

2023 BioMonitoring Report For Benthic Macroinvertebrates



The Huron River Watershed Council conducts aquatic benthic macroinvertebrate sampling in the winter, spring, and fall every year. **Aquatic Benthic Macroinvertebrates** are particular types of insects, crustaceans, gastropods, and mollusks. The word “benthic” refers to the bottom of a lake or stream, the word “macro” means they are large enough to see with the naked eye, and “invertebrates” are creatures without backbones.

Staff and volunteers visit rivers and creeks across the Huron River Watershed and collect samples of these critters that live in the stream and on the streambed. Benthic macroinvertebrates are good indicators of water and habitat quality because they live in the water year-round and are exposed to all of the stressors and threats that the stream faces, such as chemical pollution, high and low flows, fast and stagnant water, and erosion, to name a few.

Summary of 2023

Of the 59 sites regularly monitored by HRWC, 42 of them are unchanging over time, 7 are getting better, and 10 are getting worse.

Of these 59 sites, 9 are “Excellent” and 16 are “Good” with macroinvertebrate populations much higher to slightly higher than average. 18 are “Fair” and 16 are “Poor” with macroinvertebrate populations slightly to much lower than average.

Of the sites getting better, **Mann Creek: Van Amberg Road, Fleming Creek: Warren Road, and Huron Creek in Hudson Mills Metropark** are the most exciting, since they already have excellent macro populations and are becoming real gems of the Watershed. These are creeks that we want to protect. **Mill Creek: Mill Creek Park, Fleming Creek: Parker Mill Park, Hummocky Lick: M-36 and Malletts Creek at Chalmers** are also getting better through time. The improvements in Mill Creek have occurred since the Mill Creek dam was removed in 2008. Malletts Creek has been improving for about 8 years now, ever since Washtenaw County put serious investment in improving the stream’s flashy water flow and eroding banks.

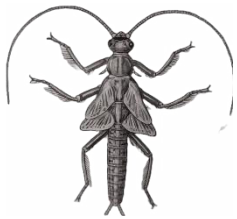
Of the sites declining, the largest concern is **Davis Creek near South Lyon**, as multiple sites in this growing community are getting worse and this is a trend that has continued for several years now. Other declining sites include **Chilson, Hay, and South Ore Creek**.

How does HRWC rate its sampling sites?

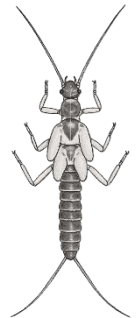
HRWC uses five different metrics of benthic macroinvertebrates to rate the benthic community. The first four of these metrics are calculated by the number of families in a sample. A “family” is a taxonomic term that indicates a type of macroinvertebrate (for example, it is possible to find about 10 different mayfly families in our area of Michigan). In general, the more families found, the healthier the stream.

1. **All insects:** This metric is a count of all insect families in the sample. It serves as a general indicator of stream health and habitat diversity in particular.
2. **EPT:** Standing for Ephemeroptera-Plecoptera-Trichoptera, this metric is a count of all mayfly, stonefly, and caddisfly families in the sample. These insects are sensitive to water temperature and oxygen availability. Stagnant or warm streams will not have many of these families.
3. **Sensitive:** There are 21 insect families found in the Huron River watershed that are particularly sensitive to organic pollution (i.e. fertilizers, animal and human waste). This metric is a count of those insect families. Up to six or seven of these families might be found in a single sample from near pristine streams in the Huron, but even highly healthy streams will usually only have three or four. Finding one or two is normal for an average stream, and degraded streams won't have any.

4. **Winter Stoneflies:** There are five different stonefly families in the Huron River watershed, and two of these in particular (Taeniopterygidae and Capniidae) are not found during the spring and fall. To find them, we hold a special monitoring event in January where we only look for stoneflies! The number of stonefly families in January reflects habitat quality and baseflow instream water quality instead of the water quality from landscape runoff. This is because in the frozen winter there is not significant water run-off from land. As climate changes causes more melt water throughout winter, we expect to see winter stoneflies to decline over time.



Winter Stonefly
Family: Taeniopterygidae










Small Winter Stonefly
Family: Capniidae

MiCorps Water Quality Rating (WQR)

The MiCorps WQR is the fifth metric used to determine benthic population quality. This rating is one used by all stream monitoring groups involved in the Michigan Clean Water Corps Program (www.micorps.net), thus it is a statewide measure and used to compare Michigan streams. WQR is an index of biotic integrity (IBI) measure that is essentially a weighted average of insect pollution tolerance values, ranging from 0 to 10. A score of 0 is extremely healthy and a 10 is highly degraded. In the Huron, the best score is normally around a 3.8 and the worst score is normally around a 7.2.

The abundance of macroinvertebrates plays into this score as well. It is expected that any particular sample should have between 100-150 macroinvertebrate specimens to give the most accurate score. However, in highly degraded streams collecting this many is not always possible as populations will be low. Samples with very low abundances will essentially break the math of the MiCorps WQR and usually result in a higher score than the stream should have. Thus, if a collection comes back with less than 30 specimens it is automatically given a 10, and a collection with less than 60 specimens is automatically given a 7.

Water Quality Rating		Degree of Organic Pollution	
0.0-3.50	excellent		Pollution unlikely
3.51-4.50	very good		Slight pollution possible
4.51-5.50	good		Some pollution possible
5.51-6.50	fair		Fairly substantial pollution likely
6.51-7.50	fairly poor		Substantial pollution likely
7.51-8.50	poor		Very substantial pollution likely
8.51-10.0	very poor		Severe pollution likely

Trends: Trends are determined by simple linear regressions of the sample year vs. five metrics described above. If at least two of the nine regressions (4 for fall, 4 for spring, and 1 for winter stonefly) are significant at the alpha level of 0.1 and trending the same direction, the trend is noted. Six data points are required before a regression is calculated. It is normal to have fluctuations up and down in populations.

HRWC only gets concerned about downward trends if they are persistent over many years. Thankfully, this is rare in HRWC data, but when it happens then staff consider restoration projects to help the ecosystem recover. For example, both Millers Creek and Norton Creek have had very poor and declining macroinvertebrate populations for many years and HRWC has initiated several projects in the creekshed. Malletts Creek has had very poor macroinvertebrate populations historically but significant investment and restoration was put in place by HRWC, Washtenaw County, and Ann Arbor, and now the creek is showing a positive trend in the macroinvertebrate metrics!

Cruise the InfoStream

The next several pages of this report give the most recent BioMonitoring results, but HRWC also has an online mapping system where you can see the location of each monitoring site as well as graphs over time for each metric.

Benthic Macroinvertebrate map: <https://shorturl.at/drzMQ>

All HRWC online maps: <https://www.hrwc.org/our-watershed/maps/>

Site #	Site Location	Overall Site Ranking (1= Best, 59= Worst)	Habitat/ Physical Condition with Measuring and Mapping Program and Conductivity measurements	Biological Condition with Roundup and Stonefly Search	River Roundup Metrics	Insect Family Diversity	EPT Family Diversity	Sensitive Family Diversity	MiCorps WQR	# of Stoneflies Families during Stonefly Search		Comments	Trends
30	Mann Creek: Van Amberg Road	1	Fair	Excellent	Spring 2023	No sample				Winter 2023	4.0	Fall samples have increased significantly over time and spring samples have remained steady and high. This site is also the best site to go to during the Stonefly Search as three or four families of stoneflies are regularly found. Conductivity is higher here than it should be-- meaning that there is some source of salt regularly coming into the river (perhaps water softeners connections). Despite this, the macroinvertebrate population here is amazing (1995-2022).	↑
					Spring Avg. since 2020	16.0	8.0	6.0	4.3, V. Good				
					Fall 2023	No sample				Average since 2020	3.3		
					Fall Avg. since 2020	22.0	9.0	6.0	4.1, V. Good				
25	Huron River: White Lake Road	2	Good	Excellent	Spring 2023	Sample rejected for exceptionally low abundance				Winter 2023	1.0	Despite this being a small little river, the insect diversity is high and we always find many sensitive families. Stoneflies are regularly found. However, 2023 was a year of poor sampling here-- abundances and diversity were down. The spring sample was so low that the issue was likely a collection or procedure issue (1998-2023).	—
					Spring Avg. since 2020	22.0	13.0	4.0	3.8, V. Good				
					Fall 2023	13	5	1		Average since 2020	0.7		
					Fall Avg. since 2020	17.3	7.7	3.3	4.0, V. Good				
13	Fleming Creek: Warren Road	3	Good	Excellent	Spring 2023	14	6	2	4.6, Good	Winter 2023	1.0	Since 1994 this site has improved significantly in fall and spring collections. Winter stoneflies are consistently present (1994-2023).	↑
					Spring Avg. since 2020	15.5	8.5	3.5	4.6, Good				
					Fall 2023	14	4	2	4.0, V. Good	Average since 2020	1.0		
					Fall Avg. since 2020	12.0	4.0	2.0	3.9, V. Good				

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37	Portage Creek: Dexter Townhall Road	4	Good	Excellent	Spring 2023	No sample				Winter 2023	2.0	While fall samples are holding steady and are very diverse, there have been significant declines in the spring total families, EPT families, and sensitive families since 1996 (sensitive families 5-->1 or 2, normally). It is possible that high flows in the spring heavily affect the insect population. Winter stoneflies are found abundantly here. (1996-2023).	↓
					Spring Avg. since 2020	13.0	9.0	2.0	4.8, Good				
					Fall 2023	16	5	5	3.6, V. Good	Average since 2020	2.0		
					Fall Avg. since 2020	16	5	5	3.6, V. Good				
26	Huron River: Zeeb Road	5	Good	Excellent	Spring 2023	13	7	3	3.9, V. Good	Winter 2023	2.0	This section of the Huron River is the most diverse in macroinvertebrate life of any that HRWC monitors. (1996-2023) (Its overall rating gets downgraded because the river is so big here, and we would hope to see even higher diversity than we do!) This site is hard to sample as it gets quite deep.	
					Spring Avg. since 2020	13.0	7.0	3.0	3.9, V. Good				
					Fall 2023	14	7	2	4.0, V. Good	Average since 2020	2.0		
					Fall Avg. since 2020	17.3	7.7	3.0	4.0				
22	Huron Creek: Dexter-Pinckney Road	6	Good	Excellent	Spring 2023	No sample				Winter 2023	3.0	This site is showing significant long-term increases in fall EPT samples and spring total families and EPT samples. Stoneflies are abundant and consistently found (1996-2022). This is a wonderfully diverse location.	↑
					Spring Avg. since 2020	16.0	9.0	4.0	3.6, V. Good				
					Fall 2023	No sample				Average since 2020	2.7		
					Fall Avg. since 2020	10.0	5.0	3.0	3.9, V Good				
46	Woodruff Creek: Buno Road	7	Fair	Excellent	Spring 2023	15	7	1	5.1	Winter 2023	0.0	No significant changes over time (1993-2023). Winter stoneflies are found less than 50% of the samples here (and missing the last two samples).	—
					Spring Avg. since 2020	14.5	7.0	1.5	5.1				
					Fall 2023	15	5	1	5.0	Average since 2020	0.7		
					Fall Avg. since 2020	15.0	5.0	0.5	5.1				

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16	Honey Creek (N): Darwin Rd	8	Fair	Excellent	Spring 2023	Not sampled				Winter 2023	2.0	This lovely creek has remained unchanging for the years we have been monitoring here. Winter stoneflies are consistently present. (1997-2023).	—
					Spring Avg. since 2020	11.0	7.0	3.0	3.5, Excellent				
					Fall 2023	Not sampled				Average since 2020	1.7		
					Fall Avg. since 2020	17.0	6.0	2.0	4.0, V. Good				
84	Fleming Creek: Galpin Road	9	Good	Good	Spring 2023	Not sampled				Winter 2023	1.0	No significant changes over time. Winter stoneflies are always found here in high numbers (2004-2023).	—
					Spring Avg. since 2020	Not sampled							
					Fall 2023	Not sampled				Average since 2020	1.7		
					Fall Avg. since 2020	17.5	3.5	0.5	5.2				
40	South Ore Creek: Hamburg Rd	10	Good	Good	Spring 2023	12	7	2		Winter 2023	2.0	This creek is doing very well through this section. Spring insects are increasing, though not significantly. Insects and specifically stonefly abundance is very high. (1994-2023).	—
					Spring Avg. since 2020	14.0	7.7	2.3	4.3				
					Fall 2023	No sample				Average since 2020	1.5		
					Fall Avg. since 2020	12.0	3.5	1.0	4.5				

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63	Hummocky Lick: M-36	11	Good	Good	Spring 2023	18	6	2	4.4	Winter 2023	2.0	From 2000-2004, about 18 insect families were found in fall samples. Since 2007, it is more usual to find between 11-13, and then more recently, 8-10. However, since 2019, Hummocky Lick has been recovering! Insect family diversity has crept back up to 18 or 19 families. Hummocky Lick is becoming (perhaps better stated, returning to) one of the best streams in the watershed. Stoneflies went missing from 2015 through 2020, but now have been found in 2021 and 2023. (2000-2023).	↑
					Spring Avg. since 2020	18.5	7.5	2.5	4.8				
					Fall 2023	18	7	2	4.4	Average since 2020	1.0		
					Fall Avg. since 2020	15.3	4.5	1.0	4.4				
49	Davis Creek: Silver Lake Rd	12	Fair	Excellent	Spring 2023	Sample not valid				Winter 2023	0.0	All spring metrics are significantly declining, but fall sensitive families are staying about the same statistically. This fall sample was particularly healthy. Stoneflies are normally found here-- but weren't in 2023. We will return to this site in 2024 for all three seasons. (1998-2023).	↓
					Spring Avg. since 2020	13.0	7.0	1.0	5.0				
					Fall 2023	No sample taken				Average since 2020	0.7		
					Fall Avg. since 2020	18.0	8.0	5.0	4.5				
5	Chilson Creek: Chilson Road	13	Good	Good	Spring 2023	No sample				Winter 2023	2.0	Sensitive families are declining here, in both the spring and the fall. Winter stoneflies are holding steady (1995-2023). Habitat is healthy and diverse.	↓
					Spring Avg. since 2020	12.0	5.0	2.0	4.1, V. Good				
					Fall 2023	15	4	2	5, Good	Average since 2020	1.3		
					Fall Avg. since 2020	13.3	4.7	1.3	4.5, V. Good				

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62	Huron River: Bell Road	14	Good	Good	Spring 2023	Not sampled				Winter 2023	1.0	This site is often difficult to sample because of fast flows, especially in the spring. Stoneflies are found here in about 3/4 of samples. The site has stable macro populations. (2000-2023)	—
					Spring Avg. since 2020	12.0	6.0	1.0	4.1				
					Fall 2023	Not sampled				Average since 2020	1.0		
					Fall Avg. since 2020	15.5	5.0	1.5	4.4				
68	Pettibone Creek: Livingston Rd	15	Fair	Good	Spring 2023	Not sampled				Winter 2023	0.0	There have been some population shifts up and down, but overall the site is holding steady. Winter stoneflies are not found here (2000-2023)	—
					Spring Avg. since 2020	13.0	6.0	1.0	4.8				
					Fall 2023	Not sampled				Average since 2020	0.0		
					Fall Avg. since 2020	12.5	4.5	0.5	4.2				
9	Fleming Creek: Botanical Gardens	16	Good	Good	Spring 2023	14	5	1	5.8, Fair	Winter 2023	1.0	This site is remaining steady with its insect community, though the site floods readily and often can't be sampled. Winter Stoneflies have a strong population here. The habitat is diverse and healthy. (1993-2023)	—
					Spring Avg. since 2020	14.0	5.0	1.0	5.8, Fair				
					Fall 2023	16	6	2	4.3, V. Good	Average since 2020	1.3		
					Fall Avg. since 2020	13.0	5.3	1.7	4.1, Very Good				
79	Mill Creek: Mill Creek Park	17	Fair	Good	Spring 2023	Not sampled				Winter 2023	2.0	Samples have been getting better over time-- a slow crawl upwards, and not significant as of yet. Fall 2023 received a low WQR score because of a huge amount of water boatman pulled from site (this is a possible sampling artifact). Winter stoneflies are always found here. (2003-2023).	↑
					Spring Avg. since 2020	15.0	8.0	3.0	4.1				
					Fall 2023	14	4	1	6.9	Average since 2020	2.0		
					Fall Avg. since 2020	14.0	5.0	1.5	5.1				

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15	Hay Creek: M-36	18	Good	Good	Spring 2023	12.5	7	2.5	4.7, Good	Winter 2023	3.0	Several metrics in fall and spring have declined significantly over time. Winter stoneflies have been found consistently until 2020 when they were absent, but have been found again since then. (1996-2023)	↓
					Spring Avg. since 2020	12.5	7.0	2.5	4.3, V. Good				
					Fall 2023	13	4	1.5	4.4, V. Good	Average since 2020	1.3		
					Fall Avg. since 2020	13.0	4.0	1.5	4.4, V. Good				
11	Fleming Creek: Parker Mill County Park	19	Good	Fair	Spring 2023	No sample				Winter 2023	1.0	Since 2009, we have been finding 1-2 sensitive families here in the fall where there was once none. Starting in 2018, there was enough data to confirm this as statistically significant. Spring sampling has proven to be quite difficult in recent years with flood impeding the collection process. Winter stoneflies are consistently present (1993-2023).	↑
					Spring Avg. since 2020	No valid samples							
					Fall 2023	No sample				Average since 2020	1.0		
					Fall Avg. since 2020	12.5	5.0	2.0	3.9, V. Good				
47	Huron River: Commerce Road	20	Fair	Good	Spring 2023	No sample				Winter 2023	No sample	Fall samples have significantly declined over time, with as many as 18 insect families found in the early years of sampling and only about 5-12 insect families found in recent years. Interestingly, spring EPT has statistically improved! The conflict results in the trend being marked as steady. Winter stoneflies, once abundant, have disappeared since 2019. Certainly this site is one to watch going forward. (1997-2022).	—
					Spring Avg. since 2020	15.0	8.0	1.0	5.1				
					Fall 2023	No sample				Average since 2020	0.0		
					Fall Avg. since 2020	12.0	6.0	1.0	4.3				
94	Portage Creek: Rockwell Rd	21	Fair	Good	Spring 2023	16	5	0	5.0	Winter 2023	0.0	No significant changes over time. Winter stoneflies are never found here (2013-2023).	—
					Spring Avg. since 2020	13.0	4.0	0.0	5.0				
					Fall 2023	19	3	1	5.5	Average since 2020	0.0		
					Fall Avg. since 2020	17.5	3.0	0.5	5.1				

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96	Mill Creek: Parker Rd	22	Fair	Good	Spring 2023	10	5	1	5.1	Winter 2023	0.0	No significant changes over time. Winter stoneflies are never found here (2013-2023).	—
					Spring Avg. since 2020	10.5	5.5	1.5	5.0				
					Fall 2023	Not sampled				Average since 2020	0.0		
					Fall Avg. since 2020	18.0	3.0	0.0	5.1				
52	South Ore Creek: Bauer Rd	23	Good	Fair	Spring 2023	No sample				Winter 2023	0.0	All three spring metrics have significantly decreased over time. Stoneflies haven't been seen since 2012 (1998-2022).	↓
					Spring Avg. since 2020	13.0	5.0	1.0	5.1				
					Fall 2023	No sample				Average since 2020	0.0		
					Fall Avg. since 2020	13.0	4.0	1.0	5.0				
64	Huron River: Proud Lake Rd	24	Fair	Good	Spring 2023	15	7	1	5.9	Winter 2023	Not sampled	There have been no significant changes over time. Winter stoneflies are never found here. (1999-2023).	—
					Spring Avg. since 2020	15.5	8.0	1.0	5.5				
					Fall 2023	10	5	0	4.8	Average since 2020	0.0		
					Fall Avg. since 2020	11.0	4.0	0.0	5.9				
82	Walker Creek: 8 Mile Creek	25	Good	Fair	Spring 2023	Not sampled				Winter 2023	Not sampled	No significant changes over time (2003-2023). Winter stoneflies have never been found here.	—
					Spring Avg. since 2020	No samples							
					Fall 2023	13	5	0	4.9	Average since 2020	0.0		
					Fall Avg. since 2020	12.5	5.5	1.0	4.7				

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14	Woods Creek: L Huron Metropark	26	Fair	Good	Spring 2023	13	5	2	5.6, Fair	Winter 2023	2.0	Woods Creek is unchanging, statistically. Several teams have pulled poor samples from here recently though, so HRWC is watching the site carefully to be sure it isn't declining. (1997-2023).	—
					Spring Avg. since 2020	11.0	4.0	1.5	5.2, Good				
					Fall 2023	13	5	0	4.8, Good	Average since 2020	1.3		
					Fall Avg. since 2020	11.3	3.3	0.3	4.8, Good				
61	Huron River: Island Park	27	Good	Fair	Spring 2023	9	6	1	5.2	Winter 2023	2.0	Fall sensitive families are significantly increasing; all of the other metrics are stable. The winter stoneflies here are abundant and consistent. (2001-2023)	—
					Spring Avg. since 2020	9.5	6.0	1.0	5.2				
					Fall 2023	14	6	0	4.7	Average since 2020	2.0		
					Fall Avg. since 2020	14.0	6.3	1.7	4.4				
67	Pettibone Creek: Commerce Rd	28	Fair	Good	Spring 2023	7	3	0	5.5	Winter 2023	Not sampled	There have been no significant changes over time. Winter stoneflies are not found here- though it hasn't been sampled since 2016, so HRWC should do this again in 2024. (2001-2023)	—
					Spring Avg. since 2020	8.0	4.0	0.5	5.5				
					Fall 2023	13	5	0	4.9	Average since 2020	Not sampled		
					Fall Avg. since 2020	12.0	4.3	0.0	4.6				
1	Arms Creek: Walsh Road	29	Fair	Fair	Spring 2023	0	0	0	4.8, Good	Winter 2023	Not sampled	Overall, fall sensitive families have increased significantly over time--but barely. Winter stoneflies are holding at strong levels. The stream is quite mucky and difficult to sample. (1993-2023)	—
					Spring Avg. since 2020	17.0	6.0	1.0	4.8, Good				
					Fall 2023	0	0	0	4.3, V. Good	Average since 2020	1.5		
					Fall Avg. since 2020	14.0	2.0	2.0	4.3, V. Good				

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80	Mill Creek: Shield Rd	30	Fair	Fair	Spring 2023	10	5	1	5.2	Winter 2023	2.0	There have been no significant changes over time. Winter stoneflies are nearly always found here (2001-2023).	—
					Spring Avg. since 2020	9.5	5.5	1.0	4.6				
					Fall 2023	14	3	0	4.0	Average since 2020	1.5		
					Fall Avg. since 2020	15.0	4.5	1.5	4.1				
2	Boyden Creek: Delhi	31	Good	Fair	Spring 2023	Not sampled				Winter 2023	2.0	The overall trend for most of the parameters is stable though the diversity this year was down. Fall sensitive families are significantly improving (we regularly find at least 1). Winter stoneflies are found here consistently. The habitat is healthy and diverse. (1994-2023).	—
					Spring Avg. since 2020	14.5	4.0	0.5	3.7, V. Good				
					Fall 2023	16	3	0	5.5, Fair	Average since 2020	1.3		
					Fall Avg. since 2020	9.0	6.0	1.0	5.1, Good				
21	Horseshoe Creek: Merrill Road	32	Fair	Fair	Spring 2023	12	3	0	4.7, Good	Winter 2023	1.0	We have found a lot more total insect families here since 2009, but all of the other metrics are holding steady. Winter stoneflies were not found in 2022, the first time ever, abut were found again in 2023. (2009-2023)	—
					Spring Avg. since 2020	10.0	2.5	0.0	4.8, Good				
					Fall 2023	18	4	0	5.7, Fair	Average since 2020	1.0		
					Fall Avg. since 2020	17.0	4.5	0.0	5.8, Fair				
31	Mill Creek: Fletcher Road	33	Fair	Good	Spring 2023	12	6	0	4.9, Good	Winter 2023	0.0	Fall families have significantly increased over time (10--> approx 15) Winter stoneflies, however, have disappeared from here since 2015. (1993-2023)	—
					Spring Avg. since 2020	12.0	6.0	3.0	4.9, Good				
					Fall 2023	13	3	0	5.3, Good	Average since 2020	0.0		
					Fall Avg. since 2020	15.0	3.5	0.0	5.4, Good				

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58	Portage Creek: Unadilla	34	Fair	Fair	Spring 2023	Not sampled				Winter 2023	0.0	There have been no significant changes over time. Winter stoneflies are never found here. (1999-2023)	—
					Spring Avg. since 2020	No valid samples							
					Fall 2023	13	4	1	4.4	Average since 2020	0.0		
					Fall Avg. since 2020	13.3	5.0	1.3	4.3				
33	Mill Creek: Jackson Road	35	Fair	Fair	Spring 2023	Not Sampled				Winter 2023		Spring total families are significantly increasing; all of the other metrics are stable. The winter stoneflies here are abundant and consistent. (1996-2022)	—
					Spring Avg. since 2020	16.0	6.0	2.0	4.7, Good				
					Fall 2023	11	3	0	4.8, Good	Average since 2020			
					Fall Avg. since 2020	12.0	3.5	0.5	5.2, Good				
55	Mill Creek: Manchester Rd	36	Fair	Fair	Spring 2023	6	3	1	5.2	Winter 2023	2.0	There have been no significant changes over time, though this Spring sample was really down in abundance and diversity. Winter stoneflies are nearly always found here. (1999-2023).	—
					Spring Avg. since 2020	8.0	4.0	1.5	4.8				
					Fall 2023	11	2	3	4.7	Average since 2020	2.0		
					Fall Avg. since 2020	11.0	2.5	2.0	4.6				
45	Chilson Creek: Brighton Road	37	Good	Poor	Spring 2023	Not sampled				Winter 2023		No significant changes over time (1993-2023). This site is highly mucky and difficult to sample, though the rest of the habitat here is quite healthy. Spring insects are down significantly. Stoneflies are found here very rarely.	↓
					Spring Avg. since 2020	11.0	5.0	0.0	4.5				
					Fall 2023	Not sampled				Average since 2020			
					Fall Avg. since 2020	11.0	1.0	0.0	5.5				

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57	Mill Creek: Klinger Road	38	Good	Fair	Spring 2023	7	3	1	5.4	Winter 2023	2.0	Fall EPT families are up, otherwise this site has mostly stayed stable. Winter stoneflies are regularly found. (1999-2023).	—
					Spring Avg. since 2020	7.0	3.0	1.0	5.4				
					Fall 2023	12	4	1	4.2	Average since 2020	2.0		
					Fall Avg. since 2020	12.5	3.5	0.5	5.3				
20	Honey Creek (S): Wagner Road	39	Fair	Fair	Spring 2023	No sample				Winter 2023	0.0	The fall sensitive families are significantly declining over time. Most of the other metrics are slightly and non-significantly declining. Stoneflies disappeared from 2015 to 2019, came back 2020-2022, and went missing again in 2023. Overall, this site does not seem to be in active decline like it was three years ago but remains one to watch (1993-2023).	—
					Spring Avg. since 2020	11.0	5.0	4.0	4.7, Good				
					Fall 2023	No sample				Average since 2020	1.0		
					Fall Avg. since 2020	10.0	4.0	1.0	4.3, V. Good				
32	Mill Creek: Ivey Rd	40	Fair	Fair	Spring 2023	Not sampled				Winter 2023	0.0	There have been no significant changes over time, although spring and fall samples are trending downwards, a result that is not yet significant. Stonefly populations are decreasing as well, also not significantly. This site bears watching. (1993-2023).	—
					Spring Avg. since 2020	15.0	7.0	2.0	4.4, V. Good				
					Fall 2023	Not sampled				Average since 2020	0.7		
					Fall Avg. since 2020	13.0	5.0	2.0	5.3, Good				
42	Traver Creek: Broadway Ave	41	Poor	Fair	Spring 2023	Not sampled				Winter 2023	1.0	No significant changes over time (1993-2023). While degraded, this is one of the healthier urban stream we monitor. Stoneflies can be found here regularly.	—
					Spring Avg. since 2020	No valid samples							
					Fall 2023	13.0	4.0	0.0	5.2	Average since 2020	1.0		
					Fall Avg. since 2020	13.0	4.0	0.0	5.2				

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7	Davis Creek: Pontiac Road	42	Fair	Fair	Spring 2023	Not sampled				Winter 2023	0.0	Samples have been declining over many years, and have been poor in fall in particular. Winter stoneflies haven't been here since 2001. (1994-2022).	↓
					Spring Avg. since 2020	14.0	6.0	1.0	5.3, Good				
					Fall 2023	Not sampled				Average since 2020	0.3		
					Fall Avg. since 2020	9.5	3.0	0.0	4.8, Good				
6	Davis Creek: Doane Road	43	Fair	Fair	Spring 2023	Not sampled				Winter 2023	2.0	Samplings here are showing slow declines through time, with spring sensitive insects and fall total insects declining significantly. The site is difficult to sample ,especially during spring high flows, and it can be challenging to get good spring samples. Winter stoneflies are very abundant here. This site has been one to keep an eye on for years, but it does not seem to be changing too rapidly. (1994-2023)	↓
					Spring Avg. since 2020	No valid samples							
					Fall 2023	9	7	5	5.0, Good	Average since 2020	2.3		
					Fall Avg. since 2020	9.7	4.3	1.0	4.5, V. Good				
91	Portage Creek: Stockbridge	44	Fair	Poor	Spring 2023	8	4	0	4.8	Winter 2023	Not sampled	No significant changes over time. Winter stoneflies are never found here (2013-2023).	—
					Spring Avg. since 2020	9.0	4.0	0.0	5.1				
					Fall 2023	Not sampled				Average since 2020	0.0		
					Fall Avg. since 2020	8.0	2.0	0.0	4.7				
92	Portage Creek: Williamsville Rd	45	Fair	Poor	Spring 2023	8	3	1	4.8	Winter 2023	0.0	No significant changes over time. Winter stoneflies are never found here (2013-2023).	—
					Spring Avg. since 2020	8.0	3.0	1.0	4.8				
					Fall 2023	13	5	1	5.0	Average since 2020	0.0		
					Fall Avg. since 2020	12.5	4.5	0.5	5.7				

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34	Letts Creek: M-52	46	Poor	Fair	Spring 2023	Not Sampled				Winter 2023	0.0	This site is declining significantly in fall EPT families. All other metrics are holding steady. Stoneflies are found consistently normally, but were absent in 2023. (1993-2023)	—
					Spring Avg. since 2020	11.0	3.0	0.0	5.9, Fair				
					Fall 2023	Not Sampled				Average since 2020	1.0		
					Fall Avg. since 2020	12.0	2.5	0.0	6.2, Fair				
60	Port Creek: Armstrong Rd	47	Poor	Poor	Spring 2023	10	1	1	6.1	Winter 2023	0.0	This site is consistently poor and unchanged through time. Winter stoneflies are not found here. (1994-2023)	—
					Spring Avg. since 2020	10.5	3.0	2.5	5.4				
					Fall 2023	6	0	0	5.9	Average since 2020	0.0		
					Fall Avg. since 2020	7.5	1.0	0.0	6.1				
24	Huron River: Cross Street	48	Fair	Poor	Spring 2023	5	2	0	6.0, Fair	Winter 2023	0.0	No significant changes over time. Winter stoneflies are found here in approximately 50% of samples (1997-2023).	—
					Spring Avg. since 2020	6.7	2.7	0.3	5.9				
					Fall 2023	8	5	0	4.5, V. Good	Average since 2020	1.0		
					Fall Avg. since 2020	11.0	5.5	1.5	4.4, V. Good				

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18	Honey Creek (S): Jackson Road	49	Poor	Poor	Spring 2023	Sample rejected for low abundance				Winter 2023	1.0	Sensitive families have declined in spring samples, from approximately 2 in the early 2000s to 0 in recent years. (1993-2018) No sensitive families have been found in fall or spring since 2009. However, winter stoneflies, which disappeared in 2009, made a comeback and have been seen since 2017. This site has seen a lot of changes over time; through crashes and recoveries. Overall, it isn't too much different now than it was in 1993. (1993-2023).	—
					Spring Avg. since 2020	No valid samples							
					Fall 2023	9	2	0	5.1, Good	Average since 2020	1.0		
					Fall Avg. since 2020	8.5	2.0	0.0	4.7, Good				
8	Greenock Creek: Rushton Rd	50	Fair	Poor	Spring 2023	Not sampled				Winter 2023	Not sampled	This site has gotten worse over time. All of the spring insect diversity metrics have significantly decreased; fall metrics are falling but not significant. Stoneflies are never found here as well. However, even in 1996 when monitoring began, the creek was not a healthy one. The declines we see are from an already low starting point. (1996-2022)	↓
					Spring Avg. since 2020	5.0	2.0	0.0	5.4, Good				
					Fall 2023	Not sampled				Average since 2020	0.0		
					Fall Avg. since 2020	10.0	2.0	1.0	4.8, Good				
23	Huron River: Flat Rock	51	Poor	Poor	Spring 2023	No sample				Winter 2023		We switched sites in 2022 at Flat Rock to get a location that had safer access. This is a site to watch as we try to confirm if they switch in site makes a difference in the sampling success and amounts we find. (1996-2021; 2022-2023).	—
					Spring Avg. since 2020	8.0	4.0	0.0	6.2, Fair				
					Fall 2023	9	4	1	5.5, Fair	Average since 2020			
					Fall Avg. since 2020	9.3	4.7	1.0	4.9, Good				

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50	South Ore Creek: Lake Ridge	52	Fair	Poor	Spring 2023	Not sampled				Winter 2023	0.0	This site has declined over time, but these changes are not yet significant. This site has nice habitat, but poor bugs due to poor water quality. Stoneflies are never found here. (1998-2023)	—
					Spring Avg. since 2020	5.0	2.0	0.0	4.6				
					Fall 2023	Not sampled				Average since 2020	0.0		
					Fall Avg. since 2020	7.5	2.0	0.0	4.8				
98	Horseshoe Creek: Barker Road	53	Poor	Poor	Spring 2023	8	1	0	5.0	Winter 2023	Not sampled	No significant changes over time. Winter stoneflies are never found here. 2023 had a great fall sample here-- 14 families is way above the previous average of 9.6 for this site. (2012-2023).	—
					Spring Avg. since 2020	8.0	1.0	0.0	5.0				
					Fall 2023	14	2	0	5.2	Average since 2020	Not sampled (but No Stoneflies from		
					Fall Avg. since 2020	11.0	11.0	0.0	5.3				
27	Malletts Creek: Chalmers Road	54	Poor	Poor	Spring 2023	7	2	0	6.0, Fair	Winter 2023	No sample	Long term, spring and fall samples have shown improvement over time (1994-2023). That being said, the stream is still in a high urban environment and overall is considered a poor stream.	↑
					Spring Avg. since 2020	8.0	2.0	0.0	5.6, Fair				
					Fall 2023	11	3	0	4.3, V. Good	Average since 2020	0.0		
					Fall Avg. since 2020	8.7	3.0	0.0	4.5, V. Good				
99	Horseshoe Creek: Brookside Rd	55	Fair	Poor	Spring 2023	5	0	0	5.4	Winter 2023	Not sampled	No significant changes over time. Winter stoneflies are never found here (2012-2023).	—
					Spring Avg. since 2020	4.0	0.0	0.0	5.5				
					Fall 2023	Not sampled				Average since 2020	0.0		
					Fall Avg. since 2020	13.0	1.0	1.0	5.4				

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41	Swift Run: Shetland Drive	56	Poor	Poor	Spring 2023	No sample				Winter 2023	No sample	No significant changes over time. Winter stoneflies are never found here (1992-2023).	—
					Spring Avg. since 2020	4.0	1.0	0.0	5.1				
					Fall 2023	No sample				Average since 2020	0.0		
					Fall Avg. since 2020	6.5	1.5	0.0	5.4				
97	Norton Creek: Gibson Park	57	Poor	Poor	Spring 2023	Not sampled				Winter 2023	Not sampled	No significant changes over time. Winter stoneflies are never found here (2013-2023).	—
					Spring Avg. since 2020	5.0	0.0	0.0	5.5				
					Fall 2023	Not sampled				Average since 2020	0.0		
					Fall Avg. since 2020	6.5	0.5	0.0	6.0				
35	Millers Creek: Glazier Way	58	Poor	Poor	Spring 2023	10	1	0	5.8, Fair	Winter 2023		No significant changes over time. This site is highly degrade; stoneflies have never been found here (1993-2023).	—
					Spring Avg. since 2020	10	1	0	5.8, Fair				
					Fall 2023	8	1	0	5.5, Good	Average since 2020			
					Fall Avg. since 2020	8.5	1.0	0.0	5.4, Good				
65	Norton Creek: Maple Road	59	Poor	Poor	Spring 2023	4	0	0	5.4	Winter 2023	0.0	This site shows significant decline in fall EPT metrics and total insects families. The last several years have had particularly poor counts. There are a high abundance of scuds here and barely anything else. Winter stoneflies are never found here. (2001-2023).	↓
					Spring Avg. since 2020	4.0	0.0	0.0	5.4				
					Fall 2023	Not sampled				Average since 2020	0.0		
					Fall Avg. since 2020	1.0	0.0	0.0	7.3				

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104	Silver Creek: Flat Rock Community Park		Unranked (not enough data)	Unranked (not enough data)	Spring 2023	4	0	0	6.2	Winter 2023	Not sampled	This is a brand new site!	—
					Spring Avg. since 2020	4	0	0	6.2				
					Fall 2023	3	1	0	4.5	Average since 2020	Not sampled (highly unlikely that		
					Fall Avg. since 2020	3	1	0	4.5				
106	Smith Creek: Flat Rock Community Center		Unranked (not enough data)	Unranked (not enough data)	Spring 2023	5	0	0	6.1	Winter 2023	Not sampled	This is a brand new site!	—
					Spring Avg. since 2020	5	0	0	6.1				
					Fall 2023	Not sampled				Average since 2020	Not sampled (highly unlikely		
					Fall Avg. since 2020	No samples							