New Jersey: State of the Shore Report

May 2004

In contrast to the winter of 2002-2003 in which the New Jersey shore was impacted by over 23 coastal storms, **the period between June 2003 and May 2004 was exceptionally calm**. In total, the New Jersey coast was exposed 7 Nor'easters over the winter of 2003-2004 that generated breaking wave heights greater than 8 feet. In addition to the 7 Nor'easters, the coast was impacted by waves generated by 2 hurricanes in September 2003.

Two minor coastal storms occurred during the fall of 2003: One on October 10-12 and one on November 4-5, 2003. **The three most significant Nor'easters of the winter occurred over a period of 10 days in early December**: December 6th, 11th, and 15th. Of the three storms, only the December 11th storm elevated water levels along the coast greater then 7 feet above Mean Lower Low Water (MLLW) Storms that generate water levels above 7 ft MLLW occur on average once every two years. This storm also generated wave heights in excess of 8 ½ feet along the coast. The highest storm surge of the year was generated by the December 15th storm but the timing of the storm, coinciding with neap tides, only elevated water levels to 5.5 ft above MLLW. The largest waves of the winter season were generated by the December 5th storm, which generated waves as high as 12 ½ feet along the coast. Of the remaining storms, both occurred in March 2004: March 12th and 17th. Only the March 17th storm significantly elevated water levels (5.5 ft MLLW) and produced surf greater than 8 feet.

Condition of the Beaches

The series of storms that impacted the New Jersey shore over the winter of 2002-2003 finally abated in the late spring of 2003. Although none of the storms were of major significance, the combined effect of 23 small storms significantly eroded most beaches south of Manasquan Inlet. Fortunately, none of these storms were strong enough to transport sand offshore beyond a depth were calmer wave conditions can easily move the sand back onshore. **By early September 2003, most beaches had recovered most of the sand lost during the previous winter.** Large swell preceding the passage of Hurricane Fabian on September 7-9 and prior to the landfall of Hurricane Isabel in North Carolina on September 18, 2003, actually built the up the beaches to their largest width of the year.

September 4, 2003

October 11, 2003

Variation in beach width at Ship Bottom, NJ between September 4 and October 11, 2003. Note the sand elevation relative to the signpost in both pictures.

By the end of the 3rd storm of December 2003, most beaches in New Jersey had returned to a condition similar to the late fall 2003 beach configuration. Moderate to severe erosion was noted along the entire New Jersey coast with the most significant erosion occurring along stretches of coast that have not benefited from beach nourishment activities.

The extremely mild winter and spring storm season allowed the beaches to recover a portion of the sand eroded during the December storm events. **As we enter the summer of 2004, the beaches are slightly wider than they were at this time last year.** Excepting some localized areas of severe erosion generated by chronic erosion and a lack of beach nourishment, the beaches along the New Jersey coast are presently in a moderately eroded state typical of early spring conditions. Sand eroded from the beach berm is present in the offshore bar system and has already begun to move back onto the beach over the calm wave conditions prevalent over the past few weeks. Beach goers can expect their favorite beaches to petty similar to the way they were last summer and perhaps a little bit wider.

Summer Outlook

The neutral condition El Nino/Southern Oscillation (ENSO) phase (no El Niño or La Niña) that began last spring is expected to continue thorough the summer. Neutral ENSO conditions are favorable for enhanced hurricane activity in the Atlantic Ocean. Combined with warmer sea surface temperatures in the tropical Atlantic and Caribbean Sea, **an active hurricane season is expected once again.** NOAA's 2004 Atlantic hurricane season outlook calls for 12-15 tropical storms, with 6-8 becoming hurricanes, and 2-4 of these becoming major hurricanes. These numbers reflect an above average season and indicate a likely continuation of above normal activity that began in 1995. **Generally, active hurricane seasons are beneficial to the Jersey Shore as tropical storms that pass well east of the New Jersey coast (east of Bermuda) generate large long period swell that is extremely efficient in helping to build up beaches.**

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