



January 15, 2026

Christopher Biro
Ohio Environmental Protection Agency
Northeast District Office
2110 East Aurora Road
Twinsburg, Ohio 44087

**Re: Level 3 Study Results for Sawmill Creek
Material Sciences Corporation
460 W Main Street
Canfield, Ohio 44406
OHD000810283
August Mack Project Number: JZ0412.372**

Dear Mr. Biro,

On behalf of Material Sciences Corporation (MSC), August Mack Environmental, Inc. (August Mack) is submitting the enclosed Qualified Data Collector Level 3 Project Study Plan Results titled "Results from 2025 Sawmill Creek Fish, Macroinvertebrate, & Habitat Assessment" prepared by MAD Scientist Associates (MAD). This report was originally submitted to Ohio EPA, Division of Surface Water on January 12, 2026 for their review.

Should you have any questions or need any additional information, please do not hesitate to contact us.

Sincerely,

Brandon C. Lewis, CP, CHMM
Regional Director, Ohio Offices

Bryant Hoffer, LPG, CHMM
Senior Manager, Geologist



January 12, 2026

Ohio EPA, Division of Surface Water
c/o Kelsey Heyob, Credible Data Coordinator
50 W. Town Street, Suite 700
Columbus, Ohio 43215

Subject: Ohio EPA 2025 Data Submission for QDC Level 3 Project Study Plan for Study Plan for Sawmill Creek located within the watershed designated as Hydrologic Unit Code number 050301030702 (Erie/Ontario Lake Hills & Plains) in the Mahoning River Basin (lower)

Dear Ms. Heyob,

We are writing to submit data collected in 2025 under the QDC Level 3 Project Study Plan (PSP) titled "2025 Sawmill Creek Fish, Macroinvertebrate, & Habitat Surveys" by MAD Scientist Associates (MAD). This stream assessment data is being submitted for the purpose of being used by Ohio EPA Level 3 Credible Data Program and by our client, Integral Consulting, to document current condition of Sawmill Creek related to the release of materials including zinc and hexavalent chromium upstream near the Material Sciences Corporation facility.

Sawmill Creek was assessed at locations depicted in Figure 1. using Index of Biotic Integrity (IBI), Invertebrate Community Index (ICI), and Qualitative Habitat Evaluation Index (QHEI) sampling methods and analyses. Results are provided on the field forms and summarized in an excel table. They were also shared with our client to assist in assessing the current attainment status of Sawmill Creek.

The data submitted was prepared, validated, and qualified by Corbin Binkley, Jenna Roller-Knapp, and Martin Knapp, current level 3 QDCs (QDC numbers 01608, 01167, and 00300, respectively). None of us have been convicted of or pleaded guilty to a violation of section 2911.21 of the Revised Code (criminal trespass) or a substantially similar municipal ordinance within the previous five years. The data was collected in accordance with the procedures required by the approved PSP (Appendices A and B).

If you have any questions regarding this data submittal, please call us at (614) 818-9156 (office) or e-mail questions or comments to the addresses listed below. Thank you for your time. We look forward to hearing from you.

Best Regards,

Jenna Roller-Knapp
ESII, QDC for Macroinvertebrates
Jenna@madscientistassociates.net

Corbin Binkley
ESI, QDC for fishes
Corbin@madscientistassociates.net

***Results from 2025 Sawmill Creek
Fish, Macroinvertebrate and Habitat Assessment***

Sawmill Creek
Mahoning County, OH

prepared for

Ohio EPA, Division of Surface Water
Standards & Technical Support Section
50 West Town Street, Suite 700
P.O. Box 1049
Columbus, Ohio 43216-1049

prepared by



*Specialists in
Ecological & Wetland
Consulting*

Level 3 Project Study Plan Results: 2025 Sawmill Creek Fish, Macroinvertebrate & Habitat Surveys Study

Sawmill Creek is a reference reach located on Mahoning Valley Sanitary District property. It was assessed using Qualitative Habitat Evaluation Index (QHEI), Index of Biotic Integrity (IBI), and Invertebrate Community Index (ICI) sampling methods and analyses per the approved PSP (Appendices A and B). Sampling locations are listed in Table 1. Data and findings are provided for the QHEI and IBI sampling (Appendix C) and ICI sampling (Appendix D).

Table 1. Sampling locations/extents for habitat, fish and macroinvertebrate sampling in Sawmill Creek on July 16 and September 3, 2025.

Sampling Point	Latitude	Longitude
Qualitative Habitat Evaluation Index (QHEI) upstream (US) extent	41.064767°	80.799662°
QHEI downstream (DS) extent	41.064418°	80.800807°
Index of Biotic Integrity (IBI) US extent	41.064767°	80.799662°
IBI DS extent	41.064418°	80.800807°
Hester Dendy (HD) 1 for Invertebrate Community Index (ICI)	41.064607°	80.801412

QHEI Results

Sawmill Creek is a headwater stream with drainage area of 5.5 sq. miles. Habitat quality is categorized as “excellent” based on a QHEI score of 76 in 2025. Most metrics scored high. This included the substrate metric, based on dominant cobble and gravel substrates with minimal silting and embeddedness. Instream cover metric also scored high showing a good diversity and abundance of habitat features. Fair riffle and run development were present. Good channel morphology with little to moderate bank erosion and a wide riparian zone, comprised of forest floodplain, were documented in and around the stream. Photographs of representative stream habitat and noteworthy features are found in Appendix E.

The same approximate location at river mile 0.90 in Sawmill Creek was surveyed by Ohio EPA in 2013. It received a QHEI score of 67 corresponding with a “good” habitat narrative category. These results indicate that the habitat has improved in recent years and is currently in excellent condition.

IBI Results

The fish community was sampled using a rollerbeast longline. Sawmill Creek received an IBI score of 34 which corresponds to the high end of the “fair” narrative rating for a headwater site in the Erie Ontario Lake Plain (EOLP) ecoregion. The primary underachieving metrics that prevented the IBI from scoring higher in 2025 were related to species composition and trophic composition. With a high percentage of the total catch being represented by white sucker (*Catostomus commersonii*), the resulting scores for Percent Tolerant and Percent Omnivores were in the lowest category, receiving only one (1) point each. Additionally, there were a low number of sensitive species and insectivores which resulted in each of those metrics only receiving a score of one (1). Metrics such as Total Species, Percent Pioneering Species, and Percent Anomalies all scored in the highest category, receiving five (5) points each. This highlights the healthy physical

condition of fish sampled as well as the species diversity. Photographs of representative fish species are found in Appendix E.

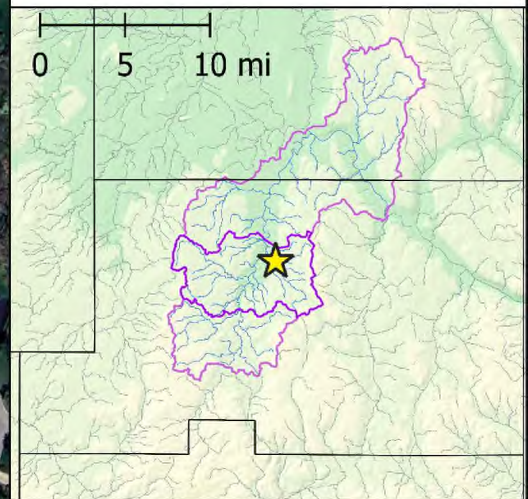
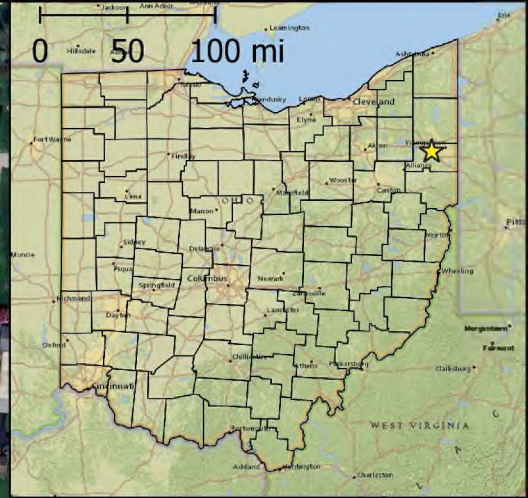
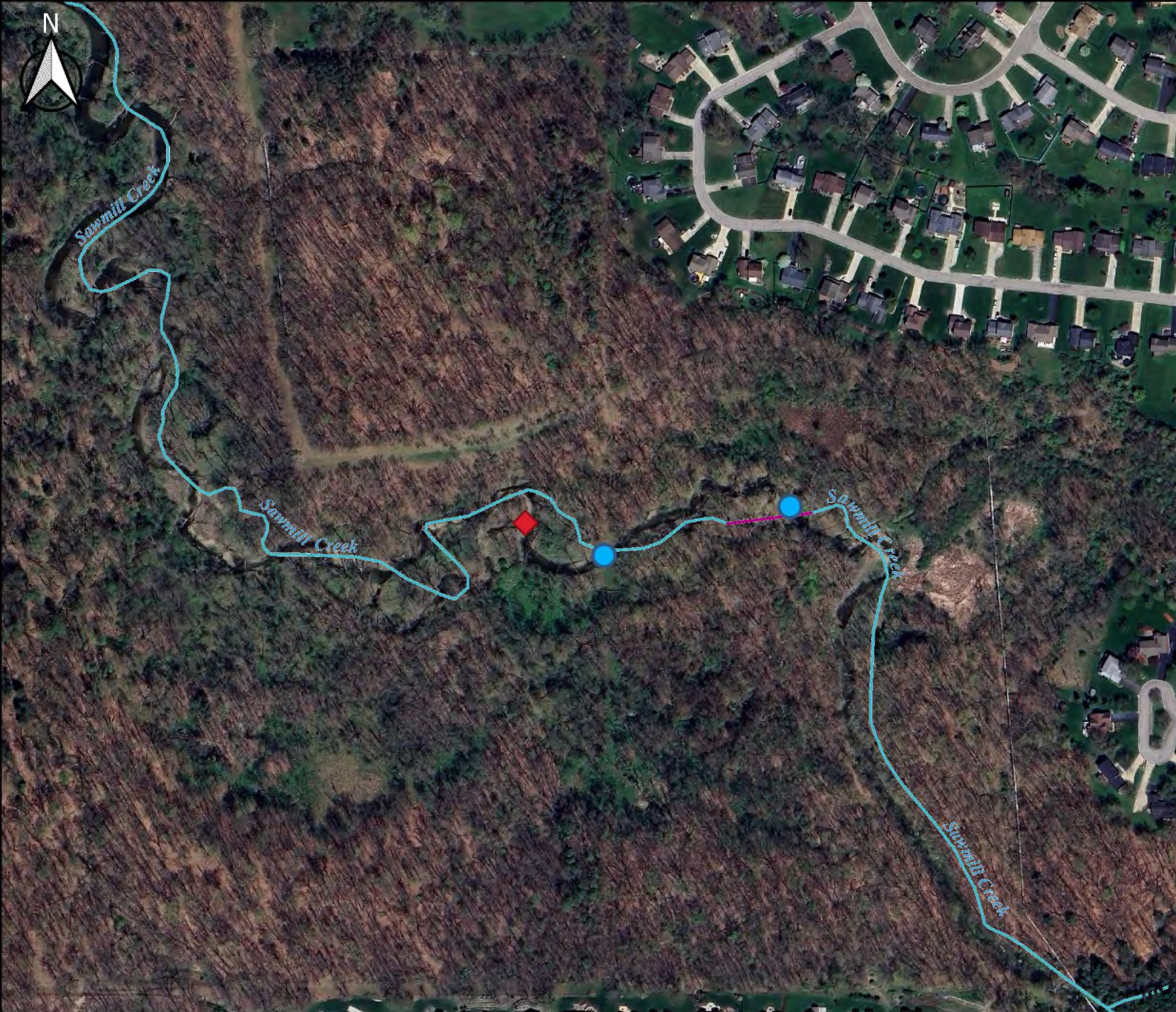
In 2013, this reach of Sawmill Creek had an IBI score was 40 indicating that the fish community was “good,” and met warmwater Habitat (WWH) or Coldwater Habitat (CWH) expectations. The fish community’s health was noted to decline since then, which could be related to a variety of factors.

ICI Results

Hester Dendy samplers were used to gather quantitative data per the EPA’s request for this reference site, though that method would typically not be used for a small drainage area. The ICI score of 40 indicates that the macroinvertebrate community is categorized as “good” in the EOLP. The qualitative data of 10 Ephemeroptera, Plecoptera and Trichoptera (EPT) taxa and six (6) sensitive taxa categorizes the macroinvertebrate community as “marginally good” and meeting warmwater habitat expectation. Photographs of representative sampling and findings are found in Appendix F.

In 2013, Ohio EPA did not sample the macroinvertebrate community using HD blocks, as is typically not the protocol for streams with small drainage areas. They did collect a qualitative sample, which indicated a “marginally good” macroinvertebrate community with similar number of total taxa and EPT taxa, but about half of the number of sensitive taxa. In both 2013 and 2025, the qualitative sampling indicates a “marginally good” macroinvertebrate community that is in attainment. The ICI score in 2025 provides further resolution that the macroinvertebrate community is “good”.

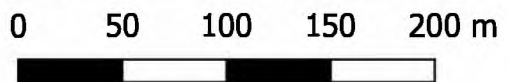
Figure



- Legend:**
- NHD Streams
 - IBI & QHEI Reach
 - ◆ Hester-Dendy Locations
 - HUC10
 - HUC12
 - ★ Project Location
 - Ohio Counties



Sawmill Creek PSP Survey Map



Created by: C. Binkley
Date: 9/25/2025

Data Sources:
Google Imagery
USGS National Hydrography Data
Esri National Geographic Basemap

Appendix A. Project Study Plan

May 30, 2025

Ohio EPA, Division of Surface Water
c/o Kelsey Heyob, Credible Data Coordinator
50 W. Town Street, Suite 700
Columbus, Ohio 43215

Subject: Ohio EPA Qualified Data Collector Level 3 Study Plan for Sawmill Creek located within the watershed designated as Hydrologic Unit Code (HUC) number 050301030702 (Erie/Ontario Lake Hills & Plains) in the Mahoning River Basin (lower)

Dear Ms. Heyob,

Please find enclosed a Qualified Data Collector (QDC) Level 3 Project Study Plan (PSP) titled "2025 Sawmill Creek Fish, Macroinvertebrate, & Habitat Surveys" provided by MAD Scientist Associates (MAD). This PSP is being submitted to share the stream assessment data at the Level 3 standard with the Credible Data Program so that it can be utilized by the EPA and our client, Integral Solutions. The purpose of the work is to evaluate the current condition of this site related to a release of materials like zinc and hexavalent chromium upstream near the Material Sciences Corporation facility.

Sawmill Creek will be assessed using Index of Biotic Integrity (IBI), Invertebrate Community Index (ICI), and Qualitative Habitat Evaluation Index (QHEI) sampling methods and analyses. Results will be provided on the field forms and summarized in an excel table. They will also be shared with our client to assist the firm in assessing the current attainment status of Sawmill Creek.

If you have any questions regarding this plan, please call us at (614) 818-9156 (office). You can also e-mail questions or comments to Jenna@madscientistassociates.net. Thank you for your consideration of this plan. We hope to hear from you soon.

Best Regards,



Jenna Roller-Knapp
ESII, Aquatic Ecologist



Corbin Binkley
ESI, Ichthyologist

enclosures

***Project Study Plan for 2025 Sawmill Creek
Fish, Macroinvertebrate and Habitat Assessment***

Sawmill Creek
Mahoning County, OH

prepared for

Ohio EPA, Division of Surface Water
Standards & Technical Support Section
50 West Town Street, Suite 700
P.O. Box 1049
Columbus, Ohio 43216-1049

prepared by



*Specialists in
Ecological & Wetland
Consulting*

Level 3 Project Study Plan: 2025 Sawmill Creek Fish, Macroinvertebrate & Habitat Surveys Study

(1) Objectives: The objective of the proposed study is to evaluate the current health and condition of the fish and macroinvertebrate community and stream habitat in Sawmill Creek. The health of the fish and macroinvertebrate assemblages in Sawmill Creek will be assessed using Ohio EPA’s Index of Biotic Integrity (IBI) for fish, Invertebrate Community Index (ICI) for macroinvertebrates, and Qualitative Habitat Evaluation Index (QHEI) for habitat. Results of this study will be utilized by August Mack, Integral Consulting, Inc., and EPA to document biological community health and stream attainment status, especially in comparison of any deviation from the full attainment status of this EPA reference site in 2013.

(2) Non-point/Point Sources: A 2024 release from the upstream Material Sciences Corporation facility resulted in the migration of material including zinc and hexavalent chromium, with cyanide as the marker, in the ground and surface water near the facility in Sawmill Creek. During a May 2025 site visit, EPA recommended this location in Sawmill Creek to characterize the potential impact downstream in Sawmill Creek. There is historical data here, therefore this survey serves as a current comparison to the historical data. Figures 1-2 display the HUC8 and HUC12 of the proposed survey location and the upstream release location.

The Ohio EPA’s report (published 2018) titled *“Biological and Water Quality Study of the Lower Mahoning River Watershed, 2011 and 2013”* indicates the suggested aquatic life use (ALU) designation for Sawmill Creek at river mile 0.90 was warmwater habitat. When the site was sampled in 2013, the narrative evaluation for fish was “good” with an IBI score of 40 and total of 13 species present. The QHEI score was 67.0. The ICI score was not calculated, but there were 43 total taxa collected using the qualitative method with 10 Ephemeroptera, Plecoptera and Trichoptera (EPT), 12 sensitive taxa and 3 coldwater taxa. Overall full attainment was met.

According to the 2011 National Land Cover Database, approximately 3.4% of the local upstream watershed relative to the proposed sampling location is classified as row crop land use. Deciduous forest land cover comprises 26.6% of the upstream watershed area. Pasture/hay land use makes up 4.9% of the watershed area land use. Most notably, land classified as low, medium, and high intensity development represent a combined 38.3% of the watershed area land use. Lands classified as developed, open space represent 22.0% of the upstream watershed area. The remaining approximately 5 percent of the upstream watershed area is comprised of a multitude of other land use classifications in much smaller proportions (USEPA, 2019). Potential point and non-point sources (Mahoning County Auditor’s office, 2025) can be seen in Figure 3.

Table 1. Potential Sources of Pollution

Potential Sources of Pollution	
Point Sources	Nonpoint Sources
MSC chemical release	Agricultural runoff
Combined sewer overflows	Highway runoff
Storm sewer outfalls	Sedimentation
Septic systems	Urban runoff
NPDES permitted facilities	Industrial runoff

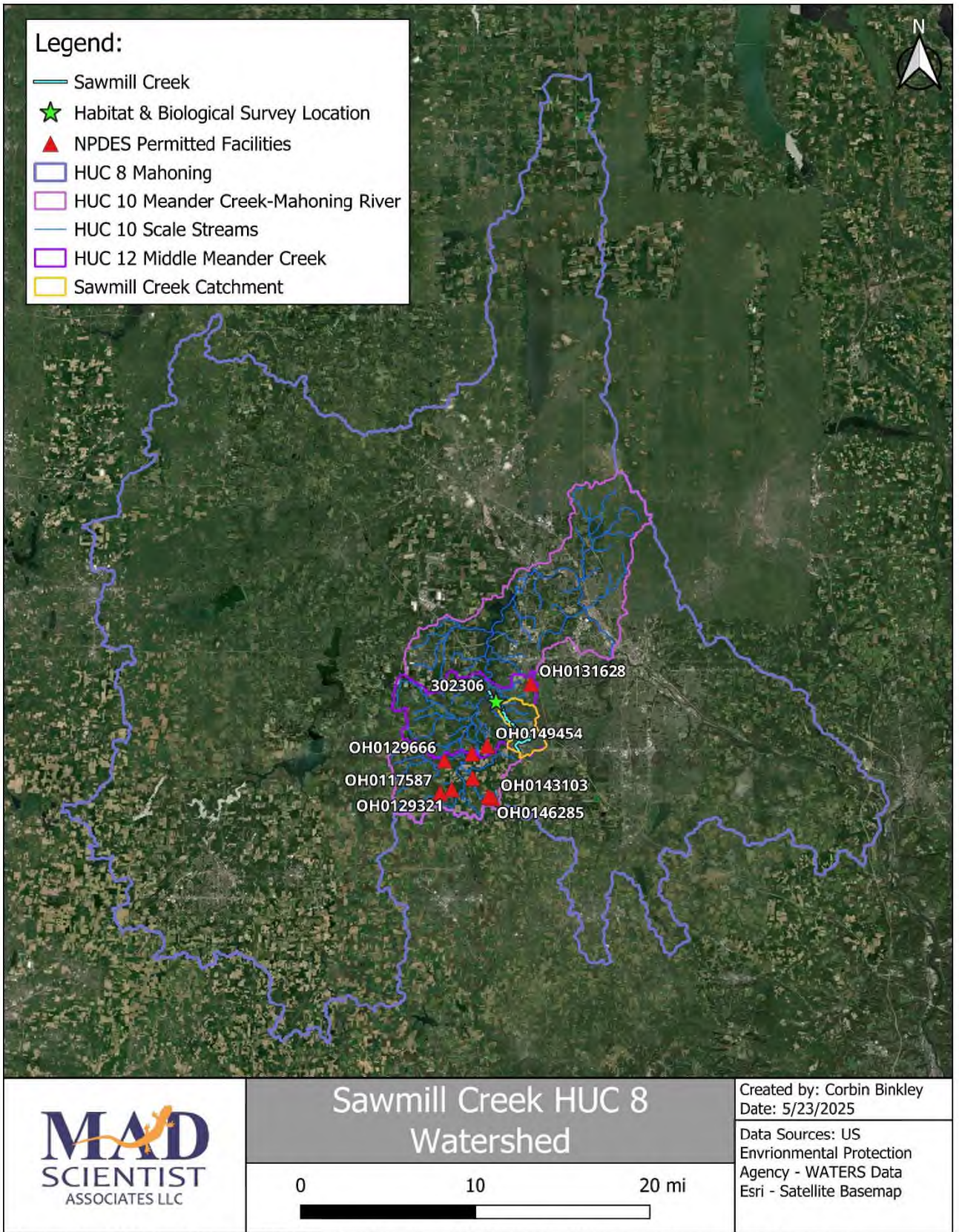


Figure 1. HUC8 of Sawmill Creek showing NPDES facilities and proposed survey area.

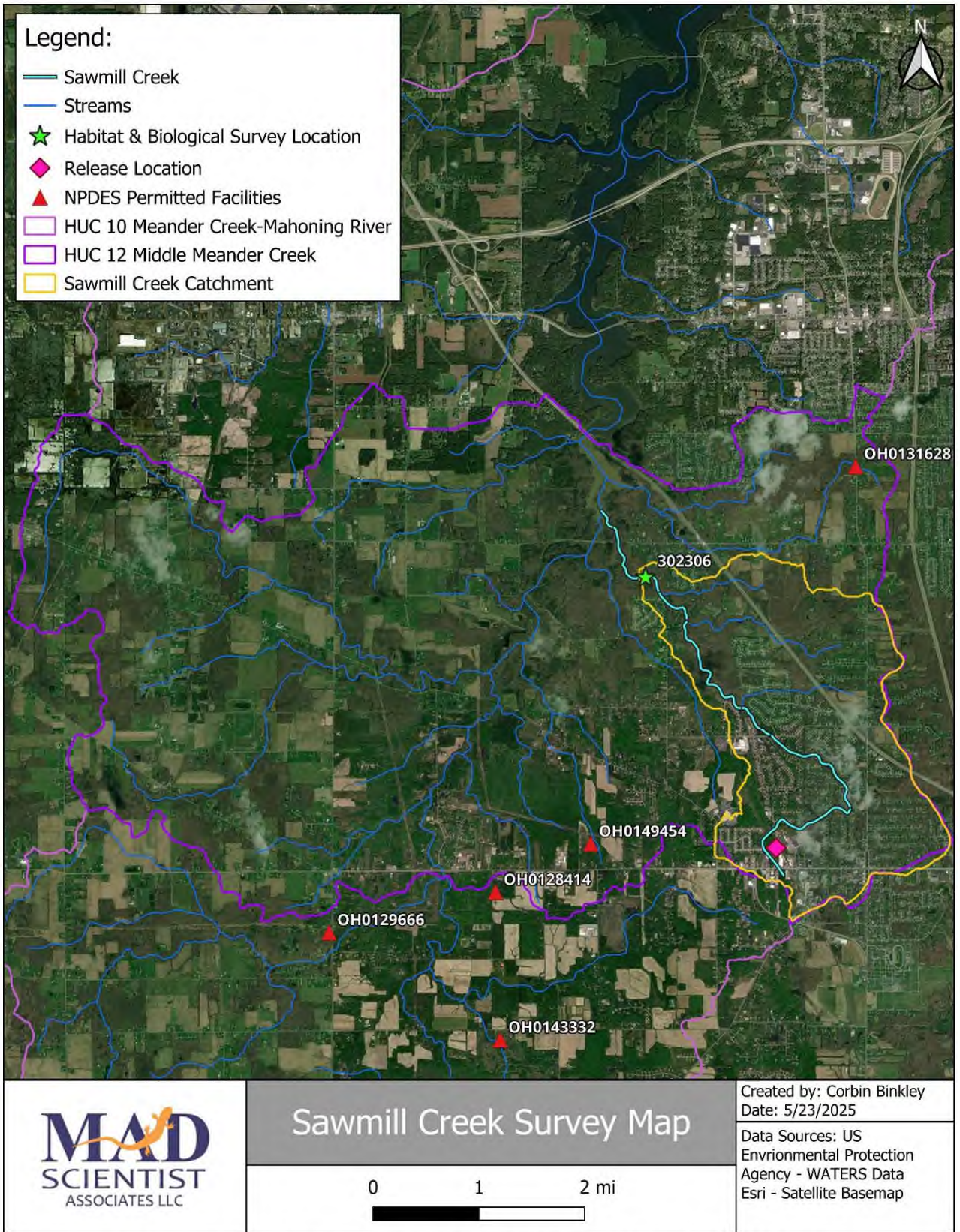


Figure 2. HUC12 of Sawmill Creek showing the NPDES facilities, 2024 release location and proposed survey location.

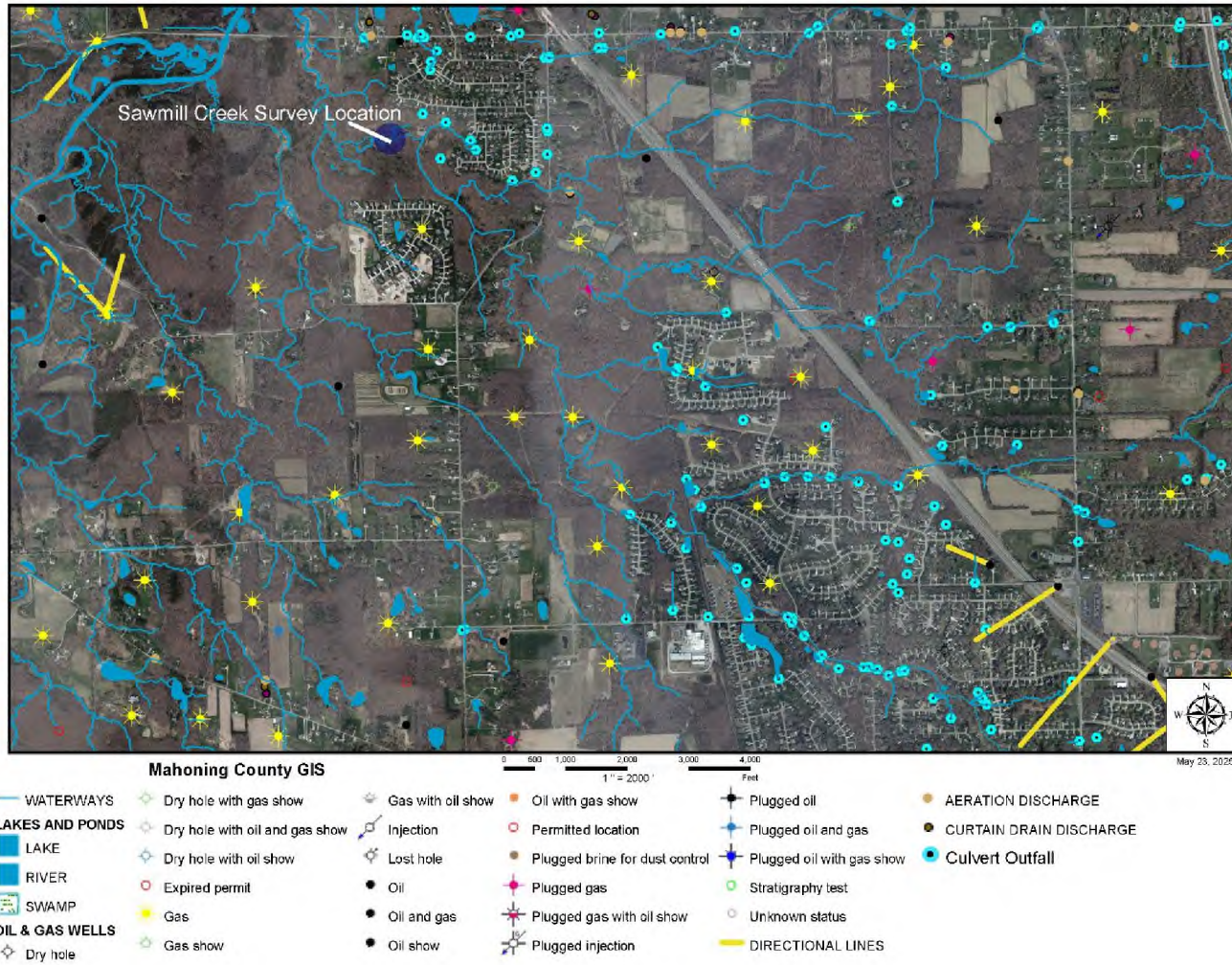


Figure 3. Potential Pollution Sources in Sawmill Creek near the Proposed survey (Mahoning County Auditor's office, 2025).

(3) **Parameters Covered:** Stream habitat quality will be evaluated using QHEI assessment in Sawmill Creek. This evaluation includes substrate, instream cover, channel morphology, riparian development, pool/glide features, and riffle/run features will be assessed along at least a 150-meter section of each stream.

Quantitative fish sampling will occur at the study location using wading methods. Fish collection using electrofishing will result in specimens identified to species level, weighed, counted, and examined for deformities, erosions, lesions, and tumors (DELT anomalies). Data will be recorded on Ohio EPA Fish Data Sheets or an equivalent form.

Macroinvertebrates quantitative and qualitative sampling will be conducted to collect the diversity of taxa present in Sawmill Creek. Vouchers will be collected and counted. Taxa will be noted as EPT, tolerant, sensitive, coldwater, etc. for the ICI metric.

(4) **Methods:** The Qualitative Headwater Evaluation Index (QHEI) will be used to assess both streams' habitat health. A 150-meter section or greater of stream that best represents the average stream conditions will be selected for the QHEI. To conduct the habitat assessment, MAD will walk the length of the stream reach and make note of their characteristics to complete the QHEI data forms in the field.

Fish sampling in Sawmill Creek will be conducted by electrofishing, using wading techniques described in *Ohio EPA's Biological Criteria for the Protection of Aquatic Life, Volume III (1987a)* and a long-line electrofishing unit. This long-line unit consists of 200 meters of cable connected to a 1750-watt generator, producing 125 or 250 volts of pulsed DC output. Starting from the downstream end of the sampling reach, MAD will work in the upstream direction using the anode net of the long-line electrofishing unit to thoroughly cover all habitat types and retrieve fish. Assist netters will follow closely behind to capture the stunned fish. Captured fish will be deposited into an aerated live well for containment until they can be sorted, counted, and subsequently released unless kept as physical vouchers for laboratory identification. Photos will be taken to record species present focused on identifiable features. Vouchers of species preserved in formalin will be returned to the lab. Data will be entered into excel spreadsheet to calculate an IBI score.

Macroinvertebrates will be collected following EPA Volume III: Standard Biological Field Sampling and Laboratory Methods for Assessing Fish and Macroinvertebrate Communities (Biological Criteria: Volume III; Ohio EPA 1987b). MAD will sample macroinvertebrates using quantitative Hester Dendy (HD) set out to be colonized for a six-week period. Two HD samplers are planned to be installed in case the initial one is lost due to vandalism, burial, washout, etc. Qualitative methods using a D-frame dip net will be used to sample all habitat types and handpicking rocks and vegetation when HD is retrieved. HD sampling is typically conducted at sites with greater than 20 square miles drainage areas, and Sawmill Creek is only approximately 5.56 sq. mi; however, EPA has expressed the desire to have quantitative ICI data at this stream as well. MAD will set the HDs in runs with water with flow of at least 0.3 feet/second. Flow will be recorded when the HDs are picked up, placed in plastic containers while still submersed and preserved with formalin. Midwest Biodiversity Institute (MBI) will identify macroinvertebrates to furthest taxonomic resolution and data will be used to calculate an ICI score and provide a narrative rating.

(5) **Flow Methods:** MAD will use a Global Water flow probe to record stream flow.

(6) **Sampling Location:** One stream segment of Sawmill Creek is to be sampled under this PSP. Specific location information is detailed in Table 2 and Figure 4.

Table 2. Sawmill Creek Stream Sampling Location Information for Sawmill Creek located at 0.90 river mile and EPA Station Code 302306.

Stream	Drainage Area (mi ²)	River Code	Stream Order	Latitude, Longitude	USGS HUC 8 Number	General location	USGS HUC 8 Name
Sawmill Creek	5.56	18-017-000	3	41.064400°, -80.800700°	5030103	North of Sawmill Creek Preserve	Mahoning

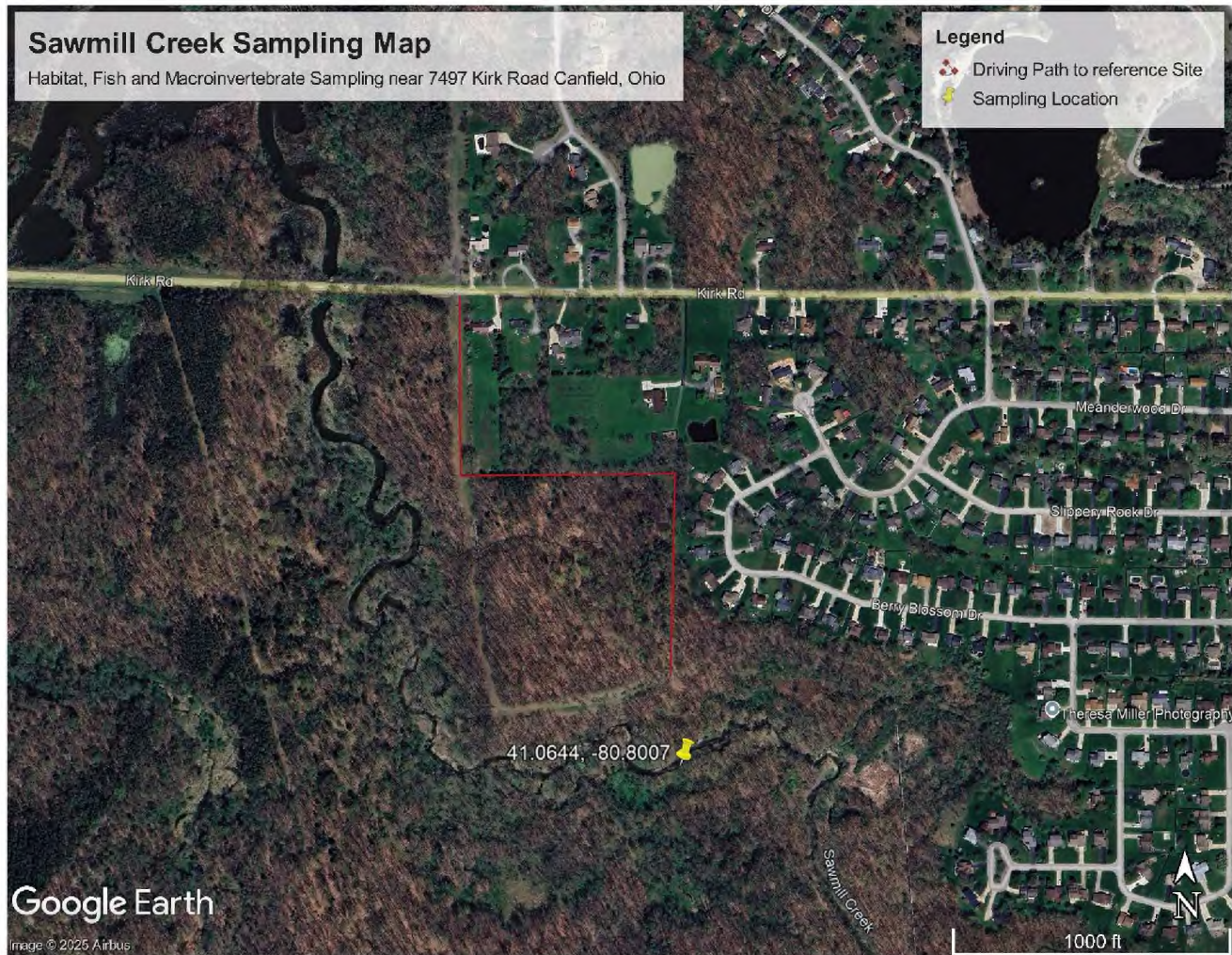


Figure 4. Sawmill Creek Map showing Proposed Habitat and Biological Sampling Locations

(7) **Schedule:** Sampling will be conducted during normal flow events, between June 15 and October 15, 2025 for fish and habitat data and June 15 to September 30, 2025 for macroinvertebrate data to provide an indication of the water quality conditions that are generally present in the stream. We tentatively are planning for sampling in July to replicate the sampling dates of the reference data collected in mid-July 2013. Normal

water conditions will be determined based on National Weather Service local rainfall data. Sampling dates will be avoided when it has rained within 24 hours. There are no nearby USGS stream gauges to provide data relevant to the water level in Sawmill Creek. After the report is reviewed by Integral Consulting, data will be submitted to EPA within one year of collection.

(8) QA/QC: Quality assurance and quality control of sampling and analysis methods for habitat and fish will follow *Ohio EPA's Biological Criteria for the Protection of Aquatic Life, Volume II* (1987, with updates) and *Volume III* (1987a) and the QHEI Manual (Ohio EPA, 2006). QA/QC of sampling and analysis methods for macroinvertebrate sampling will adhere to the general principles described in Ohio EPA's "Surface Water Field Sampling Manual for water quality parameters and flows" (Ohio EPA, 2009) and Biological Criteria: Vol III (Ohio EPA, 1987b).

Subsamples of difficult-to-identify fish species will be brought back to the laboratory for verification, and if necessary, sent to The Ohio State University Museum of Biological Diversity for verification by the Curator and/or Associate Curator of Fish. Voucher specimens will be collected as described in Section 14 and preserved following methods outlined in *Ohio EPA's Biological Criteria for the Protection of Aquatic Life* (1987a). Photographic vouchers will be taken to clearly show features that allow definitive identification of the species depicted.

(9) Work Products: By early 2026, MAD will digitally provide biological sampling results including stream habitat narrative and QHEI scores, fish IBI data, macroinvertebrate ICI data and an assessment of whether the sampled stream segment meets its ALU designation and attainment status. Attachments including maps and photos will be provided.

This data is also intended to be applied toward QDC renewal data for Corbin Binkley (QDC L3 Habitat and Fish) and Jenna Roller-Knapp (QDC L3 Macroinvertebrate).

(10) Qualified Data Collectors:

Jennifer Roller-Knapp, Lead Project Manager
QDC #01167 with Ohio EPA Level 3 in Benthic Macroinvertebrate Assessment-Collection and Data Evaluation only (Attachment A) **Note that certification is expired but recertification materials have been submitted, and the review is pending.*

MAD Scientist Associates
253 N. State Street, Suite 101
Westerville, OH 43081
Jenna@madscientistassociates.net
(614) 818-9156

Corbin Binkley
QDC #01608 with Ohio EPA Level 3 in Fish Community Biology - Headwater & Wading Only (Attachment A)
MAD Scientist Associates
253 N. State Street, Suite 101
Westerville, OH 43081
Corbin@madscientistassociates.net
(614) 818-9156

Jack Freda
QDC # 00838 Ohio EPA Level 3 in Benthic Macroinvertebrate Assessment- Collection
identification and Data Evaluation (Attachment A)
Midwest Biodiversity Institute
4673 Northwest Pkwy
Hilliard, OH 43026
Jfreda@mwbinst.com
(614) 457-6000

Marty Knapp
QDC # 00300 Ohio EPA Level 3 in Benthic Macroinvertebrate Assessment- Collection
identification and Data Evaluation (Attachment A)
Midwest Biodiversity Institute
4673 Northwest Pkwy
Hilliard, OH 43026
mknapp@mwbinst.com
(614) 457-6000

Corbin Binkley will be responsible for leading the fish and QHEI sampling in Sawmill Creek and identification of fish species. Jenna Roller-Knapp will be responsible for the macroinvertebrate collection and analysis. Identification of macroinvertebrates will be contracted to Midwest Biodiversity Institute located in Hilliard, Ohio. At least one intern and/or technician will assist with fish, macroinvertebrate, and habitat sampling.

(12) Contract Laboratories:

Macroinvertebrates will be identified by a Level 3 QDC in macroinvertebrate identification at Midwest Biodiversity Institute.


Midwest Biodiversity Institute
4673 Northwest Pkwy
Hilliard, OH 43026
Contact: Chris Yoder
Cyoder@mwbinst.com
(614) 457-6000

Any fish that cannot be positively identified in the field or MAD Scientist Associates laboratory will be sent to The Ohio State University Museum of Biological Diversity for verification by the Director, Associate Curator or Sampling Coordinator of Fish:

Dr. Marymegan Daly, Director/ Mr. Marc Kibbey, Associate Curator/ Brian Zimmerman,
Sampling Coordinator
OSU Museum of Biological Diversity
1315 Kinnear Road
Columbus, OH 43212
(614) 292-7873

(12) Scientific Collector's Permit: Mark Dilley holds Scientific Collector's Permit (Permit No. SC220007) for collection of wildlife in Ohio. MAD Scientist Associates staff, Corbin Binkley and Jenna Roller-Knapp are listed as sub-permittees. A copy is provided as Attachment B.

(13) Digital Photograph Catalog: A digital photograph catalog of all sampling locations will be maintained for ten (10) years and will include photographs of the specific sampling locations.

Printed Name/Signature: Mark A. Dilley  Date: 05/30/2025

(14) Voucher Specimen Statement: MAD Scientist Associates will maintain a fish and macroinvertebrate voucher collection that includes two physical specimens or appropriate photo-vouchers of each fish species collected during the course of biological sampling from the specified study location.

Printed Name/Signature: Corbin Binkley  Date: 05/30/2025

Printed Name/Signature: Jenna Roller-Knapp  Date: 05/30/2025





(15) Sample Location Statement:

MAD will maintain and make available to the director, for each sampling location, the name of the water body sampled, the sampling location latitude and longitude, the sampling location river mile where possible or practicable, general location information, the USGS HUC 8 number and name, and the purpose for data collection at each sampling location.


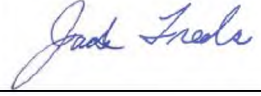


Printed Name/Signature: Jenna Roller-Knapp  Date: 05/30/2025

(16) Additional L3 Data Collector Statement:

MAD and MBI are aware of the qualified data collector's responsibilities for the data (including vouchers, photos, and site information).

Name	QDC Number	Attest	Date
Corbin Binkley	01608		5/30/25
Jack Freda	00838		5/30/25
Marty Knapp	00300		5/30/25
Jenna Roller-Knapp	01167		5/30/25

(17) I have not been convicted of or plead guilty to a violation of section 2911.21 of the Revised Code (Criminal Trespass) or a substantially similar municipal ordinance within the previous five years.

Name	QDC Number	Attest	Date
Corbin Binkley	01608		5/30/25
Jack Freda	00838		5/30/25
Marty Knapp	00300		5/30/25
Jenna Roller-Knapp	01167		5/30/25

References

- Mahoning County Auditor's Office. 2025. GIS Public Viewer Version 2.9.
<https://gisapp.mahoningcountyoh.gov/mahgis/#>
- Ohio Environmental Protection Agency. 2018. Biological and Water Quality Study of the Lower Mahoning River Watershed, 2011 and 2013. Ohio EPA. Division of Surface Water.
- Ohio Environmental Protection Agency (1987a). *Biological Criteria for the Protection of Aquatic Life: Volume II. User's Manual for Biological Field Assessment of Ohio Surface Waters* (Updated January 1988; September 1989; November 2006; August 2008). Columbus, OH: Division of Water Quality Monitoring and Assessment.
- Ohio Environmental Protection Agency (1987b). *Biological Criteria for the Protection of Aquatic Life: Volume III. Standardized Biological Field Sampling and Laboratory Methods for Assessing Fish and Macroinvertebrate Communities* (Updated September 1989; March 2001; November 2006; and August 2008). Columbus, OH: Division of Water Quality Monitoring and Assessment.
- United States Environmental Protection Agency. 2019. NHDPlus Watershed Report. National Land Cover Dataset. 2011.
<https://watersgeo.epa.gov/watershedreport/?reachcode=05030103000266&measure=>

Attachment A: QDC Certificates



CERTIFIED MAIL

Effective Date: 5/15/2024
Expiration Date: 5/14/2026

Corbin Binkley
253 North State Street
Westerville, OH 43081

Re: Qualified Data Collector Approval, Surface Water Credible Data Program

Dear Corbin:

The Division of Surface Water Credible Data Program has reviewed your Qualified Data Collector (QDC) application. Pursuant to Ohio Revised Code (ORC) 6111.53 and Ohio Administrative Code (OAC) 3745-4-03, you are approved as a QDC for the following level and specialty:

Level: 3
Specialty: Fish Community Biology - Headwater & Wading Only
QDC number: 01608

Please use this QDC number on all correspondence, study plans, etc. submitted to Ohio EPA.

As noted at the top of this letter, this status is effective as of the date of this letter and expires two years from that date. You may now submit study plans to the Credible Data Program.

A renewal application must be submitted in accordance with OAC 3745-4-03 (C). As provided in this rule, renewal of status is contingent upon active participation in the Credible Data Program at the designated level and specialty. Active participation means that the QDC has participated in activities under this program at the level and specialty of the applicant's QDC certification during the period the applicant's certification was valid, including the submission of data approved at the appropriate level, collected under an approved project study plan. Lack of such participation will prevent you from renewing your status, but you may re-apply for initial QDC status.

As a reminder, your status is contingent upon the absence of any trespassing violation (within the previous five years) by you or any person sampling under your supervision. Always obtain landowner permission prior to sampling.

Additionally, collection (and retention) of aquatic biological samples (this includes fish, macroinvertebrates, mollusks, and shells) requires a collector's permit from the Ohio Department of Natural Resources/Division of Wildlife. Obtain this permit prior to collection of any biological samples.

You are hereby notified that this action of the Director is final and may be appealed to the Environmental Review Appeals Commission pursuant to Section 3745.04 of the Ohio Revised Code. The appeal must be in writing and set forth the action complained of and the grounds upon which the appeal is based. The appeal must be filed with the Commission within thirty (30) days after notice of the Director's action. The appeal must be accompanied by a filing fee of \$70.00, made payable to "Treasurer of the State of Ohio", which the Commission, in its discretion, may reduce if by affidavit you demonstrate that payment of the full amount of the fee would cause extreme hardship.

Notice of the filing of the appeal must be filed with the Director within three (3) days of filing with the Commission. Ohio EPA requests that a copy of the appeal be served upon the Ohio Attorney General's Office, Environmental Enforcement Section. An appeal may be filed with the Environmental Review Appeals Commission at the following address: 30 E. Broad Street, 4th Floor, Columbus, OH 43215.

Sincerely,

A handwritten signature in cursive script that reads "Anne M. Vogel". The signature is written in black ink and is positioned to the left of the typed name below it.

Anne M. Vogel



Effective Date: 7/11/2025

Expiration Date: 7/10/2030

Jennifer Roller-Knapp
609 Northridge Road
Columbus, OH 43214

Re: Qualified Data Collector Renewal, Surface Water Credible Data Program

Dear Jennifer:

The Division of Surface Water Credible Data Program has automatically renewed your Qualified Data Collector (QDC) status based on your recent data and project study plan submittals. Pursuant to Ohio Revised Code (ORC) 6111.53 and Ohio Administrative Code (OAC) 3745-4-03, your status as a QDC has been renewed for the following level and specialty:

Level: 3
**Specialty: Benthic Macroinvertebrate Assessment - Collection and Data
Evaluation Only**
QDC number: 01167

Please use this QDC number on all correspondence, study plans, etc. submitted to Ohio EPA.

As noted at the top of this letter, this status is effective as of the date of this letter and expires five years from that date. You may now submit study plans to the Credible Data Program.

A renewal application must be submitted in accordance with OAC 3745-4-03 (C). As provided in this rule, renewal of status is contingent upon active participation in the Credible Data Program at the designated level and specialty. Active participation means that the QDC has participated in activities under this program at the level and specialty of the applicant's QDC certification during the period the applicant's certification was valid, including the submission of data approved at the appropriate level, collected under an approved project study plan. Lack of such participation will prevent you from renewing your status, but you may re-apply for initial QDC status.

As a reminder, your status is contingent upon the absence of any trespassing violation (within the previous five years) by you or any person sampling under your supervision. Always obtain landowner permission prior to sampling.

Additionally, collection (and retention) of aquatic biological samples (this includes fish, macroinvertebrates,

mollusks, and shells) requires a collector's permit from the Ohio Department of Natural Resources/Division of Wildlife. Obtain this permit prior to collection of any biological samples.

You are hereby notified that this action of the Director is final and may be appealed to the Environmental Review Appeals Commission pursuant to Section 3745.04 of the Ohio Revised Code. The appeal must be in writing and set forth the action complained of and the grounds upon which the appeal is based. The appeal must be filed with the Commission within thirty (30) days after notice of the Director's action. The appeal must be accompanied by a filing fee of \$70.00, made payable to "Treasurer of the State of Ohio", which the Commission, in its discretion, may reduce if by affidavit you demonstrate that payment of the full amount of the fee would cause extreme hardship.

Notice of the filing of the appeal must be filed with the Director within three (3) days of filing with the Commission. Ohio EPA requests that a copy of the appeal be served upon the Ohio Attorney General's Office, Environmental Enforcement Section. An appeal may be filed with the Environmental Review Appeals Commission at the following address: 30 E. Broad Street, 4th Floor, Columbus, OH 43215.

Sincerely,

A handwritten signature in black ink, appearing to read "John Logue". The signature is stylized and written in a cursive-like font.

John Logue
Director



**Environmental
Protection
Agency**

Mike DeWine, Governor Jon Husted, Lt. Governor Anne M. Vogel, Director

I certify this to be a true and accurate copy of the official documents as filed in the records of the Ohio Environmental Protection Agency.

Effective Date: 11/1/2024
Expiration Date: 10/31/2027

By: Kelly A. Knapp Date: 11/01/2024

Martin J Knapp
4673 Northwest Parkway
Hilliard, OH 43026

Re: Qualified Data Collector Renewal, Surface Water Credible Data Program

Dear Martin:

The Division of Surface Water Credible Data Program has automatically renewed your Qualified Data Collector (QDC) status based on your recent data and project study plan submittals. Pursuant to Ohio Revised Code (ORC) 6111.53 and Ohio Administrative Code (OAC) 3745-4-03, your status as a QDC has been renewed for the following level and specialty:

Level: 3
Specialty: Benthic Macroinvertebrate Assessment - Sample Collection, Identification, and Data Evaluation
QDC number: 00300

Please continue to use this QDC number on all correspondence, study plans, etc. submitted to Ohio EPA.

As noted at the top of this letter, this status was effective as of the date of your initial data submittal and expires three years from that date. You may continue to submit data and new study plans to the Program.

As provided in OAC 3745-4-03 (C)(3), renewal of status is contingent upon active participation in the Program at the designated level and specialty. Lack of such participation will prevent you from renewing your status, but you may re-apply for initial QDC status.

As a reminder, your status is contingent upon the absence of any trespassing violation (within the previous five years) by you or any person sampling under your supervision. Always obtain landowner permission prior to sampling.

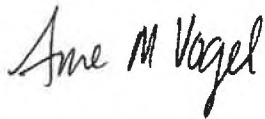
Additionally, collection (and retention) of aquatic biological samples (this includes fish,

macroinvertebrates, mollusks, and shells) requires a collector's permit from the Ohio Department of Natural Resources/Division of Wildlife. Obtain this permit prior to collection of

You are hereby notified that this action of the Director is final and may be appealed to the Environmental Review Appeals Commission pursuant to Section 3745.04 of the Ohio Revised Code. The appeal must be in writing and set forth the action complained of and the grounds upon which the appeal is based. The appeal must be filed with the Commission within thirty (30) days after notice of the Director's action. The appeal must be accompanied by a filing fee of \$70.00, made payable to "Treasurer of the State of Ohio", which the Commission, in its discretion, may reduce if by affidavit you demonstrate that payment of the full amount of the fee would cause extreme hardship.

Notice of the filing of the appeal must be filed with the Director within three (3) days of filing with the Commission. Ohio EPA requests that a copy of the appeal be served upon the Ohio Attorney General's Office, Environmental Enforcement Section. An appeal may be filed with the Environmental Review Appeals Commission at the following address: 30 E. Broad Street, 4th Floor, Columbus, OH 43215.

Sincerely,

A handwritten signature in cursive script that reads "Anne M. Vogel". The signature is written in black ink and is positioned to the left of the typed name below it.

Anne M. Vogel

Attachment B: Scientific Data Collector Permit



DIVISION OF WILDLIFE

Ohio Department of Natural Resources

Division of Wildlife Headquarters
2045 Morse Road, Bldg. G
Columbus, Ohio 43229-6693
1-800-WILDLIFE

Chief: Kendra S. Wecker

Scientific Collection

License Number: SC220007

Effective Date: 03/16/2023

Expiration Date: 03/15/2026

Permit Holder:

MARK DILLEY
253 N. STATE ST., SUITE 101
WESTERVILLE, OH 43081

MAD SCIENTIST & ASSOCIATES, LLC
253 N. STATE ST., SUITE 101
WESTERVILLE, OH 43081
COUNTY: FRANKLIN

Others authorized on permit: YES (See below)

The permittee is hereby granted permission to take, possess, and transport at any time and in any manner specimens of wild animals, subject to the conditions and restrictions listed below or any documents accompanying this permit.

The Chief of the Division of Wildlife will not issue permit for Dangerous Wild Animal (DWA) species (ORC 935.01) except native DWA, required for specific projects. The permit issued by the Chief does not relieve the permittee of any responsibility to obtain a permit pursuant to R.C. Chapter 935 except as specified for the animals and purposes permitted herein. The permittee must adhere to all additional requirements under R.C. Chapter 935.

THIS PERMIT IS RESTRICTED AS FOLLOWS:

All native freshwater mussels are protected in the State of Ohio (Section 1533.324 of the Ohio Revised Code). In addition, federally listed species are protected by the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.). Impacts to all freshwater mussels, including State and Federally protected mussels, and their habitats should be avoided and minimized to the maximum extent practicable. If impacts cannot be avoided, all streams which contain mussels or potential mussel habitat must be surveyed prior to any proposed stream disturbance following the Ohio Mussel Survey Protocol - April 2022 (link below).

<https://ohiodnr.gov/static/documents/wildlife/permits/dow-protocol-ohio-mussel-survey.pdf>

Mussel surveys are based on stream size and the potential presence of Federally Listed Species (FLS). Accordingly, for purposes of determining survey efforts, Ohio streams have been divided into the five categories listed below and are specifically named in Appendix A of the Ohio Mussel Survey Protocol:

- Unlisted: Streams not listed in the protocol with watersheds >5 mi² with the potential for mussels.
- Group 1: Small to mid-sized streams, FLS not expected.
- Group 2: Small to mid-sized streams, FLS expected.
- Group 3: Large Rivers, FLS not expected.
- Group 4: Large Rivers, FLS expected.

This permit authorizes you and those working under your direct on-site supervision to work with freshwater mussels in Group 1 and 3 streams, including work with state-list designated endangered or threatened species (state-listed species). For work in Group 2 and 4 streams, a current federal permit for working with mussels is also required. All mussel surveyors in Ohio are required to be certified by the state of Ohio, and you may only work in the systems that you have been approved for (link below):

<https://ohiodnr.gov/static/documents/wildlife/permits/dow-list-approved-mussel-surveyors.pdf>

This permit allows you to collect specimens of freshwater mussels, including state-listed species for survey and inventory purposes, to add dead specimens of mussels salvaged during fieldwork to an approved repository, to continue to monitor mussel beds of mussels in Ohio, and to locate additional populations of mussel in Ohio. This permit does not authorize the use of lethal means.



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MAD SCIENTIST & ASSOCIATES, LLC
253 N. STATE ST., SUITE 101
WESTERVILLE, OH 43081
COUNTY: FRANKLIN

This permit is conditioned on the following requirements:

1. At least 15 days prior to the initiation of a mussel survey in Group 1 & 3 systems, please provide John Navarro (john.navarro@dnr.ohio.gov) with a study plan specifying the objectives, location, dates, and all other details, for Division of Wildlife review and approval. For mussel surveys in Group 2 & 4 systems, contact the USFWS (Angela Boyer at angela_boyer@fws.gov).
2. May only work in the systems that you have been approved for (Reconnaissance, Groups 1 & 3, Groups 2 & 4).
3. If approved, may collect mussels, including listed species, for survey and inventory. May also collect non-endangered fish. Sportfish greater than six (>6) inches must be immediately released.
4. At least 24 hours prior to collection activities, the permittee must contact the local wildlife officer (attachment) to advise locations and sampling duration (messages are acceptable). Permission must be obtained from private landowners.
5. Any and all work conducted on federally listed mussels, as well as identification of mussels, must be conducted by federal permittees following restrictions of a current Federal permit. Assistants are only permitted to work under the direct, on-site supervision of federal permittees.
6. Specimens may be temporarily held per guidelines outlined in the mussel protocol and released within 3 hours to the collection location. Live specimens must be maintained at the Columbus Zoo's Freshwater Mussel Conservation and Research Center.
7. All voucher specimens collected are to be deposited at The Ohio State University Museum of Biological Diversity, Cleveland Museum of Natural History, or the Cincinnati Museum Center, unless otherwise specified in the permit.
8. Collection is prohibited on Division of Wildlife property without explicit written permission from the Division of Wildlife. Sampling is further restricted in streams that may have federally listed mussels. See Appendix A of the Ohio Mussel Survey Protocol for locations of federally listed mussels.
9. Please notify John Navarro by email or phone at 614-265-6346 within 24-hours if a new location for a state-listed species is found.
10. A report of your mussel survey findings for Group 1 and 3 systems should be sent to John Navarro (john.navarro@dnr.state.oh.us) and for Group 2 and 4 streams should be sent to Angela Boyer (angela_boyer@fws.gov).
11. An annual electronic report must be submitted in the Wildlife Diversity Database Excel spreadsheet format to the Permit Coordinator at wildlife.permits@dnr.ohio.gov by March 15th of each year. The file may be downloaded from wildohio.gov or obtained from the Permit Coordinator.

Note that a separate permit under Section 10 of the Endangered Species Act (ESA) is necessary in the case where you might hold live federally listed species longer than 45 days. Permit requests under Section 10 of the ESA should be directed to U.S. Fish and Wildlife Service (USFWS) at <https://fwsepermits.servicenow.com/fwsepermits>. If you have



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COUNTY: FRANKLIN

questions about whether any proposed activities are covered under this authority or need any other assistance, please contact Angela Boyer at the USFWS, at (614) 416-8993, ext. 122, or angela_boyer@fws.gov.

12. Permittee may collect fish, aquatic macroinvertebrates, insects and salamanders for research and survey purposes. All non-target specimens must be immediately released. Specimens must be immediately released after identification unless required as voucher specimens.

13. Biosecurity measures must be taken at all times to minimize the potential transmission of diseases. Permittee must follow the Division of Wildlife Aquatic Disinfection Protocol for all work with aquatic species.

14. Permittee must contact the Division of Wildlife if previously undocumented aquatic invasive species are discovered. Contact John Navarro at (614) 265-6346 or john.navarro@dnr.ohio.gov with information. If grass carp, silver carp, big head carp or black carp are captured, please retain and contact Eric Weimer at (419)625-8062 or at eric.weimer@dnr.ohio.gov.

15. All cages or enclosures must prevent ingress or egress of wild animals, have appropriate food and water, maintain appropriate temperature and provide protection from the weather. Enclosures must allow the animal to maintain species-specific and/or taxa specific seasonal and biological functions (e.g. bats hibernating). No part of collection may be held at a private residence.

16. All voucher specimens collected are to be deposited at The Ohio State University Museum of Biological Diversity, Cleveland Museum of Natural History, or the Cincinnati Museum Center, unless otherwise specified in the permit.

Locations of Collecting:

Statewide

Equipment and method used in collection:

Electrofishing and funnel trap

Name and number of each species to be collected:

Insects, crayfish, mussels, amphibians, invertebrates, and fish (Determined)

NO ENDANGERED SPECIES OR AQUATIC NUISANCE SPECIES MAY BE TAKEN WITHOUT WRITTEN PERMISSION FROM THE CHIEF



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COUNTY: FRANKLIN

SUB-PERMITTEES

Permit #SC220007 authorizes the following persons to conduct the activities listed on the permit, within the conditions and restrictions set forth. Each person must carry and exhibit upon request, a copy of the permit and this attachment when conducting any of the listed activities. The person named on the permit assumes full responsibility for the actions of the persons on this list and for completing and submitting all required reports.

- Adkins, Jenny
- Binkley, Corbin
- Coburn, Alan
- Duncan, Owen Julius
- Hanna, Lindsay
- Hribar, Daniel
- Nolan, Alexys
- Roller-Knapp, Jenna
- Smeenck, Nick
- Wright, Cody
- Zinsmeister, Ellie



WETLAND & STREAMS | ECOLOGICAL STUDIES | ENVIRONMENTAL EDUCATION | RESTORATION

Appendix B. Project Study Plan Approval Letter



Effective Date: 06/30/2025

Jenna Roller-Knapp (QDC #01167)
MAD Scientist Associates LLC
253 N. State Street, Suite 101
Westerville, OH 43081

Re: Project Study Plan Approval, Surface Water Credible Data Program

Dear Jenna,

The Division of Surface Water Credible Data Program has reviewed your 2025 Project Study Plan, "Sawmill Creek Fish, Macroinvertebrate & Habitat Surveys". Pursuant to Ohio Revised Code (ORC) 6111.53 and Ohio Administrative Code (OAC) 3745-4-06, your plan is approved for the following level and specialties:

**Specialties/Level: Benthic Macroinvertebrate Biology/Level 3
Fish Community Biology/Level 3
Stream Habitat Assessment (QHEI)/Level 3**

As a reminder, the credible data rules specify that "QDCs choosing to submit their data to Ohio EPA must submit all collected data. Submission of data may be done at any time but must be done no later than one year after completion of the study identified in the project study plan."

You are hereby notified that this action of the Director is final and may be appealed to the Environmental Review Appeals Commission pursuant to Section 3745.04 of the Ohio Revised Code. The appeal must be in writing and set forth the action complained of and the grounds upon which the appeal is based. The appeal must be filed with the Commission within thirty (30) days after notice of the Director's action. The appeal must be accompanied by a filing fee of \$70.00, made payable to "Treasurer of the State of Ohio", which the Commission, in its discretion, may reduce if by affidavit you demonstrate that payment of the full amount of the fee would cause extreme hardship.

Notice of the filing of the appeal must be filed with the Director within three (3) days of filing with the Commission. Ohio EPA requests that a copy of the appeal be served upon the Ohio Attorney General's Office, Environmental Enforcement Section. An appeal may be filed with the Environmental Review Appeals Commission at the following address: 30 E. Broad Street, 4th Floor, Columbus, OH 43215.

Sincerely,

John Logue, Director

Appendix C. Habitat and Fish Survey Data Sheets and Analysis

Stream & Location: Sawmill Creek @ Road off Kirk Rd **RM:** 0.9 **Date:** 7/16/25
(EPA Station: 302306) **Scorer's Full Name & Affiliation:** Carbin Binkley, MADSci Assoc.

River Code: 18-017-000 **STORET #:** X **Lat./Long.:** 41.06945 180.800762 (NAD 83 - decimal) **Office verified location**

1] SUBSTRATE Check ONLY Two substrate TYPE BOXES; estimate % or note every type present

<p>BEST TYPES</p> <p><input type="checkbox"/> BLDG / SLABS [10]</p> <p><input type="checkbox"/> BOULDER [9]</p> <p><input checked="" type="checkbox"/> COBBLE [8]</p> <p><input checked="" type="checkbox"/> GRAVEL [7]</p> <p><input type="checkbox"/> SAND [6]</p> <p><input type="checkbox"/> BEDROCK [5]</p>	<p>POOL RIFFLE</p> <p><input checked="" type="checkbox"/> <input type="checkbox"/></p> <p><input checked="" type="checkbox"/> <input type="checkbox"/></p> <p><input checked="" type="checkbox"/> <input type="checkbox"/></p> <p><input checked="" type="checkbox"/> <input type="checkbox"/></p>	<p>OTHER TYPES</p> <p><input type="checkbox"/> HARDPAN [4]</p> <p><input type="checkbox"/> DETRITUS [3]</p> <p><input type="checkbox"/> MUCK [2]</p> <p><input type="checkbox"/> SILT [2]</p> <p><input type="checkbox"/> ARTIFICIAL [0]</p> <p><small>(Score natural substrates; ignore sludge from point-sources)</small></p>	<p>POOL RIFFLE</p> <p><input checked="" type="checkbox"/> <input checked="" type="checkbox"/></p> <p><input checked="" type="checkbox"/> <input checked="" type="checkbox"/></p> <p><input checked="" type="checkbox"/> <input checked="" type="checkbox"/></p> <p><input checked="" type="checkbox"/> <input checked="" type="checkbox"/></p>
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ORIGIN Check ONE (Or 2 & average)

LIMESTONE [1]

TILLS [1]

WETLANDS [0]

HARDPAN [0]

SANDSTONE [0]

RIP/RAP [0]

LACUSTURINE [0]

SHALE [-1]

COAL FINES [-2]

QUALITY Check ONE (Or 2 & average)

HEAVY [-2]

MODERATE [-1]

NORMAL [0]

FREE [1]

EXTENSIVE [-2]

MODERATE [-1]

NORMAL [0]

NONE [1]

Substrate 18
Maximum 20

NUMBER OF BEST TYPES: 4 or more [2] 3 or less [0]

Comments

2] INSTREAM COVER Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest quality; 3-Highest quality in moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well developed rootwad in deep / fast water, or deep, well-defined, functional pools.

<p><input checked="" type="checkbox"/> UNDERCUT BANKS [1]</p> <p><input type="checkbox"/> OVERHANGING VEGETATION [1]</p> <p><input type="checkbox"/> SHALLOWS (IN SLOW WATER) [1]</p> <p><input type="checkbox"/> ROOTMATS [1]</p>	<p><input type="checkbox"/> POOLS > 70cm [2]</p> <p><input type="checkbox"/> ROOTWADS [1]</p> <p><input type="checkbox"/> BOULDERS [1]</p>	<p><input type="checkbox"/> OXBOWS, BACKWATERS [1]</p> <p><input type="checkbox"/> AQUATIC MACROPHYTES [1]</p> <p><input type="checkbox"/> LOGS OR WOODY DEBRIS [1]</p>	<p>AMOUNT Check ONE (Or 2 & average)</p> <p><input type="checkbox"/> EXTENSIVE >75% [11]</p> <p><input checked="" type="checkbox"/> MODERATE 25-75% [7]</p> <p><input type="checkbox"/> SPARSE 5-25% [3]</p> <p><input type="checkbox"/> NEARLY ABSENT <5% [1]</p>
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Cover 17
Maximum 20

Comments

3] CHANNEL MORPHOLOGY Check ONE in each category (Or 2 & average)

<p>SINUOSITY</p> <p><input type="checkbox"/> HIGH [4]</p> <p><input checked="" type="checkbox"/> MODERATE [3]</p> <p><input type="checkbox"/> LOW [2]</p> <p><input type="checkbox"/> NONE [1]</p>	<p>DEVELOPMENT</p> <p><input type="checkbox"/> EXCELLENT [7]</p> <p><input checked="" type="checkbox"/> GOOD [5]</p> <p><input type="checkbox"/> FAIR [3]</p> <p><input type="checkbox"/> POOR [1]</p>	<p>CHANNELIZATION</p> <p><input checked="" type="checkbox"/> NONE [6]</p> <p><input checked="" type="checkbox"/> RECOVERED [4]</p> <p><input type="checkbox"/> RECOVERING [3]</p> <p><input type="checkbox"/> RECENT OR NO RECOVERY [1]</p>	<p>STABILITY</p> <p><input type="checkbox"/> HIGH [3]</p> <p><input checked="" type="checkbox"/> MODERATE [2]</p> <p><input type="checkbox"/> LOW [1]</p>
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Channel 14
Maximum 20

Comments

4] BANK EROSION AND RIPARIAN ZONE Check ONE in each category for EACH BANK (Or 2 per bank & average)

River right looking downstream

<p>EROSION</p> <p><input type="checkbox"/> NONE / LITTLE [3]</p> <p><input checked="" type="checkbox"/> MODERATE [2]</p> <p><input type="checkbox"/> HEAVY / SEVERE [1]</p>	<p>RIPARIAN WIDTH</p> <p><input checked="" type="checkbox"/> WIDE > 50m [4]</p> <p><input type="checkbox"/> MODERATE 10-50m [3]</p> <p><input type="checkbox"/> NARROW 5-10m [2]</p> <p><input type="checkbox"/> VERY NARROW < 5m [1]</p> <p><input type="checkbox"/> NONE [0]</p>	<p>FLOOD PLAIN QUALITY</p> <p><input checked="" type="checkbox"/> FOREST, SWAMP [3]</p> <p><input type="checkbox"/> SHRUB OR OLD FIELD [2]</p> <p><input type="checkbox"/> RESIDENTIAL, PARK, NEW FIELD [1]</p> <p><input type="checkbox"/> FENCED PASTURE [1]</p> <p><input type="checkbox"/> OPEN PASTURE, ROWCROP [0]</p>	<p>CONSERVATION TILLAGE [1]</p> <p><input type="checkbox"/> URBAN OR INDUSTRIAL [0]</p> <p><input type="checkbox"/> MINING / CONSTRUCTION [0]</p>
--	---	---	--

Indicate predominant land use(s) past 100m riparian. **Riparian** 7
Maximum 10

Comments

5] POOL / GLIDE AND RIFFLE / RUN QUALITY

<p>MAXIMUM DEPTH Check ONE (ONLY)</p> <p><input type="checkbox"/> >1m [5]</p> <p><input checked="" type="checkbox"/> 0.7-1m [4]</p> <p><input type="checkbox"/> 0.4-0.7m [2]</p> <p><input type="checkbox"/> 0.2-0.4m [1]</p> <p><input type="checkbox"/> < 0.2m [0]</p>	<p>CHANNEL WIDTH Check ONE (Or 2 & average)</p> <p><input checked="" type="checkbox"/> POOL WIDTH > RIFFLE WIDTH [2]</p> <p><input type="checkbox"/> POOL WIDTH = RIFFLE WIDTH [1]</p> <p><input type="checkbox"/> POOL WIDTH < RIFFLE WIDTH [0]</p>	<p>CURRENT VELOCITY Check ALL that apply</p> <p><input type="checkbox"/> TORRENTIAL [-1]</p> <p><input type="checkbox"/> VERY FAST [1]</p> <p><input type="checkbox"/> FAST [1]</p> <p><input checked="" type="checkbox"/> MODERATE [1]</p> <p><input checked="" type="checkbox"/> SLOW [1]</p> <p><input type="checkbox"/> INTERSTITIAL [-1]</p> <p><input type="checkbox"/> INTERMITTENT [-2]</p> <p><input type="checkbox"/> EDDIES [1]</p> <p><small>Indicate for reach - pools and riffles.</small></p>	<p>Recreation Potential</p> <p>Primary Contact</p> <p>Secondary Contact</p> <p><small>(circle one and comment on back)</small></p>
---	---	---	---

Pool / Current 8
Maximum 12

Comments 38" Max

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species: Check ONE (Or 2 & average)

<p>RIFFLE DEPTH</p> <p><input type="checkbox"/> BEST AREAS > 10cm [2]</p> <p><input checked="" type="checkbox"/> BEST AREAS 5-10cm [1]</p> <p><input type="checkbox"/> BEST AREAS < 5cm [metric=0]</p>	<p>RUN DEPTH</p> <p><input type="checkbox"/> MAXIMUM > 50cm [2]</p> <p><input checked="" type="checkbox"/> MAXIMUM < 50cm [1]</p>	<p>RIFFLE / RUN SUBSTRATE</p> <p><input type="checkbox"/> STABLE (e.g., Cobble, Boulder) [2]</p> <p><input checked="" type="checkbox"/> MOD. STABLE (e.g., Large Gravel) [1]</p> <p><input type="checkbox"/> UNSTABLE (e.g., Fine Gravel, Sand) [0]</p>	<p>RIFFLE / RUN EMBEDDEDNESS</p> <p><input type="checkbox"/> NONE [2]</p> <p><input checked="" type="checkbox"/> LOW [1]</p> <p><input type="checkbox"/> MODERATE [0]</p> <p><input type="checkbox"/> EXTENSIVE [-1]</p>
---	--	--	---

Riffle / Run 4
Maximum 8

Comments

6] GRADIENT (14.3 ft/mi) VERY LOW - LOW [2-4] MODERATE [5-10] HIGH - VERY HIGH [10-6]

DRAINAGE AREA (1.5 mi²)

Gradient 8
Maximum 10

% POOL: 25 **% GLIDE:** 0

% RUN: 55 **% RIFFLE:** 20

A) SAMPLED REACH

Check ALL that apply

METHOD

- BOAT
- WADE
- L. LINE
- OTHER

STAGE

- 1st -sample pass- 2nd
- HIGH
- UP
- NORMAL
- LOW
- DRY

DISTANCE

- 0.5 Km
- 0.2 Km
- 0.15 Km
- 0.12 Km
- OTHER

150
meters

CANOPY

- > 85% - OPEN
- 55% - 85%
- 30% - 55%
- 10% - 30%
- < 10% - CLOSED

CLARITY

- 1st -sample pass- 2nd
- < 20 cm
- 20 - 40 cm
- 40 - 70 cm
- > 70 cm / CTB
- SECCHI DEPTH

- 1st _____ cm
- 2nd _____ cm

C) RECREATION

- AREA DEPTH
POOL: > 100ft² > 3ft

Comment RE: Reach consistency/Is reach typical of stream?, Recreation/ Observed - Inferred, Other/ Sampling observations, Concerns, Access directions, etc.

Bankfull: 5.5m, 7.4m, 8.9m, 6.1m

AVG = 6.975 Meter

BJAESTHETICS

- NUISANCE ALGAE
- INVASIVE MACROPHYTES
- EXCESS TURBIDITY
- DISCOLORATION
- FOAM / SCUM
- OIL SHEEN
- TRASH / LITTER
- NUISANCE ODOR
- SLUDGE DEPOSITS
- CSOs/SSOs/OUTFALLS

DJ MAINTENANCE

- PUBLIC / PRIVATE / BOTH / NA
- ACTIVE / HISTORIC / BOTH / NA
- YOUNG-SUCCESSION-OLD
- SPRAY / SNAG / REMOVED
- MODIFIED / DIPPED OUT / NA
- LEVEED / ONE SIDED
- RELOCATED / CUTOFFS
- MOVING-BEDLOAD-STABLE
- ARMOURED / SLUMPS
- ISLANDS / SCOURED
- IMPOUNDED / DESICCATED
- FLOOD CONTROL / DRAINAGE

Circle some & COMMENT

E) ISSUES

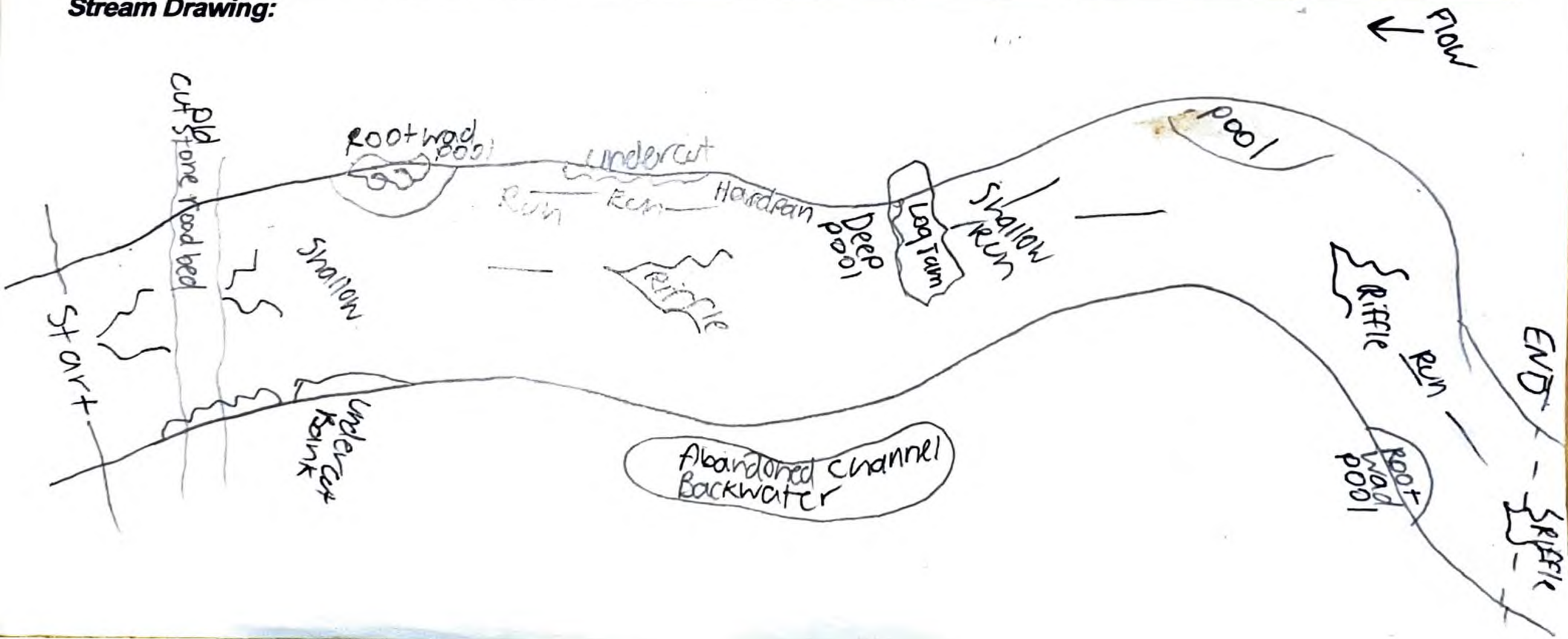
- WWTP / CSO / NPDES / INDUSTRY
- HARDENED / URBAN / DIRT&GRIME
- CONTAMINATED / LANDFILL
- BMPs-CONSTRUCTION-SEDIMENT
- LOGGING / IRRIGATION / COOLING
- BANK / EROSION / SURFACE
- FALSE BANK / MANURE / LAGOON
- WASH H₂O / TILE / H₂O TABLE
- ACID / MINE / QUARRY / FLOW
- NATURAL / WETLAND / STAGNANT
- PARK / GOLF / LAWN / HOME
- ATMOSPHERE / DATA PAUCITY

F) MEASUREMENTS

- \bar{x} width
- \bar{x} depth
- max. depth
- \bar{x} bankfull width
- bankfull \bar{x} depth
- WD ratio
- bankfull max. depth
- floodprone x^2 width
- entrench. ratio

Legacy Tree:

Stream Drawing:



Station ID 302306

River Code 18-017-000

RM 0.9

Date 7/16/2025

Time 10:30 AM

Stream Sawmill Creek

Location @ Road off Kirk Rd

Comments DA=5.5 mi²

Lat 41.06445

Long -90.800762

County Mahoning

ALP

Time Fished 1210

Crew Binkley

Netter Binkley

Others Roller-Knapp

Sampler Type E

Distance 150 M

Flow 0.4 ft³/sec max

Temp. C 79.1

Secchi >25"

Source

Project

Fins Code	Number Weighed	Total Counted	Total Weight	Weights (Counts)		DELT ANOMALIES Deformities, Erosions, Lesions, Tumors Multiple DELTs on one fish									
						D	E	L	T	M	*				
1	X	158	X	(100)	(2)	(56)									
	White Sucker														
V	10x														
2	X	38	X	(36)	(2)										
	Creek Chub														
V	10x														
3	X	8	X	(8)											
	Blacknose Dace														
V	10x														
4	X	1	X	(1)											
	Bluntnose minnow														
V	10x														
5	X	6	X	(6)											
	Logperch														
V	10x														
6	X	1	X	(1)											
	Silverjaw minnow														
V	10x														
7	X	3	X	(3)											
	Yellow perch														
V	10x														
8	X	63	X	(63)											
	Central stoneroller														
V	10x														
9	X	2	X	(2)											
	Johnny Darter														
V	10x														

* A-anchor worm; B-black spot; C-licees; F-fungus; N-blind; P-parasites; S-emaciated; W-swirled scales Y-popeye; Z-other

Site Name:	Integral Canfield Bio Surveys	Stream:	Sawmill Creek	Sample Date:	7/16/2025
River Mile:	0.9	Location:	NW of Canfield	Crew:	CB, JRK, AP, EW
Time Fished (seconds):	1210	Drainage basin (sq mi):	5.5	Netter:	CB
Dist Fished (km)	0.15	No of Passes:	1	Sampler Type:	E

Code	Species Name	Feeding Guild	Tolerance	IBI Group	Breeding Guild	Riv Size	Hab Pref		D	E	L	T	Other	# of Fish	Relative Number	% by Number
40-016	WHITE SUCKER	O	T	W	S									158	316.00	0.48
43-011	WESTERN BLACKNOSE DACE	G	T	N	S	H								8	16.00	0.02
43-013	CREEK CHUB	G	T	N	N	P								38	76.00	0.11
43-039	SILVERJAW MINNOW	I		N	M	P								1	2.00	0.00
43-043	BLUNTNOSE MINNOW	O	T	N	C	P								1	2.00	0.00
43-044	CENTRAL STONEROLLER	H		N	N									63	126.00	0.19
47-004	YELLOW BULLHEAD	I	T		C						1			16	32.00	0.05
47-005	BROWN BULLHEAD	I	T		C									1	2.00	0.00
77-006	LARGEMOUTH BASS	C		F	C									13	26.00	0.04
77-009	BLUEGILL SUNFISH	I	P	S	C									16	32.00	0.05
80-003	YELLOW PERCH				M									3	6.00	0.01
80-011	LOGPERCH	I	M	D	S									6	12.00	0.02
80-014	JOHNNY DARTER	I		D	C	P								2	4.00	0.01
80-024	FANTAIL DARTER	I		D	C	H								5	10.00	0.02
Totals:														331	662.00	1.00

OHIO EPA INDEX CALCULATIONS - IBI AND MIwb

IBI Calculation - Headwater Site - Long-line			
	Qty	Score	
Species composition			
Total species	14	5	
Darters + sculpin	3	3	
Headwater species	2	3	
Minnow species	5	3	
Sensitive species	1.00	1	
% tolerant SPP.	67%	0.67	1
Trophic composition			
% pioneering spp.	13%	0.13	5
% omnivores	48%	0.48	1
% insectivores	14%	0.14	1
Fish composition			
Simple lithophils (# of spp)	3	3	
% DELT anomalies	0.30%	0.003021148	5
Fish numbers	218	3	
IBI:	34	QHEI:	76
Narrative:	Fair	Narrative:	Excellent
Ecoregion:	EQLP		

Appendix D. Macroinvertebrate Data Sheets and Analysis

**Ohio EPA Macroinvertebrate Monitoring
Macroinvertebrate Field Sheet**

Station ID Sawmill Creek

Sheet ID Smooth 2-side HDs *

Date Set 7/17/25
Date Collected 9/3/25

Project Integral

Sampler Type Qual/Quant # HDs 5

Collected By J. Roller-Knapp
and Ethan Watson (Intern)

ALP — RM 0.9

Data Comments QDC L3 data

Date Analyzed _____

Lat./Long. 41.064615, 080.801415 5.56 sq. mi DA

Analyzed By _____

Stream Sawmill Creek Location @ Road off Kirk Rd. Canfield OH

Flow 0.3 fps Temp. C) 14.9 HDs - Current Set (fps) 0.5 max Ret. (fps) 0.3 average 118-154 = 126 x 2 people = 252
Time Sampled (min.) 252

Sampling Method: HD(No. 5) - DN/HP - Surber - Grab (Type _____) - Other _____
HD Sampler Site: Depth (Set) 5" Canopy 60% closed Current (Set) 0.5 ft/s Current(Ret) 0.3 fps average
HD Condition: Disturbed Yes/No No Comment: good Depth (Set): 5.5"
Debris Yes/No No Comment: condition
Silt/Solids None - Slight - Moderate - Heavy Algae growth
DN/HP Sampling: Total Time 252 mins Habitats: Pool - Riffle - Run - Margin - Backwater
(total for 2 people) little

Physical Characteristics

Flow Condition: Flood - Above Normal - Normal - Low - Interstitial - Intermittent - Dry
Current Velocity: Fast - Moderate - Slow - ND
Channel Morphology: Natural - Channelized - Channelized (Recovered) - Impounded road crossing.
Bank Erosion: Extensive - Moderate - Slight - None
Riffle Development: Extensive - Moderate - X Sparse - Absent 3
Riffle Quality: Good - Fair - Poor - Embedded: Yes/No
Clarity: Clear - Murky - Turbid Temp: 14.9°C
Color: None - Green - Brown - Grey - Other (_____)
Canopy: Open - 75% - 50% - 40 - 25% - Closed

Substrate Characteristics

	<u>Pool</u>	<u>Riffle</u>	<u>Run</u>
Bedrock()			
Boulder()			
Rubble()	✓	✓	✓
Coarse Gravel	✓	✓	✓
Fine Gravel	✓	✓	✓
Sand	✓	✓	✓
Silt	✓	✓	✓
Clay/Hardpan	✓	✓	✓
Detritus	✓	✓	✓
Peat			
Muck			
Other()			
Macrophytes			
Algae()	✓	✓	✓
Artifacts()		✓ Artificial	✓
Compaction(F,M,S)	M	F	M
Depth(Average) <u>2.2</u>	<u>2.2</u>	<u>2.2</u>	<u>2.2</u>
Width(Average) <u>4.2</u>	<u>4.2</u>	<u>4.2</u>	<u>4.2</u>

Forest - R
Shrub
Old Field
Rowcrop
Industrial

Predominant Land Use (L,R,B)

Open Pasture
Closed Pasture
Urban
Residential/Park
Mining/Construction

Predominant Riparian Vegetation Width

Left	Right	Type
✓	✓	Large Trees
✓	✓	Small Trees
✓	✓	Shrubs
✓	✓	Grass/Weeds <u>Burweed</u>
		None

Margin Habitat

Undercut Banks Root Mats
Grass Water Willow
Shallows Clay/Hardpan
Rip Rap Bulkhead
Other()
Margin Quality: Good - Fair - Poor

Max Depth: 36"

Biological Characteristics

Riffle:

Predominant Organisms: Hydropsychidae, hydrachnida, baetids

Other Common Organisms: simuliidae, Calopteryx,

Density: High X - Moderate - Low

Diversity: High X - Moderate - Low

Run:

Predominant Organisms: Hydrachnidae, riffle beetles

Other Common Organisms: Midges

Density: High - Moderate X - Low

Diversity: High - Moderate X - Low

Pool:

Predominant Organisms: Midges

Other Common Organisms: Haliphidae

Density: High - Moderate - Low

Diversity: High - Moderate - Low

Margin:

Predominant Organisms: Haliphidae, Calopteryx

Other Common Organisms: Leptoceridae

Density: High - Moderate - Low

Diversity: High - Moderate X - Low

Other Notable Collections: Tipulidae, Leptoceridae, Philopotomidae, Hydrophila, Nepidae, Belostomatidae

Potential Pollution Sources: None Heptageniidae, Aesophaeta, Crayfish, Dobsonfly larva, Dubiraphia

Evidence of Pollution: Some iron deposits, bacteria sheet & floating brown scum

Photo Numbers: iphone

Comments: 2-lined salamander, fantail darters, blacknose dace also observed

Good variety of taxa and moderate density.
Several unique taxa:

Field evaluation: Good

Appendix Table B-2. Macroinvertebrate taxa list for Sawmill Creek in 2025.

River Code: **18-017** River: **Sawmill Creek** Coll. Date **09/03/2025** RM: **0.90**

Site ID: **302306** Location: **Rd. off Kirk Rd, Canfield, OH** Sample:

Taxa Code	Taxa	CWH Taxa	Tol.	Qt./Ql.	Taxa Code	Taxa	CWH Taxa	Tol.	Qt./Ql.
01320	Hydra sp		F	6	83820	Microtendipes "caelum" (sensu Simpson & Bode, 1980)	MI		+
01801	Turbellaria		F	9 +	84210	Paratendipes albimanus or P. duplicatus	F		98 +
03600	Oligochaeta		T	14 +	84315	Phaenopsectra flavipes	MT		3 +
04687	Placobdella parasitica		MT	+	84450	Polypedilum (Uresipedilum) flavum	F		3 +
07800	Cambarus sp			+	84460	Polypedilum (P.) fallax group	F		28
08230	Faxonius obscurus		MT	+	84470	Polypedilum (P.) illinoense	T		+
08601	Hydrachnidia		F	2 +	84540	Polypedilum (Tripodura) scalaenum group	F		6
11115	Baetis tricaudatus	X	MI	+	84750	Stictochironomus sp	F		+
11120	Baetis flavistriga		F	7 +	84790	Tribelos fuscicorne	F		+
11130	Baetis intercalaris		F	+	85500	Paratanytarsus sp	F		3
13521	Stenonema femoratum		F	1 +	85501	Paratanytarsus longistilus	X MI		3
21200	Calopteryx sp		F	28 +	85615	Rheotanytarsus pellucidus	MI		6
22001	Coenagrionidae		T	+	85625	Rheotanytarsus sp	F		31
23600	Aeshna sp		MT	+	85800	Tanytarsus sp	F		+
23909	Boyeria vinosa		F	+	85802	Tanytarsus n. sp nr. curticornis	F		3
25200	Lanthus sp	X	MI	+	85818	Tanytarsus glabrescens group sp 4	F		3 +
27500	Somatochlora sp		MT	+	85821	Tanytarsus glabrescens group sp 7	F		15
42700	Belostoma sp		T	+	85840	Tanytarsus sepp	F		6
43300	Ranatra sp		F	+	87540	Hemerodromia sp	F		3
48610	Nigronia fasciata	X	MI	+	95100	Physella sp	T		28 +
50301	Chimarra aterrima		MI	+	95907	Gyraulus (Torquis) parvus	MT		+
52200	Cheumatopsyche sp		F	35 +	96120	Menetus (Micromenetus) dilatatus	MT		3
52450	Ceratopsyche sparna		F	+	96264	Planorbella (Pierosoma) pilsbryi	T		1 +
52530	Hydropsyche depravata group		F	7 +	96801	Ancylidae	F		10
53800	Hydroptila sp		F	+	98001	Pisidiidae			1
59310	Mystacides sepulchralis		MI	+					
59500	Oecetis sp		F	1					
60900	Peltodytes sp		MT	+					
65800	Berosus sp		MT	1 +					
68601	Ancyronyx variegata		F	+	No. Quantitative Taxa:	39	Total Taxa;	68	
69400	Stenelmis sp		F	8 +	No. Qualitative Taxa:	46	ICI:	40	
71900	Tipula sp		F	+	Number of Organisms:	480	Qual EPT:	10	
74100	Simulium sp		F	+					
77500	Conchapelopia sp		F	9					
77800	Helopelopia sp		F	61 +					
78140	Labrundinia pilosella		F	2					
78350	Meropelopia sp	X	F	3					
78450	Nilotanypus fimbriatus		F	15					
78655	Procladius (Holotanypus) sp		MT	+					
80370	Corynoneura lobata		F	11					
81250	Nanocladius (N.) minimus		F	3					
82820	Cryptochironomus sp		F	3					
83040	Dicrotendipes neomodestus		F	+					

Appendix Table A-1. ICI metrics and values in the Sawmill Creek study area during 2025.

Site ID	River Mile	Drainage Area (sq mi)	Number of				Percent:					ICI	
			Total Taxa	Mayfly Taxa	Caddisfly Taxa	Dipteran Taxa	Mayflies	Caddisflies	Tany-tarsini	Other Dipt/NI	Tolerant Organisms		Qual. EPT
Sawmill Creek (18-017)													
Year: 2025													
302306	0.90	5.5	39(6)	2(0)	3(6)	22(6)	1.7(2)	9.0(6)	14.6(4)	67.1(0)	14.6(4)	10(6)	40

Appendix E: Habitat and Fish IBI Photolog

2025 Sawmill Creek IBI Voucher Photographs



View of Sawmill Creek.

Report Type:	Voucher Photolog
Report Author(s):	Corbin Binkley, Jenna Roller-Knapp
Affiliation:	MAD Scientist Associates LLC
Phone:	(614) 818-9156
Email:	Corbin@madscientistassociates.net
Survey Date:	July 16, 2025



Photo 1: IBI starting location, facing upstream. On Sawmill Creek.



Photo 2: IBI starting location, facing downstream.



Photo 3: IBI ending location, facing upstream.



Photo 4: IBI ending location, facing downstream.



Photo 5: White Sucker. Found in Sawmill Creek.



Photo 6: Western Blacknose Dace. Found in Sawmill Creek.



Photo 7: Creek Chub. Found in Sawmill Creek.



Photo 8: Silverjaw Minnow. Found in Sawmill Creek.



Photo 9:
Bluntnose Minnow.
Found in Sawmill
Creek.



Photo 10: Central
Stoneroller. Found
in Sawmill Creek.



Photo 11: Yellow Bullhead. Found in Sawmill Creek.



Photo 12: Yellow Bullhead. Diagnostic view of barbels. Found in Sawmill Creek.



Photo 13: Brown Bullhead. Found in Sawmill Creek.



Photo 14: Brown Bullhead. Diagnostic view of barbels. Found in Sawmill Creek.



Photo 15:
Largemouth Bass.
Found in Sawmill
Creek.



Photo 16: Bluegill
Sunfish. Found in
Sawmill Creek.



Photo 17: Yellow Perch. Found in Sawmill Creek.



Photo 18: Logperch. Found in Sawmill Creek.



Photo 19: Johnny Darter. Found in Sawmill Creek.



Photo 20: Fantail Darter. Found in Sawmill Creek.

Appendix F: Macroinvertebrate ICI Photolog

2025 Sawmill Creek ICI Voucher Photographs



View of Sawmill Creek.

Report Type:	Site Photolog
Report Author(s):	Jenna Roller-Knapp
Affiliation:	MAD Scientist Associates LLC
Phone:	(614) 818-9156
Email:	Jenna@madscientistassociates.net
Survey Date:	July 16 and September 3, 2025-



Photo 1: Hester Dendy (HD) set on July 16, 2025 in flowing current in Sawmill Creek.



Photo 2: View of HD location, facing upstream.



Photo 3: View of HD location, facing downstream.



Photo 4: HD in-situ before retrieval on September 3, 2025



Photo 5: Jenna Roller-Knapp, QDC 3 in macroinvertebrate sampling, collecting HDs in Sawmill Creek.



Photo 6: Representative run habitat present in Sawmill Creek.



Photo 7:
Representative
riffle habitat
present in Sawmill
Creek.



Photo 8:
Representative
woody debris
present in Sawmill
Creek.