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A Warning About East Coast Tsunamis

By **WILLIAM J. BROAD**

The risk is low. But the consequences could be high, with deadly waves striking the coastal communities of Long Island, Connecticut and New Jersey and killing thousands of people.

Today, the federal government is announcing that it has completed the mid-Atlantic region's risk assessments for the killer mounds of water known as tsunamis, or tidal waves.

Scientists have long considered the West Coast of North America as the side of the continent most likely to suffer earthquakes and the undersea disturbances that raise tsunamis. But in recent years, with a growing appreciation of the diverse origins of the giant waves and their potential for havoc, experts have found new reasons for vigilance along the East Coast.

"Tsunamis are a real threat," said Lisa Taylor, an official at the National Oceanic and Atmospheric Administration, which is conducting the assessments for coastal regions that are considered at risk. A main factor is whether the land rises sharply or gently, the latter being more prone to poundings from unexpectedly high waves.

The project creates elevation maps of coastal lands and adjacent seafloors, helping scientists better forecast the areas that a tsunami would flood. The giant waves can arise hundreds of miles away, in theory giving emergency planners hours to send people to higher ground.

Part of the new analysis focuses on the easternmost area of Long Island, including East Hampton and Southampton, and the southeastern coast of Connecticut, including Mystic and Old Saybrook. The analysis also evaluates the risk for Atlantic City.

A recent federal study found that a seaquake in a deep trench off Puerto Rico could raise a tsunami that would travel for nearly five hours on the ocean's surface before crashing into Montauk, on the southeastern tip of Long Island.

Since 2006, scientists at the oceanic agency have digitally created elevation models for 20 coastal communities, and they expect to make more than 50 others. Analyses are planned for Miami and Palm Beach in Florida; Boston, Cape Cod and Nantucket in Massachusetts; and New York City.

The scientists work at the agency's National Geophysical Data Center and at the Cooperative Institute for Research in Environmental Sciences, both in Boulder, Colo.

Once the scientists develop an elevation model, they send it to the agency's Pacific Marine Environmental Laboratory in Seattle. There, it is incorporated into tsunami models, which simulate seaquakes, the tsunamis' travel across the ocean and the magnitude and location of coastal flooding.

With the models in hand, the agency's Tsunami Warning Centers can issue more accurate flooding forecasts.

"Near the shoreline, all tsunamis are sensitive to minor variations in seafloor and land topography, increasing in height as they approach the coast," said Barry Eakins, a scientist with the modeling project. "Better understanding of the relief of the coastal zone is critical to predicting how a tsunami will flood coastal communities."

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