

RIVERKEEPER MONITORING PROGRAM:

Hudson River Tributaries Water Quality
Results 2024



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Water Quality Over Time

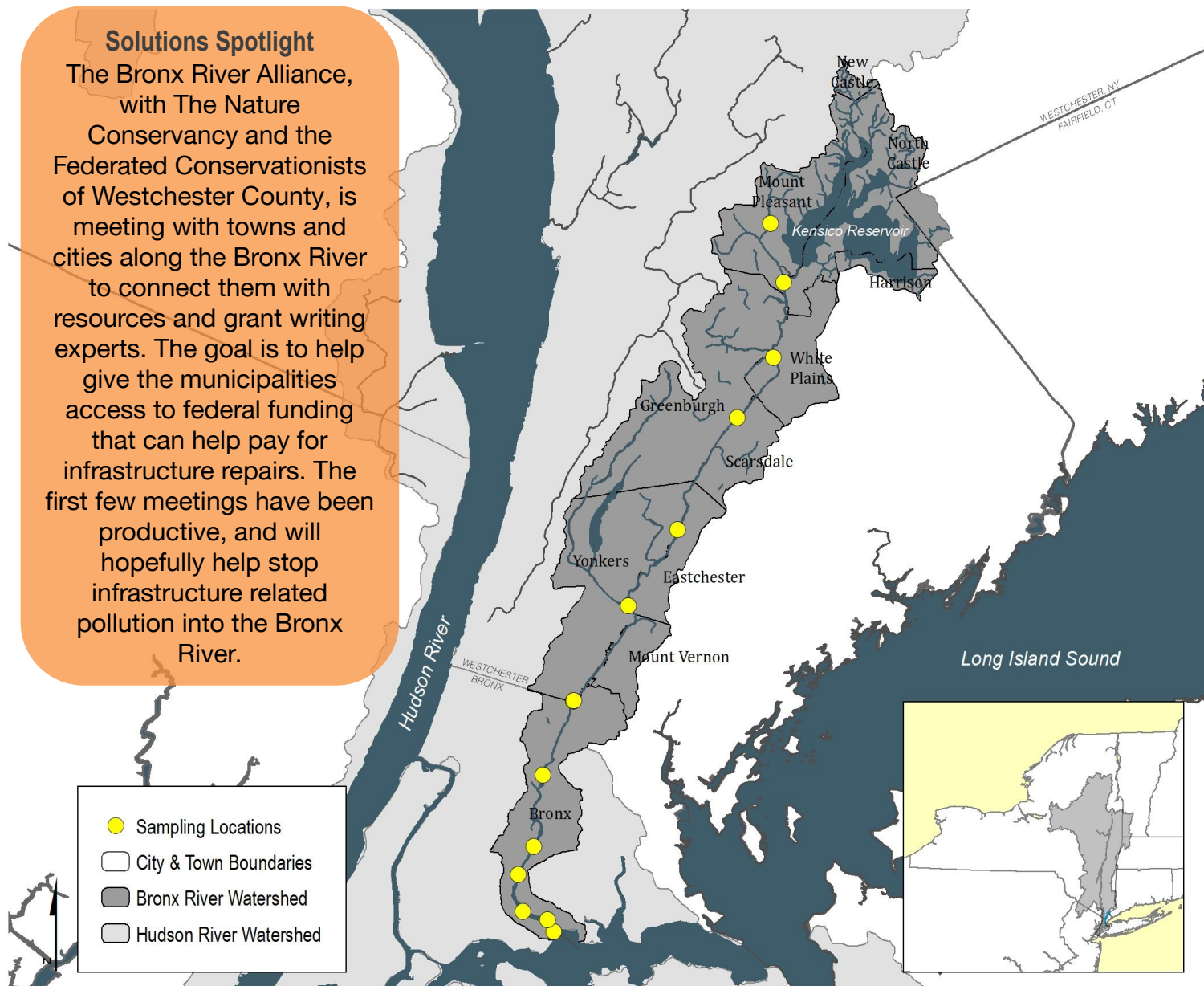
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BRONX RIVER

Community Water Quality Monitoring Results

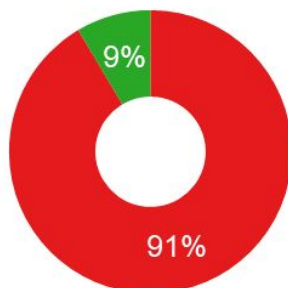
2019-2023

Solutions Spotlight
The Bronx River Alliance, with The Nature Conservancy and the Federated Conservationists of Westchester County, is meeting with towns and cities along the Bronx River to connect them with resources and grant writing experts. The goal is to help give the municipalities access to federal funding that can help pay for infrastructure repairs. The first few meetings have been productive, and will hopefully help stop infrastructure related pollution into the Bronx River.



What portion of samples were safe for swimming?

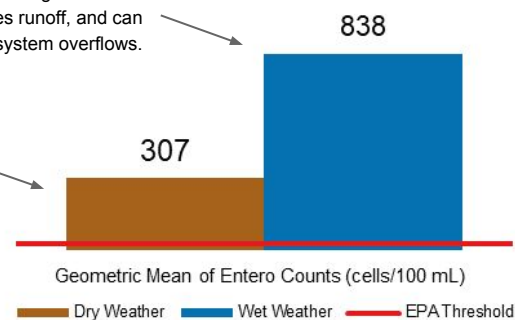
Very few samples collected at non-tidal sites met the EPA guideline for safe swimming. At many of the sampling sites, no sample has yet met the guideline during the duration of this monitoring project.



How does weather affect bacteria levels?

Bacteria levels are much greater after rainfall, which causes runoff, and can cause wastewater system overflows.

Even in dry weather, levels exceed the safe swimming threshold by more than 10 times.



More: Explore a watershed map, data from each sampling site, year-to-year patterns and other info at riverkeeper.org/water-quality/citizen-data/bronx-river. Learn about the Bronx River Alliance at bronxriver.org

Community Science

The water quality data presented here are based on an analysis of 375 samples collected since 2019 by community scientists. Samples were collected once or twice per month from May to October and processed by the Bronx River Alliance. To get involved, contact Christian Murphy at christian.murphy@bronxriver.org.

Why We Measure Bacteria

Fecal indicator bacteria such as *Enterococcus* (“Enter”) usually do not make us sick. But because they live in the guts of warm-blooded animals, when these bacteria are present in water, pathogens that can make us sick may also be present.

Sources of fecal bacteria may include sewer overflows and failures, inade-

quate sewage treatment, urban or farm runoff, septic system failures, wildlife and contaminated sediment.

While research continues, the EPA has set thresholds to define if water is safe for swimming based on decades of science relying on measurements of these bacteria. Data are shown in Enterococcus cells per 100 mL.

A Little About the Bronx River

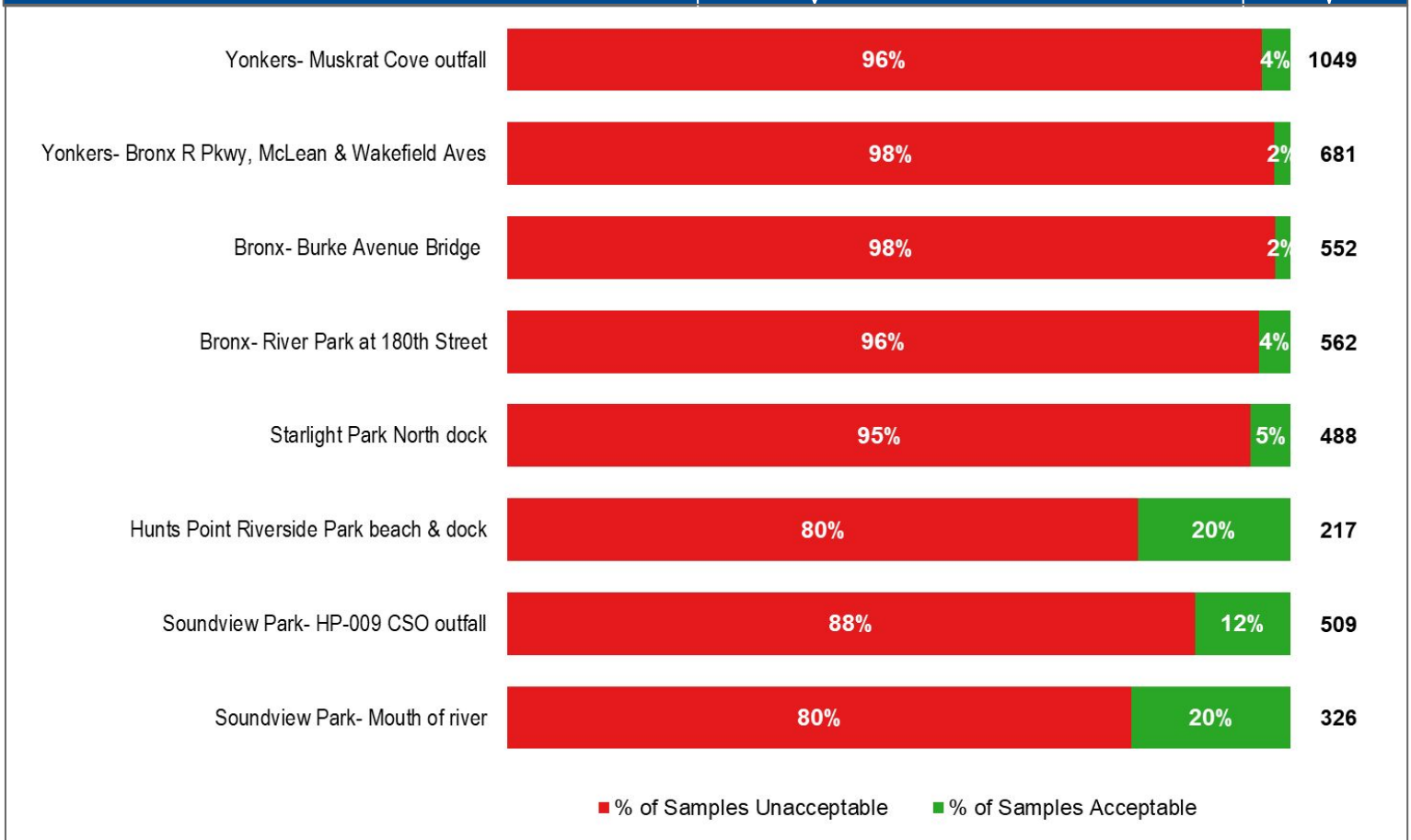
The Bronx River travels 23 miles from suburban Westchester to the Bronx, where it empties into the East River. It is the only major waterway of New York City that is not entirely tidal.

Signs of Progress

The now fully-completed Starlight Park features stormwater retention basins, four rain gardens, and nine native wildflower meadows. A wetland planting is planned for June 2024 which will add native saltmarsh habitat to the park as well. Green spaces and restored habitat like this improve water quality and allow the Bronx River and its communities to thrive.

What portion of samples at each site were unacceptable for swimming? EPA threshold: single sample should not exceed 60

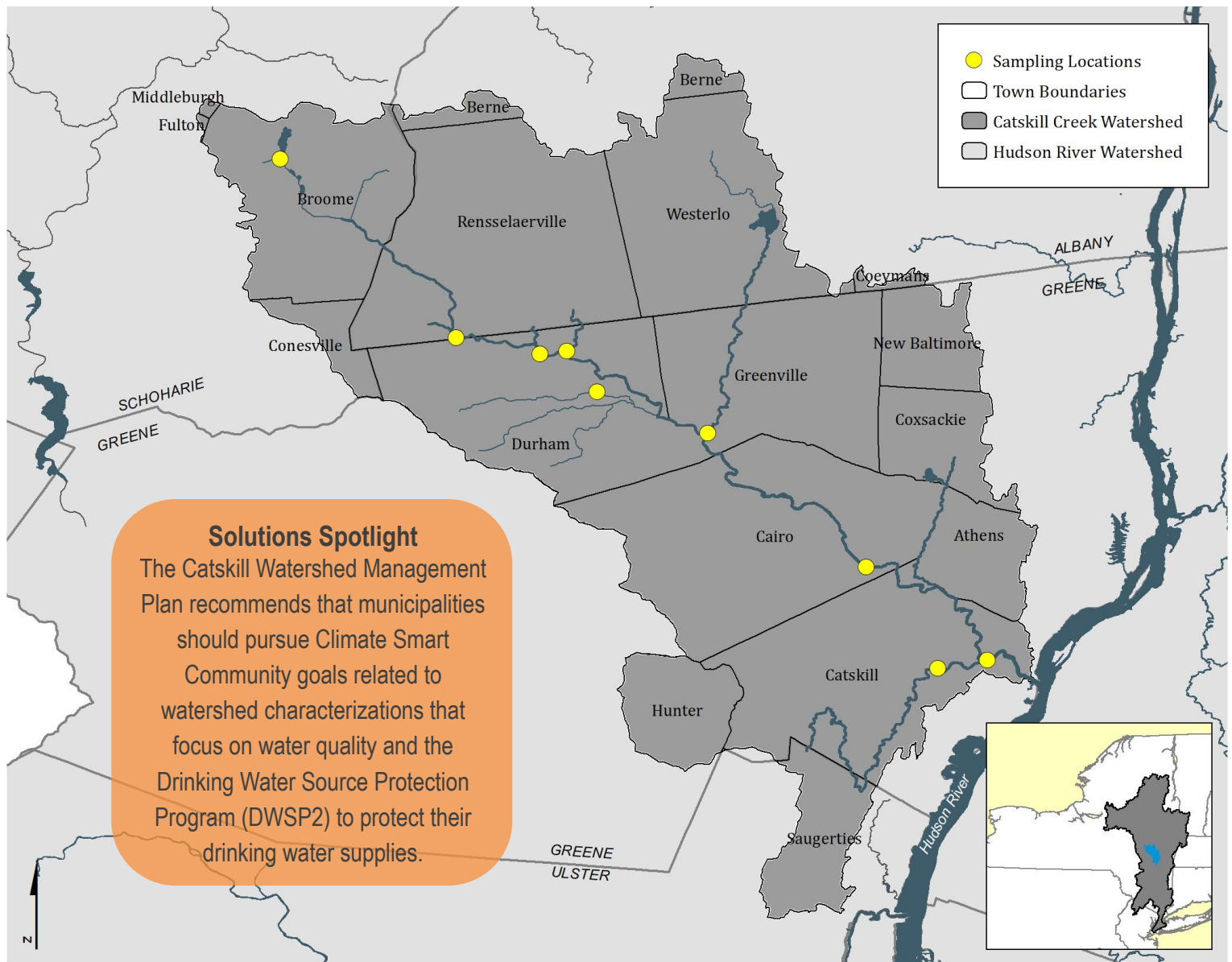
How high were bacterial levels? EPA threshold: Geometric mean should not exceed 30



CATSKILL CREEK

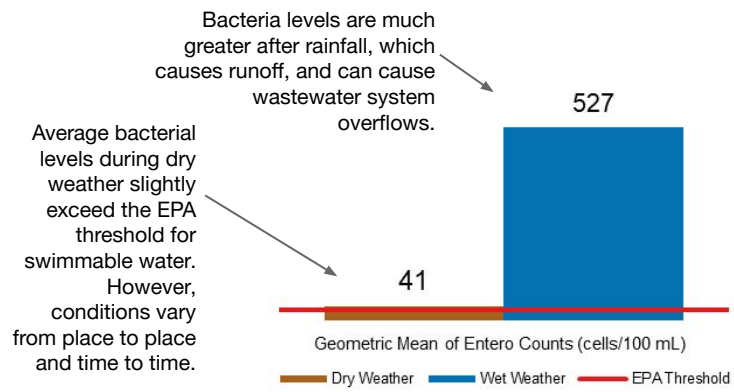
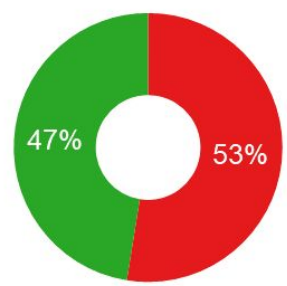
Entero Water Quality Monitoring Results

2019-2023



What portion of our samples were safe for swimming? How does weather affect bacteria levels?

No one swims in average (geometric mean) water, so to help understand risk this graph shows the percent of samples that met the single sample EPA guidelines for safe swimming, and the percent of samples that didn't.



More: Explore a watershed map, data from each sampling site, and more at riverkeeper.org/water-quality/citizen-data/catskill-creek-watershed



Community Science

The water quality data presented here are based on an analysis of 217 samples collected since 2019 by community scientists. Samples are collected monthly (May to October) and processed by Riverkeeper. To get involved, contact Sebastian Pillitteri at spillitteri@riverkeeper.org.

Why We Measure Bacteria

Fecal indicator bacteria such as *Enterococcus* (“Entero”) usually do not make us sick. But because they live in the guts of warm-blooded animals, when these bacteria are present in water, pathogens that can make us sick may also be present.

Sources of fecal bacteria may include sewer overflows and failures, inade-

quate sewage treatment, urban or farm runoff, septic system failures, wildlife and contaminated sediment.

While research continues, the EPA has set thresholds to define if water is safe for swimming based on decades of science relying on measurements of these bacteria. Data are shown in Entero cells per 100 mL.

About the Catskill Creek

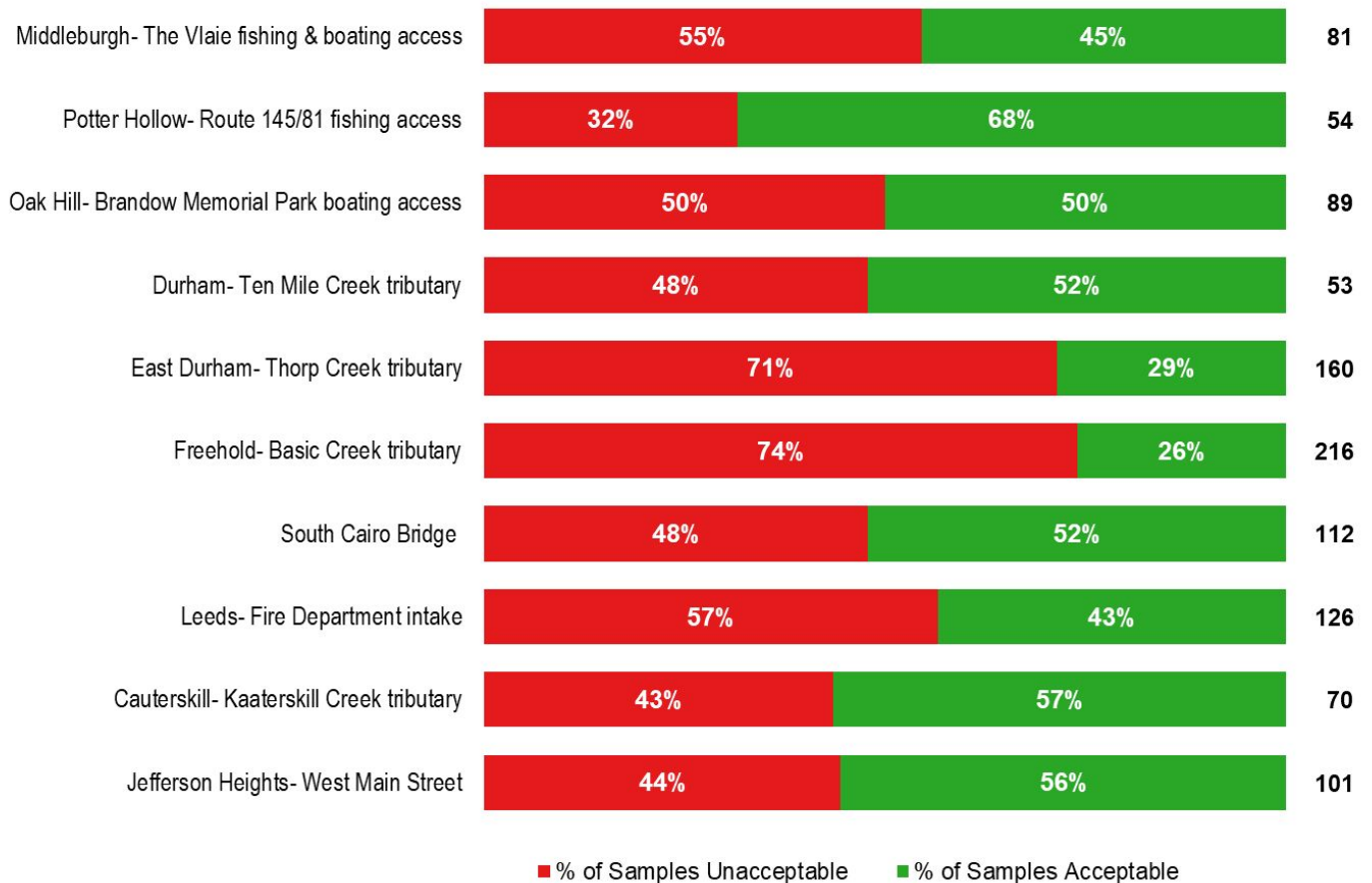
Forest and agriculture cover much of the Catskill Creek watershed, with most of the urban development in the watershed’s lower section. The creek has several popular swimming holes and fishing spots along its course.

Signs of Progress

Rensselaerville, a town on the Ten Mile Creek, signed up for the Drinking Water Source Protection Program. This is a program from New York state to help municipalities develop plans to protect their drinking water.

What percent of samples were acceptable for swimming? EPA threshold: single sample should not exceed 60

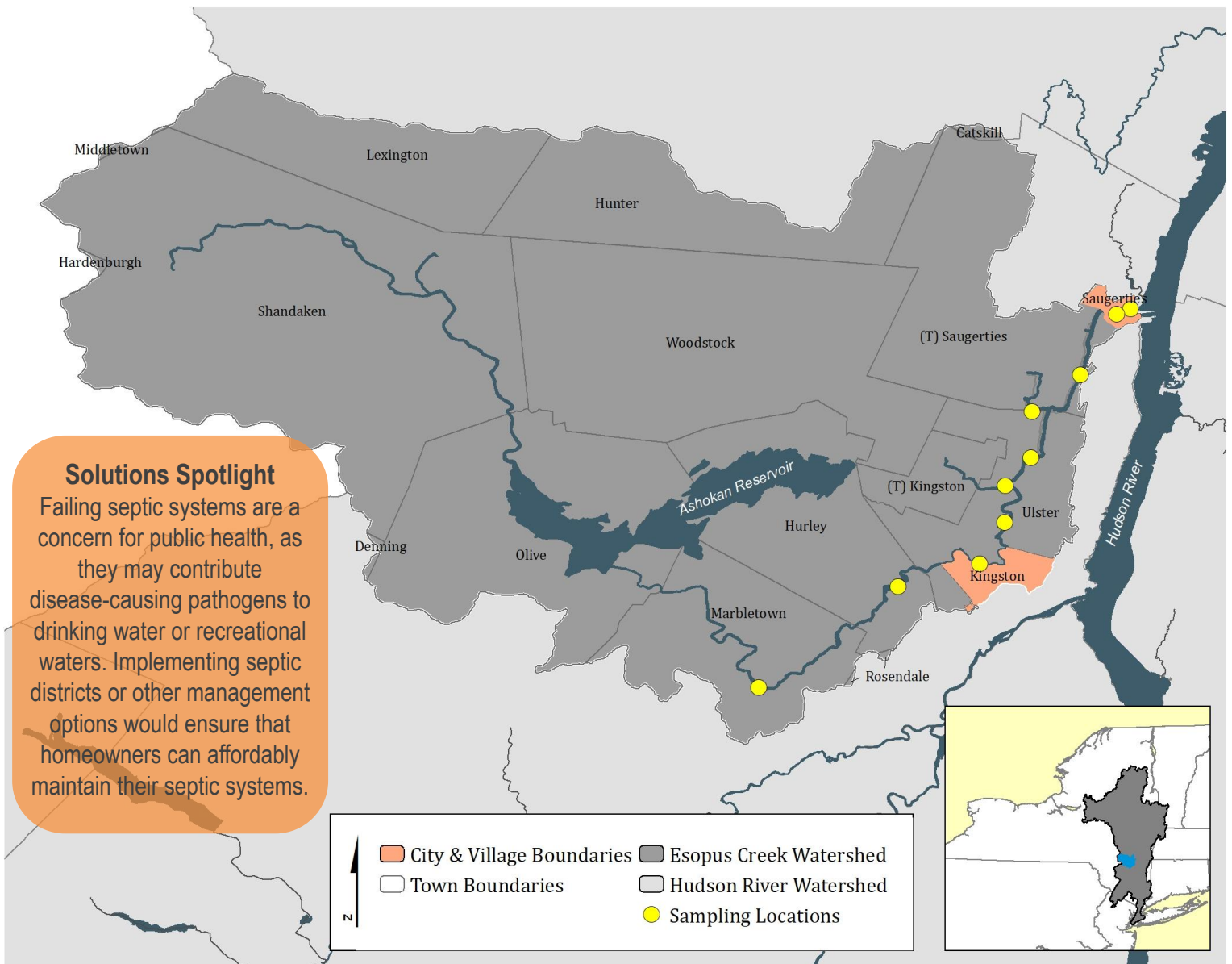
Weighted average of bacterial concentration per site. EPA threshold: should not exceed 30



ESOPUS CREEK

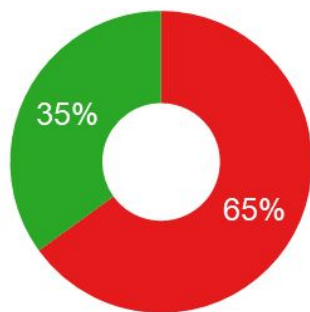
Entero Water Quality Monitoring Results

2019-2023

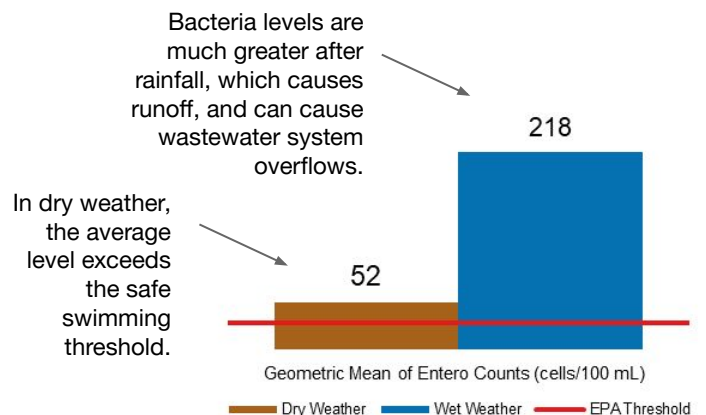


What portion of our samples were safe for swimming?

No one swims in average (geometric mean) water, so to help understand risk this graph shows the percent of samples that met the single sample EPA guidelines for safe swimming, and the percent of samples that didn't.



How does weather affect bacteria levels?



More: Explore a watershed map, data from each sampling site, and more at riverkeeper.org/water-quality/citizen-data/esopus-creek

Community Science

The water quality data presented here are based on an analysis of 203 samples collected since 2019 by Marbletown ECC members, Riverkeeper, and watershed residents. Samples are collected monthly (May to October) and processed by Riverkeeper. To get involved, contact Sebastian Pillitteri at spillitteri@riverkeeper.org.

Why We Measure Bacteria

Fecal indicator bacteria such as *Enterococcus* (“Enter”) usually do not make us sick. But because they live in the guts of warm-blooded animals, when these bacteria are present in water, pathogens that can make us sick may also be present.

Sources of fecal bacteria may include sewer overflows and failures, inade-

quate sewage treatment, urban or farm runoff, septic system failures, wildlife and contaminated sediment.

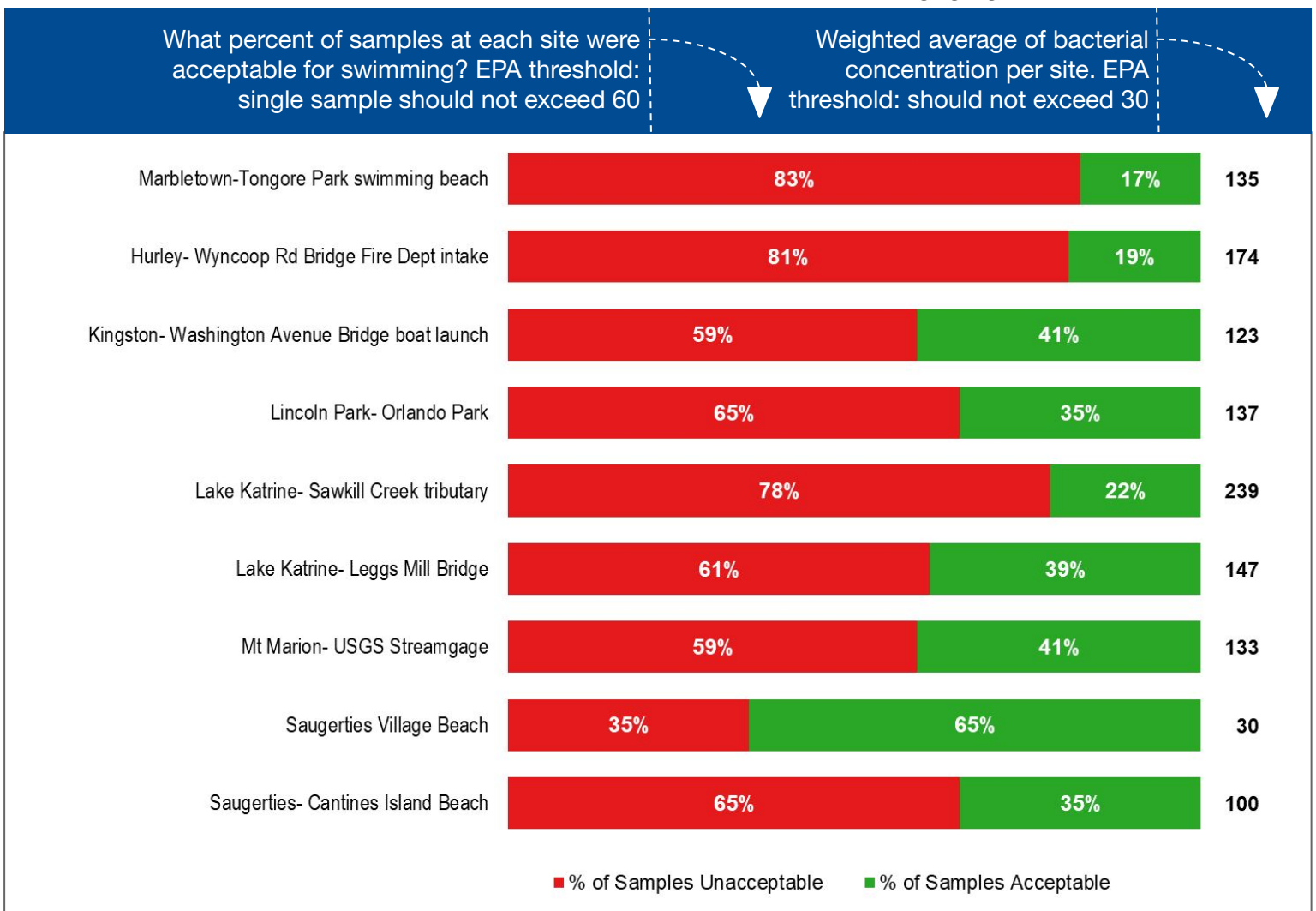
While research continues, the EPA has set thresholds to define if water is safe for swimming based on decades of science relying on measurements of these bacteria. Data are shown in Enterococcus cells per 100 mL.

About the Esopus Creek

The lower Esopus Creek begins at the outlet of the Ashokan Reservoir, and flows through a canyon before turning to the northeast and flowing through an agricultural floodplain.

Signs of Progress

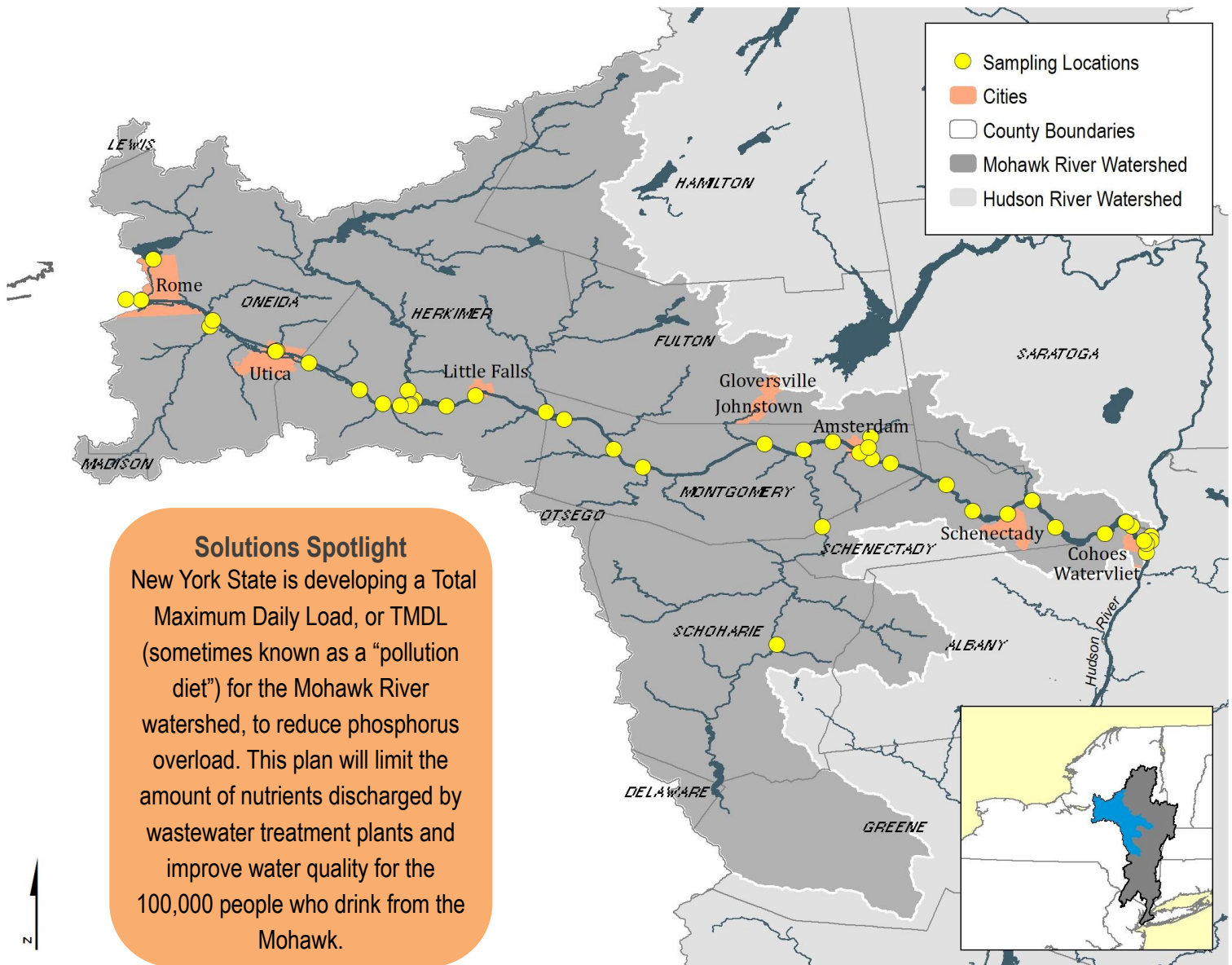
The recently completed Esopus Creek Stream Management Implementation Plan lays out projects for municipalities and Ulster County to implement to improve water quality and reduce flood risk through floodplain management, supporting ecosystem health and diversity, encouraging sustainable recreation, and engaging local communities.



MOHAWK RIVER

Entero Water Quality Monitoring Results

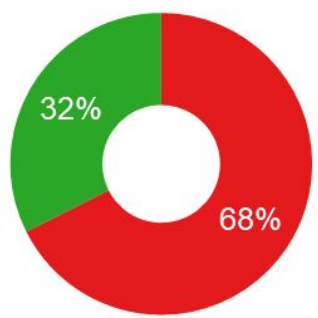
2019-2023



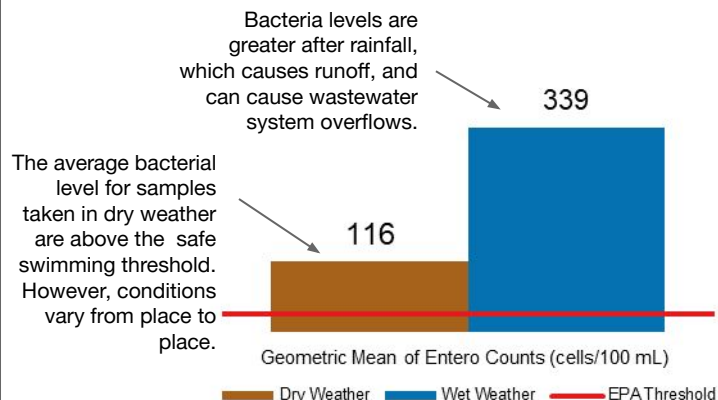
Solutions Spotlight
 New York State is developing a Total Maximum Daily Load, or TMDL (sometimes known as a “pollution diet”) for the Mohawk River watershed, to reduce phosphorus overload. This plan will limit the amount of nutrients discharged by wastewater treatment plants and improve water quality for the 100,000 people who drink from the Mohawk.

What portion of our samples were safe for swimming?

No one swims in average (geometric mean) water, so to help understand risk this graph shows the percent of samples that met the single sample EPA guidelines for safe swimming, and the percent of samples that didn't.



How does weather affect bacteria levels?



More: Explore a watershed map, data from each sampling site, and more at <https://www.riverkeeper.org/water-quality/citizen-data/mohawk-river/>

Community Science

The water quality data presented here are based on an analysis of 916 samples collected and processed since 2019 by volunteers, Riverkeeper, SUNY Cobleskill, and SUNY Polytechnic Institute. Samples are collected monthly from May to October. If you would like to get involved with sampling contact Sebastian Pillitteri at spillitteri@riverkeeper.org.

Why We Measure Bacteria

Fecal indicator bacteria such as *Enterococcus* (“Enter”) usually do not make us sick. But because they live in the guts of warm-blooded animals, when these bacteria are present in water, pathogens that can make us sick may also be present.

Sources of fecal bacteria may include sewer overflows and failures, inade-

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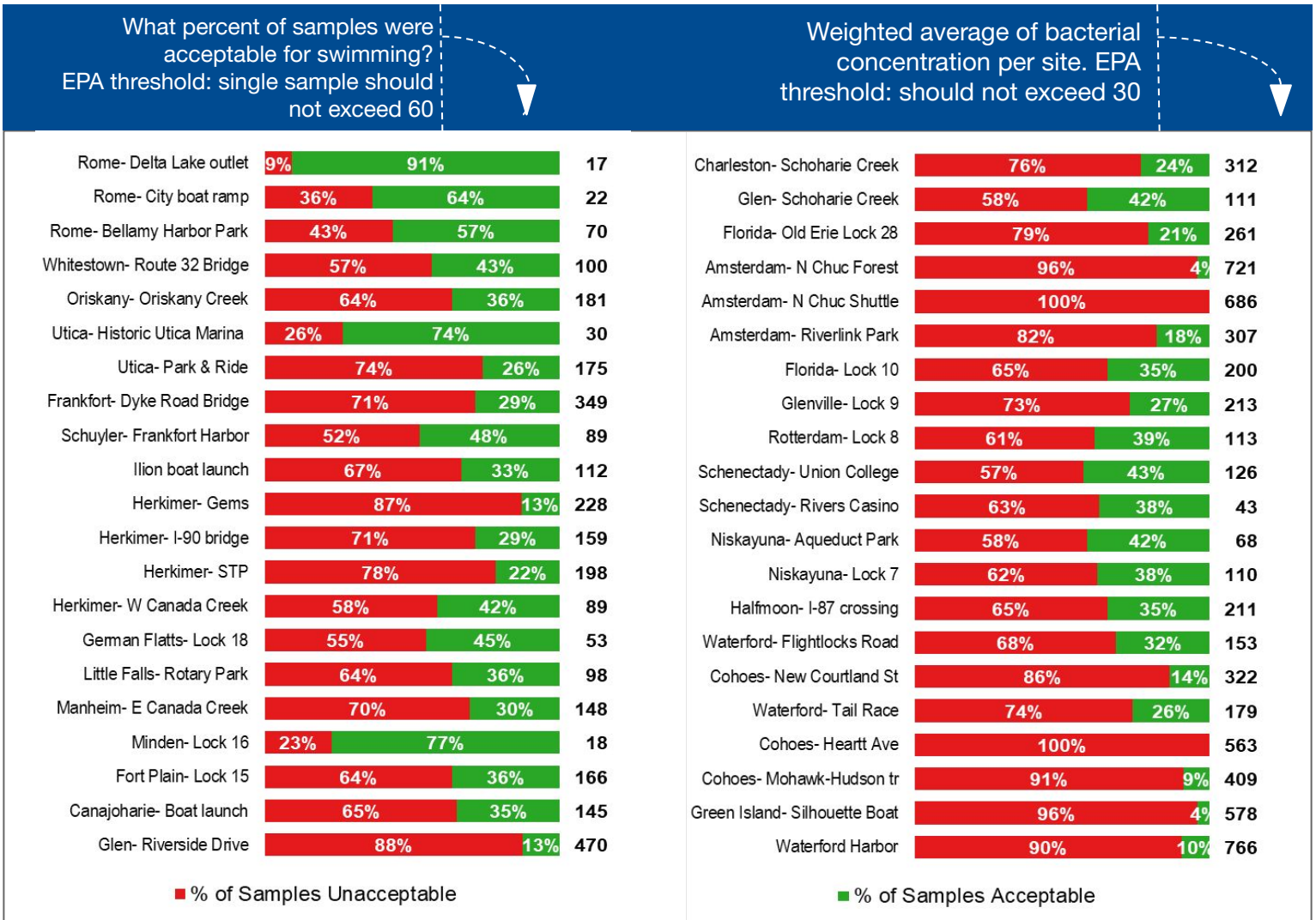
While research continues, the EPA has set thresholds to define if water is safe for swimming based on decades of science relying on measurements of these bacteria. Data are shown in Enterococci per 100 mL.

About the Mohawk River

The Mohawk River is the largest tributary to the Hudson River and is also the Erie Canalway. More than 100,000 people use it as a source of drinking water.

Signs of Progress

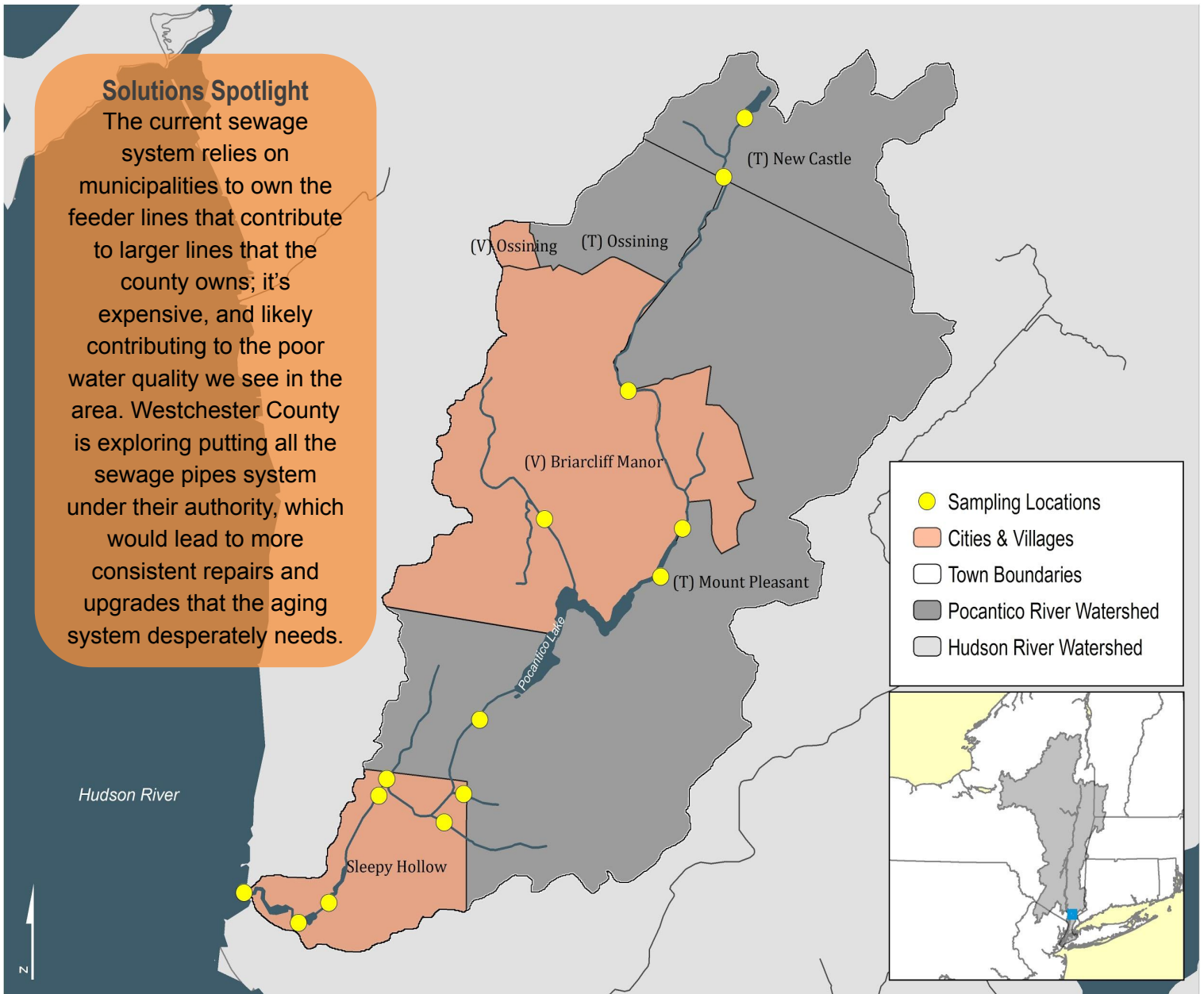
New York State Department of Environmental Conservation (DEC) is conducting a monitoring program to assess the water quality of tributaries to the Mohawk River. Once assessed by the DEC, and if found to have impairments, municipalities seeking funding to address the causes of impairments will have a greater chance of getting funding for their projects.



POCANTICO RIVER

Entero Water Quality Monitoring Results

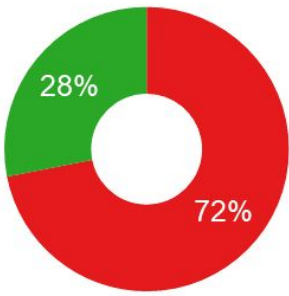
2019-2023



Solutions Spotlight
 The current sewage system relies on municipalities to own the feeder lines that contribute to larger lines that the county owns; it's expensive, and likely contributing to the poor water quality we see in the area. Westchester County is exploring putting all the sewage pipes system under their authority, which would lead to more consistent repairs and upgrades that the aging system desperately needs.

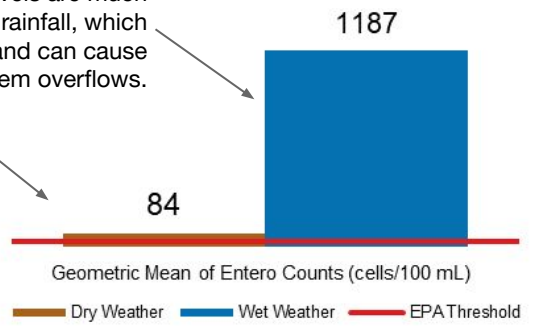
What portion of samples were safe for swimming? How does weather affect bacteria levels?

No one swims in average (geometric mean) water, to help understand risk this graph shows the percent of samples that met the single sample EPA guidelines for safe swimming, and the percent of samples that didn't.



Bacteria levels are much greater after rainfall, which causes runoff, and can cause wastewater system overflows.

Even in dry weather, levels exceed the safe swimming threshold by a large margin.



More: Explore a watershed map, data from each sampling site, and more at <https://www.riverkeeper.org/water-quality/citizen-data/pocantico-river/>

Community Science

The water quality data presented here are based on an analysis of 121 samples collected since 2019 by watershed residents and Riverkeeper. (No sampling was conducted in 2020.) Samples are collected monthly from May to October and processed by the Sarah Lawrence College Center for the Urban River at Beczak. To get involved, contact Sebastian Pillitteri at spillitteri@riverkeeper.org.

About the Pocantico River

Flowing from Echo Lake in the town of New Castle, the Pocantico’s course is bisected by Pocantico Lake, before joining the Hudson in Sleepy Hollow. Though subject to development pressure, about 63% of the watershed is forested, and less than 10% is covered with impervious surfaces.

Why We Measure Bacteria

Fecal indicator bacteria such as *Enterococcus* (“Entero”) usually do not make us sick. But because they live in the guts of warm-blooded animals, when these bacteria are present in water, pathogens that can make us sick may also be present.

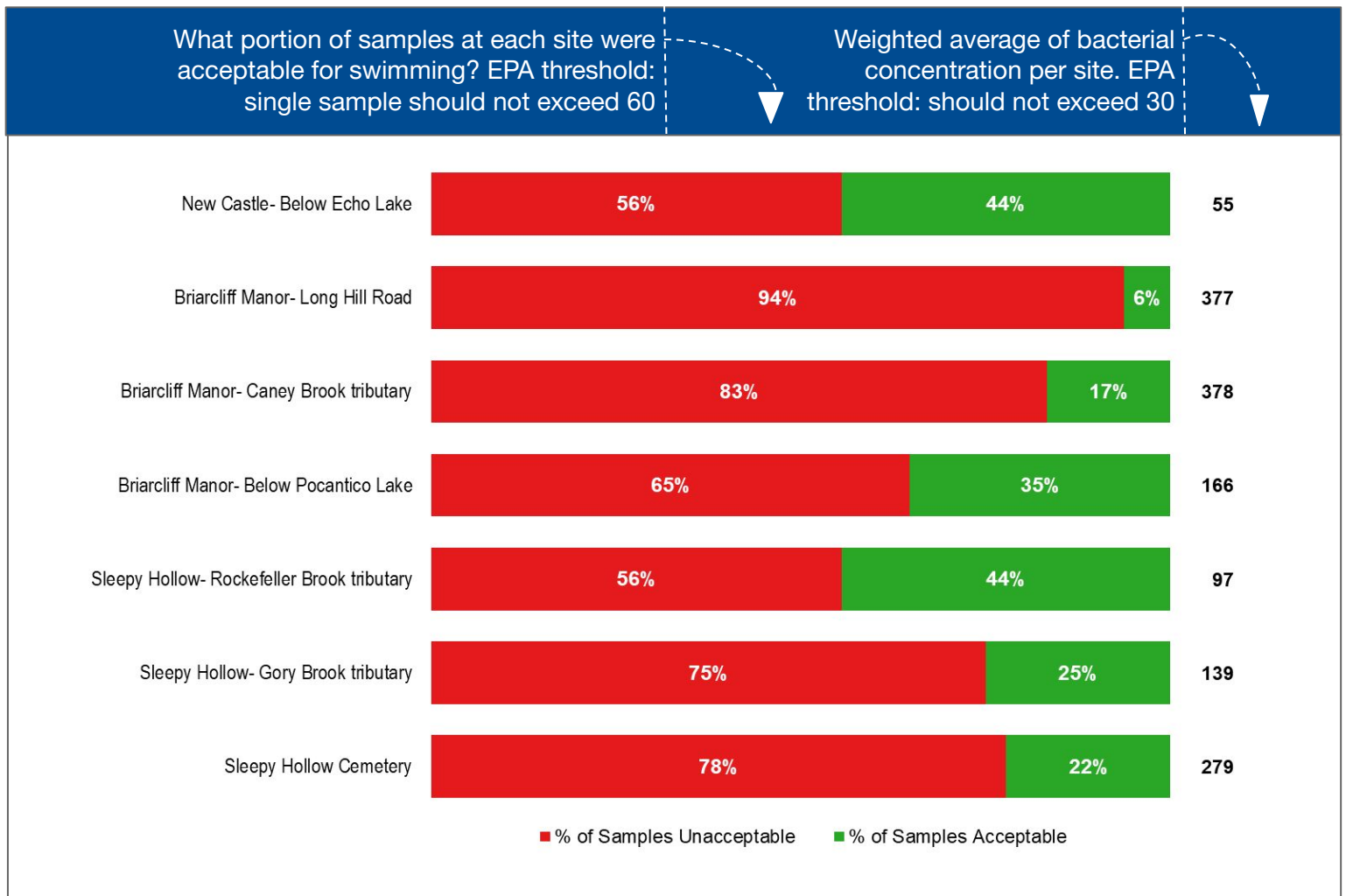
quate sewage treatment, urban or farm runoff, septic system failures, wildlife and contaminated sediment.

While research continues, the EPA has set thresholds to define if water is safe for swimming based on decades of science relying on measurements of these bacteria. Data are shown in Entero cells per 100 mL.

Sources of fecal bacteria may include sewer overflows and failures, inade-

Signs of Progress

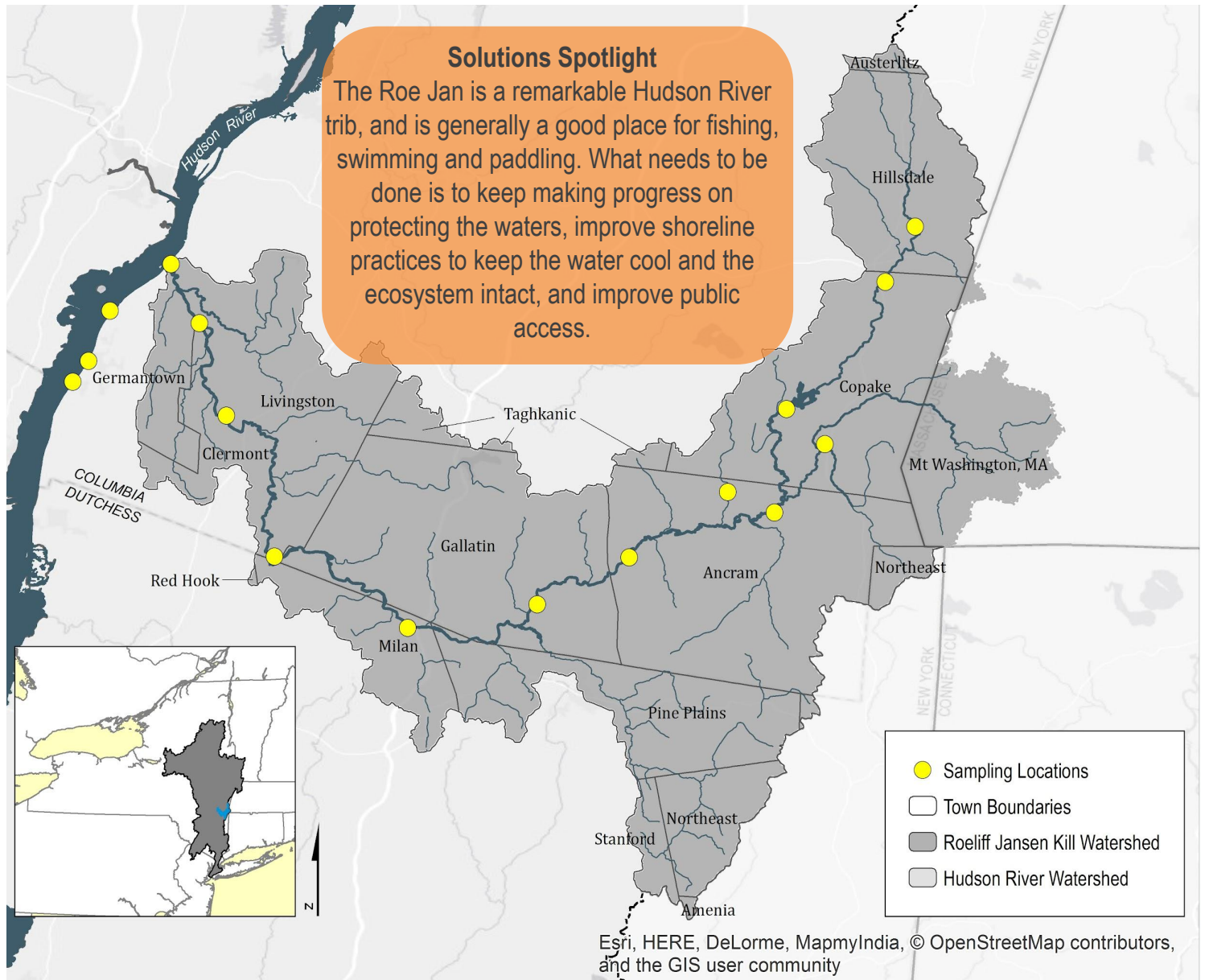
Due to the advocacy of residents, Yonkers, Westchester County committed to update its Standard Operating Procedures for CSO inspections and clean-outs. This outcome impacts the largest wastewater input to the Hudson other than New York City.



ROELIFF JANSEN KILL

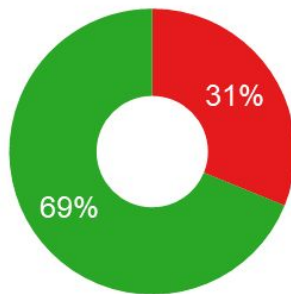
Community Water Quality Monitoring Results

2019-2023

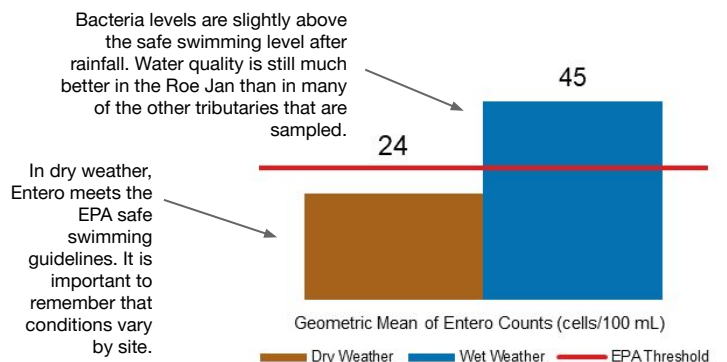


What portion of samples were safe for swimming?

No one swims in average (geometric mean) water, so to help understand risk this graph shows the percent of samples that met the single sample EPA guidelines for safe swimming, and the percent of samples that didn't.



How high were the bacteria levels?



More: Explore a watershed map, data from each sampling site, and more at <https://www.roejanwatershed.org/>

Community Science

The water quality data presented here are based on an analysis of 278 samples collected since 2019 by Roe Jan Watershed Community. Samples were collected monthly (May to October) and processed by the Bard Water Lab. To get involved, visit www.roejanwatershed.org and click “Roe Jan Sampling Information”

About the Roeliff Jansen Kill
The Roe Jan is named for Roeliff Jansen, a Scandinavian colonizer of the Hudson Valley. His wife Anneke Jans survived him, owning a 62-acre farm in what is now Manhattan.

Why We Measure Bacteria

Fecal indicator bacteria such as *Enterococcus* (“Entero”) usually do not make us sick. But because they live in the guts of warm-blooded animals, when these bacteria are present in water, pathogens that can make us sick may also be present.

quate sewage treatment, urban or farm runoff, septic system failures, wildlife and contaminated sediment.

While research continues, the EPA has set thresholds to define if water is safe for swimming based on decades of science relying on measurements of these bacteria. Data are shown in Entero cells per 100 mL.

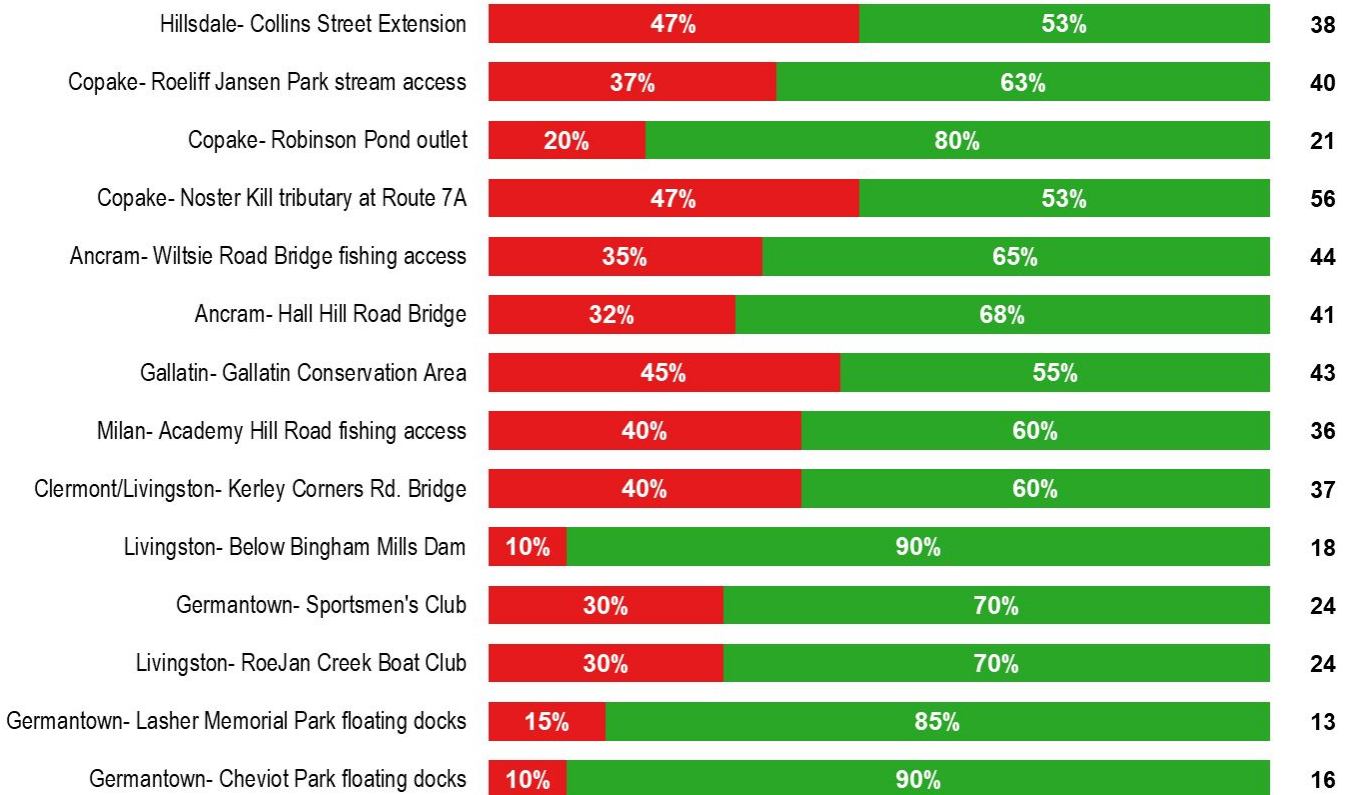
Sources of fecal bacteria may include sewer overflows and failures, inade-

Signs of Progress

Several streams flow into the Roe Jan, including the Punch Brook, which used to be the least studied trib. But now, thanks significantly to Roe Jan Watershed Community efforts, there is a new DEC assessment and Hudson River Watershed Alliance characterization. Now the Punch Brook is the most-studied Roe Jan trib.

What portion of samples at each site were unacceptable for swimming? EPA threshold: single sample should not exceed 60

How high were bacterial levels? EPA threshold: geometric mean should not exceed 30



■ % of Samples Unacceptable ■ % of Samples Acceptable

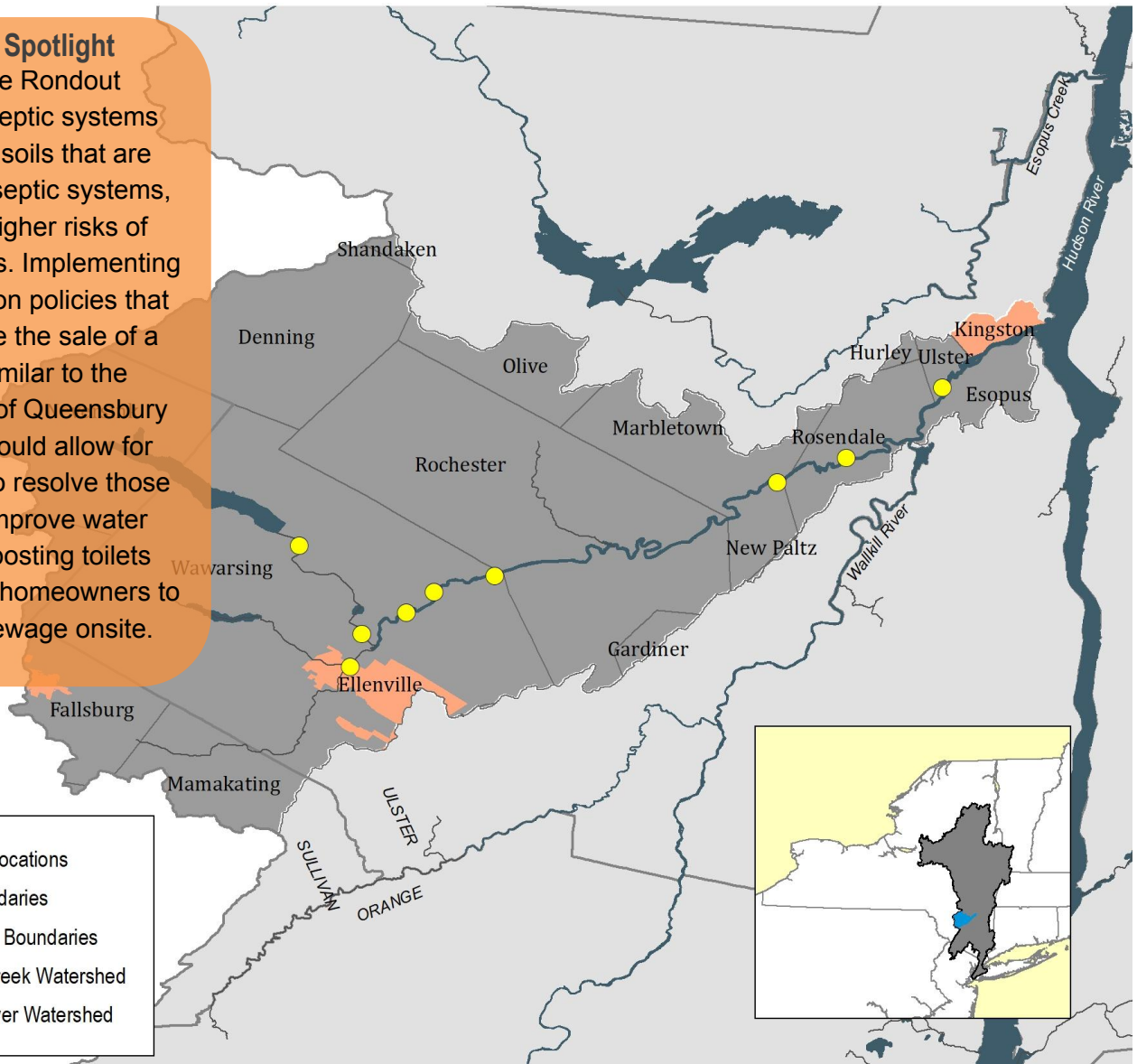
RONDOUT CREEK

Entero Water Quality Monitoring Results

2019-2023

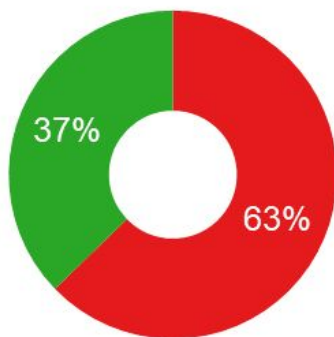
Solutions Spotlight

Many of the Rondout watershed's septic systems were built on soils that are unsuitable for septic systems, resulting in higher risks of failure and leaks. Implementing septic inspection policies that happen before the sale of a property, similar to the municipalities of Queensbury and Bolton, could allow for homeowners to resolve those issues and improve water quality. Composting toilets could also help homeowners to better treat sewage onsite.



What portion of our samples were safe for swimming?

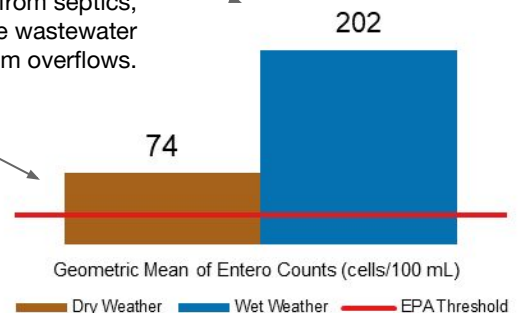
No one swims in average (geometric mean) water, so to help understand risk this graph shows the percent of samples that met the single sample EPA guidelines for safe swimming, and the percent of samples that didn't.



How does weather affect bacteria levels?

Bacteria levels are much greater after rainfall, which causes runoff from septics, and can cause wastewater system overflows.

Even in dry weather, levels exceed the safe swimming threshold by a large margin.



More: Explore a watershed map, data from each sampling site, and more at riverkeeper.org/water-quality/citizen-data/rondout-creek. Learn about the Rondout Creek Watershed Alliance at rondoutcreekwatershedalliance.org.

Community Science

The water quality data presented here are based on an analysis of 239 samples collected since 2019 by Wawarsing, Rochester, and Rosendale ECC members and others. Samples are collected monthly (May to October) and processed by Riverkeeper. To get involved, contact Sebastian Pillitteri at spillitteri@riverkeeper.org.

About the Rondout Creek

The tidal portion of Rondout Creek is an arm of the Hudson River Estuary, and a state-designated significant habitat. The Rondout extends south west into the Catskills and it's headwaters are dammed as a reservoir for New York City.

Why We Measure Bacteria

Fecal indicator bacteria such as *Enterococcus* ("Entero") usually do not make us sick. But because they live in the guts of warm-blooded animals, when these bacteria are present in water, pathogens that can make us sick may also be present.

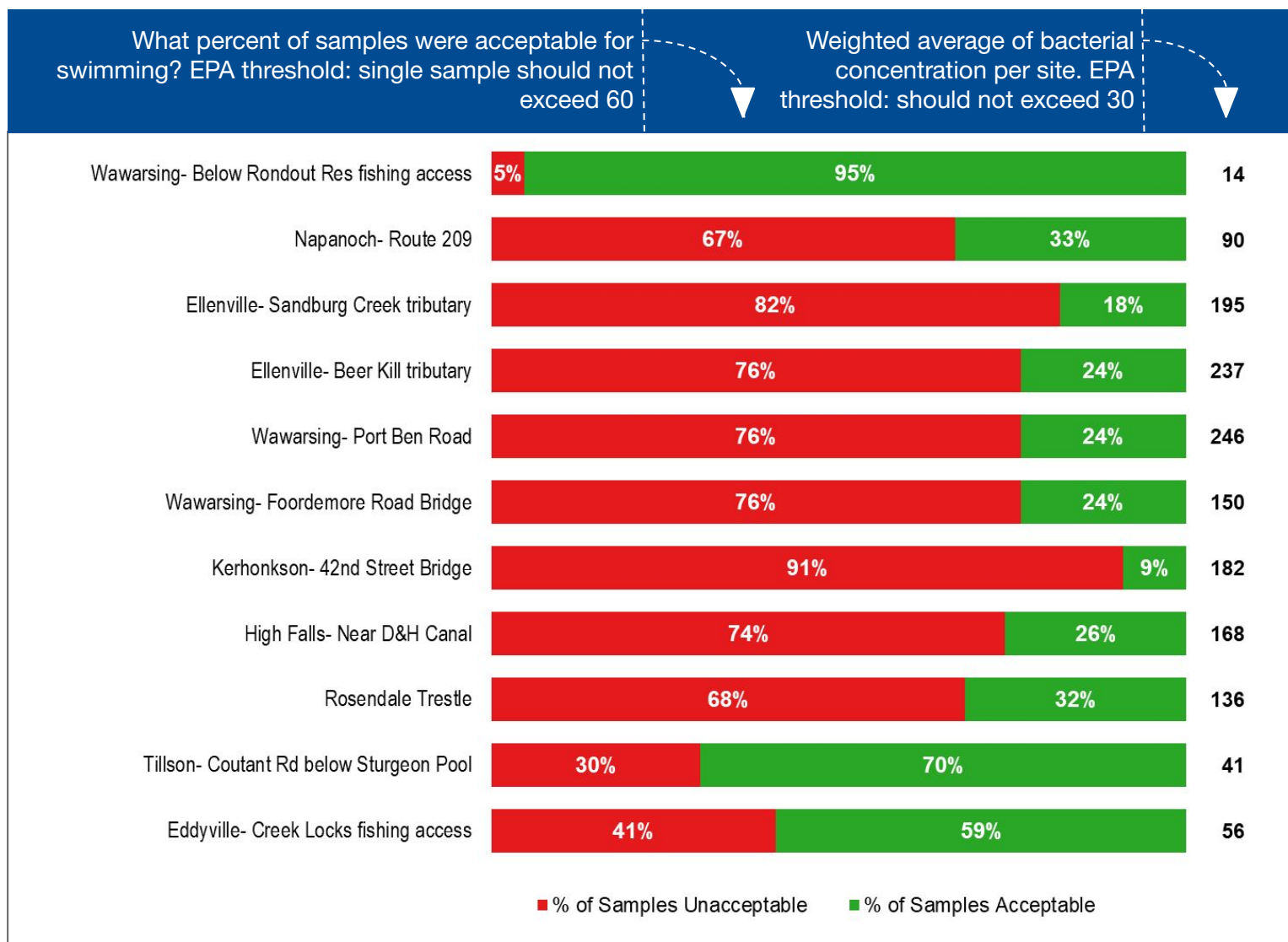
Sources of fecal bacteria may include sewer overflows and failures, inade-

quate sewage treatment, urban or farm runoff, septic system failures, wildlife and contaminated sediment.

While research continues, the EPA has set thresholds to define if water is safe for swimming based on decades of science relying on measurements of these bacteria. Data are shown in Entero cells per 100 mL.

Signs of Progress

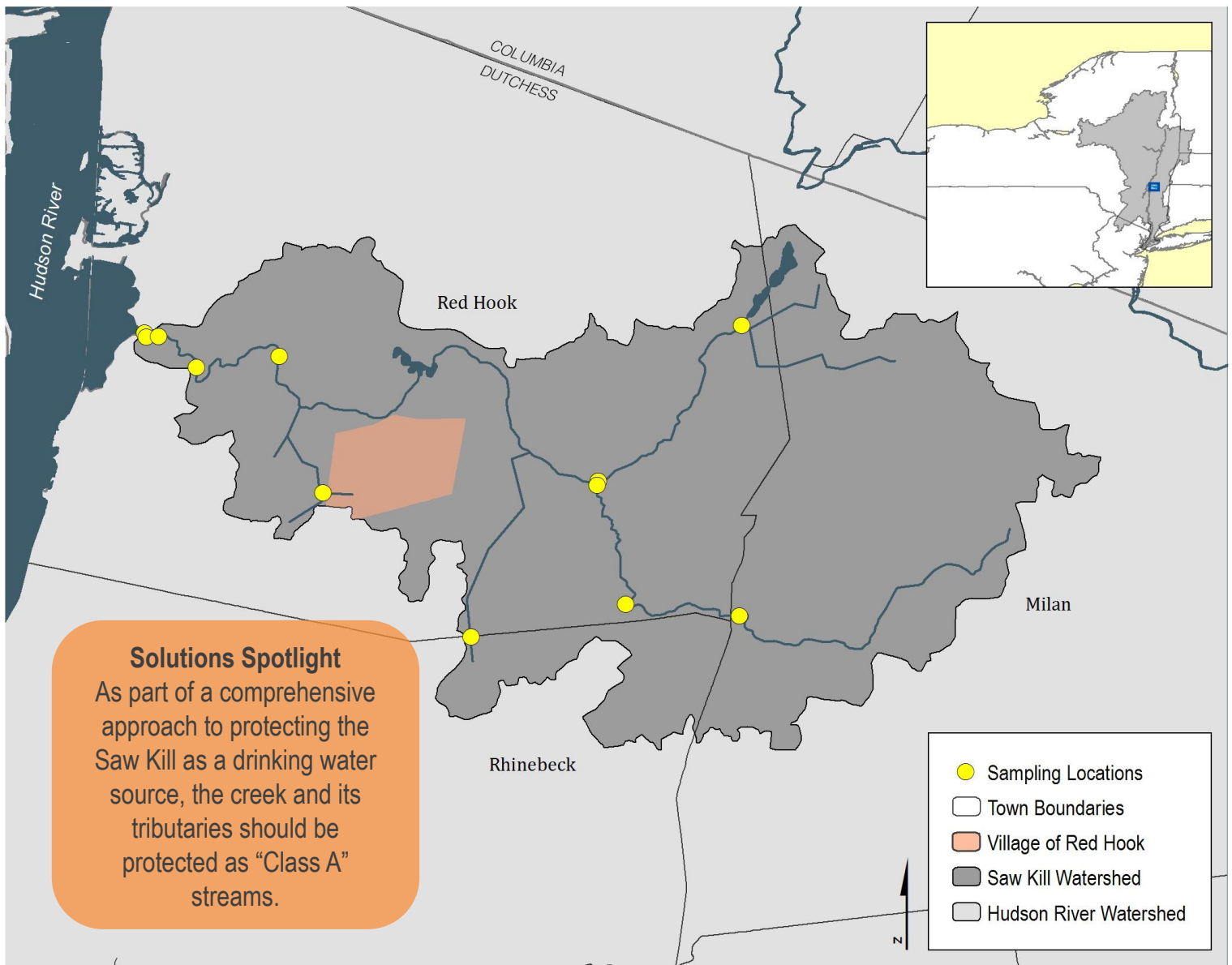
Major renovations were recently done at the Napanoch wastewater treatment plant, and will help bring the facility into compliance with its discharge permit.



SAW KILL CREEK

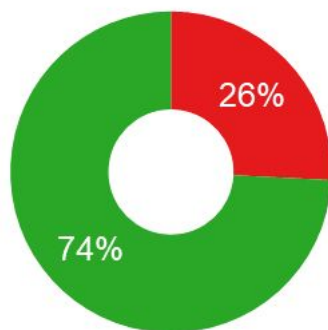
Community Water Quality Monitoring Results

2019-2023

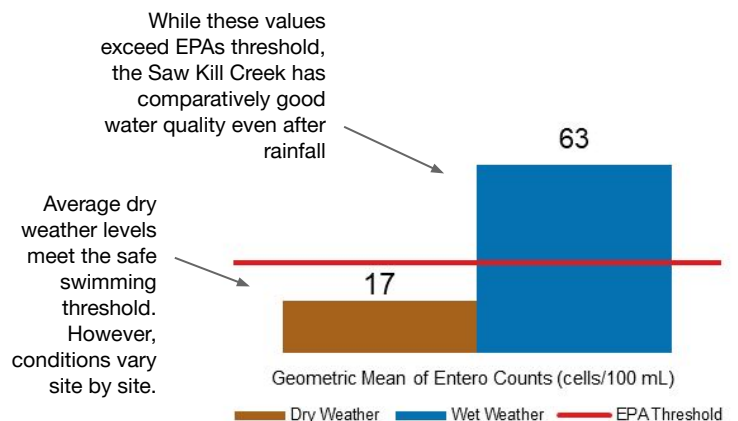


What portion of samples were safe for swimming?

No one swims in average (geometric mean) water, so to help understand risk this graph shows the percent of samples that met the single sample EPA guidelines for safe swimming, and the percent of samples that didn't.



How does weather affect bacteria levels?



More: Explore a watershed map, data from each sampling site, and learn about the Saw Kill Watershed Community at <https://sawkillwatershed.org/>

Community Science

The water quality data presented here are based on an analysis of 198 samples collected by the Saw Kill Watershed Community. Samples are collected monthly (only May-October results are presented here) and analyzed at Bard Water Lab, where community members and students perform water quality assays. In addition to Entero data, the Bard Water Lab also evaluates many other parameters. To get involved, contact Andrew Patterson at apatterson@bard.edu

A Little About the Saw Kill

Interest in the Saw Kill's water quality began with sampling in the late 1970s and with several ecological studies originating at Bard College. The sampling program was revived in 2016 with the development of the Bard Water Lab.

Why We Measure Bacteria

Fecal indicator bacteria such as *Enterococcus* ("Entero") usually do not make us sick. But because they live in the guts of warm-blooded animals, when these bacteria are present in water, pathogens that can make us sick may also be present.

Sources of fecal bacteria may include sewer overflows and failures, inade-

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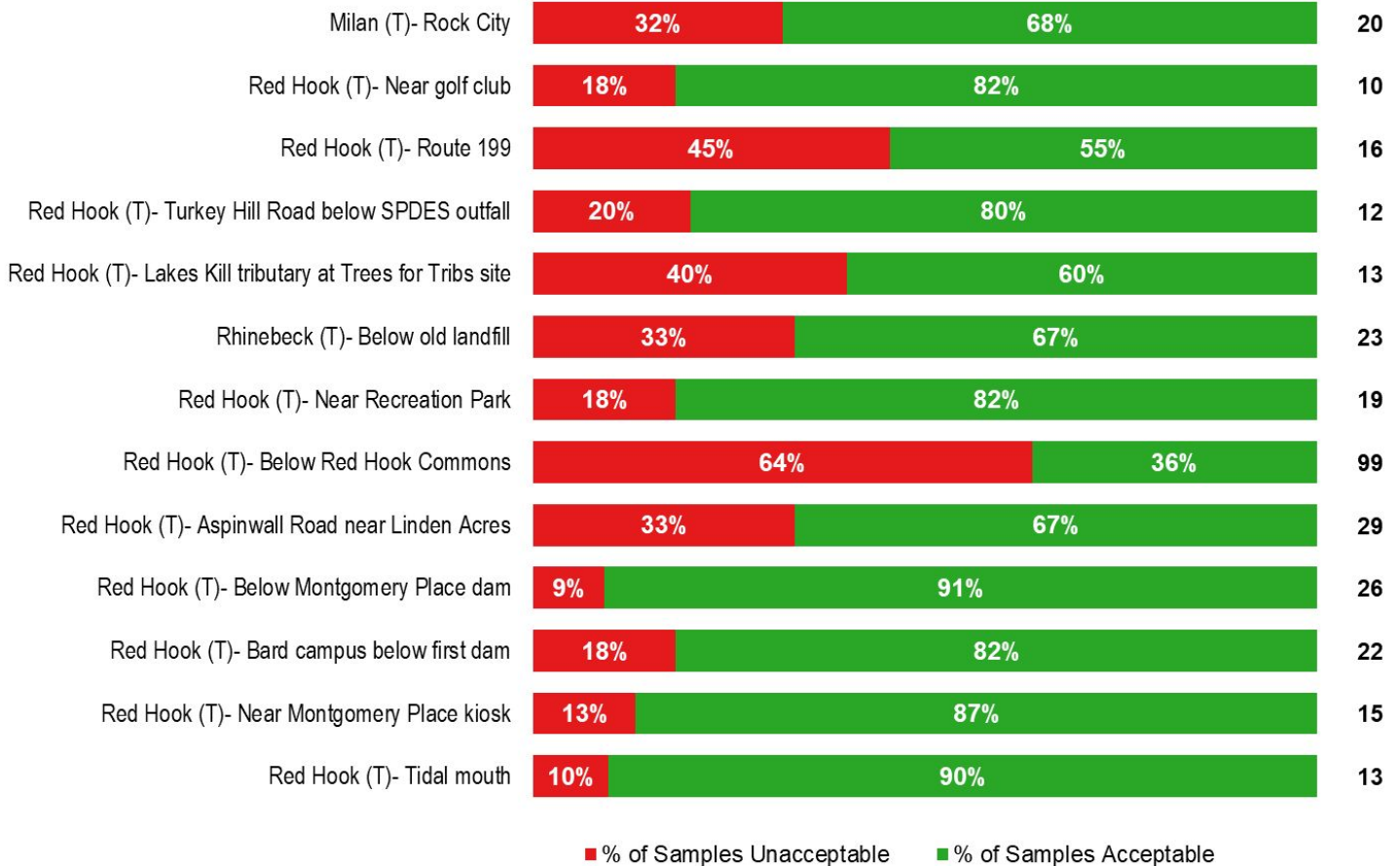
While research continues, the EPA has set thresholds to define if water is safe for swimming based on decades of science relying on measurements of these bacteria. Data are shown in Entero cells per 100 mL.

Signs of Progress

As a citizens group, the Saw Kill Watershed Community, is involved in local scientific, educational and municipal projects. SKWC has advised the Town of Red Hook on comprehensive watershed protection strategies, informed in part by Riverkeeper's Drinking Water Source Protection Scorecard.

What portion of samples at each site were unacceptable for swimming? EPA threshold: single sample should not exceed 60

How high were bacterial levels? EPA threshold: GM* should not exceed 30



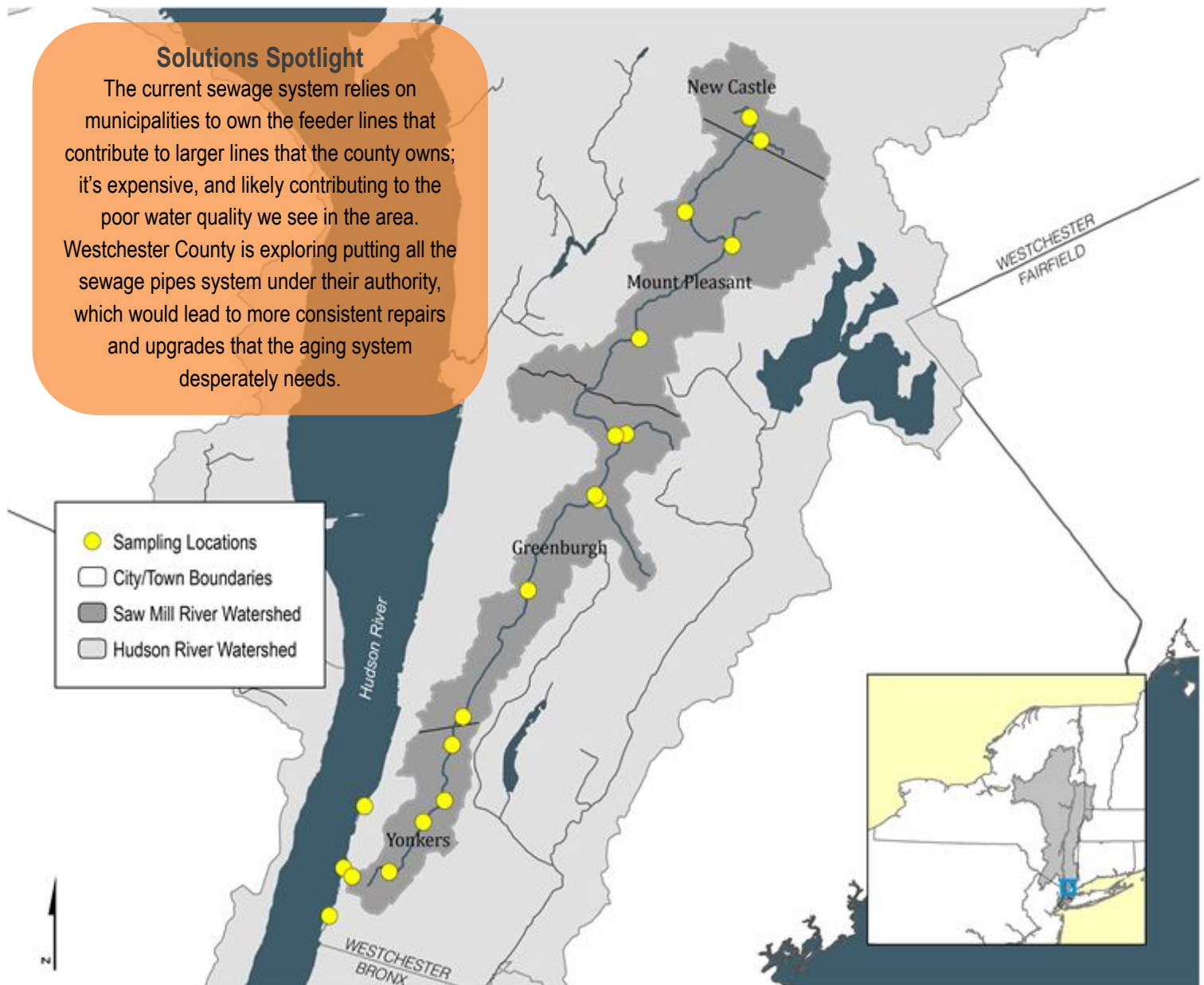
SAW MILL RIVER

Entero Water Quality Monitoring Results

2019-2023

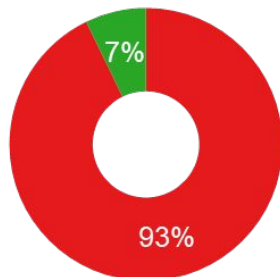
Solutions Spotlight

The current sewage system relies on municipalities to own the feeder lines that contribute to larger lines that the county owns; it's expensive, and likely contributing to the poor water quality we see in the area. Westchester County is exploring putting all the sewage pipes system under their authority, which would lead to more consistent repairs and upgrades that the aging system desperately needs.



What portion of samples were safe for swimming?

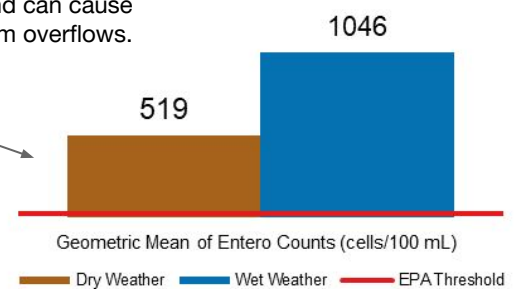
No one swims in average (geometric mean) water, so to help understand risk this graph shows the percent of samples that met the single sample EPA guidelines for safe swimming, and the percent of samples that didn't.



How high were the bacteria levels?

Bacteria levels are much greater after rainfall, which causes runoff, and can cause wastewater system overflows.

Even in dry weather, levels exceed the safe swimming threshold by a significant amount.



Explore a watershed map, and data from each sampling site at: riverkeeper.org/water-quality/citizen-data/saw-mill-river/

Community Science

The water quality data presented here are based on an analysis of 610 samples collected since 2019 by community scientists. (No samples were collected in 2020.) Samples are collected twice per month from May to October and processed by the Sarah Lawrence College Center for the Urban River at Beczak. To get involved, contact Katie Lamboy at klamboy@sarahlawrence.edu.

Why We Measure Bacteria

Fecal indicator bacteria such as *Enterococcus* (“Enter”) usually do not make us sick. But because they live in the guts of warm-blooded animals, when these bacteria are present in water, pathogens that can make us sick may also be present.

Sources of fecal bacteria may include sewer overflows and failures, inade-

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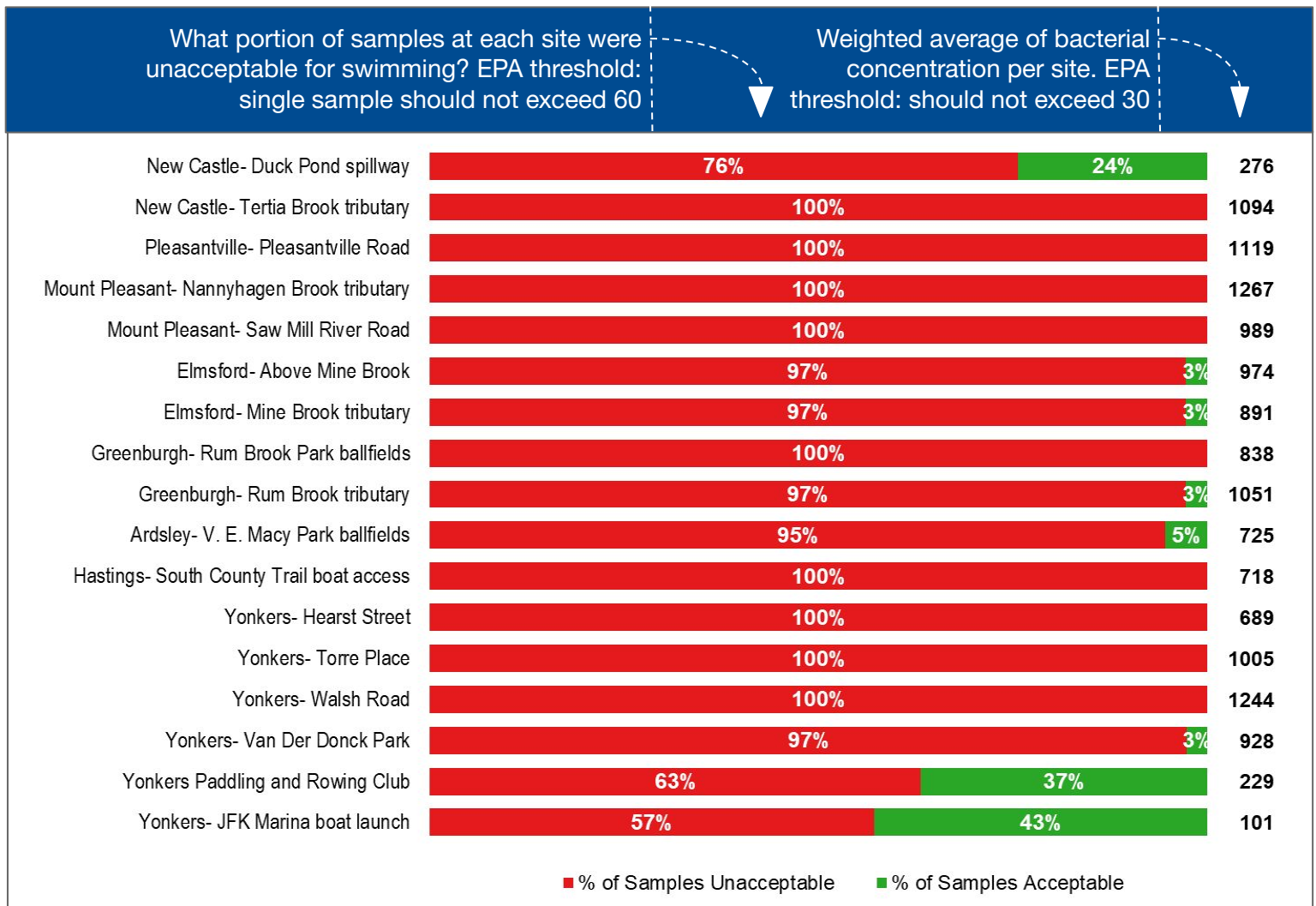
While research continues, the EPA has set thresholds to define if water is safe for swimming based on decades of science relying on measurements of these bacteria. Data are shown in Enterococcus cells per 100 mL.

A Little About the Saw Mill

No, it’s not just a parkway! The Saw Mill River flows more than 20 miles from Chappaqua to Yonkers. The river has been extensively disturbed to make way for transportation and wastewater infrastructure, and for flood control.

Signs of Progress

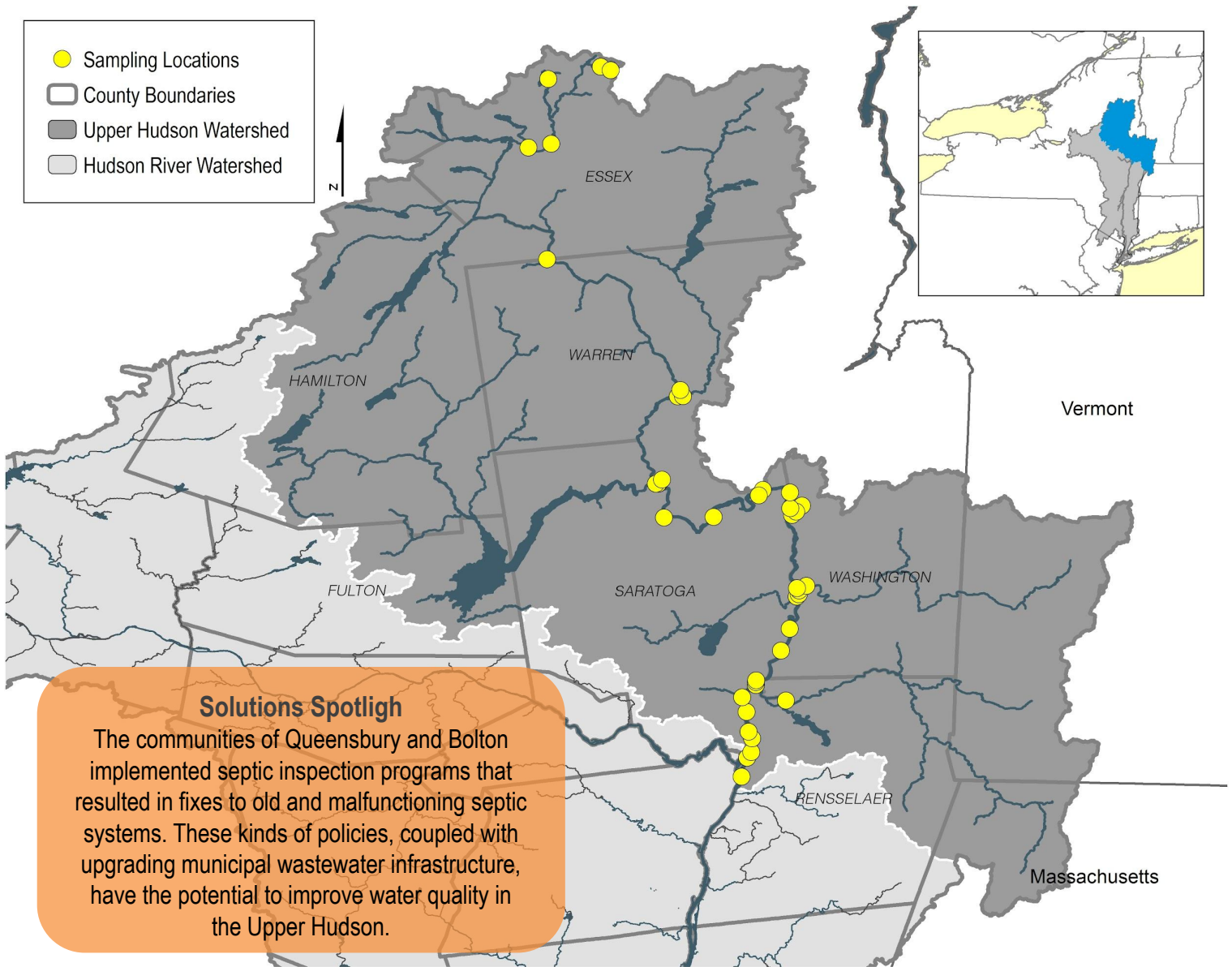
Sarah Lawrence College faculty conducted a sewage source tracking study in the summer of 2022 and 2023 utilizing qPCR. The study quantified the amount of fecal bacteria in the Saw Mill River originating from humans and the presence of human-associated bacteria was found in approximately 95% of the samples.



UPPER HUDSON RIVER

Entero Water Quality Monitoring Results

2019-2023

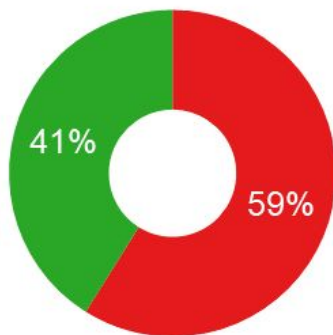


Solutions Spotlight

The communities of Queensbury and Bolton implemented septic inspection programs that resulted in fixes to old and malfunctioning septic systems. These kinds of policies, coupled with upgrading municipal wastewater infrastructure, have the potential to improve water quality in the Upper Hudson.

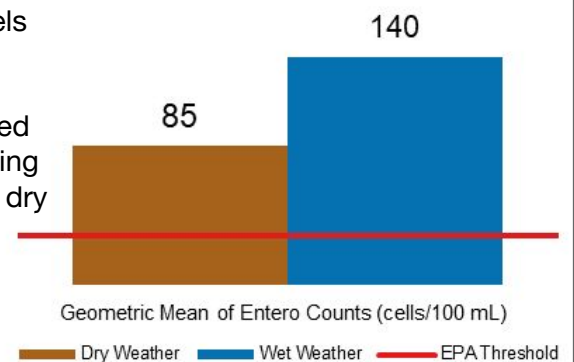
What portion of our samples were safe for swimming?

No one swims in average (geometric mean) water, so to help understand risk this graph shows the percent of samples that met the single sample EPA guidelines for safe swimming, and the percent of samples that didn't.



How does weather affect bacteria levels?

Average bacteria levels exceeded EPA's recommended safe-swimming level in both dry and wet weather.



More: Explore a watershed map, data from each sampling site, and more at www.riverkeeper.org/water-quality/citizen-data/upper-hudson-river

Community Science

The water quality data presented here are based on an analysis of 494 samples collected by watershed residents and staff of RU Holmes Engineers. Samples were collected from May to October in since 2019 and processed by Riverkeeper and the NATURE Lab. To get involved, contact Sebastian Pillitteri at spillitteri@riverkeeper.org.

Why We Measure Bacteria

Fecal indicator bacteria such as *Enterococcus* (“Entero”) usually do not make us sick. But because they live in the guts of warm-blooded animals, when these bacteria are present in water, pathogens that can make us sick may also be present.

Sources of fecal bacteria may include sewer overflows and failures, inade-

quate sewage treatment, urban or farm runoff, septic system failures, wildlife and contaminated sediment.

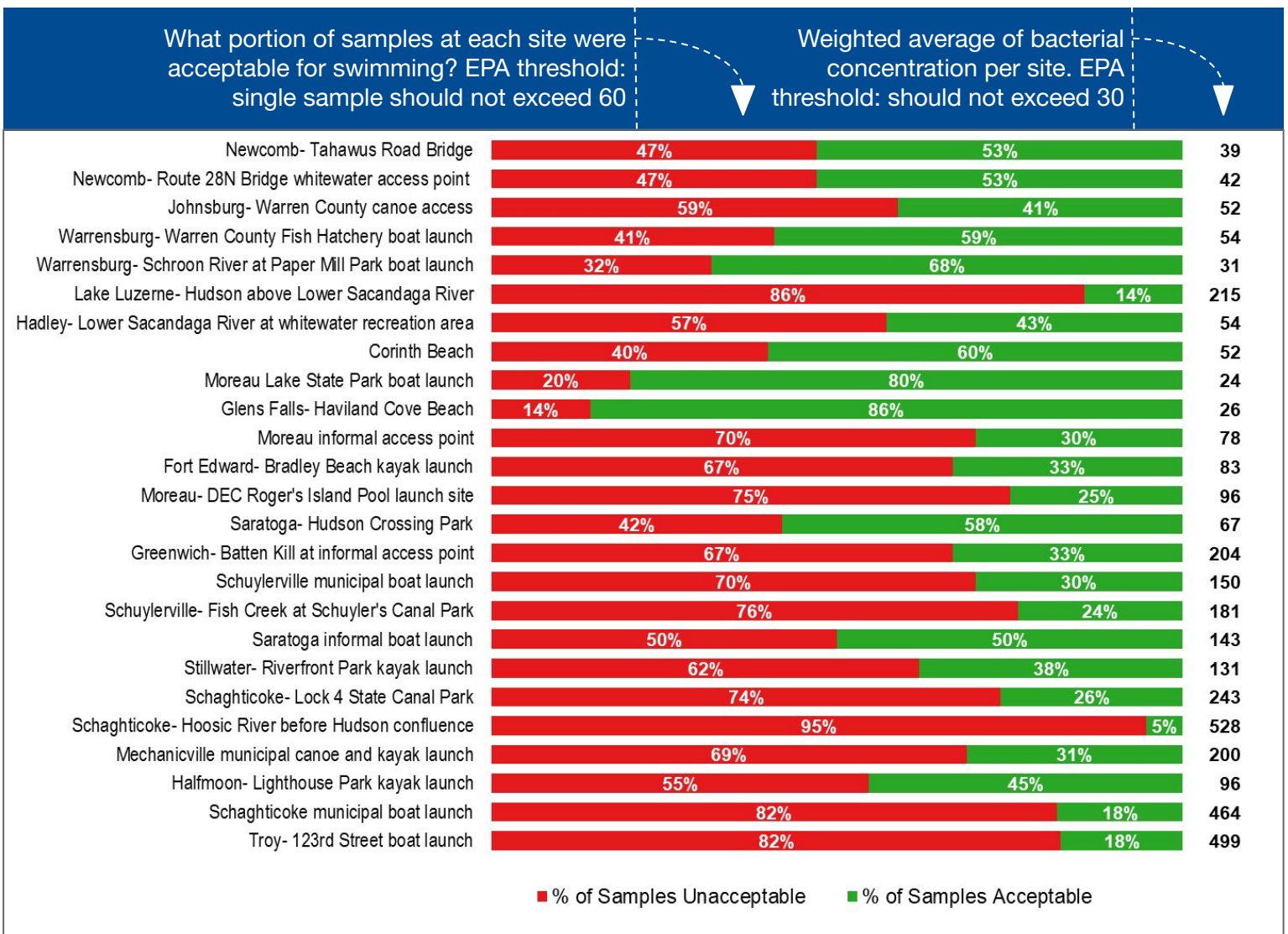
While research continues, the EPA has set thresholds to define if water is safe for swimming based on decades of science relying on measurements of these bacteria. Data are shown in Entero cells per 100 mL.

About the Upper Hudson River

The “upper” part of the Hudson River is the portion above of the Federal Dam at Troy, which forms a barrier to the tides. More than 83,000 people use the Upper Hudson as a drinking water source.

Signs of Progress

The NATURE Lab is engaging youth from Troy in sample processing and learning about their drinking watershed. The Water Justice Lab has worked with 10 students since its inception, and hopes to expand in 2024 to provide more engagement and cover additional sampling locations in Troy and the capital district.



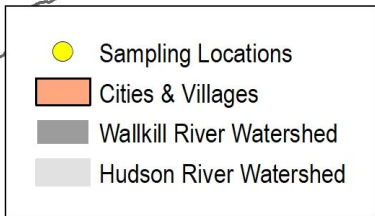
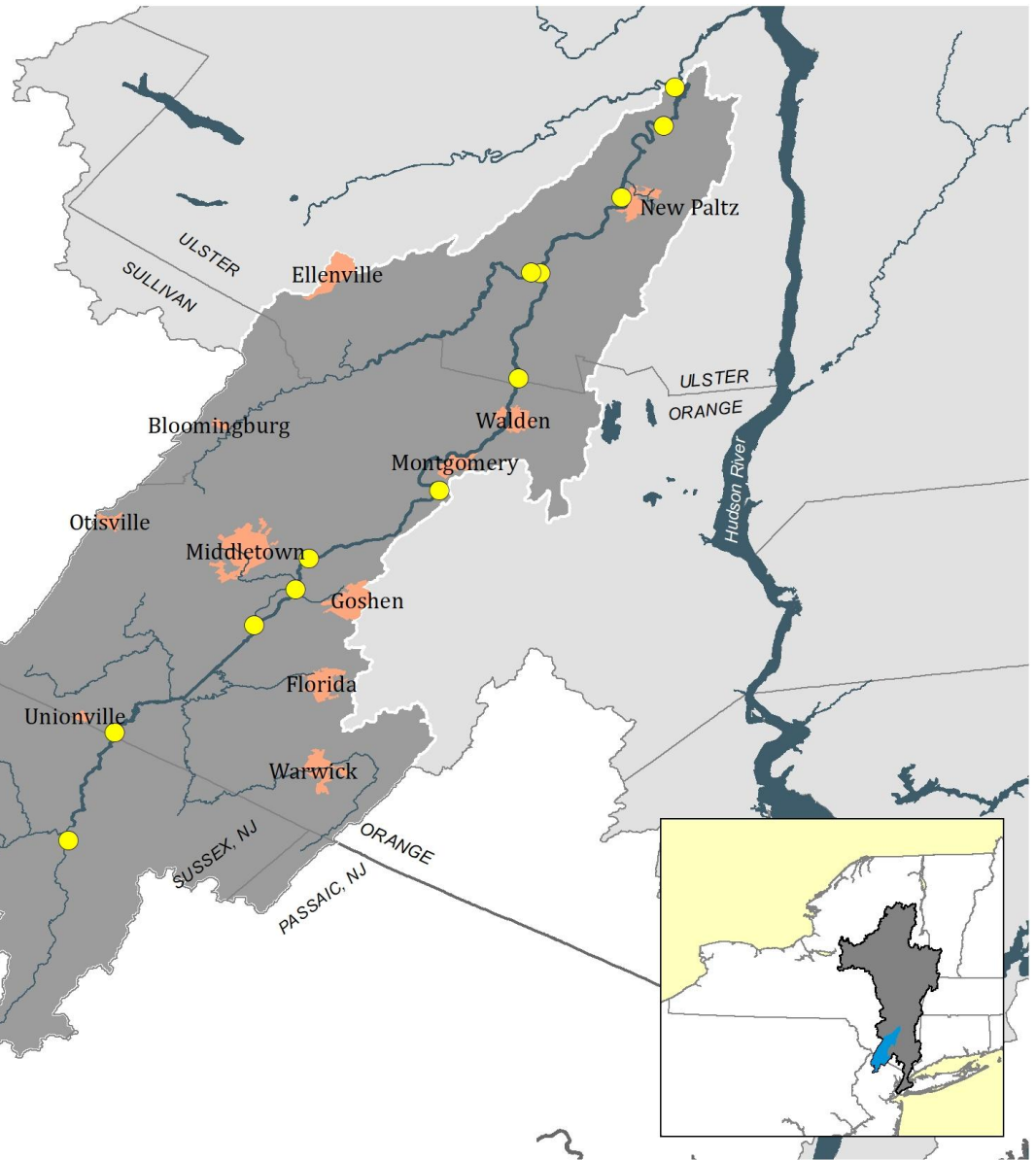
WALLKILL RIVER

Entero Water Quality Monitoring Results

2019-2023

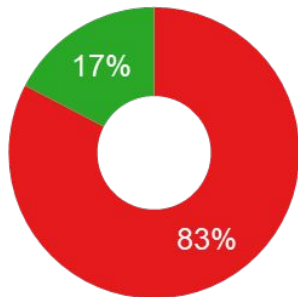
Solutions Spotlight

Low water flow on the Wallkill River is partially a result of dam management and likely contributed to the harmful algal blooms in 2016 and 2022. Currently, the dams on the Wallkill River do not have to release water for river flow. Licensing these dams under the Federal Energy Regulatory Commission (FERC) would ensure that water releases happen and improve water flow.



What portion of our samples were safe for swimming?

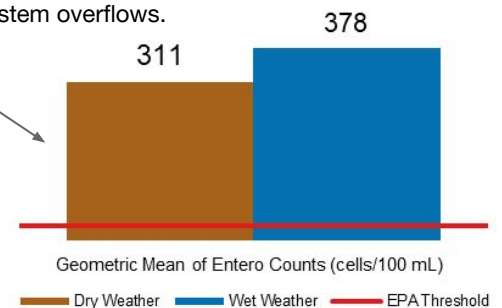
No one swims in average (geometric mean) water, so to help understand risk this graph shows the percent of samples that met the single sample EPA guidelines for safe swimming, and the percent of samples that didn't.



How does weather affect bacteria levels?

Bacteria levels are slightly greater after rainfall, which causes runoff, and can cause wastewater system overflows.

In dry weather bacteria concentrations significantly exceed the EPA safe swimming threshold.



More: Explore a watershed map, data from each sampling site, and more at riverkeeper.org/water-quality/citizen-data/wallkill-river.

Learn more about the Wallkill River Watershed Alliance at www.wallkillalliance.org.

Community Science

The water quality data presented here are based on an analysis of 219 samples collected since 2019 by Gardiner and Montgomery CAC members and watershed residents. Samples are collected monthly (May to October) and processed by Riverkeeper. To get involved, contact Sebastian Pillitteri at spillitteri@riverkeeper.org.

Why We Measure Bacteria

Fecal indicator bacteria such as *Enterococcus* (“Enter”) usually do not make us sick. But because they live in the guts of warm-blooded animals, when these bacteria are present in water, pathogens that can make us sick may also be present.

Sources of fecal bacteria may include sewer overflows and failures, inade-

quate sewage treatment, urban or farm runoff, septic system failures, wildlife and contaminated sediment.

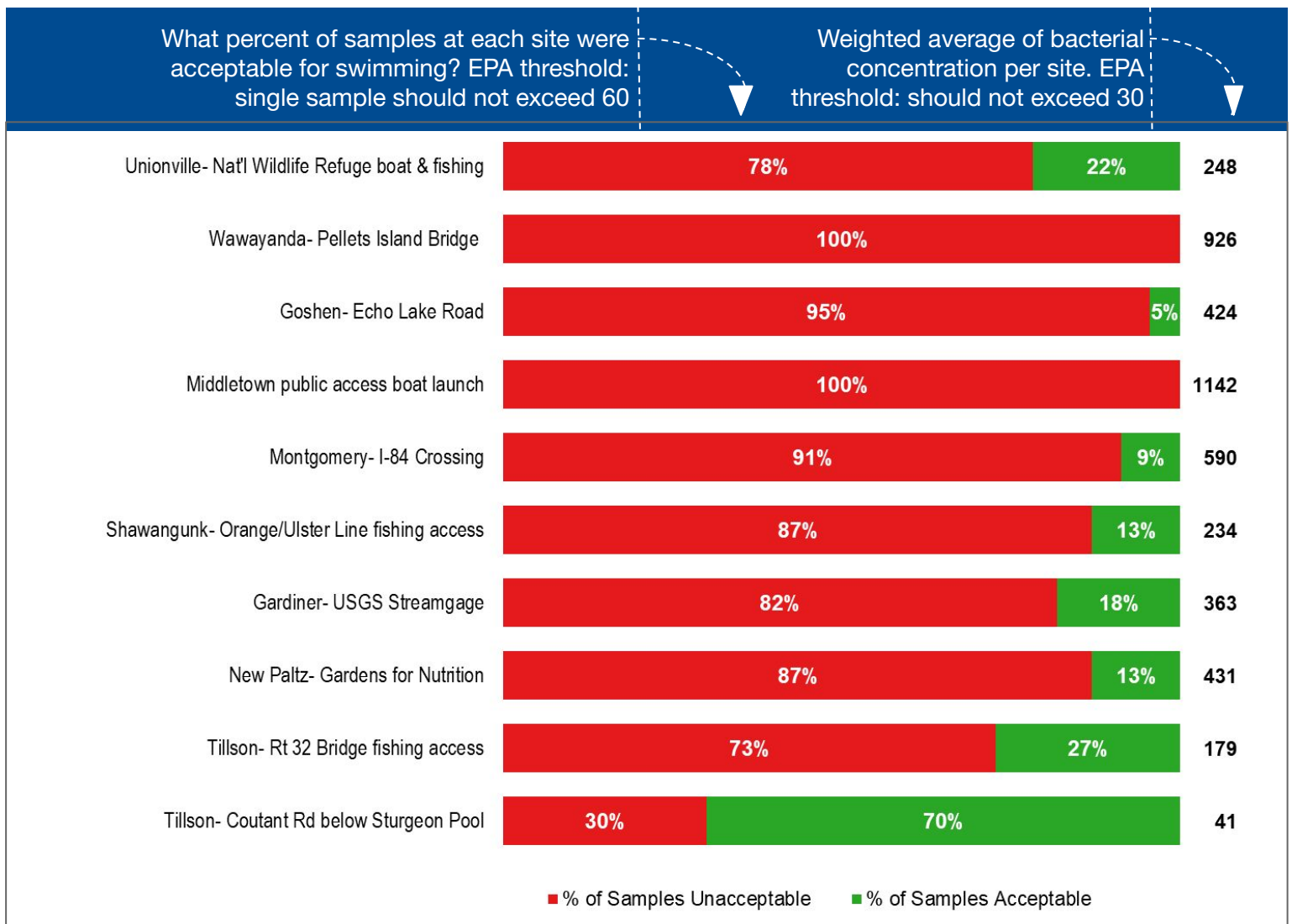
While research continues, the EPA has set thresholds to define if water is safe for swimming based on decades of science relying on measurements of these bacteria. Data are shown in Enterococcus cells per 100 mL.

A Little About the Wallkill River

One of the largest tributaries to the Hudson, the Wallkill is home to the New Paltz Regatta, a singular wacky boat race, and a haven for paddlers and anglers.

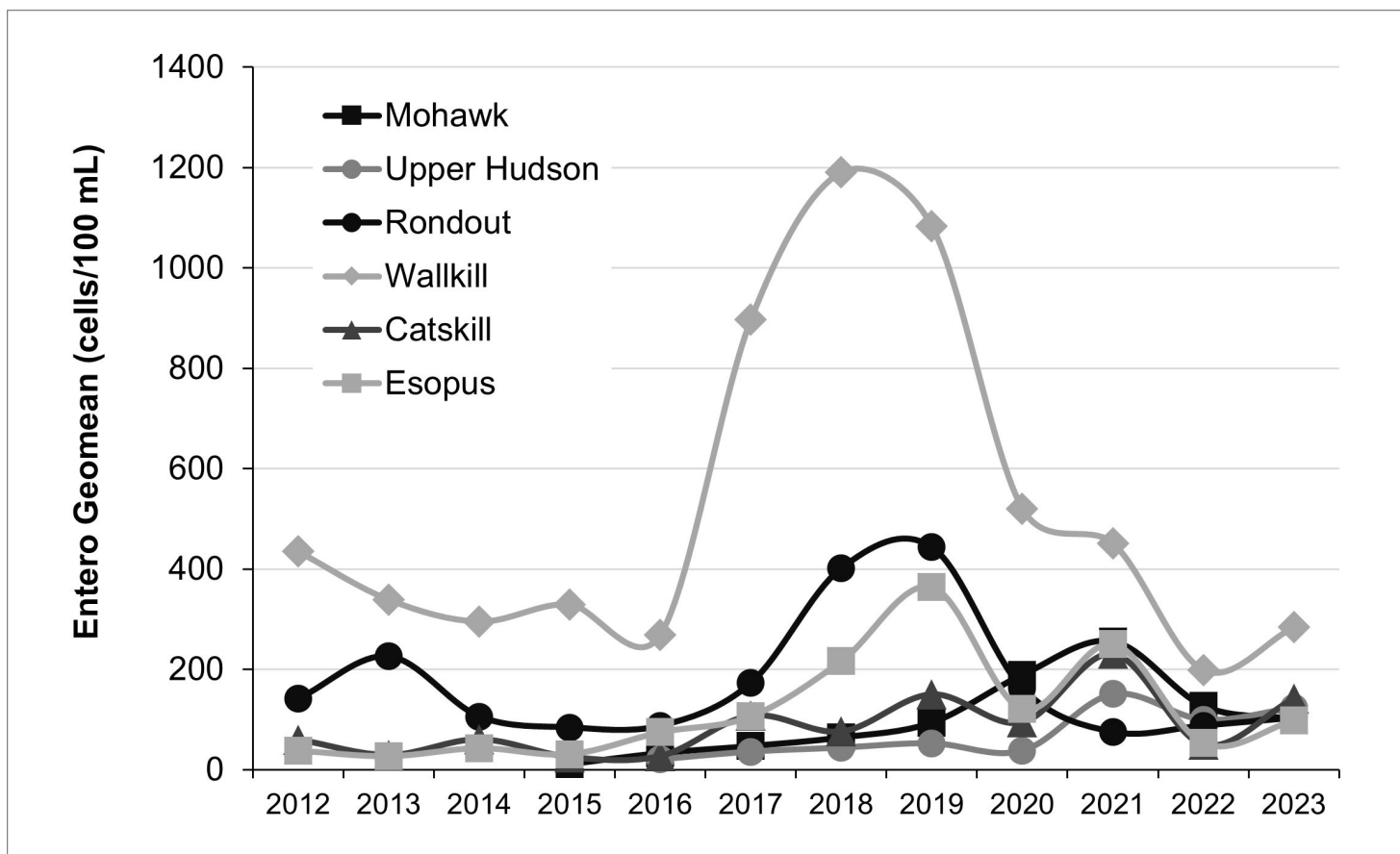
Signs of Progress

The Wallkill is in the second year of a state organized Total Maximum Daily Load (TMDL), or clean water plan, that would limit nutrient discharges from wastewater treatment plants, reducing a factor that contributes to harmful algae blooms. The Wallkill River Watershed Alliance is monitoring and educating others about the process as it unfolds.



Water Quality Over Time in the Hudson's Major Tributaries

Enterococcus Sampling Results, 2012-2023



Why We Measure Bacteria

Fecal indicator bacteria such as *Enterococcus* (“Entero”) help us answer the question, “Is it safe to swim?” When these bacteria are present in water, pathogens that can make us sick may also be present. The EPA has set thresholds to define if water is safe for swimming based on decades of science relying on measurements of these bacteria.

Is Water Quality Changing?

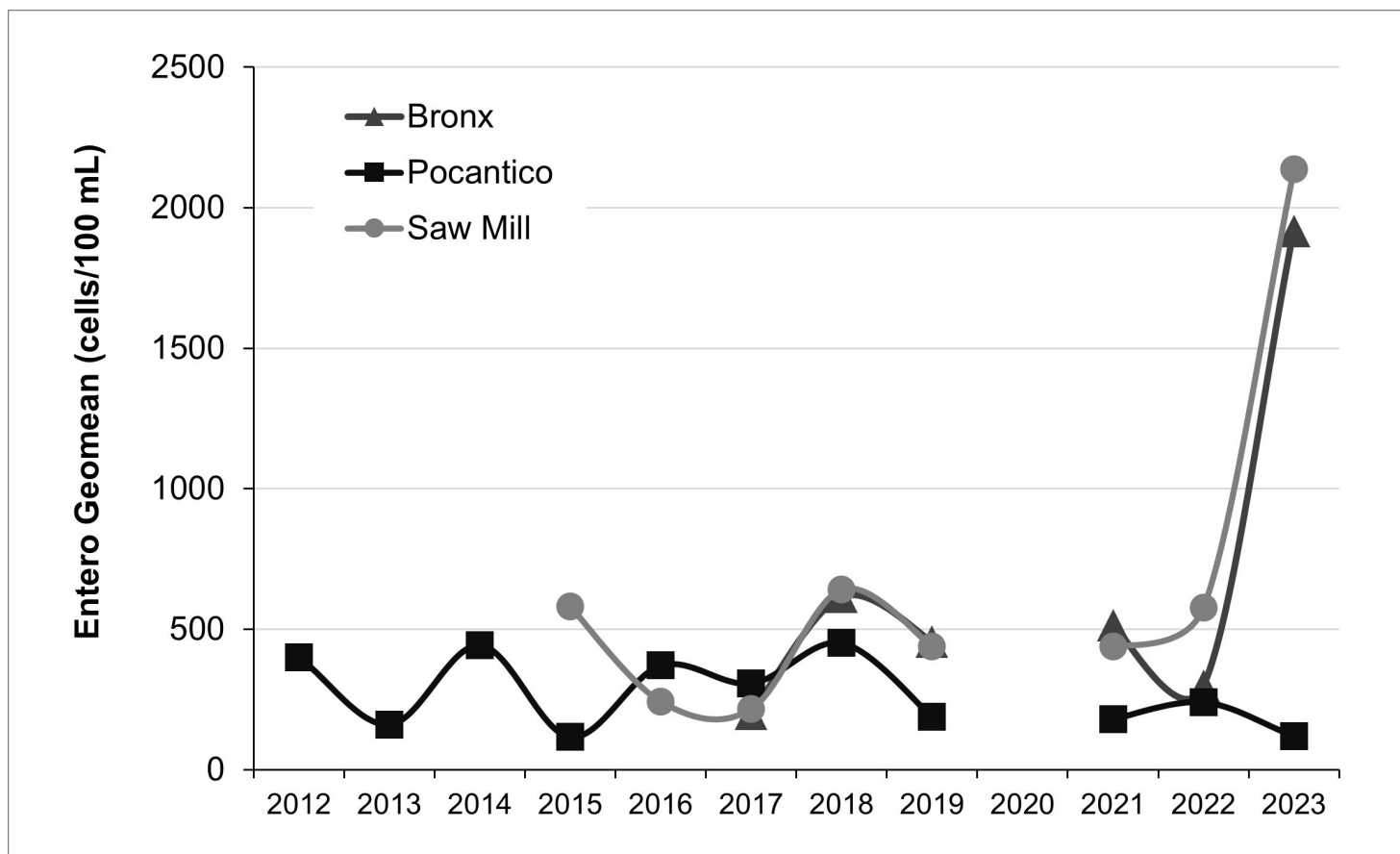
Wet weather triggers sewage leaks and spills, and stormwater runoff is also an Entero source. As a result, Entero counts tend to increase after rain at most sampling locations. Long-term trends vary by watershed. We have not yet studied the role of climate or other factors, such as land use, in these interannual trends.

Community Science

The water quality data presented here are based on an analysis of samples collected from 2012-2023 by community scientists and collaborators at SUNY Cobleskill and SUNY Polytechnic. Samples were collected monthly from May to October and processed by Riverkeeper, SUNY Cobleskill and the NATURE Lab. Explore the data at www.riverkeeper.org/water-quality/citizen-data.

Water Quality Over Time in Lower Hudson Tributaries

Enterococcus Sampling Results, 2012-2023



Why We Measure Bacteria

Fecal indicator bacteria such as *Enterococcus* (“Enter”) help us answer the question, “Is it safe to swim?” When these bacteria are present in water, pathogens that can make us sick may also be present. The EPA has set thresholds to define if water is safe for swimming based on decades of science relying on measurements of these bacteria.

Is Water Quality Changing?

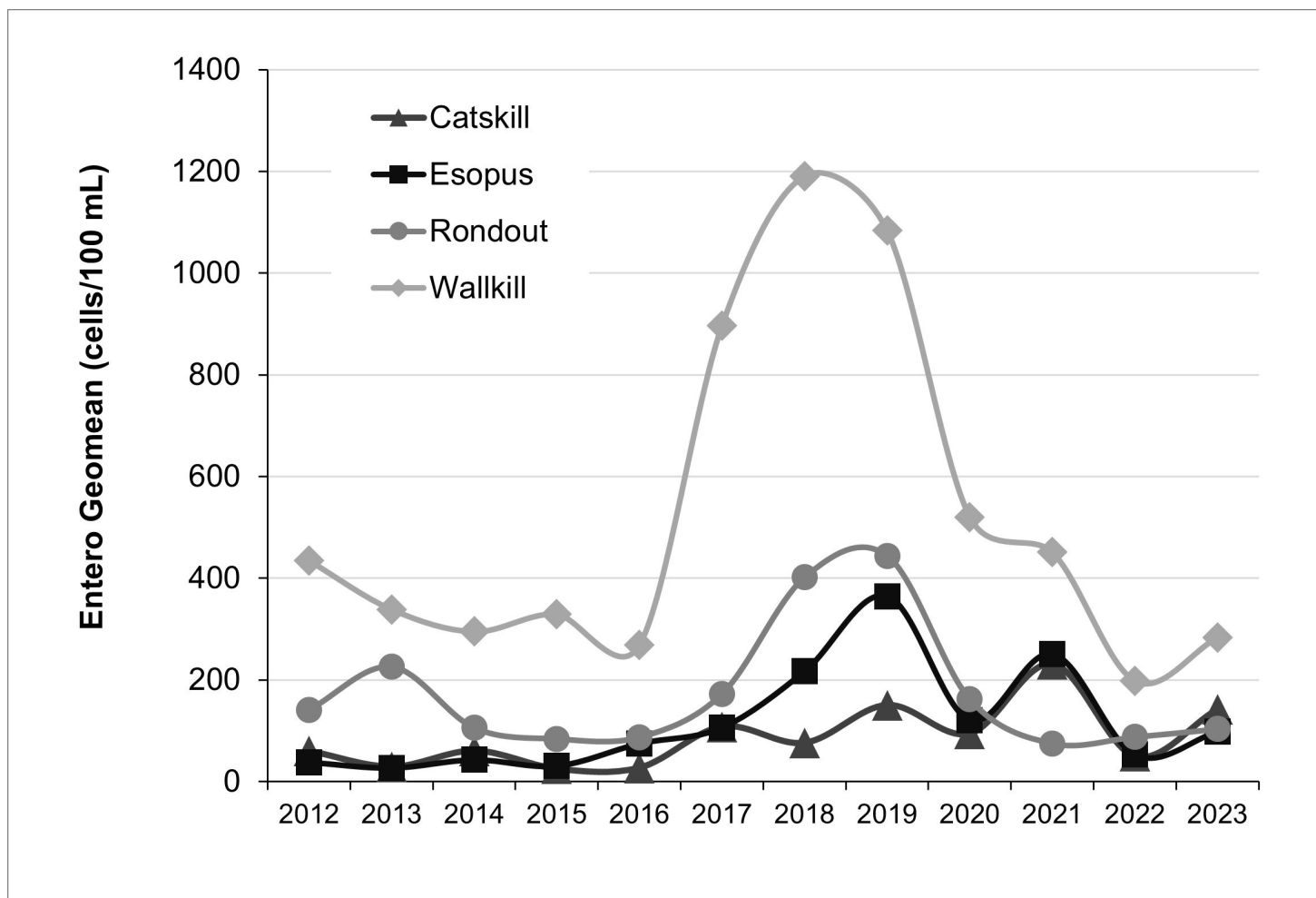
Wet weather triggers sewage leaks and spills, and stormwater runoff is also an Enterococcus source. As a result, Enterococcus counts tend to increase after rain at most sampling locations. Long-term trends vary by watershed. We have not yet studied the role of climate or other factors, such as land use, in these interannual trends.

Community Science

The summaries presented here are based on an analysis of samples collected by community scientists from 2012-2023. Samples were collected biweekly (Saw Mill River) or monthly from May to October and processed by Lamont-Doherty Earth Observatory, Sarah Lawrence College Center for the Urban River at Beczak, and Riverkeeper. Explore the data at www.riverkeeper.org/water-quality/citizen-data.

Water Quality Over Time

Mid-Hudson Tributaries, 2012-2023



Why We Measure Bacteria

Fecal indicator bacteria such as *Enterococcus* (“Entero”) help us answer the question, “Is it safe to swim?” When these bacteria are present in water, pathogens that can make us sick may also be present. The EPA has set thresholds to define if water is safe for swimming based on decades of science relying on measurements of these bacteria.

Is Water Quality Changing?

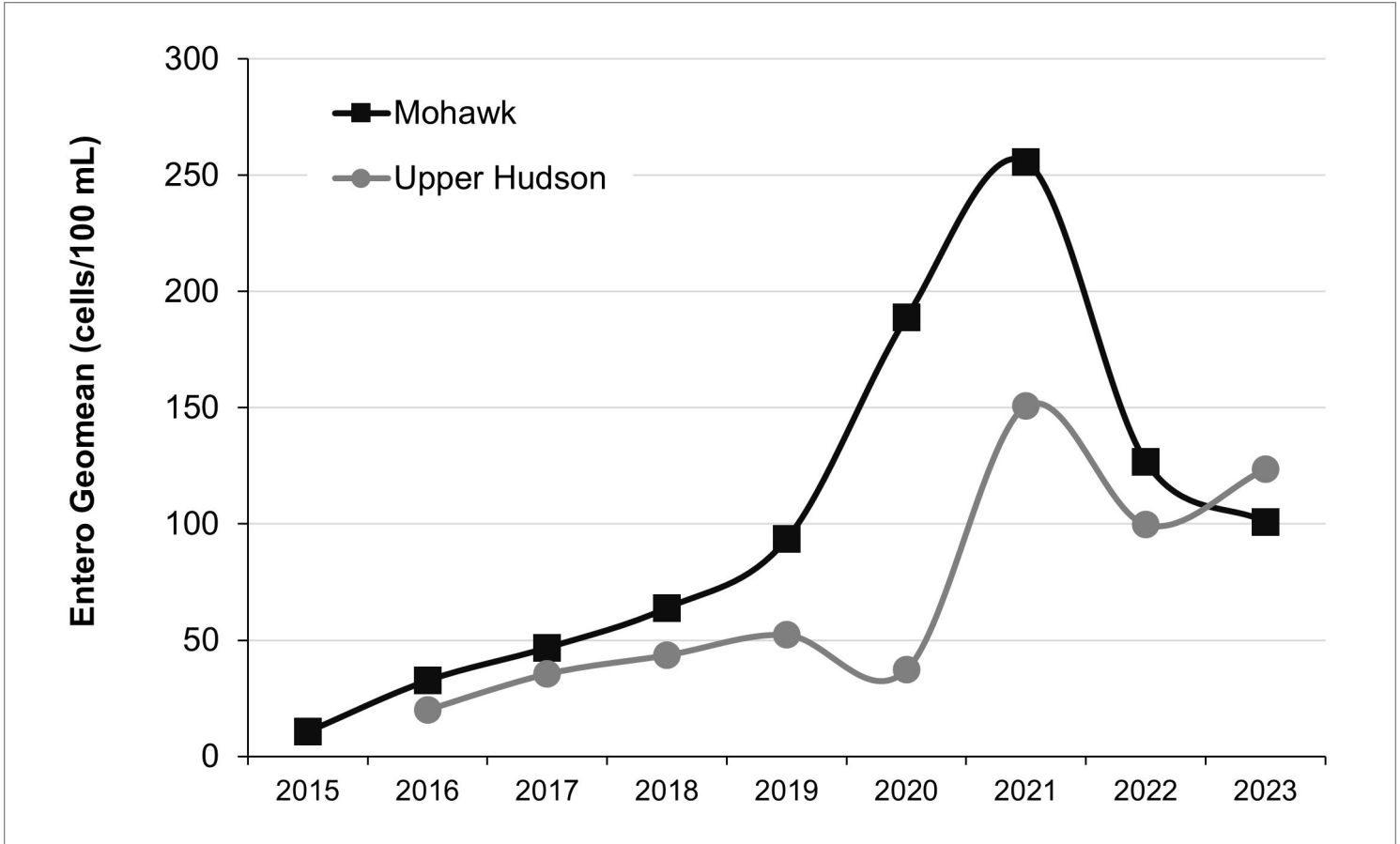
Wet weather triggers sewage leaks and spills, and stormwater runoff is also an Entero source. As a result, Entero counts tend to increase after rain at most sampling locations. Long-term trends vary by watershed. We have not yet studied the role of climate or other factors, such as land use, in these interannual trends.

Community Science

The water quality data presented here are based on an analysis of samples collected from 2012-2023 by community scientists. Samples were collected from May to October (July to October in 2020) and processed by Riverkeeper. Explore the data at www.riverkeeper.org/water-quality/citizen-data.

Water Quality Over Time

Mohawk & Upper Hudson Rivers, 2015-2023



Why We Measure Bacteria

Fecal indicator bacteria such as *Enterococcus* (“Entero”) help us answer the question, “Is it safe to swim?” When these bacteria are present in water, pathogens that can make us sick may also be present. The EPA has set thresholds to define if water is safe for swimming based on decades of science relying on measurements of these bacteria.

Is Water Quality Changing?

Wet weather triggers sewage leaks and spills, and stormwater runoff is also an Entero source. As a result, Entero counts tend to increase after rain at most sampling locations. Long-term trends vary by watershed. We have not yet studied the role of climate or other factors, such as land use, in these interannual trends.

Community Science

The water quality data presented here are based on an analysis of samples collected from 2015-2023 by SUNY Cobleskill, SUNY Polytechnic, community scientists, and Riverkeeper. Samples were collected monthly from May to October (July to October in 2016 for the Upper Hudson) and processed by SUNY Cobleskill and Riverkeeper. Explore the data at www.riverkeeper.org/water-quality/citizen-data.