

Understanding climate change: Long Beach New York, post-Sandy

August 14 2018, by Steve Cohen



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The past two weekends my summer routine of riding my bike on the Long Beach boardwalk to the gym has been interrupted by major rain storms. Instead, I drove to the gym and watched the water accumulate

and drain from Long Beach's Park Avenue as I zoned-out on the elliptical machine. Whenever storms hit out there, like most of my neighbors, I think about "Superstorm Sandy" and the months (and for some families, years) it took to repair our homes. Since the damage to my summer bungalow was valued at less than 50% of its total value, I was not required to raise my house to maintain flood insurance. But all over Long Beach, Atlantic Beach, Point Lookout, and the Rockaways, one sees hundreds of houses that once stood two stories high, now raised to three. The signs of change are everywhere. Sandy was an event that altered the way people think about their homes, their community and the reality of climate change.

In addition to individual responses, government has been active as well. The Long Beach boardwalk was rebuilt with investment from all levels of government, and the federal government continues to work to make the area more resilient. The U.S. Army Corps of Engineers is in the middle of a multi-year, \$230 million project to restore and reinforce the beach.

According to a Corps of Engineers [fact sheet about the project](#):

"The project area is located on the south shore of Long Island consisting of approximately 9 miles of oceanfront from Jones Inlet to East Rockaway Inlet. The area is subject to direct wave attack and flooding during major storms and hurricanes, causing damage to structures located along the barrier island. A historical low height and narrow width of the beach front has increased the potential for storm damage. Damaging storms have occurred in 1938, 1950, 1953, 1960, 1962, 1984, 1991, 1992 and 2012. In October 2012, Super Storm Sandy was credited with over \$250 million dollars of damage. The project would provide coastal storm damage risk reduction to the highly developed communities in this area. The plan consisting of a berm, dune and groin system that reduces risk against a 100-year storm event for

approximately 7 of the 9 miles of public shoreline between Jones Inlet and East Rockaway Inlet, including the communities of Point Lookout, Lido Beach, and the City of Long Beach. The project's approximate volume of sand is 4,720,000 CY. The project also includes rehabilitation of 17 existing groins and construction of 4 additional groins (2 are deferred based on monitoring and determination of future needs)."

A similar project was first proposed before Hurricane Sandy and met with strong community opposition. Back then people thought that the high dunes would obstruct ocean views and disrupt life as we knew it. This summer, although some are complaining a little about the inconvenience of some beach closures, most people are happy to see the beach widen and the dunes built up. The community is so eager to see the project completed that the Long Beach City Council recently voted to allow the beach replenishment work to take place seven days a week, twenty-four hours a day. The goal is to have the project completed in time to protect the barrier island before the height of this year's hurricane season.

People in Long Beach have experienced the impact of climate change and are doing what they can to prepare for future floods. They value their community and lifestyle too much to abandon their homes, but Sandy changed local attitudes toward measures designed to build climate resilience. This change in attitude has come at a good time, because the future is likely to bring increased levels of coastal flooding, during both high tides and storms. In 2014 the Union of Concerned Scientists published a study entitled: "Encroaching Tides: How Sea Level Rise and Tidal Flooding Threaten US East and Gulf Coast Communities over the Next 30 Years." The report noted that:

"...many East Coast communities now see dozens of tidal floods each year. Some of these communities have seen a fourfold increase in the annual number of days with tidal flooding since 1970... Using a mid-

range scenario for future sea level rise, we find that, by 2030, more than half of the 52 communities we analyzed on the East and Gulf Coasts can expect to average more than two dozen tidal floods per year. The rise in the frequency of tidal flooding by 2030 represents an extremely steep increase for some, and two-thirds could see a tripling or more in the number of high-tide floods each year."

Even if coastal communities have not yet suffered the impact of an extreme weather event, they have been subject to damage from tidal flooding. Construction projects such as the one now underway in Long Beach can reduce the number of times these flood waters reach our built environment. The national costs of these projects is large and will need to grow. Beach restoration projects require maintenance and periodic reconstruction, so we need to be prepared to raise and spend tax dollars to preserve our beach communities. Unfortunately, the alternative to spending money to prevent damage is to suffer the impact of that damage. Prevention will be far less expensive than reconstruction. In a 2018 follow-up to their 2014 study, the Union of Concerned Scientists analyzed the financial impact of tidal flooding under conditions of projected [sea level rise](#). According to this recent report:

"More than 300,000 of today's coastal homes, with a collective market value of about \$117.5 billion today, are at risk of chronic inundation in 2045—a timeframe that falls within the lifespan of a 30-year mortgage issued today. Approximately 14,000 coastal commercial properties, currently assessed at a value of roughly \$18.5 billion, are also at risk during that timeframe."

While many of the homes in Long Beach tend to be relatively modest, that is not the case when you add up the value of homes in the Hamptons and some of the higher priced sections of Cape Cod, Martha's Vineyard and the Jersey shore. Awareness of the changing environment and the impact of climate change is quite high in these beach communities.

People live in these places due to their love of the beach and ocean and it is obvious that beach communities have changed dramatically over the past half century. They have become more developed and more prone to flooding. Some climate scientists believe that many beach communities are so vulnerable to climate impacts they should be abandoned. For the people living on the shore retreat is not an option. I share that view. There may be a home or two that are not worth the cost to save, but when entire communities are at risk, I believe we must invest in their resilience and survival.

As I waited in the gym lobby on Saturday morning for the storm to subside a bit, before heading back outdoors, the group I was waiting with first discussed flooding, then Sandy, but soon turned to a discussion of the high costs of gasoline. A couple of folks started talking about how soon they'd be able to avoid gasoline price surges when electric cars came down a little in price. The consensus seemed to be that the switch to electric cars was about a decade away. It occurred to me that this was a group that assumed the reality of climate change and understood the need to adapt to its impacts and try to prevent it from getting worse. Environmental problems result in environmental policies when they become tangible to communities. In Long Beach, New York, [climate change](#) is as real as the steps needed to adapt to it.

This story is republished courtesy of Earth Institute, Columbia University
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Provided by Earth Institute, Columbia University

Citation: Understanding climate change: Long Beach New York, post-Sandy (2018, August 14) retrieved 25 April 2024 from <https://phys.org/news/2018-08-climate-beach-york-post-sandy.html>

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