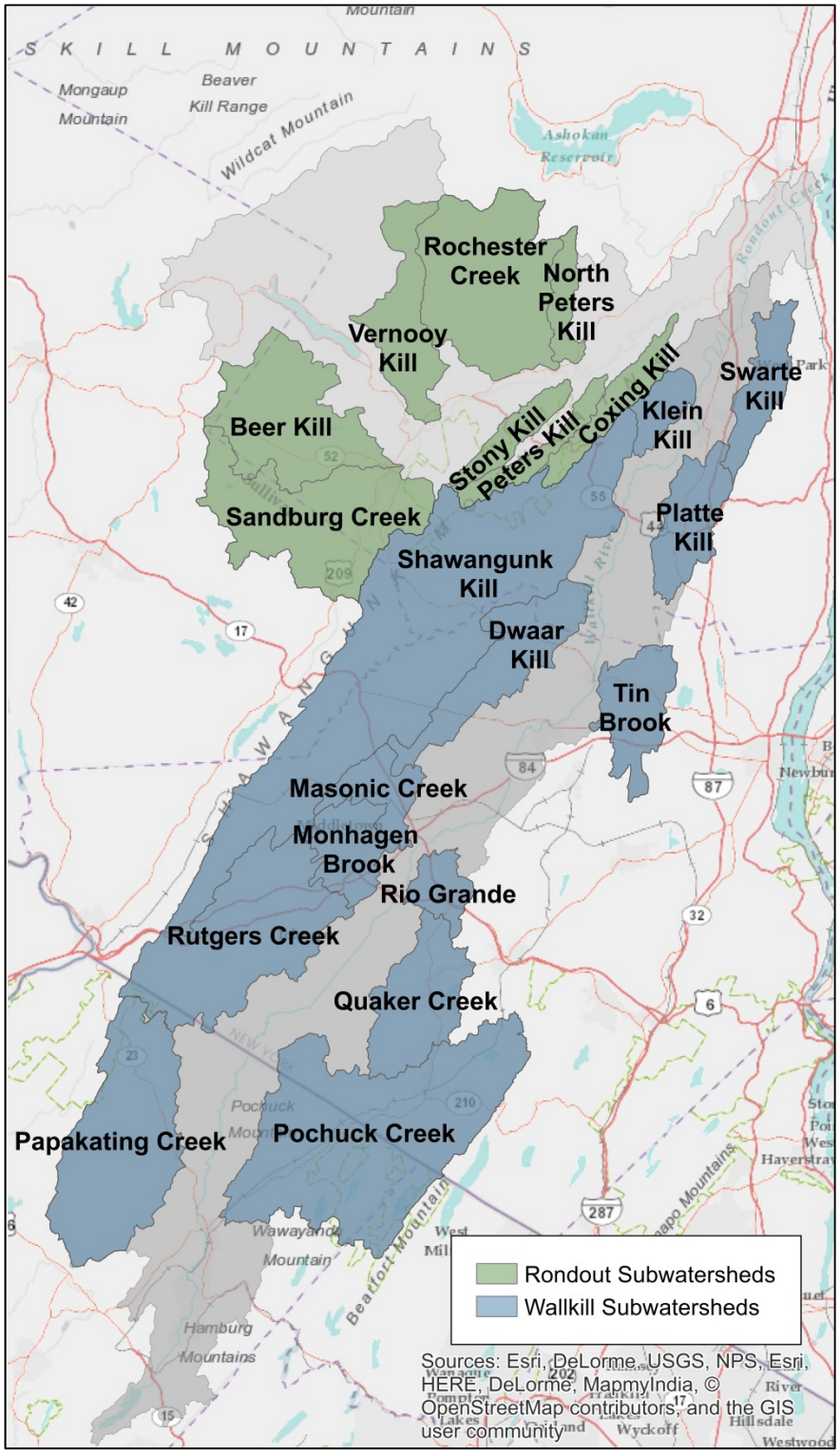
Riverkeeper Community Science Program

Rondout-Wallkill Source Tracking Project: 2016 Results

Background



Since 2012, Riverkeeper and our community partners have been testing the Rondout Creek and Wallkill River for *Enterococcus* ("Entero"). Entero is not harmful, but it indicates that human and animal waste may have entered the water. Inputs of these wastes may also introduce pathogens that pose a health risk to swimmers, kids playing at the water's edge, and others who enter the water.

In our Rondout and Wallkill samples, Entero levels at nearly all sites have exceeded day-to-day and long-term thresholds recommended by the EPA. Now that we have identified the problem, the next step toward cleaner water is identifying contamination sources. To work toward that goal, we are completing a two-year source tracking study, funded by the NYS DEC's Hudson River Estuary Program.

The majority of our long-term monitoring sites are located in the main stems of the Rondout and Wallkill. In 2016, in order to better understand how tributaries contribute to main stem Entero counts, we collected samples at the mouths of the major tributaries to each waterway. We sampled these sites every Monday in August, for a total of five samples from each location.

2016 Results

To assess long-term water quality, EPA recommends using a weighted average of Entero counts, called the Geometric Mean (GM). If the GM is greater than 30 cells/100 mL, action should be taken to track down and eliminate fecal contamination sources.

Rondout Creek

Subwatershed Name	GM (cells/100 mL)
North Peters Kill, Rochester	583.5
Stony Kill, Rochester	520.3
Peters Kill, Rochester	359.9
Coxing Kill, Rosendale	348.9
Rochester Creek, Rochester	331.1
Sandburg Creek, Wawarsing	206.3
Vernooy Kill, Wawarsing	102.1
Beer Kill, Wawarsing	94.0
Lower Wallkill, Esopus	73.5

Wallkill River

Subwatershed Name	GM (cells/100 mL)
Quaker Creek, Goshen	2471.5
Klein Kill, New Paltz	1321.7
Masonic Creek, Wallkill	840.3
Rio Grande, Goshen	665.2
Papakating Creek, Wantage, NJ	628.7
Monhagen Brook, Wawayanda	533.4
Pochuck Creek, Warwick	508.4
Tin Brook, Montgomery	473.5
Platte Kill, New Paltz	426.5
Rutgers Creek, Wawayanda	254.2
Dwaar Kill, Shawangunk	238.9
Shawangunk Kill, Gardiner	209.8
Swarte Kill, Esopus	143.3

According to EPA's guidelines, all of these tributary sampling sites should be flagged for action. Flow information is limited in these watersheds, and without it we cannot directly compare Entero loads from each tributary. However, we can compare Entero concentrations among tributaries and prioritize subwatersheds with the highest GMs for further attention.

Next Steps

In 2017, Riverkeeper will collaborate with researchers at Cornell University to test selected locations for the presence of human, bird, horse, and cow wastes. This will be done by analyzing water samples for the DNA of bacteria specifically associated with each of these sources. (We will also test for Entero using our usual methods alongside the DNA-based testing.) Some sites will be chosen based on long-term testing results, to deepen our understanding of what has caused high Entero counts in areas of concern, and some sites will be selected based on the 2016 subwatershed study results, to better understand how tributaries influence main stem water quality. The samples will be collected by community scientists, some of whom belong to Environmental Conservation Commissions and watershed groups in these areas.

Acknowledgements

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