

# As coast grows, so do storm worries

## More lives, buildings, infrastructure at risk

BY MOLLY MURRAY • THE NEWS JOURNAL-DELAWARE ONLINE • MAY 26, 2008

Mary Pat Kyle recalled how, after the March Storm of 1962, her family drove to Fenwick Island to check on their beach house. They took a hammer and some nails for repairs.

But when they got to what is now Mallard Lakes, on Del. 54, and were stopped by flooding, "it became apparent a hammer and nails wasn't going to do the job," she said.

The storm destroyed boardwalks and businesses all along the Delaware coast. Houses were washed away or toppled off their foundations.

In Kent County, seven people died and 181 buildings were destroyed. More than 4,000 homes and businesses were damaged -- many of them in Sussex County.

At the time, the county had a population of 73,000 and beach houses, affectionately called cottages, often lacked even basics such as heat and air conditioning.

Today, there's a lot more to lose along Delaware's ocean and Delaware Bay coast.

Between 2000 and 2007, Sussex County issued building permits for projects that totaled more than \$2.8 billion -- much of it along the coast and for single-family homes. The peak of the construction boom -- from 2002 to 2005 -- came during a time of relative calm in terms of coastal storms.

Besides the houses -- many worth millions of dollars -- there are the many things that must be built to support the growth. Many believe they are also at considerable risk during storms.

"You do have additional infrastructure," said James Falk, director of the University of Delaware College of Marine and Earth Studies Sea Grant College Program. "And there are more people living in the coastal area."

Sussex County's population -- which grew from 61,336 in 1950 to 156,638 in 2000 -- is projected to reach 255,000 by 2030.

Falk, who took a closer look at some coastal census tracts, found that the coastal areas experienced even larger growth rates than the county as a whole.

Delaware's coast is not alone.

Roger A. Pielke Jr., director of the Center for Science and Technology Policy Research at the University of Colorado, recently looked at coastal storms, questioning whether hurricane damage was worse because storms were stronger and more damaging or because the coast was more developed.

Pielke concluded that when the coast was more developed, there was more to lose.

Pielke took loss damage from hurricanes between 1900 and 2005 and normalized the damage by using changes in inflation and wealth at a national level and changes in population and housing at the localized, coastal level.

During the period through 2005, Pielke and his colleagues concluded, the most damaging storm was the 1926 Great Miami Storm with \$140 billion to \$157 billion in normalized damages. Hurricane Katrina in 2005 ranked second.

Although hurricanes pose a risk for Delawareans, the state has never suffered a direct hit. Hurricane Gloria in 1985 damaged boardwalks in Bethany and Rehoboth beaches, but the storm passed just off the coast. Hurricane Hazel, which followed a path west of Chesapeake Bay in 1954, did significant damage inland of the Delaware coast in Dover and Wilmington.

But for most Delawareans, the storm of record was the March Storm of 1962, a nor'easter that lasted several days and through several high tides.

Mike Powell, flood mitigation manager for the state Shoreline and Waterway Management Section, said that in 1968, the federal Flood [Insurance](#) Program started and set standards for construction to limit damage from flooding. Many of the most floodprone coastal houses were damaged or destroyed during the 1962 storm and were rebuilt to higher standards.

Powell said there is no doubt the coast and area along the Inland Bays is far more developed than it was in 1962.

"In between Bethany and Fenwick, there was nothing," he said.

The area north of Bethany Beach had very little development. At Long Neck, there were no large manufactured-home communities.

Powell said he often wonders what would happen if that area got hit by a major coastal storm now.

While the buildings might not suffer flood damage, there would likely be other impacts, he said.

"Roads would be flooded out and there would be evacuation issues without a doubt," he said. "A lot of the houses would be relatively unscathed."

Sussex County has enforced a residential building code since 1993. The code required houses be built to withstand winds of up to 100 miles per hour.

In March 2005, the county started to follow a more rigorous code that addressed a high wind zone in coastal areas. It requires high-impact windows or roll-down hurricane shutters. Homeowners can also use pre-cut and numbered plywood on the first- and second-floor windows, said Van Milligan, Sussex County's chief of building inspection. The idea is that windows should be able to withstand winds of up to 110 miles per hour, he said.

"Everybody's made very well aware what's got to be done," he said.

Even with improved construction codes and flood zones, there can still be problems.

Kyle, who now lives in Fenwick Island year-round, said in this most recent storm, the roof blew off a neighbor's house.

"It was a metal roof and it just rolled right off," she said.

Kyle said many of the thousands of new coastal residents are unaware of what a coastal storm is like.

"They don't have a clue," she said. "But that's OK. They'll find out."

In that 1962 storm, Kyle and her family made it across Del. 54 into Fenwick Island.

"We could find the wreckage" of the house.

The waves nibbled away at the foundation, the first floor broke up and the second floor fell down in one piece, she said.

The recent storm of May 11 and 12 was especially damaging along Delaware Bay, said Kelvin W. Ramsey, a geologist with the Delaware Geological Survey. But even along the bay, it was worse in some areas than in others.

Slaughter Beach, for instance, was in good shape after the storm.

But at Fowler Beach, the dunes were flattened and the bay cut a small inlet through to the marsh.

Along the Murderkill River, the tide was the highest on record. At Bowers Beach, it reached 8.45 feet, Ramsey said. The previous high tide was in a February 1998 nor'easter when the tide reached 8.05 feet, he said.

**Contact Molly Murray at 856-7372 or [mmurray@delawareonline.com](mailto:mmurray@delawareonline.com).**

