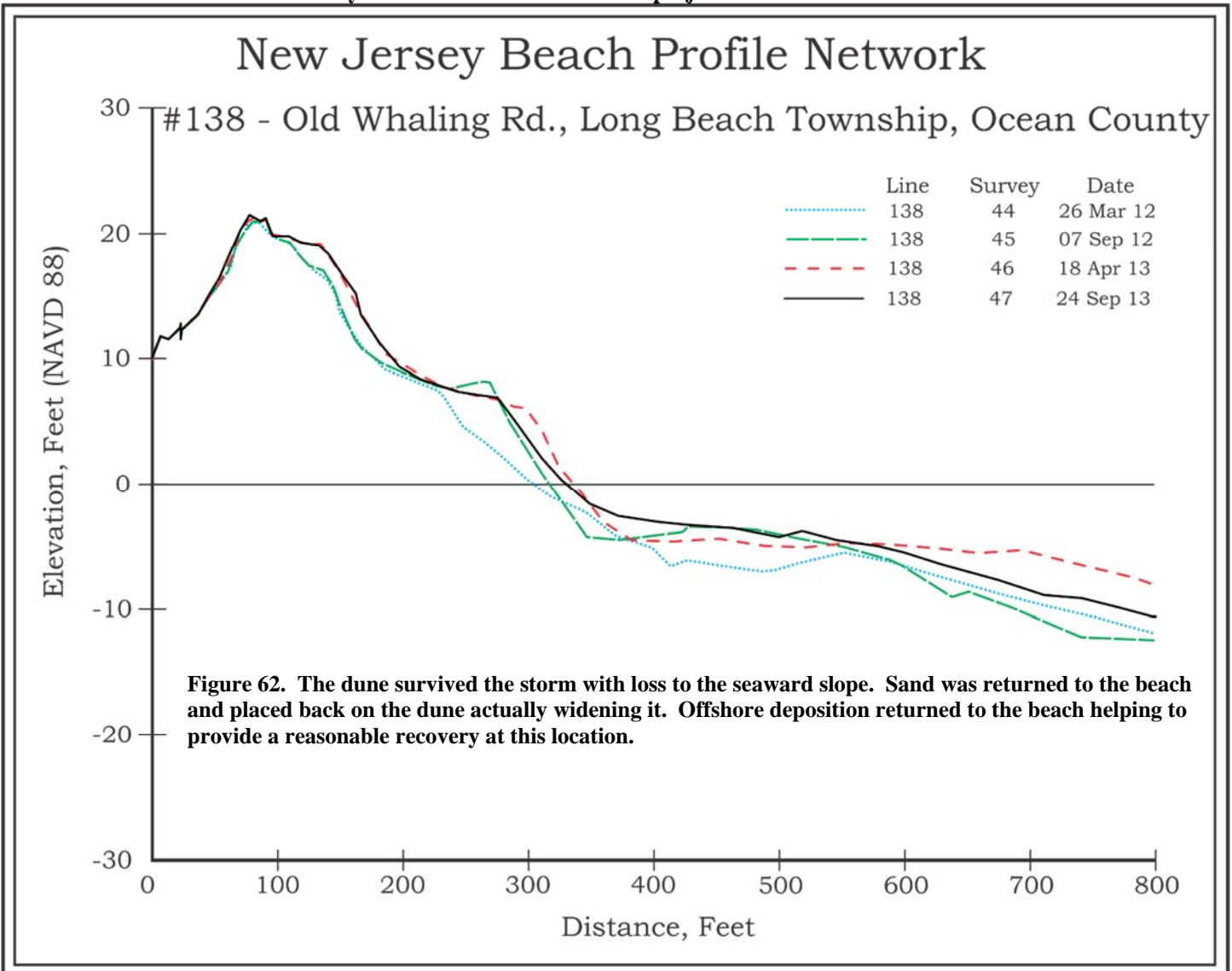
The photographs above were taken on November 1, 2012 (left) and September 13, 2013 (right). Both images show the view of 81st street (site 139) looking south. Damage was extensive and the dune restoration was derived from recovered sand hauled back to the beach from inland. Sand also returned naturally from offshore where Sandy deposited a large volume.



NJBPN 138 – Old Whaling Road (124th Street), Long Beach Township



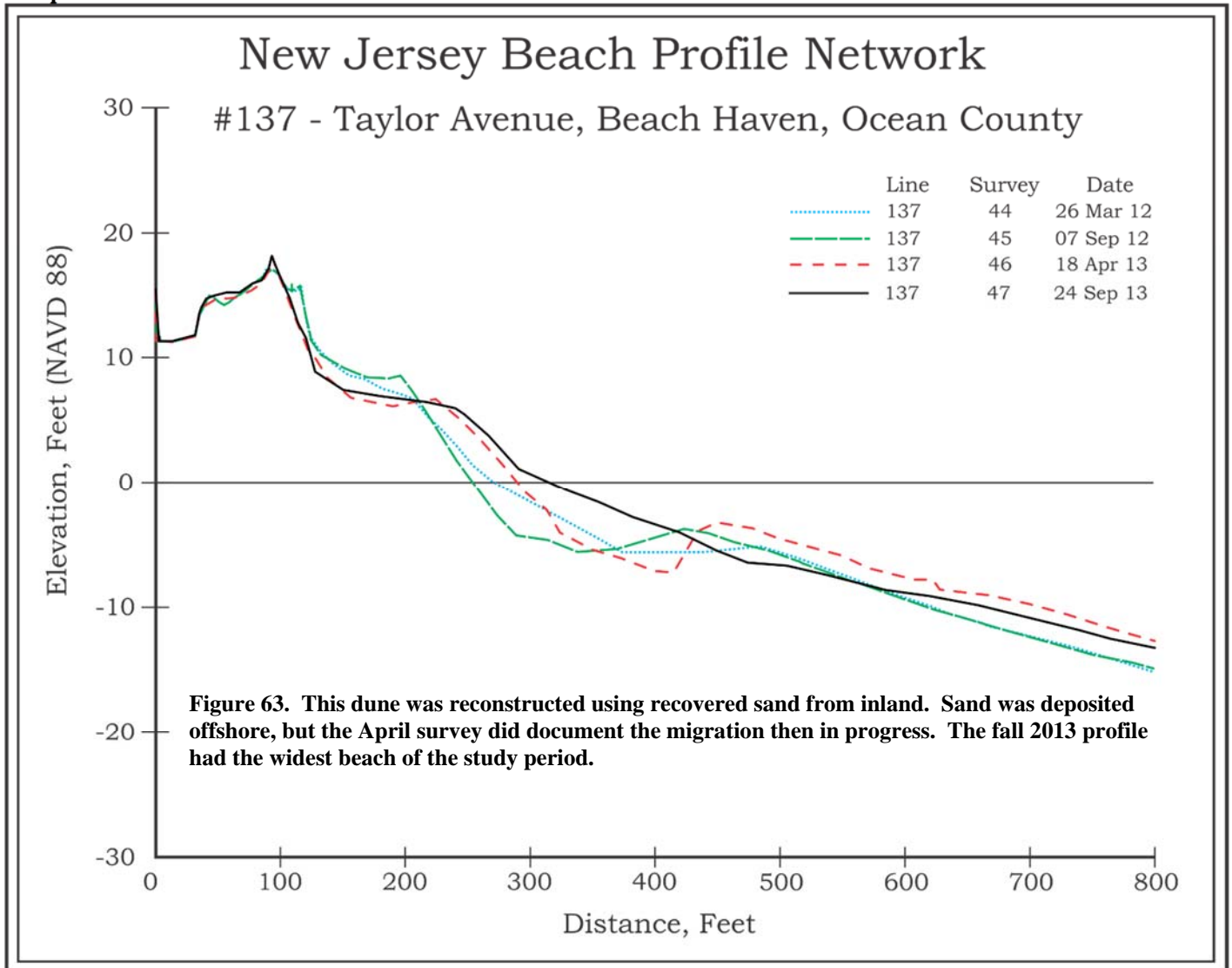
The photographs above were taken on November 1, 2012 (left) and September 24, 2013 (right). Both images show the view of Old Whaling Road (site 138) looking south. Sand was brought back to the dune's seaward slope to restore storm damage. The beach has not widened naturally as much as other non-federal project locations.



NJBPN 137 – Taylor Avenue, Beach Haven



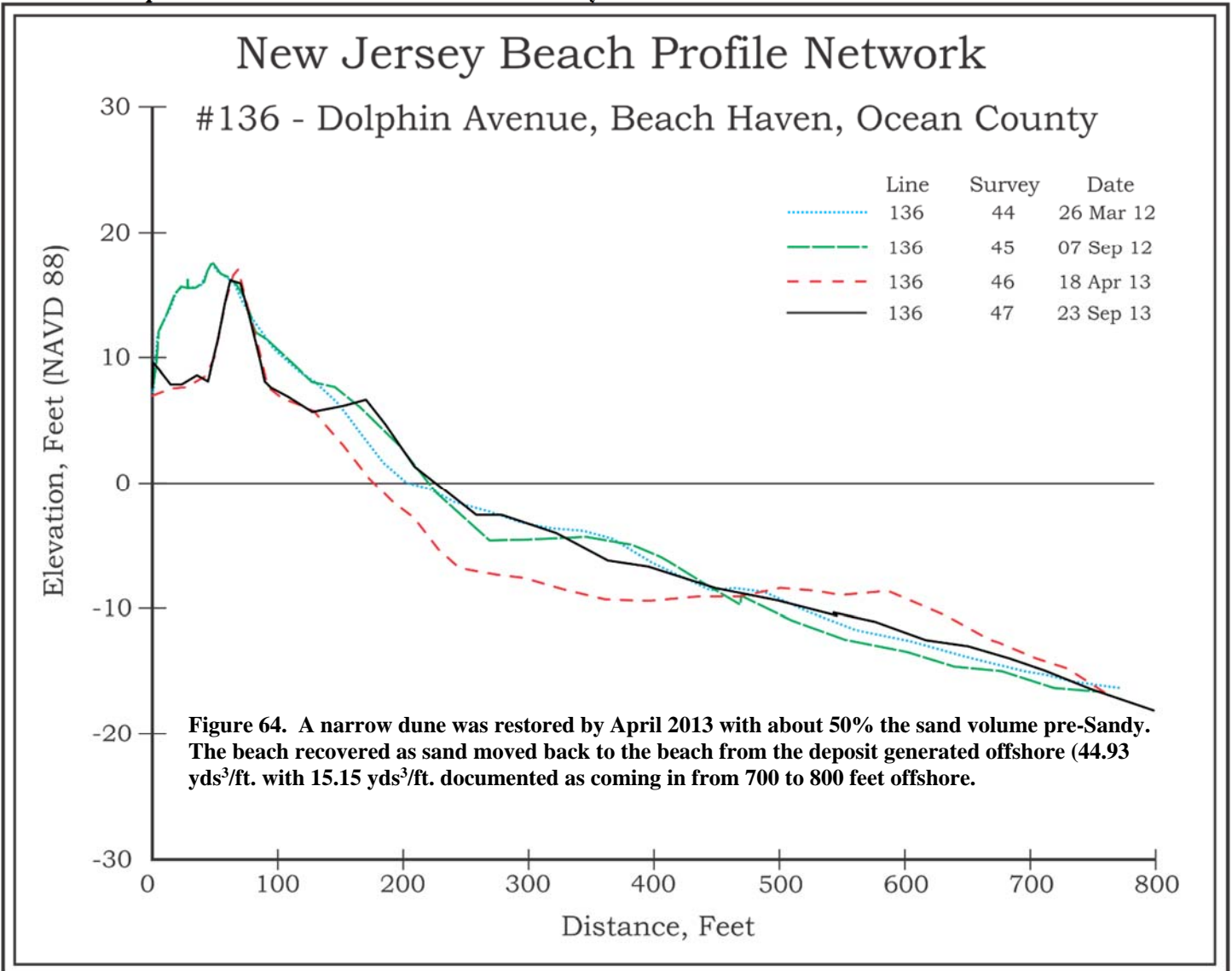
The photographs above were taken on November 1, 2012 (left) and September 24, 2013 (right). Both images show the view of Taylor Avenue looking north. The immediate result of Sandy was the total loss of the dune with major overwash inland. A year later the dune had been substantially reconstructed from recovered sand hauled back to the beach. The private timber shore protection served well and is still visible in the distance.



NJBPN 136 – Dolphin Avenue, Beach Haven

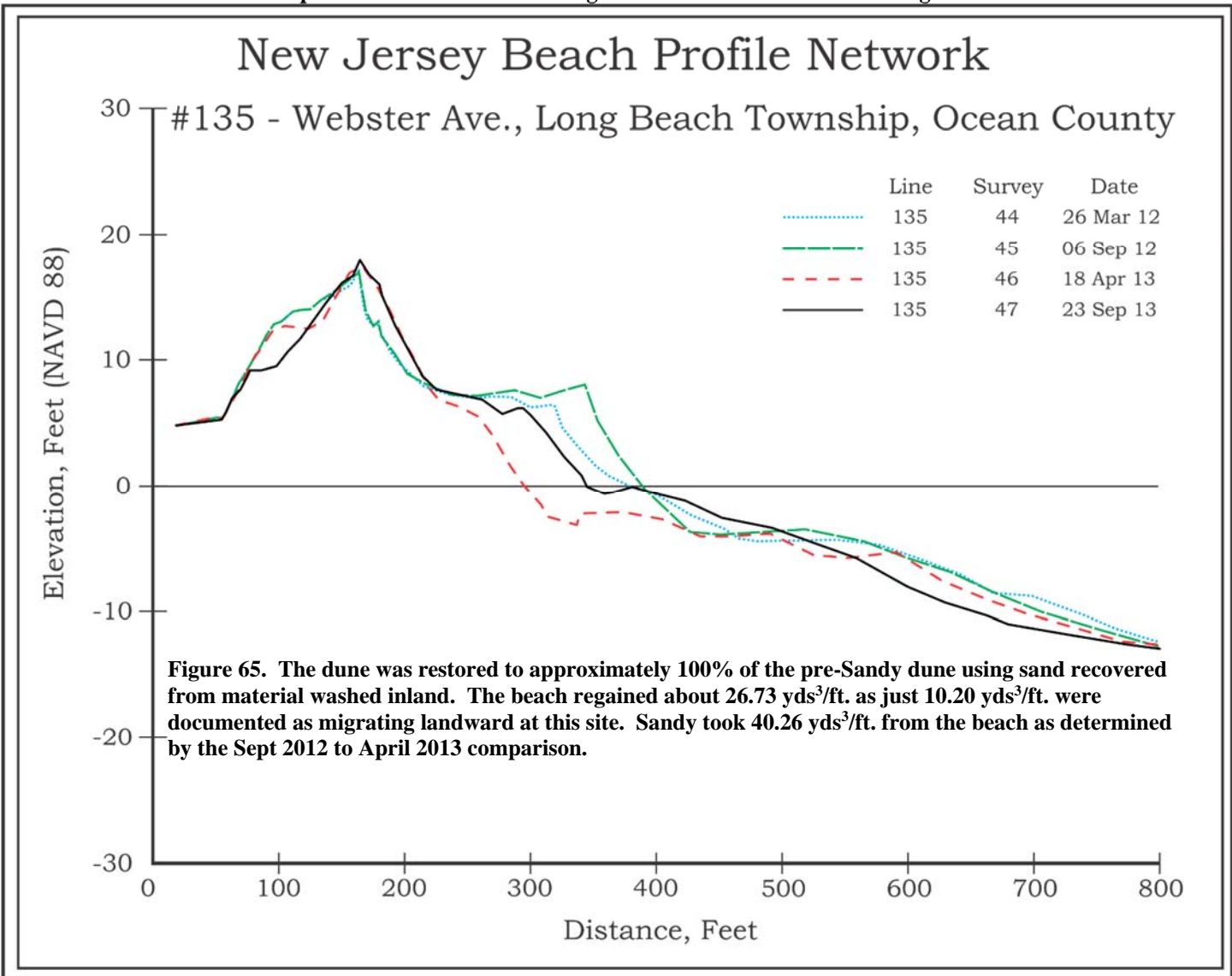


The photographs above were taken on November 1, 2012 (left) and September 24, 2013 (right). Both images show the view of Dolphin Avenue (site 136) looking north. The lost dune was replaced by a smaller feature using sand hauled back to the beach from inland deposits. There is a wider beach as a result of a year’s natural accretion.



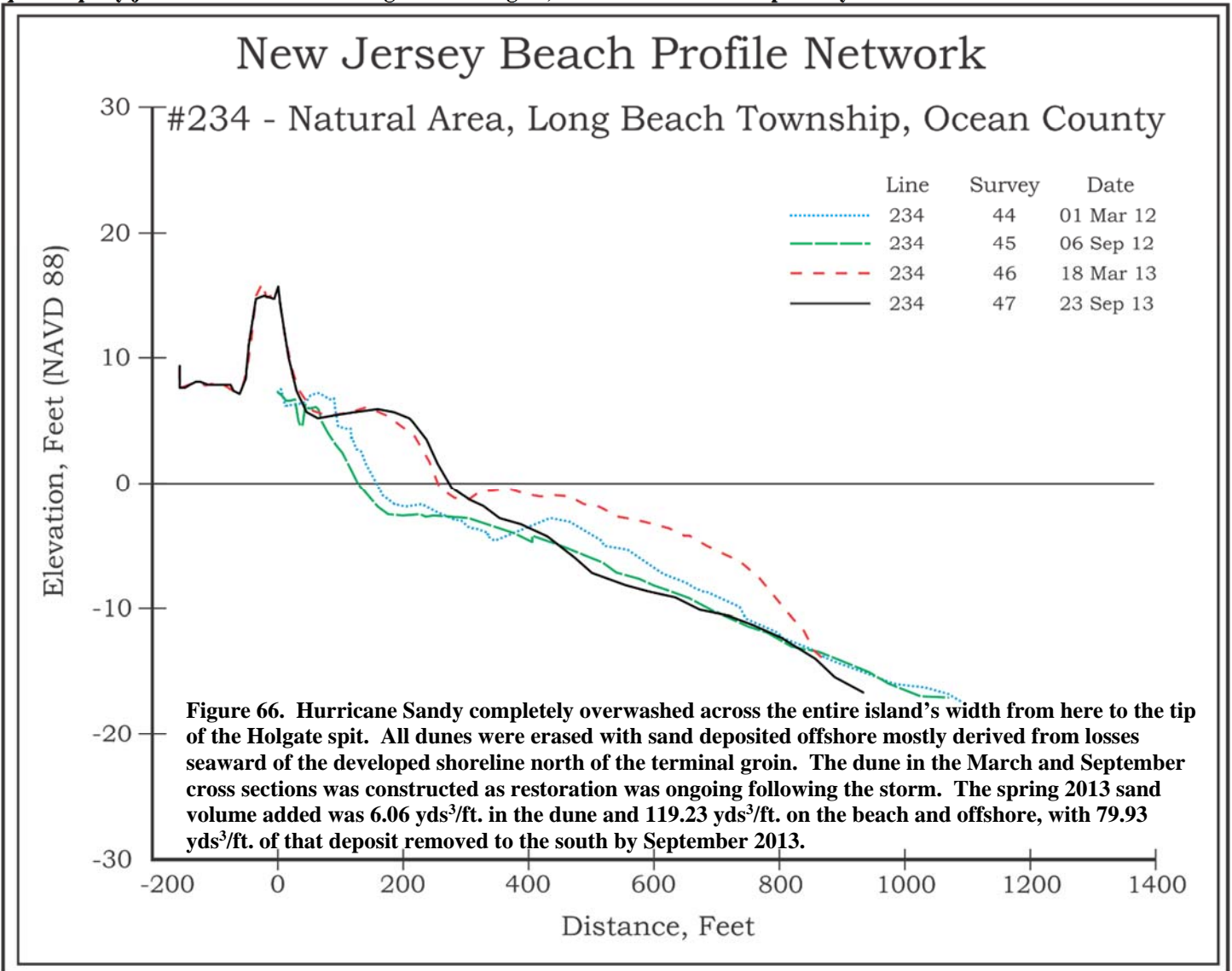


The photographs above were taken on November 1, 2012 (left) and September 23, 2013 (right). Both images show the view of Webster Avenue in Beach Haven (site 135) looking south. The dune was replaced nearly as it had been with sand hauled back to the beach from overwash deposition inland. Sand also migrated back to the shoreline adding width to the berm.





The photographs above were taken on November 1, 2012 (left) and September 23, 2013 (right). Both images show the view looking north at the beach-buggy entrance to the Forsythe Refuge (site 234). Sand was pushed south to create a “dune” following complete overwash by the storm surge flattening all elevation features on the refuge property. Sand did deposit quite rapidly just south of the terminal groin on Holgate, but did not remain in place by fall 2013.



Summary & Conclusions

The beach conditions changed somewhat differently in Ocean County than seen in Monmouth County where sand moved offshore and returned naturally to restore the beach volume to 60.1% of that present prior to Hurricane Sandy. The similar analysis for Ocean County found that over all the beach recovery was 84.1% of the values seen prior to Sandy (this includes four sites where the ACOE completed restoration of their project). Absent the ACOE work the recovery percentage drops to 63.5%, more similar to that seen in Monmouth County. The big difference appears at the southern end of Long Beach Island where the beach gained sand volume during Sandy and the shoreline continued to retreat afterward because high sand volumes accumulated offshore as a result of littoral transport to the south along the island. This was especially true at the Forsythe Refuge profile site where the shoreline advanced 128 feet as the beach gained 119.23 yds³/ft. during Sandy, only to lose most of the offshore sand by the fall of 2013 to southerly transport. Offshore losses at the refuge site rose to a ridiculous percentage of the initial gain during the storm.

Table 2 – Ocean County Sand Volumes & Shoreline Changes Due to Sandy

LOCATION	Beach Loss	Gain Offshore	Shoreline	Beach Recovery	Offshore	Shoreline	Percent	Percent	Percent
	During Sandy	fm Sandy	Storm Retreat	by Fall 2013	Transfer to Bch	Advance	Bch Recovery	Offshore loss	Shoreline
	cu yds/ft.	cu yds/ft.	feet	cu yds/ft.	cu yds/ft.	feet	cu yds/ft.	cu yds/ft.	feet
Water Street, Pt. Pleasant	-109.55	5.00	-130	42.63	-7.00	83	39%	140%	64%
Maryland Avenue, Pt. P.	-30.35	44.45	-54	19.62	-22.18	38	65%	50%	70%
Johnson Avenue, Bay Head	-60.00	17.53	-86	34.17	-20.87	66	57%	119%	77%
1117 Ocean Avenue, Mant.	-94.03	34.27	-92	84.73	-11.69	70	90%	34%	76%
Public Beach #3, Brick Twp.	-50.95	46.69	-66	37.00	-32.01	60	73%	69%	91%
1st Avenue, Normandy	-74.33	38.96	-58	35.35	-29.12	55	48%	75%	95%
White Avenue, Lavallette	-45.49	71.57	-92	28.83	-56.09	53	63%	78%	58%
8th Avenue, Ortley Beach	-30.62	44.63	-63	-13.90	-2.03	-19	-45%	5%	-30%
Franklin Avenue, Seaside Hgt	-32.32	12.82	-69	17.04	-15.51	51	53%	121%	74%
4th Avenue, Seaside Park	-28.74	54.62	-26	10.60	-49.08	27	37%	90%	104%
6th Lane, Midway	-21.01	58.51	-6	13.24	-36.34	17	63%	62%	283%
IBSP North Site	-39.45	35.85	-26	-24.96	15.30	-27	-63%	-43%	-104%
IBSP Mid Site	-72.21	42.66	-83	14.08	-26.71	32	19%	63%	39%
IBSP South Site	-73.38	50.24	-180	44.60	-6.70	105	61%	13%	58%
10th Street, Barnegat Light	-33.18	4.73	-21	5.44	-1.12	8	16%	24%	38%
26th Street, Barnegat Light	-46.01	2.24	-87	27.46	-15.18	56	60%	678%	64%
La Baia Street, Loveladies	-52.83	38.16	-117	19.37	-24.74	33	37%	65%	28%
73rd Street, HC	-61.38	27.78	-119	107.90	-5.04	222	176%	18%	187%
Tranquility Drive, HC	-14.52	44.10	-35	86.78	-18.23	190	598%	41%	543%
20th Street, Surf City	-32.46	25.71	-44	55.86	-25.60	142	172%	100%	323%
8th Street, Ship Bottom	-55.46	16.18	-78	67.71	-13.41	91	122%	83%	117%
32nd Street, LBTwp	-109.19	41.58	-164	154.13	-19.47	246	141%	47%	150%
81st Street, LBTwp	-50.84	58.00	-27	10.48	-11.30	25	21%	19%	93%
Old Whaling Road, LBTwp	8.05	44.83	19	-3.09	-23.17	-6	38%	52%	32%
Taylor Avenue, Beach Haven	14.17	33.16	36	17.82	-19.28	24	-126%	58%	-67%
Dolphin Avenue, Beach Haven	-49.75	28.89	-44	44.93	-15.15	49	90%	52%	111%
Webster Avenue, Holgate	-40.26	-3.48	-93	26.70	-10.20	49	66%	-293%	53%
Forsythe Refuge	119.23	-0.27	128	4.67	-79.93	17	-4%	-29604%	-13%
Average Volume Changes	-41.67	32.84	-59.89	35.04	-20.04	67.55			
				84.1%	61.0%	112.8%			

Values Below Reflect the Same Computations as Above WITHOUT the ACOE Project Sites Included

Average Volume Changes	-41.67	32.84	-59.89	18.51	-20.04	34.44			
				44.4%	61.0%	57.5%			

The numbers in red reflect sites where the ACOE had completed its project effort in restoring the segments of the Long Beach Island shoreline to the project specifications. They strongly impact the averages for beach recovery and shoreline advance percentages compared to the loss values seen during Sandy.