HOW'S THE WATER?

People ask, "Where is it safe to swim in the Hudson River?" Riverkeeper's monitoring program provides data to help inform decisions.

Find all the data, and learn more at riverkeeper.org/water-quality

Safe swimming

Good water quality gives us what we want – a Hudson River safe for recreation, and healthy for wildlife. People swim, bathe, jet-ski, tube and enjoy other activities in the Hudson River and its tributaries – and not just at the estuary's four public beaches where water quality is routinely monitored and lifeguards are on duty.

Water quality is only one way to define the safety of a location for swimming, and these data describe only one important aspect of water quality, fecal contamination. Other pollutants, as well as boating traffic, currents, tides, weather and other factors can make open water swimming unsafe.

How's the water?

Since 2008, Riverkeeper, Columbia University's Lamont-Doherty Earth Observatory, and CUNY Queens College have monitored water quality at 74 sites in the Hudson River Estuary, the tidal portion of the river that stretches from Troy to New York Harbor. We compare our data to Environmental Protection Agency (EPA) recreational water quality criteria, which are designed to ensure compliance with the Clean Water Act, and protect public health for recreational users. Of the 74 sites sampled, 30 meet EPA safe swimming criteria, demonstrating the historic success of cleaning up the Hudson River. Of the 44 that fail, 15 fail both of two EPA criteria, and 29 fail one of the two. If a site fails to meet either criterion, water quality must be improved. Most failures are caused by the inability of aging and outdated infrastructure to perform in rain.

Sources of bacteria

Source of the fecal indicator bacteria we measure may include:

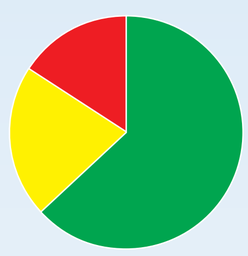
- combined sewage overflows (CSOs)
- other leaks or overflows from aging sewer pipes, pump stations and wastewater treatment plants;
- illicit connections between sanitary and stormwater sewers;
- failing septic systems;
- urban stormwater;
- runoff from agriculture;
- wildlife;
- contaminated sediment and biofilms

OUR MISSION: Riverkeeper envisions a Hudson River teeming with life, flowing with clean, swimmable waters from end to end, and healthy and abundant drinking water for all New Yorkers.

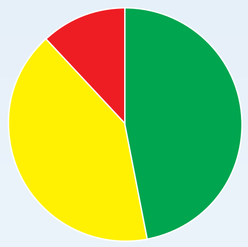
Riverkeeper, our partners and funders, provide these data so those who use the river can make informed choices relative to water quality, but provide no warranties to third parties about the data. Riverkeeper, our partners and funders accept no liability for choices individuals make.

Making choices based on water quality patterns

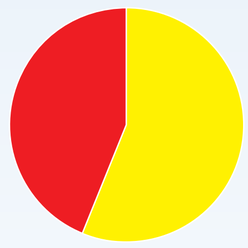
Even if there is no data for a particular location where one may enter the water, the data show patterns that can guide decisions. These pie charts show the percentage of sites sampled in each category that are ● generally safe, ● unsafe after rain and ● generally unsafe.



MID CHANNEL: The deeper, well-mixed part of the river away from its shores would have generally met safe swimming criteria, except near and downstream from combined sewer overflows (CSOs) in the Capital District and New York City.



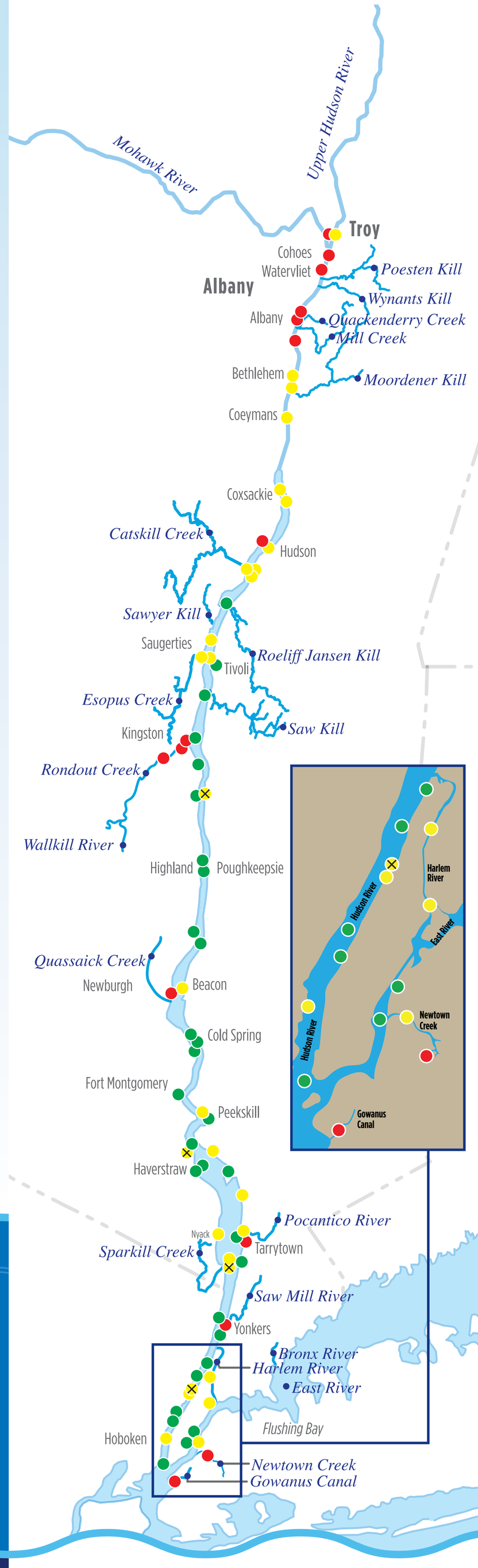
NEAR SHORE: Water quality near city and village waterfronts is most likely to be affected by street runoff and sewer overflows, while shorelines that are less developed generally have shown less impact from rain.



TRIBUTARIES: The smaller creeks and rivers that feed the Hudson have had more risky water quality, both in their tidal portions and at their confluence with the river. Tributary water quality has often been dramatically affected by rain, particularly where CSOs are present.

Hudson River tributaries

The tributary data above are based on 16 sample sites in the tidal portions of tributaries, or at their mouths. Riverkeeper and more than 180 community scientists, and more than 40 partner organizations have sampled more than 325 additional locations around New York City and in the Hudson River tributaries noted on the map. Tributaries vary greatly in the magnitude of bacteria present. Most sites sampled do not meet EPA safe swimming criteria. Find the data at riverkeeper.org/water-quality



What You Can Do

Become a Member

Each sample costs about $10 in material costs. Become a Riverkeeper member by sponsoring a sample for $10 or a sampling location for $60.

Volunteer

Join a community science project to measure water quality, or get involved in another volunteer project.

Take action

Riverkeeper helps individuals send messages to decision makers at strategic moments when your voice will make the most difference.

Visit

riverkeeper.org/get-involved

Is it getting better?

The historic gains in water quality achieved starting a generation ago by New York's Pure Waters Bond Act and the U.S. Clean Water Act had stalled until recent investments by New York State. We still have important progress to make, particularly in preventing contamination from combined sewer overflows (CSOs) and other sewage infrastructure failures. Combined sewers carry both sewage and stormwater in the same pipe, and are designed to overflow after rain. They are present in many old cities, including the Capital District, New York City, Yonkers, Newburgh and Kingston, where water quality impacts from overflows are evident in the data. To comply with the Clean Water Act, cities are implementing longterm plans to reduce overflows.

In 2018 alone, more than $320 million was committed to improving sewers to improve water quality in the Hudson River watershed, in large part thanks to the landmark New York State Clean Water Infrastructure Act, which provides needed grant funding to communities to support local investments. But the need remains great, at well over $1 billion north of New York City, and billions more in New York City.

About EPA recreational water quality criteria

Enterococcus (Entero) is a group of bacteria whose abundance in water correlates with the risk of exposure to fecal pathogens. Untreated sewage threatens recreational water quality, but other pollutants may also make water unsafe for swimming. There are two primary EPA Recreational Water Quality Criteria based on Entero:

GEOMETRIC MEAN: The concentration of the indicator bacteria (Entero) based on a weighted average of multiple samples should not exceed this threshold. There is often significant variation in water quality at the same location, reflecting greater or lesser risk in each sample. The geometric mean provides a measure of average water quality.

STATISTICAL THRESHOLD VALUE: If the concentration of indicator bacteria (Entero) in 10% or more of samples exceeds this threshold, water is not considered safe for swimming due to the frequency of contamination events, even if "average" (geometric mean) levels are low.

Key

Sampling locations are color-coded according to analysis of nearly 5,000 samples from 2008-2018 to indicate the likely relative risks associated with swimming. However, good or poor water quality may occur at any location depending on local conditions.

● **Generally safe for swimming**
Location would have met both EPA criteria for safe swimming. While it would meet criteria, water quality varies significantly over time. This site is not free of risk, and may have riskier water quality after rain, or during rainy seasons.

● **Unsafe after rain**
Location has had poor water quality for up to 3 days after rain, and would have met only one of two EPA criteria for safe swimming. Water quality improvements are needed.

✕ Location has had poor water quality for up to 3 days after rain, and would have met only one of two EPA criteria for safe swimming. It also shows evidence of poor water quality in dry weather. Water quality improvements are needed.

● **Generally unsafe for swimming**
Location has not met either EPA criteria for safe swimming. Water quality improvements are needed.

Data presented here were gathered by Riverkeeper, Columbia University's Lamont-Doherty Earth Observatory and CUNY Queens College over 11 years with the financial support of Riverkeeper members, and many foundations, agencies and corporations, including M&T Bank.

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For more information, visit www.riverkeeper.org

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