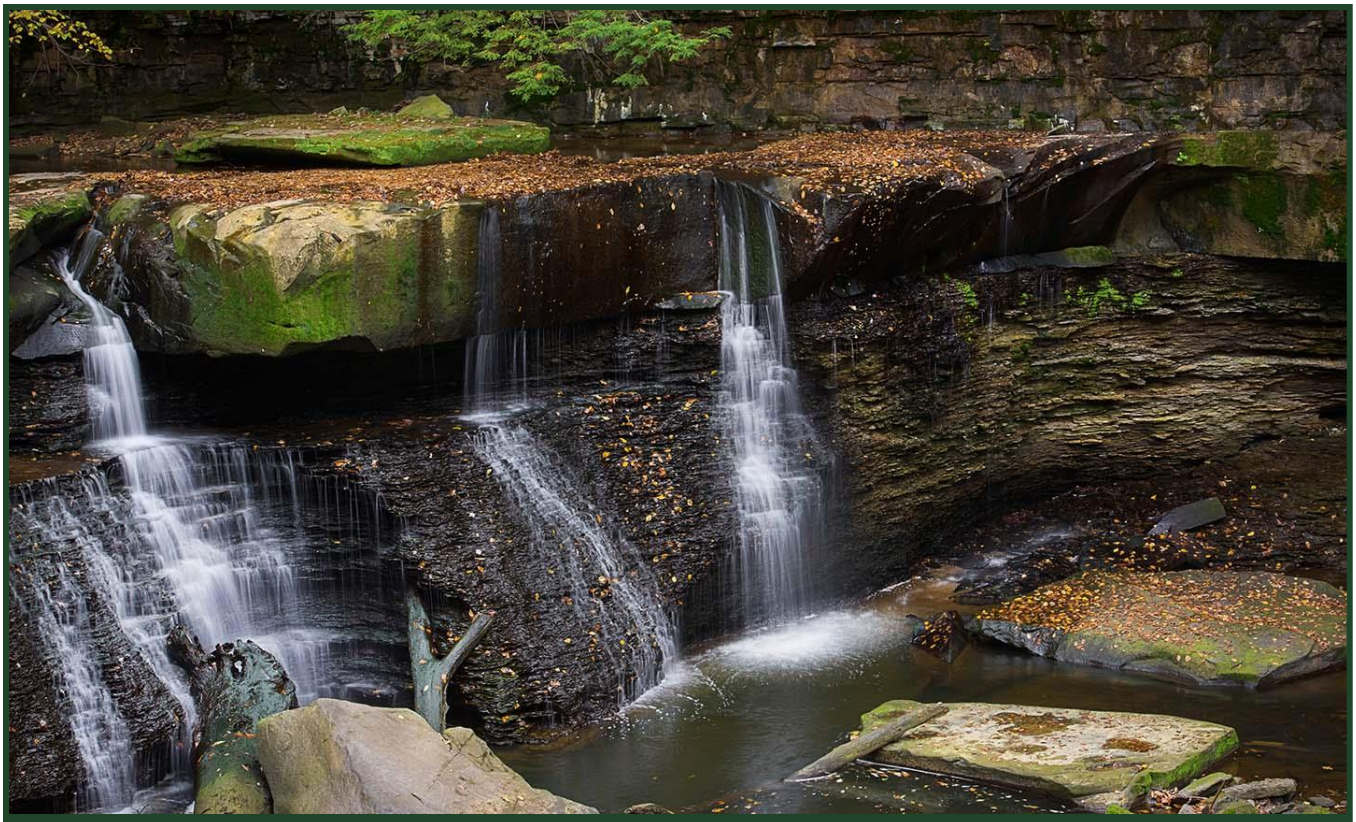


Tinker's Creek Watershed

2019 Water Quality Report



Tinker's Creek
WATERSHED PARTNERS
Rediscover • Respect • Revitalize

Acknowledgements

Tinker's Creek Watershed Partners (TCWP) would like to acknowledge the following staff members for their contribution to our water quality monitoring program:

- Jennie Brancho, Tinker's Creek Watershed Coordinator (Program Lead, Report Author)
- Marisa Petherbridge, *former* Brandywine Creek Watershed Coordinator
- Kate Chapel, Senior Project Manager
- Sonya Mottram, Education Coordinator

Additionally, TCWP is grateful for the assistance of our watershed volunteers. Without the aid of our volunteers, our monitoring program could not continue to grow from year to year. TCWP would like to acknowledge the following watershed volunteers for their ongoing stewardship:

- Terri Bissell
- Christine Krol
- Jennifer Johnson
- Alice Johnson
- Levi Just
- Dave Sagerser
- Anne Schoeffler
- Selby Vaughn

TCWP would also like to acknowledge Twinsburg Wastewater Treatment Plant (WWTP) for their assistance in analyzing our water quality samples, especially Corey Yugulis from Twinsburg WWTP for sample analysis and program coordination.

TCWP would also like to acknowledge Ohio University's Voinovich School of Leadership and Public Affairs for access to watersheddata.com for data management. All data collected by TCWP is publicly available on this website.

Finally, TCWP would like to acknowledge its partners for their roles in stream restoration and protection efforts throughout the watershed, including Northeast Ohio Regional Sewer District (NEORSD), Ohio Environmental Protection Agency (EPA), US EPA, Cuyahoga Area of Concern (AOC), Dominion and Western Reserve Land Conservancy, Central Lake Erie Basin (CLEB) collaborative, Chagrin River Watershed Partners (CRWP), Cuyahoga Soil and Water Conservation District (SWCD), Portage SWCD, Summit SWCD, Geauga SWCD, and the 24 communities within Tinker's Creek watershed.

Table of Contents

Introduction

About TCWP

Tinker's Creek Watershed Partners (TCWP) is a non-profit, 501(c)(3) watershed organization officially established in 2006. Our mission is to protect and restore water quality and habitats of the Tinker's Creek watershed through community partnerships. The Tinker's Creek watershed drains 96.4 square miles and is the largest tributary to the Cuyahoga River. The watershed area spans 24 communities in Cuyahoga, Summit, Portage and Geauga counties.

TCWP is governed by 15 dedicated volunteer Board of Directors who bring a variety of expertise in the fields of stormwater management, environmental education, engineering, natural resources conservation, planning, and economic development. TCWP is guided in their efforts to protect and restore the watershed and educate the public by three Ohio and U.S. EPA endorsed nonpoint source implementation strategic plans (NPS-IS Plans). Each plan encompasses a subset of the Tinker's Creek watershed. They can be found under the Information tab. The group's mission, along with the NPS-IS plans, shaped the goals of TCWP.

The goals of Tinker's Creek Watershed Partners are to:

- Increase the understanding of community officials and the public regarding the natural and monetary value of protecting their water resources
- Promote low-impact and conservation development practices that balance environmental integrity with human development
- Educate watershed communities about their daily activities and habits which negatively impact their environmental surroundings and provide alternative approaches to those practices
- Encourage a no-net-loss wetland mitigation policy where mitigation remains localized within the watershed rather than outsourced to other watersheds
- Lead a watershed-based approach to decision making that advances the concept of connectivity between the different political jurisdictions within the watershed
- Increase recreational opportunities by connecting greenways, corridors, and bike paths between the different jurisdictions within the watershed

Program Overview

In 2018, TCWP was able to begin a pilot water quality monitoring program with the assistance of Earth Echo International as well as Dominion Energy and Western Reserve Land Conservancy. Earth Echo International donated water quality test kits that allowed volunteers to measure temperature, pH, turbidity, and dissolved oxygen. Through Dominion Energy and Western Reserve Land Conservancy's Watershed Mini Grant Program, TCWP was awarded funds to purchase additional supplies for the water quality monitoring program, including HDPE bottles, chest waders, and an Oakton DO 6+ portable dissolved oxygen meter.

During the pilot year of the program, TCWP utilized volunteer and staff assistance to collect 10 samples at 10 different sites between June 3 and August 19. This pilot year allowed us to work through access, feasibility, and technical issues. TCWP also forged its partnership with Twinsburg Wastewater Treatment Plant (WWTP) for sample analysis in 2018.

2019 served as the first official year of water quality monitoring throughout Tinker's Creek watershed. TCWP has expanded the program to sample 12 sites each month from May through September. TCWP relies heavily on volunteer help to meet these monitoring demands at nine of these sites.

Program Goals

TCWP's water quality monitoring program serves multiple purposes. By utilizing volunteer assistance, TCWP is able to provide stewardship opportunities for citizen scientists throughout the watershed. Volunteers who adopt particular sites also serve as a type of early alert system. These volunteers visit the same sites each month during the program, so they gain a sense of what is "normal behavior" for that site. If any water quality parameters come back unusual, an atypical discharge is entering the creek, or the surface of the creek looks oily or otherwise polluted, volunteers can serve as a first alert reporting potential issues to TCWP and surrounding municipalities.

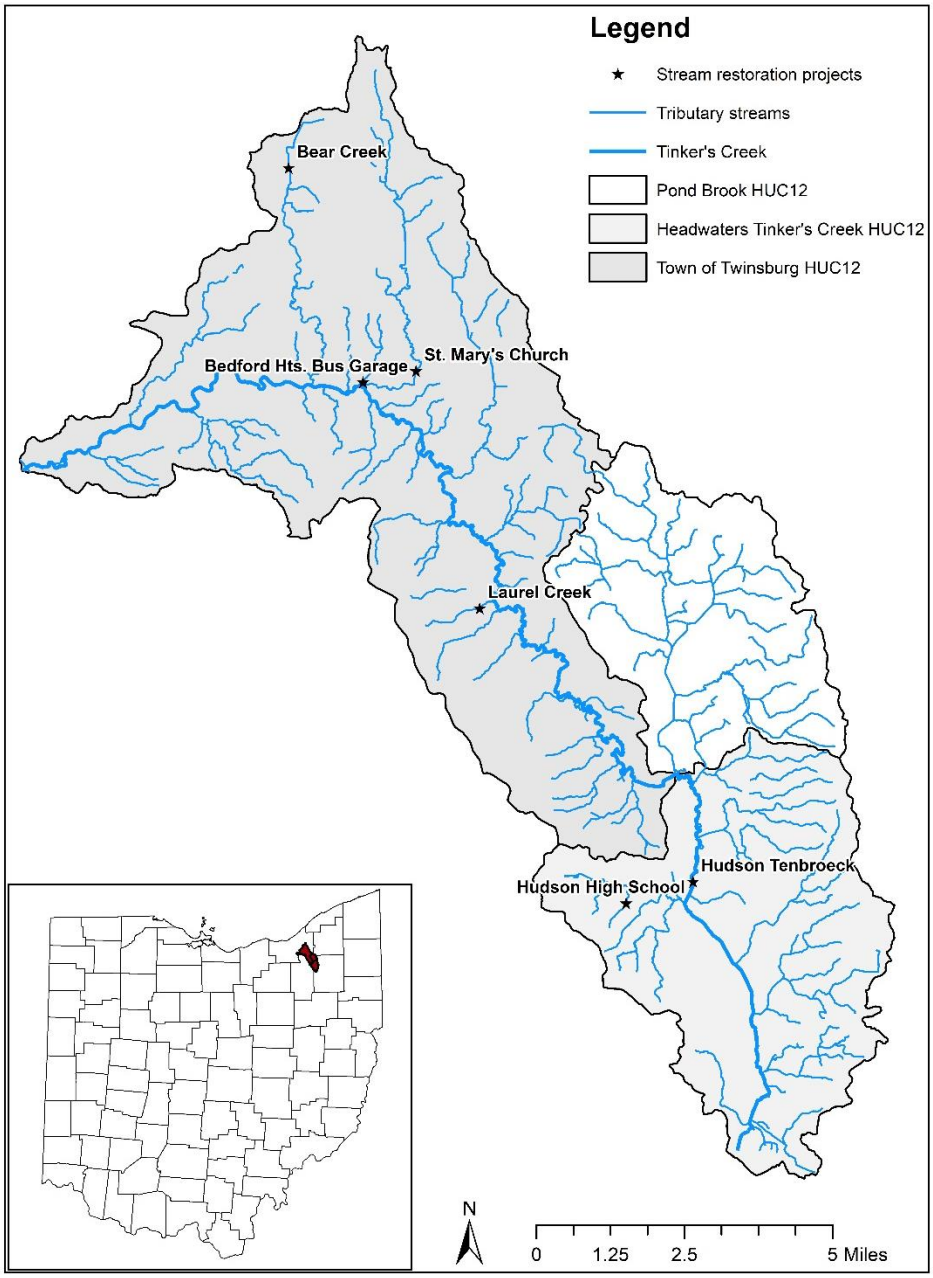
Additionally, the water quality monitoring program provides data to determine baseline water quality conditions in the creek. Prior to the beginning of TCWP's water quality monitoring program, Tinker's Creek was only monitored every few years. By sampling these same 12 sites every month, TCWP can provide insight into baseline conditions in the creek. This allows TCWP, municipalities, and other agencies to identify potential pollution issues much more quickly.

TCWP has completed multiple restoration projects throughout the watershed (see page 6) with the goal of improving water quality. In the years immediately following completion, these restoration projects are monitored by contractors to ensure proper function. TCWP's water quality monitoring program is designed for long-term monitoring at each site beyond the usual post-restoration monitoring. After several years of monitoring these sites, TCWP will be able to observe trends in water quality that can be attributed to successful restoration and mitigation efforts or long-term pollution issues. This program will allow TCWP to measure ongoing success of restoration projects and determine the larger impact of these projects on a watershed scale.

The overarching goals of TCWP's water quality monitoring program are as follows:

- Train citizen scientists to monitor water quality
- Encourage greater watershed stewardship
- Detect potential water quality issues early, like oil and grease or illicit discharges
- Generate a comprehensive understanding of water quality and major impairments throughout the watershed
- Measure the long-term success of completed stream restoration and stormwater mitigation projects in Tinker's Creek watershed

Restoration Projects in Tinker's Creek Watershed



Current Projects:

Bedford Heights Bus Garage Project

Completed Projects:

Hudson Tenbroeck Stream Restoration **(completed 2019!)**

St. Mary's Stream Restoration

Laurel Creek Restoration Project in Twinsburg

Bear Creek Restoration Project in Warrensville Heights

Hudson High School Stream Restoration and Land Lab

Major stream restoration projects aren't the only thing that can improve water quality and watershed health. TCWP also works with local communities, nonprofits, schools, and property owners to install stormwater best management practices. These include rain barrels, native plantings, rain gardens, and more. These practices are also important in improving local water quality by reducing inputs of sediment, nutrients, and other pollutants to Tinker's Creek.

Methodology

Prior to use, staff or volunteers rinse a stainless-steel bucket and two HDPE bottles three times in creek water to prevent sample contamination. At each site, TCWP and/or volunteers measure water temperature, dissolved oxygen, pH, and channel width and depth (Table 1). Water temperature, dissolved oxygen, and pH are measured using a water sample collected in the stainless-steel bucket. Water temperature and dissolved oxygen are measured using the Oakton meter, while pH is measured using an aquarium test kit. Each site is also scanned for any unusual discharges or surface oils.

Three grab water samples are also taken at each site from the water sample collected in the bucket. These samples are then placed in a cooler and transported to Twinsburg WWTP. These samples are analyzed at Twinsburg WWTP to measure the concentrations of each parameter listed in Table 2.

Table 1: Field parameters collected by TCWP

Parameter:	**Units:**
Water temperature	degrees Celsius (ºC)
Dissolved oxygen	mg/L and percent saturation (%)
pH	S.U.
Channel width	m
Channel depth	cm

Table 2: Water quality parameters analyzed by Twinsburg WWTP

Compound name:	**Units:**
Nitrite and nitrate ($NO_2 + NO_3$)	mg/L
Ammonia (NH_3)	mg/L
Total phosphorous (TP)	mg/L
Total suspended solids (TSS)	mg/L
E. coli	cfu/100 mL

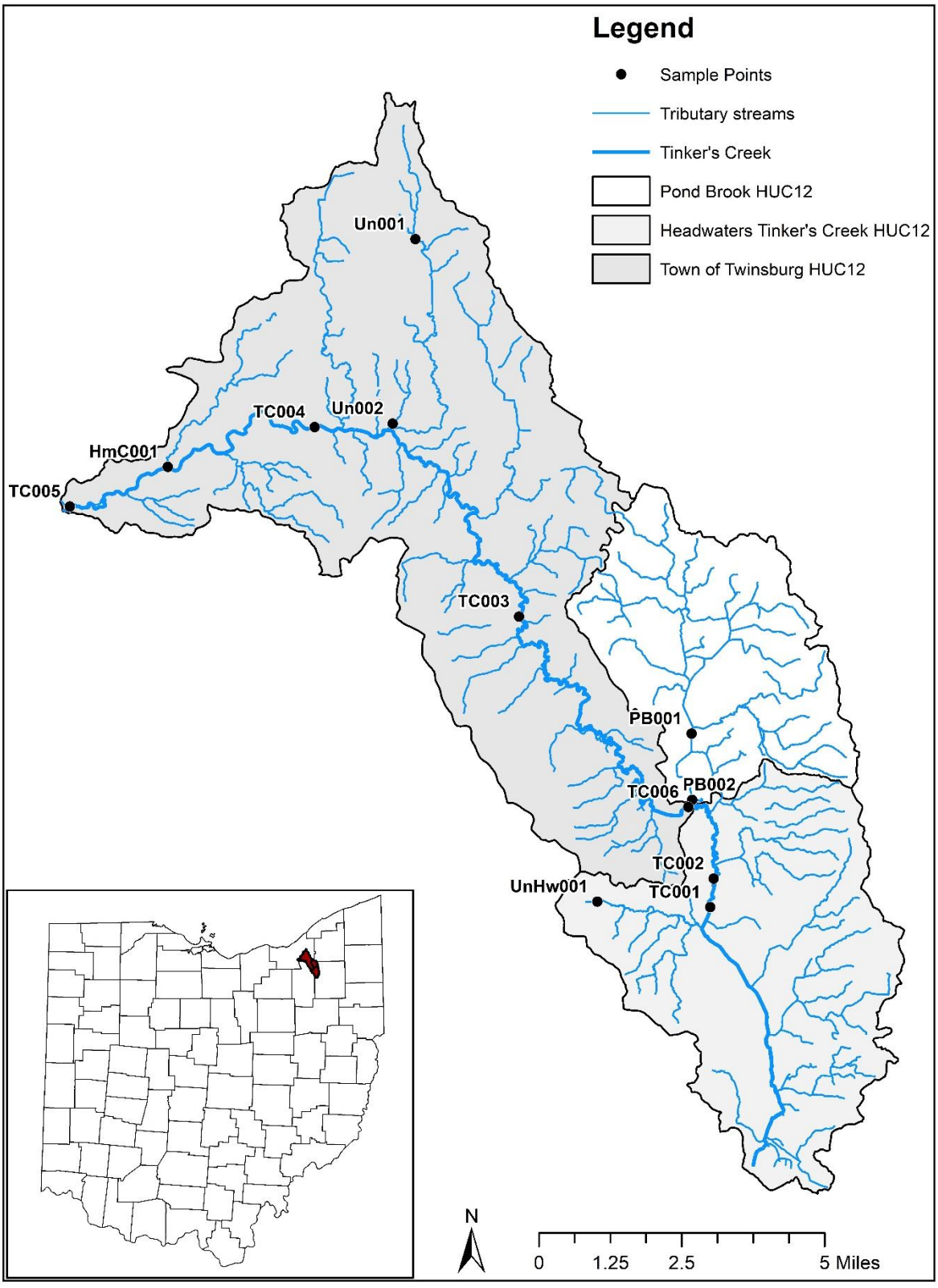
2019 Water Quality Monitoring Sites

Using volunteer and staff assistance, TCWP sampled 12 sites between May and September, 2019 (Table 3). These sites are located throughout the watershed from the headwaters to the confluence of Tinker's Creek and the Cuyahoga River. A map of these sites is provided on page 9. Of these 12 sites, two sites were undergoing stream restoration projects in 2019 (Bedford Heights Bus Garage and Hudson-Tenbroeck Project).

Table 3: Water quality sites sampled during 2019

Site ID:	Site Name:	Stream:	Coordinates:
TC001	Hudson-Tenbroeck Project	Tinker's mainstem	41.262003, -81.394144
TC002	Trumbull Woods Park	Tinker's mainstem	41.269070, -81.392790
UnHw001	Darrow Road Park	Unnamed headwaters	41.263752, -81.431937
PB001	Liberty Park Pond Brook Conservation Area	Pond Brook	41.305938, -81.399144
Un001	Highland Woods Apartments	Unnamed tributary	41.432241, -81.490515
TC003	East Idlewood Park	Tinker's mainstem	41.336324, -81.457075
HmC001	Bedford Reservation Hemlock Creek Picnic Area	Hemlock Creek	41.375314, -81.574836
TC004	Broadway Trailhead near Bridal Veil Falls	Tinker's mainstem	41.385043, -81.525098
Un002	Bedford Heights Bus Garage	Unnamed tributary	41.385636, -81.499103
TC005	Tinker's Creek Aqueduct	Tinker's mainstem	41.365475, -81.608117
PB002	Pond Brook upstream of confluence	Pond Brook	41.289170, -81.399671
TC006	Tinker's Creek at Bissell	Tinker's mainstem	41.287499, -81.401056

2019 Water Quality Sites Map



2019 Monitoring Results

According to the Ohio Environmental Protection Agency's (EPA's) 2016 Integrated Water Quality Monitoring and Assessment Report, Tinker's Creek watershed is impaired by organic enrichment or low dissolved oxygen, oil and grease, nutrients, natural limits, flow alteration, direct habitat alterations, particle distribution or embeddedness, sedimentation or siltation, and unknown causes. To target these impairments, TCWP measures nitrite and nitrate (NO2 + NO3), ammonia (NH3), total phosphorous (TP), total suspended solids (TSS), and *E. coli*. These parameters are defined in detail in Appendix A.

Dissolved Oxygen Results

Aquatic organisms can only use oxygen that is dissolved in the water column. If dissolved oxygen concentrations fall below 2 mg/L, fish will begin to suffocate in that stream reach or waterbody. Waterbodies designated as warmwater habitat (WWH), like Tinker's Creek, should maintain average dissolved oxygen concentrations above 5 mg/L. This and other thresholds pertaining to WWH are outlined in Section 3745-1-35 of the Ohio Administrative Code.

In Tinker's Creek watershed, all but one sampling site meets and exceeds this 5 mg/L dissolved oxygen threshold (Figure 1). Only Darrow Road Park (UnHw001) failed to meet this threshold with an average dissolved oxygen concentration of 4.32 mg/L.

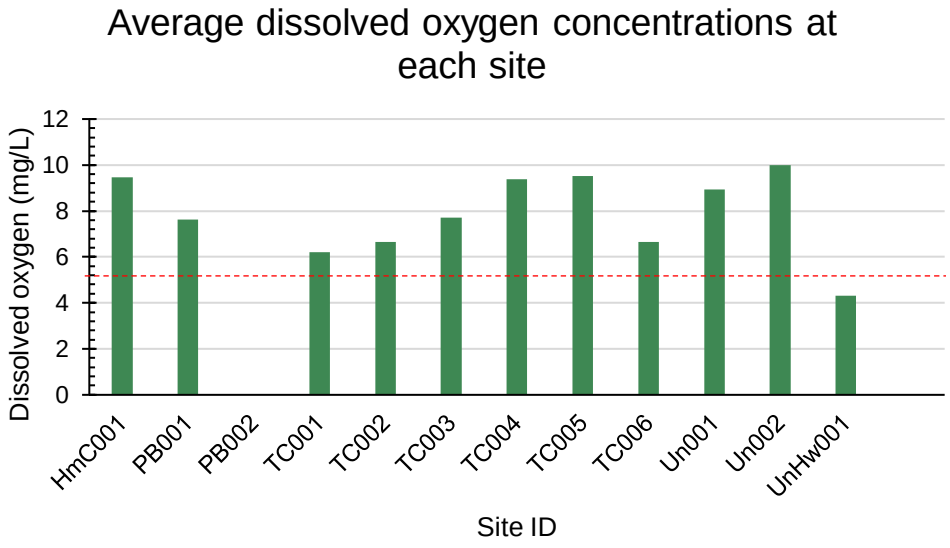


Figure 1: Average dissolved oxygen concentrations at each sampling site

Over the course of the sampling period, dissolved oxygen concentrations at Darrow Road Park decreased (Figure 2). In May and early June, dissolved oxygen concentrations exceeded targets, remaining between 6 and 7 mg/L. However, dissolved oxygen concentrations rapidly decreased to 2.64 mg/L by July 9. These low dissolved oxygen concentrations may be a result of decreased flow and warmer temperatures. As summer heats up, more evaporation occurs in streams, causing lower flows that may move more slowly. Slow moving, warmer water tends to have lower dissolved oxygen concentrations than rapidly moving, cold water. However, because flow or discharge was not measured during the 2019 field season, the exact cause of decreased dissolved oxygen concentrations is not yet known.

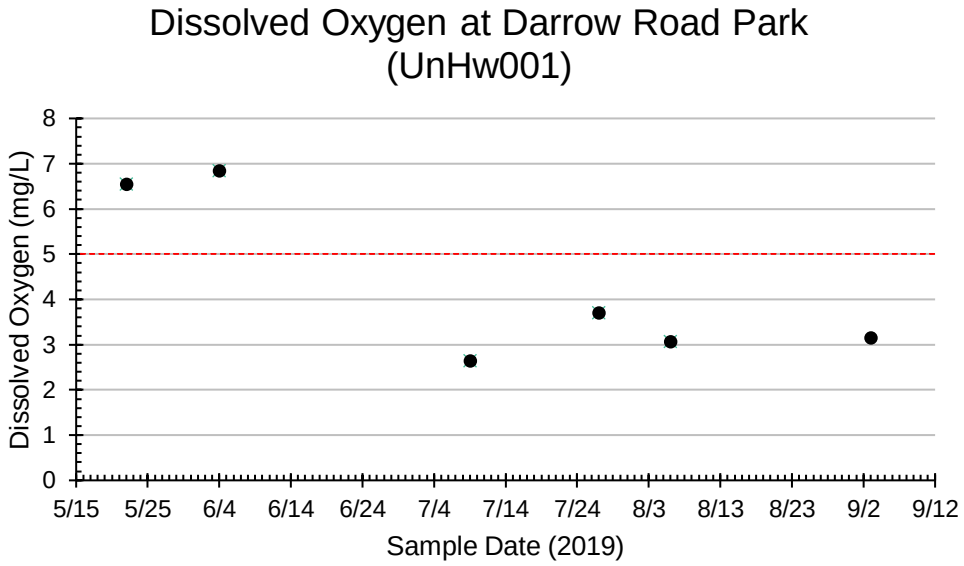


Figure 2: Dissolved oxygen concentrations at Darrow Road Park

E. coli Results

Escherichia coli (*E. coli)* bacteria is found in intestines of animals and humans. Because animal feces contain *E. coli*, surface waterbodies naturally contain some concentration of *E. coli*. However, unusually high *E. coli* concentrations can indicate sewage or organic pollution. The State of Ohio regulates *E. coli* concentrations for both aquatic use and recreational use designations. Tinker's Creek is designated as WWH and primary contact recreation (PCR). Rule 3745-1-04 of the Administrative Code sets limits for *E. coli* concentrations in all waterbodies at "1,030 *E. coli* counts per 100 mL in two or more samples when five or fewer samples are collected, or in more than 20% of samples when five or more are taken." Concentrations exceeding this threshold are considered public health nuisances. For PCR, the 90-day geometric mean *E. coli* concentration must be below 126 cfu/100 mL, or the statistical threshold value must remain below

410 cfu/100 mL over a 90-day period, according to Rule 3745-1-37 of the Administrative Code. The 90-day geometric mean concentration for each site were calculated for each month from June-September (Table 4). For June, however, geometric means were calculated using only *E. coli* concentrations measured in May and June, or two sampling events. The geometric mean was not calculated for PB002, for only one sampling event occurred at this site.

Table 4*:* Geometric mean E. coli concentrations

Site ID:	Month:	*E. coli* concentration (cfu/100 mL):
HmC001	June	719*
	July	417*
	August	601*
	September	233*
PB001	June	275*
	July	280*
	August	251*
	September	315*
TC001	September	155*
TC002	June	228*
	July	232*
	August	493*
	September	445*
TC003	June	181*
	July	219*
	August	184*
	September	235*
TC004	June	133*
	July	150*
	August	119
	September	119
TC005	June	346*
	July	262*
	August	349*
	September	258*
TC006	July	1149*
	August	619*
	September	434*
Un001	July	3699*
	August	1507*
	September	931*
Un002	June	231*
	July	224*
	August	145*
	September	104
UnHw001	June	195*
	July	424*
	August	342*
	September	313*

* indicates values that exceed PCR criteria (geometric mean > 126 cfu/100 mL)

E. coli concentrations vary greatly throughout Tinker's Creek watershed. During the 2019 sampling season, *E. coli* concentrations ranged from 10 cfu/100 mL to 12,000 cfu/100 mL. At most sites in the watershed, geometric mean *E. coli* concentrations consistently exceeded PCR criteria (Figure 3). Four sites, Hemlock Creek Picnic Area (HmC001), Pond Brook upstream of confluence (PB002), Tinker's Creek at Bissell (TC006), and Highland Woods apartments (Un001), exceeded *E. coli* criteria in 100% of samples taken this year (Figure 4). However, because only one sample was taken at PB002, it is unsure if high *E. coli* concentrations are a recurring occurrence at this

site. The exact cause of these exceedances is not known, but TCWP recommends that communities in the watershed keep up with their minimum control measure #3 illicit discharge detection and elimination (MCM#3, IDDE) requirements under their National Pollutant Discharge Elimination System (NPDES) permit to ensure that no illegal connections to the storm sewers are present. TCWP also educates the public about the importance of best management practices, like picking up after our pets on walks, in protecting local water quality.

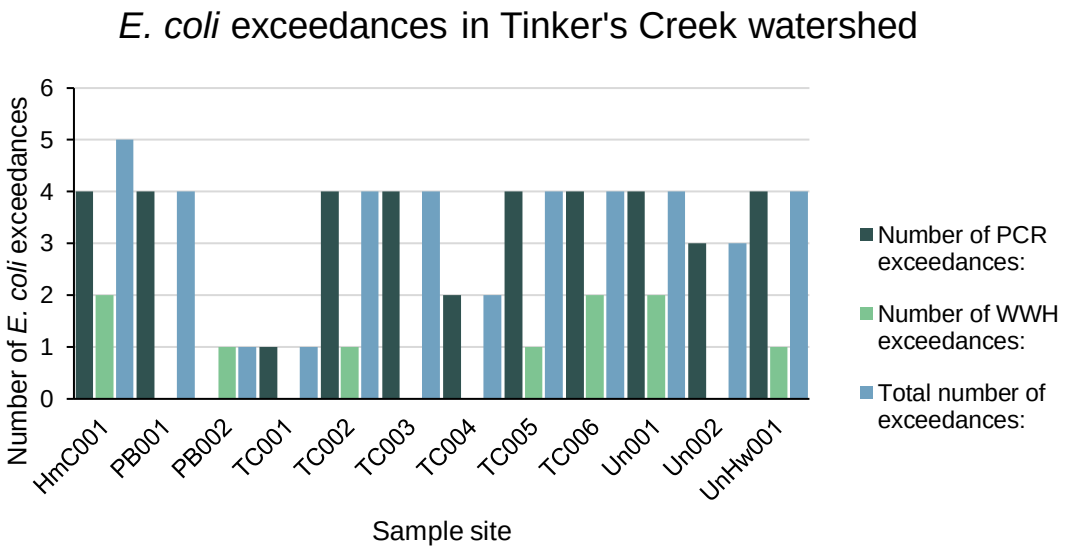


Figure 3: Number of *E. coli* water quality criteria exceedances in the watershed

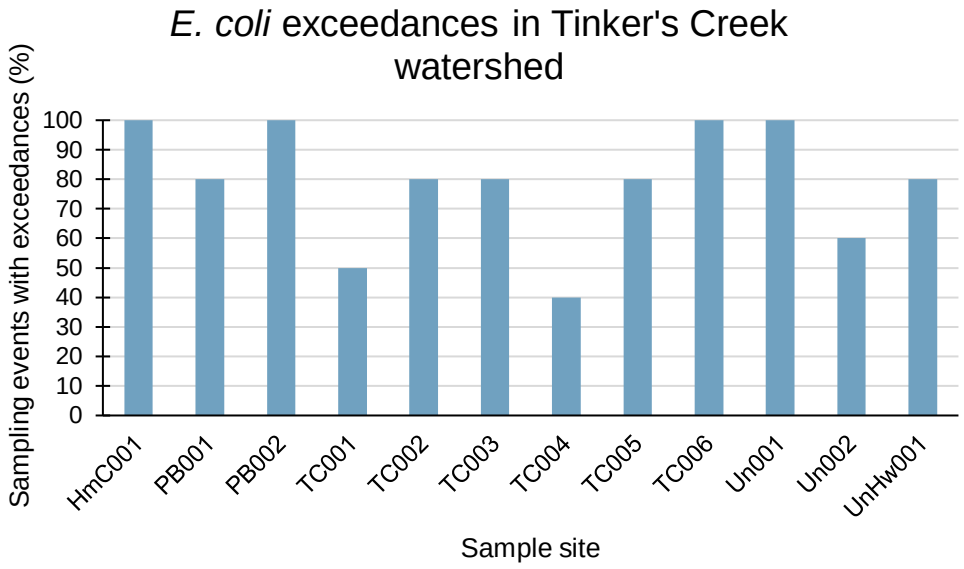


Figure 4: Percentage of sampling events with PCR or WWH *E. coli* exceedances at each site

Nutrient Results

Over the course of the sampling season, nutrient concentrations varied greatly at each site. During rain events, nutrients and other pollutants get washed into the creek with stormwater. This causes temporary spikes in nutrient and total suspended solids (TSS) concentrations. TCWP's water quality monitoring data captures several storm events, so these spikes are expected and evident in our dataset.

Average nitrite and nitrate concentrations were highest in Hemlock Creek Picnic Area (HmC001) (Figure 5). At HmC001, nitrite and nitrate concentrations were consistently high over the course of the sampling period, and the average nitrite and nitrate concentrations were significantly higher at HmC001 than all other sites. This may indicate nutrient pollution upstream of this site (Figure 6).

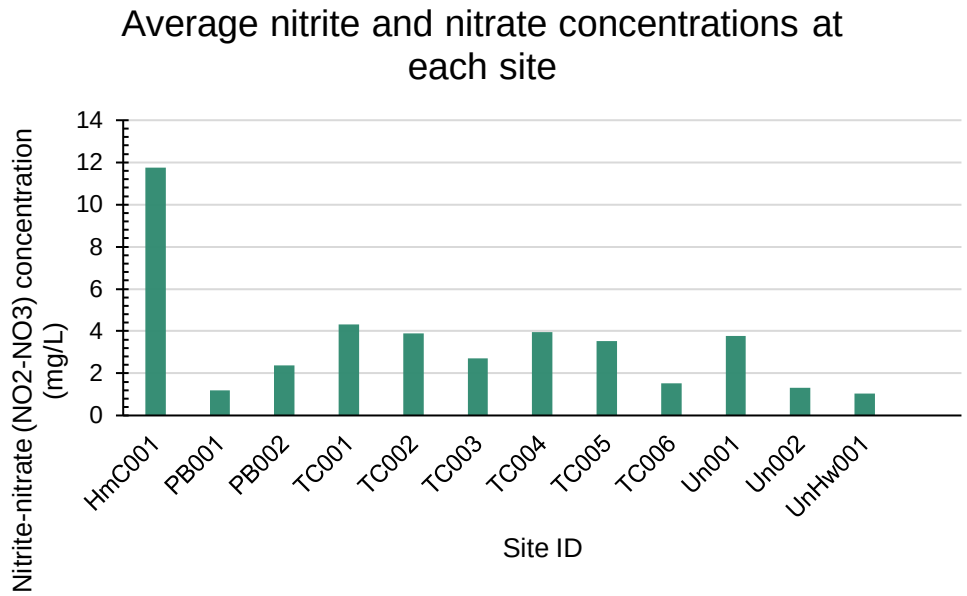


Figure 5: Average nitrite and nitrate concentrations at each sampling site

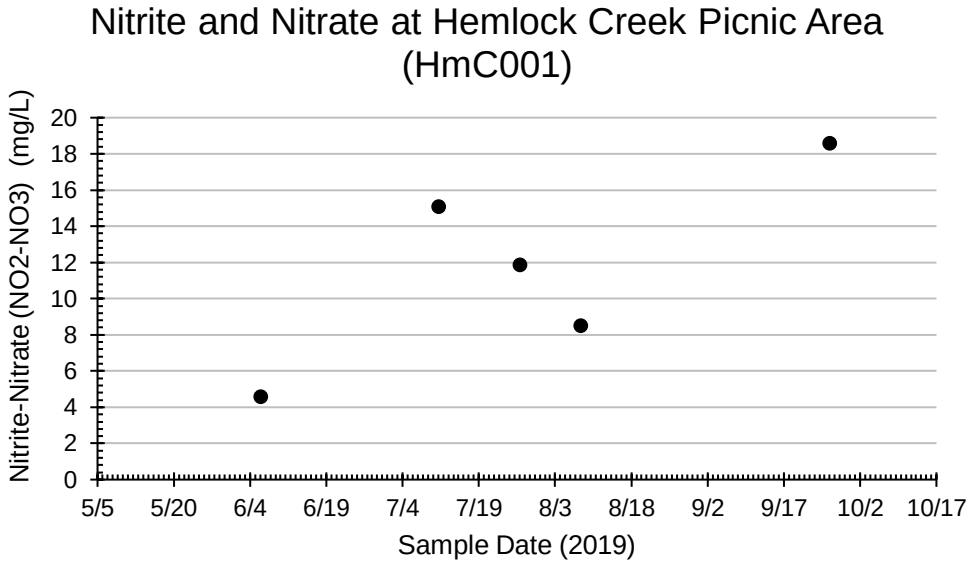


Figure 6: Nitrite-nitrate concentrations at Hemlock Creek Picnic Area (HmC001)

Ammonia concentrations at each site remained relatively low, with the maximum observed concentration over the study period occurring on September 19 at Liberty Park Pond Brook Conservation Area (PB001). On average, ammonia concentrations remained below 0.12 mg/L at

all other sites (Figure 7). No significant trends have been observed from these measured ammonia concentrations in Tinker's Creek watershed so far.

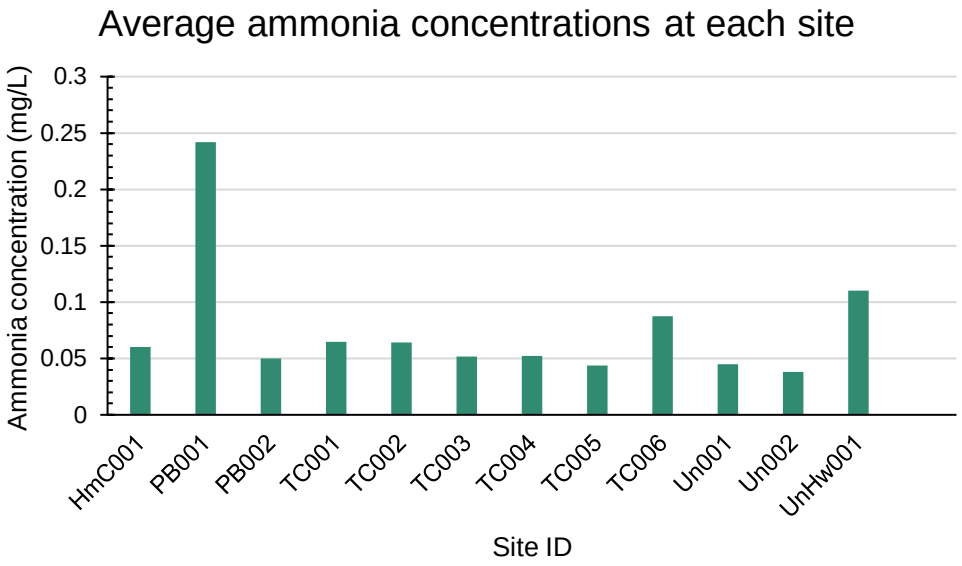


Figure 7: Average ammonia concentrations at each site

Total phosphorus concentrations in Tinker's Creek were low within normal ranges at all sites throughout the sampling period. On average, total phosphorus concentrations remained below 0.25 mg/L (Figure 8). The highest recorded concentrations of total phosphorus occurred on September 3 at Darrow Road Park (UnHw001), measuring 0.33 mg/L. Overall, no trends have been observed using this data relative to phosphorus concentrations in the watershed.

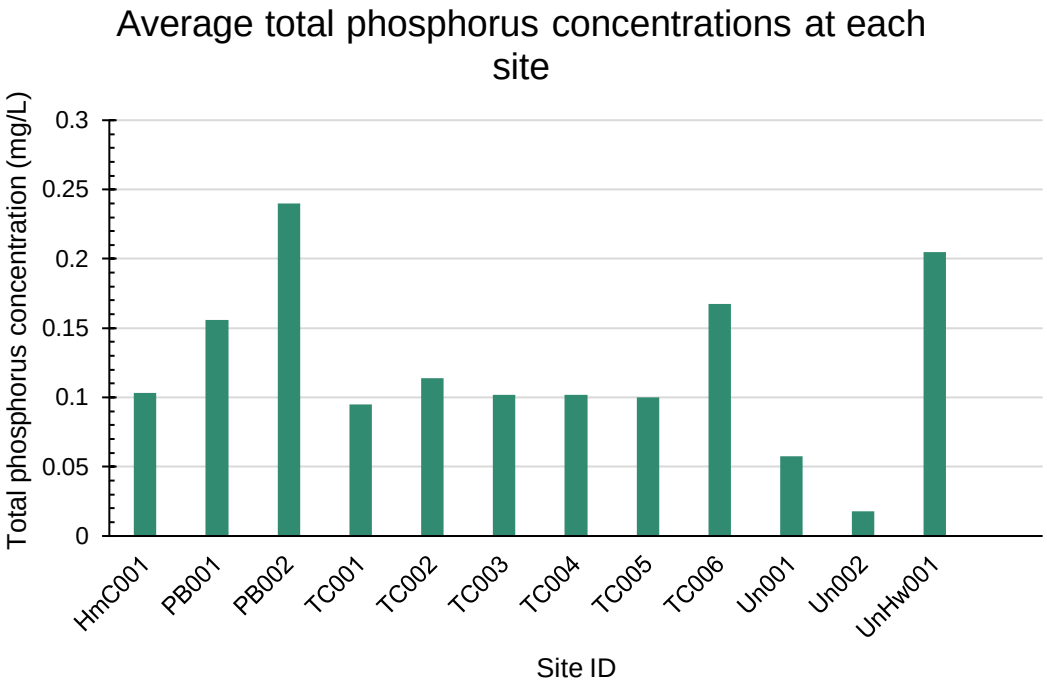


Figure 8: Average total phosphorus concentrations at each site

Total Suspended Solids (TSS) Results

Material suspended in the water column, like sediment or debris, can reduce light availability and dislodge organisms living along the bed of the creek. While the State of Ohio does not currently have any water quality criteria for TSS relative to WWH or PCR, unusually high levels of TSS can cause sedimentation and degradation of the benthic aquatic community. High TSS may also be indicative of erosion or nearby stormwater pollution.

Like nutrient concentrations, spikes in TSS concentrations typically occur following storm events. TCWP's water quality monitoring data captures several storm events this year, so these spikes are expected and evident in our dataset.

On average, TSS concentrations were highest at Liberty Park Pond Brook Conservation area (PB001) (Figure 9). However, this data is highly skewed by the September 19 sampling event at which TSS was measured at 480 mg/L. Prior to September 19, the highest recorded TSS value at PB001 was 12 mg/L, so this September sampling event may be an outlier. Pond Brook upstream of confluence (PB002) also experience high average TSS values, but because only one sample was collected at this site during 2019, TCWP is unable to determine if this is a recurring trend. TSS was also higher on average at Tinker's Creek Aqueduct (TC005), Tinker's Creek at Bissell (TC006), and Darrow Road Park (UnHw001). The average TSS at TC005 was skewed by the June 6 sampling event, during which TSS was measured at 110 mg/L. On June 5, heavy rains

occurred, affecting water quality at this site. TSS was consistently high at TC006, on the other hand. TC006 is located just downstream of the confluence of Tinker's Creek Headwaters and Pond Brook subwatersheds, so this site is expected to experience periods of high suspended matter. Because UnHw001 is located in a shallow tributary of Tinker's Creek, however, data suggests that Darrow Road Park may be experiencing sedimentation or stormwater pollution.

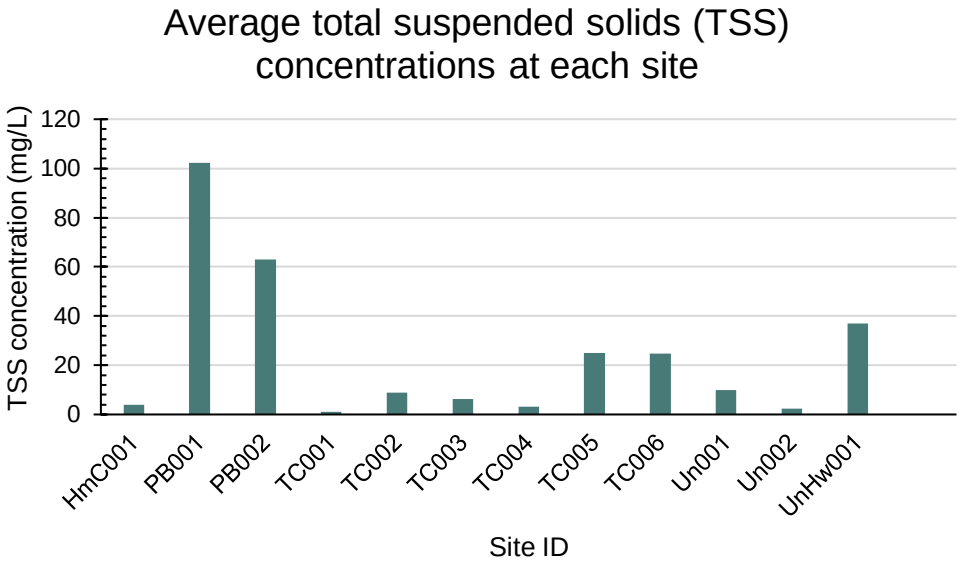


Figure 9: Average total suspended solids concentrations at each site

Conclusions

Overall, the data retrieved from this year's monitoring program highlights two major issues across the watershed: stormwater pollution and *E. coli* inputs. Significantly high concentrations of nutrients or total suspended solids observed throughout the sampling period may be caused by stormwater pollution. Tinker's Creek is a highly urban watershed, and sediment and nutrients are common pollutants in these settings. Without best management practices and an in-tact riparian corridor, Tinker's Creek may not be protected from these pollutants. Additionally, Tinker's Creek exhibits high concentrations of *E. coli* bacteria in several locations throughout the watershed, exceeding PCR water quality criteria in almost every sampling event. High concentrations of *E. coli* are often caused by illegal connections to the storm sewer, failing septic systems, or improper animal waste storage. To combat these issues, TCWP recommends that communities promote the installation of best management practices and maintain a robust illicit discharge detection and elimination (IDDE) program. For more information about these recommendations or assistance implementing them, please contact TCWP at 330-963-6243.

This year's water quality monitoring program also indicates poor water quality at Darrow Road Park. Historically, this unnamed tributary was once a ditch to convey water away from nearby homes. Now, this tributary has low dissolved oxygen, high TSS, and high nutrient concentrations. Additionally, flow is often very low and slow in this tributary, potentially causing sedimentation within the channel. TCWP recommends restorative actions at this site, including but not limited to increased floodplain connection, wetland restoration, and in-stream habitat improvements. TCWP has started working with Friends of Hudson Parks and the City of Hudson to develop an action plan at this site.

Because 2019 is the first official year of TCWP's monitoring program, the trends observed in this report should be taken with a grain of salt. To truly understand the health of Tinker's Creek and major pollution sources, TCWP will need to monitor the creek for several years, even decades. Additionally, this dataset was largely affected by storm events, which may or may not be indicative of normal water quality in Tinker's Creek. As we continue this program, TCWP will continue to publish Water Quality Reports to paint a better picture of watershed health and pollution sources.

Water quality in Tinker's Creek watershed has been improving since restoration actions began in the Cuyahoga River basin. To continue these improvements, we need your help. To learn more about watershed stewardship and what **you** can do to protect and restore Tinker's Creek, please contact us at info@tinkerscreekwatershed.org or 330-963-6243.

Thank you to all of our volunteers for a successful monitoring season! We hope to work with you all again in 2020. TCWP also wants to thank all of our partners who have contributed to and assisted with the monitoring, restoration, and protection of Tinker's Creek watershed.

Appendix A: Definitions

Air temperature: measured in degrees Celsius

Water temperature: measured in degrees Celsius, impacts amount of dissolved oxygen, influences water chemistry, limits what organisms can live in a body of water

pH: measure of how acidic/ basic water is. Determines solubility, biological availability and chemical constituents of nutrients, limits what organism can live in the water.

Dissolved oxygen (DO) (mg/L): amount of oxygen available for use as respiration for fish and aquatic organisms.

Total suspended solids (TSS) (mg/L): amount of sediment suspended in the water. High levels can cause decrease in sunlight, accumulate in fish gills causing them to be unable to breathe, decrease disease resistance, decrease food availability, and/or cause high concentrations of bacteria, metals, nutrients, and pesticides.

Total phosphorous (mg/L): one of the key elements (other than nitrogen) needed for plant growth. Too much can cause eutrophication, which can cause fish kills and plant deaths.

Ammonia (NH_3) (mg/L): amount of ammonia in the water. Ammonia is a product of microbiological activity and may be indicative of sanitary pollution.

Nitrite-nitrate (NO_2, NO_3) (mg/L): nitrite/ nitrate levels in the water. Intermediate and end products of the biological breakdown of organic nitrogen.

Nitrite: high quantities can show waste water pollution

Nitrate: not very toxic to fish but may indicate poor water quality

***Escherichia coli (E. coli)* (cfu/100mL)**: Escherichia coli bacteria, found in intestines of animals and humans. Indication of sewage or animal waste contamination.

Appendix B: Additional Resources

Dominion Energy and Western Reserve Land Conservancy Watershed Mini Grant Program. Retrieved from https://www.wrlandconservancy.org/articles/tag/dominion-energy-watershed-mini-grant-program/.

EarthEcho International: Water Challenge. Retrieved from http://www.monitorwater.org/.

Ohio Administrative Code 3475-1-01 through 3475-1-44 and 3475-1-50 through 3475-1-54. Retrieved from https://www.epa.gov/sites/production/files/2015-09/documents/oh_34751_1_to_40.pdf.

Ohio EPA Credible Data Program. https://epa.ohio.gov/dsw/credibledata/index.

Ohio EPA Integrated Water Quality Monitoring and Assessment Report. Retrieved from https://www.epa.ohio.gov/dsw/tmdl/OhioIntegratedReport#1798510016-report.

Ohio Watershed Data. Retrieved from http://watersheddata.com/default.aspx.

Tinker's Creek Nine-Element Non-Point Source Implementation Strategic Plan: Pond Brook (HUC12: 041100020501). Retrieved from https://tinkerscreek.org/wp-content/uploads/2017/07/Tinkers-Creek-Pond-Brook_Ver1.0_7-5-2017.pdf.

Tinker's Creek Nine-Element Non-Point Source Implementation Strategic Plan: Headwaters Tinker's Creek (HUC12: 041100020502). Retrieved from https://tinkerscreek.org/wp-content/uploads/2017/07/Tinkers-Creek-Headwaters_Ver1.0_7-6-2017.pdf.

Tinker's Creek Nine-Element Non-Point Source Implementation Strategic Plan: Town of Twinsburg (HUC12: 041100020504). Retrieved from https://tinkerscreek.org/wp-content/uploads/2017/07/Tinkers-Creek-%E2%80%94Town-of-Twinsburg_Ver1.0_8-8-2017.pdf.