



State of New Jersey

DEPARTMENT OF ENVIRONMENTAL PROTECTION

Climate and Flood Resilience

Division of Coastal Engineering

1510 Hooper Ave., Suite 140

Toms River, N. J. 08753

Telephone: 732-255-0767

Fax: 732-255-0774

PHILIP D. MURPHY
Governor

SHEILA Y. OLIVER
Lt. Governor

CATHERINE R. McCABE
Commissioner

MEMORANDUM

TO: David Rosenblatt, Assistant Commissioner

FROM: Chris Constantino for Bill Dixon, Director 

DATE: August 21, 2020

SUBJECT: Initial Coastal Storm Survey & Damage Assessment
Atlantic Ocean, Delaware Bay and Raritan Bay shorelines
Tropical Storm Kyle/Northeast Wind Event August 14 - 17, 2020

SUMMARY:

The 2020 hurricane season is already off to a record pace with eleven (11) named storms forming by August 14, with the 12th named storm being designated by the time of this report. Two of these named storms - Hanna and Isaias - became hurricanes and several of these storms have impacted New Jersey's weather and wave climate. Despite this increased activity and the impact to the local region, New Jersey has experienced a calm summer. A few medium- to long-period swells increased the surf several times however impacts to most beaches were minimal and short-lived. Despite the minimal impact to the State's beaches, several 'hot spot' locations were still worth watching. The Division of Coastal Engineering (DCE) and the respective municipalities continued to monitor those areas closely and keep in close communication with each other regarding the status of these locations. Consistent with the Coastal Storm Survey & Damage Assessment for Isaias, several ongoing and recently completed periodic nourishment projects in Cape May County and Monmouth County, alleviated some of the pressure at several traditional 'hot spot' locations.

On August 14th, a low-pressure system southeast of Atlantic City strengthened enough to be categorized as Tropical Storm Kyle. Kyle moved quickly toward the east-northeast away from the United States mid-Atlantic coast into the Atlantic Ocean. On Saturday morning (August 15th), Kyle remained over the Gulf Stream moving quickly east-northeastward away from the U.S. helping it to maintain its tropical structure with winds up to 60 mph. By Saturday night Kyle continued to move east northeastward and weakened into a post-tropical cyclone by Sunday. However, on Sunday morning, another low-pressure system moved east-northeast off the Mid-Atlantic Coast, thus further impacting New Jersey's weather. The combination of the onshore flow from Kyle and the reinforcing onshore flow from the second low pressure on Sunday, increased the winds and seas from southern New England south through the Outer Banks.

Short to medium period swells increased the surf heights early on Saturday August 15th and persisted through Tuesday August 18th for a 4-day period of rough surf and elevated rip currents due to these swells, local wind conditions and the approaching new moon (August 18th). The strongest winds, heaviest surf and highest tides peaked on Sunday and Monday August 16th and 17th in New Jersey. Most of the Atlantic Coast of New Jersey experienced tides at minor flood stage on Sunday and several locations experienced tides at minor flood stage on Monday.

At the buoys off the New Jersey coast, sustained east northeasterly and northeasterly winds were recorded at over 30 mph with gusts exceeding 40 mph; gusts at inland reporting stations were recorded between 25 and 35 mph during the peak of the event. Seas heights peaked at 8 to 10 feet at nearby buoys. As a result, surf ranging from 4 to 6 feet developed with greater heights observed around jetties, groins, inlets, and piers throughout the state on August 17th.

Staff from DCE conducted a town-by-town visual post-storm surveys on Tuesday August 18th and Wednesday August 19th. The results of this assessment are contained in this report. During the compilation of this report, the surf conditions around the state ranged from 1 to 3 feet with variable winds under 10 mph. A detailed summary listed by municipality from north to south is enclosed.

Of the 79 areas surveyed, 73 were determined to have minor beach or dune erosion, 6 had moderate beach or dune erosion and 0 had major beach or dune erosion. Criteria for determining damage levels are listed at the end of this report.

Please note that the storm damage assessments found herein were conducted in a rapid time interval with pre-storm and post-storm observations made immediately before and after the event in question. Please note that the changes documented in this report are from this event; pre-existing conditions (i.e. scarps in dunes prior to the event) and what caused these conditions are not always reported herein. It is often the Division's experience that much of the material eroded from the "dry" beach area has not been lost, but rather redistributed within the beach profile system, such as creation or enlargement of offshore sand bars. Our expectation is that much of material will return to the "dry" beach in time following the storm; this time frame may vary based on several contributing factors such as storm frequency and duration.

*** Damage Levels:**

Major erosion – consists of significant or total beach berm loss and/or significant erosion and scarping of the dunes

Moderate erosion – consists of significant scarping and/or significant sloped erosion of beach berm and/or minor erosion of the dunes

Minor erosion – consists of redistribution of sand within the beach profile or loss of sand without significant scarping or significant sloped erosion

LOCATION	INSPECTION NOTES	DAMAGE LEVEL*
PERTH AMBOY	Minor sloped erosion. No major incidents or damage reported.	Minor
SOUTH AMBOY	Minor sloped erosion. No major incidents or damage reported.	Minor
OLD BRIDGE	Minor sloped erosion. No major incidents or damage reported.	Minor
ABERDEEN	No major incidents or damage reported.	Minor
ABERDEEN CLIFFWOOD BEACH	Sloped erosion and redistribution of sand. Some wave runup/tide to the upper beach and near the road. No major incidents or damage observed or reported.	Minor
KEYPORT	Minor sloped erosion and redistribution of sand. Some wave runup/tide to the upper beach. No major incidents or damage observed or reported.	Minor
UNION BEACH	Minor sloped erosion and redistribution of sand. No major incidents or damage observed or reported.	Minor
KEANSBURG – BAYSHORE FLOODGATE	Minor sloped erosion and redistribution of sand. Some wave runup/tide to the upper beach. No major incidents or damage observed or reported. Gate was closed consistent with the Operations Manual.	Minor
KEANSBURG	Floodgate Facility to Point Comfort: Up to 20' of sloped erosion, 1'- 2' in height. Various sections of vertical beach scarps up to 2' in height. Some wave runup/tide to the upper beach. Point Comfort to Ideal Beach: Up to 20' of sloped erosion, 1'- 2' in height. Some wave runup/tide to the upper beach. Ideal Beach to Pews Creek: Up to 20' of sloped erosion, 1'- 2' in height. Some wave runup/tide to the upper beach.	Minor
MIDDLETOWN	Port Monmouth: Up to 20' of sloped erosion and redistribution of sand. Some wave runup/tide to the upper beach. No major incidents or damage observed or reported.	Minor
	Belford: Minor sloped erosion along the dike at the ferry terminal. No major incidents or damage observed or reported.	Minor
	Leonardo: Minor sloped erosion and redistribution of sand.	Minor
ATLANTIC HIGHLANDS	Minor sloped erosion and redistribution of sand. No major incidents or damage observed or reported.	Minor
HIGHLANDS	Minor sloped erosion and redistribution of sand. No major incidents or damage observed or reported.	Minor
SEA BRIGHT	Up to 25' of sloped erosion, 1'- 3' in height. Some wave runup/tide to the upper beach/dune.	Minor
MONMOUTH BEACH	Riverview Road to Cottage Rd.: Minor sloped erosion and redistribution of sand. Some wave runup/tide to the upper beach/dune. No major incidents or damage observed or reported.	Minor
	Cottage Rd. to South end of Borough: Up to 20' of sloped erosion, 1'– 3' in height, with vertical beach scarps up to 2' in height near Valentine St.	Minor
LONG BRANCH	Seven Presidents to Lake Takanassee: Up to 25' of sloped erosion, 1'– 3' in height. Some wave	Minor

	runup/tide to the upper beach. USACE beachfill activity recently completed near Brighton Ave.	
	Lake Takanassee to Pullman Ave.: Up to 30' of sloped erosion, 1' – 3' in height, with isolated vertical beach scarps up to 3' in height in the vicinity of Pullman Ave. Some wave runup/tide to the upper beach.	Minor
DEAL	Minor sloped erosion and redistribution of sand with some isolated vertical beach scarps. Some wave runup/tide to the upper beach. No major incidents or damage observed or reported.	Minor
ALLENHURST	Minor sloped erosion and redistribution of sand. Some wave runup/tide to the upper beach. No major incidents or damage observed or reported.	Minor
LOCH ARBOUR	Minor sloped erosion and redistribution of sand with some isolated vertical beach scarps. Some wave runup/tide to the upper beach. No major incidents or damage observed or reported.	Minor
ASBURY PARK	Minor sloped erosion and redistribution of sand with some isolated vertical beach scarps. Some wave runup/tide to the upper beach. No major incidents or damage observed or reported.	Minor
NEPTUNE OCEAN GROVE	Minor sloped erosion and redistribution of sand. Some wave runup/tide to the upper beach. No major incidents or damage observed or reported.	Minor
BRADLEY BEACH	Minor sloped erosion and redistribution of sand. Some wave runup/tide to the upper beach. No major incidents or damage observed or reported.	Minor
AVON	Minor sloped erosion and redistribution of sand. Some wave runup/tide to the upper beach. No major incidents or damage observed or reported.	Minor
BELMAR	Minor sloped erosion and redistribution of sand. Some wave runup/tide to the upper beach. No major incidents or damage observed or reported.	Minor
SPRING LAKE	Minor sloped erosion and redistribution of sand. Some wave runup/tide to the upper beach. No major incidents or damage observed or reported.	Minor
SEA GIRT	Minor sloped erosion and redistribution of sand with some isolated vertical beach scarps. Some wave runup/tide to the upper beach. No major incidents or damage observed or reported.	Minor
MANASQUAN	Minor sloped erosion and redistribution of sand. Some wave runup/tide to the upper beach. No major incidents or damage observed or reported.	Minor
POINT PLEASANT BEACH	Up to 50' of sloped erosion, 5' – 7' in height. Some wave runup/tide to the upper beach.	Minor
BAY HEAD	Up to 30' of sloped erosion, 5' – 7' in height. Some wave runup/tide to the upper beach/dune.	Minor
MANTOLOKING	Up to 30' of sloped erosion, 5' – 6' in height. Some wave runup/tide to the upper beach/dune.	Minor
BRICK	Up to 40' of sloped erosion, 5' – 6' in height. Some wave runup/tide to the upper beach/dune.	Minor
TOMS RIVER NORMANDY BEACH through MONTEREY BEACH	Up to 35' of sloped erosion, 4' – 6' in height. Some wave runup/tide to the upper beach/dune.	Minor

LAVALLETTE	Up to 20' of sloped erosion, 4' – 6' in height. Some wave runup/tide to the upper beach/dune.	Minor
TOMS RIVER ORTLEY BEACH	Up to 25' of sloped erosion, 4' – 6' in height. Some wave runup/tide to the upper beach/dune.	Minor
SEASIDE HEIGHTS	Up to 25' of sloped erosion, 4' – 6' in height. Some vertical beach scarps adjacent to Casino Pier. Some wave runup/tide to the upper beach/dune.	Minor
SEASIDE PARK	Up to 25' of sloped erosion along north half of Borough and up to 90' of sloped erosion adjacent to southern border - 4' – 6' in height. Some wave runup/tide to the upper beach/dune.	Minor
BERKELEY TWP. S. SEASIDE PARK	Up to 25' of sloped erosion, 4' – 6' in height. Some wave runup/tide to the upper beach/dune.	Minor
ISLAND BEACH STATE PARK	No major incidents or damage reported to DCE at time of report.	Minor
BARNEGAT LIGHT	Up to 40' of sloped erosion, 2' – 4' in height. Some wave runup/tide to the upper beach/dune.	Minor
LONG BEACH TWP. LOVELADIES	Up to 40' of sloped erosion, 3' – 5' in height. Some wave runup/tide to the upper beach/dune.	Minor
HARVEY CEDARS	Up to 60' of sloped erosion, 3' – 5' in height. Some wave runup/tide to the upper beach/dune.	Minor
LONG BEACH TWP. NORTH BEACH	Up to 60' of sloped erosion, 3' – 5' in height. Some wave runup/tide to the upper beach/dune.	Minor
SURF CITY	Up to 60' of sloped erosion, 3' – 5' in height. Some wave runup/tide to the upper beach/dune.	Minor
SHIP BOTTOM	Up to 50' of sloped erosion, 3' – 5' in height. Some wave runup/tide to the upper beach/dune.	Minor
LONG BEACH TWP. BRANT BEACH through N. BEACH HAVEN	Up to 60' of sloped erosion, 3' – 5' in height. Some wave runup/tide to the upper beach/dune.	Minor
BEACH HAVEN	Up to 50' of sloped erosion, 3' – 5' in height. Some wave runup/tide to the upper beach/dune. Some additional vertical dune scarping near Belvoir Ave., up to 6' in height, up to 4' deep.	Moderate
LONG BEACH TWP. HOLGATE	Up to 50' of sloped erosion, 3' – 5' in height. Wave runup/tide to the upper beach/dune. Vertical dune scarp 4' to 8' in height, up to 5' deep.	Moderate
BRIGANTINE	Up to 30' of sloped erosion, 1' to 2' in height. Some ponding located on the upper beach 26 th St. Some wave runup/tide to the upper beach/dunes/revetment.	Minor
ATLANTIC CITY	<u>Inlet Seawall area:</u> No incidents or damage observed or reported.	Minor
	<u>Inlet Jetty to Steel Pier:</u> Up to 20' of sloped erosion, 1' to 2' in height. Some wave runup/tide to the upper beach/dunes, with some isolated vertical dune scarps up to 2' in height. <u>Steel Pier to South Carolina Ave:</u> Up to 30' of sloped erosion, 1' to 2' in height with some isolated vertical beach scarps up to 2' in height. Damage to some amenities at Landshark Bar & Grill. Some wave runup/tide to the upper beach/dunes. <u>South Carolina Ave to Ventnor Border:</u> Up to 20' of sloped erosion, 1' to 2' in height. Some wave runup/tide to the upper beach/dunes.	Moderate

VENTNOR	Up to 20' of sloped erosion, 1' to 2' in height. Some wave runup/tide to the upper beach/dunes.	Minor
MARGATE	Up to 20' of sloped erosion, 1' to 2' in height. Some wave runup/tide to the upper beach/dunes.	Minor
LONGPORT	Up to 20' of sloped erosion, 1' to 2' in height. Some wave runup/tide to the upper beach/dunes.	Minor
OCEAN CITY	Up to 20' of sloped erosion, 1' – 2' in height. Some vertical beach scarps from 9 th St. to 11 th St., near beachfill. Some wave runup/tide to the upper beach/dunes. USACE beachfill activity near 11 th St.	Minor
UPPER TWP. STRATHMERE	Up to 20' of sloped erosion, 1' – 2' in height. Some wave runup/tide to the upper beach/dunes.	Minor
SEA ISLE CITY	Up to 20' of sloped erosion, 1' – 2' in height. Some wave runup/tide to the upper beach. Some ponding on the upper beach 39 th St. USACE beachfill recently completed near 92 nd St.	Minor
AVALON	Up to 25' of sloped erosion, 1' – 2' in height. Some wave runup/tide to the upper beach/dunes.	Minor
STONE HARBOR	Up to 25' of sloped erosion, 1' - 2' feet in height. Some wave runup/tide to the upper beach/dunes.	Minor
NORTH WILDWOOD	Hereford Inlet & Surf Ave: Up to 20' of sloped erosion, 1' - 2' feet in height from New York Ave. through Surf Ave. No additional damage immediately reported to the seawall as of report. USACE seawall repair ongoing in Anglesea section of inlet.	Minor
	2nd Ave. to 15th Ave.: Up to 25' of sloped erosion, 2' - 4' in height. Low tide line at the bulkhead/revetment between 2 nd Ave. and 3 rd Ave. Some vertical beach scarping up to 3' in height from 3 rd Ave. to 5 th Ave.	Moderate
WILDWOOD CITY	Up to 25' of sloped erosion, 1' - 2' in height. Evidence of ponding on upper beach. Some wave runup/tide to the upper beach. No major incidents or damage reported.	Minor
WILDWOOD CREST	Up to 20' of sloped erosion, 1' - 2' in height. Evidence of ponding on upper beach. Some wave runup/tide to the upper beach.	Minor
LOWER TWP. DIAMOND BEACH	Up to 20' of sloped erosion, 1' - 2' in height. No major incidents or damage reported. Some wave runup/tide to the upper beach.	Minor
CAPE MAY CITY	Up to 20' of sloped erosion, 1' - 2' in height. Some wave runup/tide to the upper beach/dunes near Wilmington Ave. No major incidents or damage reported.	Minor
LOWER TWP. WEST CAPE MAY	Up to 20' of sloped erosion, 1' - 2' in height. No major incidents or damage reported.	Minor
CAPE MAY POINT	Up to 20' of sloped erosion, 1' - 2' in height. No major incidents or damage reported.	Minor

LOWER DELAWARE BAY	<u>North Cape May/Villas:</u> Minor sloped erosion and redistribution of sand. Wave runup/tide to the upper beach, dunes and to the vegetation line at several locations.	Minor
	<u>Del Haven/Pierces Point/Reeds Beach:</u> Minor sloped erosion and redistribution of sand. Some wave runup/tide to the upper beach, to the vegetation line and to the bulkhead at several locations.	Minor
DELAWARE BAY/RIVER	<u>East Point:</u> Minor sloped erosion near lighthouse site. Some damage to the most northerly geotube. Minor sloped erosion observed at East Point Rd./Bay Ave. intersection and along the gabions on Bay Ave. Additional concrete debris being stored near Bay Ave.	Moderate
	<u>Heislerville:</u> Additional damage noted on dike noted – may be pre-existing. 3’ to 4’ diameter sinkhole and cracks/separation more apparent. Potholes continue to be observed on dike.	Moderate
	<u>Bivalve (Commercial):</u> Additional evidence of damage to the gabions. Evidence of overwash/tidal flooding.	Minor
	<u>Fortescue:</u> Minor sloped erosion with additional vertical scarping of the dune face. Additional concrete rubble exposed. Bulkhead cap remains damaged.	Minor
	<u>Gandy’s Beach:</u> Minor sloped erosion. Concrete Bin blocks remain displaced. Evidence of overwash consistent with pre-existing impacts. Debris and sand on the roads.	Minor
	<u>Lawrence Twp. - (Bay Point):</u> No major incidents or damage reported. Moderate flood stage observed nearby.	Minor
	<u>Fairfield Twp. (Sea Breeze):</u> No major incidents or damage reported. Minor flood stage observed nearby.	Minor
	<u>Oakwood Beach:</u> Minor sloped erosion and redistribution of sand. Wave runup/tide to the upper beach and fences at several locations.	Minor