Union of Concerned Scientists

FACT SHEET

WHEN RISING SEAS HIT HOME

New York Faces Chronic Inundation

In New York and all along the US coastline, many cities and towns will experience high-tide flooding within the next few decades that will be chronic and extensive enough to force difficult choices. Because this persistent flooding can render neighborhoods, commercial districts, industrial zones, and recreational and other areas unusable, communities will face either major coastal defense investments or the prospect of retreat from affected places. The Union of Concerned Scientists (UCS) has identified hundreds of US communities at risk of this disruptive flooding as well as how much time remains before the flooding becomes chronic. UCS also recommends how to use this time wisely.

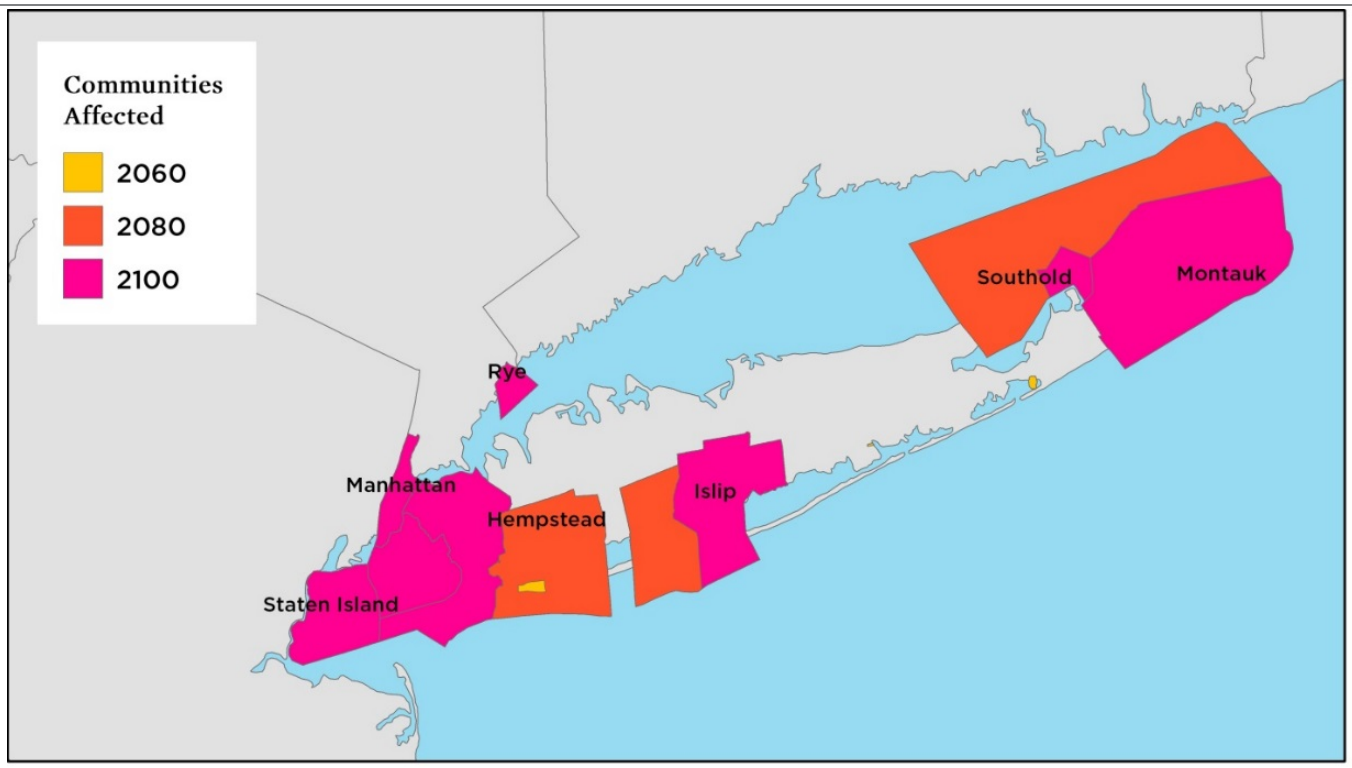
"Chronic Inundation"

UCS analyzed the exposure of coastal communities to chronic flooding under three different sea level rise scenarios developed for the 2014 National Climate Assessment: intermediate-low ("low"), intermediate-high ("intermediate"), and highest ("high") (see www.ucsusa.org/RisingSeasHitHome for detailed information).

This analysis assumes that a community (defined as a US Census county subdivision) faces "chronic inundation" when high tide floods 10 percent or more of its usable, non-wetland area at least 26 times per year or, on average, every other week. Some cities, such as Annapolis, Maryland, and Miami Beach, Florida, currently experience flooding less extensive than this but are already investing heavily to cope with it.

The pace of sea level rise matters greatly to New York State. UCS has identified four New York communities that will face such chronic inundation by 2100, given the intermediate sea level rise scenario. But in the high scenario, this number climbs to 14 communities, including four of the five boroughs of New York City—and notably affecting 12 percent of Manhattan

FIGURE 1. **New York Communities Facing Chronic Inundation in the High Scenario.** In New York City and surrounding areas, the tolerance for disruptive flooding is low. In these places, major decisions and investments would be undertaken many decades before this chronic inundation threshold is reached and 10 percent of Manhattan or Queens regularly floods.



and 15 percent of Queens and Brooklyn. Flooding will be a significant problem decades before 2100, however, with Brooklyn's Coney Island and more than a quarter of Nassau County's Long Beach chronically inundated by 2060. With so much of New York City and Long Island potentially affected, major changes and investments would need to be undertaken long before many neighborhoods and commercial districts reach the UCS chronic inundation definition. For a list of all inundated communities in New York, visit www.ucsusa.org/RisingSeasStateData.

A Chance for Some New York Communities to Avoid Chronic Inundation

UCS used the low scenario as a proxy for sea level rise associated with a warming of about 1.8°C and found that curtailing future warming and sea level rise could spare two New York communities from chronic inundation by 2060 and three to 13 communities by the end of the century—including four boroughs of New York City. The Paris Climate Agreement, ratified by most countries in November 2016 (although the Trump administration has announced US withdrawal), aims to limit future warming to 2°C or less above preindustrial levels through large-scale reductions in global warming emissions.

Response Time: How to Use It Wisely

The limited time before chronic inundation sets in must be used to plan and prepare using a science-based approach that helps communities understand their risks, assess their choices, and implement adaptation plans while prioritizing equitable outcomes. Three categories of policy response are critical:

• **Halting or phasing out current policies that perpetuate risky coastal development.** We need to update flood risk maps using the latest climate science, limit development in flood-prone areas, safeguard flood-protective natural ecosystems, reform flood insurance premiums, and update building codes and infrastructure plans to reflect the latest projections of sea level rise.

• **Enhancing existing policy frameworks.** Current disaster response and predisaster investments—including FEMA's Hazard Mitigation Grant Program, predisaster mitigation grants, Flood Mitigation Assistance, and the Public and Individual Assistance Programs—must be adequately funded and must also take account of climate projections and emphasize advance actions to limit the impacts of flooding. We need to preserve existing budgets and increase investment in flood-risk mapping and flood-proofing measures, protection of natural ecosystems, large-scale home buyout programs, and implementation of robust flood-risk management standards and building codes. Other agencies that play important roles in our nation's flood response (e.g., HUD, USACE, USDA, DOI, and DOT) must also be adequately resourced.

• **Creating bold new policies and measures adequate for the scale of coastal risks.** Pioneering, well-funded programs will be needed to assist, for example, with retreat and relocation from chronically inundated areas. New economic opportunities and infrastructure investments will be required in the safer locations to which people and businesses relocate. Policies must be designed to preserve natural ecosystems and cherished aspects of cultural heritage. And innovative governance models that enable effective decisionmaking amidst challenging tradeoffs will also be essential.

Coordinated action by households, local and state leadership, and businesses is required. Federal resources and policymakers' decisions will help determine whether coastal communities are resilient and continue to thrive. And even as the Trump administration seeks to withdraw from the Paris Agreement, we must work at state and local levels and with other nations to cut global warming emissions aggressively in order to help slow the pace of sea level rise.

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FIND THIS DOCUMENT ONLINE: www.ucsusa.org/RisingSeasHitHome

The Union of Concerned Scientists puts rigorous, independent science to work to solve our planet's most pressing problems. Joining with citizens across the country, we combine technical analysis and effective advocacy to create innovative, practical solutions for a healthy, safe, and sustainable future.

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