



## State of New Jersey

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### MEMORANDUM

**TO:** Vince Mazzei, Assistant Commissioner  
Dennis Reinknecht, Director

**FROM:** *CC* Chris Constantino through Erick Doyle, Bureau Chief (Bureau of Construction)  
and Kelley Staffieri, Bureau Chief (Bureau of Operations)

**DATE:** May 18, 2022

**SUBJECT:** Initial Coastal Storm Survey & Damage Assessment  
Atlantic Ocean, Delaware Bay, and Raritan Bay shorelines  
May 6, 2022 – May 11, 2022 – Prolonged Coastal Storm event

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When it comes to surf heights and coastal storm activity, the winter and early spring of 2022 have been relatively calm. While there were several periods of elevated surf conditions and onshore winds prior to May 6th, impacts were generally minimal and mostly temporary, except for a few ‘hot spot’ locations, which experienced more pronounced impacts. Local beach maintenance efforts and calmer conditions, as well as recently completed periodic nourishment projects continued to help dampen the wave activity and alleviate some of the coastal erosion at the traditional ‘hot spot’ locations.

Late on Friday, May 6<sup>th</sup>, a low-pressure system from the Ohio Valley began to redevelop off the mid-Atlantic coast. This low-pressure system was forecast to meander in that vicinity and coincide with an area of high pressure over eastern Canada for a prolonged period. The combination of the fetch and its orientation generated by these two systems and the prolonged period of those onshore winds created several days of rough seas and elevated surf conditions from southern New England through the Carolinas. The roughest of surf conditions persisted through Wednesday May 11<sup>th</sup>, with the heights peaking in the 5- to 8-foot range between late Sunday, May 8<sup>th</sup> and Tuesday, May 10<sup>th</sup> at many locations through the State.

Off the New Jersey coast, buoys recorded wind gusts over 50 mph. Inland reporting stations recorded gusts over 60 mph during the peak of the event, with the strongest period occurring between Saturday, May 7<sup>th</sup> and Tuesday, May 10<sup>th</sup>. During this period, nearby buoys recorded peak sea heights between 12 and 18 feet. The oceanfront and back bay locations reached minor



flood stage levels during several tide cycles, with several back bay locations approaching moderate flood stage; the peak of the flooding was on Sunday, May 8<sup>th</sup>. These elevated tidal events were a product of several days of moderate to strong onshore winds.

A full post-storm assessment for the May 6, 2022 – May 11, 2022 – Prolonged Coastal Storm event was conducted on Wednesday, May 11<sup>th</sup> and Thursday, May 12<sup>th</sup>; the results of this assessment are contained in this report. During the compilation of this report, the surf conditions were in the 2- to 4-foot range with onshore winds gusting over 25 mph at several locations. As a general note about this assessment, many sites were plagued with wind-blown sand on accessways and/or boardwalks as well as the varying types of debris on the beaches. A detailed summary listed by municipality from north to south is enclosed.

Of the 81 sites surveyed, 68 had minor beach or dune erosion, 5 had moderate beach or dune erosion and 8 had major beach or dune erosion. Criteria for determining damage levels is listed at the end of this summary.

Please note that the storm damage assessments found herein were conducted in a rapid time interval with pre-storm and post-storm observations being 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 this 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, in portions or all of the reach assessed.

Moderate erosion – consists of significant scarping and/or significant sloped erosion of beach berm and/or minor erosion of the dunes, in portions or all of the reach assessed.

Minor erosion – consists of redistribution of sand within the beach profile or loss of sand without significant scarping or significant sloped erosion, in portions or all of the reach assessed.

<b>LOCATION</b>	<b>INSPECTION NOTES</b>	<b>DAMAGE LEVEL*</b>
PERTH AMBOY	Minor sloped erosion (under 10 feet) and redistribution of sand. No major incidents or damage observed or reported. Wave runup/tide to the upper beach.	Minor
SOUTH AMBOY	Minor sloped erosion (under 10 feet) and redistribution of sand. No major incidents or damage observed or reported. Wave runup/tide to the upper beach.	Minor
OLD BRIDGE	Some additional minor erosion to pre-existing scarp. No major incidents or damage observed or reported. Wave runup/tide to the upper beach.	Minor
ABERDEEN	No major incidents or damage observed or reported.	Minor
ABERDEEN CLIFFWOOD BEACH	Minor sloped erosion (under 20 feet) and redistribution of sand. Wave runup/tide to the upper beach. Windblown sand along Lakeshore Dr. and Ocean Blvd. Pre-existing scarps to the dune remain. No major incidents or damage observed or reported.	Minor
KEYPORT	Minor sloped erosion (under 10 feet) and redistribution of sand. No major incidents or damage observed or reported. Wave runup/tide to the upper beach.	Minor
UNION BEACH	Minor sloped erosion and redistribution of sand. Wave runup/tide to the upper beach. No major incidents or damage observed or reported.	Minor
KEANSBURG – BAYSHORE FLOODGATE	Minor sloped erosion and redistribution of sand. No major incidents or damage reported. Gate was closed consistent with the Operations Manual.	Minor
KEANSBURG	<b>Floodgate Facility to Point Comfort:</b> Minor sloped erosion and redistribution of sand. Some wave runup/tide to the upper beach/dune. Minimal to no erosion additional erosion to the pre-existing 5' high vertical beach scarps. <b>Point Comfort to Ideal Beach:</b> Minor sloped erosion (under 20 feet) and redistribution of sand. Some wave runup/tide to the upper beach/dune. Minimal to no erosion additional erosion to the pre-existing beach scarping near Point Comfort. No major incidents or damage observed or reported. <b>Ideal Beach to Pews Creek:</b> Minor sloped erosion (under 20 feet) and redistribution of sand. Some wave runup/tide to the upper beach/dune. Some wave runup to the upper beach/dune. No major incidents or damage observed or reported.	Minor
MIDDLETOWN	<b>Pews Creek Pump Station:</b> Gate was closed consistent with the Operations Manual.	Minor
	<b>Port Monmouth:</b> Minor sloped erosion (under 20 feet) and redistribution of sand. Some wave runup/tide to the upper beach/dune. No major incidents or damage observed or reported.	Minor
	<b>Belford:</b> Little to no additional erosion to the existing scarp along the dike at the ferry terminal. No major incidents or damage observed or reported.	Minor
	<b>Leonardo:</b> Minor sloped erosion (under 10 feet) and redistribution of sand. Some wave runup/tide to the upper beach/dune. No major incidents or damage observed or reported.	Minor

ATLANTIC HIGHLANDS	Minor sloped erosion (under 10 feet) and redistribution of sand. Some minor dune scarping (under 3 feet) Some wave runup/tide to the upper beach. No major incidents or damage observed or reported.	Minor
HIGHLANDS	Minor sloped erosion (under 10 feet) and redistribution of sand. Some wave runup/tide to the upper beach/dune. No major incidents or damage observed or reported.	Minor
SEA BRIGHT	Up to 45' of sloped erosion with some wave runup/tide to the upper beach/dunes. Some minor scarping of the beach. Windblown sand at crossovers and the seawall at various locations. Several sinkholes along the seaward toe of the seawall between Center St. and Peninsula Ave. No major incidents or damage observed or reported.	Minor
MONMOUTH BEACH	<b>Riverview Road to Beach Rd.:</b> Up to 65' of sloped erosion with some wave runup/tide to the upper beach. Some beach scarping up to 2' in height. Some windblown sand at crossovers and the seawall. Steel bulkhead groin more exposed near Cottage Rd.	Minor
	<b>Beach Rd. to South end of Borough:</b> Up to 40' of sloped erosion with some wave runup/tide to the upper beach. Some windblown sand at crossovers and the seawall. Minor sinkhole at base of vehicular crossover at Valentine St.	Minor
LONG BRANCH	<b>Seven Presidents to Seaview Ave.:</b> Up to 30' of sloped erosion. Some wave runup/tide to the upper beach/bulkhead.	Minor
	<b>Seaview Ave. to Cottage Pl.:</b> Up to 70' of sloped erosion. Wave runup/tide to the upper beach.	Minor
	<b>Cottage Pl. to south end of City:</b> Up to 70' of sloped erosion with various sections of vertical beach scarps up to 2' in height. Wave runup/tide to the upper beach/bulkhead, especially south of Lake Takanassee. Bulkhead overtopped by wave runup during this event.	Moderate
DEAL	Up to 60' of sloped erosion with various sections of vertical beach scarping, up to 5' in height. Wave runup/tide to the upper beach. No major incidents or damage observed or reported.	Moderate
ALLENHURST	Up to 20' of sloped erosion. Wave runup/tide to the upper beach. Some beach scarping up to 3' in height. No major incidents or damage observed or reported.	Minor
LOCH ARBOUR	Up to 30' of sloped erosion and redistribution of sand. Wave runup/tide to the upper beach. Some localized beach scarping up to 4' in height. No major incidents or damage observed or reported.	Minor
ASBURY PARK	Up to 55' of sloped erosion and redistribution of sand. Wave runup/tide to the upper beach. No major incidents or damage observed or reported.	Minor
NEPTUNE OCEAN GROVE	Up to 85' of sloped erosion and redistribution of sand. No major incidents or damage observed or reported.	Minor
BRADLEY BEACH	Up to 60' sloped erosion and redistribution of sand. Wave runup/tide to the upper beach. No major incidents or damage observed or reported.	Minor

AVON	Up to 70' sloped erosion and redistribution of sand. Wave runup/tide to the upper beach. Windblown sand to boardwalk. No major incidents or damage observed or reported.	Minor
BELMAR	Up to 95' of sloped erosion and redistribution of sand. Windblown sand to boardwalk and near street. Some minor localized beach scarping Wave runup/tide to the upper beach. No major incidents or damage observed or reported.	Minor
SPRING LAKE	Up to 100' of sloped erosion and redistribution of sand. Windblown sand along boardwalk and near street. Wave runup/tide to the upper beach. No major incidents or damage observed or reported.	Minor
SEA GIRT	Up to 65' of sloped erosion and redistribution of sand. Wave runup/tide to the upper beach/dune. No major incidents or damage observed or reported.	Minor
MANASQUAN	Up to 125' of sloped erosion and redistribution of sand. Wave runup/tide to the upper beach. No major incidents or damage observed or reported.	Minor
POINT PLEASANT BEACH	Up to 100' of sloped erosion, up to 8' in height, and some redistribution of sand. Wave runup/tide to the upper beach/dune.	Minor
BAY HEAD	Up to 50' of sloped erosion, up to 8' in height, and some redistribution of sand. Wave runup/tide to the upper beach/dune.	Minor
MANTOLOKING	Up to 50' of sloped erosion, up to 8' in height, and some redistribution of sand. Wave runup/tide to the upper beach/dune.	Minor
BRICK	Up to 50' of sloped erosion, up to 8' in height, and some redistribution of sand. Wave runup/tide to the upper beach/dune.	Minor
TOMS RIVER NORMANDY BEACH through MONTEREY BEACH	Up to 30' of sloped erosion, up to 8' in height, and some redistribution of sand. Wave runup/tide to the upper beach/dune.	Minor
LAVALLETTE	Up to 50' of sloped erosion, up to 8' in height, and some redistribution of sand. Wave runup/tide to the upper beach/dune.	Minor
TOMS RIVER ORTLEY BEACH	Up to 50' of sloped erosion, up to 8' in height, and some redistribution of sand. Vertical scarping of the beach at the seaward dune toe, up to 5' in height, in the between 4 <sup>th</sup> and 8 <sup>th</sup> Avenues. Some damage to sand/crossover fencing. Wave runup/tide to the upper beach/dune.	Major
SEASIDE HEIGHTS	Up to 60' of sloped erosion, up to 8' in height, and some redistribution of sand. Wave runup/tide to the upper beach/dune.	Minor
SEASIDE PARK	Up to 50' of sloped erosion, up to 7' in height, and some redistribution of sand. Wave runup/tide to the upper beach/dune.	Minor
BERKELEY TWP. S. SEASIDE PARK	Minor sloped erosion and redistribution of sand. Wave runup/tide to the upper beach/dune.	Minor
ISLAND BEACH STATE PARK	Minor sloped erosion and redistribution of sand. No major incidents or damage observed or reported as of report time.	Minor
BARNEGAT LIGHT	Minor sloped erosion and redistribution of sand. No major incidents or damage observed or reported.	Minor

LONG BEACH TWP. LOVELADIES	50' to 70' of sloped erosion, up to 4' in height, and some redistribution of sand. Approximately 200 linear feet of vertical dune scarping, up to 6' in height. Wave runup/tide to the upper beach/dune.	Moderate
HARVEY CEDARS	50' to 60' of sloped erosion, up 4' in height, and some redistribution of sand. 2,000 linear feet of vertical dune scarping, up to 12' in depth and up to 8' in height. Wave runup/tide to the upper beach/dune.	Major
LONG BEACH TWP. NORTH BEACH	Up to 50' of sloped erosion, approximately 2' in height, and some redistribution of sand. Wave runup/tide to the upper beach/dune.	Minor
SURF CITY	Up to 50' of sloped erosion, up to 4' in height, and some redistribution of sand. Wave runup/tide to the upper beach/dune.	Minor
SHIP BOTTOM	Minor sloped erosion and redistribution of sand. Wave runup/tide to the upper beach.	Minor
LONG BEACH TWP. BRANT BEACH through N. BEACH HAVEN	Up to 50' of sloped erosion, up to 4' in height in height, and some redistribution of sand. Wave runup/tide to the upper beach/dune.	Minor
BEACH HAVEN	Up to 50' of sloped erosion, up to 4' in height, and some redistribution of sand. Approx. 3,000 linear feet of vertical dune scarping, up to 12' in depth and up to 8' in height along the stretch from Berkeley Ave. through Holyoke Ave.	Major
LONG BEACH TWP. HOLGATE	Up to 50' of sloped erosion, up to 4' in height, and some redistribution of sand. Approx. 2,000 linear feet of vertical dune scarping, up to 12' in depth and up to 8' in height along the stretch from Wave runup/tide to the upper beach/dune.	Major
BRIGANTINE	Up to 50' of sloped erosion, up to 3' in height throughout the City. Some wave runup/tide to the upper beach/dunes/revetment. Some ponding noted on upper beach. 15 <sup>th</sup> St. N. south to 5 <sup>th</sup> St. N. continues to experience more enhanced erosion; vertical dune scarp, up 2' - 4' in height near 15 <sup>th</sup> St. N. pedestrian crossover and from 9 <sup>th</sup> St. N. through 5 <sup>th</sup> St. N.	Moderate
ATLANTIC CITY	<b><u>Inlet Seawall and Terminal Jetty area:</u></b> No incidents or damage observed or reported.	Minor
	<b><u>Inlet Jetty to Ventnor Border:</u></b> Up to 70' of sloped erosion, up to 3' in height throughout the City with several stretches of vertical beach scarping, up to 2' in height. Some wave runup/tide to the upper beach/dunes.	Minor
VENTNOR	Up to 50' of sloped erosion, up to 2' in height throughout the City. Some wave runup/tide to the upper beach/dunes.	Minor
MARGATE	Up to 50' of sloped erosion, up to 2' in height throughout the City. Some wave runup/tide to the upper beach/dunes.	Minor
LONGPORT	Up to 60' of sloped erosion, up to 2' in height throughout the City. Some wave runup/tide to the upper beach/dunes.	Minor

OCEAN CITY	Up to 70' of sloped erosion, up to 3' in height throughout the City. Various sections of vertical beach scarps, up to 3' in height north of 14 <sup>th</sup> Street. Various sections of vertical dune scarps, ranging from 2' to 6' in height north of the Music Pier (8 <sup>th</sup> Street). Some wave runup/tide to the upper beach/dunes throughout City.	Major
UPPER TWP. STRATHMERE	Up to 60' of sloped erosion, up to 3' in height. Some additional erosion to the pre-existing 5' to 6' high vertical dune scarp; additional 4' to 5' in width at Seaview Avenue. Wave runup/tide to the upper beach/dune. No major incidents or damage observed or reported.	Minor
SEA ISLE CITY	<b><u>Whale Beach to Townsend Inlet Waterfront Park:</u></b> Up to 80' of sloped erosion, up to 3' in height. Wave runup/tide to the upper beach/dune. Some erosion of accreted sand along seaward dunetoe fence near JFK Blvd. and near 88 <sup>th</sup> and 89 <sup>th</sup> Streets but not into dune. Continued loss of beach south of the 88 <sup>th</sup> St. groin	Moderate
AVALON	Up to 80' of sloped erosion, up to 3' in height with vertical dune scarping up to 14' in height and up to 10' in width (between 11 <sup>th</sup> St. and 15 <sup>th</sup> St.). Wave runup/tide to the upper beach/dune. Local backpassing project ongoing.	Major
STONE HARBOR	Up to 60' of sloped erosion, up to 3' in height. Wave runup/tide to the upper beach/dune. Vertical dune scarping up to 8' in height, between 107 <sup>th</sup> and 113 <sup>th</sup> Streets. Notable erosion south and west of the 123 <sup>rd</sup> Ave. Terminal groin into Stone Harbor Point. No major incidents or damage observed or reported.	Major
NORTH WILDWOOD	<b><u>Hereford Inlet &amp; Surf Ave:</u></b> Minor to moderate sloped erosion. Wave runup/tide to the upper beach/dune/seawall. No major incidents or damage observed or reported to the inlet beach and inlet seawall.	Minor
	<b><u>2<sup>nd</sup> Ave. to 8<sup>th</sup> Ave.:</u></b> Up to 150' of sloped erosion, up to 5' in height. Wave runup/tide to the upper beach/bulkhead. Local backpassing project ongoing.	Major
	<b><u>8<sup>th</sup> Ave to 16<sup>th</sup> Ave.:</u></b> Sloped erosion, up to 4' in height with vertical stockpile scarps, up to 12' in height and 12' in width. Vertical dune scarps up to 8' in height (12 <sup>th</sup> Ave and 16 <sup>th</sup> Ave.) Wave runup/tide to the upper beach/dune. Local backpassing project ongoing.	
<b><u>16<sup>th</sup> Ave. to Wildwood border:</u></b> Sloped erosion, up to 4' in height with vertical stockpile scarps, up to 12' in height. Wave runup/tide to the upper beach/dune. Local backpassing project ongoing.		
WILDWOOD CITY	Sloped erosion, up to 3' in height. No major incidents or damage observed or reported. Wave runup/tide to the upper beach. Evidence of berm top ponding.	Minor
WILDWOOD CREST	Sloped erosion, up to 2' in height. No major incidents or damage observed or reported. Wave runup/tide to the upper beach/dune.	Minor
LOWER TWP. DIAMOND BEACH	Sloped erosion, up to 2' in height. No major incidents or damage observed or reported. Wave runup/tide to the upper beach/dune.	Minor

CAPE MAY CITY	Sloped erosion, up to 3' in height. Wave runup/tide to the upper beach/dune. Approximately 200' of vertical dune scarping, up to 2' in height near Wilmington Ave.	Minor
LOWER TWP./WEST CAPE MAY	Sloped erosion, up to 3' in height. Wave runup/tide to the upper beach/dune. No major incidents or damage observed or reported. Evidence of berm top ponding.	Minor
CAPE MAY POINT	Sloped erosion, up to 2' in height. Wave runup/tide to the upper beach/dune. No major incidents or damage observed or reported.	Minor
LOWER DELAWARE BAY	<b>North Cape May/Villas:</b> Minor sloped erosion and redistribution of sand. Wave runup/tide to the upper beach/dune. No major incidents or damage observed or reported.	Minor
	<b>Del Haven/Pierces Point/Reeds Beach:</b> Minor sloped erosion and redistribution of sand. Wave runup/tide to the upper beach. No major incidents or damage observed or reported.	Minor
DELAWARE BAY/RIVER	<b>East Point:</b> Minor sloped erosion and redistribution of sand. Wave runup/tide to the upper beach. No major incidents or damage observed or reported.	Minor
	<b>Heislerville Dike:</b> No new impacts as a result of this event. No major incidents or damage reported.	Minor
	<b>Bivalve (Commercial):</b> No new impacts as a result of this event. No major incidents or damage reported.	Minor
	<b>Fortescue:</b> Minor sloped erosion and redistribution of sand. Wave runup/tide to the upper beach/dune. No major incidents reported.	Minor
	<b>Downe Township:</b> <b>Gandy's Beach:</b> Minor sloped erosion and redistribution of sand. Wave runup/tide to the upper beach/dune. No major incidents reported. <b>Money Island:</b> Minor sloped erosion and redistribution of sand. Some minor additional scarping of the western end of the dune. Wave runup/tide to the upper beach/dune. No major incidents reported.	Minor
	<b>Lawrence Twp. - (Bay Point):</b> No major incidents or damage reported.	Minor
	<b>Fairfield Twp. (Sea Breeze):</b> No major incidents or damage reported.	Minor
	<b>Oakwood Beach:</b> Minor sloped erosion and redistribution of sand. Debris noted on entire beach. Additional loses at the southern end. Wave runup/tide to the upper beach.	Minor