Rockland County Soil & Water Conservation District

Yeager County Complex
50 Sanatorium Rd., Bldg. K
Pomona, NY 10970

www.rocklandgov.com/environment

What is a Watershed?

A watershed is a basin-like landform defined by highpoints and ridgelines that descend to lower elevations and stream valleys. It includes all the land, streams and rivers that drain into a single larger body of water, such as a larger river, lake, or ocean.

Benthic Macroinvertebrate Community Assemblage

We use the communities of small water bugs that naturally live in the bottom of streams (benthic) to tell how clean our water is. Stream invertebrates are small animals without backbones. In fast flowing streams, most are different kinds of immature insects, like mayflies, caddisflies, stoneflies, beetles, and midges but some non-insects, such as snails, clams, and aquatic worms, also belong to this group. Most of these organisms are benthic, which means they live on the stream bottom or on a rock, leaf, piece of wood, or any other hard object. Macroinvertebrates are simply invertebrates that can be seen with the naked eye, generally at least 1/16" long. Some macroinvertebrates are intolerant of pollution and can only live in healthy water. Other macroinvertebrates are more tolerant of polluted water. The study of these communities helps to determine the extent and cause of pollution in a waterbody.

What Can You Do?

There are many ways you can get involved in safeguarding and improving the Sparkill's water quality. Visit the US EPA web: http://water.epa.gov/action/ to find links to information on what you can do to keep our water clean, such as: learn water smart lawn and garden care, proper ways to store and dispose of household chemical waste, lawn and garden care, and improve motor vehicle and pet care.

You can also volunteer to work with local agencies and organizations in clean-ups, storm-drain marking, tree plantings, or water quality monitoring programs. Contact: The Rockland County Soil & Water Conservation District (contact information on the left), and the Sparkill Creek Watershed Alliance.

Students learn to collect stream insects using a kick net in the Sparkill Creek.

Photo by: Strawtown Studio

Sparkill Creek Watershed Alliance:

The Alliance is a community action group committed to promoting environmental awareness and practices that restore and preserve the health of the Sparkill Creek, from its headwaters on Clausland Mountain to its confluence with the Hudson River in Piermont Marsh. The Alliance seeks partnerships in identifying and resolving impacts, with short and long term goals (www.sparkillcreek.org).

Rockland County Soil & Water Conservation District:

The Mission of the District is to develop responsible soil and water conservation programs to protect and conserve soil, water, prime and unique farmland, wildlife, energy and other renewable resources. The SWCD Board of Directors represents the County's five towns.

The Board of Directors are your local Town Highway Superintendents: James J. Dean, Orangetown; Wayne Ballard, Clarkstown; Larry Brissing, Stony Point; Frank Brooks, Haverstraw; Anthony Sharan, Ramapo.

For further information visit: www.rocklandgov.com/environment

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The Sparkill Creek
Life in the Water

Station SPAR 01A

Just above station SPAR 02

Station SPAR 02

Just above station SPAR 03

Just above station SPAR 05

Watershed Report Card

The Watershed

This report card summarizes water quality in the Sparkill Creek based on biological findings at six locations throughout the watershed since 1998, including both NYS Dept. of Environmental Conservation and Rockland County Soil & Water Conservation biological data. This report can help to guide stream protection and restoration efforts.

The Sparkill originates on Clausland Mountain before traveling nine miles through Rockland County, NY and parts of New Jersey prior to entering the Hudson River. The eleven square mile watershed is approximately 47% urban, 45% forested and 8% wetland (USGS StreamStats).

The Rockland County Soil and Water Conservation District commissioned this report card to:

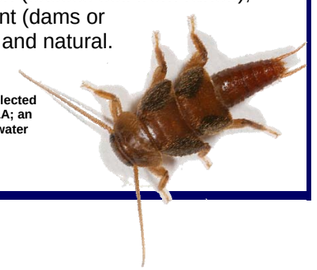
- Help residents of the Sparkill Creek area understand that they live in a watershed and why that is important.
- Present to residents and town/village officials data that has been collected since 2006 for RC SWCD (and NYS DEC data since 1998) to serve as a benchmark for reference and remediation efforts.
- Report on problems in and around the creek (flooding, water quality, faulty septic systems, pesticide use, siltation, etc.).
- Encourage residents to get involved in stewardship for the creek in their town or backyard.

Water quality is affected by residential, commercial, and industrial usage, including by two sewage treatment facilities in the area. The Sparkill is on the 2010 NYS DEC Impaired Waters List, indicating that the waterbody does not support its designated use for aquatic life and recreation uses and requires a restoration plan. The primary suspected impairments are due to organic pollution resulting in lowered dissolved oxygen levels in the water. The source of organic pollution is most likely from urban and storm water runoff.

In order to determine both the water quality and the most likely cause of water quality impact to the waterway, the benthic macroinvertebrate community structure (see back page for description) has been measured at 6 different stations on the Sparkill since 1998, most recently in 2011. Learn more at: www.rocklandgov.com/environment

Benthic macroinvertebrates, bottom-dwelling aquatic insects, vary in their sensitivity to water quality. NYS DEC uses benthic macroinvertebrates to determine an overall water quality score called the *Biological Assessment Profile* (BAP), which classifies waterbodies as non-, slightly, moderately, or severely impacted. For detail explanation of the BAP visit: http://www.dec.ny.gov/docs/water_pdf/sbuga02.pdf

Additionally, benthic populations can be used to establish the most likely source of water quality impact at a test site, the *Impact Source Determination* (ISD). ISD categories are: nonpoint source nutrient enrichment (fertilizers, lawn products); organic (sewage and animal waste); complex (municipal and industrial inputs); toxic; siltation (excess soil from runoff); impoundment (dams or blockages); and natural.



Stonefly larvae collected at station SPAR 01A; an indicator of good water quality.


Piermont Marsh, Photo by: L. Peek

Sparkill Creek Watershed

Making a Difference


Water Education on the Sparkill with Strawtown Studio, Photo by: J. Sarna

Water Quality Monitoring Results

Station SPAR 01 is located just above Greenbush Road Bridge and was assessed by NYS DEC and the Rockland County Soil & Water Conservation District in 1998, 2003, and 2011. The BAP score indicated ***slightly impacted*** water quality and ISD indicated the most likely stressor is nonpoint source nutrient enrichment. Water quality was also ***slightly impacted*** in 1998 and 2003.

Station SPAR 01A is located just south of the Tackamac Town Park parking area. Assessed for the first time in 2011, the BAP indicated ***non-impacted*** water quality and ISD suggested a benthic community structure most similar to a natural community. The benthic macroinvertebrate community at this station was diverse, with 25 different species, including several taxa that favor cold, clean water.

Station SPAR 02 is located just below the Orangeburg Road Bridge. The BAP indicated ***moderately impacted*** water quality, and by ISD the most likely impact is from complex and nonpoint source nutrient enrichment. In the 2003 assessment, water quality was ***slightly impacted***.

Station SPAR 03 is located just below Washington Street in Tappan Memorial Park. The BAP indicated water quality was ***slightly impacted***, and ISD indicated the most likely stress was from complex inputs. In 1999, 2002, and 2003 water quality was ***slightly, moderately, and slightly impacted***, respectively.

Station SPAR 04 is located just below the Valentine Street Bridge. It was ***moderately impacted*** by BAP, and ISD indicated the most likely impacts are from organic and complex sources. In 1999, 2002, 2003, and 2007, water quality was ***slightly or moderately impacted***.

Station Spark 05, located just below the Oak Tree Road Bridge; the stream is flowing out of NJ at this station. This station was recently dredged for flood control purposes (see photo on page 1), which damaged the benthic macroinvertebrate habitat. The BAP indicated ***moderately impacted*** water quality and the ISD indicated complex inputs as the most likely impact.

Sparkill Creek Water Quality Monitoring Sites

✻ Designated as a "Significant Coastal Fish & Wildlife Habitat" by the NYS Dept. of State, Division of Coastal Resources.

Watershed report card and mapping by:

Watershed Assessment Associates, LLC
28 Yates St., Schenectady, NY 12305