SKWC NEWSLETTER

SAW KILL WATERSHED COMMUNITY

Issue 2: April 8th, 2020

Protecting the Saw Kill watershed and its ecological, recreational, and historic resources through hands-on science, education, and advocacy.

Photo Credit: Kathryn Clark

A NOTE FROM: SKWC LEADERSHIP TEAM

Our monthly Saw Kill Sampling normally takes place on the second Friday of every month. But this month, things are not normal. Unfortunately we can't ask our samplers to assemble and go out together to collect data. So now, we are asking for your assistance. We need your participation so we can still collect some data. Would you like to help?

Your own Saw Kill data collection could be as simple as taking a photo and writing down observations OR making your own sampling equipment at home. You can download this data collection sheet and record any data you collect: https://bit.ly/3e2gAuw

These links show you how you can make a Secchi Disk at home to measure turbidity:
https://www.instructables.com/id/How-to-Use-a-Secchi-Disk-to-Measure-Turbidity-in-a/
https://www.fizzicseducation.com.au/150-science-experiments/biology-environmental-science-projects/make-a-secchi-disc/

If you do get out and collect some data on the Saw Kill, please send your data to **bardwaterlab@gmail.com**

But before you go out there: As you may have heard, the CDC has stated that Covid-19 might be transmitted through raw sewage (https://www.cdc.gov/coronavirus/2019-ncov/php/water.html). We want community members to be aware that there are hotspots on the Saw Kill that they may want to avoid -- we know that they regularly have high fecal indicating bacteria counts, which can indicate the presence of raw sewage. These sites include: **Site 6, Site 5, and Site 2.5** -- follow this link to see where these sites are located:
https://drive.google.com/file/d/1-p13rnXwtyfr7Im-PJRpQ2hdlaqAz8eu/view?usp=sharing

Please avoid these sites for now, as we wait to hear more from the CDC. For all locations, consider wearing a homemade mask (bandana will do) to give yourself extra protection. Wash hands thoroughly after contact with the water. These precautions are good no matter what, but at this time they are even more important.

As always, thank you for your support and stay safe!

LET'S NAME OUR TRIBS!

Karen Raskin, Saw Kill Watershed Leadership Team Member

The Saw Kill has 17 unnamed tributaries in Milan and Red Hook. We're getting started on a project to name these small streams and we need your help. Why? Because an unnamed stream is an unprotected stream.

What's in a name? As a newcomer to the East Coast, I've enjoyed comparing the regional names ascribed to landscape features. The Hudson Valley kills, from the Dutch word for creek, are new to me. I grew up with arroyos, creeks, and occasionally "cricks" in northern California. Sometimes the names of these watercourses would get quite granular, such as the East Branch of the North Fork of the Little North Fork Navarro River, while others were a dime a dozen; the Mill Creeks, Redwood Creeks, and Salmon Creeks. Other names recalled dark incidents of the local history. Bloody Run Creek was named after California militia massacred a Native village; Know-Nothing Creek was named after a short-lived, but virulently anti-immigrant political party from the 1850s.

The Saw Kill combines English and Dutch words, forming a hybridized name fitting for both the industrial and cultural settlement history of our region. According to historians, the local Algonquian Native American word for the Saw Kill is transcribed in the Schuyler patent as Metambesem (https://sawkillwatershed.wordpress.com/about/historical-information/). Place names are functional to the extent that they serve as a means of communication. When they stop serving a communicative need, they can die out. Administrative measures such as mapping, signs, and zoning ensure that the name Saw Kill persists, despite the disappearance of its namesake sawmills and far fewer Dutch-speaking residents.

What good does it do to name small, unnamed tributaries? Knowing the names, or the act of naming a place, can be empowering on an individual, municipal, and community level. On the other hand, unnamed and unmapped tributaries are not included on municipal maps and plans and therefore go without protection or consideration in planning.

The SKWC recognizes the importance of place names in cultivating a sense of place, community, and stewardship, while simultaneously adding a level of protection. Once a stream is mapped and named officially, it becomes a tool in planning, zoning, and land-use decision-making. The health of these smaller streams is essential to the resilience of the larger, named waterways. The familiarity of a named watercourse may also contribute to a greater sense of place, history, and civic pride.

A clear process for naming landscape features is outlined by the New York State Committee on Geographic Names (http://www.nysm.nysed.gov/research-collections/geographic-names).Once a researched name is supported by a municipal resolution, it can then be submitted to the committee for review. The State Committee is a team of historians, archivists, librarians, geologists, anthropologists, and geographers with the skills to determine if the proposed name is acceptable. The State Committee then sends their decision to the United States Board on Geographic Names, a federal board under the Department of the Interior. Once approved, the new stream name is considered official for federal, state, and local use. Larger tributaries may be included on USGS maps when they are reprinted, but once named, even the smallest streams can be included in GIS databases.

Name Your Stream

To protect every stream in our watershed and see them named, cared for, and incorporated into local planning, the SKWC is researching the unnamed tributaries of the Saw Kill. You can help! Do you like looking at old maps, archives, and deeds? Or maybe you grew up calling a stream a local name that isn't known officially? Perhaps you've observed the flora and fauna of a small watercourse over the years and can suggest a fitting name? While some of the streams may have never been named, others may have long-forgotten names worthy of recollection. Others could be resurrected with new names fitting our local history, topography, folklore, and natural surroundings.

If you'd like to help or have information about local place names, please contact me! (karenraskin@gmail.com) Together, our community can participate in a placemaking project to strengthen the connection and protection of our shared water resources.

UNDERSTANDING NEW YORK'S POLLUTANT DISCHARGE ELIMINATION SYSTEM

Julia Gloninger, Bard College '21, Saw Kill Watershed Community Intern

The New York State Department of Environmental Conservation monitors the discharge of pollutants and untreated waste in storm sewer systems through the State Pollutant Discharge Elimination System (SPDES). The goal of the system is to maintain the highest quality of water possible, consistent with public health, public enjoyment of the resource, protection and propagation of fish and wildlife, and industrial development in the state. The federal Clean Water Act mandates that operators of small municipal storm sewer systems located in urbanized areas must obtain a permit through either a national or state permit program. New York State's system is approved by the National Pollutant Discharge Elimination program, and issues permits in accordance with the state Environmental Conservation Law. In fact, the program goes beyond the requirements in the Clean Water Act by extending the protection that surface waters receive to groundwater as well.

Four of the sites along the Saw Kill monitored by the Saw Kill Watershed Community are located at or near permitted discharge locations. These sites are shown on the map shown to the right. Site 2.5 is located on Bard College Campus, where there is a wastewater discharge pipe. Site 6 is located near the Red Hook Commons on Benner Road. Site 8 is in Rhinebeck, across from the aerodrome and below the old landfill. Site 14 is located in Red Hook, at the bridge on Turkey Hill Road near the Parker Center. These sites require permits, because they either use an outlet or discharge pipe (referred to as a "point source") that discharges wastewater into the surface waters or ground waters of the state, or they operate a disposal system such as a sewage treatment plant.

To obtain a permit, these facilities are required to meet water quality standards and effluent limitations. The effluent limitations serve as the primary mechanism in NPDES permits for controlling discharges of pollutants to receiving waters. The limitations vary for every facility based on the type of discharge and the available treatment technologies. (The process of determining these limitations is outlined in detail in the New York Codes, Rules, and Regulations. A list of the toxic chemicals that are also prohibited can be found here.) An example of an effluent limitation placed on a facility is the 1.1 mg/l limit on nitrogen and ammonia at the Red Hook Common's permit site. Other limitations may be placed on parameters such as suspended solids, temperature, dissolved oxygen, fecal coliform, chlorine, and more.

Facilities are also required to submit monitoring data at the end of each month to the DEC in the form of a Discharge Monitoring Report (DMR). The DMRs must report operational issues, effluent quality and adherence to permit limits, and discharge of untreated or partially treated wastewater. Many permits also include a schedule of activities that require the permittee to upgrade or install new treatment technology by a specific date to improve performance and achieve permit compliance.

The SPDES program is key to protecting our water, especially our drinking water, from various types of pollutants such as fertilizers, toxic chemicals, and fecal bacteria, which can be difficult and costly to remove through water treatment. More recently, the CDC has reported that the Covid-19 virus could possibly be transmitted through sewage systems where water is untreated. Standard water treatment methods that use filtration and disinfection, such as those in most municipal drinking water systems, should remove or inactivate the virus. Therefore, it is highly unlikely that the virus could be contracted through drinking water.

However, it's possible that combined sewer systems that allow untreated sewage to enter our waterways as overflow during storms put people at risk of contracting the virus. This is yet another important reason why stormwater systems need to be upgraded in order to better handle storm events. The NYSDEC and SPDES permittees currently use a combination of reporting and abatement work to reduce the impact and occurrence of these combined sewer overflows (CSOs). CSO discharges must be reported to the public and to the Department of Health using NY-Alert, which helps to advise the public on where to swim and enjoy other recreation in NYS water bodies. As we approach the summer months, it is crucial to refer to these alerts before heading out to enjoy your favorite swimming spots! Permit holders are also required to comply with 15 CSO Best Management Practices.

In the long run, the removal of combined sewer systems is the only way to prevent these overflows from occurring, and the DEC offers funding opportunities to upgrade these outdated systems.

OCEAN SCIENCES 2020 RECAP

Marco Spodek, Bard Environmental & Urban Studies Community Lab Technician & Saw Kill Watershed Community Leadership Team Member

Last month, we completed phase two of the oceanographic adventures of the Bard Water Lab's FlowCam (otherwise known as Flowkie). Some of you may remember that Flowkie set sail aboard two separate NSF oceanography research cruises in the summer of 2019; one into the plume of the Amazon River, and another into the plume of the Mississippi River. Bard Center for Environmental Policy student Sebastian Grimm and myself were along for the ride, respectively, on each cruise. The ability to contribute to the science taking place on these cruises was generously presented to us by a team of researchers down at Columbia University, and once the Fall semester was underway, it was time to dig into the data! So what was phase two, exactly? To present a poster on this research at the annual Ocean Sciences Meeting hosted by the Association for the Sciences of Limnology & Oceanography! So last month, that's what we did. Sebastian and I travelled to the meeting, held in San Diego this year, to present our poster on zooplankton communities in surface waters of two large river plumes (see below). The meeting was fabulous; thousands of the world's top experts in the field of Oceanography all under one (very large) roof at the San Diego Convention Center. We attended oral presentations on marine carbon cycling and microplastics distribution, town halls on utilizing science to shape policy, and, every day at 4pm, poster sessions with ~free~ beer! Overall, it was an amazing experience. Sebastian and I presented our poster in the session entitled "Structure, function, and biogeochemical role of plankton communities in the nutrient-limited open ocean." It was a pleasure to chat with some of the world's leading researchers on the benefits of fluid imaging technologies like FlowCam for better understanding the crucial ecological role that plankton play. However, that's not only the case in the ocean; we are fortunate to be able to use this very technology in our monthly sampling regime for the Saw Kill! Every month, planktonic imagery is captured from several sites on the creek and we are starting to analyze those images now. Stay tuned for that, and we look forward to employing some of the lessons learned from the Ocean Sciences Meeting on that project!

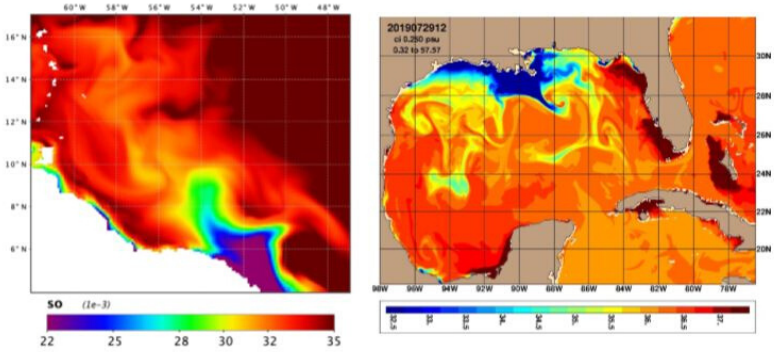

Fig 4. Salinity maps of the tracks of the two NSF cruises on which these data were collected. Left: EN640 in the North Atlantic. Right: EN642 in the Gulf of Mexico. Low-salinity plume waters convey upstream nutrient pulses to coastal waters facilitating blooms and high turbidities.

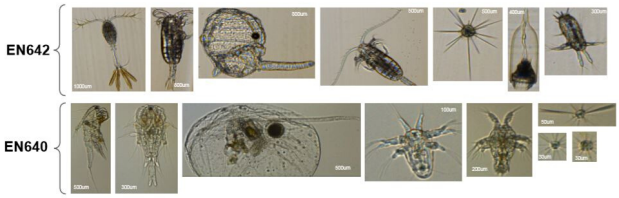

Fig 5. Common grazers observed among cruises. Amazon Plume (EN640) L-R: Copepod, Nauplius, Noctiluca, Acantharia. Mississippi Plume (EN642) L-R: Oithona, Paracalanus, Noctiluca, Parvocalanus, Acantharia, Tintinnid, Nauplius.

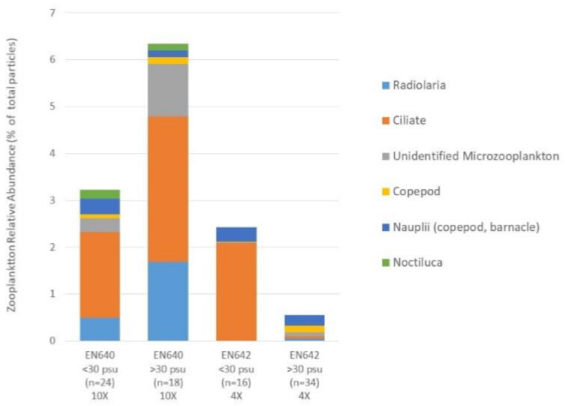

Fig 9. Zooplankton community composition among cruises, organized by above and below 30 psu salinity and objective magnification used.

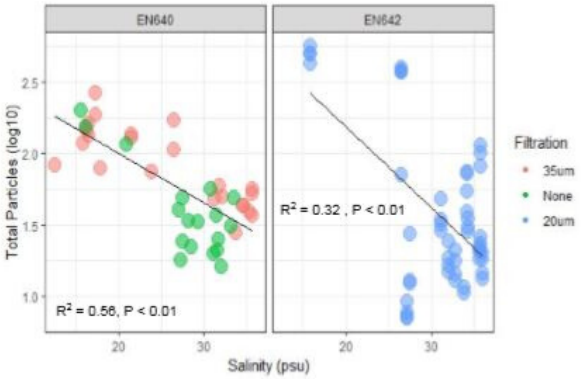

Fig 6. Total particle counts as a function of salinity for Amazon Plume (EN640) and Mississppi Plume (EN642). EN640 particles were observed at the 10x scale while EN642 particles were viewed at the 4x scale.

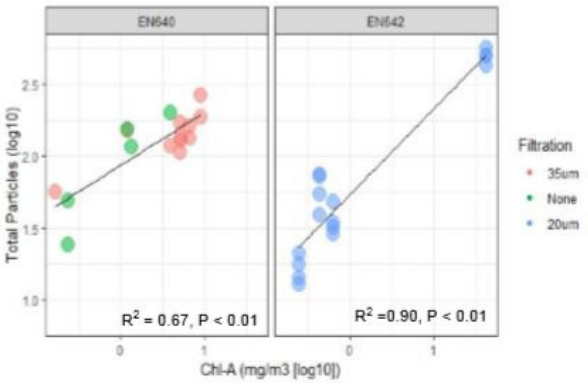

Fig 7. Total particle counts as a function of Chlorophyll-A for Amazon Plume (EN640) and Mississppi Plume (EN642). EN640 particles were observed at the 10x scale while EN642 particles were viewed at the 4x scale.