

Most probable number (MPN) of Enterococci colonies/100 mL of stream water and prior 4 day rain totals (in) over time.

Land use affects the quantity and composition of runoff. In grassy or forested areas, rainwater seeps into the ground, is filtered, and recharges the groundwater that maintains a steady flow into streams during low rainfall. Land alterations that increase impervious surfaces diminish the groundwater available to replenish streams during dry periods and intensify direct deposition of chemical and animal waste into waterways.

Large volumes of runoff in urban areas with swaths of impervious surfaces often contain nonpoint source contaminants (oil, petroleum products, road salt, industrial chemicals, fertilizer, pesticides, litter, and bacteria) that flow rapidly into waterways through storm sewers or across paved surfaces. Nonpoint source pollution therefore increases directly with the quantity of runoff entering a stream. Conversely, point source pollution is independent of runoff, and increased stream flow tends to dilute it, resulting in an inverse relationship between water levels and contaminant level.

In this graph, enterococci levels tended to drop following rain events and rise during dry periods, which may indicate a point source input such as a pipe, ditch, ship, factory smokestack or sewage treatment plant which may be discharging into the water. Also of note is that, regardless of water levels, the majority of enterococci measurements exceeded the EPA threshold for safe levels of the bacteria in a waterbody.

Special Thanks

New York's Environmental Protection Fund (EPF) provided the grant and the New York State Department of Environmental Conservation's (DEC) Hudson River Estuary Program (HREP) administers the funding for this project. This grant supports planning for local stewardship of the river environment to help achieve the goals of the 2015-2020 Hudson River Estuary Action Agenda, and also aligns with Regional Economic Development Council (REDC) strategies.

Additionally, thank you to our program partners

Hudson River Estuary Program, Rensselaer Land Trust, River Haggie Outdoors, Watershed Assessment Associates, United States Geological Survey, Capital District Regional Planning Commission, Media Alliance Sanctuary for Independent Media, Hudson River Watershed Alliance, the Cities of Troy and Rensselaer and Riverkeeper



Will Wading in This Stream Make Me Sick? It Could, and Here's Why

Poesten Kill

Wading in a tranquil stream on a hot summer's day can be a pleasant enhancement to cool off after hiking a trail with the kids, or walking your dog. All it takes is **one exposure** to bacteria or pathogens to make you sick. Public water treatment systems are designed to kill bacteria. However, one can become infected by accidentally swallowing untreated stream, lake, or river water. Anyone who uses our waters for recreational purposes, and especially the elderly, young and those with open cuts, should avoid contact with our waters, particularly after a hard rainfall. The main objective of this project has been to provide first-time knowledge about certain bacteria and emerging contaminant levels found in water samples collected and analyzed from Hudson River tributaries in Rensselaer County.

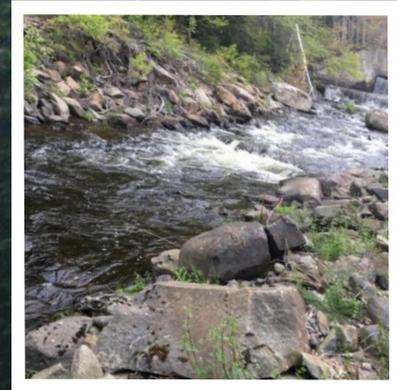


Photo Courtesy of River Haggie Outdoors

Enterococcus is one of numerous microbes that live in, and are excreted from, the gut of humans and other animals. While ingestion of excreted Enterococci is frequently harmless, ingestion of other gut microbes pose likely health risks. The presence of fecal Enterococcus can serve as an indicator of fecal contamination of fresh and marine (salt) waters, including with associated more harmful gut species. The Environmental Protection Agency (EPA) recommends that water bodies with Enterococcus counts over 60 colonies/100mL be closed due to likely contamination with fecal pathogens that pose a risk for the safety of swimmers and anglers, and remain closed until Enterococcus counts fall. It also warns that water bodies testing higher than an average of 30 colonies of Enterococcus/100ml water/day over a 30 day period is cause for concern and poses a potential health risk.

Rensselaer Land Trust selected Enterococcus as their indicator for fecal contamination for this project. Currently, *Enterococcus* is not included in the Water Quality Criteria for Surface Freshwater in New York State. New York State's Rules and Regulations use Total and Fecal Coliform as the water quality standards for coliforms and they are based on the classification of the waterbody.

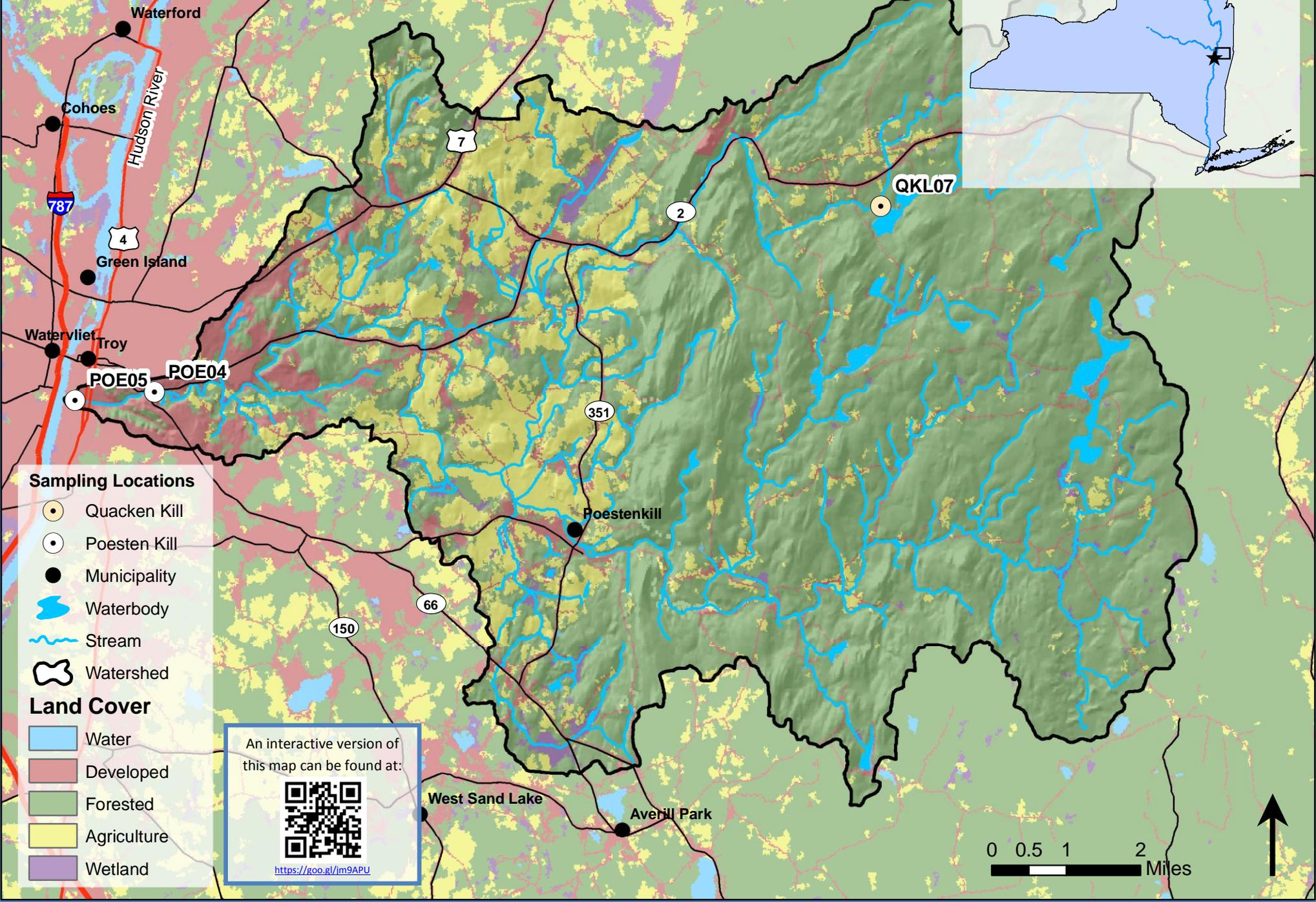
More information about NYS Classification of Waters can be found at:

<https://www.dec.ny.gov/chemical/23853.html>

More information about EPA's requirements for Enterococcus can be found at:

<https://www.epa.gov/wqc/microbial-pathogenrecreational-water-quality-criteria>

Poesten Kill Watershed



Sampling Locations

- Quacken Kill
- Poesten Kill
- Municipality

- Waterbody
- Stream

- Watershed

Land Cover

- Water
- Developed
- Forested
- Agriculture
- Wetland

An interactive version of this map can be found at:



<https://goo.gl/im9APU>

