Preliminary Assessment of the Impacts of Hurricane Sandy on Beach Nesting and Migratory Shorebirds along the Atlantic Coast and Delaware Bay of New Jersey

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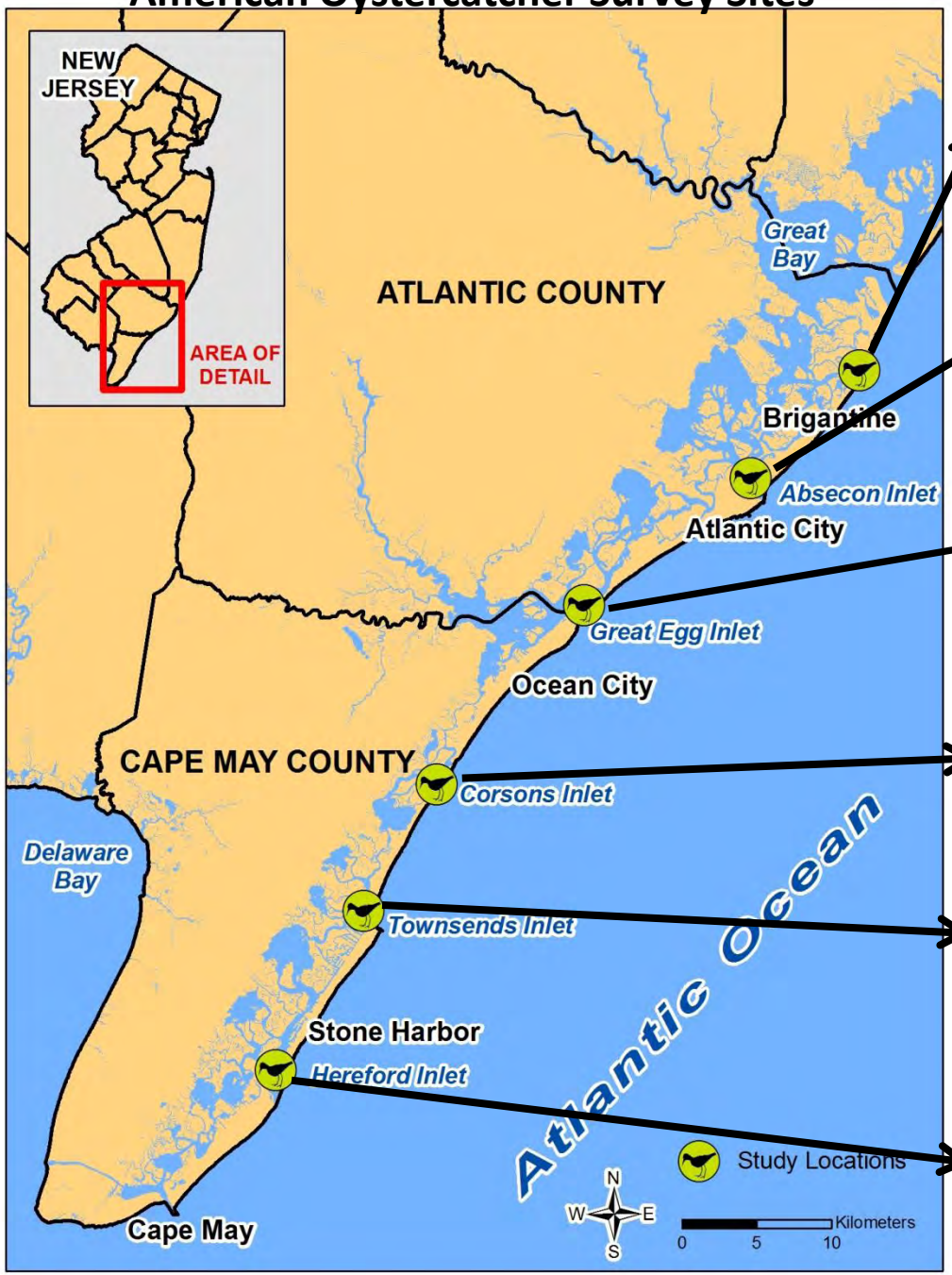
NEW JERSEY DIVISION OF
Fish and Wildlife

CONSERVE WILDLIFE
FOUNDATION OF NEW JERSEY

New Jersey Wildlife
In the Eye of the Storm
October 29, 2012

American Oystercatcher Survey Sites



Brigantine Inlet

Absecon Inlet

Great Egg Harbor Inlet

Corson's Inlet

Townsend's Inlet

Hereford Inlet

Number of American Oystercatchers Before and After Hurricane Sandy at Inlets Surveyed in New Jersey

Survey Site	Before Sandy Oct. 21-24, 2012	After Sandy Nov. 3-7, 2012
Brigantine Inlet (North Brigantine NA)	227	201
Absecon Inlet (Brigantine Cove)	178	243
Great Egg Inlet (Seaview Harbor)	151	148
Corson's Inlet (Strathmere NA)	52	52
Townsend's Inlet	39	39
Hereford Inlet (Champagne Bar)	298	303
Total	**945**	**986**

Impacts of Hurricane Sandy on Migratory Shorebird Habitat along Delaware Bay*

- Surveys of Reeds, Cooks, Kimbles, Moores Beach, and Fortescue.
  - Significant loss of sand = 2-3 feet of sand.
  - The stretch from Reeds to Pierces Point - one of the most important reaches for horseshoe crab spawning - has been seriously damaged.
  - The northern stretches of beach from Moores to Fortescue have also been damaged.
  - Large stretches of beach are down to exposed sod bank or rubble - if they remain in this condition will not provide spawning opportunity this spring.
  - The creek mouths may now constitute the bulk of intact spawning areas that are left.
  - Heislerville impoundments suffered serious damage - Bureau of Land Management have restored the dikes temporarily.

Note: Delaware Bay information provided by Amanda Dey, NJDFW-ENSP

Figure 1 South Reeds Beach looking South. The rumble was covered with sand prior to the hurricane and used by breeding horseshoe crabs. Most of the beaches in this area are now unusable by crabs

Note: Delaware Bay photos and captions provided by Larry Niles

Figure 1 Kimbles Beach looking east. On shore waves from Sandy pushed bay beach sands inland beyond the reach of breeding horseshoe crabs

Figure 1. Kimbles Beach looking north. The hurricane lifted sand from the bay beaches and deposited inland out of the reach of breeding horseshoe crabs. These sand movements are natural, thus the name "overwash beach". However Sandy pushed the sand far inland.

Impacts of Hurricane Sandy on Beach Nesting Bird Habitat on the Atlantic Coast Barrier Beaches

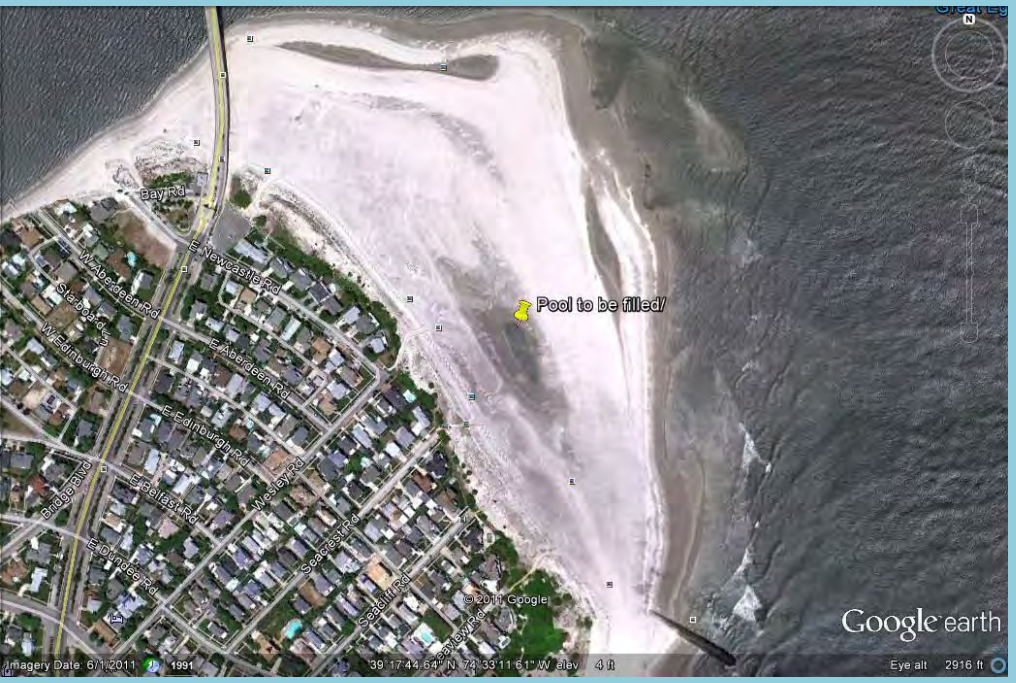
- Surveys from Northern Monmouth County (not including Sandy Hook) to Cape May Point State Park.
  - Significant changes to coastal habitat for nesting piping plovers, least terns, black skimmers, and American oystercatchers.
  - Impacts vary – less change in southern Cape May County; more severe changes to habitat conditions moving north.
  - Inlet areas especially eroded/flattened, which may be an important factor because favored by and potentially the most productive sites for beachnesters, but may be more prone to flooding now.
  - Overwash and blowout habitat created in some locations, which may benefit nesters which prefer sparsely vegetated areas scoured by storms.
  - Too early to determine if sand will move back onshore before nesting season.




Aerial photo of Holgate - Forsythe NWR after Hurricane Sandy. Note that sand was pushed into previously highly vegetated areas creating new nesting habitat. The wide, shallow breach (at the top of photo) created by the storm will likely evolve into an overwash area, habitat especially favored by piping plovers and not prevalent in New Jersey. Photo courtesy of Virginia Rettig.

Former primary dune at North Brigantine Natural Area completely flattened and pushed back by Hurricane Sandy creating new suitable habitat for beach nesting birds.

Erosion on Brigantine Island resulting in loss of suitable nesting habitat for beach nesting birds – typical impact of Hurricane Sandy at many Atlantic Coast barrier beach locations.



North Ocean City Inlet Beach; before (left) and after (right) Hurricane Sandy. Heavy damage - loss of sand and beach elevation (berm) - at several highly suitable/preferred inlet nesting sites for beach nesting birds.

Impact to Predator Populations?

Fox den at North Brigantine Natural Area – still active after Hurricane Sandy. No apparent significant direct impact to fox populations from Brigantine to Cape May, however, nesting sites further north, which suffered more significant flooding and tidal overwash, may benefit from fox mortality resulting from storm.

CHRISTIE ADMINISTRATION ISSUES EMERGENCY ORDER EASING INFRASTRUCTURE REPAIR PERMIT REQUIREMENTS FOLLOWING HURRICANE SANDY

TRENTON - As a result of the widespread damage caused by Hurricane Sandy, Department of Environmental Protection Commissioner Bob Martin has signed an Administrative Order allowing approvals of DEP permit requirements for in-kind repairs or replacement of critical public infrastructure such as roads, bridges, bulkheads and culverts. "Our entire state sustained unimaginable destruction as a result of Hurricane Sandy," Commissioner Martin said. "Restoring basic public infrastructure will be a critical first step toward the recovery of our cities and towns. For emergency repairs, we cannot let bureaucracy get in the way. Red tape should not and will not hold up this vital work.

"We want our communities towns to go and do needed repairs and replacements without worrying about the permit process. Once the emergency work is done, they can follow up later with needed paperwork." Cities and towns will have six months to provide needed documentation of storm damage for retroactive DEP approval for public infrastructures projects.

Commissioner Martin also reminded municipalities and private property owners that they do not need any DEP approval to move sand from roadways, streets, private properties and structures back onto beaches. Movement of sand once on beaches is permissible under each municipality's beach maintenance permit. The DEP, however, advises that these activities should only take place if it is safe to do so.

Mantoloking Bridge, Ocean County, New Jersey. New inlet formed as a result of Hurricane Sandy (left, top and bottom). Emergency repairs to roadway and beach – filling the newly created breach – the week after the storm.

Storm damage from Hurricane Sandy at Ortley Beach, New Jersey. Most of the state's coastal zone is highly developed, so areas such as these where the storm pushed the beach westward and created what could be highly suitable nesting habitat for shorebirds, will likely be restored to their developed state (i.e. homes and boardwalk rebuilt and beach renourished).

Will New Jersey's rare and at-risk wildlife and their habitat be given due consideration in the wake of Hurricane Sandy as the short-term recovery occurs and long-term as coastal regulatory and public policy is debated? What is our role?

Bulldozing of sand being done to repair beaches after Hurricane Sandy all along New Jersey's coast (left). Stabilization of roadway along Ocean Drive in Corson's Inlet the week after Hurricane Sandy (right).

Post-Hurricane Sandy Wildlife/Habitat Assessment at Strathmere Natural Area