RACHEL CARSON COUNCIL

Fact Sheet

Understanding the New York–New Jersey Watershed

OVERVIEW

The New York/New Jersey watershed is an important ecosystem for the ecology, public health, and culture of the region (**Figure 1**). The watershed, however, faces extreme degradation and pollution. The water quality and habitat have been found to be extremely contaminated and damaged, which risks the health of the people and wildlife in the region.

The region is one of the most densely populated in the country, with millions of Americans depending on the Hudson River Estuary. There are many natural and cost-effective ways to restore the watershed and reduce the risk to Americans and the biodiversity of the region.

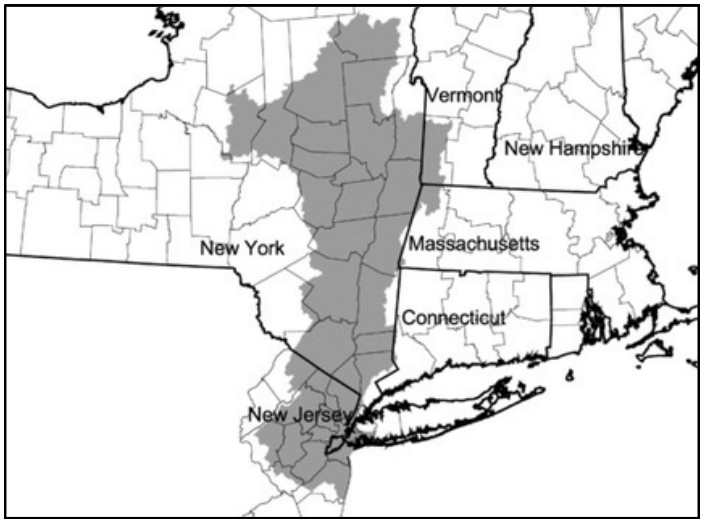

Figure 1: Map of the New York/New Jersey watershed (shaded area).
Source: Research Gate[22]

POLLUTION & RESTORATION EFFORTS IN THE WATERSHED

The New York–New Jersey watershed is one of the nation's most ecologically and economically important river systems, **spanning more than 6,500 square miles** and supporting thousands of plant and animal species despite decades of industrial and urban pressure.[1]

Protecting and restoring the watershed safeguards critical ecosystem services that communities rely on every day, including **flood prevention, water filtration, groundwater recharge, soil health, and carbon cycling**. Natural wetlands and intact habitats help stabilize runoff, reduce drought impacts, and improve water quality.[2]

The Hudson River and connected watershed provide habitat for rare and endangered fish, birds, amphibians, and reptiles, while supporting recreation, tourism, boating, fishing, and outdoor economies throughout New York and New Jersey equating to billions of dollars in economic activity.[3,4]

Decades of **PCB contamination** have caused long-term injury to the river's surface waters. Federal and state agencies documented that approximately 85% of more than 10,000 water samples collected from the Hudson River contained PCB levels exceeding state and federal standards, demonstrating ongoing environmental harm.[5]

The Hudson River Superfund site is the largest in the nation, with nearly **200 miles of river contaminated** by industrial pollution. Restoration funding is essential because toxic substances such as PCBs, dioxins, mercury, and heavy metals persist in sediments and aquatic life for decades.[6]

Pollution in the watershed has direct public health consequences. Studies found that people consuming locally caught fish from the Hudson River and New York Harbor had elevated levels of PCBs, pesticides, and mercury in their bodies, with pregnant women and children facing especially serious developmental risks.[7]

Restoration investments are necessary to address environmental justice concerns. Research shows that low-income communities and communities of color are more likely to **rely on locally caught fish** from contaminated waters, increasing their exposure to toxic pollutants.[8]

Climate change and warming waters are adding new stress to the watershed ecosystem. Scientists have warned that rising temperatures, combined with toxic contamination, threaten fish populations and overall ecosystem health, making **long-term restoration and resilience funding increasingly urgen**t.[9]

KEY FACTS

- The Hudson River Estuary corridor **spans more than 6,500 square miles** and includes 10 counties plus all 5 New York City boroughs along the tidal Hudson River.[10]
- The Hudson River below Hudson Falls is a 200-mile federal Superfund site, the largest in the United States because of PCB contamination.[11]
- Federal and state agencies collected more than 10,000 water samples from the Hudson River; approximately **85% contained detectable PCBs**.[12]
- The U.S. EPA estimated that up to **1.3 million pounds of PCBs were discharged into the Hudson River** from industrial facilities in Hudson Falls and Fort Edward, New York.
- The watershed supports recreation and tourism activities including fishing, boating, hiking, camping, biking, and wildlife observation.[13]
- Natural wetlands in the watershed help reduce flooding, filter water, regulate groundwater, and absorb pollution.[14]
- Scientists found that people who ate fish from the Hudson River and New York Harbor had higher levels of PCBs, pesticides, and mercury in their bodies than people who did not eat locally caught fish.[15]
- Water **temperatures in the mid-Hudson region increased by nearly 1°C between 1946 and 2008**, adding stress to fish and aquatic ecosystems.[16]

IMPORTANCE

- The New York–New Jersey watershed is closely connected to public health, local ecosystems, transportation, recreation, and regional economies. The river system provides habitat for fish, birds, mammals, wetlands, and plant communities, while also supporting activities such as boating, fishing, hiking, and tourism.[17]
- The watershed is also tied to water quality and flood management. Natural wetlands and connected ecosystems help regulate water flow, reduce flooding, filter pollutants, and recharge groundwater supplies. These environmental functions affect nearby communities, especially in urban and coastal areas that are vulnerable to stormwater and flooding events.[18]
- Industrial activity along the Hudson River and surrounding waterways has had long-term environmental impacts. Researchers documented PCB contamination in water, sediments, and fish species throughout the watershed. Because some pollutants remain in river sediments for decades, restoration projects often involve long-term monitoring and cleanup efforts.[19,20]
- The watershed also has direct connections to human health. The contamination is causing negative health effects on the local population. (Landrigan) In addition, scientists have identified climate-related changes affecting the watershed ecosystem. Rising water temperatures in the Hudson River have been associated with stress on fish populations and changes in aquatic habitats.[21]

ENDNOTES

1. Penhollow, M. E., Jensen, P. G., & Zucker, L. A. (2006). Hudson River Estuary wildlife and habitat conservation framework: An approach for conserving biodiversity in the Hudson River Estuary corridor. New York Cooperative Fish & Wildlife Research Unit, Cornell University, and New York State Department of Environmental Conservation, Hudson River Estuary Program.
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6. Wirgin, I., Chambers, R. C., Waldman, J. R., Roy, N. K., Witting, D. A., & Mattson, M. T. (2023). Effects of Hudson River stressors on Atlantic tomcod: Contaminants and a warming environment. Reviews in Fisheries Science & Aquaculture, 31(3), 342–371. https://doi.org/10.1080/23308249.2023.2189483
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RACHEL CARSON COUNCIL

Uniting science, wonder, and action for a sustainable, just and peaceful future.

The Rachel Carson Council (RCC), founded in 1965, is the national environmental organization envisioned by Rachel Carson to carry on her work after her death. We promote Carson's ecological ethic that combines scientific concern for the environment and human health with a sense of wonder and reverence for all forms of life in order to build a more sustainable, just, and peaceful future. The Rachel Carson Council is a nonpartisan 501(c)(3) nonprofit organization.