Appendices to the Biological and Water Quality Study of Walhonding and Muskingum River Tributaries, 2010

Includes Walhonding River, 2007

Coshocton and Muskingum Counties

OHIO EPA Technical Report EAS/2012-6-8

Division of Surface Water
Ecological Assessment Section
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Appendix A - Biosurvey Background Information

NOTICE TO USERS

Ohio EPA incorporated biological criteria into the Ohio Water Quality Standards (WQS; Ohio Administrative Code 3745-1) regulations in February 1990 (effective May 1990). These criteria consist of numeric values for the Index of Biotic Integrity (IBI) and Modified Index of Well-Being (MIwb), both of which are based on fish assemblage data, and the Invertebrate Community Index (ICI), which is based on macroinvertebrate assemblage data. Criteria for each index are specified for each of Ohio's five ecoregions (as described by Omernik 1988), and are further organized by organism group, index, site type, and aquatic life use designation. These criteria, along with the existing chemical and whole effluent toxicity evaluation methods and criteria, figure prominently in the monitoring and assessment of Ohio's surface water resources.

The following documents support the use of biological criteria by outlining the rationale for using biological information, the methods by which the biocriteria were derived and calculated, the field methods by which sampling must be conducted, and the process for evaluating results:

Ohio Environmental Protection Agency. 1987a. Biological criteria for the protection of aquatic life: Volume I. The role of biological data in water quality assessment. Div. Water Qual. Monit. & Assess., Surface Water Section, Columbus, Ohio.

___ 1987b. Biological criteria for the protection of aquatic life: Volume II. Users manual for biological field assessment of Ohio surface waters. Div. Water Qual. Monit. & Assess., Surface Water Section, Columbus, Ohio.

___ 1989b. Addendum to Biological criteria for the protection of aquatic life: Volume II. Users manual for biological field assessment of Ohio surface waters. Div. Water Qual. Plan. & Assess., Ecological Assessment Section, Columbus, Ohio.

___ 1989c. Biological criteria for the protection of aquatic life: Volume III. Standardized biological field sampling and laboratory methods for assessing fish and macroinvertebrate communities. Div. Water Quality Plan. & Assess., Ecol. Assess. Sect., Columbus, Ohio.

___ 1990. The use of biological criteria in the Ohio EPA surface water monitoring and assessment program. Div. Water Qual. Plan. & Assess., Ecol. Assess. Sect., Columbus, Ohio.

___ 2008a. 2008 Updates to Biological criteria for the protection of aquatic life: Volume II and Volume II Addendum. Users manual for biological field assessment of Ohio surface waters. Div. of Surface Water, Ecol. Assess. Sect., Groveport, Ohio.

___ 2008b. 2008 Updates to Biological criteria for the protection of aquatic life: Volume III. Standardized biological field sampling and laboratory methods for assessing fish and macroinvertebrate communities. Div. of Surface Water, Ecol. Assess. Sect., Groveport, Ohio.

___ 2006a. Methods for assessing habitat in flowing waters: Using the Qualitative Habitat Evaluation Index (QHEI). Ohio EPA Tech. Bull. EAS/2006-06-1. Revised by the Midwest Biodiversity Institute for Div. of Surface Water, Ecol. Assess. Sect., Groveport, Ohio.

_____. 2006b. 2006 updates to Biological Criteria for the Protection of Aquatic Life: Volume III. Standardized biological field sampling and laboratory methods for assessing fish and macroinvertebrate communities. Div. of Surface Water, Ecol. Assess. Sect., Columbus, Ohio.

Rankin, E.T. 1989. The qualitative habitat evaluation index (QHEI): rationale, methods, and application. Div. Water Qual. Plan. & Assess., Ecol. Assess. Sect., Columbus, Ohio.

Since the publication of the preceding guidance documents, the following new publications by the Ohio EPA have become available. These publications should also be consulted as they represent the latest information and analyses used by the Ohio EPA to implement the biological criteria.

DeShon, J.D. 1995. Development and application of the invertebrate community index (ICI), pp. 217-243. in W.S. Davis and T. Simon (eds.). Biological Assessment and Criteria: Tools for Risk-based Planning and Decision Making. Lewis Publishers, Boca Raton, FL.

Rankin, E. T. 1995. The use of habitat assessments in water resource management programs, pp. 181-208. in W. Davis and T. Simon (eds.). Biological Assessment and Criteria: Tools for Water Resource Planning and Decision Making. Lewis Publishers, Boca Raton, FL.

Yoder, C.O. and E.T. Rankin. 1995a. Biological criteria program development and implementation in Ohio, pp. 109-144. in W. Davis and T. Simon (eds.). Biological Assessment and Criteria: Tools for Water Resource Planning and Decision Making. Lewis Publishers, Boca Raton, FL.

Yoder, C.O. and E.T. Rankin. 1995b. Biological response signatures and the area of degradation value: new tools for interpreting multimetric data, pp. 263-286. in W. Davis and T. Simon (eds.). Biological Assessment and Criteria: Tools for Water Resource Planning and Decision Making. Lewis Publishers, Boca Raton, FL.

Yoder, C.O. 1995c. Policy issues and management applications for biological criteria, pp. 327-344. in W. Davis and T. Simon (eds.). Biological Assessment and Criteria: Tools for Water Resource Planning and Decision Making. Lewis Publishers, Boca Raton, FL.

Yoder, C.O. and E.T. Rankin. 1995d. The role of biological criteria in water quality monitoring, assessment, and regulation. Environmental Regulation in Ohio: How to Cope With the Regulatory Jungle. Inst. of Business Law, Santa Monica, CA. 54 pp.

Yoder, C.O. and M.A. Smith. 1999. Using fish assemblages in a State biological assessment and criteria program: essential concepts and considerations, pp. 17-63. in T. Simon (ed.). Assessing the Sustainability and Biological Integrity of Water Resources Using Fish Communities. CRC Press, Boca Raton, FL.

These documents and this report may be obtained by writing to:

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Monitoring and Assessment Section
4675 Homer Ohio Lane
Groveport, Ohio 43125
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FOREWORD

What is a Biological and Water Quality Survey?
A biological and water quality survey, or "biosurvey", is an interdisciplinary monitoring effort coordinated on a waterbody specific or watershed scale. This effort may involve a relatively simple setting focusing on one or two small streams, one or two principal stressors, and a handful of sampling sites or a much more complex effort including entire drainage basins, multiple and overlapping stressors, and tens of sites. Each year the Ohio EPA conducts biosurveys in 4-5 watersheds study areas with an aggregate total of 250-300 sampling sites.

The Ohio EPA employs biological, chemical, and physical monitoring and assessment techniques in biosurveys in order to meet three major objectives: 1) determine the extent to which use designations assigned in the Ohio Water Quality Standards (WQS) are either attained or not attained; 2) determine if use designations assigned to a given water body are appropriate and attainable; and 3) determine if any changes in key ambient biological, chemical, or physical indicators have taken place over time, particularly before and after the implementation of point source pollution controls or best management practices. The data gathered by a biosurvey is processed, evaluated, and synthesized in a biological and water quality report. Each biological and water quality study contains a summary of major findings and recommendations for revisions to WQS, future monitoring needs, or other actions which may be needed to resolve existing impairment of designated uses. While the principal focus of a biosurvey is on the status of aquatic life uses, the status of other uses such as recreation and water supply, as well as human health concerns are also addressed.

The findings and conclusions of a biological and water quality study may factor into regulatory actions taken by the Ohio EPA (*e.g.,* NPDES permits, Director's Orders, the Ohio Water Quality Standards [OAC 3745-1], Water Quality Permit Support Documents [WQPSDs]), and are eventually incorporated into State Water Quality Management Plans, the Ohio Nonpoint Source Assessment, and the biennial Integrated Water Quality Monitoring and Assessment Report (305[b] and 303[d]).

Hierarchy of Indicators
A carefully conceived ambient monitoring approach, using cost-effective indicators consisting of ecological, chemical, and toxicological measures, can ensure that all relevant pollution sources are judged objectively on the basis of environmental results. Ohio EPA relies on a tiered approach in attempting to link the results of administrative activities with true environmental measures. This integrated approach includes a hierarchical continuum from administrative to true environmental indicators (Figure 1). The six "levels" of indicators include: 1) actions taken by regulatory agencies (permitting, enforcement, grants); 2) responses by the regulated community (treatment works, pollution prevention); 3) changes in discharged quantities (pollutant loadings); 4) changes in ambient conditions (water quality, habitat); 5) changes in uptake and/or assimilation (tissue contamination, biomarkers, wasteload allocation); and, 6) changes in health, ecology, or other effects (ecological condition, pathogens). In this process the results of administrative activities (levels 1 and 2) can be linked to efforts to improve water quality (levels 3, 4, and 5) which should translate into the environmental "results" (level 6). Thus, the aggregate effect of billions of dollars spent on water pollution control

since the early 1970s can now be determined with quantifiable measures of environmental condition.

Superimposed on this hierarchy is the concept of stressor, exposure, and response indicators. *Stressor* indicators generally include activities which have the potential to degrade the aquatic environment such as pollutant discharges (permitted and unpermitted), land use effects, and habitat modifications. *Exposure* indicators are those which measure the effects of stressors and can include whole effluent toxicity tests, tissue residues, and biomarkers, each of which provides evidence of biological exposure to a stressor or bioaccumulative agent. *Response* indicators are generally composite measures of the cumulative effects of stress and exposure and include the more direct measures of community and population response that are represented here by the biological indices which comprise Ohio's biological criteria. Other response indicators could include target assemblages, *i.e.,* rare, threatened, endangered, special status, and declining species or bacterial levels which serve as surrogates for the recreational uses. These indicators represent the essential technical elements for watershed-based management approaches. The key, however, is to use the different indicators *within* the roles which are most appropriate for each.

Describing the causes and sources associated with observed impairments revealed by the biological criteria and linking this with pollution sources involves an interpretation of multiple lines of evidence including water chemistry data, sediment data, habitat data, effluent data, biomonitoring results, land use data, and biological response signatures within the biological data itself. Thus the assignment of principal causes and sources of impairment represents the association of impairments (defined by response indicators) with stressor and exposure indicators. The principal reporting venue for this process on a watershed or subbasin scale is a biological and water quality report. These reports then provide the foundation for aggregated assessments such as the Integrated Report, the Ohio Nonpoint Source Assessment, and other technical bulletins.

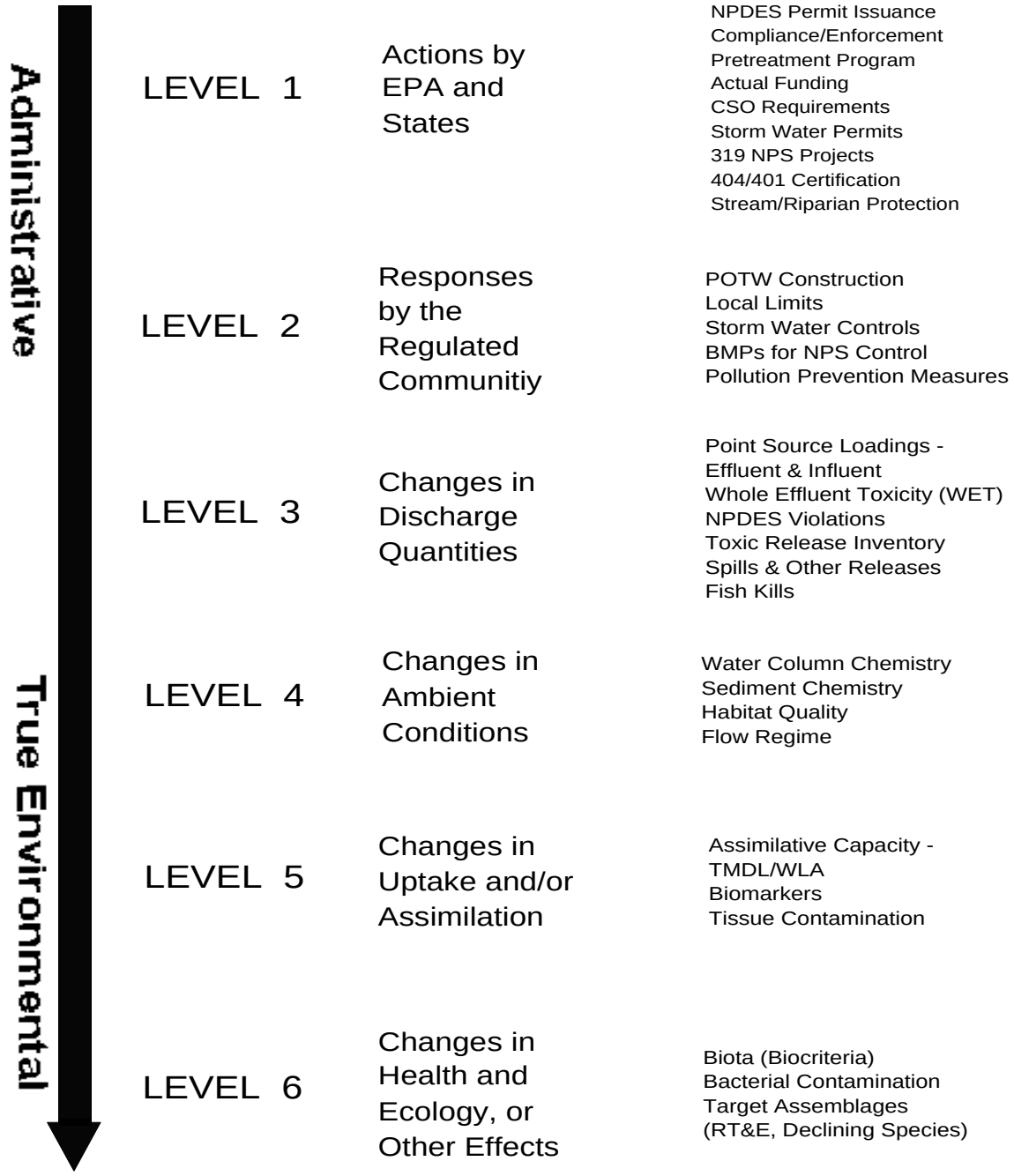

Figure 1. Hierarchy of administrative and environmental indicators which can be used for water quality management activities such as monitoring and assessment, reporting, and the evaluation of overall program effectiveness. This is patterned after a model developed by the U.S. EPA.

Ohio Water Quality Standards: Designated Aquatic Life Use

The Ohio Water Quality Standards (WQS; Ohio Administrative Code 3745-1) consist of designated uses and chemical, physical, and biological criteria designed to represent measurable properties of the environment that are consistent with the goals specified by each use designation. Use designations consist of two broad groups, aquatic life and non-aquatic life uses. In applications of the Ohio WQS to the management of water resource issues in Ohio's rivers and streams, the aquatic life use criteria frequently result in the most stringent protection and restoration requirements, hence their emphasis in biological and water quality reports. Also, an emphasis on protecting for aquatic life generally results in water quality suitable for all uses. The five different aquatic life uses currently defined in the Ohio WQS are described as follows:

1) *Warmwater Habitat (WWH)* - this use designation defines the "typical" warmwater assemblage of aquatic organisms for Ohio rivers and streams; *this use represents the principal restoration target for the majority of water resource management efforts in Ohio.*

2) *Exceptional Warmwater Habitat (EWH)* - this use designation is reserved for waters which support "unusual and exceptional" assemblages of aquatic organisms which are characterized by a high diversity of species, particularly those which are highly intolerant and/or rare, threatened, endangered, or special status (*i.e.,* declining species); *this designation represents a protection goal for water resource management efforts dealing with Ohio's best water resources.*

3) *Coldwater Habitat (CWH)* - this use is intended for waters which support assemblages of coldwater organisms and/or those which are stocked with salmonids with the intent of providing a put-and-take fishery on a year round basis which is further sanctioned by the Ohio DNR, Division of Wildlife; this use should not be confused with the Seasonal Salmonid Habitat (SSH) use which applies to the Lake Erie tributaries which support periodic "runs" of salmonids during the spring, summer, and/or fall.

4) *Modified Warmwater Habitat (MWH)* - this use applies to streams and rivers which have been subjected to extensive, maintained, and essentially permanent hydromodifications such that the biocriteria for the WWH use are not attainable *and where the activities have been sanctioned by state or federal law;* the representative aquatic assemblages are generally composed of species which are tolerant to low dissolved oxygen, silt, nutrient enrichment, and poor quality habitat.

5) *Limited Resource Water (LRW)* - this use applies to small streams (usually <3 mi^2 drainage area) and other water courses which have been irretrievably altered to the extent that no appreciable assemblage of aquatic life can be supported; such waterways generally include small streams in extensively urbanized areas, those which lie in watersheds with extensive drainage modifications, those which completely lack water on a recurring annual basis (*i.e.,* true ephemeral streams), or other irretrievably altered waterways.

Chemical, physical, and/or biological criteria are generally assigned to each use designation in accordance with the broad goals defined by each. As such the system of use designations employed in the Ohio WQS constitutes a "tiered" approach in that varying and graduated levels of protection are provided by each. This hierarchy is especially apparent for parameters such as dissolved oxygen, ammonia-nitrogen,

temperature, and the biological criteria. For other parameters such as heavy metals, the technology to construct an equally graduated set of criteria has been lacking, thus the same WQS criteria may apply to two or three different use designations.

Ohio Water Quality Standards: Non-Aquatic Life Uses

In addition to assessing the appropriateness and status of aquatic life uses, each biological and water quality survey also addresses non-aquatic life uses such as recreation, water supply, and human health concerns as appropriate. The recreation uses most applicable to rivers and streams are the Primary Contact Recreation (PCR) and Secondary Contact Recreation (SCR) uses. The criterion for designating the PCR use can be having a water depth of at least one meter over an area of at least 100 square feet or, lacking this, where frequent human contact is a reasonable expectation. If a water body does not meet either criterion, the SCR use applies. The attainment status of PCR and SCR is determined using bacterial indicators (*e.g.,* fecal coliform, *E. coli)* and the criteria for each are specified in the Ohio WQS.

Attainment of recreation uses are evaluated based on monitored bacteria levels. The Ohio Water Quality Standards state that all waters should be free from any public health nuisance associated with raw or poorly treated sewage (Administrative Code 3745-1-04, Part F). Additional criteria (Administrative Code 3745-1-07) apply to waters that are designated as suitable for full body contact such as swimming (PCR) or for partial body contact such as wading (SCR). These standards were developed to protect human health, because even though fecal coliform bacteria are relatively harmless in most cases, their presence indicates that the water has been contaminated with fecal matter.

Water supply uses include Public Water Supply (PWS), Agricultural Water Supply (AWS), and Industrial Water Supply (IWS). Public Water Supplies are simply defined as segments within 500 yards of a potable water supply or food processing industry intake. The Agricultural Water Supply (AWS) and Industrial Water Supply (IWS) use designations generally apply to all waters unless it can be clearly shown that they are not applicable. An example of this would be an urban area where livestock watering or pasturing does not take place, thus the AWS use would not apply. Chemical criteria are specified in the Ohio WQS for each use and attainment status is based primarily on chemical-specific indicators. Human health concerns are additionally addressed with fish tissue data, but any consumption advisories are issued by the Ohio Department of Health.

MECHANISMS FOR WATER QUALITY IMPAIRMENT

The following paragraphs are provided to present the varied causes of impairment that affect the resource quality of lotic systems in Ohio. While the various perturbations are presented under separate headings, it is important to remember that they are often interrelated and cumulative in terms of the detrimental impact that can result.

Habitat and Flow Alterations

Habitat alteration, such as channelization, negatively impacts biological communities directly by limiting the complexity of living spaces available to aquatic organisms. Consequently, fish and macroinvertebrate communities are not as diverse. Indirect impacts include the removal of riparian trees and field tiling to facilitate drainage. Following a rain event, most of the water is quickly removed from tiled fields rather than filtering through the soil, recharging ground water, and reaching the stream at a lower

volume and more sustained rate. As a result, small streams more frequently go dry or become intermittent. Urbanization impacts include removal of riparian trees, influx of stormwater runoff, straightening and piping of stream channels, and riparian vegetation removal.

Tree shade is important because it limits the energy input from the sun, moderates water temperature, and limits evaporation. Removal of the tree canopy further degrades conditions because it eliminates an important source of coarse organic matter essential for a balanced ecosystem. Riparian vegetation aids in nutrient uptake, may decrease runoff rate into streams, and helps keep soil in place. Erosion impacts channelized streams more severely due to the lack of a riparian buffer zone to slow runoff, trap sediment and stabilize banks. Additionally, deep trapezoidal channels lack a functioning flood plain and therefore cannot expel sediment as would occur during flood events along natural watercourses. The confinement of flow within an artificially deep channel accelerates the movement of water downstream, exacerbating flooding of neighboring properties.

The lack of water movement under low flow conditions can exacerbate impacts from organic loading and nutrient enrichment by limiting re-aeration of the stream. The amount of oxygen soluble in water decreases as temperature increases. This is one reason why tree shade is so important. The two main sources of oxygen in water are diffusion from the atmosphere and plant photosynthesis. Turbulence at the water surface is critical because it increases surface area and promotes diffusion, but channelization eliminates turbulence produced by riffles, meanders, and debris snags. Plant photosynthesis produces oxygen, but at night, respiration reverses the process and consumes oxygen. Conversely, oxygen concentrations can become supersaturated during the day, due to abnormally high amounts of photosynthesis, causing gas bubble stress to both fish and invertebrate communities. Oxygen is also used by bacteria that decay dead organic matter. Nutrient enrichment can promote the growth of nuisance algae that subsequently dies and serves as food for bacteria. Under these conditions, oxygen can be depleted unless it is replenished from the air.

Siltation and Sedimentation

Whenever the natural flow regime is altered to facilitate drainage, increased amounts of sediment are likely to enter streams either by overland transport or increased bank erosion. The removal of wooded riparian areas furthers the erosion process. Channelization keeps all but the highest flow events confined within the artificially high banks. As a result, areas that were formerly flood plains and allowed for the removal of sediment from the primary stream channel no longer serve this function. As water levels fall following a rain event, interstitial spaces between larger rocks fill with sand and silt and the diversity of available habitat to support fish and macroinvertebrates is reduced. Silt also can clog the gills of both fish and macroinvertebrates, reduce visibility thereby excluding site feeding fish species, and smother the nests of lithophilic fishes. Lithophilic spawning fish require clean substrates with interstitial voids in which to deposit eggs. Conversely, pioneering species benefit. They are generalists and best suited for exploiting disturbed and less heterogeneous habitats. The net result is a lower diversity of aquatic species compared with a typical warmwater stream with natural habitats.

Sediment also impacts water quality, recreation, and drinking water. Nutrients absorbed to soil particles remain trapped in the watercourse. Likewise, bacteria, pathogens, and pesticides which also attach to suspended or bedload sediments become concentrated

in waterways where the channel is functionally isolated from the landscape. Community drinking water systems address these issues with more costly advanced treatment technologies.

Nutrient Enrichment

The element of greatest concern is phosphorus because it is critical for plant growth and is often the limiting nutrient. The form that can be readily used by plants and therefore can stimulate nuisance algae blooms is orthophosphate (PO_4^{-3}). The amount of phosphorus tied up in the nucleic acids of food and waste is actually quite low. This organic material is eventually converted to orthophosphate by bacteria. The amount of orthophosphate contained in synthetic detergents is a great concern however. It was for this reason that the General Assembly of the State of Ohio enacted a law in 1990 to limit phosphorus content in household laundry detergents sold in the Lake Erie drainage basin to 0.5% by weight. Inputs of phosphorus originate from both point and nonpoint sources. Most of the phosphorus discharged by point sources is soluble. Another characteristic of point sources is they have a continuous impact and are human in origin, for instance, effluents from municipal sewage treatment plants. The contribution from failed on-lot septic systems or failing home sewage treatment systems can also be significant, especially if they are concentrated in a small area. The phosphorus concentration in raw waste water is generally 8-10 mg/l and after secondary treatment is generally 4-6 mg/l. Further removal requires the added cost of chemical addition. The most common methods use the addition of lime or alum to form a precipitate, so most phosphorus (80%) ends up in the sludge.

A characteristic of phosphorus discharged by nonpoint sources is that the impact is intermittent and associated with storm water runoff. Most of this phosphorus is bound tightly to soil particles and enters streams from erosion, although some comes from tile drainage. Urban storm water is more of a concern if combined sewer overflows are involved. The impact from rural storm water varies depending on land use and management practices and includes contributions from livestock feedlots and pastures and row crop agriculture. Crop fertilizer includes granular inorganic types and organic types such as manure or sewage sludge. Pasture land is especially a concern if the livestock have access to the stream. Large feedlots with manure storage lagoons create the potential for overflows and accidental spills. Land management is an issue because erosion is worse on streams without any riparian buffer zone to trap runoff. The impact is worse in streams that are channelized because they no longer have a functioning flood plain and cannot expel sediment during flooding. Oxygen levels must also be considered, because phosphorus is released from sediment at higher rates under anoxic conditions.

There is no numerical phosphorus criterion established in the Ohio Water Quality Standards, but there is a narrative criterion that states phosphorus should be limited to the extent necessary to prevent nuisance growths of algae and weeds (Administrative Code, 3745-1-04, Part E). Phosphorus loadings from large volume point source dischargers in the Lake Erie drainage basin are regulated by NPDES permit limits. The permit limit is a concentration of 1.0 mg/l in final effluent. Research conducted by the Ohio EPA indicates that a significant correlation exists between phosphorus and the health of aquatic communities (Miltner and Rankin, 1998). It was concluded that biological community performance in headwater and wadeable streams was highest where phosphorus concentrations were lowest. It was also determined that the lowest phosphorus concentrations were associated with the highest quality habitats, supporting

the notion that habitat is a critical component of stream function. The report recommends WWH biocriteria of 0.08 mg/l in headwater streams (<20 mi^2 watershed size), 0.10 mg/l in wadeable streams (>20-200 mi^2) and 0.17 mg/l in small rivers (>200-1000 mi^2).

Organic Enrichment and Low Dissolved Oxygen

The amount of oxygen soluble in water is low and it decreases as temperature increases. This is one reason why tree shade is so important. The two main sources of oxygen in water are diffusion from the atmosphere and plant photosynthesis. Turbulence at the water surface is critical because it increases surface area and promotes diffusion. Drainage practices such as channelization eliminate turbulence produced by riffles, meanders, and debris snags. Although plant photosynthesis produces oxygen by day, it is consumed by the reverse process of respiration at night. Oxygen is also consumed by bacteria that decay organic matter, so it can be easily depleted unless it is replenished from the air. Sources of organic matter include poorly treated waste water, sewage bypasses, and dead plants and algae. Dissolved oxygen criteria are established in the Ohio Water Quality Standards to protect aquatic life. The minimum and average limits are tiered values and linked to use designations (Administrative Code 3745-1-07, Table 7-1).

Ammonia

Ammonia enters streams as a component of fertilizer and manure run-off and wastewater effluent. Ammonia gas (NH_3) readily dissolves in water to form the compound ammonium hydroxide (NH_4OH). In aquatic ecosystems an equilibrium is established as ammonia shifts from a gas to undissociated ammonium hydroxide to the dissociated ammonium ion (NH_4^{+1}). Under normal conditions (neutral pH 7 and 25□C) almost none of the total ammonia is present as gas, only 0.55% is present as ammonium hydroxide, and the rest is ammonium ion. Alkaline pH shifts the equation toward gaseous ammonia production, so the amount of ammonium hydroxide increases. This is important because while the ammonium ion is almost harmless to aquatic life, ammonium hydroxide is very toxic and can reduce growth and reproduction or cause mortality.

The concentration of ammonia in raw sewage is high, sometimes as much as 20-30 mg/l. Treatment to remove ammonia involves gaseous stripping to the atmosphere, biological nitrification and de-nitrification, and assimilation into plant and animal biomass. The nitrification process requires a long detention time and aerobic conditions like that provided in extended aeration treatment plants. Under these conditions, bacteria first convert ammonia to nitrite (*Nitrosomonas*) and then to nitrate (*Nitrobacter*). Nitrate can then be reduced by the de-nitrification process (*Pseudomonas*) and nitrogen gas and carbon dioxide are produced as by-products.

Ammonia criteria are established in the Ohio Water Quality Standards to protect aquatic life. The maximum and average limits are tiered values based on sample pH and temperature and linked to use designations (Administrative Code 3745-1-07, Tables 7-2 through 7-8).

Metals

Metals can be toxic to aquatic life and hazardous to human health. Although they are naturally occurring elements many are extensively used in manufacturing and are byproducts of human activity. Certain metals like copper and zinc are essential in the

human diet, but excessive levels are usually detrimental. Lead and mercury are of particular concern because they often trigger fish consumption advisories. Mercury is used in the production of chlorine gas and caustic soda and in the manufacture of batteries and fluorescent light bulbs. In the environment it forms inorganic salts, but bacteria convert these to methyl-mercury and this organic form builds up in the tissues of fish. Extended exposure can damage the brain, kidneys, and developing fetus. The Ohio Department of Health (ODH) issued a statewide fish consumption advisory in 1997 advising women of child bearing age and children six and under not to eat more than one meal per week of any species of fish from waters of the state because of mercury. Lead is used in batteries, pipes, and paints and is emitted from burning fossil fuels. It affects the central nervous system and damages the kidneys and reproductive system. Copper is mined extensively and used to manufacture wire, sheet metal, and pipes. Ingesting large amounts can cause liver and kidney damage. Zinc is a by-product of mining, steel production, and coal burning and used in alloys such as brass and bronze. Ingesting large amounts can cause stomach cramps, nausea, and vomiting.

Metals criteria are established in the Ohio Water Quality Standards to protect human health, wildlife, and aquatic life. Three levels of aquatic life standards are established (Administrative Code 3745-1-07, Table 7-1) and limits for some elements are based on water hardness (Administrative Code 3745-1-07, Table 7-9). Human health and wildlife standards are linked to either the Lake Erie (Administrative Code 3745-1-33, Table 33-2) or Ohio River (Administrative Code 3745-1-34, Table 34-1) drainage basins. The drainage basins also have limits for additional elements not established elsewhere that are identified as Tier I and Tier II values.

Bacteria

High concentrations of either fecal coliform bacteria or Escherichia coli (E. coli) in a lake or stream may indicate contamination with human pathogens. People can be exposed to contaminated water while wading, swimming, and fishing. Fecal coliform bacteria are relatively harmless in most cases, but their presence indicates that the water has been contaminated with feces from a warm-blooded animal. Although intestinal organisms eventually die off outside the body, some will remain virulent for a period of time and may be dangerous sources of infection. This is especially a problem if the feces contained pathogens or disease producing bacteria and viruses. Reactions to exposure can range from an isolated illness such as skin rash, sore throat, or ear infection to a more serious wide spread epidemic. Some types of bacteria that are a concern include *Escherichia*, which cause diarrhea and urinary tract infections, *Salmonella*, which cause typhoid fever and gastroenteritis (food poisoning), and *Shigella*, which cause severe gastroenteritis or bacterial dysentery. Some types of viruses that are a concern include polio, hepatitis A, and encephalitis. Disease causing microorganisms such as cryptosporidium and giardia are also a concern.

Since fecal coliform bacteria are associated with warm-blooded animals, there are both human and animal sources. Human sources, including effluent from sewage treatment plants or discharges by on-lot septic systems, are a more continuous problem. Bacterial contamination from combined sewer overflows are associated with wet weather events. Animal sources are usually more intermittent and are also associated with rainfall, except when domestic livestock have access to the water. Large livestock farms store manure in holding lagoons and this creates the potential for an accidental spill. Liquid manure applied as fertilizer is a runoff problem if not managed properly and it sometimes seeps into field tiles.

Bacteria criteria for the recreational use are established in the Ohio Water Quality Standards to protect human health. The maximum and average limits are tiered values and linked to use designation, but only apply during the May 1-October 31 recreation season (Administrative Code 3745-1-41). The standards also state that streams must be free of any public health nuisance associated with raw or poorly treated sewage during dry weather conditions (Administrative Code 3745-1-04, Part F).

E. coli is the only indicator organism used to evaluate recreation. Geometric mean content is computed on a seasonal basis and is the sole basis of use attainment status when 2 or more samples are taken. The Primary Contact Recreation (PCR) use is divided into three separate categories each with specific numerical criteria: Class A – high use paddling streams, Class B – most typical streams and Class C – historically channelized streams that drain < 3.1 mi^2.

Sediment Contamination

Chemical quality of sediment is a concern because many pollutants bind strongly to soil particles and are persistent in the environment. Some of these compounds accumulate in the aquatic food chain and trigger fish consumption advisories, but others are simply a contact hazard because they cause skin cancer and tumors. The physical and chemical nature of sediment is determined by local geology, land use, and contribution from manmade sources. As some materials enter the water column they are attracted to the surface electrical charges associated with suspended silt and clay particles. Others simply sink to the bottom due to their high specific gravity. Sediment layers form as suspended particles settle, accumulate, and combine with other organic and inorganic materials. Sediment is the most physically, chemically, and biologically reactive at the water interface because this is where it is affected by sunlight, current, wave action, and benthic organisms. Assessment of the chemical nature of this layer can be used to predict ecological impact.

The Ohio EPA evaluation of sediment chemistry results are evaluated using a dual approach, first by ranking relative concentrations based on a system developed by Ohio EPA (2005) and then by determining the potential for toxicity based on guidelines developed by MacDonald et al (2000). The Ohio EPA system was derived from samples collected at ecoregional reference sites. Specific Reference Values are site specific ecoregional based metals concentrations and are used to identify contaminated stream reaches. The MacDonald guidelines are consensus based using previously developed values. The system predicts that sediments below the threshold effect concentration (TEC) are absent of toxicity and those greater than the probable effect concentration (PEC) are toxic.

Sediment samples collected by the Ohio EPA are measured for a number of physical and chemical properties. Physical attributes included % particle size distribution (sand ≥60 µ, silt 5-59 µ, clay ≤4 µ), % solids, and % organic carbon. Most locations sampled had an abundance of sediment, and no difficulties were experienced in locating ample volumes of sediment for analysis. Fine grained sediments are deposited in flood plains of natural streams during periods of high flow. This scenario changes if the stream is impounded by a dam or channelized.

Chemical attributes included metals, volatile and semi-volatile organic compounds, pesticides, and poly-chlorinated biphenyls (PCBs).

MATERIALS and METHODS

All physical, chemical, and biological field, laboratory, data processing, and data analysis methodologies and procedures adhere to those specified in the Manual of Ohio EPA Surveillance Methods and Quality Assurance Practices (Ohio Environmental Protection Agency 2009) and Biological Criteria for the Protection of Aquatic Life, Volumes I-III (Ohio Environmental Protection Agency 1987a, 1987b, 1989b, 1989c, 2006, 2008a, 2008b), The Qualitative Habitat Evaluation Index (QHEI): Rationale, Methods, and Application (Rankin 1989 and 1995) for aquatic habitat assessment, and the Ohio EPA Sediment Sampling Guide and Methodologies (Ohio EPA 2001). Sampling locations are listed in Table 1.

Determining Use Attainment Status

Use attainment status is a term describing the degree to which environmental indicators are either above or below criteria specified by the Ohio Water Quality Standards (WQS; Ohio Administrative Code 3745-1). Assessing aquatic use attainment status involves a primary reliance on the Ohio EPA biological criteria (OAC 3745-1-07; Table 7-15). These are confined to ambient assessments and apply to rivers and streams outside of mixing zones. Numerical biological criteria are based on multimetric biological indices including the IBI and MIwb, indices measuring the response of the fish community, and the ICI, which indicates the response of the macroinvertebrate community. Three attainment status results are possible at each sampling location - full, partial, or non-attainment. Full attainment means that all of the applicable indices meet the biocriteria. Partial attainment means that one or more of the applicable indices fails to meet the biocriteria. Non-attainment means that none of the applicable indices meet the biocriteria or one of the organism groups reflects poor or very poor performance. An aquatic life use attainment table (Table 2) is constructed based on the sampling results and is arranged from upstream to downstream and includes the sampling locations indicated by river mile, the applicable biological indices, the use attainment status (*i.e.,* full, partial, or non), the Qualitative Habitat Evaluation Index (QHEI), and a sampling location description.

Habitat Assessment

Physical habitat was evaluated using the QHEI developed by the Ohio EPA for streams and rivers in Ohio (Rankin 1989 and 1995). Various attributes of the habitat are scored based on the overall importance of each to the maintenance of viable, diverse, and functional aquatic faunas. The type(s) and quality of substrates, amount and quality of instream cover, channel morphology, extent and quality of riparian vegetation, pool, run, and riffle development and quality, and gradient are some of the habitat characteristics used to determine the QHEI score which generally ranges from 20 to less than 100. The QHEI is used to evaluate the characteristics of a stream segment, as opposed to the characteristics of a single sampling site. As such, individual sites may have poorer physical habitat due to a localized disturbance yet still support aquatic communities closely resembling those sampled at adjacent sites with better habitat, provided water quality conditions are similar. QHEI scores from hundreds of segments around the state have indicated that values greater than 60 are *generally* conducive to the existence of warmwater faunas whereas scores less than 45 generally cannot support a warmwater assemblage consistent with the WWH biological criteria. Scores greater than 75 frequently reflect habitat conditions which have the ability to support exceptional warmwater faunas.

Sediment and Surface Water Assessment
Fine grain sediment samples were collected in the upper 4 inches of bottom material at each location using decontaminated stainless steel scoops and excavated using nitrile gloves. Decontamination of sediment sampling equipment followed the procedures outlined in the Ohio EPA sediment sampling guidance manual (Ohio EPA 2001). Sediment grab samples were homogenized in stainless steel pans (material for VOC analysis was not homogenized), transferred into glass jars with teflon® lined lids, placed on ice (to maintain 4^{o}C) in a cooler, and shipped to Ohio EPA Division of Environmental Services. Sediment data is reported on a dry weight basis. Surface water samples were collected, preserved and delivered in appropriate containers to Ohio EPA Division of Environmental Services. Surface water samples were evaluated using comparisons to Ohio Water Quality Standards criteria, reference conditions, or published literature. Sediment evaluations were conducted using guidelines established in MacDonald et al. (2000) and Ohio Specific Reference Values (2003).

Recreation Use Assessment
Bacteria criteria for the recreational use are established in the Ohio Water Quality Standards to protect human health. The maximum and average limits are tiered values and linked to use designation, but only apply during the May 1-October 31 recreation season (Administrative Code 3745-1-41). The standards also state that streams must be free of any public health nuisance associated with raw or poorly treated sewage during dry weather conditions (Administrative Code 3745-1-04, Part F).

Macroinvertebrate Community Assessment
Macroinvertebrates were collected from artificial substrates and from the natural habitats. The artificial substrate collection provided quantitative data and consisted of a composite sample of five modified Hester-Dendy multiple-plate samplers colonized for six weeks. At the time of the artificial substrate collection, a qualitative multihabitat composite sample was also collected. This sampling effort consisted of an inventory of all observed macroinvertebrate taxa from the natural habitats at each site with no attempt to quantify populations other than notations on the predominance of specific taxa or taxa groups within major macrohabitat types (e.g., riffle, run, pool, margin). Detailed discussion of macroinvertebrate field and laboratory procedures is contained in Biological Criteria for the Protection of Aquatic Life: Volume III, Standardized Biological Field Sampling and Laboratory Methods for Assessing Fish and Macroinvertebrate Communities (Ohio EPA 1989b, 2008b).

Fish Community Assessment
Fish were sampled using pulsed DC electrofishing methods. Fish were processed in the field, and included identifying each individual to species, counting, weighing, and recording any external abnormalities. Discussion of the fish community assessment methodology used in this report is contained in Biological Criteria for the Protection of Aquatic Life: Volume III, Standardized Biological Field Sampling and Laboratory Methods for Assessing Fish and Macroinvertebrate Communities (Ohio EPA 1989b, 2008b).

Causal Associations
Using the results, conclusions, and recommendations of this report requires an understanding of the methodology used to determine the use attainment status and assigning probable causes and sources of impairment. The identification of impairment in rivers and streams is straightforward - the numerical biological criteria are used to

judge aquatic life use attainment and impairment (partial and non-attainment). The rationale for using the biological criteria, within a weight of evidence framework, has been extensively discussed elsewhere (Karr *et al.* 1986; Karr 1991; Ohio EPA 1987a,b; Yoder 1989; Miner and Borton 1991; Yoder 1991; Yoder 1995). Describing the causes and sources associated with observed impairments relies on an interpretation of multiple lines of evidence including water chemistry data, sediment data, habitat data, effluent data, land use data, and biological results (Yoder and Rankin 1995a, 1995b, and 1995c). Thus the assignment of principal causes and sources of impairment in this report represent the association of impairments (based on response indicators) with stressor and exposure indicators. The reliability of the identification of probable causes and sources is increased where many such prior associations have been identified, or have been experimentally or statistically linked together. The ultimate measure of success in water resource management is the restoration of lost or damaged ecosystem attributes including aquatic community structure and function. While there have been criticisms of misapplying the metaphor of ecosystem "health" compared to human patient "health" (Suter 1993), in this document we are referring to the process for evaluating biological integrity and causes or sources associated with observed impairments, not whether human health and ecosystem health are analogous concepts.

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Appendix Table B. Walhonding River chemical/physical surface water sampling results, 2007. Muskingum and Walhonding tributaries watershed chemical/physical surface water sampling results, 2010 and 2011.

		Site Location: **WALHONDING RIVER @ SR 715** River Mile: 20.47 Storet: 300321				
Parameter	Units	6/14/2007	6/28/2007	7/12/2007	8/2/2007	8/15/2007
Aluminum	ug/L	335	282	454	358	418
Ammonia	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050
Arsenic	ug/L	2.6	2.9	2.9	3.1	4.1
Barium	ug/L	66	68	65	61	67
Cadmium	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20
Calcium	mg/L	60	55	59	52	55
Chloride	mg/L	40.4	40.5	40.2	33.4	42.4
Chromium	ug/L	<30	<30	<30	<30	<30
COD	mg/L	26	12	<10	<10	13
Conductivity	umhos/cm	531	499	535	468	508
Copper	ug/L	<10	<10	<10	<10	<10
Hardness, Total	mg/L	224	211	226	200	211
Iron	ug/L	740	662	578	775	895
Lead	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0
Magnesium	mg/L	18	18	19	17	18
Manganese	ug/L	78	87	47	81	79
Mercury	ug/L	<0.20	<0.20		<0.20	<0.20
Nickel	ug/L	<40	<40	<40	<40	<40
Nitrate+nitrite	mg/L	1.89	1.33	1.44	1.09	1.22
Nitrite	mg/L	<0.020	<0.020	<0.020	<0.020	<0.020
Potassium	mg/L	3	3	3	3	4
Selenium	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0
Sodium	mg/L	20	19	19	18	22
Strontium	ug/L	236	242	232	216	247
TKN	mg/L	0.32	<0.20	<0.20	0.3	0.44
Total Dissolved Soli	mg/L	298	316	308	288	334
Total Phosphorus	mg/L	0.09	0.096	0.136	0.091	0.142

Parameter	Units	6/14/2007	6/28/2007	7/12/2007	8/2/2007	8/15/2007
Total Suspended Sc	mg/L	7	23	9	22	10
Zinc	ug/L	<10	<10	12	<10	17
Field Measurements						
Temperature	°C	22.57	25.21	23.21	25.37	23.32
Conductivity	µmhos/cm	486.1	456	531.5	463.7	432
Dissolved Oxygen	mg/L	9.05	8.54	6.48	7.25	8.89
D.O. Saturation	%	104.8	103.8	75.9	88.4	104.4
pH	S.U.	8.04	8.27	8.16	8.22	8.13

Site Location: **WALHONDING RIVER @ US RT 36 @ NELLIE**

River Mile: 15.73 Storet: 601910

Parameter	Units	6/14/2007	6/28/2007	7/12/2007	8/2/2007	8/15/2007
Aluminum	ug/L	289	350	477	360	431/422
Ammonia	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050
Arsenic	ug/L	2.4	3.1	2.9	3	3.7/3.9
Barium	ug/L	66	71	66	62	67/69
Cadmium	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20
Calcium	mg/L	59	57	59	52	58
Chloride	mg/L	38.2	40.6	39.2	32.6	44.2/44.5
Chromium	ug/L	<30	<30	<30	<30	<30/35
COD	mg/L	13	18	<10	12	10/13
Conductivity	umhos/cm	499	507	514	458	528
Copper	ug/L	<10	<10	<10	<10	<10
Hardness, Total	mg/L	221	216	226	200	223
Iron	ug/L	646	802	590	824	886/1170
Lead	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0
Magnesium	mg/L	18	18	19	17	19
Manganese	ug/L	64	93	55	95	66/78
Mercury	ug/L	<0.20	<0.20		<0.20	0.28/<0.2
Nickel	ug/L	<40	<40	<40	<40	<40

Parameter	Units	6/14/2007	6/28/2007	7/12/2007	8/2/2007	8/15/2007
Nitrate+nitrite	mg/L	1.41	1.43	1.57	0.95	1.27/1.40
Nitrite	mg/L	<0.020	<0.020	<0.020	<0.020	<0.020
Potassium	mg/L	3	4	3	3	4
Selenium	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0
Sodium	mg/L	19	21	19	17	23/24
Strontium	ug/L	237	248	233	213	248/250
TKN	mg/L	0.32	0.57	0.23	0.36	0.41
Total Dissolved Soli	mg/L	288	310	298	278	320/326
Total Phosphorus	mg/L	0.077	0.076	0.133	0.077	0.144/0.141
Total Suspended So	mg/L	15	25	9	32	21/19
Zinc	ug/L	<10	16	<10	11	11/15
Field Measurements						
Temperature	°C	22.25	25.9	22.62	25.23	23.13
Conductivity	µmhos/cm	475.4	464.8	531.5	456.3	446.2
Dissolved Oxygen	mg/L	8.04	7.16	6.64	6.99	8.2
D.O. Saturation	%	92.5	88.2	76.9	85.1	95.9
pH	S.U.	7.92	8.12	8.37	8.23	8.06

Site Location: **WALHONDING RIVER UPSTREAM SIX MILE DAM**

River Mile: 8.81 Storet: 300288

Parameter	Units	6/14/2007	6/28/2007	7/12/2007	8/2/2007	8/15/2007
Aluminum	ug/L	230	230/225	434/497	532/538	530
Ammonia	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050
Arsenic	ug/L	2.4	2.9/3.0	3	3.2	3.8
Barium	ug/L	61	63/65	66/65	60/61	68
Cadmium	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20
Calcium	mg/L	57	59/61	60/59	51/52	57
Chloride	mg/L	36.9	42.4/43	38.3/38.6	32.1/32.2	39.6
Chromium	ug/L	<30	<30	<30	<30	<30
Conductivity	umhos/cm	507	531/530	509/519	454/452	499

Parameter	Units	6/14/2007	6/28/2007	7/12/2007	8/2/2007	8/15/2007
Copper	ug/L	<10	<10	<10	<10	<10
Hardness, Total	mg/L	216	226/230	228/221	193/196	220
Iron	ug/L	473	488/508	606/587	1090	1040
Lead	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0
Magnesium	mg/L	18	19	19/18	16	19
Manganese	ug/L	59	58/61	53/52	133/134	89
Mercury	ug/L	<0.2	<0.2		<0.20	<0.2
Nickel	ug/L	<40	<40	<40	<40	<40
Nitrate+nitrite	mg/L	1.65	1.40/1.60	1.43/1.50	0.72/0.66	1.14
Nitrite	mg/L	<0.020	<0.020	<0.020	<0.020	<0.020
Potassium	mg/L	3	3	3	3	4
Selenium	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0
Sodium	mg/L	18	21	19/18	17	22
Strontium	ug/L	228	241/247	234/227	209/208	237
TKN	mg/L	<0.20	0.22/<0.2	<0.20/0.23	0.44/0.35	0.43
Total Dissolved Soli	mg/L	284	320/316	300/298	288/286	324
Total Phosphorus	mg/L	0.076	0.067/0.060	0.135/0.125	0.084	0.121
Total Suspended So	mg/L	15	22	9/11	33/32	20
Zinc	ug/L	<10	<10	<10	11/<10	15
Field Measurements						
Temperature	°C	23.05	25.63	24.48	26.09	23.6
Conductivity	µmhos/cm	465.1	486.5	530.6	444.4	424
Dissolved Oxygen	mg/L	8.31	7.07	5.87	6.77	8.25
D.O. Saturation	%	97.1	86.7	70.5	83.7	97.4
pH	S.U.	8.08	8.18	8.19	8.41	8.12

Site Location: **WALHONDING RIVER @ US RT 36 UPSTREAM KILLBUCK CREEK**

River Mile: 7.54 Storet: R04S35

Parameter	Units	6/14/2007	6/28/2007	7/12/2007	8/2/2007	8/15/2007
Aluminum	ug/L	204	242	319	475	476
Ammonia	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	ug/L	2.3	2.9	2.8	3.1	3.7
Barium	ug/L	63	66	62	61	69
Cadmium	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20
Calcium	mg/L	59	63	57	51	57
Chloride	mg/L	36.4	45.7	38	32.6	39.7
Chromium	ug/L	<30	<30	<30	<30	<30
COD	mg/L	30	12	<10	<10	10
Conductivity	umhos/cm	508	548	515	449	497
Copper	ug/L	<10	<10	<10	<10	<10
Hardness, Total	mg/L	221	236	216	197	220
Iron	ug/L	412	560	354	1010	970
Lead	ug/L	<2.0	<2.0	<2.0	<2.0	2.5
Magnesium	mg/L	18	19	18	17	19
Manganese	ug/L	55	51	32	137	79
Mercury	ug/L	<0.20	<0.20		<0.20	<0.20
Nickel	ug/L	<40	<40	<40	<40	<40
Nitrate+nitrite	mg/L	1.67	1.71	1.38	0.69	1.05
Nitrite	mg/L	<0.020	<0.020	<0.020	<0.020	<0.020
Potassium	mg/L	3	3	3	4	4
Selenium	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0
Sodium	mg/L	18	22	18	17	22
Strontium	ug/L	234	249	222	214	236
TKN	mg/L	<0.20	0.21	<0.20	0.41	0.49
Total Dissolved Soli	mg/L	286	342	302	284	318
Total Phosphorus	mg/L	0.064	0.088	0.117	0.069	0.13
Total Suspended Sc	mg/L	13	12	9	24	23
Zinc	ug/L	<10	<10	<10	<10	16

Parameter	Units	6/14/2007	6/28/2007	7/12/2007	8/2/2007	8/15/2007
Field Measurements						
Temperature	°C	23.18	25.78	24.26	26.28	23.89
Conductivity	µmhos/cm	464.4	501.7	524.6	441	421.4
Dissolved Oxygen	mg/L	7.57	7.36	6.82	7.08	8.55
D.O. Saturation	%	88.6	90.4	81.6	87.8	101.4
pH	S.U.	8.08	8.16	8.24	8.42	8.15

Site Location: **WALHONDING RIVER @ US RT 36, COSHOCTON**

River Mile: 0.76 Storet: R04W27

Parameter	Units	6/14/2007	6/28/2007	7/12/2007	8/2/2007	8/15/2007
Aluminum	ug/L	<200	350	373	434	518
Ammonia	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050
Arsenic	ug/L	2.1	3.1	2.6	2.8	3.3
Barium	ug/L	59	71	62	57	64
Cadmium	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20
Calcium	mg/L	57	57	58	51	56
Chloride	mg/L	35.4	40.6	36.4	33.6	38.6
Chromium	ug/L	<30	<30	<30	<30	<30
COD	mg/L	29	18	<10	12	10
Conductivity	umhos/cm	489	507	503	453	485
Copper	ug/L	<10	<10	<10	<10	<10
Hardness, Total	mg/L	212	216	215	189	210
Iron	ug/L	406	802	462	189	1160
Lead	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0
Magnesium	mg/L	17	18	17	15	17
Manganese	ug/L	76	93	60	146	114
Mercury	ug/L	<0.20	<0.20		<0.20	0.27
Nickel	ug/L	<40	<40	<40	<40	<40
Nitrate+nitrite	mg/L	1.83	1.43	1.22	0.8	0.98
Nitrite	mg/L	<0.020	<0.020	<0.020	<0.020	<0.020

Parameter	Units	6/14/2007	6/28/2007	7/12/2007	8/2/2007	8/15/2007
Potassium	mg/L	3	4	3	4	4
Selenium	ug/L	<2.0	>2.0	<2.0	<2.0	<2.0
Sodium	mg/L	17	21	18	18	22
Strontium	ug/L	205	248	201	185	207
TKN	mg/L	0.23	0.57	0.34	1.71	0.38
Total Dissolved Soli	mg/L	292	310	290	290	298
Total Phosphorus	mg/L	0.047	0.076	0.103	0.079	0.107
Total Suspended Sc	mg/L	12	25	11	31	13
Zinc	ug/L	<10	16	<10	12	16
Field Measurements						
Temperature	°C	22.5	24.85	23.67	24.51	23.2
Conductivity	µmhos/cm	464.8	494.8	510.5	446	411.7
Dissolved Oxygen	mg/L	7.71	6.49	6.97	6.77	8.06
D.O. Saturation	%	89.1	78.5	82.4	81.3	94.4
pH	S.U.	7.99	8.09	8.07	8.21	8.01

Site Location: **MOHAWK CREEK @ TR 409**

River Mile: 4.10 Storet: 301011

Parameter	Units	6/8/2010	7/1/2010	7/14/2010	8/4/2010	8/23/2010
Acidity	mg/L	<5	<5	<5	<5	<5
Alkalinity	mg/L	80.5	96.3	111	114	114
Aluminum	ug/L	<200	<200	238	<200	275
Ammonia	mg/L	<0.05	<0.05	<0.05	0.059	<0.05
Arsenic	ug/L	<2	<2	<2	<2	<2
Barium	ug/L	44	45	56	55	73
Cadmium	ug/L	<0.2	<0.2	<0.2	<0.2	<0.2
Calcium	mg/L	32	37	42	38	47
Chloride	mg/L	17	24.3	26.4	28.6	37.7
Chromium	ug/L	<2	<2	<2	<2	<2
COD	mg/L	<20	<20	<20	<20	<20

Parameter	Units	6/8/2010	7/1/2010	7/14/2010	8/4/2010	8/23/2010
Conductivity	umhos/cm	263	313	338	352	397
Copper	ug/L	<2	<2	<2	<2	<2
Hardness, Total	mg/L	80	92	134	128	154
Iron	ug/L	555	589	834	784	1250
Lead	ug/L	<2	<2	<2	<2	<2
Magnesium	mg/L	6	7	7	8	9
Manganese	ug/L	179	178	212	264	292
Nickel	ug/L	<2	<2	<2	<2	<2
Nitrate+nitrite	mg/L	0.57	0.14	0.17	0.18	0.75
Nitrite	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Potassium	mg/L	2	2	3	2	4
Selenium	ug/L	<2	<2	<2	<2	<2
Sodium	mg/L	9	11	13	13	17
Strontium	ug/L	104	118	135	130	162
Sulfate	mg/L	23.6	24.6	25.5	21	22.4
TKN	mg/L	<0.2	0.22	0.44	0.31	0.29
Total Dissolved Soli	mg/L	162	194	200	210	252
Total Phosphorus	mg/L	0.01	0.017	0.024	0.019	0.029
Total Suspended So	mg/L	<5	<5	10	5	12
Zinc	ug/L	<10	<10	<10	<10	15
Field Measurements						
Temperature	°C	15.12		20.36	23.25	21.42
Conductivity	µmhos/cm	199.9		309.5	322.5	357
Dissolved Oxygen	mg/L	10.05		11.35	6.15	5.56
D.O. Saturation	%	99.9		125.8	72	63
pH	S.U.	7.74		7.77	7.48	7.41

Site Location: **MOHAWK CREEK @ CR 82**

River Mile: 1.48 Storet: 300887

Parameter	Units	4/8/2010	5/20/2010	6/8/2010	6/15/2010	7/1/2010	7/14/2010	8/4/2010	8/23/2010	10/5/2010	11/15/2010	2/22/2011
Acidity	mg/L		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Alkalinity	mg/L		75.7	73.4	76.7	97.8	103	124	108	129	120	48
Aluminum	ug/L	<200	278	271	418	<200	311	<200	385	<200	<200	495
Ammonia	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	0.054	0.062	0.065	<0.05	<0.05	<0.05
Arsenic	ug/L	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Barium	ug/L	43	42	45	49	53	62	69	87	69	63	40
Cadmium	ug/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Calcium	mg/L	31	30	30	32	40	40	42	43	43	46	27
CBOD20	mg/L	<3	<3	<3	<3	<3	<3	3.4				
Chloride	mg/L	16.2	13	11.1	12.4	20	19.5	23.9	26.3	22.7	27.7	23.3
Chromium	ug/L	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
COD	mg/L	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Conductivity	umhos/cm	275	232	232	254	302	309	354	347	357	374	231
Copper	ug/L	<2	<2	<2	<2	<2	2.2	<2	<2	<2	<2	<2
Hardness, Total	mg/L	77	75	75	80	100	100	142	149	149	156	88
Iron	ug/L	486	735	771	1030	672	1060	683	1530	852	755	1110
Lead	ug/L	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Magnesium	mg/L	6	5	6	6	8	7	9	10	10	10	5
Manganese	ug/L	97	95	125	164	91	114	158	358	138	101	77
Nickel	ug/L	<2	<2	<2	2.1	<2	<2	<2	<2	<2	2.2	<2
Nitrate+nitrite	mg/L	0.2	0.71	0.61	0.51	0.2	0.3	0.23	0.59	<0.1	<0.1	1.08
Nitrite	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Potassium	mg/L	2	2	2	2	2	3	3	3	4	3	2
Selenium	ug/L	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Sodium	mg/L	7	7	6	6	9	9	10	12	12	13	10
Strontium	ug/L	99	91	90	96	118	123	126	136	125	129	79
Sulfate	mg/L		22.8	21.5	23.8	22.8	22.6	20.5	18.1	18.9	23.8	24.8
TKN	mg/L	<0.2	<0.2	<0.2	0.35	<0.2	0.27	<0.2	0.22	0.31	0.26	0.38
Total Dissolved Soli	mg/L	162	154	142	164	194	186	206	206	196	202	150

Parameter	Units	4/8/2010	5/20/2010	6/8/2010	6/15/2010	7/1/2010	7/14/2010	8/4/2010	8/23/2010	10/5/2010	11/15/2010	2/22/2011
Total Phosphorus	mg/L	<0.01	0.011	0.024	0.076	0.016	0.028	0.021	0.032	0.027	<0.05	0.04
Total Suspended Sc	mg/L	5	12	17	25	<5	18	7	22	<5	<5	22
Zinc	ug/L	11	12	<10	<10	<10	<10	<10	15	<10	<10	<10
Field Measurements												
Temperature	°C	13.88	13.88	14.34	17.55		21.09	24	22.2	11.96	5.64	2.16
Conductivity	µmhos/cm	208.4	154.7	187.1	212.7		288.7	327.8	326.4	261.8	195	120.8
Dissolved Oxygen	mg/L	8.74	11.43	10.39	9.15		11.33	7.16	5.7	8.32	13.84	15.41
D.O. Saturation	%	84.6	110.7	101.6	95.8		127.4	85.1	65.5	77.2	110.2	112
pH	S.U.	7.64	7.9	7.65	7.76		7.87	7.74	7.58	7.66	7.95	7.2

Site Location: **UNNAMED TRIBUTARY TO MOHAWK CREEK**

River Mile: 0.60 Storet: 301012

Parameter	Units	6/8/2010	7/1/2010	7/14/2010	8/4/2010	8/23/2010
Acidity	mg/L	<5	<5	<5	<5	<5
Alkalinity	mg/L	78.6	103	99.5	111	110
Aluminum	ug/L	<200	<200	<200	<200	<200
Ammonia	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	ug/L	<2	<2	<2	<2	<2
Barium	ug/L	45	49	52	56	62
Cadmium	ug/L	<0.02	<0.02	<0.02	<0.02	<0.2
Calcium	mg/L	32	39	42	42	43
Chloride	mg/L	7	10.7	11	10	10.4
Chromium	ug/L	<2	<2	<2	<2	<2
COD	mg/L	<20	<20	<20	<20	<20
Conductivity	umhos/cm	224	283	291	298	306
Copper	ug/L	<2	<2	<2	<2	<2
Hardness, Total	mg/L	80	97	105	134	140
Iron	ug/L	509	204	217	265	492
Lead	ug/L	<2	<2	<2	<2	<2
Magnesium	mg/L	5	6	6	7	8

Parameter	Units	6/8/2010	7/1/2010	7/14/2010	8/4/2010	8/23/2010
Manganese	ug/L	68	111	110	205	241
Nickel	ug/L	<2	<2	<2	<2	<2
Nitrate+nitrite	mg/L	1.13	<0.1	0.18	0.16	0.54
Nitrite	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Potassium	mg/L	2	2	2	3	3
Selenium	ug/L	<2	<2	<2	<2	<2
Sodium	mg/L	<5	5	6	7	7
Strontium	ug/L	92	111	120	119	125
Sulfate	mg/L	20.2	23.4	23.5	24	23
TKN	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Total Dissolved Soli	mg/L	144	168	218	202	178
Total Phosphorus	mg/L	0.017	0.01	0.011	<0.01	0.014
Total Suspended Sc	mg/L	9	<5	5	<5	<5
Zinc	ug/L	<10	<10	<10	<10	12
Field Measurements						
Temperature	°C	16.21		20.63	23.62	21.29
Conductivity	µmhos/cm	177.6		269.9	285.1	277.8
Dissolved Oxygen	mg/L	9.5		9.75	9.11	8.24
D.O. Saturation	%	96.7		108.7	107.5	93
pH	S.U.	7.7		7.81	7.79	7.63

Site Location: **DUTCH RUN @ TR 144/TR 338**

River Mile: 0.15 Storet: 301013

Parameter	Units	7/1/2010	7/14/2010	8/4/2010	8/30/2010
Acidity	mg/L	<5	<5	<5	<5
Alkalinity	mg/L	43.9	49.3	57.2	60.5
Aluminum	ug/L	<200	<200	<200	<200
Ammonia	mg/L	<0.05	<0.05	<0.05	<0.05
Arsenic	ug/L	<2	<2	<2	<2
Barium	ug/L	15	16	18	17

Parameter	Units	7/1/2010	7/14/2010	8/4/2010	8/30/2010
Cadmium	ug/L	<0.2	<0.2	<0.2	<0.2
Calcium	mg/L	14	16	17	18
Chloride	mg/L	12.3	14.8	14.8	16.4
Chromium	ug/L	<2	<2	<2	<2
COD	mg/L	<20	<20	<20	<20
Conductivity	umhos/cm	165	178	204	207
Copper	ug/L	<2	<2	<2	<2
Hardness, Total	mg/L	35	40	71	78
Iron	ug/L	249	289	246	227
Lead	ug/L	<2	<2	<2	<2
Magnesium	mg/L	6	6	7	8
Manganese	ug/L	25	26	26	30
Nickel	ug/L	<2	<2	<2	<2
Nitrate+nitrite	mg/L	0.23	0.3	0.24	<0.1
Nitrite	mg/L	<0.02	<0.02	<0.02	<0.02
Potassium	mg/L	2	2	2	2
Selenium	ug/L	<2	<2	<2	<2
Sodium	mg/L	6	7	7	9
Strontium	ug/L	50	56	62	63
Sulfate	mg/L	16.2	15.6	19.5	14.5
TKN	mg/L	<0.2	<0.2	<0.2	0.2
Total Dissolved Soli	mg/L	108	132	168	130
Total Phosphorus	mg/L	0.011	0.013	<0.010	0.012
Total Suspended Sc	mg/L	<5	<5	<5	<5
Zinc	ug/L	<10	<10	<10	<10
Field Measurements					
Temperature	°C	17.14	19.86	21.63	20.24
Conductivity	µmhos/cm	133.8	153.9	189.6	185.2
Dissolved Oxygen	mg/L	9.97	9.45	8.91	9.49
D.O. Saturation	%	103.5	103.7	101.3	104.9
pH	S.U.	7.66	7.97	7.98	7.97

Parameter	Units	Site Location: **HONEY RUN @ TR 359** River Mile: 0.60 Storet: 301014 7/1/2010
Acidity	mg/L	<5
Alkalinity	mg/L	71.9
Aluminum	ug/L	<200
Ammonia	mg/L	<0.05
Arsenic	ug/L	<2
Barium	ug/L	22
Cadmium	ug/L	<0.2
Calcium	mg/L	24
Chloride	mg/L	20.5
Chromium	ug/L	<2
COD	mg/L	<10
Conductivity	umhos/cm	253
Copper	ug/L	<2
Hardness, Total	mg/L	60
Iron	ug/L	272
Lead	ug/L	<2
Magnesium	mg/L	8
Manganese	ug/L	19
Nickel	ug/L	<2
Nitrate+nitrite	mg/L	0.31
Nitrite	mg/L	<0.02
Potassium	mg/L	2
Selenium	ug/L	<2
Sodium	mg/L	8
Strontium	ug/L	77
Sulfate	mg/L	22.2
TKN	mg/L	<0.2
Total Dissolved Soli	mg/L	158
Total Suspended So	mg/L	<5

Parameter	Units	7/1/2010
Zinc	ug/L	<10
Field Measurements		
Temperature	°C	20.36
Conductivity	µmhos/cm	225.2
Dissolved Oxygen	mg/L	9.59
D.O. Saturation	%	106.2
pH	S.U.	7.8

Site Location: **BEAVER RUN @ CR 22**

River Mile: 2.60 Storet: 301015

Parameter	Units	6/8/2010	7/1/2010	7/14/2010	8/4/2010	8/30/2010
Acidity	mg/L	<5	<5	<5	<5	<5
Alkalinity	mg/L	31.9	46.2	52.1	60.4	62.6
Aluminum	ug/L	406	<200	<200	<200	<200
Ammonia	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	ug/L	<2	<2	<2	<2	<2
Barium	ug/L	23	21	22	22	26
Cadmium	ug/L	<0.2	<0.2	<0.2	<0.2	<0.2
Calcium	mg/L	12	18	19	18	18
Chloride	mg/L	5.7	10.3	12.4	10.3	11.5
Chromium	ug/L	<2	<2	<2	<2	<2
COD	mg/L	<20	<20	<20	<20	<20
Conductivity	umhos/cm	138	194	217	200	207
Copper	ug/L	<2	<2	<2	<2	<2
Hardness, Total	mg/L	30	45	47	78	78
Iron	ug/L	934	514	458	461	645
Lead	ug/L	<2	<2	<2	<2	<2
Magnesium	mg/L	5	7	8	8	8
Manganese	ug/L	127	91	61	69	92
Nickel	ug/L	<2	<2	<2	<2	<2

Parameter	Units	6/8/2010	7/1/2010	7/14/2010	8/4/2010	8/30/2010
Nitrate+nitrite	mg/L	0.37	0.22	0.31	0.25	0.1
Nitrite	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Potassium	mg/L	<2	2	2	2	2
Selenium	ug/L	<2	<2	<2	<2	<2
Sodium	mg/L	<5	6	7	7	8
Strontium	ug/L	38	56	61	56	65
Sulfate	mg/L	21.7	27.7	31.4	20.7	19.3
TKN	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Total Dissolved Soli	mg/L	94	128	148	140	136
Total Phosphorus	mg/L	0.044	0.018	0.019	<0.01	0.019
Total Suspended Sc	mg/L	18	<5	6	<5	6
Zinc	ug/L	<10	<10	<10	<10	17
Field Measurements						
Temperature	°C	14.42	16.66	19.92	21.92	20.24
Conductivity	µmhos/cm	109.3	158.7	185.4	186.3	180.7
Dissolved Oxygen	mg/L	10.71	10.14	9.68	9.05	9.43
D.O. Saturation	%	104.9	104.2	106.3	103.4	104.2
pH	S.U.	7.63	7.7	7.8	7.91	8.02

Site Location: **BEAVER RUN @ US RT 36 @ WARSAW**

River Mile: 0.17 Storet: 200633

Parameter	Units	4/8/2010	5/20/2010	6/8/2010	6/15/2010	7/1/2010	7/14/2010	8/4/2010	8/30/2010	10/5/2010	11/15/2010	2/22/2011
Acidity	mg/L		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Alkalinity	mg/L		56.2	39.7	37.6	62.5	64.3	106	76.1	77.4	75	35.9
Aluminum	ug/L	<200	275	475	716	<200	<200	336	309	<200	<200	454
Ammonia	mg/L	<0.05	<0.05	0.092	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.057
Arsenic	ug/L	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Barium	ug/L	22	30	52	30	24	29	33	33	28	22	30
Cadmium	ug/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
CBOD20	mg/l	<3	<3	<3	<3	<3	<3	3.7				

Parameter	Units	4/8/2010	5/20/2010	6/8/2010	6/15/2010	7/1/2010	7/14/2010	8/4/2010	8/30/2010	10/5/2010	11/15/2010	2/22/2011
Calcium	mg/L	18	24	30	15	21	24	21	22	21	23	20
Chloride	mg/L	7.8	11.5	5.5	5.5	9.8	11.2	9.3	10.6	10.4	11.7	17.7
Chromium	ug/L	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
COD	mg/L	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Conductivity	umhos/cm	189	234	155	152	219	231	220	229	223	237	202
Copper	ug/L	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Hardness, Total	mg/L	45	60	75	38	52	60	90	96	90	99	79
Iron	ug/L	474	796	1440	1500	473	620	919	907	777	444	893
Lead	ug/L	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Magnesium	mg/L	7	9	7	5	8	9	9	10	9	10	7
Manganese	ug/L	67	87	214	122	47	53	95	73	38	20	83
Nickel	ug/L	<2	<2	2.8	2.6	<2	<2	<2	<2	<2	<2	<2
Nitrate+nitrite	mg/L	0.33	2.17	2.5	0.59	3.15	0.29	0.26	<0.10	0.12	<0.10	1.04
Nitrite	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Potassium	mg/L	<2	2	<2	2	2	2	2	2	2	2	2
Selenium	ug/L	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Sodium	mg/L	5	6	7	<5	6	6	6	7	8	9	8
Strontium	ug/L	57	70	107	45	61	72	64	65	62	71	60
Sulfate	mg/L		31.1	22.6	20.9	26.8	29.7	22	20.6	20.3	24.1	30.2
TKN	mg/L	<0.2	<0.2	0.27	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.24	0.3
Total Dissolved Soli	mg/L	114	144	104	114	148	170	148	140	150	138	146
Total Phosphorus	mg/L	<0.01	0.021	0.052	0.02	0.019	<0.01	0.022	0.028	0.031	0.029	0.053
Total Suspended So	mg/L	6	9	28	39	<5	13	17	13	<5	<5	11
Zinc	ug/L	<10	26	<10	<10	<10	<10	<10	<10	<10	<10	<10
Field Measurements												
Temperature	°C	13.38	14.11	15.36	15.43	16.49	20.23	22.57	20.9	11.36	5.72	2.11
Conductivity	µmhos/cm	141.3	155.7	125.8	117	181.5	203.5	207.1	207.8	161.6	127	107.5
Dissolved Oxygen	mg/L	9.43	11.33	10.79	12.34	11.09	9.84	8.76	10.01	10.08	16.63	16.49
D.O. Saturation	%	90.3	110.2	107.8	123.5	113.6	108.8	101.4	112.1	92.2	132.7	119.6
pH	S.U.	7.8	8.04	7.55	6.93	8.01	8.1	7.98	8.14	7.95	8.35	7.72

Parameter	Units	Site Location: **SIMMONS RUN @ TR 78** River Mile: 2.97 Storet: 301016 6/8/2010	7/1/2010	7/14/2010	8/4/2010	8/30/2010
Acidity	mg/L	<5	<5	<5	<5	<5
Alkalinity	mg/L	105	127	126	139	224
Aluminum	ug/L	261	<200	<200	<200	310
Ammonia	mg/L	<0.05	<0.05	0.055	<0.05	<0.05
Arsenic	ug/L	<2	<2	<2	<2	2.5
Barium	ug/L	40	44	47	61	205
Cadmium	ug/L	<0.2	<0.2	<0.2	<0.2	<0.2
Calcium	mg/L	80	118	140	206	66
Chloride	mg/L	6.3	9.9	12	17.7	38.8
Chromium	ug/L	<2	<2	<2	<2	<2
COD	mg/L	<20	<20	<20	154	22
Conductivity	umhos/cm	625	895	1080	1510	571
Copper	ug/L	<2	<2	<2	<2	<2
Hardness, Total	mg/L	200	295	350	864	243
Iron	ug/L	675	365	349	337	2330
Lead	ug/L	<2	<2	<2	<2	<2
Magnesium	mg/L	27	43	53	85	19
Manganese	ug/L	445	376	316	272	4100
Nickel	ug/L	3.2	3.4	3.6	3.8	2.9
Nitrate+nitrite	mg/L	0.2	<0.1	0.11	<0.1	<0.1
Nitrite	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Potassium	mg/L	2	3	3	5	6
Selenium	ug/L	<2	<2	<2	<2	<2
Sodium	mg/L	7	10	12	19	20
Strontium	ug/L	208	314	379	569	203
Sulfate	mg/L	219	367	488	753	14.8
TKN	mg/L	0.35	0.26	<0.2	0.3	0.43
Total Dissolved Soli	mg/L	444	680	872	1230	346
Total Phosphorus	mg/L	0.063	0.01	<0.01	<0.01	0.077

Parameter	Units	6/8/2010	7/1/2010	7/14/2010	8/4/2010	8/30/2010
Total Suspended Sc	mg/L	10	<5	<5	<5	37
Zinc	ug/L	<10	<10	<10	<10	22
Field Measurements						
Temperature	°C	16.87	18.2	21.77	24.31	21.27
Conductivity	µmhos/cm	370.9	552.3	634.7	945.8	1069.7
Dissolved Oxygen	mg/L	10.22	9.57	8.36	7.46	9.07
D.O. Saturation	%	105.6	101.7	95.4	89.4	102.5
pH	S.U.	7.55	7.75	7.8	7.85	8.02

Site Location: **SIMMONS RUN @ TR 41B**

River Mile: 0.60 Storet: 301017

Parameter	Units	6/8/2010	7/1/2010	7/14/2010	8/4/2010	8/30/2010
Acidity	mg/L	<5	<5	<5	<5	<5
Alkalinity	mg/L	93.7	121	114	145	131
Aluminum	ug/L	266	<200	313	<200	<200
Ammonia	mg/L	0.052	<0.05	0.055	<0.05	<0.05
Arsenic	ug/L	<2	<2	<2	<2	<2
Barium	ug/L	48	60	62	98	113
Cadmium	ug/L	<0.2	<0.2	<0.2	<0.2	<0.2
Calcium	mg/L	55	80	83	122	155
Chloride	mg/L	7.9	12	13.6	17.6	18.3
Chromium	ug/L	<2	<2	<2	<2	<2
COD	mg/L	<20	<20	23	<20	<20
Conductivity	umhos/cm	440	637	711	965	1190
Copper	ug/L	<2	<2	<2	<2	<2
Hardness, Total	mg/L	137	200	207	498	646
Iron	ug/L	684	552	1060	240	331
Lead	ug/L	<2	<2	<2	<2	<2
Magnesium	mg/L	16	26	28	47	63
Manganese	ug/L	250	211	187	177	152

Parameter	Units	6/8/2010	7/1/2010	7/14/2010	8/4/2010	8/30/2010
Nickel	ug/L	2.7	<2	3.2	2.6	3.5
Nitrate+nitrite	mg/L	0.42	<0.1	0.16	<0.1	<0.1
Nitrite	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Potassium	mg/L	2	2	3	4	6
Selenium	ug/L	<2	<2	<2	<2	<2
Sodium	mg/L	6		10	14	17
Strontium	ug/L	145	209	227	335	436
Sulfate	mg/L	121	194	239	377	527
TKN	mg/L	<0.2	0.21	<0.2	0.32	0.34
Total Dissolved Soli	mg/L	300	448	540	736	930
Total Phosphorus	mg/L	0.019	0.018	0.026	<0.01	0.013
Total Suspended Sc	mg/L	8	<5	29	<5	<5
Zinc	ug/L	<10	<10	<10	<10	16
Field Measurements						
Temperature	°C	18.78	19.41	23.24	24.68	20.69
Conductivity	µmhos/cm	547.1	793.4	1007.9	1473.7	526.1
Dissolved Oxygen	mg/L	10.2	10.32	9.15	7.76	2.19
D.O. Saturation	%	109.7	112.4	107.4	93.7	24.5
pH	S.U.	7.62	7.93	7.91	7.81	7.21

Site Location: **FLINT RUN @ SR 60**

River Mile: 0.40 Storet: 301018

Parameter	Units	6/15/2010	7/1/2010
Acidity	mg/L	<5	<5
Alkalinity	mg/L	69.9	96.4
Aluminum	ug/L	315	<200
Ammonia	mg/L	<0.05	0.063
Arsenic	ug/L	<2	<2
Barium	ug/L	48	52
Cadmium	ug/L	<0.2	<0.2

Parameter	Units	6/15/2010	7/1/2010
Calcium	mg/L	28	35
Chloride	mg/L	6.3	7.1
Chromium	ug/L	<2	<2
COD	mg/L	<20	<20
Conductivity	umhos/cm	221	258
Copper	ug/L	<2	<2
Hardness, Total	mg/L	70	87
Iron	ug/L	552	475
Lead	ug/L	<2	<2
Magnesium	mg/L	5	6
Manganese	ug/L	112	89
Nickel	ug/L	<2	2.4
Nitrate+nitrite	mg/L	0.61	0.15
Nitrite	mg/L	<0.02	<0.02
Potassium	mg/L	2	2
Selenium	ug/L	<2	<2
Sodium	mg/L	<5	5
Strontium	ug/L	78	91
Sulfate	mg/L	20.6	21.1
TKN	mg/L	<0.2	0.22
Total Dissolved Soli	mg/L	134	162
Total Phosphorus	mg/L	<0.01	0.018
Total Suspended Sc	mg/L	7	6
Zinc	ug/L	<10	<10
Field Measurements			
Temperature	°C	16.15	16.53
Conductivity	µmhos/cm	174.5	210.2
Dissolved Oxygen	mg/L	10.74	10.48
D.O. Saturation	%	109.2	107.5
pH	S.U.	7	7.76

Parameter	Units	Site Location: **DARLING RUN @ TR 340 @ NELLIE CEMETERY** River Mile: 0.10 Storet: 301019				
		6/8/2010	7/1/2010	7/14/2010	8/4/2010	8/23/2010
Acidity	mg/L	<5	<5	<5	<5	<5
Alkalinity	mg/L	33.8	58.9	59.8	70.7	75.7
Aluminum	ug/L	276	<200	<200	<200	<200
Ammonia	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	ug/L	<2	<2	<2	<2	<2
Barium	ug/L	24	25	27	28	37
Cadmium	ug/L	<0.2	<0.2	<0.2	<0.2	<0.2
Calcium	mg/L	12	18	19	18	22
Chloride	mg/L	<5	5.7	5.8	5.9	5.9
Chromium	ug/L	<2	<2	<2	<2	<2
COD	mg/L	<20	<20	<20	<20	<20
Conductivity	umhos/cm	123	177	181	193	213
Copper	ug/L	<2	<2	<2	<2	<2
Hardness, Total	mg/L	30	45	47	74	92
Iron	ug/L	830	930	958	1150	1360
Lead	ug/L	<2	<2	<2	<2	<2
Magnesium	mg/L	5	7	7	7	9
Manganese	ug/L	130	162	137	159	201
Nickel	ug/L	<2	<2	<2	<2	<2
Nitrate+nitrite	mg/L	0.23	0.13	0.18	0.16	0.13
Nitrite	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Potassium	mg/L	2	2	2	2	2
Selenium	ug/L	<2	<2	<2	<2	<2
Sodium	mg/L	<5	<5	<5	<5	5
Strontium	ug/L	40	51	57	52	68
Sulfate	mg/L	19.1	18.3	17.4	16.1	16
TKN	mg/L	<0.2	<0.2	0.25	<0.2	0.23
Total Dissolved Soli	mg/L	80	116	120	132	128
Total Phosphorus	mg/L	0.013	0.013	0.011	0.036	0.018

Parameter	Units	6/8/2010	7/1/2010	7/14/2010	8/4/2010	8/23/2010
Total Suspended Sc	mg/L	15	11	6	11	<5
Zinc	ug/L	<10	<10	<10	<10	13
Field Measurements						
Temperature	°C	13.49		19.61	21.78	20.06
Conductivity	µmhos/cm	93.8		164.3	173.3	185.4
Dissolved Oxygen	mg/L	11.4		9.48	9.18	8.77
D.O. Saturation	%	109.4		103.6	104.6	96.7
pH	S.U.	7.88		7.77	7.89	7.86

Site Location: **MILL CREEK @ TR 215**

River Mile: 12.5 Storet: 301020

Parameter	Units	6/8/2010	7/1/2010	7/14/2010	8/4/2010	8/30/2010
Acidity	mg/L	<5	<5	<5	<5	<5
Alkalinity	mg/L	60.9	83.4	102	125	130
Aluminum	ug/L	265	226	<200	<200	<200
Ammonia	mg/L	0.088	0.052	0.081	0.067	<0.05
Arsenic	ug/L	<2	<2	<2	<2	<2
Barium	ug/L	42	42	49	56	65
Cadmium	ug/L	<0.2	<0.2	<0.2	<0.2	<0.2
Calcium	mg/L	28	33	39	42	41
Chloride	mg/L	12.5	16.2	23.5	25.4	35.8
Chromium	ug/L	<2	<2	<2	<2	<2
COD	mg/L	<20	<20	<20	<20	<20
Conductivity	umhos/cm	250	294	345	386	425
Copper	ug/L	<2	<2	2	<2	<2
Hardness, Total	mg/L	70	82	97	146	144
Iron	ug/L	693	709	793	835	723
Lead	ug/L	<2	<2	<2	<2	<2
Magnesium	mg/L	7	8	9	10	10
Manganese	ug/L	179	127	136	193	248

Parameter	Units	6/8/2010	7/1/2010	7/14/2010	8/4/2010	8/30/2010
Nickel	ug/L	2.5	2.5	2.3	2.1	2.2
Nitrate+nitrite	mg/L	3.07	2.16	1.07	0.77	<0.1
Nitrite	mg/L	0.024	0.024	0.039	0.036	<0.02
Potassium	mg/L	4	4	6	7	8
Selenium	ug/L	<2	<2	<2	<2	<2
Sodium	mg/L	6	8	12	16	24
Strontium	ug/L	98	122	149	162	185
Sulfate	mg/L	30.6	30	32.5	31.6	28.6
TKN	mg/L	<0.2	0.5	0.23	0.53	0.4
Total Dissolved Soli	mg/L	166	192	246	248	240
Total Phosphorus	mg/L	0.026	0.04	0.132	0.017	0.03
Total Suspended Sc	mg/L	8	7	11	9	5
Zinc	ug/L	<10	<10	<10	<10	16
Field Measurements						
Temperature	°C	14.75	17.13	22.65	24.18	21.28
Conductivity	µmhos/cm	200.7	250.8	323	377.7	386.7
Dissolved Oxygen	mg/L	10.48	9.66	8	6.81	6.84
D.O. Saturation	%	103.5	100.3	92.7	81.2	77.2
pH	S.U.	8.29	7.69	7.82	7.76	7.7

Site Location: **MILL CREEK @ TR 206**

River Mile: 8.50 Storet: R04S29

Parameter	Units	6/8/2010	7/1/2010	7/14/2010	8/4/2010	8/30/2010
Acidity	mg/L	<5	<5	<5	<5	<5
Alkalinity	mg/L	67.3	87.7	102	124	126
Aluminum	ug/L	248	222	341	*	<200
Ammonia	mg/L	0.058	0.053	0.073	0.058	0.051
Arsenic	ug/L	<2	<2	<2	*	<2
Barium	ug/L	51	46	62	*	75
Cadmium	ug/L	<0.2	<0.2	<0.2	*	<0.2

Parameter	Units	6/8/2010	7/1/2010	7/14/2010	8/4/2010	8/30/2010
Calcium	mg/L	30	35	41	*	42
Chloride	mg/L	12	15.9	22.1	24.5	31.3
Chromium	ug/L	<2	<2	<2	*	<2
COD	mg/L	<20	<20	<20	<20	<20
Conductivity	umhos/cm	255	301	341	374	399
Copper	ug/L	<2	<2	2.1	*	<2
Hardness, Total	mg/L	75	87	102	172	146
Iron	ug/L	798	915	1240	*	1500
Lead	ug/L	<2	<2	<2	*	<2
Magnesium	mg/L	8	8	9	*	10
Manganese	ug/L	170	108	196	*	401
Nickel	ug/L	2.8	2.1	2.5	*	2.1
Nitrate+nitrite	mg/L	1.42	2	0.88	0.75	0.23
Nitrite	mg/L	0.027	0.02	0.024	<0.02	0.033
Potassium	mg/L	3	4	6	*	7
Selenium	ug/L	<2	<2	<2	*	<2
Sodium	mg/L	7	8	10	*	18
Strontium	ug/L	105	122	150	*	158
Sulfate	mg/L	31.1	29.4	34.4	28.8	24.9
TKN	mg/L	<0.2	0.79	0.31	0.51	0.39
Total Dissolved Soli	mg/L	162	192	236	248	226
Total Phosphorus	mg/L	0.027	0.047	0.061	0.032	0.048
Total Suspended So	mg/L	32	11	18	8	6
Zinc	ug/L	<10	<10	<10	*	24
Field Measurements						
Temperature	°C	15.29	16.9	21.35	23.28	20.07
Conductivity	µmhos/cm	206.9	247.8	310.2	364.2	352.3
Dissolved Oxygen	mg/L	9.91	9.44	8.06	7.22	6.83
D.O. Saturation	%	99	97.5	91.1	84.7	75.3
pH	S.U.	8.54	7.72	7.74	7.87	7.43

* sample lost

Site Location: **LITTLE MILL CREEK @ DRIVEWAY OFF TR 206**

River Mile: 0.10 Storet: 200632

Parameter	Units	6/8/2010	7/1/2010	7/14/2010	8/4/2010	8/30/2010
Acidity	mg/L	<5	<5	<5	<5	<5
Alkalinity	mg/L	39	83.3	96.8	112	135
Aluminum	ug/L	526	<200	<200	<200	<200
Ammonia	mg/L	<0.05	<0.1	0.1	0.05	0.13
Arsenic	ug/L	<2	<2	<2	<2	<2
Barium	ug/L	27	51	61	74	91
Cadmium	ug/L	<0.2	<0.2	<0.2	<0.2	<0.2
Calcium	mg/L	15	39	44	49	50
Chloride	mg/L	5.5	22	26.7	29.6	43.1
Chromium	ug/L	<2	<2	<2	<2	<2
COD	mg/L	<20	<20	<20	<20	<20
Conductivity	umhos/cm	154	349	390	433	481
Copper	ug/L	<2	<2	2.3	<2	<2
Hardness, Total	mg/L	38	97	110	172	174
Iron	ug/L	1220	546	817	848	802
Lead	ug/L	<2	<2	<2	<2	<2
Magnesium	mg/L	6	10	10	12	12
Manganese	ug/L	109	109	127	202	485
Nickel	ug/L	<2	<2	2.5	2.3	<2
Nitrate+nitrite	mg/L	0.51	1	0.64	0.36	<0.1
Nitrite	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Potassium	mg/L	2	3	4	5	4
Selenium	ug/L	<2	<2	<2	<2	<2
Sodium	mg/L	<5	10	13	16	26
Strontium	ug/L	45	134	156	173	178
Sulfate	mg/L	22.7	54.7	59.3	57.3	37
TKN	mg/L	<0.02	0.3	0.23	0.34	0.55
Total Dissolved Soli	mg/L	100	230	274	276	280
Total Phosphorus	mg/L	<0.01	0.02	0.03	0.02	0.02

Parameter	Units	6/8/2010	7/1/2010	7/14/2010	8/4/2010	8/30/2010
Total Suspended Sc	mg/L	25	<5	11	11	<5
Zinc	ug/L	<10	<10	<10	<10	20
Field Measurements						
Temperature	°C	14.74	16.98	21.15	22.66	20.85
Conductivity	µmhos/cm	215.4	291.1	343.5	413.1	430.6
Dissolved Oxygen	mg/L	10.32	10.13	8.69	6.85	5.38
D.O. Saturation	%	101.8	104.9	97.9	79.4	60.3
pH	S.U.	8.34	7.67	7.61	7.58	7.31

Site Location: **BEARD'S RUN @ CR 12**

River Mile: 0.03 Storet: 301021

Parameter	Units	6/8/2010	7/1/2010	7/14/2010	8/4/2010	8/30/2010
Acidity	mg/L	<5	<5			
Alkalinity	mg/L	91.2	114			
Aluminum	ug/L	<200	<200			
Ammonia	mg/L	0.074	<0.05			
Arsenic	ug/L	<2	<2			
Barium	ug/L	51	51			
Cadmium	ug/L	<0.2	<0.2			
Calcium	mg/L	40	44			
Chloride	mg/L	9.4	11.4			
Chromium	ug/L	<2	<2			
COD	mg/L	<20	<20			
Conductivity	umhos/cm	298	330			
Copper	ug/L	<2	<2			
Hardness, Total	mg/L	100	110			
Iron	ug/L	405	359			
Lead	ug/L	<2	<2			
Magnesium	mg/L	8	8			
Manganese	ug/L	103	64			

Parameter	Units	6/8/2010	7/1/2010	7/14/2010	8/4/2010	8/30/2010
Nickel	ug/L	<2	<2			
Nitrate+nitrite	mg/L	1.88	1.3			
Nitrite	mg/L	0.03	<0.02			
Potassium	mg/L	3	3			
Selenium	ug/L	<2	<2			
Sodium	mg/L	5	6			
Strontium	ug/L	124	141			
Sulfate	mg/L	35.9	33			
TKN	mg/L	<0.2	0.43			
Total Dissolved Soli	mg/L	186	212			
Total Phosphorus	mg/L	0.045	0.031			
Total Suspended Sc	mg/L	<5	<5			
Zinc	ug/L	<10	<10			
Field Measurements						
Temperature	°C	16.36	17.69			
Conductivity	µmhos/cm	246.9	281.1			
Dissolved Oxygen	mg/L	10	9.88			
D.O. Saturation	%	102.1	103.8			
pH	S.U.	8.46	7.8			

Site Location: **MILL CREEK @ GAGE @ FARMLANE OFF CR 12**

River Mile: 7.9 Storet: 300978

Parameter	Units	5/20/2010	6/8/2010	6/15/2010	7/1/2010	7/14/2010	8/4/2010	8/30/2010	10/5/2010	11/15/2010	1/19/2011
Acidity	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Alkalinity	mg/L	94.4	68.2	61.6	85.2	98.9	117	121	109	117	85.1
Aluminum	ug/L	<200	444	250	<200	257	207	205	<200	<200	<200
Ammonia	mg/L	0.1	0.079	<0.05	<0.05	0.064	0.051	<0.05	<0.05	<0.05	0.158
Arsenic	ug/L	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Barium	ug/L	56	52	40	47	60	68	79	67	61	47
Cadmium	ug/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2

Parameter	Units	5/20/2010	6/8/2010	6/15/2010	7/1/2010	7/14/2010	8/4/2010	8/30/2010	10/5/2010	11/15/2010	1/19/2011
Calcium	mg/L	39	30	42	35	40	44	45	43	47	41
CBOD 20	mg/L	<3	<3	<3	<3		3.5				
Chloride	mg/L	20.9	12.7	15.2	17.2	23.1	26	32.3	35.8	34.8	27.3
Chromium	ug/L	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
COD	mg/L	<20	<20	<20	<20	171	<20	<20	<20	<20	<20
Conductivity	umhos/cm	352	261	430	311	351	389	402	414	438	357
Copper	ug/L	<2	<2	<2	<2	2.2	<2	<2	2	<2	<2
Hardness, Total	mg/L	97	75	105	87	100	151	154	149	167	144
Iron	ug/L	913	1340	342	859	1040	1050	1580	1450	1260	717
Lead	ug/L	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Magnesium	mg/L	9	7	17	8	9	10	10	10	12	10
Manganese	ug/L	191	200	117	105	168	217	436	167	156	218
Nickel	ug/L	2.2	2.8	5.1	2.1	2.6	2.2	2.3	2.6	2.1	<2
Nitrate+nitrite	mg/L	0.66	2.15	0.37	1.62	0.81	0.58	0.12	0.39	0.13	1.69
Nitrite	mg/L	0.033	0.021	<0.02	<0.02	0.029	<0.02	<0.02	<0.02	<0.02	<0.02
Potassium	mg/L	4	3	2	4	5	6	7	10	6	3
Selenium	ug/L	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Sodium	mg/L	11	7	12	8	11	15	19	19	22	14
Strontium	ug/L	138	105	129	123	144	160	163	163	170	132
Sulfate	mg/L	47.2	35.6	121	35	40.6	36.1	27.8	37	47.1	50.1
TKN	mg/L	0.38	0.35	0.24	0.4	0.22	0.28	0.52	0.47	0.32	0.46
Total Dissolved Soli	mg/L	218	160	280	198	234	248	232	250	224	218
Total Phosphorus	mg/L	0.043	0.066	<0.01	0.042	0.034	0.028	0.031	0.042	0.026	0.035
Total Suspended So	mg/L	14	29	6	10	18	13	12	7	23	13
Zinc	ug/L	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Field Measurements											
Temperature	°C	14.75	15.06	18.47	16.61	20.89	22.68	19.87	11.42	5.44	1.28
Conductivity	µmhos/cm	239.6	208	288.9	249.8	312.5	341.2	356.1	299.9	237	195
Dissolved Oxygen	mg/L	9.72	9.63	10.07	9.77	8.32	6.93	7.06	9.03	16.21	16.33
D.O. Saturation	%	96	95.7	107.5	100.3	93.2	80.3	77.5	82.8	128.5	115.9
pH	S.U.	8	8.24	7.15	7.83	7.66	7.81	7.49	7.69	8.33	7.69

Site Location: **MILL CREEK @ TR 322**

River Mile: 3.54 Storet: 300888

Parameter	Units	4/8/2010	5/20/2010	6/8/2010	6/15/2010	7/1/2010	7/14/2010	8/4/2010	8/30/2010	10/5/2010	11/15/2010	2/22/2011
Acidity	mg/L		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Alkalinity	mg/L		89.2	66.3	67	89.1	90.9	72.5	118	112	111	46.2
Aluminum	ug/L	<200	<200	528	465	261	258	<200	<200	<200	<200	502
Ammonia	mg/L	<0.05	0.073	0.083	<0.05	<0.05	0.075	<0.05	<0.05	<0.05	<0.05	0.105
Arsenic	ug/L	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Barium	ug/L	47	55	56	50	50	57	69	80	68	66	45
Cadmium	ug/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
CBOD 20	mg/l	<3	<3		<3	<3						
Calcium	mg/L	37	47	32	33	39	43	52	50	53	63	33
Chloride	mg/L	19.1	22.7	14.8	14.1	19.5	23.8	26.6	32.7	31.9	33.5	26.5
Chromium	ug/L	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
COD	mg/L	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Conductivity	umhos/cm	373	430	291	307	348	411	469	456	517	567	319
Copper	ug/L	<2	<2	<2	<2	<2	2.3	<2	<2	<2	<2	<2
Hardness, Total	mg/L	92	117	80	82	97	107	196	187	202	248	124
Iron	ug/L	955	1060	1800	1380	1180	1110	993	654	1320	1680	1450
Lead	ug/L	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Magnesium	mg/L	11	15	9	9	10	13	16	15	17	22	10
Manganese	ug/L	183	268	252	186	157	230	345	495	264	333	189
Nickel	ug/L	2.7	3.2	3.5	3.7	2.3	3.8	2.5	2.5	3.5	3.5	3.9
Nitrate+nitrite	mg/L	0.58	0.46	1.78	1.27	1.45	0.61	0.27	<0.1	0.21	<0.1	2
Nitrite	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Potassium	mg/L	2	3	3	3	4	5	5	5	7	5	3
Selenium	ug/L	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Sodium	mg/L	10	13	8	8	9	11	14	17	18	20	13
Strontium	ug/L	127	149	106	107	130	141	168	159	165	184	107
Sulfate	mg/L		89.3	50.1	52.8	52.2	83.6	85.2	63.1	99.2	125	60
TKN	mg/L	<0.2	0.26	0.22	0.26	0.31	0.4	0.3	0.44	0.31	0.33	0.44
Total Dissolved Soli	mg/L	232	272	184	196	220	288	312	298	340	330	256

Parameter	Units	4/8/2010	5/20/2010	6/8/2010	6/15/2010	7/1/2010	7/14/2010	8/4/2010	8/30/2010	10/5/2010	11/15/2010	2/22/2011
Total Phosphorus	mg/L	<0.01	0.021	0.046	0.029	0.04	0.041	0.016	0.013	0.028	0.024	0.055
Total Suspended Sc	mg/L	6	9	30	37	13	14	9	<5	<5	8	29
Zinc	ug/L	<10	17	<10	<10	<10	<10	<10	<10	<10	<10	<10
Field Measurements												
Temperature	°C	15.71	15.18	16.05	19.66	17.45	21.17	23.52	20.99	11.73	6.23	0.88
Conductivity	µmhos/cm	299.1	294	244	267.7	298.6	353.8	452.6	412.3	375.1	309	165.9
Dissolved Oxygen	mg/L	8.23	8.92	9.72	8.85	9.43	8.03	7.82	7.49	9.66	15.21	17.56
D.O. Saturation	%	83	88.9	98.7	96.8	98.6	90.4	92.2	84	89.2	123	123.2
pH	S.U.	7.65	7.99	8.31	6.91	7.62	7.72	7.86	7.58	7.82	8.1	7.8

Site Location: **MILL CREEK @ CR 24**

River Mile: 0.40 Storet: R04S28

Parameter	Units	6/8/2010	7/1/2010	7/14/2010	8/4/2010	8/30/2010
Acidity	mg/L	<5	<5	<5	<5	<5
Alkalinity	mg/L	66	86.7	91.6	115	114
Aluminum	ug/L	448	447	383	212	<200
Ammonia	mg/L	0.096	<0.05	0.067	<0.05	<0.05
Arsenic	ug/L	<2	<2	<2	<2	<2
Barium	ug/L	58	53	59	69	85
Cadmium	ug/L	<0.2	<0.2	<0.2	<0.2	<0.2
Calcium	mg/L	34	41	45	53	60
Chloride	mg/L	14.6	23.3	23	30	36.4
Chromium	ug/L	<2	<2	<2	<2	<2
COD	mg/L	<20	<20	24	<20	<20
Conductivity	umhos/cm	301	374	425	481	549
Copper	ug/L	2	<2	2	<2	<2
Hardness, Total	mg/L	85	102	112	194	224
Iron	ug/L	1420	1400	1280	917	676
Lead	ug/L	<2	<2	<2	<2	<2
Magnesium	mg/L	9	11	13	15	18

Parameter	Units	6/8/2010	7/1/2010	7/14/2010	8/4/2010	8/30/2010
Manganese	ug/L	293	153	188	222	233
Nickel	ug/L	3.8	2.9	3.9	3	2.9
Nitrate+nitrite	mg/L	1.87	1.29	0.59	0.44	0.19
Nitrite	mg/L	0.021	<0.02	<0.02	<0.02	<0.02
Potassium	mg/L	3	4	4	5	5
Selenium	ug/L	<2	<2	<2	<2	<2
Sodium	mg/L	8	10	11	14	19
Strontium	ug/L	110	137	148	169	200
Sulfate	mg/L	55.9	60.3	87.9	87	104
TKN	mg/L	0.22	0.41	1.1	0.43	<0.2
Total Dissolved Soli	mg/L	198	250	302	296	384
Total Phosphorus	mg/L	0.053	0.057	0.043	0.015	<0.01
Total Suspended Sc	mg/L	17	16	20	10	7
Zinc	ug/L	<10	<10	<10	<10	16
Field Measurements						
Temperature	°C	16.28	17.83	21.36	23.76	21.14
Conductivity	µmhos/cm	253.4	316.9	372.5	476.8	502.9
Dissolved Oxygen	mg/L	9.07	9.24	8.07	7.03	6.82
D.O. Saturation	%	92.6	97.4	91.2	83.3	76.8
pH	S.U.	8.53	7.69	7.83	7.9	7.79

Site Location: **TURKEY RUN @ CR 12**

River Mile: 0.19 Storet: R04S31

Parameter	Units	6/8/2010	7/1/2010	7/14/2010	8/4/2010	8/30/2010
Acidity	mg/L	<5	<5	<5	<5	<5
Alkalinity	mg/L	69.3	101	98	120	123
Aluminum	ug/L	<200	<200	249	<200	<200
Ammonia	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	ug/L	<2	<2	<2	<2	<2
Barium	ug/L	41	49	54	67	74

Parameter	Units	6/8/2010	7/1/2010	7/14/2010	8/4/2010	8/30/2010
Cadmium	ug/L	<0.2	<0.2	<0.2	<0.2	<0.2
Calcium	mg/L	42	61	63	78	68
Chloride	mg/L	16.2	28.5	28.9	28.2	35.4
Chromium	ug/L	<2	<2	<2	<2	<2
COD	mg/L	<20	<20	<20	<20	<20
Conductivity	umhos/cm	415	577	628	739	652
Copper	ug/L	<2	<2	<2	<2	<2
Hardness, Total	mg/L	105	152	157	322	265
Iron	ug/L	331	251	565	274	613
Lead	ug/L	<2	<2	<2	<2	<2
Magnesium	mg/L	16	24	26	31	23
Manganese	ug/L	127	108	136	126	419
Nickel	ug/L	3.8	2.6	3.2	2.7	3.6
Nitrate+nitrite	mg/L	0.45	0.26	0.19	0.14	0.79
Nitrite	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Potassium	mg/L	2	3	3	4	3
Selenium	ug/L	<2	<2	<2	<2	<2
Sodium	mg/L	12	20	21	25	26
Strontium	ug/L	129	188	203	240	223
Sulfate	mg/L	113	145	182	220	143
TKN	mg/L	<0.2	0.28	<0.2	0.29	<0.2
Total Dissolved Soli	mg/L	286	408	460	492	432
Total Phosphorus	mg/L	0.031	0.014	0.013	<0.01	0.014
Total Suspended So	mg/L	<5	<5	9	<5	17
Zinc	ug/L	<10	12	<10	<10	14
Field Measurements						
Temperature	°C	15.93	16.08	20.72	23.37	20.79
Conductivity	µmhos/cm	339.7	471	551.5	703	581
Dissolved Oxygen	mg/L	10.3	10.25	8.58	7.69	7.83
D.O. Saturation	%	104.3	104.2	95.9	90.5	87.6
pH	S.U.	7.83	7.72	7.74	7.79	7.69

Parameter	Units	Site Location: **SPOON CREEK @ CR 193** River Mile: 0.60 Storet: R04S30				
		6/8/2010	7/1/2010	7/14/2010	8/4/2010	8/30/2010
Acidity	mg/L	<5	<5	<5	<5	<5
Alkalinity	mg/L	73.6	109	101	122	145
Aluminum	ug/L	274	265	372	365	242
Ammonia	mg/L	0.059	<0.05	0.051	0.061	0.078
Arsenic	ug/L	<2	<2	<2	<2	<2
Barium	ug/L	65	75	72	100	114
Cadmium	ug/L	<0.2	<0.2	<0.2	<0.2	<0.2
Calcium	mg/L	45	61	57	82	79
Chloride	mg/L	15.8	24.9	22	29.8	31.9
Chromium	ug/L	<2	<2	<2	<2	<2
COD	mg/L	<20	<20	<20	<20	<20
Conductivity	umhos/cm	383	520	506	696	626
Copper	ug/L	<2	<2	<2	<2	<2
Hardness, Total	mg/L	112	152	142	324	288
Iron	ug/L	715	929	1180	1150	807
Lead	ug/L	<2	<2	<2	<2	<2
Magnesium	mg/L	14	18	18	29	22
Manganese	ug/L	271	237	277	415	621
Nickel	ug/L	3.8	3.3	4.2	3.8	3.1
Nitrate+nitrite	mg/L	1.74	1.04	0.6	0.66	0.34
Nitrite	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Potassium	mg/L	3	3	4	4	4
Selenium	ug/L	<2	<2	<2	<2	<2
Sodium	mg/L	8	12	11	14	13
Strontium	ug/L	143	188	187	240	219
Sulfate	mg/L	85	122	121	190	128
TKN	mg/L	<0.2	0.71	<0.2	0.35	0.51
Total Dissolved Soli	mg/L	258	338	356	496	396
Total Phosphorus	mg/L	0.021	0.028	0.034	0.011	0.041

Parameter	Units	6/8/2010	7/1/2010	7/14/2010	8/4/2010	8/30/2010
Total Suspended Sc	mg/L	11	11	22	19	10
Zinc	ug/L	<5	<5	<5	<5	17
Field Measurements						
Temperature	°C	15.16	16.36	20.53	22.78	20.1
Conductivity	µmhos/cm	309.8	428.5	433.1	658.9	548.3
Dissolved Oxygen	mg/L	10.34	10.36	8.59	7.9	9.93
D.O. Saturation	%	103	105.9	95.6	91.8	109.6
pH	S.U.	8.33	7.72	7.73	7.74	7.86

Site Location: **CROOKED RUN @ CR 23 @ DRIVEWAY**

River Mile: 0.98 Storet: 301024

Parameter	Units	6/8/2010	7/1/2010	7/14/2010	8/4/2010	8/23/2010
Acidity	mg/L	<5	<5	<5	<5	<5
Alkalinity	mg/L	54.2	80.5	98	96.3	86.5
Aluminum	ug/L	308	<200	280	<200	<200
Ammonia	mg/L	0.059	<0.05	0.053	0.053	0.06
Arsenic	ug/L	<2	<2	<2	<2	<2
Barium	ug/L	45	54	50	71	80
Cadmium	ug/L	<0.2	<0.2	<0.2	<0.2	<0.2
Calcium	mg/L	36	48	41	53	55
Chloride	mg/L	15.1	18.7	16.2	18	20.6
Chromium	ug/L	<2	<2	<2	<2	<2
COD	mg/L	<20	<20	<20	<20	<20
Conductivity	umhos/cm	345	442	403	471	492
Copper	ug/L	<2	<2	2.4	<2	<2
Hardness, Total	mg/L	90	120	102	206	216
Iron	ug/L	1150	1090	1570	1230	1160
Lead	ug/L	2.1	<2	<2	<2	<2
Magnesium	mg/L	13	17	15	18	19
Nickel	ug/L	5.5	3.8	4.1	3	3.1

Parameter	Units	6/8/2010	7/1/2010	7/14/2010	8/4/2010	8/23/2010
Nitrate+nitrite	mg/L	0.34	0.13	0.24	0.11	0.16
Nitrite	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Potassium	mg/L	2	2	2	3	3
Selenium	ug/L	<2	<2	<2	<2	<2
Sodium	mg/L	9	10	9	11	12
Strontium	ug/L	105	129	117	145	156
Sulfate	mg/L	91.9	116	106	112	122
TKN	mg/L	<0.2	0.22	0.36	0.27	0.24
Total Dissolved Soli	mg/L	220	334	270	330	348
Total Phosphorus	mg/L	0.019	0.024	0.034	0.027	0.022
Total Suspended So	mg/L	16	7	21	9	7
Zinc	ug/L	<10	<10	<10	<10	23
Field Measurements						
Temperature	°C	16.16		21.44	24.02	21.8
Conductivity	µmhos/cm	275.9		375.3	434	448.8
Dissolved Oxygen	mg/L	9.94		11.67	9.09	8.68
D.O. Saturation	%	101.1		132.1	108.1	99
pH	S.U.	7.83		7.72	7.92	7.71

Site Location: **CROOKED RUN @ END OF TR 495**

River Mile: 0.06 Storet: 301023

Parameter	Units	6/8/2010	7/1/2010	7/14/2010	8/4/2010	8/23/2010
Acidity	mg/L	<5	<5	<5	<5	<5
Alkalinity	mg/L	66.1	81.2	71.9	95.6	83.6
Aluminum	ug/L	280	860	310	<200	<200
Ammonia	mg/L	0.067	0.057	0.05	<0.05	<0.05
Arsenic	ug/L	<2	<2	<2	<2	<2
Barium	ug/L	44	65	51	63	78
Cadmium	ug/L	<0.2	<0.2	<0.2	<0.2	<0.2
Calcium	mg/L	36	52	44	50	57

Parameter	Units	6/8/2010	7/1/2010	7/14/2010	8/4/2010	8/23/2010
Chloride	mg/L	15.1	16.7	19.6	19.1	18.6
Chromium	ug/L	<2	<2	<2	<2	<2
COD	mg/L	<20	<20	<20	<20	<20
Conductivity	umhos/cm	338	458	424	492	506
Copper	ug/L	<2	2.7	2.2	<2	<2
Hardness, Total	mg/L	90	130	110	195	225
Iron	ug/L	862	3330	1300	1010	1150
Lead	ug/L	<2	2.3	<2	<2	<2
Magnesium	mg/L	13	19	16	17	20
Manganese	ug/L	251	490	204	217	257
Nickel	ug/L	4.4	8.2	4.6	3.4	3.4
Nitrate+nitrite	mg/L	0.94	0.13	0.29	0.25	0.24
Nitrite	mg/L	0.02	<0.02	<0.02	<0.02	<0.02
Potassium	mg/L	2	2	3	3	4
Selenium	ug/L	<2	<2	<2	<2	<2
Sodium	mg/L	8	9	11	11	11
Strontium	ug/L	111	138	128	136	162
Sulfate	mg/L	77.4	124	115	122	125
TKN	mg/L	<0.2	<0.2	0.41	0.34	0.23
Total Dissolved Soli	mg/L	210	350	284	328	336
Total Phosphorus	mg/L	0.037	0.092	0.037	0.014	0.024
Total Suspended So	mg/L	10	75	15	12	13
Zinc	ug/L	<10	14	<10	<10	15
Field Measurements						
Temperature	°C	16.18		21.49	23.83	22
Conductivity	µmhos/cm	264.6		398	455.6	458.8
Dissolved Oxygen	mg/L	9.73		9.57	9.03	7.86
D.O. Saturation	%	99		108.5	107.1	90
pH	S.U.	7.92		7.93	8.1	7.86

Parameter	Units	Site Location: **ROBINSON RUN @ CR 271** River Mile: 1.35 Storet: 300289				
		6/8/2010	7/1/2010	7/14/2010	8/4/2010	8/30/2010
Acidity	mg/L	<5	<5	<5	<5	<5
Alkalinity	mg/L	35.2	38.3	39.9	43.5	39.9
Aluminum	ug/L	343	<200	<200	<200	<200
Ammonia	mg/L	0.1	0.167	0.111	0.086	0.052
Arsenic	ug/L	<2	<2	<2	<2	<2
Barium	ug/L	22	18	22	16	19
Cadmium	ug/L	<0.2	<0.2	0.3	<0.2	<0.2
Calcium	mg/L	58	102	88	121	123
Chloride	mg/L	19.3	20	16.8	18	21.1
Chromium	ug/L	<2	<2	<2	<2	<2
COD	mg/L	<20	<20	<20	<20	<20
Conductivity	umhos/cm	598	990	837	1110	1150
Copper	ug/L	<2	<2	<2	<2	<2
Hardness, Total	mg/L	145	255	220	516	513
Iron	ug/L	3570	3590	1870	700	632
Lead	ug/L	<2	<2	<2	<2	<2
Magnesium	mg/L	24	44	39	52	50
Manganese	ug/L	1320	2110	2180	2110	1880
Nickel	ug/L	11.6	15.5	21.2	12.7	12.5
Nitrate+nitrite	mg/L	1.11	0.17	0.19	0.21	0.11
Nitrite	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Potassium	mg/L	3	4	4	5	5
Selenium	ug/L	<2	<2	<2	<2	<2
Sodium	mg/L	19	38	23	42	46
Strontium	ug/L	292	568	462	707	763
Sulfate	mg/L	251	464	390	538	560
TKN	mg/L	<0.2	<0.2	0.2	0.29	<0.2
Total Dissolved Soli	mg/L	424	752	636	848	874
Total Phosphorus	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01

Parameter	Units	6/8/2010	7/1/2010	7/14/2010	8/4/2010	8/30/2010
Total Suspended Sc	mg/L	14	<5	<5	<5	<5
Zinc	ug/L	<10	14	13	<10	24
Field Measurements						
Temperature	°C	14.25	22.1	19.48	20.36	18.53
Conductivity	µmhos/cm	475	1005	713.6	994.3	969.1
Dissolved Oxygen	mg/L	10.81	8.18	9.1	8.81	9.06
D.O. Saturation	%	105.7	93.7	99.3	97.9	97
pH	S.U.	8.44	7.48	7.87	7.98	7.46

Site Location: **MONROE BASIN CREEK**

River Mile: 1.8 Storet: 301029

Parameter	Units	6/8/2010	7/1/2010	7/14/2010	8/4/2010	8/23/2010
Acidity	mg/L	<5	<5	<5	<5	<5
Alkalinity	mg/L	83.4	125	149	134	124
Aluminum	ug/L	319	<200	<200	<200	<200
Ammonia	mg/L	<0.05	0.052	0.098	0.081	<0.05
Arsenic	ug/L	<2	<2	<2	<2	<2
Barium	ug/L	50	56	64	80	69
Cadmium	ug/L	<0.2	<0.2	<0.2	<0.2	<0.2
Calcium	mg/L	40	52	56	51	50
Chloride	mg/L	<5	10	13.3	12.2	10
Chromium	ug/L	<2	<2	<2	<2	<2
COD	mg/L	<20	<20	<20	<20	154
Conductivity	umhos/cm	319	460	440	394	393
Copper	ug/L	<2	<2	<2	<2	<2
Hardness, Total	mg/L	100	130	140	185	187
Iron	ug/L	766	534	587	726	503
Lead	ug/L	<2	<2	<2	<2	<2
Magnesium	mg/L	12	15	16	14	15
Manganese	ug/L	224	268	354	394	186

Parameter	Units	6/8/2010	7/1/2010	7/14/2010	8/4/2010	8/23/2010
Nickel	ug/L	2.1	<2	<2	<2	<2
Nitrate+nitrite	mg/L	0.046	1.39	0.86	1.31	0.67
Nitrite	mg/L	<0.02	<0.02	0.041	0.56	0.02
Potassium	mg/L	2	2	4	4	4
Selenium	ug/L	<2	<2	<2	<2	<2
Sodium	mg/L	5	7	9	6	7
Strontium	ug/L	108	132	146	137	138
Sulfate	mg/L	70.4	66.2	75	42.3	54.2
TKN	mg/L	<0.2	<0.2	0.85	0.29	0.23
Total Dissolved Soli	mg/L	202	258	294	248	252
Total Phosphorus	mg/L	0.018	0.011	0.03	0.024	0.023
Total Suspended Sc	mg/L	13	5	7	<5	5
Zinc	ug/L	29	<10	<10	<10	12
Field Measurements						
Temperature	°C	16		21.15	24.17	21.77
Conductivity	µmhos/cm	258.5		417.3	367.9	361.5
Dissolved Oxygen	mg/L	9.65		6.96	4.27	5.12
D.O. Saturation	%	97.9		78.4	50.9	58.3
pH	S.U.	8.08		7.56	7.43	7.48

Site Location: **NORTH BRANCH SYMMES CREEK @ STEEL HILL ROAD**

River Mile: 4.25 Storet: 301031

Parameter	Units	6/8/2010	7/1/2010	7/14/2010	8/4/2010	8/23/2010
Acidity	mg/L	<5	<5	<5	<5	<5
Alkalinity	mg/L	59.5	121	112	167	132
Aluminum	ug/L	483	<200	647	<200	694
Ammonia	mg/L	0.055	<0.05	0.058	<0.05	<0.05
Arsenic	ug/L	<2	<2	<2	<2	<2
Barium	ug/L	35	40	50	58	85
Cadmium	ug/L	<0.2	<0.2	<0.2	<0.2	<0.2

Parameter	Units	6/8/2010	7/1/2010	7/14/2010	8/4/2010	8/23/2010
Calcium	mg/L	31	69	66	96	90
Chloride	mg/L	9.3	17.7	22.7	20.4	24.4
Chromium	ug/L	<2	<2	<2	<2	<2
COD	mg/L	<20	<20	<20	<20	<20
Conductivity	umhos/cm	271	633	591	848	742
Copper	ug/L	<2	<2	<2	<2	<2
Hardness, Total	mg/L	77	172	165	441	398
Iron	ug/L	1190	906	1990	742	2670
Lead	ug/L	<2	<2	<2	<2	<2
Magnesium	mg/L	10	32	30	49	42
Manganese	ug/L	257	354	526	412	670
Nickel	ug/L	2.1	2.2	3.1	2.2	3.3
Nitrate+nitrite	mg/L	0.75	<0.1	0.2	0.14	0.14
Nitrite	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Potassium	mg/L	2	3	4	5	6
Selenium	ug/L	<2	<2	<2	<2	<2
Sodium	mg/L	5	12	11	12	13
Strontium	ug/L	95	209	219	303	310
Sulfate	mg/L	57.5	178	157	267	216
TKN	mg/L	<0.2	0.38	0.48	0.37	0.38
Total Dissolved Soli	mg/L	180	446	402	632	548
Total Phosphorus	mg/L	0.019	0.021	0.042	0.016	0.067
Total Suspended So	mg/L	21	<5	38	<5	93
Zinc	ug/L	<10	<10	<10	<10	16
Field Measurements						
Temperature	°C	16.4		22.81	24.01	23.13
Conductivity	µmhos/cm	211		566.1	786.1	694.7
Dissolved Oxygen	mg/L	8.68		7.83	7.79	7.43
D.O. Saturation	%	88.8		91.1	92.7	87
pH	S.U.	7.76		7.76	7.84	7.78

Site Location: **NORTH BRANCH SYMMES CREEK @ MADISON HALL ROAD** River Mile: 0.10 Storet: 301030						
Parameter	Units	6/8/2010	7/1/2010	7/14/2010	8/4/2010	8/23/2010
Acidity	mg/L	<5	<5	<5	<5	<5
Alkalinity	mg/L	72.1	143	121	180	128
Aluminum	ug/L	472	<200	777	<200	381
Ammonia	mg/L	0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	ug/L	<2	<2	<2	<2	<2
Barium	ug/L	34	36	43	50	52
Cadmium	ug/L	<0.2	<0.2	<0.2	<0.2	<0.2
Calcium	mg/L	49	130	110	195	133
Chloride	mg/L	10.7	16.5	28.1	14.9	21.9
Chromium	ug/L	<2	<2	<2	<2	<2
COD	mg/L	<20	<20	<20	<20	<20
Conductivity	umhos/cm	440	1080	944	1570	1150
Copper	ug/L	<2	<2	2.9	<2	<2
Hardness, Total	mg/L	122	325	275	915	616
Iron	ug/L	1140	219	1920	283	1090
Lead	ug/L	<2	<2	<2	<2	<2
Magnesium	mg/L	20	65	51	104	69
Manganese	ug/L	239	91	296	174	242
Nickel	ug/L	2.9	3.6	4.8	3.7	4
Nitrate+nitrite	mg/L	0.89	<0.1	0.16	0.18	0.35
Nitrite	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Potassium	mg/L	2	3	4	5	7
Selenium	ug/L	<2	<2	<2	<2	<2
Sodium	mg/L	6	12	14	16	14
Strontium	ug/L	145	362	339	576	403
Sulfate	mg/L	126	457	377	779	489
TKN	mg/L	<0.2	0.34	<0.2	0.38	0.61
Total Dissolved Soli	mg/L	298	870	706	1350	878
Total Phosphorus	mg/L	0.03	0.016	<0.01	0.347	0.045

Parameter	Units	6/8/2010	7/1/2010	7/14/2010	8/4/2010	8/23/2010
Total Suspended Sc	mg/L	22	8	47	<5	20
Zinc	ug/L	<10	<10	<10	<10	20
Field Measurements						
Temperature	°C	15.81		21.95	23.33	21.41
Conductivity	µmhos/cm	345.2		888	1414.4	1029
Dissolved Oxygen	mg/L	9.71		9.13	7.29	8.34
D.O. Saturation	%	98.1		104.6	85.8	94.6
pH	S.U.	7.97		8.02	7.93	7.91

Site Location: **SYMMES CREEK @ STEEL HILL ROAD @ OIL RIG**

River Mile: 5.65 Storet: 301034

Parameter	Units	6/8/2010	7/1/2010	7/14/2010	8/4/2010	8/23/2010
Acidity	mg/L	<5	<5	<5	<5	<5
Alkalinity	mg/L	56.1	95.6	93.6	99.6	80.6
Aluminum	ug/L	274	<200	416	<200	245
Ammonia	mg/L	0.063	>0.05		<0.05	<0.05
Arsenic	ug/L	<2	<2	<2	<2	<2
Barium	ug/L	36	38	41	46	57
Cadmium	ug/L	<0.2	<0.2	<0.2	<0.2	<0.2
Calcium	mg/L	27	44	44	49	66
Chloride	mg/L	14.4	20.6	20.5	22.3	17.1
Chromium	ug/L	<2	<2	<2	<2	<2
COD	mg/L	<20	<20	<20	<20	<20
Conductivity	umhos/cm	273	398	417	444	615
Copper	ug/L	<2	<2	2	<2	<2
Hardness, Total	mg/L	67	110	110	192	284
Iron	ug/L	885	806	1590	839	1080
Lead	ug/L	<2	<2	<2	<2	<2

Parameter	Units	6/8/2010	7/1/2010	7/14/2010	8/4/2010	8/23/2010
Magnesium	mg/L	9	15	17	17	29
Manganese	ug/L	228	193	266	187	383
Nickel	ug/L	2.1	2.4	2.9	2.5	3.1
Nitrate+nitrite	mg/L	1.43	0.12		0.26	0.27
Nitrite	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Potassium	mg/L	2	3	3	3	6
Selenium	ug/L	<2	<2	<2	<2	<2
Sodium	mg/L	7	10	11	13	11
Strontium	ug/L	98	150	159	171	226
Sulfate	mg/L	47.7	76.1	93.1	88.2	197
TKN	mg/L	1.45	<0.2	<0.2	<0.2	0.29
Total Dissolved Soli	mg/L	178	274	278	308	452
Total Phosphorus	mg/L	0.014	0.014		<0.01	0.024
Total Suspended So	mg/L	9	<5	30	7	8
Zinc	ug/L	<10	<10	<10	<10	15
Field Measurements						
Temperature	°C	14.83		21.26	22.65	21.22
Conductivity	µmhos/cm	204		392.2	412.2	553.6
Dissolved Oxygen	mg/L	9.44		8.19	7.93	8.14
D.O. Saturation	%	93.3		92.4	91.9	91.8
pH	S.U.	7.81		7.88	7.86	7.7

Site Location: **SYMMES CREEK @ MUTTON RIDGE ROAD OFF MOLLIE'S ROCK ROAD**

River Mile: 4.35 Storet: 301033

Parameter	Units	6/8/2010	7/1/2010	7/14/2010	8/4/2010	8/23/2010
Acidity	mg/L	<5	<5	<5	<5	<5
Alkalinity	mg/L	59.7	109	109	132	97.4
Aluminum	ug/L	294	<20	371	<200	266
Ammonia	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05

Parameter	Units	6/8/2010	7/1/2010	7/14/2010	8/4/2010	8/23/2010
Arsenic	ug/L	<2	<2	<2	<2	<2
Barium	ug/L	35	37	38	47	56
Cadmium	ug/L	<0.2	<0.2	<0.2	<0.2	<0.2
Calcium	mg/L	34	67	62	96	77
Chloride	mg/L	14.6	21.2	20.5	20.4	18.5
Chromium	ug/L	<2	<2	<2	<2	<2
COD	mg/L	<20	<20	63	<20	<20
Conductivity	umhos/cm	331	592	551	832	697
Copper	ug/L	<2	<2	<2	<2	<2
Hardness, Total	mg/L	85	167	155	417	324
Iron	ug/L	921	651	1270	628	977
Lead	ug/L	<2	<2	<2	<2	<2
Magnesium	mg/L	13	26	25	43	32
Manganese	ug/L	332	250	237	206	342
Nickel	ug/L	2.8	3.9	3.7	3.8	4
Nitrate+nitrite	mg/L	1.09	0.95	0.25	0.2	0.18
Nitrite	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Potassium	mg/L	2	3	3	4	6
Selenium	ug/L	<2	<2	<2	<2	<2
Sodium	mg/L	8	13	12	17	14
Strontium	ug/L	141	265	259	409	312
Sulfate	mg/L	77.5	158	143	289	229
TKN	mg/L	<0.2	0.25	0.29	0.34	0.32
Total Dissolved Soli	mg/L	210	444	380	656	496
Total Phosphorus	mg/L	<0.01	0.012	0.022	<0.01	0.019
Total Suspended Sc	mg/L	7	<5	16	<5	9
Zinc	ug/L	<10	<10	<10	<10	13
Field Measurements						
Temperature	°C	15.47		21.36	22.58	21
Conductivity	µmhos/cm	251.9		520	751.6	473.1
Dissolved Oxygen	mg/L	9.59		8.32	7.89	8.73
D.O. Saturation	%	96.1		94.1	91.4	98.1
pH	S.U.	8		7.99	7.9	7.86

Site Location: **SYMMES CREEK @ MOLLIE'S ROCK ROAD**

River Mile: 2.35 Storet: 300889

Parameter	Units	4/8/2010	5/20/2010	6/8/2010	6/15/2010	7/1/2010	7/14/2010	8/4/2010	8/23/2010	10/5/2010	11/15/2010	2/22/2011
Acidity	mg/L		<5	<5	<5	<5	<5	<5	<5	9.4	<5	<5
Alkalinity	mg/L		88.1	78.1	74	156	120	167	122	159	162	48.2
Aluminum	ug/L	<200	327	441	1470	<200	613	<200	299	<200	<200	1120
Ammonia	mg/L	0.057	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.068
Arsenic	ug/L	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Barium	ug/L	30	29	35	45	34	42	43	51	38	36	38
Cadmium	ug/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Calcium	mg/L	57	65	50	55	113	110	165	126	175	222	48
CBOD20	mg/L	<3	<3	3.2	4.4	<3	<3	4				
Chloride	mg/L	15.2	16	11.6	14.3	17.5	27.1	15.9	19.2	23.6	21.4	19.8
Chromium	ug/L	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
COD	mg/L	<20	<20	<20	25	<20	<20	<20	<20	<20	<20	<20
Conductivity	umhos/cm	573	574	441	504	982	929	1440	1060	1390	1550	436
Copper	ug/L	<2	<2	<2	2.7	<2	2.6	<2	<2	<2	<2	2.1
Hardness, Total	mg/L	142	162	125	137	282	275	762	570	808	1020	206
Iron	ug/L	526	928	1170	3730	228	1630	368	939	249	221	2870
Lead	ug/L	<2	<2	<2	2.2	<2	<2	<2	<2	<2	<2	<2
Magnesium	mg/L	25	28	20	23	54	51	85	62	90	114	21
Manganese	ug/L	162	207	243	523	78	264	138	213	67	73	402
Nickel	ug/L	3.1	3.2	2.8	5.7	3.1	4.6	3.6	3.7	3.9	4.6	4
Nitrate+nitrite	mg/L	0.21	0.76	0.89	0.33	<0.1	0.2	0.17	0.25	<0.1	<0.1	1.1
Nitrite	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Potassium	mg/L	2	3	2	3	3	4	4	6	5	4	3
Selenium	ug/L	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Sodium	mg/L	10	9	7	8	13	14	16	15	21	20	9
Strontium	ug/L	239	218	156	223	378	345	524	439	578	581	135
TKN	mg/L	<0.2	0.25	0.39	0.26	<0.2	0.55	0.26	0.47	0.37	0.72	0.33
Total Dissolved Soli	mg/L	374	384	298	344	780	684	1170	778	1080	1230	334

Parameter	Units	4/8/2010	5/20/2010	6/8/2010	6/15/2010	7/1/2010	7/14/2010	8/4/2010	8/23/2010	10/5/2010	11/15/2010	2/22/2011
Total Phosphorus	mg/L	<0.01	0.093	0.067	0.061	<0.01	0.026	<0.01	0.03	0.014	0.014	0.063
Total Suspended So	mg/L	5	10	24	81	<5	42	13	15	<5	<5	68
Zinc	ug/L	<10	<10	<10	14	<10	<10	<10	13	<10	<10	<10
Field Measurements												
Temperature	°C	14.52	13.8	15.53	21.06		21.65	23.13	21.36	11.52	4.23	0.89
Conductivity	µmhos/cm	440	378.4	339.1	450.1		868.5	1297.3	950.9	1004.2	882	223.9
Dissolved Oxygen	mg/L	8.81	9.13	8.73	8.4		7.33	7.52	7.31	9.99	16.9	16.75
D.O. Saturation	%	86.6	88.3	87.7	94.5		83.4	88.2	82.8	92.1	130.7	117.6
pH	S.U.	7.8	8.09	7.78	7.03		7.95	7.96	8	7.7	7.79	7.8

Site Location: **SOUTH BRANCH SYMMES CREEK @ SHECK ROAD/VALLEY ROAD-TR 156**

River Mile: 0.15 Storet: 301032

Parameter	Units	6/8/2010	7/1/2010	7/14/2010	8/4/2010	8/23/2010
Acidity	mg/L	<5	<5	<5	<5	<5
Alkalinity	mg/L	64.8	129	147	163	123
Aluminum	ug/L	316	409	316	567	523
Ammonia	mg/L	<0.05	<0.05	<0.05	<0.05	0.05
Arsenic	ug/L	<2	<2	<2	<2	<2
Barium	ug/L	31	32	37	42	48
Cadmium	ug/L	<0.2	<0.2	<0.2	<0.2	<0.2
Calcium	mg/L	34	75	78	96	87
Chloride	mg/L	15.3	22.8	27	20.8	18.6
Chromium	ug/L	<2	<2	<2	<2	<2
COD	mg/L	<20	<20	<20	<20	<20
Conductivity	umhos/cm	336	657	675	809	750
Copper	ug/L	<2	<2	<2	<2	2.2
Hardness, Total	mg/L	85	187	195	400	361
Iron	ug/L	882	906	777	1030	1070
Lead	ug/L	<2	<2	<2	<2	<2
Magnesium	mg/L	13	29	31	39	35

Parameter	Units	6/8/2010	7/1/2010	7/14/2010	8/4/2010	8/23/2010
Manganese	ug/L	433	434	375	299	357
Nickel	ug/L	3.2	6.7	5.5	6.7	7.1
Nitrate+nitrite	mg/L	0.65	2.78	0.13	0.16	0.14
Nitrite	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Potassium	mg/L	2	3	3	4	5
Selenium	ug/L	<2	<2	<2	<2	<2
Sodium	mg/L	9	15	15	16	16
Strontium	ug/L	155	310	361	424	381
Sulfate	mg/L	78.6	174	172	245	233
TKN	mg/L	<0.2	0.34	0.4	0.23	0.31
Total Dissolved Soli	mg/L	210	474	466	634	530
Total Phosphorus	mg/L	0.017	<0.01	0.012	<0.01	0.015
Total Suspended Sc	mg/L	7	<5	5	7	7
Zinc	ug/L	<10	<10	<10	<10	14
Field Measurements						
Temperature	°C	14.31		21.15	22.94	21.27
Conductivity	µmhos/cm	254.2		630.4	726.2	675.9
Dissolved Oxygen	mg/L	9.75		8.36	7.79	7.74
D.O. Saturation	%	95.3		94.2	90.8	87.4
pH	S.U.	7.84		7.8	7.65	7.6

Site Location: **BLOUNT RUN @ SR 666**

River Mile: 0.31 Storet: 300890

Parameter	Units	4/8/2010	5/20/2010	6/8/2010	6/15/2010	7/1/2010	7/14/2010	8/4/2010	8/23/2010	10/5/2010	11/15/2010	2/22/2011
Acidity	mg/L		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Alkalinity	mg/L		113	79.3	81.9	121	112	133	113	134	136	54.9
Aluminum	ug/L	<200	<200	391	985	<200	227	<200	<200	<200	<200	1330
Ammonia	mg/L	<0.05	<0.05	0.052	<0.05	<0.05	<0.05	<0.05	0.05	<0.05	<0.05	0.095
Arsenic	ug/L	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Barium	ug/L	37	43	43	51	45	49	52	55	53	57	44
Cadmium	ug/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Calcium	mg/L	65	77	57	63	71	92	77	93	90	96	46
CBOD20	mg/L	<3	<3	3.2	4	<3		3.9				
Chloride	mg/L	8.6	10.4	8.5	7	9.5	7.4	9.6	9.4	10.5	12.2	15.2
Chromium	ug/L	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
COD	mg/L	<20	24	<20	<20	<20	<20	<20	<20	<20	<20	47
Conductivity	umhos/cm	621	638	503	555	607	740	704	793	762	790	417
Copper	ug/L	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	2.5
Hardness, Total	mg/L	162	192	142	157	177	230	320	405	385	409	197
Iron	ug/L	394	511	952	2030	343	614	372	408	312	365	2860
Lead	ug/L	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Magnesium	mg/L	27	32	23	26	28	39	31	42	39	41	20
Manganese	ug/L	258	173	252	484	140	211	160	121	114	126	589
Nickel	ug/L	4.1	3.8	4	5.4	2.8	3.7	2.3	2.9	2.4	2.7	5.4
Nitrate+nitrite	mg/L	0.26	0.42	0.89	0.51	0.16	0.13	0.17	0.14	<0.1	0.1	1.17
Nitrite	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.02	<0.02
Potassium	mg/L	2	3	3	3	3	4	3	4	4	4	3
Selenium	ug/L	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Sodium	mg/L	8	10	8	7	10	11	10	12	13	14	9
Strontium	ug/L	203	235	181	199	217	292	236	304	282	295	138
Sulfate	mg/L		201	161	182	176	277	224	300	236	254	126
TKN	mg/L	<0.2	0.25	<0.2	0.26	<0.2	0.25	0.27	<0.2	<0.2	<0.2	0.38
Total Dissolved Soli	mg/L	436	440	344	376	428	536	508	568	512	530	330

Parameter	Units	4/8/2010	5/20/2010	6/8/2010	6/15/2010	7/1/2010	7/14/2010	8/4/2010	8/23/2010	10/5/2010	11/15/2010	2/22/2011
Total Phosphorus	mg/L	<0.01	0.02	0.028	0.956	<0.01	<0.01	<0.01	0.016	0.013	<0.01	0.065
Total Suspended So	mg/L	5	<5	13	54	<5	9	6	<5	<5	<5	51
Zinc	ug/L	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Field Measurements												
Temperature	°C	15.7	14.07	16.72	22.5		24.36	22.61	22.22	11.55	4.71	1.96
Conductivity	µmhos/cm	493.5	427.3	403.2	511.2		731	623.3	735.2	552	451	356.1
Dissolved Oxygen	mg/L	8.51	9.16	9.56	7.72		6.97	7.17	7.36	10.2	15.6	7.06
D.O. Saturation	%	85.8	89.1	98.4	89.3		83.5	83.2	84.7	104.9	121.5	77.5
pH	S.U.	7.93	8.03	7.88	7.17		8.11	7.81	8.02	7.97	8.03	7.49

Site Location: **BLUNT RUN @ CR 418**

River Mile: 0.10 Storet: 301035

Parameter	Units	6/8/2010
Acidity	mg/L	<5
Alkalinity	mg/L	58.1
Aluminum	ug/L	<200
Ammonia	mg/L	<0.5
Arsenic	ug/L	<2
Barium	ug/L	24
Cadmium	ug/L	<0.2
Calcium	mg/L	48
Chloride	mg/L	7.5
Chromium	ug/L	<2
COD	mg/L	<20
Conductivity	umhos/cm	438
Copper	ug/L	<2
Hardness, Total	mg/L	120
Iron	ug/L	259
Lead	ug/L	<2
Magnesium	mg/L	21

Parameter	Units	6/8/2010
Manganese	ug/L	59
Nickel	ug/L	3.5
Nitrate+nitrite	mg/L	0.2
Nitrite	mg/L	<0.02
Potassium	mg/L	<2
Selenium	ug/L	<2
Sodium	mg/L	7
Strontium	ug/L	138
Sulfate	mg/L	141
TKN	mg/L	<0.2
Total Dissolved Soli	mg/L	306
Total Phosphorus	mg/L	0.01
Total Suspended Sc	mg/L	5
Zinc	ug/L	<10
Field Measurements		
Temperature	°C	13.4
Conductivity	µmhos/cm	340.5
Dissolved Oxygen	mg/L	10.86
D.O. Saturation	%	104.1
pH	S.U.	8.47

Site Location: **MILL RUN @ COAL RUN ROAD BEHIND NIGHTHAWK REPAIR**

River Mile: 0.45 Storet: 301036

Parameter	Units	6/8/2010	7/1/2010	7/14/2010	8/4/2010	8/23/2010
Acidity	mg/L	<5	<5	<5	<5	<5
Alkalinity	mg/L	87.3	106	103	104	185
Aluminum	ug/L	484	<200	<200	254	<200
Ammonia	mg/L	0.09	0.088	0.094	<0.05	<0.05
Arsenic	ug/L	<2	<2	<2	<2	<2
Barium	ug/L	44	37	37	40	57
Cadmium	ug/L	<0.2	<0.2	<0.2	<0.2	<0.2

Parameter	Units	6/8/2010	7/1/2010	7/14/2010	8/4/2010	8/23/2010
Calcium	mg/L	71	124	101	114	137
Chloride	mg/L	62.9	85.4	76.8	73.8	112
Chromium	ug/L	<2	<2	<2	<2	<2
COD	mg/L	<20	<20	<20	<20	<20
Conductivity	umhos/cm	664	1020	858	934	1190
Copper	ug/L	<2	<2	2.4	<2	<2
Hardness, Total	mg/L	177	310	252	388	474
Iron	ug/L	1800	707	954	1660	448
Lead	ug/L	<2	<2	<2	<2	<2
Magnesium	mg/L	17	27	22	25	32
Manganese	ug/L	515	594	470	382	348
Nickel	ug/L	6.6	9.9	8.2	6.7	5.1
Nitrate+nitrite	mg/L	0.78	0.28	0.55	0.43	0.26
Nitrite	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Potassium	mg/L	4	4	4	5	6
Selenium	ug/L	<2	<2	<2	<2	<2
Sodium	mg/L	34	41	40	40	59
Strontium	ug/L	297	553	444	488	610
Sulfate	mg/L	145	301	226	264	252
TKN	mg/L	0.22	0.43	0.51	0.37	0.74
Total Dissolved Soli	mg/L	412	706	594	656	782
Total Phosphorus	mg/L	0.011	0.01	<0.01	<0.01	0.021
Total Suspended So	mg/L	13	<5	5	7	5
Zinc	ug/L	10	<10	10	<10	14
Field Measurements						
Temperature	°C	14.05		20.28	21.08	20
Conductivity	µmhos/cm	504.1		787.6	806	1041
Dissolved Oxygen	mg/L	10		7.84	8.1	7.18
D.O. Saturation	%	97.4		86.9	91.2	79.2
pH	S.U.	7.81		7.95	7.79	7.88

Appendix Table C: E. coli samples collected on the Walhonding River, 2007, and Walhonding and Muskingum tributaries, 2010.

Site Location: **WALHONDING RIVER @ SR 715** River Mile: 20.47 Storet: 300321							
6/14/2007	6/28/2007	7/5/2007	7/12/2007	7/16/2007	7/26/2007	8/2/2007	8/15/2007
30	50	180	40	<10	260	120	60

Site Location: **WALHONDING RIVER @ US RT 36 @ NELLIE** River Mile: 15.73 Storet: 601910							
6/14/2007	6/28/2007	7/5/2007	7/12/2007	7/16/2007	7/26/2007	8/2/2007	8/15/2007
10	90	6300	20	30	70	110	30/40

Site Location: **WALHONDING RIVER UPSTREAM SIX MILE DAM** River Mile: 8.81 Storet: 300288							
6/14/2007	6/28/2007	7/5/2007	7/12/2007	7/16/2007	7/26/2007	8/2/2007	8/15/2007
110	50/70	1200	30/20	20/40	100/70	150/200	10

Site Location: **WALHONDING RIVER @ US RT 36 UPSTREAM KILLBUCK CREEK** River Mile: 7.54 Storet: R04S35							
6/14/2007	6/28/2007	7/5/2007	7/12/2007	7/16/2007	7/26/2007	8/2/2007	8/15/2007
140	30	550	20	10	60	150	40

Site Location: **WALHONDING RIVER @ US RT 36, COSHOCTON**

River Mile: 0.76 Storet: R04W27

6/14/2007	6/28/2007	7/5/2007	7/12/2007	7/16/2007	7/26/2007	8/2/2007	8/15/2007
10	70	1000	30	40	120	220	40

Site Location: **SYMMES CREEK @ MOLLIE'S ROCK ROAD**

River Mile: 2.35 Storet: 300889

5/20/2010	6/8/2010	6/15/2010	7/1/2010	7/14/2010	8/4/2010	8/23/2010	9/2/2010	9/14/2010	9/23/2010	10/5/2010	10/12/2010	10/26/2010
1000	520	5100	190	3700	450	3000	110	90	60	140	160	20

Site Location: **BLOUNT RUN**

River Mile: 0.31 Storet: 300890

5/20/2010	6/8/2010	6/15/2010	7/1/2010	7/14/2010	8/4/2010	8/18/2010	8/23/2010	9/14/2010	9/23/2010	10/5/2010	10/12/2010	10/26/2010
220	320	2800	280	2100	2600	490	410	260	<10	120	200	10

Site Location: **MILL CREEK @ TR 322**

River Mile: 3.54 Storet: 300888

5/20/2010	6/15/2010	7/1/2010	7/14/2010	8/4/2010	8/30/2010	10/5/2010
700	2400	1100	570	700	290	460

Site Location: **MILL CREEK @ GAGE @ FARMLANE OFF CR 12**

River Mile: 7.9 Storet: 300978

5/20/2010	6/8/2010	6/15/2010	7/1/2010	7/14/2010	8/4/2010	8/18/2010	8/30/2010	9/2/2010	9/14/2010	9/23/2010	10/5/2010	10/12/2010	10/26/2010
3700	2000	1400	960	1200	1400	690	1600	960	360	140	310	370	160

Site Location: **BEAVER RUN @ US RT 36, WARSAW**

River Mile: 0.17 Storet: 200633

5/20/2010	6/8/2010	6/15/2010	7/1/2010	7/14/2010	8/4/2010	8/18/2010	9/2/2010	9/14/2010	9/23/2010	10/5/2010	10/12/2010	10/26/2010
2000	3100	2000	590	620	920	360	240	240	140	220	110	210

Site Location: **MOHAWK CREEK AT CR 82**

River Mile: 1.48 Storet: 300887

5/20/2010	6/8/2010	6/15/2010	7/1/2010	7/14/2010	8/4/2010	8/18/2010	8/23/2010	9/2/2010	9/14/2010	9/23/2010	10/5/2010	10/12/2010	10/26/2010
740	720	2200	520	1300	190	220	150	270	500	190	120	180	100

Site Location: **NORTH BRANCH SYMMES CREEK @ MADISON HALL ROAD**

River Mile: 0.10 Storet: 301030

6/15/2010	7/1/2010	7/14/2010	8/4/2010	8/23/2010	9/2/2010	9/14/2010	9/23/2010	10/12/2010	10/26/2010
5400	200	6100	270	2400	180	120	340	70	60

Site Location: **SYMMES CREEK @ MUTTON RIDGE ROAD OFF MOLLIE'S ROCK ROAD**

River Mile: 4.35 Storet: 301033

160	290	40	120	40

Site Location: **ROBINSON RUN @ CR 271**

River Mile: 1.35 Storet: 300289

380	80	100	70

Site Location: **DUTCH RUN @ TR 144/TR 338**

River Mile: 0.15 Storet: 301013

240	410	730	320

Site Location: **SIMMONS RUN @ TR 41B**

River Mile: 0.60 Storet: 301017

1600	290	540	160

Site Location: **FLINT RUN @ SR 60** River Mile: 0.40 Storet: 301018	
7/1/2010	470

Site Location: **DARLING RUN @ TR 340 @ NELLIE CEMETERY** River Mile: 0.10 Storet: 301019				
6/15/2010	7/1/2010	7/14/2010	8/4/2010	8/23/2010
510	420	360	540	740

Site Location: **CROOKED RUN @ END OF TR 495** River Mile: 0.06 Storet: 301023				
7/1/2010	7/14/2010	8/4/2010	8/23/2010	8/23/2010
2700	1800	430	450	540

Site Location: **CROOKED RUN @ CR 23 @ DRIVEWAY** River Mile: 0.98 Storet: 301024				
6/15/2010	7/1/2010	7/14/2010	8/4/2010	8/23/2010
1200	570	1700	790	450

Site Location: **MILL CREEK @ TR 206** River Mile: 8.50 Storet: R04S29									
6/8/2010	7/1/2010	7/14/2010	8/4/2010	8/30/2010	9/2/2010	9/14/2010	9/23/2010	10/12/2010	10/26/2010
650	1100	2200	1100	310	630	160	530	310	320

Site Location: **MONROE BASIN CREEK** River Mile: 1.8 Storet: 301029				
6/15/2010	7/1/2010	7/14/2010	8/4/2010	8/23/2010
1100	560	24,000	260	410

Appendix Table D: Sediment chemistry data collected in 2007 for the mainstem Walhonding sites and 2010 for the tributary sites.

		Site Location: **WALHONDING RIVER @ US RT 36 @ NELLIE** River Mile: 15.73 Storet: 601910
Parameter	Units	10/10/2007
Arsenic	mg/kg	10.6
Cadmium	mg/kg	0.308
Lead	mg/kg	18.9
Calcium	mg/kg	8990
Copper	mg/kg	16.5
Magnesium	mg/kg	3970
Manganese	mg/kg	471
Potassium	mg/kg	<1240
Strontium	mg/kg	20
Zinc	mg/kg	134
Mercury	mg/kg	0.059
Ammonia	mg/kg	98
Selenium	mg/kg	<1.24
Chromium	mg/kg	19
Aluminum	mg/kg	7080
Nickel	mg/kg	<25
% Solids	%	52.1
Total Phosphorus	mg/kg	713
Barium	mg/kg	78.4
Iron	mg/kg	20400
Sodium	mg/kg	<3100
TOC	%	2

Parameter	Units	Site Location: **WALHONDING RIVER UPSTREAM SIX MILE DAM** River Mile: 8.81 Storet: 300288 10/10/2007
Calcium	mg/kg	10800
Copper	mg/kg	17.7
Magnesium	mg/kg	4200
Manganese	mg/kg	618
Potassium	mg/kg	<1520
Strontium	mg/kg	27
Zinc	mg/kg	102
Mercury	mg/kg	0.046
Ammonia	mg/kg	160
Arsenic	mg/kg	11.5
Cadmium	mg/kg	0.363
Lead	mg/kg	21.2
Chromium	mg/kg	23
Selenium	mg/kg	<1.52
% Solids	%	45.4
Aluminum	mg/kg	8920
Nickel	mg/kg	<30
Total Phosphorus	mg/kg	716
Barium	mg/kg	95.3
Iron	mg/kg	22700
TOC	%	2.1
Sodium	mg/kg	<3800

		Site Location: **WALHONDING RIVER @ US RT 36, COSHOCTON** River Mile: 0.76 Storet: R04W27
Parameter	Units	10/10/2007
Arsenic	mg/kg	14.4
Cadmium	mg/kg	0.289
Lead	mg/kg	19.1
Calcium	mg/kg	17300
Copper	mg/kg	15.6
Magnesium	mg/kg	5220
Manganese	mg/kg	1580
Potassium	mg/kg	<1300
Strontium	mg/kg	31
Zinc	mg/kg	98.9
Mercury	mg/kg	0.048
Ammonia	mg/kg	220
Chromium	mg/kg	20
Selenium	mg/kg	<1.3
% Solids	%	39.4
Aluminum	mg/kg	8580
Nickel	mg/kg	<26
Total Phosphorus	mg/kg	743
Barium	mg/kg	116
Iron	mg/kg	24500
TOC	%	1.7
Sodium	mg/kg	<3250

Parameter	Units	Site Location: **MOHAWK CREEK @ CR 82** River Mile: 1.48 Storet: 300887 9/15/2010
Coarse clay (2-4u)	%	0
Coarse silt (30-60u)	%	6.4
Fine clay (<1u)	%	3.2
Fine silt (8-15u)	%	3.2
Medium clay (1-2u)	%	1.6
Medium silt (15-30u)	%	8
Sand and larger (>60u)	%	76
Very fine silt (4-8u)	%	1.6
Arsenic	mg/kg	15.5
Barium	mg/kg	96.8
Cadmium	mg/kg	0.405
Chromium	mg/kg	8.68
Copper	mg/kg	13.6
Iron	mg/kg	29300
Lead	mg/kg	10.4
Manganese	mg/kg	511
Nickel	mg/kg	17.2
Strontium	mg/kg	<22
Zinc	mg/kg	83.7
Aluminum	mg/kg	4680
Selenium	mg/kg	<1.45
Ammonia	mg/kg	33
Total Phosphorus	mg/kg	379
% Solids	%	54.2
Mercury	mg/kg	<0.035
Calcium	mg/kg	2520
Magnesium	mg/kg	1380
Sodium	mg/kg	<3620
Potassium	mg/kg	<1450

Parameter	Units	Site Location: **BEAVER RUN @ US RT 36 @ WARSAW** River Mile: 0.17 Storet: 200633 9/15/2010
Coarse clay (2-4u)	%	1.6
Coarse silt (30-60u)	%	3.2
Fine clay (<1u)	%	3.2
Fine silt (8-15u)	%	4.8
Medium clay (1-2u)	%	1.6
Medium silt (15-30u)	%	19
Sand and larger (>60u)	%	64
Very fine silt (4-8u)	%	3.2
Arsenic	mg/kg	7.97
Barium	mg/kg	84.8
Cadmium	mg/kg	0.432
Chromium	mg/kg	9.59
Copper	mg/kg	12.5
Iron	mg/kg	23100
Lead	mg/kg	11.7
Manganese	mg/kg	1060
Nickel	mg/kg	15.6
Strontium	mg/kg	<25
Zinc	mg/kg	84.7
Aluminum	mg/kg	7620
Selenium	mg/kg	<1.69
Ammonia	mg/kg	56
Total Phosphorus	mg/kg	504
% Solids	%	44.7
Mercury	mg/kg	<0.049
Calcium	mg/kg	2210
Magnesium	mg/kg	1900
Sodium	mg/kg	<4220
Potassium	mg/kg	<1690

Parameter	Units	Site Location: **MILL CREEK @ GAGE @ FARMLANE OFF CR 12** River Mile: 7.9 Storet: 300978 9/15/2010
Coarse clay (2-4u)	%	1.6
Coarse silt (30-60u)	%	3.1
Fine clay (<1u)	%	1.6
Fine silt (8-15u)	%	3.1
Medium clay (1-2u)	%	1.6
Medium silt (15-30u)	%	11
Sand and larger (>60u)	%	75
Very fine silt (4-8u)	%	3.1
Arsenic	mg/kg	4.72
Barium	mg/kg	62
Cadmium	mg/kg	0.358
Chromium	mg/kg	8.59
Copper	mg/kg	10.9
Iron	mg/kg	26400
Lead	mg/kg	8.89
Manganese	mg/kg	594
Nickel	mg/kg	15.1
Strontium	mg/kg	<18
Zinc	mg/kg	72.2
Aluminum	mg/kg	5220
Selenium	mg/kg	<1.18
Ammonia	mg/kg	84
Total Phosphorus	mg/kg	438
% Solids	%	64.2
Mercury	mg/kg	<0.027
Calcium	mg/kg	1250
Magnesium	mg/kg	1140
Sodium	mg/kg	<2940
Potassium	mg/kg	<1180

		Site Location: **MILL CREEK @ TR 322** River Mile: 3.54 Storet: 300888
Parameter	Units	9/15/2010
Coarse clay (2-4u)	%	1.6
Coarse silt (30-60u)	%	3.2
Fine clay (<1u)	%	4.8
Fine silt (8-15u)	%	4.8
Medium clay (1-2u)	%	0
Medium silt (15-30u)	%	9.6
Sand and larger (>60u)	%	73
Very fine silt (4-8u)	%	3.2
Arsenic	mg/kg	5.37
Barium	mg/kg	72.4
Cadmium	mg/kg	0.355
Chromium	mg/kg	7.61
Copper	mg/kg	10.6
Iron	mg/kg	22900
Lead	mg/kg	9.46
Manganese	mg/kg	1100
Nickel	mg/kg	15.3
Strontium	mg/kg	<21
Zinc	mg/kg	74.2
Aluminum	mg/kg	5360
Selenium	mg/kg	<1.38
Ammonia	mg/kg	31
Total Phosphorus	mg/kg	373
% Solids	%	57.9
Mercury	mg/kg	<0.036
Calcium	mg/kg	<1380
Magnesium	mg/kg	1250
Sodium	mg/kg	<3450
Potassium	mg/kg	<1380

		Site Location: **SYMMES CREEK @ MOLLIE'S ROCK ROAD** River Mile: 2.35 Storet: 300889
Parameter	Units	9/15/2010
Coarse clay (2-4u)	%	1.6
Coarse silt (30-60u)	%	3.2
Fine clay (<1u)	%	1.6
Fine silt (8-15u)	%	4.7
Medium clay (1-2u)	%	1.6
Medium silt (15-30u)	%	14
Sand and larger (>60u)	%	72
Very fine silt (4-8u)	%	1.6
Arsenic	mg/kg	5.12
Barium	mg/kg	68.3
Cadmium	mg/kg	0.365
Chromium	mg/kg	8.48
Copper	mg/kg	10.8
Iron	mg/kg	22800
Lead	mg/kg	9.75
Manganese	mg/kg	1850
Nickel	mg/kg	16.4
Strontium	mg/kg	29
Zinc	mg/kg	72.6
Aluminum	mg/kg	6430
Selenium	mg/kg	<1.43
Ammonia	mg/kg	75
Total Phosphorus	mg/kg	355
% Solids	%	51.9
Mercury	mg/kg	<0.043
Calcium	mg/kg	8850
Magnesium	mg/kg	2460
Sodium	mg/kg	<3570
Potassium	mg/kg	<1430

		Site Location: **BLOUNT RUN @ SR 666** River Mile: 0.31 Storet: 300890
Parameter	Units	9/15/2010
Coarse clay (2-4u)	%	0
Coarse silt (30-60u)	%	3.2
Fine clay (<1u)	%	1.6
Fine silt (8-15u)	%	3.2
Medium clay (1-2u)	%	0
Medium silt (15-30u)	%	6.5
Sand and larger (>60u)	%	84
Very fine silt (4-8u)	%	1.6
Arsenic	mg/kg	4.06
Barium	mg/kg	120
Cadmium	mg/kg	0.26
Chromium	mg/kg	6.14
Copper	mg/kg	8.15
Iron	mg/kg	16300
Lead	mg/kg	9.4
Manganese	mg/kg	688
Nickel	mg/kg	12.6
Strontium	mg/kg	20
Zinc	mg/kg	60.6
Aluminum	mg/kg	4420
Selenium	mg/kg	1.3
Ammonia	mg/kg	43
Total Phosphorus	mg/kg	334
% Solids	%	58
Mercury	mg/kg	0.029
Calcium	mg/kg	1660
Magnesium	mg/kg	1280
Sodium	mg/kg	3250
Potassium	mg/kg	1300

Appendix E - Datasonde© summary data by location for Walhonding River, 2007 and Walhonding and Muskingum River tributaries, 2010.

				Temperature (C)				ph (SU)				Sp Conductivity (µS/cm)				Dissolved Oxygen (mg/l)			
Stream	**River Mile**	**STORET**	**#Records**	**Min**	**Ave**	**Max**	**Range**	**Min**	**Ave**	**Max**	**Range**	**Min**	**Ave**	**Max**	**Range**	**Min**	**Ave**	**Max**	**Range**
Dates sampled: August 3- 5																			
Mill Run	0.45	301036		19.29	20.57	22.81	3.52	7.65	7.82	7.97	0.32	447.00	948.23	1139.00	692.00	8.14	8.47	9.11	0.97
Blount Run	0.31	300890		21.64	22.82	24.39	2.75	7.83	7.93	8.07	0.24	616.00	676.20	722.00	106.00	7.46	7.80	8.33	0.87
South Branch Symmes Creek	0.15	301032		21.78	22.93	25.71	3.93	7.17	7.49	7.62	0.45	663.00	760.98	860.00	197.00	7.12	7.72	8.33	1.21
Symmes Creek	5.65	301034		21.33	22.51	24.43	3.10	7.41	7.61	7.85	0.44	276.00	486.92	635.00	359.00	6.69	7.48	8.67	1.98
Symmes Creek	4.35	301033		21.59	22.86	25.93	4.34	7.34	7.49	7.70	0.36	634.00	894.40	1148.00	514.00	7.31	7.90	8.88	1.57
Symmes Creek	2.35	300889		22.53	23.40	25.33	2.80	7.84	7.93	8.07	0.23	1181.00	1321.69	1430.00	249.00	7.38	7.88	8.96	1.58
North Branch Symmes Creek	4.25	301031		22.27	24.04	26.39	4.12	7.53	7.62	7.79	0.26	655.00	782.19	881.00	226.00	6.42	7.04	8.62	2.20
North Branch Symmes Creek	0.1	301030		22.58	23.43	25.22	2.64	7.83	7.91	8.02	0.19	1416.00	1519.71	1571.00	155.00	6.98	7.53	8.92	1.94
Monroe Basin Creek	1.8	301029		20.98	23.33	27.05	6.07	7.31	7.43	7.57	0.26	341.00	373.67	394.00	53.00	3.27	4.52	6.38	3.11
Robinson Run	1.35	300289		19.69	20.58	22.40	2.71	7.24	7.32	7.39	0.15	963.00	1058.00	1093.00	130.00	8.34	8.63	8.82	0.48
Crooked Run	0.98	301024		20.96	22.69	26.16	5.20	7.44	7.67	8.17	0.73	378.00	438.76	490.00	112.00	6.35	7.71	10.20	3.85
Crooked Run	0.06	301023		21.45	22.85	24.56	3.11	7.53	7.72	8.07	0.54	303.00	451.49	495.00	192.00	6.70	7.53	8.71	2.01
Spoon Creek	0.6			21.00	22.54	26.41	5.41	7.20	7.55	7.97	0.77	242.00	502.25	742.00	500.00	4.54	7.56	11.30	6.76
Turkey Run	0.19	R04531		22.09	23.32	24.99	2.90	7.51	7.60	7.71	0.20	594.00	647.51	711.00	117.00	6.96	7.50	8.35	1.39
Mill Creek	12.5	301020		23.04	24.18	25.91	2.87	7.55	7.64	7.76	0.21	281.00	338.88	374.00	93.00	5.97	6.42	7.41	1.44
Mill Creek	8.5	R04529		22.37	23.50	25.39	3.02	7.17	7.30	7.46	0.29	316.00	351.18	363.00	47.00	6.57	7.15	8.49	1.92
Mill Creek	7.9	300978		22.38	23.51	25.36	2.98	7.39	7.54	7.71	0.32	340.00	361.94	375.00	35.00	6.07	6.96	8.76	2.69
Mill Creek	3.54	300888		22.73	24.07	27.25	4.52	7.44	7.68	8.15	0.71	389.00	427.47	473.00	84.00	6.48	7.96	11.12	4.64
Mill Creek	0.4	R04528		23.16	24.25	26.11	2.95	7.46	7.69	8.05	0.59	422.00	454.47	471.00	49.00	5.77	7.43	9.70	3.93
Little Mill Creek	0.1	200632		22.05	23.60	27.50	5.45	7.08	7.24	7.57	0.49	332.00	402.98	432.00	100.00	5.95	6.89	8.75	2.80
Darling Run	0.1	301019		18.98	20.18	22.77	3.79	7.39	7.58	7.90	0.51	155.80	180.64	194.40	38.60	7.61	8.16	8.91	1.30
Simmons Run	2.97	301016		22.22	23.75	26.63	4.41	7.65	7.77	8.03	0.38	892.00	1345.36	1494.00	602.00	6.58	7.11	8.57	1.99
Simmons Run	0.6	301017		23.00	23.93	25.08	2.08	7.59	7.81	8.05	0.46	819.00	908.54	992.00	173.00	5.99	7.22	8.61	2.62
Beaver Run	2.6	301015		19.34	20.56	22.10	2.76	6.56	6.93	7.37	0.81	135.40	185.79	258.00	122.60	0.03	6.16	9.21	9.18
Beaver Run	0.17	200633		20.93	21.87	23.63	2.70	7.61	7.86	8.45	0.84	182.60	208.15	235.00	52.40	7.21	8.03	9.34	2.13
Dutch Run	0.15	301013		18.87	20.12	22.33	3.46	7.11	7.25	7.49	0.38	132.40	172.88	192.20	59.80	6.46	7.16	8.90	2.44
Mohaw k Creek	4.1	301011		21.72	22.47	23.95	2.23	7.37	7.47	7.62	0.25	335.00	340.38	345.00	10.00	4.84	5.96	7.67	2.83
Mohaw k Creek	1.48	300887		22.56	23.21	24.25	1.69	7.60	7.68	7.81	0.21	335.00	344.02	350.00	15.00	5.76	6.49	7.68	1.92
UT to Mohaw k Creek	0.6	301012		20.35	21.94	24.22	3.87	7.41	7.51	7.71	0.30	281.00	290.62	299.00	18.00	5.95	6.97	8.31	2.36

Appendix F - Datasonde© hourly data by location for Walhonding River, 2007 and Walhonding and Muskingum River tributaries, 2010.

Beaver Run @CR 22

River Mile:	2.6	Local Substrate:	Small Gravel
Storet:	301015	Local Velocity (ft/s):	0.4
Flow Regime:	Low	Local Depth (ft):	0.3
Local Rainfall:	Light		

Date	Time	Temp C	pH (SU)	Specific Conductivity (µS/cm)	Dissolved Oxygen (mg/l)	Dissolved Oxygen (% sat)
8/3/2010	12:00	19.79	7.18	170.5	8.67	96.7
8/3/2010	13:00	19.78	7.21	170.9	8.62	96.2
8/3/2010	14:00	19.99	7.28	171.3	8.76	98.1
8/3/2010	15:00	20.59	7.37	169.2	9.18	104
8/3/2010	16:00	20.6	7.36	170.6	8.99	101.9
8/3/2010	17:00	20.51	7.24	166.8	8.36	94.6
8/3/2010	18:00	20.66	7.19	167.6	8.27	93.8
8/3/2010	19:00	20.67	7.16	171.2	8.01	91
8/3/2010	20:00	20.6	7.08	171.3	7.63	86.6
8/3/2010	21:00	20.43	7.03	175.4	7.44	84
8/3/2010	22:00	20.26	6.98	174.9	7.43	83.6
8/3/2010	23:00	20.14	6.94	174.6	7.42	83.4
8/4/2010	0:00	20.02	7.04	174.5	7.5	84.1
8/4/2010	1:00	19.92	6.96	175.5	6.11	68.4
8/4/2010	2:00	19.8	6.88	181.8	7.62	85
8/4/2010	3:00	19.69	6.91	179.5	7.63	85
8/4/2010	4:00	19.6	6.93	180.4	7.68	85.4
8/4/2010	5:00	19.5	6.92	179.5	7.74	85.8
8/4/2010	6:00	19.41	6.94	179.6	7.29	80.7
8/4/2010	7:00	19.34	6.94	181.2	7.86	86.9
8/4/2010	8:00	19.35	6.94	182.3	8.02	88.7
8/4/2010	9:00	19.46	7.01	183.7	8.3	92
8/4/2010	10:00	19.9	6.96	184.7	8.67	96.9
8/4/2010	11:00	20.54	7.09	184.6	8.98	101.7
8/4/2010	12:00	21.19	7.07	182.6	9.21	105.6
8/4/2010	13:00	21.45	7.02	179.7	6.88	79.3
8/4/2010	14:00	22.1	7.05	179.7	9.12	106.5
8/4/2010	15:00	22.1	7.08	169.2	8.13	94.9
8/4/2010	16:00	21.98	6.93	154.9	5.96	69.4
8/4/2010	17:00	21.96	7.02	161	7.03	81.8
8/4/2010	18:00	21.89	6.88	135.4	7.02	81.7
8/4/2010	19:00	21.71	6.88	164.4	7.05	81.7
8/4/2010	20:00	21.03	6.93	165.3	7.26	83
8/4/2010	21:00	21.14	6.87	190.1	5.91	67.7
8/4/2010	22:00	21.16	6.67	166.4	6.99	80.1
8/4/2010	23:00	21.1	6.59	168	6.32	72.3
8/5/2010	0:00	20.99	6.56	178.1	1.19	13.6
8/5/2010	1:00	20.92	6.64	185.9	0.48	5.5
8/5/2010	2:00	20.84	6.69	207	2.82	32.2
8/5/2010	3:00	20.8	6.75	210	0.03	0.3
8/5/2010	4:00	20.77	6.61	219	7.03	80
8/5/2010	5:00	20.6	6.6	210	6.51	73.8
8/5/2010	6:00	20.46	6.71	205	0.95	10.8
8/5/2010	7:00	20.33	6.75	212	0.04	0.4
8/5/2010	8:00	20.21	6.69	207	0.78	8.7
8/5/2010	9:00	20.13	6.78	211	0.54	6
8/5/2010	10:00	20.1	6.79	221	0.9	10.1
8/5/2010	11:00	20.29	6.8	231	6	67.6
8/5/2010	12:00	20.49	6.75	240	1.6	18.1
8/5/2010	13:00	20.8	6.79	242	0.45	5.1
8/5/2010	14:00	21.38	6.93	258	5.82	67

Beaver Run @ SR 36 @ Warsaw

River Mile:	0.17	Local Substrate:	N/A
Storet:	200633	Local Velocity (ft/s):	0.3- 0.6
Flow Regime:	Low	Local Depth (ft):	1.9- 2.5
Local Rainfall:	Light		

Date	Time	Temp C	pH (SU)	Specific Conductivity (µS/cm)	Dissolved Oxygen (mg/l)	Dissolved Oxygen (% sat)
8/3/2010	12:00	21.62	7.77	220	7.98	92.3
8/3/2010	13:00	21.64	7.9	221	8.32	96.3
8/3/2010	14:00	21.74	7.97	220	8.51	98.6
8/3/2010	15:00	21.92	8.1	220	8.93	104
8/3/2010	16:00	22.25	8.27	218	9.19	107.6
8/3/2010	17:00	22.37	8.25	216	8.95	105
8/3/2010	18:00	22.25	8.13	214	8.44	98.9
8/3/2010	19:00	22.21	8.04	214	8.29	97
8/3/2010	20:00	22.35	8.02	215	8.24	96.7
8/3/2010	21:00	22.3	7.93	215	8.01	93.8
8/3/2010	22:00	22.13	7.85	215	7.8	91.1
8/3/2010	23:00	21.95	7.81	215	7.74	90.1
8/4/2010	0:00	21.75	7.77	215	7.71	89.4
8/4/2010	1:00	21.58	7.76	215	7.68	88.8
8/4/2010	2:00	21.44	7.73	215	7.66	88.3
8/4/2010	3:00	21.33	7.71	214	7.62	87.7
8/4/2010	4:00	21.23	7.69	214	7.62	87.5
8/4/2010	5:00	21.15	7.7	214	7.64	87.5
8/4/2010	6:00	21.08	7.7	214	7.65	87.6
8/4/2010	7:00	21	7.7	214	7.69	87.9
8/4/2010	8:00	20.93	7.71	215	7.74	88.4
8/4/2010	9:00	20.97	7.76	215	7.94	90.7
8/4/2010	10:00	21.14	7.83	213	8.24	94.4
8/4/2010	11:00	21.51	7.95	212	8.64	99.7
8/4/2010	12:00	22.08	8.11	211	9.07	105.8
8/4/2010	13:00	22.59	8.26	212	9.28	109.4
8/4/2010	14:00	23	8.36	214	9.34	111
8/4/2010	15:00	23.42	8.45	203	9.2	110.1
8/4/2010	16:00	23.37	8.16	192.9	8.16	97.6
8/4/2010	17:00	23.56	8	182.6	7.55	90.6
8/4/2010	18:00	23.63	7.98	192	7.81	93.9
8/4/2010	19:00	23.42	8	198.2	8.02	96
8/4/2010	20:00	22.84	7.84	197.3	7.61	90.1
8/4/2010	21:00	22.84	7.71	195.2	7.22	85.5
8/4/2010	22:00	22.32	7.63	187.9	7.21	84.5
8/4/2010	23:00	21.88	7.62	183.7	7.41	86.1
8/5/2010	0:00	21.53	7.62	183.5	7.65	88.3
8/5/2010	1:00	21.43	7.63	193.9	7.7	88.7
8/5/2010	2:00	21.41	7.63	194.8	7.69	88.5
8/5/2010	3:00	21.35	7.61	189.2	7.67	88.2
8/5/2010	4:00	21.26	7.62	188.8	7.66	88
8/5/2010	5:00	21.19	7.64	192	7.67	87.9
8/5/2010	6:00	21.12	7.65	196.4	7.68	88
8/5/2010	7:00	21.02	7.66	203	7.71	88.2
8/5/2010	8:00	20.99	7.68	214	7.77	88.7
8/5/2010	9:00	20.99	7.7	225	7.82	89.4
8/5/2010	10:00	21.11	7.74	233	7.97	91.2
8/5/2010	11:00	21.49	7.8	235	8.16	94.2

Blount Run @ SR 666

River Mile: 0.31
Storet: 300890
Flow Regime: Low
Local Rainfall: Light
Local Substrate: Gravel/ Rock
Local Velocity (ft/s): 0.7
Local Depth (ft): 0.4

Date	Time	Temp C	pH (SU)	Specific Conductivity (mS/cm)	Dissolved Oxygen (mg/l)	Dissolved Oxygen (% sat)
8/3/2010	11:00	21.64	7.84	0.623	7.89	91.4
8/3/2010	12:00	21.81	7.87	0.619	7.96	92.6
8/3/2010	13:00	21.94	7.88	0.616	7.91	92.2
8/3/2010	14:00	22.09	7.9	0.616	7.91	92.5
8/3/2010	15:00	22.48	7.93	0.618	8.1	95.4
8/3/2010	16:00	22.82	7.95	0.619	8.17	96.9
8/3/2010	17:00	22.96	7.96	0.623	8.09	96.1
8/3/2010	18:00	22.98	7.94	0.627	7.87	93.6
8/3/2010	19:00	22.97	7.92	0.63	7.68	91.3
8/3/2010	20:00	22.99	7.9	0.633	7.6	90.4
8/3/2010	21:00	22.93	7.89	0.635	7.58	90
8/3/2010	22:00	22.78	7.87	0.641	7.55	89.5
8/3/2010	23:00	22.64	7.85	0.649	7.56	89.3
8/4/2010	0:00	22.52	7.83	0.654	7.58	89.4
8/4/2010	1:00	22.36	7.83	0.658	7.61	89.4
8/4/2010	2:00	22.21	7.84	0.663	7.65	89.7
8/4/2010	3:00	22.08	7.85	0.668	7.69	89.9
8/4/2010	4:00	22	7.85	0.674	7.72	90.1
8/4/2010	5:00	21.95	7.85	0.68	7.76	90.4
8/4/2010	6:00	21.93	7.86	0.682	7.75	90.3
8/4/2010	7:00	21.91	7.86	0.68	7.69	89.6
8/4/2010	8:00	21.9	7.86	0.682	7.69	89.5
8/4/2010	9:00	21.99	7.89	0.69	7.83	91.4
8/4/2010	10:00	22.27	7.93	0.699	8.04	94.4
8/4/2010	11:00	22.86	7.98	0.698	8.23	97.7
8/4/2010	12:00	23.22	8.02	0.697	8.31	99.2
8/4/2010	13:00	23.73	8.04	0.699	8.33	100.4
8/4/2010	14:00	24.34	8.07	0.702	8.29	101.1
8/4/2010	15:00	24.39	8.04	0.705	7.9	96.5
8/4/2010	16:00	23.98	7.99	0.681	7.54	91.4
8/4/2010	17:00	23.57	7.94	0.667	7.46	89.8
8/4/2010	18:00	23.71	7.96	0.701	7.62	91.9
8/4/2010	19:00	23.85	7.98	0.701	7.71	93.2
8/4/2010	20:00	23.84	8	0.716	7.69	92.9
8/4/2010	21:00	23.66	7.99	0.721	7.6	91.6
8/4/2010	22:00	23.45	7.98	0.721	7.58	91
8/4/2010	23:00	23.22	7.97	0.721	7.62	91
8/5/2010	0:00	23.05	7.96	0.722	7.64	91
8/5/2010	1:00	22.84	7.96	0.695	7.71	91.5
8/5/2010	2:00	22.66	7.93	0.668	7.68	90.7
8/5/2010	3:00	22.8	7.93	0.679	7.69	91.1
8/5/2010	4:00	22.86	7.95	0.69	7.73	91.7
8/5/2010	5:00	22.88	7.97	0.709	7.76	92.1
8/5/2010	6:00	22.84	7.98	0.716	7.76	92.1
8/5/2010	7:00	22.79	7.98	0.719	7.79	92.3
8/5/2010	8:00	22.83	7.98	0.721	7.84	93
8/5/2010	9:00	22.83	7.99	0.715	7.91	93.8
8/5/2010	10:00	22.94	8.01	0.715	7.95	94.5

Crooked Run @ CR 23, Driveway @ #'s 45333, 45329

River Mile:	0.98	Local Substrate:	Rock/ Gravel
Storet:	301024	Local Velocity (ft/s):	>1.0
Flow Regime:	Low	Local Depth (ft):	0.3
Local Rainfall:	Light		

Date	Time	Temp C	pH (SU)	Specific Conductivity (µS/cm)	Dissolved Oxygen (mg/l)	Dissolved Oxygen (% sat)
8/3/2010	11:00	22.06	7.77	469	7.98	93.2
8/3/2010	12:00	22.25	7.84	470	8.48	99.4
8/3/2010	13:00	22.63	7.91	470	9.08	107.2
8/3/2010	14:00	22.84	7.99	468	9.38	111.2
8/3/2010	15:00	23.59	8.14	467	10.2	122.6
8/3/2010	16:00	24.22	8.15	463	10.12	123.1
8/3/2010	17:00	23.82	8	464	8.86	107
8/3/2010	18:00	23.46	7.84	481	8.11	97.3
8/3/2010	19:00	23.32	7.78	490	7.65	91.5
8/3/2010	20:00	23.15	7.71	477	7.22	86.1
8/3/2010	21:00	22.68	7.65	460	7.02	82.9
8/3/2010	22:00	22.27	7.59	452	6.9	80.9
8/3/2010	23:00	21.99	7.56	450	6.85	79.9
8/4/2010	0:00	21.78	7.55	450	6.92	80.3
8/4/2010	1:00	21.64	7.55	447	6.97	80.7
8/4/2010	2:00	21.52	7.55	445	6.99	80.8
8/4/2010	3:00	21.39	7.55	444	7	80.7
8/4/2010	4:00	21.28	7.55	443	7.02	80.7
8/4/2010	5:00	21.18	7.56	442	7.1	81.4
8/4/2010	6:00	21.06	7.57	444	7.13	81.6
8/4/2010	7:00	20.96	7.58	449	7.2	82.3
8/4/2010	8:00	21	7.61	452	7.43	85
8/4/2010	9:00	21.29	7.68	452	7.98	91.8
8/4/2010	10:00	21.82	7.71	453	8.19	95.2
8/4/2010	11:00	22.67	7.81	451	8.82	104.1
8/4/2010	12:00	23.78	7.92	451	9.46	114.2
8/4/2010	13:00	25.06	8.07	454	10.04	124
8/4/2010	14:00	25.98	8.16	458	10.17	127.8
8/4/2010	15:00	26.16	8.17	436	9.09	114.6
8/4/2010	16:00	24.82	7.67	391	7.11	87.4
8/4/2010	17:00	24.22	7.61	414	6.99	85
8/4/2010	18:00	23.88	7.46	407	6.37	76.9
8/4/2010	19:00	24.46	7.47	392	6.71	81.9
8/4/2010	20:00	24.28	7.46	401	6.35	77.3
8/4/2010	21:00	23.63	7.45	385	6.53	78.6
8/4/2010	22:00	23.13	7.45	378	6.6	78.6
8/4/2010	23:00	22.76	7.44	380	6.67	78.8
8/5/2010	0:00	22.52	7.44	393	6.74	79.4
8/5/2010	1:00	22.32	7.48	409	6.93	81.3
8/5/2010	2:00	22.1	7.5	405	7.01	81.9
8/5/2010	3:00	21.87	7.49	406	7.02	81.6
8/5/2010	4:00	21.62	7.46	403	7.04	81.4
8/5/2010	5:00	21.45	7.48	432	7.1	81.9
8/5/2010	6:00	21.34	7.48	440	7.1	81.7
8/5/2010	7:00	21.27	7.5	439	7.19	82.7
8/5/2010	8:00	21.32	7.52	443	7.29	83.9
8/5/2010	9:00	21.43	7.54	450	7.39	85.2
8/5/2010	10:00	21.79	7.6	439	7.9	91.7
8/5/2010	11:00	22.39	7.68	437	8.31	97.7
8/5/2010	12:00	23.23	7.72	438	8.6	102.6
8/5/2010	13:00	24.39	7.77	443	8.72	106.4

Crooked Run @ End TR 495

River Mile: 0.06
Storet: 301023
Flow Regime: Normal
Local Rainfall: Light
Local Substrate: Silt/ Rock/ Gravel
Local Velocity (ft/s): 1
Local Depth (ft): 0.3- 0.4

Date	Time	Temp C	pH (SU)	Specific Conductivity (µS/cm)	Dissolved Oxygen (mg/l)	Dissolved Oxygen (% sat)
8/3/2010	11:00	22.51	7.79	464	7.68	90.4
8/3/2010	12:00	22.57	7.8	453	7.66	90.3
8/3/2010	13:00	22.75	7.86	458	7.97	94.3
8/3/2010	14:00	22.88	7.91	458	8.12	96.3
8/3/2010	15:00	23.26	8.01	461	8.61	102.9
8/3/2010	16:00	23.6	8.07	464	8.6	103.4
8/3/2010	17:00	23.54	7.99	465	8.15	97.8
8/3/2010	18:00	23.43	7.89	465	7.71	92.4
8/3/2010	19:00	23.48	7.87	473	7.61	91.3
8/3/2010	20:00	23.69	7.85	473	7.49	90.2
8/3/2010	21:00	23.61	7.8	470	7.27	87.4
8/3/2010	22:00	23.44	7.76	480	7.21	86.5
8/3/2010	23:00	23.26	7.74	493	7.16	85.6
8/4/2010	0:00	23.03	7.71	495	7.08	84.3
8/4/2010	1:00	22.82	7.69	482	7.14	84.5
8/4/2010	2:00	22.59	7.67	469	7.21	85.1
8/4/2010	3:00	22.26	7.67	463	7.3	85.6
8/4/2010	4:00	22.15	7.67	459	7.33	85.8
8/4/2010	5:00	22.01	7.66	456	7.37	86
8/4/2010	6:00	21.87	7.67	453	7.41	86.2
8/4/2010	7:00	21.78	7.68	449	7.46	86.6
8/4/2010	8:00	21.75	7.68	448	7.5	87.1
8/4/2010	9:00	21.88	7.73	447	7.7	89.6
8/4/2010	10:00	22.14	7.77	446	7.92	92.6
8/4/2010	11:00	22.5	7.81	447	8.13	95.7
8/4/2010	12:00	23.02	7.88	450	8.41	100
8/4/2010	13:00	23.71	7.98	452	8.7	104.8
8/4/2010	14:00	24.25	8.04	453	8.71	106.1
8/4/2010	15:00	24.56	8.07	454	8.33	101.9
8/4/2010	16:00	23.75	7.8	303	7.46	89.9
8/4/2010	17:00	23.96	7.69	347	7.21	87.2
8/4/2010	18:00	24.24	7.63	382	6.95	84.6
8/4/2010	19:00	24.14	7.57	396	7	85
8/4/2010	20:00	23.91	7.54	411	6.79	82.1
8/4/2010	21:00	23.82	7.53	424	6.77	81.8
8/4/2010	22:00	23.68	7.53	436	6.7	80.7
8/4/2010	23:00	23.39	7.54	445	6.74	80.7
8/5/2010	0:00	23.05	7.54	450	6.87	81.8
8/5/2010	1:00	22.75	7.53	453	7.01	82.9
8/5/2010	2:00	22.52	7.54	454	7.05	83
8/5/2010	3:00	22.33	7.55	454	7.07	83
8/5/2010	4:00	22.14	7.54	456	7.08	82.7
8/5/2010	5:00	21.94	7.55	458	7.18	83.6
8/5/2010	6:00	21.75	7.55	459	7.26	84.3
8/5/2010	7:00	21.55	7.56	460	7.32	84.6
8/5/2010	8:00	21.47	7.58	462	7.36	85
8/5/2010	9:00	21.45	7.58	466	7.4	85.3
8/5/2010	10:00	21.6	7.6	470	7.66	88.7
8/5/2010	11:00	21.97	7.64	475	7.91	92.1
8/5/2010	12:00	22.5	7.66	480	7.96	93.8
8/5/2010	13:00	23.2	7.72	485	8.09	96.6

Darling Run @ TR 340 @ Nellie Cemetary

River Mile:	0.1	Local Substrate:	Silt/ Sand
Storet:	301019	Local Velocity (ft/s):	0.3
Flow Regime:	Normal	Local Depth (ft):	0.4
Local Rainfall:	Light		

Date	Time	Temp C	pH (SU)	Specific Conductivity (µS/cm)	Dissolved Oxygen (mg/l)	Dissolved Oxygen (% sat)
8/3/2010	12:00	19.07	7.58	194.4	8.54	93.9
8/3/2010	13:00	19.13	7.63	194.4	8.58	94.5
8/3/2010	14:00	19.3	7.67	193.8	8.65	95.6
8/3/2010	15:00	19.7	7.71	193	8.82	98.2
8/3/2010	16:00	19.91	7.71	191.7	8.68	97.1
8/3/2010	17:00	19.95	7.62	186.3	8.25	92.4
8/3/2010	18:00	19.93	7.58	186.3	8.09	90.5
8/3/2010	19:00	19.88	7.55	184.1	8.07	90.2
8/3/2010	20:00	19.81	7.5	180.3	8	89.3
8/3/2010	21:00	19.7	7.45	179.4	7.98	88.9
8/3/2010	22:00	19.6	7.4	178.7	7.98	88.7
8/3/2010	23:00	19.52	7.39	178.8	8.02	89
8/4/2010	0:00	19.42	7.4	177.7	8.02	88.9
8/4/2010	1:00	19.35	7.41	177.5	8.07	89.2
8/4/2010	2:00	19.28	7.4	180.1	8.08	89.2
8/4/2010	3:00	19.21	7.4	185.7	8.09	89.2
8/4/2010	4:00	19.15	7.43	193.9	8.08	89
8/4/2010	5:00	19.1	7.46	192.1	8.1	89.1
8/4/2010	6:00	19.04	7.49	189.8	8.12	89.3
8/4/2010	7:00	18.98	7.5	190.1	8.19	89.9
8/4/2010	8:00	19.02	7.54	190.6	8.25	90.6
8/4/2010	9:00	19.19	7.58	189	8.38	92.4
8/4/2010	10:00	19.59	7.64	187.1	8.58	95.3
8/4/2010	11:00	20.34	7.72	186.1	8.75	98.7
8/4/2010	12:00	20.94	7.83	185.4	8.86	101.2
8/4/2010	13:00	21.43	7.85	185.4	8.9	102.6
8/4/2010	14:00	21.77	7.9	185.7	8.91	103.4
8/4/2010	15:00	21.79	7.78	174.9	8.3	96.3
8/4/2010	16:00	21.37	7.56	173.5	7.67	88.2
8/4/2010	17:00	21.28	7.55	161.4	7.61	87.4
8/4/2010	18:00	21.28	7.48	155.8	7.65	87.9
8/4/2010	19:00	21.22	7.55	171.6	7.73	88.7
8/4/2010	20:00	21.05	7.57	173	7.73	88.5
8/4/2010	21:00	20.85	7.56	179.4	7.75	88.2
8/4/2010	22:00	20.74	7.62	188.9	7.74	88
8/4/2010	23:00	20.56	7.58	185.1	7.76	87.9
8/5/2010	0:00	20.43	7.59	190	7.78	87.9
8/5/2010	1:00	20.36	7.56	177.4	7.8	88.1
8/5/2010	2:00	20.23	7.51	169.4	7.75	87.2
8/5/2010	3:00	20.09	7.5	166.6	7.77	87.2
8/5/2010	4:00	20.01	7.49	163.9	7.8	87.3
8/5/2010	5:00	19.92	7.51	163.5	7.87	88.1
8/5/2010	6:00	19.81	7.51	166.2	7.9	88.2
8/5/2010	7:00	19.7	7.52	166.1	7.96	88.7
8/5/2010	8:00	19.63	7.53	171	8.02	89.2
8/5/2010	9:00	19.64	7.56	174.6	8.12	90.3
8/5/2010	10:00	19.92	7.59	181	8.24	92.1
8/5/2010	11:00	20.29	7.64	180.6	8.33	93.8
8/5/2010	12:00	20.91	7.7	180.6	8.56	97.6
8/5/2010	13:00	21.82	7.75	182.3	8.5	98.7
8/5/2010	14:00	22.38	7.79	180.6	8.42	98.9
8/5/2010	15:00	22.77	7.84	178.6	8.28	97.9

Dutch Run @ TR 144/ TR 338

River Mile:	0.15	Local Substrate:	Muck/ Silt
Storet:	301013	Local Velocity (ft/s):	0.0001
Flow Regime:	Low	Local Depth (ft):	3.3
Local Rainfall:	Light		

Date	Time	Temp C	pH (SU)	Specific Conductivity (µS/cm)	Dissolved Oxygen (mg/l)	Dissolved Oxygen (% sat)
8/3/2010	11:00	18.87	7.18	192.2	6.76	74
8/3/2010	12:00	18.91	7.26	192.1	6.96	76.3
8/3/2010	13:00	18.98	7.29	191.3	7.25	79.6
8/3/2010	14:00	19.1	7.32	190.9	7.56	83.2
8/3/2010	15:00	19.41	7.34	190.9	7.89	87.3
8/3/2010	16:00	19.62	7.34	189.7	8.01	89.1
8/3/2010	17:00	19.7	7.35	188.9	7.98	88.8
8/3/2010	18:00	19.96	7.39	188.9	8.3	92.9
8/3/2010	19:00	20.21	7.45	187.8	8.43	94.8
8/3/2010	20:00	20.16	7.42	185	7.94	89.2
8/3/2010	21:00	20	7.32	181.5	7.21	80.8
8/3/2010	22:00	19.85	7.29	181	7.01	78.2
8/3/2010	23:00	19.68	7.28	182.3	6.99	77.8
8/4/2010	0:00	19.54	7.25	181.5	6.91	76.7
8/4/2010	1:00	19.46	7.22	179.7	6.78	75.2
8/4/2010	2:00	19.38	7.19	178.6	6.64	73.5
8/4/2010	3:00	19.31	7.16	179.7	6.48	71.6
8/4/2010	4:00	19.25	7.16	181.7	6.46	71.2
8/4/2010	5:00	19.19	7.14	183	6.5	71.7
8/4/2010	6:00	19.14	7.13	183.5	6.47	71.2
8/4/2010	7:00	19.07	7.15	183	6.51	71.5
8/4/2010	8:00	19.03	7.15	182.9	6.5	71.4
8/4/2010	9:00	19.03	7.15	184.4	6.55	71.9
8/4/2010	10:00	19.19	7.18	186.8	6.71	74
8/4/2010	11:00	19.5	7.2	187.7	6.92	76.7
8/4/2010	12:00	19.91	7.23	188.6	7.26	81.2
8/4/2010	13:00	20.19	7.28	188.4	7.68	86.4
8/4/2010	14:00	20.6	7.34	187.8	8.25	93.5
8/4/2010	15:00	21.19	7.41	187.3	8.9	102.1
8/4/2010	16:00	21.6	7.44	185.1	8.81	101.9
8/4/2010	17:00	21.94	7.49	184.1	8.53	99.3
8/4/2010	18:00	21.99	7.46	181.9	7.98	93
8/4/2010	19:00	21.36	7.29	164	6.88	79.2
8/4/2010	20:00	21.44	7.34	165.9	7.08	81.6
8/4/2010	21:00	21.34	7.31	159.4	6.89	79.3
8/4/2010	22:00	21.09	7.24	140.7	6.75	77.2
8/4/2010	23:00	20.89	7.18	132.7	6.9	78.7
8/5/2010	0:00	20.72	7.14	132.4	6.77	76.9
8/5/2010	1:00	20.59	7.15	133.6	6.81	77.2
8/5/2010	2:00	20.46	7.14	136.5	6.74	76.2
8/5/2010	3:00	20.34	7.13	139.1	6.61	74.6
8/5/2010	4:00	20.22	7.11	141.1	6.54	73.6
8/5/2010	5:00	20.1	7.12	144.9	6.56	73.7
8/5/2010	6:00	19.96	7.14	149.7	6.58	73.6
8/5/2010	7:00	19.88	7.17	152.4	6.68	74.6
8/5/2010	8:00	19.83	7.19	154.8	6.74	75.2
8/5/2010	9:00	19.81	7.2	159.8	6.78	75.6
8/5/2010	10:00	19.92	7.21	162.8	6.82	76.3
8/5/2010	11:00	20.1	7.21	164.7	6.86	77
8/5/2010	12:00	20.45	7.23	166.3	6.98	79
8/5/2010	13:00	21	7.25	171.4	7.19	82.1
8/5/2010	14:00	21.59	7.28	175.3	7.54	87.1
8/5/2010	15:00	22.33	7.32	176.9	7.9	92.7

Little Mill Creek @ Driveway off TR 206 #28305

River Mile:	0.1	Local Substrate:	Gravel
Storet:	200632	Local Velocity (ft/s):	>1.0
Flow Regime:	Low	Local Depth (ft):	0.4
Local Rainfall:	Light		

Date	Time	Temp C	pH (SU)	Specific Conductivity (µS/cm)	Dissolved Oxygen (mg/l)	Dissolved Oxygen (% sat)
8/3/2010	15:00	23.15	7.17	432	7.62	90.8
8/3/2010	16:00	23.68	7.24	431	8.03	96.7
8/3/2010	17:00	23.97	7.28	427	8.13	98.4
8/3/2010	18:00	23.62	7.25	426	7.7	92.6
8/3/2010	19:00	23.62	7.21	425	7.3	87.8
8/3/2010	20:00	23.61	7.2	425	7.09	85.3
8/3/2010	21:00	23.4	7.17	424	6.81	81.6
8/3/2010	22:00	23.18	7.13	422	6.41	76.5
8/3/2010	23:00	23.04	7.1	421	6.11	72.7
8/4/2010	0:00	22.89	7.09	421	6	71.2
8/4/2010	1:00	22.69	7.09	421	6.02	71.1
8/4/2010	2:00	22.51	7.08	422	5.96	70.2
8/4/2010	3:00	22.36	7.08	423	5.95	69.9
8/4/2010	4:00	22.26	7.09	423	6.05	70.9
8/4/2010	5:00	22.16	7.12	420	6.24	73
8/4/2010	6:00	22.11	7.12	417	6.26	73.2
8/4/2010	7:00	22.05	7.13	418	6.3	73.6
8/4/2010	8:00	22.05	7.13	417	6.33	73.9
8/4/2010	9:00	22.14	7.14	415	6.43	75.2
8/4/2010	10:00	22.4	7.16	417	6.52	76.6
8/4/2010	11:00	22.98	7.2	416	6.88	81.7
8/4/2010	12:00	23.8	7.24	419	7.25	87.5
8/4/2010	13:00	25.32	7.3	420	7.66	95
8/4/2010	14:00	26.31	7.36	420	7.94	100.3
8/4/2010	15:00	26.56	7.41	413	8.22	104.4
8/4/2010	16:00	25.59	7.37	381	7.35	91.7
8/4/2010	17:00	25.17	7.3	375	6.81	84.3
8/4/2010	18:00	24.74	7.21	332	6.26	76.9
8/4/2010	19:00	24.6	7.21	343	6.36	77.8
8/4/2010	20:00	24.34	7.2	355	6.34	77.3
8/4/2010	21:00	23.84	7.2	362	6.34	76.5
8/4/2010	22:00	23.51	7.19	373	6.3	75.6
8/4/2010	23:00	23.35	7.23	385	6.43	76.9
8/5/2010	0:00	23.42	7.29	391	6.65	79.6
8/5/2010	1:00	23.55	7.33	389	6.75	81
8/5/2010	2:00	23.46	7.34	386	6.81	81.7
8/5/2010	3:00	23.31	7.31	390	6.7	80.1
8/5/2010	4:00	23.1	7.28	389	6.63	79
8/5/2010	5:00	22.91	7.27	391	6.61	78.5
8/5/2010	6:00	22.74	7.26	394	6.59	77.9
8/5/2010	7:00	22.58	7.25	397	6.59	77.7
8/5/2010	8:00	22.52	7.25	398	6.65	78.3
8/5/2010	9:00	22.55	7.27	397	6.8	80.1
8/5/2010	10:00	22.78	7.29	398	6.99	82.7
8/5/2010	11:00	23.21	7.33	397	7.38	88.1
8/5/2010	12:00	24	7.39	397	7.76	93.9
8/5/2010	13:00	25.2	7.45	397	8.2	101.6
8/5/2010	14:00	26.5	7.52	397	8.54	108.3
8/5/2010	15:00	27.5	7.57	397	8.75	112.9

Mill Creek @ TR 215

River Mile:	12.5	Local Substrate:	Gravel/ Rock/ Silt
Storet:	301020	Local Velocity (ft/s):	0.7
Flow Regime:	Low	Local Depth (ft):	0.7
Local Rainfall:	Light		

Date	Time	Temp C	pH (SU)	Specific Conductivity (µS/cm)	Dissolved Oxygen (mg/l)	Dissolved Oxygen (% sat)
8/3/2010	15:45	24.27	7.67	367	7.02	85.4
8/3/2010	16:45	24.29	7.71	368	6.99	85.1
8/3/2010	17:45	24.14	7.71	367	6.63	80.5
8/3/2010	18:45	24.16	7.7	367	6.76	82.1
8/3/2010	19:45	24.19	7.69	368	6.68	81.2
8/3/2010	20:45	24.17	7.68	369	6.57	79.8
8/3/2010	21:45	24.13	7.66	369	6.47	78.6
8/3/2010	22:45	24.12	7.66	369	6.47	78.5
8/4/2010	23:45	24.13	7.65	368	6.44	78.2
8/4/2010	0:45	24.13	7.64	368	6.37	77.3
8/4/2010	1:45	24.14	7.64	367	6.31	76.6
8/4/2010	2:45	24.1	7.63	367	6.27	76
8/4/2010	3:45	24.03	7.63	366	6.27	76
8/4/2010	4:45	23.95	7.63	367	6.25	75.6
8/4/2010	5:45	23.84	7.62	368	6.21	75
8/4/2010	6:45	23.73	7.61	368	6.15	74.1
8/4/2010	7:45	23.62	7.61	370	6.14	73.9
8/4/2010	8:45	23.59	7.61	371	6.15	73.9
8/4/2010	9:45	23.64	7.61	371	6.17	74.3
8/4/2010	10:45	23.85	7.62	372	6.34	76.5
8/4/2010	11:45	24.31	7.65	373	6.69	81.5
8/4/2010	12:45	24.82	7.69	373	7.05	86.7
8/4/2010	13:45	25.16	7.72	373	7.21	89.3
8/4/2010	14:45	25.52	7.74	374	7.41	92.2
8/4/2010	15:45	25.12	7.76	362	7.22	89.3
8/4/2010	16:45	24.76	7.73	368	6.95	85.3
8/4/2010	17:45	25.49	7.72	356	6.86	85.4
8/4/2010	18:45	25.91	7.6	333	6.14	77
8/4/2010	19:45	25.5	7.55	307	6.1	75.9
8/4/2010	20:45	24.92	7.57	281	6.05	74.5
8/4/2010	21:45	24.61	7.59	281	6.01	73.7
8/4/2010	22:45	24.41	7.6	286	6.05	73.8
8/5/2010	23:45	24.25	7.6	288	6.01	73.1
8/5/2010	0:45	24.13	7.6	287	5.97	72.5
8/5/2010	1:45	23.98	7.61	285	6.08	73.5
8/5/2010	2:45	23.83	7.6	287	6.05	73
8/5/2010	3:45	23.69	7.59	291	6.03	72.6
8/5/2010	4:45	23.56	7.59	292	6.06	72.8
8/5/2010	5:45	23.42	7.59	295	6.09	73
8/5/2010	6:45	23.27	7.59	301	6.1	72.8
8/5/2010	7:45	23.15	7.58	304	6.15	73.3
8/5/2010	8:45	23.04	7.59	307	6.25	74.3
8/5/2010	9:45	23.05	7.59	310	6.33	75.2
8/5/2010	10:45	23.25	7.6	312	6.4	76.5
8/5/2010	11:45	23.47	7.61	315	6.44	77.2
8/5/2010	12:45	23.93	7.62	317	6.52	78.8
8/5/2010	13:45	24.65	7.62	320	6.6	80.9
8/5/2010	14:45	25.21	7.62	321	6.62	81.9

Mill Creek @ TR 206

River Mile:	8.5	Local Substrate:	N/A
Storet:	R04529	Local Velocity (ft/s):	1
Flow Regime:	Low	Local Depth (ft):	0.6
Local Rainfall:	Light		

Date	Time	Temp C	pH (SU)	Specific Conductivity (µS/cm)	Dissolved Oxygen (mg/l)	Dissolved Oxygen (% sat)
8/3/2010	15:00:00	22.64	7.24	359	7.82	92.2
8/3/2010	16:00:00	23.03	7.32	358	8.26	98.2
8/3/2010	17:00:00	23.23	7.35	356	8.21	98
8/3/2010	18:00:00	23.11	7.3	353	7.74	92.2
8/3/2010	19:00:00	23.1	7.29	353	7.65	91.1
8/3/2010	20:00:00	23.23	7.31	354	7.68	91.6
8/3/2010	21:00:00	23.24	7.29	354	7.4	88.3
8/3/2010	22:00:00	23.14	7.25	353	7.04	83.8
8/3/2010	23:00:00	23.09	7.23	354	6.88	81.9
8/4/2010	0:00:00	23.06	7.22	356	6.8	81
8/4/2010	1:00:00	22.97	7.2	357	6.68	79.3
8/4/2010	2:00:00	22.85	7.18	357	6.62	78.4
8/4/2010	3:00:00	22.73	7.17	357	6.57	77.6
8/4/2010	4:00:00	22.64	7.18	359	6.58	77.6
8/4/2010	5:00:00	22.55	7.17	360	6.58	77.5
8/4/2010	6:00:00	22.47	7.17	360	6.57	77.3
8/4/2010	7:00:00	22.4	7.17	361	6.58	77.3
8/4/2010	8:00:00	22.37	7.17	361	6.6	77.5
8/4/2010	9:00:00	22.46	7.19	361	6.73	79.1
8/4/2010	10:00:00	22.69	7.23	361	6.98	82.4
8/4/2010	11:00:00	23.04	7.26	362	7.29	86.8
8/4/2010	12:00:00	23.48	7.31	363	7.62	91.4
8/4/2010	13:00:00	23.95	7.36	363	8	96.8
8/4/2010	14:00:00	24.28	7.4	363	8.2	99.8
8/4/2010	15:00:00	24.73	7.46	361	8.49	104.2
8/4/2010	16:00:00	24.27	7.4	344	7.85	95.6
8/4/2010	17:00:00	24.11	7.39	350	7.64	92.7
8/4/2010	18:00:00	24.2	7.39	349	7.53	91.5
8/4/2010	19:00:00	24.23	7.31	350	6.74	82
8/4/2010	20:00:00	24.27	7.33	354	6.87	83.6
8/4/2010	21:00:00	24.08	7.35	350	6.98	84.6
8/4/2010	22:00:00	24.15	7.35	351	7.15	86.9
8/4/2010	23:00:00	24.36	7.34	353	6.91	84.3
8/5/2010	0:00:00	24.08	7.39	354	7.07	85.7
8/5/2010	1:00:00	23.94	7.4	361	7.03	85.1
8/5/2010	2:00:00	23.87	7.41	360	7.04	85
8/5/2010	3:00:00	23.79	7.4	356	7	84.4
8/5/2010	4:00:00	23.69	7.38	353	6.97	83.9
8/5/2010	5:00:00	23.56	7.36	348	6.92	83.1
8/5/2010	6:00:00	23.45	7.34	345	6.86	82.3
8/5/2010	7:00:00	23.33	7.32	343	6.8	81.3
8/5/2010	8:00:00	23.25	7.31	341	6.78	81
8/5/2010	9:00:00	23.22	7.29	339	6.77	80.8
8/5/2010	10:00:00	23.33	7.29	336	6.81	81.4
8/5/2010	11:00:00	23.57	7.29	332	6.88	82.7
8/5/2010	12:00:00	23.83	7.29	327	6.92	83.5
8/5/2010	13:00:00	24.31	7.29	322	6.99	85.1
8/5/2010	14:00:00	24.88	7.3	318	7.05	86.7
8/5/2010	15:00:00	25.39	7.31	316	7.05	87.6

Mill Creek @ gage; Farm Lane off CR 12 @ Block O Mailbox

River Mile:	7.9	Local Substrate:	Mostly Silt
Storet:	300978	Local Velocity (ft/s):	1
Flow Regime:	Normal	Local Depth (ft):	0.7
Local Rainfall:	Light		

Date	Time	Temp C	pH (SU)	Specific Conductivity (µS/cm)	Dissolved Oxygen (mg/l)	Dissolved Oxygen (% sat)
8/3/2010	15:00	22.96	7.53	369	8	95
8/3/2010	16:00	23.24	7.58	369	8.46	101
8/3/2010	17:00	23.2	7.6	368	8.5	101.3
8/3/2010	18:00	23.17	7.58	367	8.08	96.4
8/3/2010	19:00	23.1	7.54	366	7.58	90.3
8/3/2010	20:00	23.15	7.51	367	7.31	87.1
8/3/2010	21:00	23.11	7.49	367	7.03	83.7
8/3/2010	22:00	23.04	7.46	367	6.69	79.5
8/3/2010	23:00	22.99	7.44	368	6.47	76.9
8/4/2010	0:00	22.95	7.42	368	6.32	75.1
8/4/2010	1:00	22.87	7.41	368	6.26	74.3
8/4/2010	2:00	22.8	7.41	368	6.23	73.7
8/4/2010	3:00	22.73	7.41	368	6.15	72.7
8/4/2010	4:00	22.65	7.4	369	6.13	72.4
8/4/2010	5:00	22.58	7.4	369	6.14	72.3
8/4/2010	6:00	22.5	7.4	369	6.11	71.9
8/4/2010	7:00	22.42	7.39	370	6.07	71.3
8/4/2010	8:00	22.38	7.4	371	6.18	72.5
8/4/2010	9:00	22.46	7.41	373	6.33	74.4
8/4/2010	10:00	22.74	7.45	374	6.77	80
8/4/2010	11:00	23.14	7.5	375	7.29	86.8
8/4/2010	12:00	23.6	7.55	375	7.72	92.7
8/4/2010	13:00	23.95	7.6	374	8.13	98.3
8/4/2010	14:00	24.36	7.65	374	8.53	103.9
8/4/2010	15:00	24.72	7.71	371	8.76	107.5
8/4/2010	16:00	24.5	7.71	357	8.07	98.6
8/4/2010	17:00	24.34	7.62	354	7.35	89.5
8/4/2010	18:00	24.39	7.59	355	7.08	86.4
8/4/2010	19:00	24.53	7.56	357	6.84	83.7
8/4/2010	20:00	24.52	7.53	362	6.66	81.5
8/4/2010	21:00	24.29	7.52	362	6.5	79.2
8/4/2010	22:00	24.02	7.53	347	6.51	78.8
8/4/2010	23:00	23.95	7.61	347	6.85	82.9
8/5/2010	0:00	24.19	7.59	353	6.58	80
8/5/2010	1:00	23.91	7.62	352	6.74	81.5
8/5/2010	2:00	23.73	7.64	357	6.75	81.3
8/5/2010	3:00	23.62	7.63	361	6.71	80.7
8/5/2010	4:00	23.55	7.62	361	6.67	80
8/5/2010	5:00	23.47	7.62	359	6.64	79.6
8/5/2010	6:00	23.36	7.6	358	6.59	78.9
8/5/2010	7:00	23.24	7.58	355	6.57	78.5
8/5/2010	8:00	23.16	7.57	354	6.54	78
8/5/2010	9:00	23.12	7.56	353	6.52	77.7
8/5/2010	10:00	23.23	7.56	351	6.59	78.6
8/5/2010	11:00	23.56	7.57	352	6.75	81.1
8/5/2010	12:00	23.74	7.58	351	6.85	82.6
8/5/2010	13:00	24.32	7.61	348	7.08	86.2
8/5/2010	14:00	24.84	7.62	345	7.21	88.7
8/5/2010	15:00	25.36	7.64	340	7.28	90.4

Mill Creek @ TR 322

River Mile:	3.54	Local Substrate:	Mostly Silt
Storet:	300888	Local Velocity (ft/s):	1
Flow Regime:	Normal	Local Depth (ft):	0.6
Local Rainfall:	Light		

Date	Time	Temp C	pH (SU)	Specific Conductivity (µS/cm)	Dissolved Oxygen (mg/l)	Dissolved Oxygen (% sat)
8/3/2010	12:00	23.21	7.58	412	7.7	91.9
8/3/2010	13:00	23.48	7.64	414	8.38	100.5
8/3/2010	14:00	23.65	7.68	413	8.83	106.2
8/3/2010	15:00	24.16	7.8	413	9.88	120
8/3/2010	16:00	24.55	7.89	414	10.31	126.1
8/3/2010	17:00	24.56	7.88	411	9.87	120.8
8/3/2010	18:00	24.7	7.86	410	9.46	116.1
8/3/2010	19:00	24.8	7.82	413	9.26	113.8
8/3/2010	20:00	24.75	7.75	415	8.76	107.6
8/3/2010	21:00	24.58	7.67	419	8.07	98.8
8/3/2010	22:00	24.37	7.62	420	7.64	93.1
8/3/2010	23:00	24.15	7.57	419	7.28	88.4
8/4/2010	0:00	23.88	7.53	420	6.99	84.5
8/4/2010	1:00	23.58	7.5	423	6.81	81.8
8/4/2010	2:00	23.35	7.48	426	6.71	80.3
8/4/2010	3:00	23.16	7.47	429	6.64	79.1
8/4/2010	4:00	23.01	7.46	433	6.57	78
8/4/2010	5:00	22.9	7.45	436	6.53	77.5
8/4/2010	6:00	22.82	7.45	441	6.48	76.8
8/4/2010	7:00	22.74	7.44	446	6.48	76.6
8/4/2010	8:00	22.73	7.45	451	6.61	78.2
8/4/2010	9:00	22.95	7.5	455	7.14	84.8
8/4/2010	10:00	23.53	7.58	456	8.02	96.3
8/4/2010	11:00	24.39	7.7	454	9.08	110.7
8/4/2010	12:00	25.34	7.85	451	10.1	125.4
8/4/2010	13:00	26.21	8	448	10.83	136.7
8/4/2010	14:00	26.7	8.08	447	11.07	140.9
8/4/2010	15:00	27.25	8.15	446	11.12	143
8/4/2010	16:00	26.25	7.96	406	9.09	114.7
8/4/2010	17:00	25.49	7.77	389	7.8	97.1
8/4/2010	18:00	25.02	7.76	429	7.84	96.7
8/4/2010	19:00	24.71	7.73	391	7.67	94.1
8/4/2010	20:00	24.63	7.73	396	7.56	92.7
8/4/2010	21:00	24.3	7.66	448	7.43	90.6
8/4/2010	22:00	23.98	7.58	447	7.2	87.1
8/4/2010	23:00	23.78	7.54	413	6.98	84.2
8/5/2010	0:00	23.72	7.53	412	6.93	83.5
8/5/2010	1:00	23.67	7.54	415	6.93	83.4
8/5/2010	2:00	23.45	7.57	457	7.03	84.3
8/5/2010	3:00	23.29	7.63	442	7.09	84.8
8/5/2010	4:00	23.33	7.65	444	7.04	84.3
8/5/2010	5:00	23.19	7.64	473	7.05	84.1
8/5/2010	6:00	23.03	7.64	469	7.08	84.1
8/5/2010	7:00	22.89	7.64	446	7.06	83.7
8/5/2010	8:00	22.83	7.64	424	7.06	83.6
8/5/2010	9:00	22.85	7.64	413	7.12	84.4
8/5/2010	10:00	23.1	7.68	409	7.43	88.5
8/5/2010	11:00	23.56	7.74	409	7.89	94.7
8/5/2010	12:00	24.05	7.79	410	8.22	99.7
8/5/2010	13:00	25.05	7.88	411	8.72	107.7
8/5/2010	14:00	25.85	7.95	413	9.1	114

Mill Creek @ CR 24

River Mile:	0.4	Local Substrate:	Mostly Silt, some Rock
Storet:	R04528	Local Velocity (ft/s):	0.1
Flow Regime:	Normal	Local Depth (ft):	1.3
Local Rainfall:	Light		

Date	Time	Temp C	pH (SU)	Specific Conductivity (µS/cm)	Dissolved Oxygen (mg/l)	Dissolved Oxygen (% sat)
8/3/2010	12:00	23.68	7.75	458	7.46	89.9
8/3/2010	13:00	23.93	7.83	457	8.11	98
8/3/2010	14:00	24.13	7.9	457	8.64	104.9
8/3/2010	15:00	24.54	8.02	456	9.37	114.6
8/3/2010	16:00	24.93	8.05	456	9.7	119.6
8/3/2010	17:00	25.05	8.03	455	9.51	117.5
8/3/2010	18:00	24.89	8.01	453	9.09	111.9
8/3/2010	19:00	24.76	7.94	454	8.53	104.7
8/3/2010	20:00	24.64	7.86	458	7.93	97.2
8/3/2010	21:00	24.47	7.77	457	7.41	90.5
8/3/2010	22:00	24.28	7.71	456	6.95	84.7
8/3/2010	23:00	24.14	7.66	457	6.62	80.4
8/4/2010	0:00	23.97	7.62	459	6.38	77.3
8/4/2010	1:00	23.84	7.59	460	6.23	75.3
8/4/2010	2:00	23.75	7.55	460	5.98	72
8/4/2010	3:00	23.68	7.51	460	5.77	69.5
8/4/2010	4:00	23.63	7.51	461	5.77	69.5
8/4/2010	5:00	23.57	7.51	464	5.89	70.7
8/4/2010	6:00	23.5	7.51	467	6.01	72.2
8/4/2010	7:00	23.42	7.51	469	6.05	72.5
8/4/2010	8:00	23.4	7.52	470	6.16	73.8
8/4/2010	9:00	23.6	7.56	469	6.57	79
8/4/2010	10:00	24.25	7.66	467	7.37	89.7
8/4/2010	11:00	24.96	7.76	466	8.21	101.2
8/4/2010	12:00	25.44	7.84	464	8.65	107.6
8/4/2010	13:00	25.88	7.94	463	9.25	116
8/4/2010	14:00	26.08	7.99	462	9.64	121.3
8/4/2010	15:00	26.11	7.96	459	9.63	121.3
8/4/2010	16:00	25.25	7.95	438	8.8	109.1
8/4/2010	17:00	24.73	7.83	430	8.02	98.4
8/4/2010	18:00	24.64	7.74	432	7.7	94.4
8/4/2010	19:00	24.63	7.61	422	7.19	88.1
8/4/2010	20:00	24.46	7.54	440	6.82	83.3
8/4/2010	21:00	24.17	7.57	466	7.14	86.7
8/4/2010	22:00	24.13	7.59	471	7.16	86.9
8/4/2010	23:00	24.18	7.58	463	7.02	85.4
8/5/2010	0:00	24.27	7.54	454	6.86	83.5
8/5/2010	1:00	24.27	7.51	444	6.75	82.2
8/5/2010	2:00	24.16	7.49	435	6.68	81.1
8/5/2010	3:00	23.98	7.47	442	6.56	79.4
8/5/2010	4:00	23.76	7.47	454	6.57	79.3
8/5/2010	5:00	23.57	7.46	434	6.62	79.5
8/5/2010	6:00	23.45	7.48	439	6.72	80.6
8/5/2010	7:00	23.27	7.49	452	6.78	81.1
8/5/2010	8:00	23.16	7.49	445	6.8	81.1
8/5/2010	9:00	23.16	7.5	440	6.88	82
8/5/2010	10:00	23.33	7.54	449	7.09	84.8
8/5/2010	11:00	23.78	7.62	457	7.52	90.7
8/5/2010	12:00	24.24	7.69	456	7.89	96
8/5/2010	13:00	24.62	7.78	456	8.28	101.5
8/5/2010	14:00	25.2	7.93	465	8.32	103.1

Mill Run @ Coal Run Rd behind Nighthawk Repair Building

River Mile:	0.45	Local Substrate:	Silt/ Sand/ Yellowboy
Storet:	301036	Local Velocity (ft/s):	0.5
Flow Regime:	Low	Local Depth (ft):	0.5
Local Rainfall:	Light		

Date	Time	Temp C	pH (SU)	Specific Conductivity (µS/cm)	Dissolved Oxygen (mg/l)	Dissolved Oxygen (% sat)
8/3/2010	10:00	19.29	7.84	1139	8.75	96.9
8/3/2010	11:00	19.42	7.86	1137	8.86	98.4
8/3/2010	12:00	19.52	7.83	1134	8.77	97.6
8/3/2010	13:00	19.63	7.86	1132	8.78	98
8/3/2010	14:00	19.88	7.88	1113	8.85	99.2
8/3/2010	15:00	20.79	7.97	1094	9.11	104
8/3/2010	16:00	20.82	7.93	1103	8.79	100.3
8/3/2010	17:00	20.78	7.9	1109	8.61	98.3
8/3/2010	18:00	20.73	7.84	1112	8.44	96.2
8/3/2010	19:00	20.73	7.83	1112	8.45	96.4
8/3/2010	20:00	20.66	7.82	1110	8.38	95.4
8/3/2010	21:00	20.46	7.78	1116	8.32	94.3
8/3/2010	22:00	20.29	7.77	1115	8.34	94.2
8/3/2010	23:00	20.16	7.76	1116	8.37	94.3
8/4/2010	0:00	20.01	7.75	1118	8.39	94.3
8/4/2010	1:00	19.88	7.74	1120	8.39	94.1
8/4/2010	2:00	19.75	7.73	1122	8.43	94.2
8/4/2010	3:00	19.65	7.73	1121	8.43	94.1
8/4/2010	4:00	19.58	7.73	1122	8.46	94.3
8/4/2010	5:00	19.62	7.76	1118	8.46	94.4
8/4/2010	6:00	19.62	7.77	1103	8.39	93.5
8/4/2010	7:00	19.61	7.76	1081	8.38	93.4
8/4/2010	8:00	20.08	7.81	948	8.42	94.7
8/4/2010	9:00	20.01	7.78	957	8.39	94.2
8/4/2010	10:00	20.03	7.79	998	8.53	95.9
8/4/2010	11:00	20.42	7.82	1015	8.7	98.5
8/4/2010	12:00	21.09	7.88	1019	8.82	101.3
8/4/2010	13:00	21.97	7.91	1014	8.88	103.7
8/4/2010	14:00	22.35	7.92	1014	8.59	101
8/4/2010	15:00	22.18	7.83	1025	8.14	95.4
8/4/2010	16:00	22.81	7.77	535	8.15	96.5
8/4/2010	17:00	21.67	7.65	447	8.31	96.2
8/4/2010	18:00	21.93	7.78	513	8.24	96
8/4/2010	19:00	21.83	7.8	584	8.24	95.8
8/4/2010	20:00	21.72	7.81	639	8.21	95.3
8/4/2010	21:00	21.45	7.81	701	8.25	95.2
8/4/2010	22:00	21.15	7.82	730	8.28	95
8/4/2010	23:00	20.88	7.85	773	8.32	95
8/5/2010	0:00	20.68	7.86	815	8.35	95
8/5/2010	1:00	20.6	7.86	834	8.37	95.1
8/5/2010	2:00	20.91	7.86	759	8.34	95.3
8/5/2010	3:00	20.94	7.83	742	8.32	95.1
8/5/2010	4:00	20.45	7.83	805	8.43	95.5
8/5/2010	5:00	20.34	7.83	774	8.41	95.1
8/5/2010	6:00	20.27	7.83	800	8.42	95
8/5/2010	7:00	20.2	7.83	813	8.4	94.7
8/5/2010	8:00	20.13	7.82	845	8.45	95.1
8/5/2010	9:00	20.17	7.83	869	8.49	95.7

Mohawk Creek @ TR 409 - 1st Bridge off SR 79

River Mile:	4.1	Local Substrate:	Gravel w/ Silt
Storet:	301011	Local Velocity (ft/s):	0.7- 0.8
Flow Regime:	Normal	Local Depth (ft):	0.3- 0.4
Local Rainfall:	Light		

Date	Time	Temp C	pH (SU)	Specific Conductivity (µS/cm)	Dissolved Oxygen (mg/l)	Dissolved Oxygen (% sat)
8/3/2010	10:00	21.72	7.42	344	4.84	56.1
8/3/2010	11:00	21.74	7.42	344	4.93	57.1
8/3/2010	12:00	21.85	7.42	342	5.01	58.2
8/3/2010	13:00	21.84	7.43	342	5.17	60
8/3/2010	14:00	21.98	7.45	342	5.37	62.6
8/3/2010	15:00	22.31	7.47	342	5.89	69
8/3/2010	16:00	22.39	7.5	342	6.15	72.2
8/3/2010	17:00	22.41	7.5	341	6.33	74.4
8/3/2010	18:00	22.52	7.52	341	6.63	78.1
8/3/2010	19:00	22.57	7.53	340	6.9	81.3
8/3/2010	20:00	22.68	7.55	339	7.11	83.9
8/3/2010	21:00	22.68	7.53	339	7.09	83.7
8/3/2010	22:00	22.61	7.53	338	6.92	81.6
8/3/2010	23:00	22.49	7.51	339	6.67	78.5
8/4/2010	0:00	22.38	7.49	339	6.39	75.1
8/4/2010	1:00	22.28	7.48	339	6.21	72.7
8/4/2010	2:00	22.19	7.46	340	6.02	70.5
8/4/2010	3:00	22.09	7.45	340	5.77	67.3
8/4/2010	4:00	21.99	7.42	340	5.48	63.8
8/4/2010	5:00	21.89	7.4	341	5.26	61.2
8/4/2010	6:00	21.83	7.38	341	5.05	58.7
8/4/2010	7:00	21.76	7.38	342	4.95	57.5
8/4/2010	8:00	21.73	7.37	343	4.93	57.2
8/4/2010	9:00	21.73	7.37	343	4.93	57.2
8/4/2010	10:00	21.85	7.38	343	4.99	58
8/4/2010	11:00	22.07	7.39	344	5.11	59.6
8/4/2010	12:00	22.37	7.41	345	5.36	62.9
8/4/2010	13:00	22.83	7.44	345	5.88	69.6
8/4/2010	14:00	23.53	7.51	345	6.63	79.6
8/4/2010	15:00	23.89	7.59	338	7.17	86.7
8/4/2010	16:00	23.83	7.59	337	7.2	86.9
8/4/2010	17:00	23.68	7.59	337	7.26	87.4
8/4/2010	18:00	23.81	7.62	338	7.56	91.3
8/4/2010	19:00	23.95	7.62	338	7.67	92.8
8/4/2010	20:00	23.91	7.61	339	7.48	90.4
8/4/2010	21:00	23.65	7.58	340	7.01	84.4
8/4/2010	22:00	23.34	7.55	341	6.6	78.9
8/4/2010	23:00	23.1	7.53	341	6.34	75.5
8/5/2010	0:00	22.96	7.51	340	6.17	73.3
8/5/2010	1:00	22.85	7.52	337	6.18	73.2
8/5/2010	2:00	22.67	7.49	335	5.9	69.6
8/5/2010	3:00	22.46	7.45	335	5.43	63.9
8/5/2010	4:00	22.25	7.42	338	5.13	60.1
8/5/2010	5:00	22.09	7.41	338	5.13	59.9
8/5/2010	6:00	21.95	7.41	338	5.15	59.9
8/5/2010	7:00	21.8	7.4	338	5.14	59.7
8/5/2010	8:00	21.72	7.39	338	5.16	59.8
8/5/2010	9:00	21.72	7.39	339	5.2	60.3
8/5/2010	10:00	21.8	7.4	340	5.32	61.7
8/5/2010	11:00	21.98	7.42	342	5.53	64.4
8/5/2010	12:00	22.14	7.44	344	5.81	67.9
8/5/2010	13:00	22.43	7.47	344	6.23	73.2

Mohawk Creek @ CR 82

River Mile:	1.48	Local Substrate:	Rocks w/ Silt
Storet:	300887	Local Velocity (ft/s):	0.6- 0.7
Flow Regime:	Low	Local Depth (ft):	0.3- 0.5
Local Rainfall:	Light		

Date	Time	Temp C	pH (SU)	Specific Conductivity (µS/cm)	Dissolved Oxygen (mg/l)	Dissolved Oxygen (% sat)
8/3/2010	11:00	22.67	7.63	350	5.92	70
8/3/2010	12:00	22.67	7.65	348	6.12	72.3
8/3/2010	13:00	22.71	7.67	349	6.34	74.9
8/3/2010	14:00	22.74	7.69	348	6.49	76.7
8/3/2010	15:00	22.89	7.71	348	6.81	80.8
8/3/2010	16:00	23.12	7.73	347	7.06	84
8/3/2010	17:00	23.19	7.76	346	7.2	85.9
8/3/2010	18:00	23.19	7.77	346	7.24	86.3
8/3/2010	19:00	23.24	7.76	346	7.16	85.5
8/3/2010	20:00	23.26	7.75	346	7.06	84.3
8/3/2010	21:00	23.21	7.73	346	6.89	82.1
8/3/2010	22:00	23.17	7.71	347	6.71	80
8/3/2010	23:00	23.12	7.69	347	6.56	78.2
8/4/2010	0:00	23.09	7.67	347	6.42	76.5
8/4/2010	1:00	23.05	7.66	347	6.32	75.2
8/4/2010	2:00	23	7.65	347	6.23	74.1
8/4/2010	3:00	22.94	7.65	348	6.16	73.1
8/4/2010	4:00	22.87	7.64	348	6.09	72.1
8/4/2010	5:00	22.8	7.63	348	5.99	70.9
8/4/2010	6:00	22.72	7.62	348	5.9	69.7
8/4/2010	7:00	22.64	7.61	348	5.81	68.6
8/4/2010	8:00	22.58	7.61	349	5.76	67.9
8/4/2010	9:00	22.56	7.6	349	5.8	68.3
8/4/2010	10:00	22.62	7.6	349	5.85	69
8/4/2010	11:00	22.84	7.62	349	6.02	71.4
8/4/2010	12:00	23.29	7.65	349	6.56	78.3
8/4/2010	13:00	23.64	7.69	349	6.97	83.9
8/4/2010	14:00	24.05	7.74	348	7.49	90.7
8/4/2010	15:00	24.1	7.78	344	7.68	93.2
8/4/2010	16:00	24.15	7.81	343	7.64	92.7
8/4/2010	17:00	24.02	7.79	344	7.41	89.8
8/4/2010	18:00	24.06	7.78	344	7.26	88.1
8/4/2010	19:00	24.21	7.77	343	7.17	87.2
8/4/2010	20:00	24.25	7.74	343	6.96	84.7
8/4/2010	21:00	24.2	7.73	343	6.72	81.7
8/4/2010	22:00	24.1	7.71	343	6.55	79.4
8/4/2010	23:00	23.96	7.69	343	6.34	76.7
8/5/2010	0:00	23.78	7.66	342	6.18	74.5
8/5/2010	1:00	23.6	7.68	340	6.24	75
8/5/2010	2:00	23.44	7.68	338	6.28	75.2
8/5/2010	3:00	23.27	7.67	336	6.2	74.1
8/5/2010	4:00	23.11	7.65	336	6.09	72.5
8/5/2010	5:00	22.98	7.63	335	5.99	71.2
8/5/2010	6:00	22.83	7.62	336	5.91	70
8/5/2010	7:00	22.69	7.62	335	5.89	69.6
8/5/2010	8:00	22.61	7.62	335	5.9	69.6
8/5/2010	9:00	22.56	7.62	335	5.91	69.6
8/5/2010	10:00	22.63	7.63	336	6.08	71.7
8/5/2010	11:00	22.85	7.65	335	6.33	75
8/5/2010	12:00	23.21	7.7	335	6.72	80.2

Monroe Basin Creek @ SR 16 @ Graham Farm

River Mile:	1.8	Local Substrate:	Muck/ Clay
Storet:	301029	Local Velocity (ft/s):	0.1
Flow Regime:	Low	Local Depth (ft):	0.4
Local Rainfall:	Light		

Date	Time	Temp C	pH (SU)	Specific Conductivity (µS/cm)	Dissolved Oxygen (mg/l)	Dissolved Oxygen (% sat)
8/3/2010	16:00	23.58	7.43	391	4.7	56.5
8/3/2010	17:00	23.58	7.42	389	4.47	53.7
8/3/2010	18:00	23.65	7.41	386	4.33	52.1
8/3/2010	19:00	23.74	7.43	383	4.44	53.5
8/3/2010	20:00	23.79	7.44	379	4.56	55
8/3/2010	21:00	23.74	7.41	377	4.14	49.9
8/3/2010	22:00	23.71	7.41	374	4.07	49
8/3/2010	23:00	23.62	7.42	373	4.23	50.8
8/4/2010	0:00	23.4	7.37	375	3.78	45.2
8/4/2010	1:00	23.31	7.38	373	3.82	45.6
8/4/2010	2:00	23.07	7.31	378	3.27	38.9
8/4/2010	3:00	23.07	7.41	371	4.21	50.1
8/4/2010	4:00	22.93	7.41	375	4.33	51.4
8/4/2010	5:00	22.8	7.4	378	4.38	51.8
8/4/2010	6:00	22.74	7.41	382	4.3	50.8
8/4/2010	7:00	22.65	7.43	384	4.39	51.9
8/4/2010	8:00	22.61	7.44	385	4.56	53.7
8/4/2010	9:00	22.64	7.44	387	4.53	53.5
8/4/2010	10:00	22.76	7.45	387	4.54	53.8
8/4/2010	11:00	23.04	7.46	390	4.63	55.1
8/4/2010	12:00	23.43	7.44	391	4.29	51.4
8/4/2010	13:00	23.84	7.45	392	4.33	52.3
8/4/2010	14:00	24.4	7.44	392	4.12	50.2
8/4/2010	15:00	24.37	7.41	392	3.71	45.2
8/4/2010	16:00	24.18	7.41	394	3.86	46.9
8/4/2010	17:00	24.4	7.44	381	3.95	48.2
8/4/2010	18:00	24.61	7.41	379	3.82	46.7
8/4/2010	19:00	24.73	7.39	377	3.6	44.2
8/4/2010	20:00	24.6	7.37	370	3.47	42.5
8/4/2010	21:00	24.26	7.35	366	3.45	42
8/4/2010	22:00	23.96	7.35	364	3.4	41.1
8/4/2010	23:00	23.67	7.35	365	3.53	42.5
8/5/2010	0:00	23.56	7.37	365	3.87	46.5
8/5/2010	1:00	23.44	7.35	367	3.84	46.1
8/5/2010	2:00	23.05	7.34	341	4.49	53.4
8/5/2010	3:00	22.68	7.33	346	4.59	54.2
8/5/2010	4:00	22.32	7.33	364	4.56	53.5
8/5/2010	5:00	21.92	7.37	350	5.07	59
8/5/2010	6:00	21.33	7.52	374	6.13	70.5
8/5/2010	7:00	20.98	7.57	365	6.38	73
8/5/2010	8:00	20.98	7.57	354	6.3	72
8/5/2010	9:00	21.22	7.57	353	6.21	71.3
8/5/2010	10:00	21.52	7.57	358	6.09	70.3
8/5/2010	11:00	22.07	7.57	361	6.04	70.5
8/5/2010	12:00	22.94	7.56	364	5.88	69.8
8/5/2010	13:00	24.28	7.57	364	5.76	70.2
8/5/2010	14:00	25.78	7.57	365	5.44	68
8/5/2010	15:00	27.05	7.57	365	5.09	65.1

North Branch Symmes Ck @ Road off SR 208, Steel Hill Rd.

River Mile:	4.25	Local Substrate:	Rock
Storet:	301031	Local Velocity (ft/s):	0.9
Flow Regime:	Normal	Local Depth (ft):	0.5
Local Rainfall:	Light		

Date	Time	Temp C	pH (SU)	Specific Conductivity (µS/cm)	Dissolved Oxygen (mg/l)	Dissolved Oxygen (% sat)
8/3/2010	15:00	24.62	7.72	880	7.95	102.5
8/3/2010	16:00	25.11	7.78	880	8.3	107.7
8/3/2010	17:00	25.22	7.76	881	7.76	101.2
8/3/2010	18:00	25.15	7.71	868	7.13	93.3
8/3/2010	19:00	25.04	7.66	853	6.77	88.6
8/3/2010	20:00	25	7.65	843	6.62	86.7
8/3/2010	21:00	24.87	7.65	841	6.55	85.6
8/3/2010	22:00	24.57	7.61	842	6.46	84.1
8/3/2010	23:00	24.28	7.59	842	6.42	83.1
8/4/2010	0:00	24	7.59	835	6.44	82.9
8/4/2010	1:00	23.77	7.58	831	6.49	83.2
8/4/2010	2:00	23.53	7.57	828	6.52	83.2
8/4/2010	3:00	23.3	7.56	825	6.56	83.3
8/4/2010	4:00	23.13	7.56	829	6.59	83.4
8/4/2010	5:00	23.04	7.54	838	6.58	83.2
8/4/2010	6:00	23.03	7.57	833	6.66	84.1
8/4/2010	7:00	23.01	7.58	831	6.69	84.4
8/4/2010	8:00	22.99	7.58	830	6.71	84.6
8/4/2010	9:00	23.09	7.6	844	6.87	86.7
8/4/2010	10:00	23.39	7.63	839	7.21	91.3
8/4/2010	11:00	23.95	7.67	834	7.63	97.3
8/4/2010	12:00	24.72	7.71	827	8.09	104.3
8/4/2010	13:00	25.46	7.75	820	8.38	109.3
8/4/2010	14:00	26.28	7.79	816	8.62	114.1
8/4/2010	15:00	26.39	7.76	812	7.84	104.4
8/4/2010	16:00	26	7.71	801	7.04	93.6
8/4/2010	17:00	25.53	7.67	791	6.51	86.2
8/4/2010	18:00	25.49	7.66	808	6.57	86.9
8/4/2010	19:00	25.51	7.66	813	6.61	87.4
8/4/2010	20:00	25.2	7.64	756	6.53	85.9
8/4/2010	21:00	24.51	7.61	656	6.6	85.7
8/4/2010	22:00	24.06	7.6	671	6.67	85.8
8/4/2010	23:00	23.82	7.58	709	6.61	84.7
8/5/2010	0:00	23.64	7.57	717	6.59	84.1
8/5/2010	1:00	23.46	7.57	717	6.72	85.5
8/5/2010	2:00	23.3	7.57	691	6.74	85.4
8/5/2010	3:00	23.31	7.58	819	6.71	85.2
8/5/2010	4:00	23.03	7.57	786	6.8	85.7
8/5/2010	5:00	22.77	7.55	736	6.83	85.7
8/5/2010	6:00	22.55	7.54	693	6.92	86.3
8/5/2010	7:00	22.33	7.53	683	6.98	86.6
8/5/2010	8:00	22.27	7.53	663	7.05	87.4
8/5/2010	9:00	22.4	7.54	667	7.12	88.4
8/5/2010	10:00	22.54	7.57	655	7.24	90.1
8/5/2010	11:00	22.9	7.58	666	7.53	94.1
8/5/2010	12:00	23.46	7.6	676	7.79	98.3
8/5/2010	13:00	24.25	7.65	683	7.89	100.9
8/5/2010	14:00	24.84	7.66	686	7.9	102.2

North Branch Symmes Ck @ Madison Hall Road

River Mile:	0.1	Local Substrate:	Rock
Storet:	301030	Local Velocity (ft/s):	0.8
Flow Regime:	Normal	Local Depth (ft):	0.8
Local Rainfall:	Light		

Date	Time	Temp C	pH (SU)	Specific Conductivity (µS/cm)	Dissolved Oxygen (mg/l)	Dissolved Oxygen (% sat)
8/3/2010	12:00	22.68	7.85	1556	7.59	89.9
8/3/2010	13:00	22.77	7.86	1558	7.69	91.4
8/3/2010	14:00	22.96	7.88	1565	7.94	94.7
8/3/2010	15:00	23.55	7.92	1571	8.45	101.9
8/3/2010	16:00	23.71	7.95	1570	8.55	103.3
8/3/2010	17:00	23.81	7.97	1568	8.33	100.9
8/3/2010	18:00	23.86	7.94	1542	8.02	97.2
8/3/2010	19:00	23.85	7.94	1542	7.84	95
8/3/2010	20:00	23.81	7.92	1557	7.68	93
8/3/2010	21:00	23.74	7.9	1558	7.45	90.1
8/3/2010	22:00	23.66	7.87	1548	7.22	87.2
8/3/2010	23:00	23.56	7.88	1540	7.08	85.4
8/4/2010	0:00	23.43	7.85	1539	7.03	84.5
8/4/2010	1:00	23.29	7.85	1539	6.98	83.7
8/4/2010	2:00	23.14	7.84	1542	6.98	83.5
8/4/2010	3:00	22.97	7.84	1548	7	83.4
8/4/2010	4:00	22.84	7.84	1554	7.01	83.3
8/4/2010	5:00	22.73	7.84	1559	7.03	83.5
8/4/2010	6:00	22.68	7.84	1559	7.04	83.4
8/4/2010	7:00	22.61	7.83	1554	7.05	83.5
8/4/2010	8:00	22.58	7.84	1549	7.09	83.9
8/4/2010	9:00	22.65	7.86	1545	7.22	85.6
8/4/2010	10:00	22.97	7.88	1540	7.5	89.5
8/4/2010	11:00	23.45	7.89	1531	7.86	94.6
8/4/2010	12:00	24.07	7.94	1526	8.34	101.5
8/4/2010	13:00	24.77	7.99	1521	8.73	107.6
8/4/2010	14:00	25.22	8.02	1518	8.92	110.9
8/4/2010	15:00	25.17	8.02	1515	8.56	106.3
8/4/2010	16:00	24.79	8	1488	8.09	99.7
8/4/2010	17:00	24.49	7.96	1501	7.8	95.7
8/4/2010	18:00	24.41	7.97	1520	7.72	94.6
8/4/2010	19:00	24.46	7.98	1517	7.61	93.3
8/4/2010	20:00	24.38	7.95	1502	7.41	90.7
8/4/2010	21:00	24.15	7.95	1496	7.2	87.7
8/4/2010	22:00	23.89	7.93	1496	7.09	86
8/4/2010	23:00	23.65	7.92	1496	7.05	85.1
8/5/2010	0:00	23.46	7.89	1502	6.99	84.1
8/5/2010	1:00	23.27	7.91	1497	7.03	84.2
8/5/2010	2:00	23.06	7.91	1501	7.07	84.4
8/5/2010	3:00	22.87	7.89	1522	7.1	84.4
8/5/2010	4:00	22.81	7.88	1501	7.09	84.3
8/5/2010	5:00	22.82	7.91	1468	7.07	84
8/5/2010	6:00	22.83	7.91	1442	7.08	84.1
8/5/2010	7:00	22.75	7.88	1480	7.09	84.1
8/5/2010	8:00	22.72	7.9	1494	7.16	84.9
8/5/2010	9:00	22.73	7.92	1466	7.29	86.4
8/5/2010	10:00	22.77	7.92	1430	7.51	89.1
8/5/2010	11:00	22.96	7.96	1416	7.85	93.6
8/5/2010	12:00	23.41	8	1417	8.29	99.7

Robinson Run @ CR 271

River Mile:	1.35	Local Substrate:	Silt/ Rock/ Gravel
Storet:	300289	Local Velocity (ft/s):	> 1.0
Flow Regime:	Normal	Local Depth (ft):	0.8
Local Rainfall:	Light		

Date	Time	Temp C	pH (SU)	Specific Conductivity (µS/cm)	Dissolved Oxygen (mg/l)	Dissolved Oxygen (% sat)
8/3/2010	17:00	20.75	7.35	1093	8.67	98.9
8/3/2010	18:00	20.71	7.32	1082	8.63	98.3
8/3/2010	19:00	20.67	7.35	1081	8.64	98.4
8/3/2010	20:00	20.65	7.33	1079	8.65	98.4
8/3/2010	21:00	20.55	7.3	1079	8.65	98.2
8/3/2010	22:00	20.44	7.26	1080	8.64	98
8/3/2010	23:00	20.35	7.25	1081	8.68	98.2
8/4/2010	0:00	20.25	7.24	1081	8.69	98.1
8/4/2010	1:00	20.15	7.25	1079	8.69	97.9
8/4/2010	2:00	20.06	7.26	1079	8.68	97.7
8/4/2010	3:00	19.97	7.28	1076	8.72	97.9
8/4/2010	4:00	19.88	7.28	1075	8.75	98
8/4/2010	5:00	19.8	7.27	1076	8.75	97.9
8/4/2010	6:00	19.75	7.28	1076	8.75	97.8
8/4/2010	7:00	19.72	7.3	1078	8.78	98.1
8/4/2010	8:00	19.69	7.29	1082	8.78	98.1
8/4/2010	9:00	19.74	7.33	1086	8.82	98.5
8/4/2010	10:00	19.9	7.34	1088	8.8	98.7
8/4/2010	11:00	20.26	7.36	1089	8.76	98.9
8/4/2010	12:00	20.69	7.36	1088	8.72	99.3
8/4/2010	13:00	21.12	7.37	1087	8.64	99.3
8/4/2010	14:00	21.48	7.35	1086	8.6	99.4
8/4/2010	15:00	21.55	7.31	1084	8.48	98.3
8/4/2010	16:00	21.34	7.33	1073	8.44	97.3
8/4/2010	17:00	21.17	7.34	1077	8.5	97.7
8/4/2010	18:00	21.12	7.34	1081	8.52	97.9
8/4/2010	19:00	21.15	7.35	1086	8.52	98
8/4/2010	20:00	21.13	7.34	1088	8.5	97.7
8/4/2010	21:00	21.01	7.34	1090	8.51	97.6
8/4/2010	22:00	20.88	7.35	1090	8.53	97.5
8/4/2010	23:00	20.77	7.35	1087	8.54	97.5
8/5/2010	0:00	20.68	7.34	1084	8.57	97.6
8/5/2010	1:00	20.71	7.31	999	8.52	97
8/5/2010	2:00	20.67	7.32	991	8.56	97.4
8/5/2010	3:00	20.55	7.33	1010	8.63	98
8/5/2010	4:00	20.4	7.36	1040	8.67	98.2
8/5/2010	5:00	20.3	7.37	1053	8.7	98.3
8/5/2010	6:00	20.2	7.36	1021	8.67	97.8
8/5/2010	7:00	20.08	7.35	980	8.69	97.8
8/5/2010	8:00	19.99	7.35	963	8.69	97.6
8/5/2010	9:00	19.94	7.32	974	8.71	97.7
8/5/2010	10:00	19.94	7.27	990	8.72	97.9
8/5/2010	11:00	20.11	7.26	1008	8.72	98.1
8/5/2010	12:00	20.55	7.27	1015	8.67	98.5
8/5/2010	13:00	20.99	7.3	1020	8.58	98.2
8/5/2010	14:00	21.5	7.34	1023	8.51	98.4
8/5/2010	15:00	22.02	7.37	1026	8.42	98.4
8/5/2010	16:00	22.4	7.39	1030	8.34	98.1

South Branch Symmes Ck @ Sheck Road/ Valley Road- TR 156

River Mile:	0.15	Local Substrate:	Gravel/ Rock/ Silt
Storet:	301032	Local Velocity (ft/s):	0.6
Flow Regime:	Normal	Local Depth (ft):	0.3- 0.4
Local Rainfall:	Light		

Date	Time	Temp C	pH (SU)	Specific Conductivity (µS/cm)	Dissolved Oxygen (mg/l)	Dissolved Oxygen (% sat)
8/3/2010	13:00	22.47	7.24	854	7.89	93
8/3/2010	14:00	22.72	7.28	850	7.91	93.6
8/3/2010	15:00	23.37	7.32	852	8.21	98.4
8/3/2010	16:00	23.89	7.36	852	8.33	100.8
8/3/2010	17:00	23.89	7.38	860	7.92	95.8
8/3/2010	18:00	23.6	7.17	811	7.62	91.7
8/3/2010	19:00	23.41	7.31	804	7.34	88
8/3/2010	20:00	23.29	7.51	825	7.45	89.1
8/3/2010	21:00	23.2	7.57	786	7.48	89.3
8/3/2010	22:00	22.9	7.6	753	7.54	89.5
8/3/2010	23:00	22.62	7.59	740	7.59	89.6
8/4/2010	0:00	22.38	7.55	729	7.58	89.1
8/4/2010	1:00	22.19	7.49	700	7.54	88.3
8/4/2010	2:00	22.02	7.47	696	7.57	88.3
8/4/2010	3:00	21.89	7.46	699	7.6	88.5
8/4/2010	4:00	21.79	7.45	707	7.61	88.5
8/4/2010	5:00	21.78	7.45	720	7.61	88.5
8/4/2010	6:00	21.81	7.47	734	7.63	88.7
8/4/2010	7:00	21.78	7.46	747	7.59	88.3
8/4/2010	8:00	21.79	7.48	766	7.67	89.1
8/4/2010	9:00	21.97	7.5	777	7.82	91.2
8/4/2010	10:00	22.46	7.53	785	7.98	94
8/4/2010	11:00	23.29	7.55	791	8.17	97.7
8/4/2010	12:00	24.01	7.58	796	8.24	100
8/4/2010	13:00	24.89	7.59	801	8.24	101.7
8/4/2010	14:00	25.71	7.61	804	8.17	102.3
8/4/2010	15:00	25.46	7.57	807	7.58	94.5
8/4/2010	16:00	24.52	7.41	803	7.16	87.7
8/4/2010	17:00	23.92	7.45	807	7.12	86.1
8/4/2010	18:00	23.84	7.48	808	7.42	89.7
8/4/2010	19:00	23.95	7.51	799	7.53	91.2
8/4/2010	20:00	23.79	7.51	789	7.42	89.6
8/4/2010	21:00	23.38	7.51	778	7.31	87.7
8/4/2010	22:00	22.99	7.52	769	7.35	87.5
8/4/2010	23:00	22.71	7.51	771	7.41	87.7
8/5/2010	0:00	22.5	7.5	772	7.43	87.6
8/5/2010	1:00	22.31	7.37	746	7.55	88.7
8/5/2010	2:00	22.04	7.34	771	7.5	87.6
8/5/2010	3:00	21.94	7.46	765	7.56	88.2
8/5/2010	4:00	21.9	7.54	714	7.68	89.4
8/5/2010	5:00	21.88	7.59	693	7.73	89.9
8/5/2010	6:00	21.89	7.62	725	7.71	89.8
8/5/2010	7:00	21.81	7.6	728	7.73	90
8/5/2010	8:00	21.82	7.58	703	7.81	90.8
8/5/2010	9:00	21.89	7.55	678	7.83	91.2
8/5/2010	10:00	22	7.53	663	7.91	92.3
8/5/2010	11:00	22.37	7.52	663	8.1	95.2
8/5/2010	12:00	23.24	7.53	673	8.27	98.9
8/5/2010	13:00	24.21	7.54	686	8.23	100.2
8/5/2010	14:00	25.04	7.55	699	8.12	100.4

Simmons Run @ TR 78

River Mile:	2.97	Local Substrate:	Hard Silt
Storet:	301016	Local Velocity (ft/s):	0.8
Flow Regime:	Normal	Local Depth (ft):	0.6
Local Rainfall:	Light		

Date	Time	Temp C	pH (SU)	Specific Conductivity (µS/cm)	Dissolved Oxygen (mg/l)	Dissolved Oxygen (% sat)
8/3/2010	13:00	23.2	7.75	1466	6.98	83.6
8/3/2010	14:00	23.48	7.81	1462	7.34	88.3
8/3/2010	15:00	24.08	7.86	1417	7.73	94.1
8/3/2010	16:00	24.38	7.88	1416	7.72	94.5
8/3/2010	17:00	24.38	7.84	1373	7.3	89.3
8/3/2010	18:00	24.6	7.82	1374	7.1	87.3
8/3/2010	19:00	24.64	7.81	1383	6.99	85.9
8/3/2010	20:00	24.68	7.82	1383	6.95	85.6
8/3/2010	21:00	24.51	7.79	1396	6.83	83.8
8/3/2010	22:00	24.27	7.76	1415	6.71	81.9
8/3/2010	23:00	23.96	7.73	1422	6.68	81.1
8/4/2010	0:00	23.69	7.72	1451	6.66	80.4
8/4/2010	1:00	23.46	7.71	1467	6.66	80.1
8/4/2010	2:00	23.22	7.7	1476	6.64	79.6
8/4/2010	3:00	22.97	7.7	1483	6.68	79.6
8/4/2010	4:00	22.77	7.7	1492	6.7	79.6
8/4/2010	5:00	22.63	7.7	1494	6.72	79.6
8/4/2010	6:00	22.51	7.7	1493	6.75	79.7
8/4/2010	7:00	22.44	7.7	1493	6.77	79.9
8/4/2010	8:00	22.44	7.71	1490	6.84	80.7
8/4/2010	9:00	22.55	7.74	1490	7.02	83.1
8/4/2010	10:00	23.04	7.78	1486	7.34	87.6
8/4/2010	11:00	23.61	7.82	1482	7.62	91.9
8/4/2010	12:00	24.41	7.88	1480	7.99	97.8
8/4/2010	13:00	25.19	7.94	1480	8.22	102.1
8/4/2010	14:00	26.28	8	1487	8.44	107
8/4/2010	15:00	26.63	8.03	1415	7.96	101.4
8/4/2010	16:00	25.8	7.86	1204	6.86	86.1
8/4/2010	17:00	24.22	7.71	892	6.65	81
8/4/2010	18:00	24.41	7.75	1066	6.84	83.7
8/4/2010	19:00	24.66	7.78	1170	7.04	86.5
8/4/2010	20:00	24.78	7.81	1247	7.1	87.5
8/4/2010	21:00	24.48	7.8	1288	6.97	85.4
8/4/2010	22:00	23.93	7.74	1315	6.73	81.6
8/4/2010	23:00	23.53	7.73	1339	6.7	80.6
8/5/2010	0:00	23.29	7.73	1350	6.72	80.5
8/5/2010	1:00	23.18	7.72	1318	6.7	80.1
8/5/2010	2:00	23.01	7.7	1247	6.62	78.9
8/5/2010	3:00	22.85	7.68	1231	6.61	78.6
8/5/2010	4:00	22.61	7.65	1189	6.58	77.8
8/5/2010	5:00	22.48	7.66	1167	6.64	78.3
8/5/2010	6:00	22.39	7.66	1171	6.65	78.3
8/5/2010	7:00	22.24	7.65	1173	6.66	78.2
8/5/2010	8:00	22.22	7.66	1188	6.75	79.3
8/5/2010	9:00	22.34	7.7	1209	7	82.4
8/5/2010	10:00	22.67	7.75	1234	7.38	87.4
8/5/2010	11:00	23.14	7.81	1255	7.8	93.2
8/5/2010	12:00	23.89	7.87	1272	8.08	97.9
8/5/2010	13:00	25.07	7.94	1286	8.37	103.7
8/5/2010	14:00	26.49	8.01	1291	8.57	109

Simmons Run @ TR 41B

River Mile: 0.6
Storet: 301017
Flow Regime: Normal
Local Rainfall: Light
Local Substrate: Gravel
Local Velocity (ft/s): 1.3
Local Depth (ft): 0.7

Date	Time	Temp C	pH (SU)	Specific Conductivity (µS/cm)	Dissolved Oxygen (mg/l)	Dissolved Oxygen (% sat)
8/3/2010	13:00	23.28	7.85	932	7.36	88.1
8/3/2010	14:00	23.4	7.89	931	7.63	91.5
8/3/2010	15:00	23.6	7.95	929	8.03	96.7
8/3/2010	16:00	23.86	7.98	929	8.37	101.2
8/3/2010	17:00	24	8	924	8.39	101.7
8/3/2010	18:00	24.25	8.04	925	8.52	103.8
8/3/2010	19:00	24.38	8.05	925	8.44	103.2
8/3/2010	20:00	24.4	8.02	926	8.25	100.8
8/3/2010	21:00	24.35	7.98	928	7.9	96.4
8/3/2010	22:00	24.33	7.94	930	7.65	93.4
8/3/2010	23:00	24.24	7.91	932	7.45	90.8
8/4/2010	0:00	24.11	7.86	934	7.14	86.8
8/4/2010	1:00	23.99	7.83	935	6.89	83.6
8/4/2010	2:00	23.86	7.8	937	6.7	81.1
8/4/2010	3:00	23.73	7.76	939	6.5	78.5
8/4/2010	4:00	23.62	7.74	941	6.37	76.7
8/4/2010	5:00	23.52	7.72	943	6.29	75.7
8/4/2010	6:00	23.43	7.71	944	6.28	75.4
8/4/2010	7:00	23.34	7.7	944	6.31	75.6
8/4/2010	8:00	23.27	7.7	943	6.36	76.1
8/4/2010	9:00	23.24	7.7	942	6.4	76.5
8/4/2010	10:00	23.27	7.71	943	6.5	77.8
8/4/2010	11:00	23.43	7.74	942	6.77	81.3
8/4/2010	12:00	23.74	7.8	938	7.24	87.5
8/4/2010	13:00	24.14	7.84	935	7.54	91.8
8/4/2010	14:00	24.83	7.89	935	7.97	98.2
8/4/2010	15:00	25.08	7.95	878	8.22	101.7
8/4/2010	16:00	24.87	7.94	857	8.3	102.3
8/4/2010	17:00	24.68	7.86	840	7.93	97.3
8/4/2010	18:00	24.73	7.84	841	7.93	97.4
8/4/2010	19:00	24.75	7.87	850	8.34	102.6
8/4/2010	20:00	24.87	7.91	865	8.61	106.1
8/4/2010	21:00	24.92	7.95	865	8.51	105
8/4/2010	22:00	24.81	7.94	862	8.09	99.6
8/4/2010	23:00	24.64	7.89	857	7.64	93.8
8/5/2010	0:00	24.43	7.83	849	7.22	88.3
8/5/2010	1:00	24.18	7.77	835	6.9	84
8/5/2010	2:00	23.92	7.73	819	6.67	80.8
8/5/2010	3:00	23.75	7.69	822	6.52	78.8
8/5/2010	4:00	23.66	7.67	836	6.36	76.7
8/5/2010	5:00	23.56	7.67	848	6.29	75.7
8/5/2010	6:00	23.46	7.66	858	6.19	74.4
8/5/2010	7:00	23.3	7.64	870	6.09	72.9
8/5/2010	8:00	23.15	7.62	874	6.01	71.7
8/5/2010	9:00	23.04	7.6	962	5.99	71.3
8/5/2010	10:00	23	7.59	953	6.04	72
8/5/2010	11:00	23.09	7.6	956	6.29	75
8/5/2010	12:00	23.3	7.63	958	6.6	79.1
8/5/2010	13:00	23.62	7.67	974	7.16	86.2
8/5/2010	14:00	24.19	7.73	992	7.81	95.1

Spoon Creek @ CR 193

River Mile:	0.6	Local Substrate:	N/A
Storet:	N/A	Local Velocity (ft/s):	0.7- 0.8; >1.0
Flow Regime:	Low	Local Depth (ft):	0.4
Local Rainfall:	Light		

Date	Time	Temp C	pH (SU)	Specific Conductivity (µS/cm)	Dissolved Oxygen (mg/l)	Dissolved Oxygen (% sat)
8/3/2010	12:00	21	7.6	636	8.46	96.8
8/3/2010	13:00	21.34	7.79	635	9.71	111.8
8/3/2010	14:00	21.57	7.88	631	10.23	118.4
8/3/2010	15:00	22.4	7.97	628	11.3	132.9
8/3/2010	16:00	23.16	7.83	635	9.65	115.1
8/3/2010	17:00	22.78	7.85	627	9.2	108.9
8/3/2010	18:00	22.75	7.79	629	8.56	101.3
8/3/2010	19:00	22.68	7.75	638	8.26	97.7
8/3/2010	20:00	22.54	7.71	658	8.04	94.8
8/3/2010	21:00	22.23	7.62	669	7.47	87.5
8/3/2010	22:00	21.99	7.58	686	7.23	84.4
8/3/2010	23:00	21.79	7.53	694	6.96	80.9
8/4/2010	0:00	21.47	7.49	724	6.85	79.2
8/4/2010	1:00	21.41	7.47	737	6.77	78.1
8/4/2010	2:00	21.37	7.46	734	6.71	77.3
8/4/2010	3:00	21.32	7.44	740	6.59	75.9
8/4/2010	4:00	21.27	7.43	742	6.58	75.7
8/4/2010	5:00	21.25	7.43	729	6.81	78.3
8/4/2010	6:00	21.18	7.43	722	6.78	77.9
8/4/2010	7:00	21.1	7.43	703	6.8	77.9
8/4/2010	8:00	21.19	7.46	692	6.97	80.1
8/4/2010	9:00	21.53	7.49	685	7.25	83.9
8/4/2010	10:00	22.26	7.6	668	8.12	95.3
8/4/2010	11:00	23.33	7.66	668	8.56	102.4
8/4/2010	12:00	24.65	7.75	661	9.27	113.7
8/4/2010	13:00	25.66	7.84	659	9.93	124.1
8/4/2010	14:00	26.11	7.78	664	8.79	110.8
8/4/2010	15:00	26.41	7.74	658	8.52	108
8/4/2010	16:00	23.42	7.36	283	6.83	81.8
8/4/2010	17:00	23.23	7.38	328	6.97	83.2
8/4/2010	18:00	23.1	7.2	300	6.32	75.2
8/4/2010	19:00	23.36	7.32	306	4.54	54.3
8/4/2010	20:00	23.4	7.44	315	7.1	85
8/4/2010	21:00	23.21	7.46	324	6.91	82.5
8/4/2010	22:00	22.9	7.43	325	6.77	80.3
8/4/2010	23:00	22.61	7.45	288	6.87	81
8/5/2010	0:00	22.38	7.46	378	6.86	80.6
8/5/2010	1:00	22.21	7.49	376	6.94	81.2
8/5/2010	2:00	22.06	7.46	342	6.76	78.8
8/5/2010	3:00	21.89	7.41	289	6.53	75.9
8/5/2010	4:00	21.65	7.4	275	6.53	75.6
8/5/2010	5:00	21.56	7.4	267	6.63	76.6
8/5/2010	6:00	21.43	7.41	269	6.82	78.6
8/5/2010	7:00	21.36	7.42	263	6.88	79.2
8/5/2010	8:00	21.49	7.44	258	6.96	80.3
8/5/2010	9:00	21.61	7.47	250	7.05	81.5
8/5/2010	10:00	21.96	7.5	247	7.32	85.3
8/5/2010	11:00	22.68	7.53	248	7.55	89.2
8/5/2010	12:00	23.62	7.58	246	7.82	94
8/5/2010	13:00	24.69	7.6	244	8.04	98.6
8/5/2010	14:00	25.86	7.65	242	8.37	104.9

Symmes Ck @ Steel Hill Road @ Oil Rig

River Mile:	5.65	Local Substrate:	Bedrock/ Rock
Storet:	301034	Local Velocity (ft/s):	0.6
Flow Regime:	Normal	Local Depth (ft):	0.4
Local Rainfall:	Light		

Date	Time	Temp C	pH (SU)	Specific Conductivity (µS/cm)	Dissolved Oxygen (mg/l)	Dissolved Oxygen (% sat)
8/3/2010	13:00	21.33	7.41	629	7.61	87.6
8/3/2010	14:00	21.63	7.51	635	7.83	90.7
8/3/2010	15:00	22.59	7.61	625	8.56	101
8/3/2010	16:00	22.68	7.67	615	8.65	102.3
8/3/2010	17:00	22.72	7.66	611	8.28	98
8/3/2010	18:00	22.59	7.58	608	7.55	89
8/3/2010	19:00	22.76	7.53	563	7.1	84.1
8/3/2010	20:00	22.77	7.51	567	6.95	82.3
8/3/2010	21:00	22.64	7.48	577	6.69	79
8/3/2010	22:00	22.51	7.49	603	6.71	79
8/3/2010	23:00	22.34	7.5	603	6.78	79.6
8/4/2010	0:00	22.1	7.5	591	6.81	79.6
8/4/2010	1:00	21.85	7.51	532	6.93	80.6
8/4/2010	2:00	21.76	7.56	503	7.19	83.5
8/4/2010	3:00	21.65	7.56	487	7.28	84.3
8/4/2010	4:00	21.55	7.56	493	7.36	85.1
8/4/2010	5:00	21.52	7.55	501	7.37	85.2
8/4/2010	6:00	21.52	7.56	500	7.34	84.8
8/4/2010	7:00	21.5	7.54	501	7.25	83.7
8/4/2010	8:00	21.52	7.55	505	7.29	84.3
8/4/2010	9:00	21.65	7.57	510	7.43	86.1
8/4/2010	10:00	21.92	7.61	514	7.65	89
8/4/2010	11:00	22.51	7.68	515	8.05	94.8
8/4/2010	12:00	23.31	7.76	525	8.39	100.4
8/4/2010	13:00	23.9	7.81	527	8.57	103.7
8/4/2010	14:00	24.43	7.85	524	8.67	105.9
8/4/2010	15:00	24.41	7.8	544	8.04	98.1
8/4/2010	16:00	23.72	7.66	535	7.22	87
8/4/2010	17:00	23.39	7.6	507	6.91	82.8
8/4/2010	18:00	23.38	7.61	519	7.06	84.6
8/4/2010	19:00	23.43	7.63	519	7.18	86.1
8/4/2010	20:00	23.37	7.62	527	7.12	85.2
8/4/2010	21:00	23.18	7.6	558	6.95	83
8/4/2010	22:00	23.13	7.63	490	7	83.5
8/4/2010	23:00	22.77	7.65	416	7.25	85.8
8/5/2010	0:00	22.55	7.65	417	7.3	86.1
8/5/2010	1:00	22.41	7.65	408	7.31	86
8/5/2010	2:00	22.3	7.63	422	7.3	85.6
8/5/2010	3:00	22.24	7.6	435	7.23	84.7
8/5/2010	4:00	22.2	7.59	446	7.23	84.6
8/5/2010	5:00	22.14	7.59	462	7.23	84.6
8/5/2010	6:00	22.03	7.6	454	7.33	85.5
8/5/2010	7:00	21.86	7.61	329	7.43	86.4
8/5/2010	8:00	21.84	7.64	298	7.54	87.6
8/5/2010	9:00	21.89	7.65	288	7.56	87.9
8/5/2010	10:00	21.98	7.65	279	7.59	88.5
8/5/2010	11:00	22.23	7.67	276	7.79	91.2
8/5/2010	12:00	22.74	7.7	277	7.98	94.3
8/5/2010	13:00	23.29	7.71	285	8.02	95.8
8/5/2010	14:00	23.91	7.73	291	8.06	97.5

Symmes Ck @ Mutton Ridge Road off Molies Rock Road

River Mile:	4.35	Local Substrate:	Gravel/ Rock
Storet:	301033	Local Velocity (ft/s):	1.0
Flow Regime:	Normal	Local Depth (ft):	0.4
Local Rainfall:	Light		

Date	Time	Temp C	pH (SU)	Specific Conductivity (mS/cm)	Dissolved Oxygen (mg/l)	Dissolved Oxygen (% sat)
8/3/2010	12:00	22.19	7.39	1.148	7.88	92.4
8/3/2010	13:00	22.37	7.45	1.098	8.05	94.7
8/3/2010	14:00	22.56	7.46	1.099	8.16	96.4
8/3/2010	15:00	23.22	7.53	1.098	8.54	102.2
8/3/2010	16:00	23.75	7.57	1.1	8.66	104.6
8/3/2010	17:00	23.79	7.55	1.103	8.3	100.4
8/3/2010	18:00	23.56	7.45	1.075	7.9	95.1
8/3/2010	19:00	23.4	7.51	0.921	7.88	94.5
8/3/2010	20:00	23.24	7.49	0.962	7.73	92.5
8/3/2010	21:00	23.14	7.42	0.934	7.47	89.2
8/3/2010	22:00	22.97	7.38	0.923	7.31	87
8/3/2010	23:00	22.74	7.34	0.914	7.33	86.8
8/4/2010	0:00	22.51	7.35	0.947	7.43	87.6
8/4/2010	1:00	22.28	7.39	0.966	7.51	88.2
8/4/2010	2:00	22.1	7.41	0.966	7.58	88.8
8/4/2010	3:00	21.93	7.41	0.963	7.59	88.5
8/4/2010	4:00	21.79	7.41	0.928	7.64	88.8
8/4/2010	5:00	21.71	7.39	0.924	7.69	89.3
8/4/2010	6:00	21.69	7.41	0.945	7.73	89.8
8/4/2010	7:00	21.64	7.41	0.982	7.75	89.9
8/4/2010	8:00	21.63	7.42	0.989	7.79	90.3
8/4/2010	9:00	21.73	7.44	0.974	7.9	91.8
8/4/2010	10:00	22.02	7.47	0.939	8.04	94
8/4/2010	11:00	22.8	7.52	0.902	8.36	99.1
8/4/2010	12:00	23.92	7.59	0.873	8.66	104.9
8/4/2010	13:00	25.2	7.66	0.874	8.88	110.2
8/4/2010	14:00	25.93	7.7	0.874	8.79	110.4
8/4/2010	15:00	25.57	7.64	0.879	8.16	101.9
8/4/2010	16:00	24.58	7.59	0.882	7.68	94.2
8/4/2010	17:00	24.07	7.57	0.897	7.57	91.9
8/4/2010	18:00	23.99	7.57	0.908	7.67	93
8/4/2010	19:00	24.09	7.57	0.905	7.69	93.5
8/4/2010	20:00	23.95	7.55	0.901	7.57	91.7
8/4/2010	21:00	23.61	7.52	0.899	7.45	89.7
8/4/2010	22:00	23.25	7.49	0.901	7.4	88.5
8/4/2010	23:00	22.93	7.48	0.9	7.46	88.6
8/5/2010	0:00	22.66	7.48	0.857	7.54	89.1
8/5/2010	1:00	22.42	7.48	0.84	7.71	90.8
8/5/2010	2:00	22.2	7.49	0.82	7.78	91.2
8/5/2010	3:00	22.06	7.47	0.781	7.77	90.9
8/5/2010	4:00	21.93	7.43	0.739	7.75	90.4
8/5/2010	5:00	21.82	7.42	0.711	7.79	90.6
8/5/2010	6:00	21.69	7.42	0.701	7.83	90.8
8/5/2010	7:00	21.59	7.45	0.7	7.9	91.5
8/5/2010	8:00	21.61	7.49	0.695	7.98	92.4
8/5/2010	9:00	21.71	7.51	0.715	8.04	93.3
8/5/2010	10:00	21.89	7.53	0.71	8.14	94.8
8/5/2010	11:00	22.22	7.56	0.68	8.34	97.7
8/5/2010	12:00	23.16	7.61	0.644	8.56	102.2
8/5/2010	13:00	24.32	7.67	0.634	8.72	106.3

Symmes Ck @ Mollies Rock Road

River Mile:	2.35	Local Substrate:	Gravel/ Rock
Storet:	300889	Local Velocity (ft/s):	0.7
Flow Regime:	Normal	Local Depth (ft):	0.4
Local Rainfall:	Light		

Date	Time	Temp C	pH (SU)	Specific Conductivity (µS/cm)	Dissolved Oxygen (mg/l)	Dissolved Oxygen (% sat)
8/3/2010	12:00	22.72	7.84	1423	7.97	94.5
8/3/2010	13:00	22.84	7.87	1424	8.05	95.6
8/3/2010	14:00	23	7.9	1422	8.23	98.2
8/3/2010	15:00	23.51	7.95	1428	8.66	104.3
8/3/2010	16:00	23.92	8	1430	8.84	107.2
8/3/2010	17:00	24.07	8	1430	8.53	103.7
8/3/2010	18:00	24.01	7.98	1410	8.09	98.3
8/3/2010	19:00	23.94	7.96	1367	7.86	95.4
8/3/2010	20:00	23.83	7.95	1375	7.85	95.1
8/3/2010	21:00	23.7	7.94	1368	7.75	93.6
8/3/2010	22:00	23.57	7.89	1341	7.65	92.2
8/3/2010	23:00	23.46	7.87	1350	7.57	91
8/4/2010	0:00	23.31	7.87	1364	7.55	90.6
8/4/2010	1:00	23.17	7.86	1383	7.54	90.1
8/4/2010	2:00	23.02	7.86	1379	7.55	90.1
8/4/2010	3:00	22.87	7.85	1378	7.55	89.8
8/4/2010	4:00	22.75	7.85	1374	7.57	89.8
8/4/2010	5:00	22.66	7.84	1377	7.58	89.7
8/4/2010	6:00	22.62	7.84	1374	7.58	89.7
8/4/2010	7:00	22.58	7.85	1355	7.57	89.5
8/4/2010	8:00	22.53	7.85	1329	7.64	90.3
8/4/2010	9:00	22.57	7.87	1319	7.73	91.3
8/4/2010	10:00	22.75	7.89	1309	7.88	93.5
8/4/2010	11:00	23.2	7.93	1301	8.19	98
8/4/2010	12:00	23.86	7.98	1298	8.57	103.8
8/4/2010	13:00	24.63	8.03	1300	8.84	108.6
8/4/2010	14:00	25.21	8.07	1294	8.96	111.3
8/4/2010	15:00	25.33	8.06	1303	8.54	106.2
8/4/2010	16:00	24.73	8.03	1272	7.97	98.1
8/4/2010	17:00	24.39	8.01	1275	7.82	95.6
8/4/2010	18:00	24.3	8	1293	7.82	95.5
8/4/2010	19:00	24.36	8	1307	7.83	95.8
8/4/2010	20:00	24.34	8	1303	7.69	94
8/4/2010	21:00	24.13	7.97	1289	7.5	91.2
8/4/2010	22:00	23.86	7.94	1294	7.41	89.7
8/4/2010	23:00	23.6	7.93	1299	7.38	89
8/5/2010	0:00	23.42	7.92	1300	7.39	88.8
8/5/2010	1:00	23.23	7.92	1290	7.47	89.4
8/5/2010	2:00	23.05	7.91	1277	7.48	89.2
8/5/2010	3:00	22.86	7.92	1261	7.62	90.6
8/5/2010	4:00	22.76	7.92	1256	7.65	90.7
8/5/2010	5:00	22.74	7.92	1227	7.65	90.7
8/5/2010	6:00	22.71	7.93	1243	7.65	90.7
8/5/2010	7:00	22.62	7.92	1247	7.64	90.4
8/5/2010	8:00	22.57	7.91	1258	7.69	90.9
8/5/2010	9:00	22.58	7.91	1254	7.74	91.5
8/5/2010	10:00	22.61	7.93	1228	7.91	93.6
8/5/2010	11:00	22.79	7.97	1204	8.19	97.2
8/5/2010	12:00	23.31	8.02	1181	8.52	102.1

Turkey Run @ CR 12

River Mile:	0.19	Local Substrate:	Silt/ Gravel
Storet:	R04531	Local Velocity (ft/s):	0.2- 0.5
Flow Regime:	Low	Local Depth (ft):	0.6
Local Rainfall:	Light		

Date	Time	Temp C	pH (SU)	Specific Conductivity (µS/cm)	Dissolved Oxygen (mg/l)	Dissolved Oxygen (% sat)
8/3/2010	14:00	23.08	7.57	666	7.62	90.7
8/3/2010	15:00	23.5	7.64	667	8.09	97.2
8/3/2010	16:00	23.95	7.67	667	8.16	98.8
8/3/2010	17:00	23.78	7.66	654	7.83	94.5
8/3/2010	18:00	23.72	7.62	658	7.51	90.5
8/3/2010	19:00	23.79	7.6	655	7.37	89
8/3/2010	20:00	23.89	7.61	658	7.38	89.2
8/3/2010	21:00	23.8	7.59	661	7.19	86.8
8/3/2010	22:00	23.62	7.57	663	7.06	85
8/3/2010	23:00	23.45	7.56	665	7.03	84.4
8/4/2010	0:00	23.22	7.55	667	6.98	83.4
8/4/2010	1:00	23.01	7.53	673	6.97	83
8/4/2010	2:00	22.86	7.53	678	6.96	82.6
8/4/2010	3:00	22.74	7.54	683	7.03	83.3
8/4/2010	4:00	22.63	7.53	687	7.06	83.4
8/4/2010	5:00	22.55	7.53	687	7.05	83.1
8/4/2010	6:00	22.47	7.52	691	7.01	82.6
8/4/2010	7:00	22.4	7.51	695	7.02	82.5
8/4/2010	8:00	22.41	7.52	698	7.13	83.8
8/4/2010	9:00	22.51	7.55	701	7.32	86.3
8/4/2010	10:00	22.89	7.57	705	7.53	89.4
8/4/2010	11:00	23.56	7.61	707	7.88	94.7
8/4/2010	12:00	24.3	7.64	709	8.17	99.6
8/4/2010	13:00	24.41	7.67	710	8.2	100.2
8/4/2010	14:00	24.61	7.69	711	8.35	102.4
8/4/2010	15:00	24.99	7.71	694	8.21	101.4
8/4/2010	16:00	24.55	7.65	640	7.58	92.8
8/4/2010	17:00	24.43	7.63	619	7.49	91.6
8/4/2010	18:00	24.16	7.62	630	7.5	91.2
8/4/2010	19:00	24.35	7.64	603	7.44	90.8
8/4/2010	20:00	24.21	7.64	612	7.41	90.2
8/4/2010	21:00	23.93	7.64	627	7.38	89.3
8/4/2010	22:00	23.74	7.63	630	7.35	88.6
8/4/2010	23:00	23.52	7.61	625	7.31	87.8
8/5/2010	0:00	23.3	7.59	618	7.29	87.2
8/5/2010	1:00	23.08	7.58	614	7.31	87.1
8/5/2010	2:00	22.9	7.57	606	7.33	87
8/5/2010	3:00	22.73	7.56	605	7.35	86.9
8/5/2010	4:00	22.56	7.56	599	7.35	86.7
8/5/2010	5:00	22.41	7.56	595	7.36	86.6
8/5/2010	6:00	22.26	7.57	594	7.41	86.9
8/5/2010	7:00	22.15	7.57	594	7.46	87.3
8/5/2010	8:00	22.09	7.58	597	7.51	87.8
8/5/2010	9:00	22.12	7.59	600	7.62	89.1
8/5/2010	10:00	22.3	7.6	602	7.74	90.8
8/5/2010	11:00	22.68	7.62	602	7.87	93
8/5/2010	12:00	23.11	7.64	602	7.97	95
8/5/2010	13:00	23.74	7.66	602	8.13	98.1
8/5/2010	14:00	24.42	7.68	602	8.23	100.5

UT to Mohawk @ RM 2.93 @ TR 373

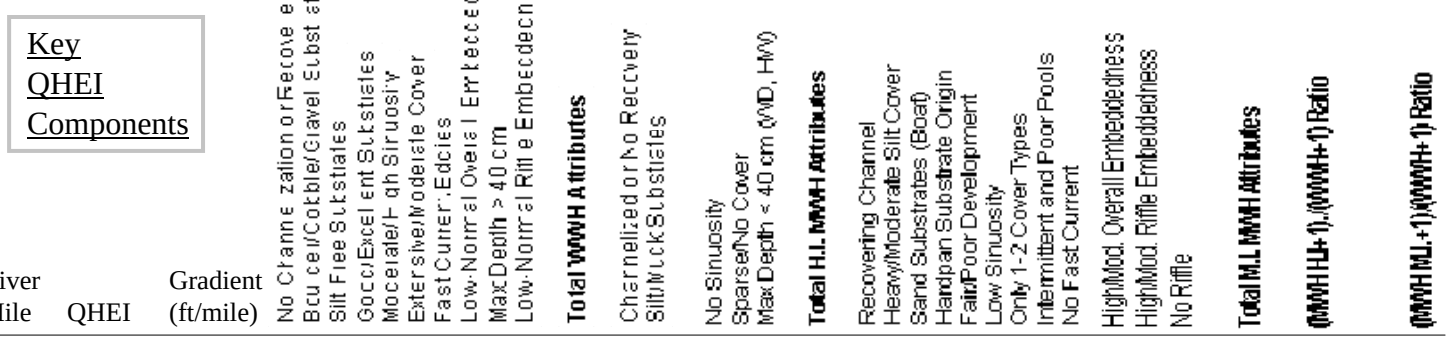
River Mile:	0.6	Local Substrate:	Rocks, gravel
Storet:	301012	Local Velocity (ft/s):	0.6- 0.7
Flow Regime:	Low	Local Depth (ft):	0.4- 0.5
Local Rainfall:	Light		

Date	Time	Temp C	pH (SU)	Specific Conductivity (µS/cm)	Dissolved Oxygen (mg/l)	Dissolved Oxygen (% sat)
8/3/2010	10:00	21.29	7.41	293	5.95	68.5
8/3/2010	11:00	21.23	7.43	292	6.17	70.9
8/3/2010	12:00	21.23	7.45	291	6.46	74.2
8/3/2010	13:00	21.35	7.46	290	6.94	79.9
8/3/2010	14:00	21.42	7.49	290	7.24	83.4
8/3/2010	15:00	21.77	7.53	290	7.69	89.2
8/3/2010	16:00	22.14	7.57	290	8.03	93.8
8/3/2010	17:00	22.2	7.59	288	7.97	93.3
8/3/2010	18:00	22.26	7.57	292	7.68	90
8/3/2010	19:00	22.36	7.56	289	7.62	89.4
8/3/2010	20:00	22.4	7.56	288	7.57	88.9
8/3/2010	21:00	22.29	7.54	289	7.3	85.6
8/3/2010	22:00	22.21	7.51	289	7.02	82.2
8/3/2010	23:00	22.1	7.49	289	6.8	79.4
8/4/2010	0:00	21.96	7.47	289	6.6	76.9
8/4/2010	1:00	21.81	7.44	290	6.46	75
8/4/2010	2:00	21.67	7.43	290	6.35	73.5
8/4/2010	3:00	21.53	7.42	290	6.31	72.8
8/4/2010	4:00	21.38	7.42	291	6.24	71.9
8/4/2010	5:00	21.21	7.42	292	6.25	71.8
8/4/2010	6:00	21.05	7.41	292	6.25	71.6
8/4/2010	7:00	20.89	7.43	293	6.26	71.4
8/4/2010	8:00	20.77	7.42	294	6.33	72
8/4/2010	9:00	20.77	7.44	294	6.54	74.4
8/4/2010	10:00	20.93	7.47	295	6.87	78.5
8/4/2010	11:00	21.49	7.52	295	7.29	84.2
8/4/2010	12:00	22.12	7.55	295	7.67	89.6
8/4/2010	13:00	22.91	7.6	295	8.06	95.6
8/4/2010	14:00	23.69	7.65	294	8.31	100
8/4/2010	15:00	23.92	7.71	281	8.23	99.4
8/4/2010	16:00	23.95	7.69	299	7.51	90.8
8/4/2010	17:00	23.96	7.62	286	7.37	89.2
8/4/2010	18:00	24.04	7.61	288	7.37	89.3
8/4/2010	19:00	24.22	7.62	289	7.53	91.6
8/4/2010	20:00	24.01	7.6	289	7.35	89
8/4/2010	21:00	23.67	7.58	288	7.03	84.6
8/4/2010	22:00	23.19	7.55	288	6.72	80.2
8/4/2010	23:00	22.74	7.52	288	6.51	77
8/5/2010	0:00	22.41	7.51	286	6.35	74.6
8/5/2010	1:00	22.16	7.51	282	6.42	75.1
8/5/2010	2:00	21.85	7.51	285	6.36	74
8/5/2010	3:00	21.47	7.47	287	6.27	72.4
8/5/2010	4:00	21.09	7.47	290	6.37	72.9
8/5/2010	5:00	20.8	7.48	291	6.45	73.4
8/5/2010	6:00	20.61	7.48	292	6.48	73.5
8/5/2010	7:00	20.43	7.47	292	6.51	73.6
8/5/2010	8:00	20.35	7.47	292	6.53	73.7
8/5/2010	9:00	20.36	7.48	292	6.65	75
8/5/2010	10:00	20.59	7.49	293	6.98	79.1
8/5/2010	11:00	20.99	7.51	294	7.41	84.7
8/5/2010	12:00	21.57	7.54	295	7.78	90
8/5/2010	13:00	22.28	7.6	296	8.08	94.6

Appendix G - QHEI attributes for Walhonding River, 2007 and Walhonding and Muskingum River tributaries, 2010.

Key QHEI Components

River Mile	QHEI	Gradient (ft/mile)	WWH Attributes: No Channelization or Recovered	Boulder/Cobble/Gravel Substrates	Silt Free Substrates	Good/Excellent Substrates	Moderate/High Sinuosity	Extensive/Moderate Cover	Fast Current/Eddies	Low-Normal Overall Embeddedness	Max Depth > 40 cm	Low-Normal Riffle Embeddedness	Total WWH Attributes	MWH Attributes — High Influence: Channelized or No Recovery	Silt/Muck Substrates	No Sinuosity	Sparse/No Cover	Max Depth < 40 cm (WD, HW)	Total H.I. MWH Attributes	MWH Attributes — Moderate Influence: Recovering Channel	Heavy/Moderate Silt Cover	Sand Substrates (Boat)	Hardpan Substrate Origin	Fair/Poor Development	Low Sinuosity	Only 1-2 Cover Types	Intermittent and Poor Pools	No Fast Current	High/Mod. Overall Embeddedness	High/Mod. Riffle Embeddedness	No Riffle	Total M.I. MWH Attributes	(MWH HI+1)/(WWH+1) Ratio	(MWH MI+1)/(WWH+1) Ratio
(17-600) Walhonding River																																	
Year: 2007																																	
20.4	**81.5**	1.56	■	■		■	■	■	■	■	■	■	9						0					•				•			2	0.10	0.30
15.7	**83.0**	3.33	■	■		■	■	■	■	■	■	■	9						0													0	0.10	0.10
8.8	**64.0**	0.10	■	■				■			■		4						0		•		•	•		•	•		•	•	•	6	0.20	1.40
7.5	**92.0**	5.85	■	■	■	■	■	■	■	■	■	■	10						0													0	0.09	0.09
1.0	**94.0**	4.31	■	■		■	■	■	■	■	■	■	9						0													0	0.10	0.10
(17-601) Crooked Run																																	
Year: 2010																																	
1.0	**53.3**	5.92		■				■					2			♦		♦	2	•	•		•			•		•	•	•		6	1.00	3.00
0.1	**42.8**	5.92	■							■		■	3			♦	♦	♦	3			•		•		•						3	1.00	1.75
(17-603) Simmons Run																																	
Year: 2010																																	
3.0	**64.5**	12.58	■		■	■	■	■	■	■	■		8						0		•		•	•									3	0.11	0.44
0.6	**78.0**	7.94	■	■		■	■	■	■	■	■		9						0				•	•						•	•		4	0.10	0.50
(17-604) Flint Run																																	
Year: 2010																																	
0.4	**56.5**	11.43	■	■		■		■		■		■	6		♦		♦		♦	3	•		•						•				3	0.57	1.00
(17-605) Beaver Run																																	
Year: 2010																																	
2.6	**53.5**	6.85	■			■	■			■	■	■	6				♦			1	•	•		•			•		•	•			5	0.29	1.00
0.2	**60.3**	28.57	■	■		■	■	■	■			■	7						0		•		•						•	•		4	0.13	0.63
(17-606) Darling Run																																	
Year: 2010																																	
0.1	**59.8**	25.58	■				■		■			■	4				♦	♦	2			•	•					•					3	0.60	1.20
(17-607) Mohawk Creek																																	
Year: 2010																																	
4.1	**66.3**	10.26	■	■		■	■	■		■	■	■	8						0		•		•	•					•				4	0.11	0.56
1.5	**57.8**	9.80	■	■				■			■		4			♦			1		•		•	•	•		•		•	•	•		7	0.40	1.80
(17-608) Dutch Run																																	
Year: 2010																																	
0.1	**63.3**	23.75	■	■		■	■	■				■	6					♦		1		•		•					•		•			4	0.29	0.86
(17-609) Honey Run																																	
Year: 2010																																	
0.6	**50.5**	35.71		■						■		■	3			♦	♦	♦	3	•		•	•		•		•					5	1.00	2.25



River Mile	QHEI	Gradient (ft/mile)	Total WWH Attributes	Total H.L. MWH Attributes	Total M.L. MWH Attributes	(MWH HL+1)/(WWH+1) Ratio	(MWH ML+1)/(WWH+1) Ratio
(17-610) Mill Creek							
Year: 2010							
12.5	**68.0**	8.26	9	1	3	0.20	0.50
8.5	**64.3**	7.07	6	2	3	0.43	0.86
7.9	**58.0**	7.07	2	0	7	0.33	2.67
3.5	**59.8**	7.84	4	1	5	0.40	1.40
0.4	**59.8**	5.09	4	1	5	0.40	1.40
(17-612) Turkey Run							
Year: 2010							
0.1	**70.5**	29.41	7	1	3	0.25	0.63
(17-613) Little Mill Creek							
Year: 2010							
0.1	**63.8**	15.19	6	2	5	0.43	1.14
(17-614) Beards Run							
Year: 2010							
0.1	**47.0**	20.62	4	3	4	0.80	1.60
(17-626) Trib. to Mohawk Creek (2.93)							
Year: 2010							
0.6	**74.3**	19.42	7	1	2	0.25	0.50
(17-919) Mill Run							
Year: 2010							
0.4	**52.5**	24.69	2	3	5	1.33	3.00
(17-938) Blount Run							
Year: 2010							
0.3	**68.3**	6.56	9	0	4	0.10	0.50
(17-939) Blunt Run							
Year: 2010							
0.1	**69.3**	24.39	7	2	2	0.38	0.63
(17-956) Symmes Creek							
Year: 2010							
5.7	**62.8**	16.00	7	3	5	0.50	1.13
4.4	**58.0**	15.50	3	3	2	1.00	1.50
2.3	**76.8**	11.36	8	0	1	0.11	0.22
(17-957) North Branch Symmes Creek							
Year: 2010							

Key QHEI Components

River Mile	QHEI	Gradient (ft/mile)	WWH Attributes: No Channelization or Recovered	Boulder/Cobble/Gravel Substrates	Silt Free Substrates	Good/Excellent Substrates	Moderate/High Sinuosity	Extensive/Moderate Cover	Fast Current/Eddies	Low-Normal Overall Embeddedness	Max Depth > 40 cm	Low-Normal Riffle Embeddedness	**Total WWH Attributes**	MWH Attributes (*High Influence*): Channelized or No Recovery	Silt/Muck Substrates	No Sinuosity	Sparse/No Cover	Max Depth < 40 cm (WD, HW)	**Total H.I. MWH Attributes**	MWH Attributes (*Moderate Influence*): Recovering Channel	Heavy/Moderate Silt Cover	Sand Substrates (Boat)	Hardpan Substrate Origin	Fair/Poor Development	Low Sinuosity	Only 1-2 Cover Types	Intermittent and Poor Pools	No Fast Current	High/Mod. Overall Embeddedness	High/Mod. Riffle Embeddedness	No Riffle	**Total M.I. MWH Attributes**	**(MWH HI+1)/(WWH+1) Ratio**	**(MWH MI+1)/(WWH+1) Ratio**
(17-957) North Branch Symmes Creek																																	
Year: 2010																																	
4.3	**73.0**	18.69	■	■		■	■	■	■	■	■	■	9						0		•		•				•	•		4	0.10	0.50
0.1	**78.5**	11.11	■	■		■	■	■	■	■	■	■	9						0												0	0.10	0.10
(17-958) South Branch Symmes Creek																																	
Year: 2010																																	
0.2	**66.8**	15.04	■	■		■	■	■		■	■	■	8						0		•		•				•				3	0.11	0.44
(17-979) Robinson Run																																	
Year: 2010																																	
1.8	**79.5**	29.85	■	■		■	■	■	■		■	■	8						0		•						•	•		3	0.11	0.44

Appendix H – Index of Biotic Integrity metrics for Walhonding River, 2007 and Walhonding and Muskingum River tributaries, 2010.

River Mile	Type	Date	Drainage area (sq mi)	Number of: Total species	Sunfish species	Sucker species	Intolerant species	Percent of Individuals: Rnd-bodied suckers	Simple Lithophils	Tolerant fishes	Omni-vores	Top carnivores	Insect-ivores	DELT anomalies	Rel.No. minus tolerants /(1.0 km)	IBI	Modified Iwb
Walhonding River - (17-600)																	
Year: 2007																	
20.40	A	07/09/2007	1490	24(5)	2(3)	7(5)	7(5)	62(5)	79(5)	1(5)	2(5)	13(5)	84(5)	0.4(5)	1056(5)	58	10.4
20.40	A	09/17/2007	1490	25(5)	1(1)	7(5)	10(5)	48(5)	78(5)	3(5)	2(5)	9(3)	83(5)	0.0(5)	856(5)	54	10.8
15.70	A	07/10/2007	1505	30(5)	2(3)	7(5)	12(5)	31(3)	61(5)	1(5)	4(5)	6(3)	89(5)	0.0(5)	1458(5)	54	11.2
15.70	A	09/12/2007	1505	29(5)	2(3)	6(5)	10(5)	37(3)	57(5)	5(5)	9(5)	15(5)	72(5)	0.3(5)	588(5)	56	10.6
8.80	A	07/10/2007	1572	14(3)	4(5)	4(3)	1(1)	59(5)	60(5)	5(5)	5(5)	22(5)	73(5)	0.0(5)	286(3)	50	8.3
8.80	A	09/12/2007	1572	15(3)	3(3)	5(3)	2(3)	21(3)	25(3)	6(5)	30(1)	25(5)	38(3)	0.0(5)	236(3)	40	8.8
7.50	A	07/11/2007	1575	37(5)	2(3)	9(5)	14(5)	33(3)	54(5)	3(5)	5(5)	6(3)	82(5)	0.0(5)	1334(5)	54	11.8
7.50	A	09/20/2007	1575	38(5)	3(3)	8(5)	12(5)	34(3)	61(5)	5(5)	8(5)	12(5)	76(5)	0.6(3)	702(5)	54	11.3
1.00	A	07/11/2007	2254	34(5)	2(3)	6(5)	12(5)	27(3)	45(5)	6(5)	7(5)	6(3)	77(5)	0.6(3)	638(5)	52	10.9
0.70	A	09/19/2007	2255	33(5)	1(1)	6(5)	10(5)	39(5)	69(5)	3(5)	5(5)	3(1)	87(5)	0.5(5)	778(5)	52	10.4

♦ - IBI is low end adjusted.

* - < 200 Total individuals in sample

** - < 50 Total individuals in sample

River Mile	Type	Date	Drainage area (sq mi)	Number of: Total species	Sunfish species	Sucker species	Intolerant species	Darter species	Percent of Individuals: Simple Lithophils	Tolerant fishes	Omni-vores	Top carnivores	Insect-ivores	DELT anomalies	Rel.No. minus tolerants /(0.3km)	IBI	Modified Iwb
Mohawk Creek - (17607)																	
Year: 2010																	
1.50	E	07/22/2010	22	27(5)	2(3)	4(5)	4(5)	6(5)	39(5)	33(3)	28(3)	3.5(3)	55(5)	0.0(5)	783(5)	52	9.6
1.50	E	08/23/2010	22	29(5)	3(3)	4(5)	4(5)	7(5)	42(5)	36(3)	27(3)	4.6(3)	55(5)	0.1(5)	657(3)	50	9.4
Mill Creek - (17610)																	
Year: 2010																	
7.90	E	07/21/2010	27	27(5)	2(3)	3(5)	6(5)	5(5)	41(5)	31(3)	24(3)	1.0(1)	57(5)	0.0(5)	1086(5)	50	9.1
7.90	E	08/23/2010	27	27(5)	2(3)	4(5)	5(5)	6(5)	30(3)	44(3)	37(1)	0.6(1)	50(3)	0.0(5)	1313(5)	44	9.3
3.50	E	07/21/2010	39	26(5)	1(1)	4(5)	6(5)	5(5)	24(3)	39(3)	24(3)	1.0(3)	45(3)	0.0(5)	527(3)	44	8.7
3.50	E	08/20/2010	39	24(5)	1(1)	2(3)	7(5)	5(5)	30(3)	34(3)	16(5)	0.7(1)	61(5)	0.0(5)	669(3)	44	8.7
0.40	E	07/21/2010	51	26(5)	2(3)	3(3)	5(5)	7(5)	30(3)	37(3)	37(1)	0.4(1)	55(3)	0.0(5)	1461(5)	42	9.0
0.40	E	08/20/2010	51	35(5)	2(3)	3(3)	8(5)	8(5)	35(3)	24(5)	23(3)	1.1(3)	64(5)	0.1(5)	1083(5)	50	9.7
Symmes Creek - (17956)																	
Year: 2010																	
2.30	D	07/01/2010	31	31(5)	6(5)	3(3)	7(5)	6(5)	24(3)	45(3)	41(1)	2.3(3)	40(3)	0.0(5)	719(3)	44	9.0
2.30	D	08/20/2010	31	28(5)	5(5)	4(5)	5(5)	8(5)	43(5)	22(5)	14(5)	1.5(3)	57(5)	0.0(5)	1067(5)	58	9.1

na - Qualitative data, Modified Iwb not applicable.

♦ - IBI is low end adjusted.

* - < 200 Total individuals in sample

** - < 50 Total individuals in sample

● - One or more species excluded from IBI calculation.

River Mile	Type	Date	Drainage area (sq mi)	Number of: Total species	Minnow species	Headwater species	Sensitive species	Darter & Sculpin species	Simple Lithophils	Percent of Individuals: Tolerant fishes	Omni-vores	Pioneering fishes	Insect-ivores	DELT anomalies	Rel.No. minus tolerants /(0.3km)	IBI
Crooked Run - (17-601)																
Year: 2010																
1.00	E	07/29/2010	8.0	21(5)	10(5)	2(3)	5(5)	3(3)	9(5)	59(1)	29(1)	44(3)	37(3)	0.0(5)	783(5)	44
0.10	E	08/02/2010	8.6	11(3)	7(5)	2(3)	1(1)	2(3)	4(3)	50(3)	24(3)	42(3)	20(1)	0.0(5)	458(3)	36
Simmons Run - (17-603)																
Year: 2010																
3.00	E	07/13/2010	6.9	21(5)	8(5)	3(3)	6(5)	6(5)	11(5)	35(3)	21(3)	37(3)	45(5)	0.0(5)	1324(5)	52
0.60	D	07/19/2010	16.3	26(5)	10(5)	1(1)	*(5)	6(5)	12(5)	25(5)	23(3)	26(5)	48(3)	0.0(5)	792(5)	52
Flint Run - (17-604)																
Year: 2010																
0.40	E	07/13/2010	2.3	15(5)	7(5)	6(5)	3(5)	6(5)	7(5)	66(1)	13(3)	52(3)	23(3)	0.0(5)	540(5)	50
Beaver Run - (17-605)																
Year: 2010																
2.60	E	07/19/2010	8.4	19(5)	7(5)	6(5)	4(3)	5(5)	7(5)	68(1)	24(3)	44(3)	29(3)	0.0(5)	262(3)	46
0.20	E	07/19/2010	14.1	23(5)	9(5)	4(5)	9(5)	7(5)	13(5)	33(3)	28(3)	30(5)	29(3)	0.0(5)	1762(5)	54
Darling Run - (17-606)																
Year: 2010																
0.10	E	07/13/2010	3.3	15(5)	6(5)	4(5)	3(3)	2(3)	5(5)	67(1)	29(1)	55(3)	17(3)	0.0(5)	328(5)	44
Mohawk Creek - (17-607)																
Year: 2010																
4.10	E	07/12/2010	9.5	23(5)	9(5)	4(5)	7(5)	7(5)	12(5)	35(3)	17(3)	34(3)	52(5)	0.0(5)	636(3)	52
Dutch Run - (17-608)																
Year: 2010																
0.10	E	07/29/2010	5.2	13(5)	7(5)	6(5)	2(1)	2(3)	6(5)	69(1)	17(3)	47(3)	27(3)	0.0(5)	326(3)	42
Mill Creek - (17-610)																
Year: 2010																
12.50	E	07/28/2010	8.8	21(5)	9(5)	4(5)	5(5)	7(5)	10(5)	50(3)	29(1)	44(3)	43(5)	0.0(5)	858(5)	52
8.50	E	07/28/2010	18.5	22(5)	9(5)	3(3)	5(3)	6(5)	8(5)	55(1)	24(3)	53(3)	43(3)	0.0(5)	431(3)	44
Turkey Run - (17-612)																

♦ - IBI is low end adjusted.

* - < 200 Total individuals in sample

** - < 50 Total individuals in sample

● - One or more species excluded from IBI calculation.

River Mile	Type	Date	Drainage area (sq mi)	Number of: Total species	Minnow species	Headwater species	Sensitive species	Darter & Sculpin species	Simple Lithophils	Percent of Individuals: Tolerant fishes	Omni-vores	Pioneering fishes	Insect-ivores	DELT anomalies	Rel.No. minus tolerants /(0.3km)	IBI
Year: 2010																
0.10	E	07/28/2010	5.5	20(5)	9(5)	5(5)	4(3)	5(5)	10(5)	22(5)	12(5)	22(5)	54(5)	0.0(5)	3216(5)	58
Little Mill Creek - (17-613)																
Year: 2010																
0.10	E	07/29/2010	8.4	23(5)	9(5)	6(5)	4(3)	6(5)	9(5)	29(5)	19(3)	32(3)	58(5)	0.0(5)	3106(5)	54
Trib. to Mohawk 2.93 - (17-626)																
Year: 2010																
0.60	E	07/12/2010	6.4	22(5)	8(5)	5(5)	6(5)	7(5)	11(5)	55(3)	25(3)	51(3)	35(3)	0.0(5)	1360(5)	52
Mill Run - (17-919)																
Year: 2010																
0.40	E	08/20/2010	3.1	8(3)	6(5)	2(3)	1(1)	1(1)	4(5)	91(1)	1(5)	54(3)	0(1)	0.0(5)	98(3)	36
Blount Run - (17-938)																
Year: 2010																
0.30	E	08/02/2010	7.7	26(5)	11(5)	1(1)	9(5)	3(3)	9(5)	20(5)	18(3)	21(5)	62(5)	0.0(5)	1598(5)	52
Blunt Run - (17-939)																
Year: 2010																
0.10	E	07/22/2010	2.8	14(5)	7(5)	3(3)	3(3)	2(3)	5(5)	55(3)	20(3)	44(3)	32(5)	0.0(5)	646(5)	48
Symmes Creek - (17-956)																
Year: 2010																
5.70	E	07/26/2010	8.3	16(5)	7(5)	5(5)	4(3)	4(5)	7(5)	71(1)	18(3)	55(1)	30(3)	0.0(5)	948(5)	46
4.40	E	08/02/2010	15.3	15(3)	6(3)	4(5)	3(3)	3(3)	5(3)	73(1)	45(1)	58(1)	30(3)	0.0(5)	374(3)	34
N. Br. Symmes Creek - (17-957)																
Year: 2010																
4.30	E	07/26/2010	8.2	22(5)	9(5)	4(5)	3(3)	3(3)	8(5)	51(3)	37(1)	56(1)	41(3)	0.0(5)	1036(5)	44
0.10	E	07/01/2010	15.0	22(5)	9(5)	3(3)	9(5)	6(5)	11(5)	25(5)	17(5)	24(5)	35(3)	0.0(5)	954(5)	56
S. Br. Symmes Creek - (17-958)																
Year: 2010																
0.20	E	08/02/2010	4.3	15(5)	7(5)	5(5)	3(3)	2(3)	5(5)	68(1)	6(5)	70(1)	42(5)	0.0(5)	482(5)	48
Robinson Run - (17-979)																

♦ - IBI is low end adjusted.

* - < 200 Total individuals in sample

** - < 50 Total individuals in sample

● - One or more species excluded from IBI calculation.

River Mile	Type	Date	Drainage area (sq mi)	Number of: Total species	Minnow species	Headwater species	Sensitive species	Darter & Sculpin species	Simple Lithophils	Percent of Individuals: Tolerant fishes	Omni-vores	Pioneering fishes	Insect-ivores	DELT anomalies	Rel.No. minus tolerants /(0.3km)	IBI
Year: 2010																
1.80	E	07/26/2010	4.2	4(1)	2(1)	0(1)	0(1)	0(1)	1(1)	94(1)	2(5)	93(1)	1(1)	0.0(5)	22(1)	20

♦ - IBI is low end adjusted.

* - < 200 Total individuals in sample

** - < 50 Total individuals in sample

● - One or more species excluded from IBI calculation.

Appendix I – Fish species by location for Walhonding River, 2007 and Walhonding and Muskingum River tributaries, 2010.

River Code: **17-600**	Stream: **Walhonding River**	Sample Date: **2007**
River Mile: **20.40**	Location: Twp. Rd. 41	Date Range: 07/09/2007
Time Fished: 5559 sec	Drainage: 1490.0 sq mi	Thru: 09/17/2007
Dist Fished: 1.00 km	Basin: Muskingum River No of Passes: 2	Sampler Type: A

Species Name / ODNR status	IBI Grp	Feed Guild	Breed Guild	Tol	# of Fish	Relative Number	% by Number	Relative Weight	% by Weight	Ave(gm) Weight
Gizzard Shad		O	M		4	4.00	0.41	0.46	0.17	115.00
Quillback	C	O	M		2	2.00	0.21	1.26	0.47	627.50
Silver Redhorse	R	I	S	M	28	28.00	2.87	28.70	10.74	1,025.00
Black Redhorse	R	I	S	I	109	109.00	11.18	48.48	18.14	444.79
Golden Redhorse	R	I	S	M	137	137.00	14.05	60.65	22.69	442.73
River Redhorse [S]	R	I	S	I	1	1.00	0.10	2.35	0.88	2,350.00
Northern Hog Sucker	R	I	S	M	176	176.00	18.05	28.71	10.74	163.14
White Sucker	W	O	S	T	9	9.00	0.92	3.11	1.16	345.56
Smallmouth Redhorse	R	I	S	M	91	91.00	9.33	58.93	22.04	647.59
Common Carp	G	O	M	T	4	4.00	0.41	20.80	7.78	5,200.00
River Chub	N	I	N	I	9	9.00	0.92	0.39	0.14	43.00
Bigeye Chub	N	I	S	I	54	54.00	5.54	0.11	0.04	1.96
Streamline Chub	N	I	S	R	47	47.00	4.82	0.40	0.15	8.55
Creek Chub	N	G	N	T	2	2.00	0.21	0.01	0.00	3.50
Silver Shiner	N	I	S	I	37	37.00	3.79	0.19	0.07	5.03
Rosyface Shiner	N	I	S	I	23	23.00	2.36	0.05	0.02	2.04
Striped Shiner	N	I	S		11	11.00	1.13	0.05	0.02	4.91
Common Shiner	N	I	S		19	19.00	1.95	0.04	0.01	2.00
Spotfin Shiner	N	I	M		31	31.00	3.18	0.19	0.07	6.03
Sand Shiner	N	I	M	M	12	12.00	1.23	0.03	0.01	2.18
Bluntnose Minnow	N	O	C	T	2	2.00	0.21	0.00	0.00	2.00
Central Stoneroller	N	H	N		28	28.00	2.87	0.09	0.03	3.27
Yellow Bullhead		I	C	T	2	2.00	0.21	0.44	0.16	220.00
Stonecat Madtom		I	C	I	3	3.00	0.31	0.13	0.05	43.00
Rock Bass	S	C	C		13	13.00	1.33	1.84	0.69	141.62
Smallmouth Bass	F	C	C	M	93	93.00	9.54	9.77	3.65	105.02
Largemouth Bass	F	C	C		1	1.00	0.10	0.08	0.03	75.00
Bluegill Sunfish	S	I	C	P	1	1.00	0.10	0.04	0.01	40.00
Greenside Darter	D	I	S	M	8	8.00	0.82	0.02	0.01	2.13
Banded Darter	D	I	S	I	16	16.00	1.64	0.02	0.01	1.38
Variegate Darter	D	I	S	I	1	1.00	0.10	0.00	0.00	2.00
Rainbow Darter	D	I	S	M	1	1.00	0.10	0.00	0.00	2.00
Mile Total					975	975.00		267.33		
Number of Species					32					
Number of Hybrids					0					

River Code: **17-600**	Stream: **Walhonding River**	Sample Date: **2007**
River Mile: **15.70**	Location: dst. U.S. Rt. 36 (Nellie)	Date Range: 07/10/2007
Time Fished: 7971 sec	Drainage: 1505.0 sq mi	Thru: 09/12/2007
Dist Fished: 1.00 km	Basin: Muskingum River No of Passes: 2	Sampler Type: A

Species Name / ODNR status	IBI Grp	Feed Guild	Breed Guild	Tol	# of Fish	Relative Number	% by Number	Relative Weight	% by Weight	Ave(gm) Weight
Gizzard Shad		O	M		35	35.00	3.36	2.94	1.69	84.08
Quillback	C	O	M		2	2.00	0.19	1.45	0.83	725.00
Silver Redhorse	R	I	S	M	22	22.00	2.11	27.10	15.60	1,231.96
Black Redhorse	R	I	S	I	44	44.00	4.22	12.18	7.01	276.90
Golden Redhorse	R	I	S	M	161	161.00	15.44	31.80	18.31	197.51
River Redhorse [S]	R	I	S	I	11	11.00	1.05	15.07	8.68	1,370.00
Northern Hog Sucker	R	I	S	M	58	58.00	5.56	12.08	6.95	208.26
Smallmouth Redhorse	R	I	S	M	49	49.00	4.70	16.42	9.45	335.03
Common Carp	G	O	M	T	11	11.00	1.05	30.00	17.27	2,727.27
River Chub	N	I	N	I	5	5.00	0.48	0.09	0.05	18.80
Bigeye Chub	N	I	S	I	7	7.00	0.67	0.02	0.01	2.43
Streamline Chub	N	I	S	R	108	108.00	10.35	0.98	0.56	9.06
Silver Shiner	N	I	S	I	21	21.00	2.01	0.09	0.05	4.38
Rosyface Shiner	N	I	S	I	42	42.00	4.03	0.12	0.07	2.76
Striped Shiner	N	I	S		4	4.00	0.38	0.01	0.00	1.75
Spotfin Shiner	N	I	M		161	161.00	15.44	1.01	0.58	6.28
Sand Shiner	N	I	M	M	6	6.00	0.58	0.01	0.01	1.83
Mimic Shiner	N	I	M	I	52	52.00	4.99	0.14	0.08	2.69
Bluntnose Minnow	N	O	C	T	7	7.00	0.67	0.01	0.01	2.00
Central Stoneroller	N	H	N		13	13.00	1.25	0.14	0.08	11.00
Channel Catfish	F		C		6	6.00	0.58	4.47	2.57	744.50
Yellow Bullhead		I	C	T	2	2.00	0.19	0.35	0.20	175.00
Stonecat Madtom		I	C	I	1	1.00	0.10	0.04	0.02	35.00
Brook Silverside		I	M	M	2	2.00	0.19	0.01	0.00	2.50
Rock Bass	S	C	C		33	33.00	3.16	2.24	1.29	67.94
Smallmouth Bass	F	C	C	M	53	53.00	5.08	11.64	6.70	219.59
Largemouth Bass	F	C	C		1	1.00	0.10	0.35	0.20	350.00
Bluegill Sunfish	S	I	C	P	20	20.00	1.92	0.88	0.51	44.02
Yellow Perch			M		1	1.00	0.10	0.04	0.02	40.00
Logperch	D	I	S	M	48	48.00	4.60	0.57	0.33	11.82
Johnny Darter	D	I	C		1	1.00	0.10	0.00	0.00	2.00
Greenside Darter	D	I	S	M	6	6.00	0.58	0.05	0.03	8.83
Banded Darter	D	I	S	I	20	20.00	1.92	0.03	0.02	1.50
Variegate Darter	D	I	S	I	13	13.00	1.25	0.05	0.03	3.92
Bluebreast Darter [T]	D	I	S	R	12	12.00	1.15	0.04	0.02	3.00
Sauger X Walleye	E	P			5	5.00	0.48	1.29	0.74	257.00
Mile Total					1,043	1,043.00		173.70		
Number of Species					35					
Number of Hybrids					1					

River Code: **17-600**	Stream: **Walhonding River**	Sample Date: **2007**
River Mile: **8.80**	Location: adj. U.S. Rt. 36 in dam pool	Date Range: 07/10/2007
Time Fished: 6328 sec	Drainage: 1572.0 sq mi	Thru: 09/12/2007
Dist Fished: 1.00 km	Basin: Muskingum River No of Passes: 2	Sampler Type: A

Species Name / ODNR status	IBI Grp	Feed Guild	Breed Guild	Tol	# of Fish	Relative Number	% by Number	Relative Weight	% by Weight	Ave(gm) Weight
Gizzard Shad		O	M		31	31.00	11.27	1.68	2.59	54.19
Quillback	C	O	M		1	1.00	0.36	0.23	0.35	225.00
Silver Redhorse	R	I	S	M	15	15.00	5.45	7.65	11.81	510.00
Black Redhorse	R	I	S	I	1	1.00	0.36	0.65	1.00	650.00
Golden Redhorse	R	I	S	M	87	87.00	31.64	27.60	42.61	317.19
Northern Hog Sucker	R	I	S	M	11	11.00	4.00	1.09	1.68	98.82
Smallmouth Redhorse	R	I	S	M	1	1.00	0.36	0.29	0.44	285.00
Common Carp	G	O	M	T	3	3.00	1.09	5.65	8.72	1,883.33
Silver Shiner	N	I	S	I	6	6.00	2.18	0.02	0.04	4.00
Spotfin Shiner	N	I	M		19	19.00	6.91	0.12	0.18	6.05
Bluntnose Minnow	N	O	C	T	10	10.00	3.64	0.02	0.02	1.60
Channel Catfish	F		C		8	8.00	2.91	7.25	11.19	906.25
Flathead Catfish	F	P	C		1	1.00	0.36	3.00	4.63	3,000.00
Brook Silverside		I	M	M	2	2.00	0.73	0.00	0.01	2.00
Black Crappie	S	I	C		2	2.00	0.73	0.32	0.49	158.50
Rock Bass	S	C	C		23	23.00	8.36	1.83	2.82	79.43
Smallmouth Bass	F	C	C	M	38	38.00	13.82	6.17	9.53	162.36
Largemouth Bass	F	C	C		2	2.00	0.73	0.61	0.94	305.00
Green Sunfish	S	I	C	T	1	1.00	0.36	0.01	0.02	10.00
Bluegill Sunfish	S	I	C	P	11	11.00	4.00	0.38	0.59	34.45
Pumpkinseed Sunfish	S	I	C	P	2	2.00	0.73	0.22	0.34	110.00
	Mile Total				275	275.00		64.76		
	Number of Species				21					
	Number of Hybrids				0					

River Code: **17-600**	Stream: **Walhonding River**	Sample Date: **2007**
River Mile: **7.50**	Location: Lodge Wildlife Area	Date Range: 07/11/2007
Time Fished: 8189 sec	Drainage: 1575.0 sq mi	Thru: 09/20/2007
Dist Fished: 1.00 km	Basin: Muskingum River No of Passes: 2	Sampler Type: A

Species Name / ODNR status	IBI Grp	Feed Guild	Breed Guild	Tol	# of Fish	Relative Number	% by Number	Relative Weight	% by Weight	Ave(gm) Weight
Longnose Gar		P	M		2	2.00	0.19	2.00	0.53	1,000.00
Bowfin		P	C		6	6.00	0.57	6.28	1.67	1,045.83
Gizzard Shad		O	M		12	12.00	1.14	1.32	0.35	110.17
Quillback	C	O	M		16	16.00	1.52	12.85	3.42	803.13
Highfin Carpsucker	C	O	M		4	4.00	0.38	2.15	0.57	537.50
Silver Redhorse	R	I	S	M	19	19.00	1.80	19.72	5.25	1,037.95
Black Redhorse	R	I	S	I	11	11.00	1.04	5.58	1.49	507.27
Golden Redhorse	R	I	S	M	81	81.00	7.68	21.09	5.62	260.35
River Redhorse [S]	R	I	S	I	55	55.00	5.21	127.23	33.89	2,313.33
Northern Hog Sucker	R	I	S	M	113	113.00	10.71	10.75	2.86	95.10
White Sucker	W	O	S	T	1	1.00	0.09	0.18	0.05	180.00
Smallmouth Redhorse	R	I	S	M	75	75.00	7.11	27.53	7.33	367.08
Common Carp	G	O	M	T	17	17.00	1.61	32.02	8.53	1,883.53
River Chub	N	I	N	I	3	3.00	0.28	0.02	0.01	7.00
Bigeye Chub	N	I	S	I	21	21.00	1.99	0.05	0.01	2.57
Streamline Chub	N	I	S	R	77	77.00	7.30	0.70	0.19	9.09
Gravel Chub	N	I	S	M	21	21.00	1.99	0.09	0.02	4.05
Silver Shiner	N	I	S	I	6	6.00	0.57	0.04	0.01	6.83
Rosyface Shiner	N	I	S	I	23	23.00	2.18	0.06	0.02	2.65
Striped Shiner	N	I	S		2	2.00	0.19	0.00	0.00	2.00
Spotfin Shiner	N	I	M		98	98.00	9.29	0.51	0.14	5.21
Sand Shiner	N	I	M	M	56	56.00	5.31	0.04	0.01	0.65
Mimic Shiner	N	I	M	I	70	70.00	6.64	0.13	0.04	1.91
Bluntnose Minnow	N	O	C	T	18	18.00	1.71	0.04	0.01	1.94
Central Stoneroller	N	H	N		10	10.00	0.95	0.19	0.05	19.10
Channel Catfish	F		C		45	45.00	4.27	65.24	17.38	1,449.87
Yellow Bullhead		I	C	T	1	1.00	0.09	0.05	0.01	54.00
Flathead Catfish	F	P	C		2	2.00	0.19	9.95	2.65	4,975.00
Stonecat Madtom		I	C	I	2	2.00	0.19	0.01	0.00	4.50
Northern Madtom [E]		I	C	R	1	1.00	0.09	0.00	0.00	1.00
White Bass	F	P	M		1	1.00	0.09	1.50	0.40	1,500.00
Black Crappie	S	I	C		5	5.00	0.47	1.40	0.37	280.00
Rock Bass	S	C	C		7	7.00	0.66	0.53	0.14	75.00
Smallmouth Bass	F	C	C	M	49	49.00	4.64	5.28	1.41	107.82
Spotted Bass	F	C	C		2	2.00	0.19	0.37	0.10	187.00
Largemouth Bass	F	C	C		3	3.00	0.28	0.70	0.19	233.33
Bluegill Sunfish	S	I	C	P	8	8.00	0.76	0.41	0.11	51.25
Redear Sunfish	E	I	C		1	1.00	0.09	0.06	0.02	60.00
Blackside Darter	D	I	S		1	1.00	0.09	0.00	0.00	4.00
Logperch	D	I	S	M	32	32.00	3.03	0.48	0.13	15.13
Eastern Sand Darter [S]	D	I	S	R	1	1.00	0.09	0.00	0.00	2.00
Greenside Darter	D	I	S	M	17	17.00	1.61	0.05	0.01	3.14
Banded Darter	D	I	S	I	14	14.00	1.33	0.02	0.00	1.07
Variegate Darter	D	I	S	I	15	15.00	1.42	0.05	0.01	3.47
Bluebreast Darter [T]	D	I	S	R	12	12.00	1.14	0.03	0.01	2.67
Sauger X Walleye	E	P			10	10.00	0.95	4.63	1.23	462.50
Freshwater Drum			M	P	9	9.00	0.85	14.05	3.74	1,561.11
	Mile Total				1,055	1,055.00		375.40		
	Number of Species				46					
	Number of Hybrids				1					

River Code: **17-600**	Stream: **Walhonding River**	Sample Date: **2007**
River Mile: **1.00**	Location: at canal bridge	Date Range: 07/11/2007
Time Fished: 5065 sec	Drainage: 2254.0 sq mi	
Dist Fished: 0.50 km	Basin: Muskingum River No of Passes: 1	Sampler Type: A

Species Name / ODNR status	IBI Grp	Feed Guild	Breed Guild	Tol	# of Fish	Relative Number	% by Number	Relative Weight	% by Weight	Ave(gm) Weight
Longnose Gar		P	M		2	4.00	0.59	2.60	0.86	650.00
Gizzard Shad		O	M		2	4.00	0.59	0.68	0.22	170.00
Highfin Carpsucker	C	O	M		3	6.00	0.88	3.50	1.15	583.33
Silver Redhorse	R	I	S	M	17	34.00	5.01	51.39	16.96	1,511.57
Golden Redhorse	R	I	S	M	20	40.00	5.90	11.00	3.63	275.00
River Redhorse [S]	R	I	S	I	11	22.00	3.24	55.90	18.44	2,540.91
Northern Hog Sucker	R	I	S	M	33	66.00	9.73	9.22	3.04	139.66
Smallmouth Redhorse	R	I	S	M	11	22.00	3.24	14.48	4.78	658.18
Common Carp	G	O	M	T	9	18.00	2.65	70.60	23.30	3,922.22
River Chub	N	I	N	I	1	2.00	0.29	0.04	0.01	20.00
Bigeye Chub	N	I	S	I	5	10.00	1.47	0.02	0.01	2.00
Streamline Chub	N	I	S	R	3	6.00	0.88	0.04	0.01	6.67
Gravel Chub	N	I	S	M	1	2.00	0.29	0.01	0.00	4.00
Silver Shiner	N	I	S	I	14	28.00	4.13	0.21	0.07	7.64
Rosyface Shiner	N	I	S	I	2	4.00	0.59	0.01	0.00	2.50
Common Shiner	N	I	S		1	2.00	0.29	0.00	0.00	2.00
Spotfin Shiner	N	I	M		70	140.00	20.65	0.21	0.07	1.50
Sand Shiner	N	I	M	M	17	34.00	5.01	0.08	0.03	2.24
Mimic Shiner	N	I	M	I	18	36.00	5.31	0.08	0.03	2.22
Bluntnose Minnow	N	O	C	T	11	22.00	3.24	0.04	0.01	2.00
Central Stoneroller	N	H	N		1	2.00	0.29	0.01	0.00	4.00
Channel Catfish	F		C		22	44.00	6.49	53.70	17.72	1,220.45
Flathead Catfish	F	P	C		2	4.00	0.59	2.54	0.84	635.00
Stonecat Madtom		I	C	I	1	2.00	0.29	0.03	0.01	17.00
Mountain Madtom [E]		I	C	R	1	2.00	0.29	0.01	0.00	3.00
Smallmouth Bass	F	C	C	M	17	34.00	5.01	4.08	1.35	120.00
Bluegill Sunfish	S	I	C	P	1	2.00	0.29	0.05	0.02	25.00
Pumpkinseed Sunfish	S	I	C	P	1	2.00	0.29	0.28	0.09	138.00
Green Sf X Bluegill Sf					1	2.00	0.29	0.10	0.03	50.00
Yellow Perch			M		1	2.00	0.29	0.36	0.12	182.00
Logperch	D	I	S	M	16	32.00	4.72	0.32	0.11	10.00
Greenside Darter	D	I	S	M	2	4.00	0.59	0.01	0.00	2.50
Banded Darter	D	I	S	I	5	10.00	1.47	0.02	0.01	1.60
Variegate Darter	D	I	S	I	7	14.00	2.06	0.03	0.01	2.00
Bluebreast Darter [T]	D	I	S	R	4	8.00	1.18	0.02	0.01	2.00
Freshwater Drum			M	P	6	12.00	1.77	21.40	7.06	1,783.33
Mile Total					339	678.00		303.07		
Number of Species					35					
Number of Hybrids					1					

River Code: **17-600**	Stream: **Walhonding River**	Sample Date: **2007**
River Mile: **0.70**	Location: Roscoe Park	Date Range: 09/19/2007
Time Fished: 1670 sec	Drainage: 2255.0 sq mi	
Dist Fished: 0.50 km	Basin: Muskingum River No of Passes: 1	Sampler Type: A

Species Name / ODNR status	IBI Grp	Feed Guild	Breed Guild	Tol	# of Fish	Relative Number	% by Number	Relative Weight	% by Weight	Ave(gm) Weight
Longnose Gar		P	M		1	2.00	0.25	0.23	0.19	117.00
Gizzard Shad		O	M		1	2.00	0.25	0.10	0.08	52.00
Quillback	C	O	M		1	2.00	0.25	0.02	0.02	10.00
Silver Redhorse	R	I	S	M	18	36.00	4.47	11.63	9.29	322.94
Golden Redhorse	R	I	S	M	87	174.00	21.59	2.51	2.00	14.41
River Redhorse [S]	R	I	S	I	2	4.00	0.50	12.60	10.06	3,150.00
Northern Hog Sucker	R	I	S	M	24	48.00	5.96	6.09	4.86	126.83
Smallmouth Redhorse	R	I	S	M	28	56.00	6.95	15.13	12.08	270.11
Common Carp	G	O	M	T	4	8.00	0.99	36.40	29.07	4,550.00
Bigeye Chub	N	I	S	I	33	66.00	8.19	0.14	0.11	2.16
Streamline Chub	N	I	S	R	1	2.00	0.25	0.01	0.01	4.00
Gravel Chub	N	I	S	M	7	14.00	1.74	0.05	0.04	3.67
Silver Shiner	N	I	S	I	6	12.00	1.49	0.03	0.02	2.33
Rosyface Shiner	N	I	S	I	11	22.00	2.73	0.05	0.04	2.20
Spotfin Shiner	N	I	M		24	48.00	5.96	0.41	0.33	8.50
Sand Shiner	N	I	M	M	34	68.00	8.44	0.11	0.09	1.59
Mimic Shiner	N	I	M	I	10	20.00	2.48	0.04	0.04	2.20
Bullhead Minnow	N	O	C		3	6.00	0.74	0.03	0.02	4.67
Bluntnose Minnow	N	O	C	T	10	20.00	2.48	0.04	0.04	2.22
Central Stoneroller	N	H	N		1	2.00	0.25	0.00	0.00	2.00
Channel Catfish	F		C		18	36.00	4.47	22.13	17.67	614.71
Stonecat Madtom		I	C	I	1	2.00	0.25	0.01	0.01	6.00
Trout-perch		I	M		2	4.00	0.50	0.01	0.01	3.00
Smallmouth Bass	F	C	C	M	4	8.00	0.99	3.90	3.11	487.50
Spotted Bass	F	C	C		4	8.00	0.99	0.05	0.04	6.25
Bluegill Sunfish	S	I	C	P	1	2.00	0.25	0.05	0.04	24.00
Dusky Darter	D	I	S	M	1	2.00	0.25	0.02	0.02	10.00
Logperch	D	I	S	M	3	6.00	0.74	0.05	0.04	8.00
Greenside Darter	D	I	S	M	4	8.00	0.99	0.03	0.03	4.00
Banded Darter	D	I	S	I	23	46.00	5.71	0.04	0.03	0.83
Variegate Darter	D	I	S	I	15	30.00	3.72	0.07	0.05	2.27
Bluebreast Darter [T]	D	I	S	R	13	26.00	3.23	0.03	0.02	1.08
Rainbow Darter	D	I	S	M	1	2.00	0.25	0.00	0.00	2.00
Sauger X Walleye	E	P			2	4.00	0.50	3.10	2.48	775.00
Freshwater Drum			M	P	5	10.00	1.24	10.10	8.07	1,010.00
	Mile Total				403	806.00		125.21		
	Number of Species				34					
	Number of Hybrids				1					

River Code: **17-601**	Stream: **Crooked Run**	Sample Date: **2010**
River Mile: **1.00**	Location: driveway off Co. Rd. 23	Date Range: 07/29/2010
Time Fished: 773 sec	Drainage: 8.0 sq mi	
Dist Fished: 0.09 km	Basin: Muskingum River No of Passes: 1	Sampler Type: E

Species Name / ODNR status	IBI Grp	Feed Guild	Breed Guild	Tol	# of Fish	Relative Number	% by Number	Relative Weight	% by Weight	Ave(gm) Weight
Redfin Pickerel		P	M	P	1	3.33	0.17			
Golden Redhorse	R	I	S	M	18	60.00	3.12			
Northern Hog Sucker	R	I	S	M	32	106.67	5.55			
White Sucker	W	O	S	T	30	100.00	5.20			
Bigeye Chub	N	I	S	I	3	10.00	0.52			
Western Blacknose Dace	N	G	S	T	126	420.00	21.84			
Creek Chub	N	G	N	T	44	146.67	7.63			
Silver Shiner	N	I	S	I	1	3.33	0.17			
Striped Shiner	N	I	S		24	80.00	4.16			
Common Shiner	N	I	S		7	23.33	1.21			
Spotfin Shiner	N	I	M		2	6.67	0.35			
Silverjaw Minnow	N	I	M		31	103.33	5.37			
Bluntnose Minnow	N	O	C	T	139	463.33	24.09			
Central Stoneroller	N	H	N		25	83.33	4.33			
Trout-perch		I	M		3	10.00	0.52			
Largemouth Bass	F	C	C		1	3.33	0.17			
Green Sunfish	S	I	C	T	3	10.00	0.52			
Bluegill Sunfish	S	I	C	P	1	3.33	0.17			
Johnny Darter	D	I	C		36	120.00	6.24			
Rainbow Darter	D	I	S	M	5	16.67	0.87			
Fantail Darter	D	I	C		45	150.00	7.80			
Mile Total					577	1,923.33				
Number of Species					21					
Number of Hybrids					0					

River Code: **17-601**	Stream: **Crooked Run**	Sample Date: **2010**
River Mile: **0.10**	Location: at mouth, at end of Twp. Rd. 495	Date Range: 08/02/2010
Time Fished: 1143 sec	Drainage: 8.6 sq mi	
Dist Fished: 0.15 km	Basin: Muskingum River No of Passes: 1	Sampler Type: E

Species Name / ODNR status	IBI Grp	Feed Guild	Breed Guild	Tol	# of Fish	Relative Number	% by Number	Relative Weight	% by Weight	Ave(gm) Weight
Northern Hog Sucker	R	I	S	M	9	18.00	1.97			
White Sucker	W	O	S	T	33	66.00	7.22			
Western Blacknose Dace	N	G	S	T	70	140.00	15.32			
Creek Chub	N	G	N	T	47	94.00	10.28			
Striped Shiner	N	I	S		4	8.00	0.88			
Spotfin Shiner	N	I	M		5	10.00	1.09			
Silverjaw Minnow	N	I	M		5	10.00	1.09			
Bluntnose Minnow	N	O	C	T	78	156.00	17.07			
Central Stoneroller	N	H	N		138	276.00	30.20			
Johnny Darter	D	I	C		63	126.00	13.79			
Fantail Darter	D	I	C		5	10.00	1.09			
Mile Total					457	914.00				
Number of Species					11					
Number of Hybrids					0					

River Code: **17-603**	Stream: **Simmons Run**	Sample Date: **2010**
River Mile: **3.00**	Location: Twp. Rd. 78	Date Range: 07/13/2010
Time Fished: 3432 sec	Drainage: 6.9 sq mi	
Dist Fished: 0.15 km	Basin: Muskingum River No of Passes: 1	Sampler Type: E

Species Name / ODNR status	IBI Grp	Feed Guild	Breed Guild	Tol	# of Fish	Relative Number	% by Number	Relative Weight	% by Weight	Ave(gm) Weight
Redfin Pickerel		P	M	P	1	2.00	0.10			
Northern Pike	F	P	M		1	2.00	0.10			
Golden Redhorse	R	I	S	M	1	2.00	0.10			
Northern Hog Sucker	R	I	S	M	59	118.00	5.81			
White Sucker	W	O	S	T	51	102.00	5.02			
Western Blacknose Dace	N	G	S	T	12	24.00	1.18			
Creek Chub	N	G	N	T	128	256.00	12.61			
Redside Dace	N	I	S	I	31	62.00	3.05			
Striped Shiner	N	I	S		15	30.00	1.48			
Common Shiner	N	I	S		17	34.00	1.67			
Silverjaw Minnow	N	I	M		18	36.00	1.77			
Bluntnose Minnow	N	O	C	T	159	318.00	15.67			
Central Stoneroller	N	H	N		210	420.00	20.69			
Yellow Bullhead		I	C	T	3	6.00	0.30			
Bluegill Sunfish	S	I	C	P	3	6.00	0.30			
Blackside Darter	D	I	S		4	8.00	0.39			
Johnny Darter	D	I	C		66	132.00	6.50			
Greenside Darter	D	I	S	M	130	260.00	12.81			
Banded Darter	D	I	S	I	11	22.00	1.08			
Rainbow Darter	D	I	S	M	75	150.00	7.39			
Fantail Darter	D	I	C		20	40.00	1.97			
Mile Total					1,015	2,030.00				
Number of Species					21					
Number of Hybrids					0					

River Code: **17-603**	Stream: **Simmons Run**	Sample Date: **2010**
River Mile: **0.60**	Location: Twp. Rd. 413	Date Range: 07/19/2010
Time Fished: 2104 sec	Drainage: 16.3 sq mi	
Dist Fished: 0.20 km	Basin: Muskingum River No of Passes: 1	Sampler Type: D

Species Name / ODNR status	IBI Grp	Feed Guild	Breed Guild	Tol	# of Fish	Relative Number	% by Number	Relative Weight	% by Weight	Ave(gm) Weight
Redfin Pickerel		P	M	P	1	1.50	0.14			
Silver Redhorse	R	I	S	M	4	6.00	0.57			
Golden Redhorse	R	I	S	M	46	69.00	6.54			
Northern Hog Sucker	R	I	S	M	19	28.50	2.70			
White Sucker	W	O	S	T	51	76.50	7.25			
Bigeye Chub	N	I	S	I	2	3.00	0.28			
Creek Chub	N	G	N	T	14	21.00	1.99			
Silver Shiner	N	I	S	I	7	10.50	1.00			
Striped Shiner	N	I	S		26	39.00	3.70			
Common Shiner	N	I	S		5	7.50	0.71			
Spotfin Shiner	N	I	M		1	1.50	0.14			
Mimic Shiner	N	I	M	I	11	16.50	1.56			
Silverjaw Minnow	N	I	M		2	3.00	0.28			
Bluntnose Minnow	N	O	C	T	110	165.00	15.65			
Central Stoneroller	N	H	N		167	250.50	23.76			
Trout-perch		I	M		2	3.00	0.28			
Brook Silverside		I	M	M	2	3.00	0.28			
Rock Bass	S	C	C		18	27.00	2.56			
Largemouth Bass	F	C	C		5	7.50	0.71			
Bluegill Sunfish	S	I	C	P	4	6.00	0.57			
Blackside Darter	D	I	S		12	18.00	1.71			
Logperch	D	I	S	M	5	7.50	0.71			
Johnny Darter	D	I	C		54	81.00	7.68			
Greenside Darter	D	I	S	M	50	75.00	7.11			
Rainbow Darter	D	I	S	M	35	52.50	4.98			
Fantail Darter	D	I	C		50	75.00	7.11			
Mile Total					703	1,054.50				
Number of Species					26					
Number of Hybrids					0					

River Code: **17-604**	Stream: **Flint Run**	Sample Date: **2010**
River Mile: **0.40**	Location: driveway off St. Rt. 60	Date Range: 07/13/2010
Time Fished: 2340 sec	Drainage: 2.3 sq mi	
Dist Fished: 0.14 km	Basin: Muskingum River No of Passes: 1	Sampler Type: E

Species Name / ODNR status	IBI Grp	Feed Guild	Breed Guild	Tol	# of Fish	Relative Number	% by Number	Relative Weight	% by Weight	Ave(gm) Weight
Least Brook Lamprey		F	N		3	6.43	0.40			
White Sucker	W	O	S	T	29	62.14	3.88			
Western Blacknose Dace	N	G	S	T	175	375.00	23.40			
Creek Chub	N	G	N	T	225	482.14	30.08			
South. Redbelly Dace	N	H	S		42	90.00	5.61			
Redside Dace	N	I	S	I	22	47.14	2.94			
Fathead Minnow	N	O	C	T	4	8.57	0.53			
Bluntnose Minnow	N	O	C	T	63	135.00	8.42			
Central Stoneroller	N	H	N		33	70.71	4.41			
Blackside Darter	D	I	S		2	4.29	0.27			
Johnny Darter	D	I	C		95	203.57	12.70			
Greenside Darter	D	I	S	M	3	6.43	0.40			
Rainbow Darter	D	I	S	M	3	6.43	0.40			
Fantail Darter	D	I	C		45	96.43	6.02			
Mottled Sculpin		I	C		4	8.57	0.53			
Mile Total					748	1,602.86				
Number of Species					15					
Number of Hybrids					0					

River Code: **17-605**	Stream: **Beaver Run**	Sample Date: **2010**
River Mile: **2.60**	Location: Co. Rd. 22	Date Range: 07/19/2010
Time Fished: 2057 sec	Drainage: 8.4 sq mi	
Dist Fished: 0.15 km	Basin: Muskingum River No of Passes: 1	Sampler Type: E

Species Name / ODNR status	IBI Grp	Feed Guild	Breed Guild	Tol	# of Fish	Relative Number	% by Number	Relative Weight	% by Weight	Ave(gm) Weight
Least Brook Lamprey		F	N		4	8.00	0.96			
Northern Pike	F	P	M		1	2.00	0.24			
Golden Redhorse	R	I	S	M	3	6.00	0.72			
Northern Hog Sucker	R	I	S	M	6	12.00	1.45			
White Sucker	W	O	S	T	87	174.00	20.96			
Golden Shiner	N	I	M	T	1	2.00	0.24			
Western Blacknose Dace	N	G	S	T	68	136.00	16.39			
Creek Chub	N	G	N	T	116	232.00	27.95			
Redside Dace	N	I	S	I	15	30.00	3.61			
Silverjaw Minnow	N	I	M		11	22.00	2.65			
Bluntnose Minnow	N	O	C	T	12	24.00	2.89			
Central Stoneroller	N	H	N		5	10.00	1.20			
Largemouth Bass	F	C	C		2	4.00	0.48			
Blackside Darter	D	I	S		2	4.00	0.48			
Johnny Darter	D	I	C		44	88.00	10.60			
Banded Darter	D	I	S	I	6	12.00	1.45			
Fantail Darter	D	I	C		8	16.00	1.93			
Mottled Sculpin		I	C		23	46.00	5.54			
Brook Stickleback		I	C		1	2.00	0.24			
	Mile Total				415	830.00				
	Number of Species				19					
	Number of Hybrids				0					

River Code: **17-605**	Stream: **Beaver Run**	Sample Date: **2010**
River Mile: **0.20**	Location: St. Rt. 36	Date Range: 07/19/2010
Time Fished: 3552 sec	Drainage: 14.1 sq mi	
Dist Fished: 0.15 km	Basin: Muskingum River No of Passes: 1	Sampler Type: E

Species Name / ODNR status	IBI Grp	Feed Guild	Breed Guild	Tol	# of Fish	Relative Number	% by Number	Relative Weight	% by Weight	Ave(gm) Weight
Least Brook Lamprey		F	N		10	20.00	0.76			
Golden Redhorse	R	I	S	M	11	22.00	0.84			
Northern Hog Sucker	R	I	S	M	46	92.00	3.49			
White Sucker	W	O	S	T	78	156.00	5.92			
Bigeye Chub	N	I	S	I	15	30.00	1.14			
Western Blacknose Dace	N	G	S	T	18	36.00	1.37			
Creek Chub	N	G	N	T	55	110.00	4.18			
Silver Shiner	N	I	S	I	36	72.00	2.73			
Rosyface Shiner	N	I	S	I	13	26.00	0.99			
Striped Shiner	N	I	S		18	36.00	1.37			
Common Shiner	N	I	S		8	16.00	0.61			
Bluntnose Minnow	N	O	C	T	284	568.00	21.56			
Central Stoneroller	N	H	N		485	970.00	36.83			
Striped Sh X Common Sh		I			8	16.00	0.61			
Yellow Bullhead		I	C	T	1	2.00	0.08			
Rock Bass	S	C	C		1	2.00	0.08			
Smallmouth Bass	F	C	C	M	2	4.00	0.15			
Blackside Darter	D	I	S		3	6.00	0.23			
Johnny Darter	D	I	C		53	106.00	4.02			
Greenside Darter	D	I	S	M	43	86.00	3.26			
Banded Darter	D	I	S	I	12	24.00	0.91			
Rainbow Darter	D	I	S	M	30	60.00	2.28			
Fantail Darter	D	I	C		64	128.00	4.86			
Mottled Sculpin		I	C		23	46.00	1.75			
Mile Total					1,317	2,634.00				
Number of Species					23					
Number of Hybrids					1					

River Code: **17-606**	Stream: **Darling Run**	Sample Date: **2010**
River Mile: **0.10**	Location: Twp. Rd. 340	Date Range: 07/13/2010
Time Fished: 2547 sec	Drainage: 3.3 sq mi	
Dist Fished: 0.15 km	Basin: Muskingum River No of Passes: 1	Sampler Type: E

Species Name / ODNR status	IBI Grp	Feed Guild	Breed Guild	Tol	# of Fish	Relative Number	% by Number	Relative Weight	% by Weight	Ave(gm) Weight
Least Brook Lamprey		F	N		38	76.00	7.69			
Northern Hog Sucker	R	I	S	M	1	2.00	0.20			
White Sucker	W	O	S	T	113	226.00	22.87			
Western Blacknose Dace	N	G	S	T	6	12.00	1.21			
Creek Chub	N	G	N	T	183	366.00	37.04			
Redside Dace	N	I	S	I	1	2.00	0.20			
Striped Shiner	N	I	S		11	22.00	2.23			
Bluntnose Minnow	N	O	C	T	28	56.00	5.67			
Central Stoneroller	N	H	N		36	72.00	7.29			
Tadpole Madtom		I	C		1	2.00	0.20			
Rock Bass	S	C	C		1	2.00	0.20			
Smallmouth Bass	F	C	C	M	1	2.00	0.20			
Largemouth Bass	F	C	C		2	4.00	0.40			
Johnny Darter	D	I	C		60	120.00	12.15			
Mottled Sculpin		I	C		12	24.00	2.43			
	Mile Total				494	988.00				
	Number of Species				15					
	Number of Hybrids				0					

River Code: **17-607**	Stream: **Mohawk Creek**	Sample Date: **2010**
River Mile: **4.10**	Location: Twp. Rd. 409	Date Range: 07/12/2010
Time Fished: 2400 sec	Drainage: 9.5 sq mi	
Dist Fished: 0.15 km	Basin: Muskingum River No of Passes: 1	Sampler Type: E

Species Name / ODNR status	IBI Grp	Feed Guild	Breed Guild	Tol	# of Fish	Relative Number	% by Number	Relative Weight	% by Weight	Ave(gm) Weight
Least Brook Lamprey		F	N		16	32.00	3.28			
Golden Redhorse	R	I	S	M	3	6.00	0.61			
Northern Hog Sucker	R	I	S	M	4	8.00	0.82			
White Sucker	W	O	S	T	34	68.00	6.97			
Western Blacknose Dace	N	G	S	T	1	2.00	0.20			
Creek Chub	N	G	N	T	77	154.00	15.78			
Redside Dace	N	I	S	I	14	28.00	2.87			
Striped Shiner	N	I	S		4	8.00	0.82			
Common Shiner	N	I	S		127	254.00	26.02			
Spotfin Shiner	N	I	M		8	16.00	1.64			
Silverjaw Minnow	N	I	M		19	38.00	3.89			
Bluntnose Minnow	N	O	C	T	51	102.00	10.45			
Central Stoneroller	N	H	N		37	74.00	7.58			
Hybrid X Minnow					2	4.00	0.41			
Rock Bass	S	C	C		15	30.00	3.07			
Green Sunfish	S	I	C	T	7	14.00	1.43			
Bluegill Sunfish	S	I	C	P	3	6.00	0.61			
Blackside Darter	D	I	S		3	6.00	0.61			
Logperch	D	I	S	M	1	2.00	0.20			
Johnny Darter	D	I	C		10	20.00	2.05			
Greenside Darter	D	I	S	M	6	12.00	1.23			
Variegate Darter	D	I	S	I	6	12.00	1.23			
Rainbow Darter	D	I	S	M	13	26.00	2.66			
Fantail Darter	D	I	C		27	54.00	5.53			
	Mile Total				488	976.00				
	Number of Species				23					
	Number of Hybrids				1					

River Code: **17-607**	Stream: **Mohawk Creek**	Sample Date: **2010**
River Mile: **1.50**	Location: Co. Rd. 82	Date Range: 07/22/2010
Time Fished: 3954 sec	Drainage: 22.6 sq mi	Thru: 08/23/2010
Dist Fished: 0.39 km	Basin: Muskingum River No of Passes: 2	Sampler Type: E

Species Name / ODNR status	IBI Grp	Feed Guild	Breed Guild	Tol	# of Fish	Relative Number	% by Number	Relative Weight	% by Weight	Ave(gm) Weight
Least Brook Lamprey		F	N		4	3.12	0.28	0.02	0.17	5.75
Silver Redhorse	R	I	S	M	18	13.78	1.26	0.79	7.29	56.67
Golden Redhorse	R	I	S	M	60	45.91	4.18	2.24	20.74	48.09
Northern Hog Sucker	R	I	S	M	33	25.26	2.30	0.40	3.71	15.77
White Sucker	W	O	S	T	102	78.59	7.16	1.89	17.50	23.99
Bigeye Chub	N	I	S	I	29	22.11	2.01	0.03	0.30	1.48
Creek Chub	N	G	N	T	93	71.29	6.50	0.47	4.39	6.68
Silver Shiner	N	I	S	I	17	13.22	1.21	0.03	0.25	2.05
Striped Shiner	N	I	S		184	142.22	12.96	1.17	10.81	8.17
Common Shiner	N	I	S		37	28.22	2.57	0.07	0.64	2.46
Spotfin Shiner	N	I	M		37	28.89	2.63	0.07	0.62	2.36
Sand Shiner	N	I	M	M	8	6.16	0.56	0.01	0.07	1.25
Mimic Shiner	N	I	M	I	70	53.88	4.91	0.07	0.61	1.21
Silverjaw Minnow	N	I	M		31	23.84	2.17	0.08	0.76	3.43
Bluntnose Minnow	N	O	C	T	289	222.87	20.31	0.55	5.09	2.48
Central Stoneroller	N	H	N		91	70.46	6.42	0.32	2.93	4.48
Trout-perch		I	M		52	40.14	3.66	0.18	1.64	4.43
Rock Bass	S	C	C		44	33.63	3.06	1.07	9.86	31.31
Smallmouth Bass	F	C	C	M	9	7.03	0.64	1.09	10.07	153.33
Largemouth Bass	F	C	C		4	3.12	0.28	0.03	0.24	8.25
Green Sunfish	S	I	C	T	6	4.50	0.41	0.02	0.17	4.00
Bluegill Sunfish	S	I	C	P	3	2.33	0.21	0.01	0.13	6.00
Blackside Darter	D	I	S		22	16.97	1.55	0.03	0.28	1.77
Logperch	D	I	S	M	4	3.00	0.27	0.03	0.27	9.75
Johnny Darter	D	I	C		74	57.16	5.21	0.04	0.40	0.76
Greenside Darter	D	I	S	M	32	24.87	2.27	0.04	0.34	1.47
Banded Darter	D	I	S	I	16	12.24	1.12	0.02	0.17	1.44
Rainbow Darter	D	I	S	M	27	20.88	1.90	0.03	0.32	1.63
Fantail Darter	D	I	C		28	21.63	1.97	0.03	0.26	1.29
Mile Total					1,424	1,097.33		10.81		
Number of Species					29					
Number of Hybrids					0					

River Code: **17-608**	Stream: **Dutch Run**	Sample Date: **2010**
River Mile: **0.10**	Location: dst. Co. Rd. 20	Date Range: 07/29/2010
Time Fished: 2770 sec	Drainage: 5.2 sq mi	
Dist Fished: 0.15 km	Basin: Muskingum River No of Passes: 1	Sampler Type: E

Species Name / ODNR status	IBI Grp	Feed Guild	Breed Guild	Tol	# of Fish	Relative Number	% by Number	Relative Weight	% by Weight	Ave(gm) Weight
Least Brook Lamprey		F	N		3	6.00	0.57			
Golden Redhorse	R	I	S	M	1	2.00	0.19			
White Sucker	W	O	S	T	27	54.00	5.16			
Western Blacknose Dace	N	G	S	T	101	202.00	19.31			
Creek Chub	N	G	N	T	168	336.00	32.12			
South. Redbelly Dace	N	H	S		1	2.00	0.19			
Redside Dace	N	I	S	I	15	30.00	2.87			
Common Shiner	N	I	S		2	4.00	0.38			
Bluntnose Minnow	N	O	C	T	64	128.00	12.24			
Central Stoneroller	N	H	N		18	36.00	3.44			
Johnny Darter	D	I	C		13	26.00	2.49			
Mottled Sculpin		I	C		104	208.00	19.89			
Brook Stickleback		I	C		6	12.00	1.15			
Mile Total					523	1,046.00				
Number of Species					13					
Number of Hybrids					0					

River Code: **17-610**	Stream: **Mill Creek**	Sample Date: **2010**
River Mile: **12.50**	Location: Twp. Rd. 215	Date Range: 07/28/2010
Time Fished: 2568 sec	Drainage: 8.8 sq mi	
Dist Fished: 0.15 km	Basin: Muskingum River No of Passes: 1	Sampler Type: E

Species Name / ODNR status	IBI Grp	Feed Guild	Breed Guild	Tol	# of Fish	Relative Number	% by Number	Relative Weight	% by Weight	Ave(gm) Weight
Northern Hog Sucker	R	I	S	M	14	28.00	1.62			
White Sucker	W	O	S	T	135	270.00	15.61			
Western Blacknose Dace	N	G	S	T	13	26.00	1.50			
Creek Chub	N	G	N	T	173	346.00	20.00			
Redside Dace	N	I	S	I	71	142.00	8.21			
Striped Shiner	N	I	S		1	2.00	0.12			
Common Shiner	N	I	S		65	130.00	7.51			
Spotfin Shiner	N	I	M		12	24.00	1.39			
Silverjaw Minnow	N	I	M		43	86.00	4.97			
Bluntnose Minnow	N	O	C	T	115	230.00	13.29			
Central Stoneroller	N	H	N		58	116.00	6.71			
Trout-perch		I	M		31	62.00	3.58			
Largemouth Bass	F	C	C		1	2.00	0.12			
Bluegill Sunfish	S	I	C	P	6	12.00	0.69			
Blackside Darter	D	I	S		2	4.00	0.23			
Logperch	D	I	S	M	2	4.00	0.23			
Johnny Darter	D	I	C		51	102.00	5.90			
Greenside Darter	D	I	S	M	11	22.00	1.27			
Banded Darter	D	I	S	I	1	2.00	0.12			
Fantail Darter	D	I	C		31	62.00	3.58			
Mottled Sculpin		I	C		29	58.00	3.35			
Mile Total					865	1,730.00				
Number of Species					21					
Number of Hybrids					0					

River Code: **17-610**	Stream: **Mill Creek**	Sample Date: **2010**
River Mile: **8.50**	Location: Twp. Rd. 206	Date Range: 07/28/2010
Time Fished: 2463 sec	Drainage: 18.5 sq mi	
Dist Fished: 0.16 km	Basin: Muskingum River No of Passes: 1	Sampler Type: E

Species Name / ODNR status	IBI Grp	Feed Guild	Breed Guild	Tol	# of Fish	Relative Number	% by Number	Relative Weight	% by Weight	Ave(gm) Weight
Northern Hog Sucker	R	I	S	M	14	26.25	2.77			
White Sucker	W	O	S	T	54	101.25	10.67			
Creek Chub	N	G	N	T	155	290.63	30.63			
Redside Dace	N	I	S	I	11	20.63	2.17			
Striped Shiner	N	I	S		3	5.63	0.59			
Common Shiner	N	I	S		24	45.00	4.74			
Spotfin Shiner	N	I	M		6	11.25	1.19			
Sand Shiner	N	I	M	M	30	56.25	5.93			
Silverjaw Minnow	N	I	M		20	37.50	3.95			
Bluntnose Minnow	N	O	C	T	67	125.63	13.24			
Central Stoneroller	N	H	N		12	22.50	2.37			
Trout-perch		I	M		52	97.50	10.28			
Rock Bass	S	C	C		2	3.75	0.40			
Largemouth Bass	F	C	C		1	1.88	0.20			
Bluegill Sunfish	S	I	C	P	3	5.63	0.59			
Pumpkinseed Sunfish	S	I	C	P	2	3.75	0.40			
Blackside Darter	D	I	S		7	13.13	1.38			
Johnny Darter	D	I	C		24	45.00	4.74			
Greenside Darter	D	I	S	M	9	16.88	1.78			
Banded Darter	D	I	S	I	2	3.75	0.40			
Fantail Darter	D	I	C		7	13.13	1.38			
Mottled Sculpin		I	C		1	1.88	0.20			
Mile Total					506	948.75				
Number of Species					22					
Number of Hybrids					0					

River Code: **17-610**	Stream: **Mill Creek**	Sample Date: **2010**
River Mile: **7.90**	Location: farm lane off Co. Rd. 12	Date Range: 07/21/2010
Time Fished: 4545 sec	Drainage: 27.1 sq mi	Thru: 08/23/2010
Dist Fished: 0.40 km	Basin: Muskingum River No of Passes: 2	Sampler Type: E

Species Name / ODNR status	IBI Grp	Feed Guild	Breed Guild	Tol	# of Fish	Relative Number	% by Number	Relative Weight	% by Weight	Ave(gm) Weight
Least Brook Lamprey		F	N		2	1.50	0.08	0.00	0.04	2.50
Amer Brook Lamprey		F	N	R	2	1.50	0.08	0.00	0.04	2.50
Silver Redhorse	R	I	S	M	3	2.25	0.12	0.04	0.33	16.67
Golden Redhorse	R	I	S	M	23	17.25	0.88	0.79	6.89	45.61
Northern Hog Sucker	R	I	S	M	62	46.50	2.38	1.07	9.37	23.03
White Sucker	W	O	S	T	294	220.50	11.29	3.17	27.76	14.38
Bigeye Chub	N	I	S	I	17	12.75	0.65	0.04	0.31	2.74
Creek Chub	N	G	N	T	179	134.25	6.87	1.81	15.81	13.45
Suckermouth Minnow	N	I	S		3	2.25	0.12	0.01	0.08	4.00
Redside Dace	N	I	S	I	23	17.25	0.88	0.05	0.46	3.04
Silver Shiner	N	I	S	I	9	6.75	0.35	0.04	0.31	5.22
Common Shiner	N	I	S		310	232.50	11.90	0.84	7.35	3.61
Spotfin Shiner	N	I	M		93	69.75	3.57	0.12	1.02	1.67
Sand Shiner	N	I	M	M	101	75.75	3.88	0.13	1.15	1.73
Silverjaw Minnow	N	I	M		285	213.75	10.94	0.46	4.07	2.17
Bluntnose Minnow	N	O	C	T	532	399.00	20.43	0.68	5.92	1.69
Central Stoneroller	N	H	N		189	141.75	7.26	0.90	7.88	6.35
Stonecat Madtom		I	C	I	1	0.75	0.04	0.01	0.08	12.00
Trout-perch		I	M		57	42.75	2.19	0.19	1.68	4.47
Rock Bass	S	C	C		15	11.25	0.58	0.11	0.99	10.07
Smallmouth Bass	F	C	C	M	2	1.50	0.08	0.46	4.02	306.00
Largemouth Bass	F	C	C		3	2.25	0.12	0.02	0.21	10.67
Bluegill Sunfish	S	I	C	P	3	2.25	0.12	0.03	0.30	15.00
Hybrid X Sunfish					1	0.75	0.04	0.04	0.32	48.00
Blackside Darter	D	I	S		15	11.25	0.58	0.05	0.42	4.27
Logperch	D	I	S	M	11	8.25	0.42	0.04	0.34	4.73
Johnny Darter	D	I	C		209	156.75	8.03	0.14	1.21	0.88
Greenside Darter	D	I	S	M	61	45.75	2.34	0.10	0.91	2.26
Banded Darter	D	I	S	I	67	50.25	2.57	0.05	0.40	0.91
Fantail Darter	D	I	C		27	20.25	1.04	0.03	0.22	1.25
Mottled Sculpin		I	C		5	3.75	0.19	0.02	0.14	4.00
Mile Total					2,604	1,953.00		11.42		
Number of Species					30					
Number of Hybrids					1					

River Code: **17-610**	Stream: **Mill Creek**	Sample Date: **2010**
River Mile: **3.50**	Location: Twp. Rd. 322	Date Range: 07/21/2010
Time Fished: 5016 sec	Drainage: 39.9 sq mi	Thru: 08/20/2010
Dist Fished: 0.40 km	Basin: Muskingum River No of Passes: 2	Sampler Type: E

Species Name / ODNR status	IBI Grp	Feed Guild	Breed Guild	Tol	# of Fish	Relative Number	% by Number	Relative Weight	% by Weight	Ave(gm) Weight
Least Brook Lamprey		F	N		1	0.75	0.08	0.00	0.06	3.00
Amer Brook Lamprey		F	N	R	42	31.50	3.36	0.24	5.87	7.50
Silver Redhorse	R	I	S	M	1	0.75	0.08	0.01	0.22	12.00
Golden Redhorse	R	I	S	M	5	3.75	0.40	0.03	0.71	7.60
Northern Hog Sucker	R	I	S	M	49	36.75	3.92	0.66	16.30	17.86
White Sucker	W	O	S	T	11	8.25	0.88	0.18	4.35	21.18
Bigeye Chub	N	I	S	I	22	16.50	1.76	0.03	0.78	1.91
Western Blacknose Dace	N	G	S	T	1	0.75	0.08	0.00	0.02	1.00
Creek Chub	N	G	N	T	205	153.75	16.40	1.00	24.79	6.50
Redside Dace	N	I	S	I	6	4.50	0.48	0.00	0.11	1.00
Silver Shiner	N	I	S	I	22	16.50	1.76	0.06	1.38	3.36
Rosyface Shiner	N	I	S	I	8	6.00	0.64	0.01	0.27	1.75
Striped Shiner	N	I	S		5	3.75	0.40	0.01	0.19	2.00
Common Shiner	N	I	S		92	69.00	7.36	0.17	4.16	2.43
Spotfin Shiner	N	I	M		65	48.75	5.20	0.10	2.40	1.98
Sand Shiner	N	I	M	M	75	56.25	6.00	0.10	2.43	1.74
Mimic Shiner	N	I	M	I	7	5.25	0.56	0.01	0.21	1.57
Silverjaw Minnow	N	I	M		61	45.75	4.88	0.07	1.73	1.52
Bluntnose Minnow	N	O	C	T	234	175.50	18.72	0.29	7.26	1.67
Central Stoneroller	N	H	N		75	56.25	6.00	0.43	10.61	7.60
Yellow Bullhead		I	C	T	2	1.50	0.16	0.03	0.67	18.00
Trout-perch		I	M		1	0.75	0.08	0.00	0.07	4.00
Rock Bass	S	C	C		11	8.25	0.88	0.38	9.35	45.64
Blackside Darter	D	I	S		16	12.00	1.28	0.02	0.48	1.63
Johnny Darter	D	I	C		92	69.00	7.36	0.06	1.53	0.89
Greenside Darter	D	I	S	M	66	49.50	5.28	0.08	1.96	1.59
Banded Darter	D	I	S	I	40	30.00	3.20	0.03	0.82	1.10
Fantail Darter	D	I	C		34	25.50	2.72	0.05	1.27	2.00
Mottled Sculpin		I	C		1	0.75	0.08	0.00	0.06	3.00
	Mile Total				1,250	937.50		4.03		
	Number of Species				29					
	Number of Hybrids				0					

River Code: **17-610**	Stream: **Mill Creek**	Sample Date: **2010**
River Mile: **0.40**	Location: Co. Rd. 24	Date Range: 07/21/2010
Time Fished: 4905 sec	Drainage: 51.1 sq mi	Thru: 08/20/2010
Dist Fished: 0.40 km	Basin: Muskingum River No of Passes: 2	Sampler Type: E

Species Name / ODNR status	IBI Grp	Feed Guild	Breed Guild	Tol	# of Fish	Relative Number	% by Number	Relative Weight	% by Weight	Ave(gm) Weight
Amer Brook Lamprey		F	N	R	3	2.25	0.12	0.03	0.27	13.67
Bowfin		P	C		1	0.75	0.04	0.10	0.86	130.00
Gizzard Shad		O	M		1	0.75	0.04	0.00	0.03	4.00
Redfin Pickerel		P	M	P	1	0.75	0.04	0.02	0.19	29.00
Golden Redhorse	R	I	S	M	49	36.75	1.96	1.15	10.11	31.28
Northern Hog Sucker	R	I	S	M	76	57.00	3.04	1.98	17.38	34.68
White Sucker	W	O	S	T	5	3.75	0.20	0.09	0.83	25.00
Bigeye Chub	N	I	S	I	84	63.00	3.36	0.20	1.74	3.14
Western Blacknose Dace	N	G	S	T	2	1.50	0.08	0.00	0.01	1.00
Creek Chub	N	G	N	T	13	9.75	0.52	0.05	0.47	5.49
Silver Shiner	N	I	S	I	15	11.25	0.60	0.03	0.25	2.51
Rosyface Shiner	N	I	S	I	135	101.25	5.41	0.17	1.53	1.71
Striped Shiner	N	I	S		28	21.00	1.12	0.04	0.33	1.82
Common Shiner	N	I	S		15	11.25	0.60	0.01	0.10	1.00
Spotfin Shiner	N	I	M		29	21.75	1.16	0.08	0.74	3.87
Sand Shiner	N	I	M	M	296	222.00	11.85	0.26	2.28	1.17
Mimic Shiner	N	I	M	I	174	130.50	6.97	0.15	1.33	1.16
Silverjaw Minnow	N	I	M		12	9.00	0.48	0.02	0.16	2.00
Fathead Minnow	N	O	C	T	4	3.00	0.16	0.00	0.03	1.00
Bluntnose Minnow	N	O	C	T	777	582.75	31.12	1.18	10.37	2.02
Central Stoneroller	N	H	N		220	165.00	8.81	1.43	12.59	8.68
Channel Catfish	F		C		2	1.50	0.08	2.37	20.80	1,577.00
Stonecat Madtom		I	C	I	2	1.50	0.08	0.03	0.30	23.00
Trout-perch		I	M		2	1.50	0.08	0.01	0.08	6.00
Rock Bass	S	C	C		7	5.25	0.28	0.40	3.48	75.43
Smallmouth Bass	F	C	C	M	5	3.75	0.20	0.95	8.34	252.80
Spotted Bass	F	C	C		1	0.75	0.04	0.04	0.38	58.00
Largemouth Bass	F	C	C		1	0.75	0.04	0.00	0.03	4.00
Bluegill Sunfish	S	I	C	P	7	5.25	0.28	0.04	0.34	7.43
Blackside Darter	D	I	S		13	9.75	0.52	0.02	0.19	2.27
Logperch	D	I	S	M	2	1.50	0.08	0.01	0.11	8.50
Eastern Sand Darter [S]	D	I	S	R	1	0.75	0.04	0.00	0.01	1.00
Johnny Darter	D	I	C		121	90.75	4.85	0.08	0.70	0.88
Greenside Darter	D	I	S	M	201	150.75	8.05	0.27	2.33	1.76
Banded Darter	D	I	S	I	158	118.50	6.33	0.11	0.99	0.95
Rainbow Darter	D	I	S	M	8	6.00	0.32	0.01	0.09	1.75
Fantail Darter	D	I	C		26	19.50	1.04	0.03	0.26	1.50
	Mile Total				2,497	1,872.75		11.38		
	Number of Species				37					
	Number of Hybrids				0					

River Code: **17-612**	Stream: **Turkey Run**	Sample Date: **2010**
River Mile: **0.10**	Location: Co. Rd. 12	Date Range: 07/28/2010
Time Fished: 1597 sec	Drainage: 5.5 sq mi	
Dist Fished: 0.15 km	Basin: Muskingum River No of Passes: 1	Sampler Type: E

Species Name / ODNR status	IBI Grp	Feed Guild	Breed Guild	Tol	# of Fish	Relative Number	% by Number	Relative Weight	% by Weight	Ave(gm) Weight
Golden Redhorse	R	I	S	M	2	4.00	0.10			
Northern Hog Sucker	R	I	S	M	20	40.00	0.97			
White Sucker	W	O	S	T	78	156.00	3.78			
Western Blacknose Dace	N	G	S	T	50	100.00	2.42			
Creek Chub	N	G	N	T	158	316.00	7.65			
South. Redbelly Dace	N	H	S		167	334.00	8.09			
Redside Dace	N	I	S	I	586	1,172.00	28.38			
Striped Shiner	N	I	S		15	30.00	0.73			
Common Shiner	N	I	S		201	402.00	9.73			
Silverjaw Minnow	N	I	M		42	84.00	2.03			
Bluntnose Minnow	N	O	C	T	171	342.00	8.28			
Central Stoneroller	N	H	N		319	638.00	15.45			
Trout-perch		I	M		4	8.00	0.19			
Rock Bass	S	C	C		1	2.00	0.05			
Bluegill Sunfish	S	I	C	P	5	10.00	0.24			
Blackside Darter	D	I	S		10	20.00	0.48			
Johnny Darter	D	I	C		83	166.00	4.02			
Greenside Darter	D	I	S	M	42	84.00	2.03			
Fantail Darter	D	I	C		60	120.00	2.91			
Mottled Sculpin		I	C		51	102.00	2.47			
Mile Total					2,065	4,130.00				
Number of Species					20					
Number of Hybrids					0					

River Code: **17-613**	Stream: **Little Mill Creek**	Sample Date: **2010**
River Mile: **0.10**	Location: at mouth	Date Range: 07/29/2010
Time Fished: 2503 sec	Drainage: 8.4 sq mi	
Dist Fished: 0.15 km	Basin: Muskingum River No of Passes: 1	Sampler Type: E

Species Name / ODNR status	IBI Grp	Feed Guild	Breed Guild	Tol	# of Fish	Relative Number	% by Number	Relative Weight	% by Weight	Ave(gm) Weight
Least Brook Lamprey		F	N		8	16.00	0.36			
Northern Hog Sucker	R	I	S	M	18	36.00	0.82			
White Sucker	W	O	S	T	140	280.00	6.36			
Western Blacknose Dace	N	G	S	T	1	2.00	0.05			
Creek Chub	N	G	N	T	232	464.00	10.55			
South. Redbelly Dace	N	H	S		3	6.00	0.14			
Redside Dace	N	I	S	I	180	360.00	8.18			
Common Shiner	N	I	S		544	1,088.00	24.73			
Spotfin Shiner	N	I	M		16	32.00	0.73			
Silverjaw Minnow	N	I	M		73	146.00	3.32			
Bluntnose Minnow	N	O	C	T	271	542.00	12.32			
Central Stoneroller	N	H	N		266	532.00	12.09			
Trout-perch		I	M		86	172.00	3.91			
Rock Bass	S	C	C		1	2.00	0.05			
Largemouth Bass	F	C	C		11	22.00	0.50			
Green Sunfish	S	I	C	T	3	6.00	0.14			
Bluegill Sunfish	S	I	C	P	3	6.00	0.14			
Blackside Darter	D	I	S		13	26.00	0.59			
Johnny Darter	D	I	C		127	254.00	5.77			
Greenside Darter	D	I	S	M	51	102.00	2.32			
Banded Darter	D	I	S	I	18	36.00	0.82			
Fantail Darter	D	I	C		113	226.00	5.14			
Mottled Sculpin		I	C		22	44.00	1.00			
Mile Total					2,200	4,400.00				
Number of Species					23					
Number of Hybrids					0					

River Code: **17-626**	Stream: **Trib. to Mohawk Creek (2.93)**	Sample Date: **2010**
River Mile: **0.60**	Location: Twp. Rd. 373	Date Range: 07/12/2010
Time Fished: 2700 sec	Drainage: 6.4 sq mi	
Dist Fished: 0.15 km	Basin: Muskingum River No of Passes: 1	Sampler Type: E

Species Name / ODNR status	IBI Grp	Feed Guild	Breed Guild	Tol	# of Fish	Relative Number	% by Number	Relative Weight	% by Weight	Ave(gm) Weight
Silver Lamprey		P	N		2	4.00	0.13			
Least Brook Lamprey		F	N		19	38.00	1.25			
Northern Hog Sucker	R	I	S	M	1	2.00	0.07			
White Sucker	W	O	S	T	168	336.00	11.01			
Western Blacknose Dace	N	G	S	T	20	40.00	1.31			
Creek Chub	N	G	N	T	398	796.00	26.08			
South. Redbelly Dace	N	H	S		39	78.00	2.56			
Redside Dace	N	I	S	I	28	56.00	1.83			
Common Shiner	N	I	S		180	360.00	11.80			
Silverjaw Minnow	N	I	M		6	12.00	0.39			
Bluntnose Minnow	N	O	C	T	217	434.00	14.22			
Central Stoneroller	N	H	N		122	244.00	7.99			
Striped Sh X Common Sh		I			7	14.00	0.46			
Common Sh X Creek Chub					2	4.00	0.13			
Green Sunfish	S	I	C	T	43	86.00	2.82			
Bluegill Sunfish	S	I	C	P	1	2.00	0.07			
Blackside Darter	D	I	S		3	6.00	0.20			
Johnny Darter	D	I	C		120	240.00	7.86			
Greenside Darter	D	I	S	M	8	16.00	0.52			
Banded Darter	D	I	S	I	1	2.00	0.07			
Variegate Darter	D	I	S	I	6	12.00	0.39			
Rainbow Darter	D	I	S	M	46	92.00	3.01			
Fantail Darter	D	I	C		89	178.00	5.83			
	Mile Total				1,526	3,052.00				
	Number of Species				21					
	Number of Hybrids				2					

River Code: **17-919**	Stream: **Mill Run**	Sample Date: **2010**
River Mile: **0.40**	Location: Coal Run Rd.	Date Range: 08/20/2010
Time Fished: 1458 sec	Drainage: 3.1 sq mi	
Dist Fished: 0.15 km	Basin: Muskingum River No of Passes: 1	Sampler Type: E

Species Name / ODNR status	IBI Grp	Feed Guild	Breed Guild	Tol	# of Fish	Relative Number	% by Number	Relative Weight	% by Weight	Ave(gm) Weight
White Sucker	W	O	S	T	6	12.00	1.05			
Western Blacknose Dace	N	G	S	T	211	422.00	36.89			
Creek Chub	N	G	N	T	305	610.00	53.32			
South. Redbelly Dace	N	H	S		2	4.00	0.35			
Spotfin Shiner	N	I	M		1	2.00	0.17			
Bluntnose Minnow	N	O	C	T	1	2.00	0.17			
Central Stoneroller	N	H	N		45	90.00	7.87			
Rainbow Darter	D	I	S	M	1	2.00	0.17			
Mile Total					572	1,144.00				
Number of Species					8					
Number of Hybrids					0					

River Code: **17-938**	Stream: **Blount Run**	Sample Date: **2010**
River Mile: **0.30**	Location: St. Rt. 666	Date Range: 08/02/2010
Time Fished: 1794 sec	Drainage: 7.7 sq mi	
Dist Fished: 0.15 km	Basin: Muskingum River No of Passes: 1	Sampler Type: E

Species Name / ODNR status	IBI Grp	Feed Guild	Breed Guild	Tol	# of Fish	Relative Number	% by Number	Relative Weight	% by Weight	Ave(gm) Weight
Golden Redhorse	R	I	S	M	10	20.00	1.00			
Northern Hog Sucker	R	I	S	M	26	52.00	2.61			
White Sucker	W	O	S	T	5	10.00	0.50			
Spotted Sucker	R	I	S		1	2.00	0.10			
Bigeye Chub	N	I	S	I	14	28.00	1.40			
Creek Chub	N	G	N	T	11	22.00	1.10			
Silver Shiner	N	I	S	I	3	6.00	0.30			
Rosyface Shiner	N	I	S	I	4	8.00	0.40			
Striped Shiner	N	I	S		2	4.00	0.20			
Spotfin Shiner	N	I	M		255	510.00	25.55			
Sand Shiner	N	I	M	M	125	250.00	12.53			
Mimic Shiner	N	I	M	I	113	226.00	11.32			
Silverjaw Minnow	N	I	M		5	10.00	0.50			
Bluntnose Minnow	N	O	C	T	175	350.00	17.54			
Central Stoneroller	N	H	N		171	342.00	17.13			
Yellow Bullhead		I	C	T	4	8.00	0.40			
Rock Bass	S	C	C		11	22.00	1.10			
Smallmouth Bass	F	C	C	M	5	10.00	0.50			
Largemouth Bass	F	C	C		3	6.00	0.30			
Warmouth Sunfish	S	C	C		2	4.00	0.20			
Green Sunfish	S	I	C	T	4	8.00	0.40			
Bluegill Sunfish	S	I	C	P	22	44.00	2.20			
Pumpkinseed Sunfish	S	I	C	P	1	2.00	0.10			
Johnny Darter	D	I	C		12	24.00	1.20			
Rainbow Darter	D	I	S	M	6	12.00	0.60			
Fantail Darter	D	I	C		8	16.00	0.80			
Mile Total					998	1,996.00				
Number of Species					26					
Number of Hybrids					0					

River Code: **17-939**	Stream: **Blunt Run**	Sample Date: **2010**
River Mile: **0.10**	Location: Co. Rd. 418, at YMCA Camp	Date Range: 07/22/2010
Time Fished: 1800 sec	Drainage: 2.8 sq mi	
Dist Fished: 0.15 km	Basin: Muskingum River No of Passes: 1	Sampler Type: E

Species Name / ODNR status	IBI Grp	Feed Guild	Breed Guild	Tol	# of Fish	Relative Number	% by Number	Relative Weight	% by Weight	Ave(gm) Weight
Redfin Pickerel		P	M	P	2	4.00	0.28			
Northern Hog Sucker	R	I	S	M	5	10.00	0.70			
White Sucker	W	O	S	T	4	8.00	0.56			
Western Blacknose Dace	N	G	S	T	74	148.00	10.31			
Creek Chub	N	G	N	T	176	352.00	24.51			
South. Redbelly Dace	N	H	S		1	2.00	0.14			
Spotfin Shiner	N	I	M		1	2.00	0.14			
Sand Shiner	N	I	M	M	10	20.00	1.39			
Bluntnose Minnow	N	O	C	T	137	274.00	19.08			
Central Stoneroller	N	H	N		95	190.00	13.23			
Western Mosquitofish	E	I	N		11	22.00	1.53			
Green Sunfish	S	I	C	T	4	8.00	0.56			
Bluegill Sunfish	S	I	C	P	2	4.00	0.28			
Rainbow Darter	D	I	S	M	5	10.00	0.70			
Fantail Darter	D	I	C		191	382.00	26.60			
	Mile Total				718	1,436.00				
	Number of Species				15					
	Number of Hybrids				0					

River Code: **17-956**	Stream: **Symmes Creek**	Sample Date: **2010**
River Mile: **5.70**	Location: Steel Hill Rd.	Date Range: 07/26/2010
Time Fished: 2230 sec	Drainage: 8.3 sq mi	
Dist Fished: 0.15 km	Basin: Muskingum River No of Passes: 1	Sampler Type: E

Species Name / ODNR status	IBI Grp	Feed Guild	Breed Guild	Tol	# of Fish	Relative Number	% by Number	Relative Weight	% by Weight	Ave(gm) Weight
Least Brook Lamprey		F	N		3	6.00	0.18			
Northern Hog Sucker	R	I	S	M	22	44.00	1.35			
White Sucker	W	O	S	T	38	76.00	2.33			
Western Blacknose Dace	N	G	S	T	449	898.00	27.56			
Creek Chub	N	G	N	T	345	690.00	21.18			
South. Redbelly Dace	N	H	S		16	32.00	0.98			
Redside Dace	N	I	S	I	88	176.00	5.40			
Silverjaw Minnow	N	I	M		34	68.00	2.09			
Bluntnose Minnow	N	O	C	T	260	520.00	15.96			
Central Stoneroller	N	H	N		22	44.00	1.35			
Green Sunfish	S	I	C	T	63	126.00	3.87			
Bluegill Sunfish	S	I	C	P	1	2.00	0.06			
Hybrid X Sunfish					2	4.00	0.12			
Johnny Darter	D	I	C		196	392.00	12.03			
Greenside Darter	D	I	S	M	3	6.00	0.18			
Rainbow Darter	D	I	S	M	1	2.00	0.06			
Fantail Darter	D	I	C		86	172.00	5.28			
	Mile Total				1,629	3,258.00				
	Number of Species				16					
	Number of Hybrids				1					

River Code: **17-956**	Stream: **Symmes Creek**	Sample Date: **2010**
River Mile: **4.40**	Location: Morton Ridge Rd.	Date Range: 08/02/2010
Time Fished: 1544 sec	Drainage: 15.3 sq mi	
Dist Fished: 0.15 km	Basin: Muskingum River No of Passes: 1	Sampler Type: E

Species Name / ODNR status	IBI Grp	Feed Guild	Breed Guild	Tol	# of Fish	Relative Number	% by Number	Relative Weight	% by Weight	Ave(gm) Weight
Least Brook Lamprey		F	N		2	4.00	0.29			
Northern Hog Sucker	R	I	S	M	50	100.00	7.16			
White Sucker	W	O	S	T	72	144.00	10.32			
Western Blacknose Dace	N	G	S	T	77	154.00	11.03			
Creek Chub	N	G	N	T	79	158.00	11.32			
Redside Dace	N	I	S	I	24	48.00	3.44			
Silverjaw Minnow	N	I	M		14	28.00	2.01			
Bluntnose Minnow	N	O	C	T	239	478.00	34.24			
Central Stoneroller	N	H	N		13	26.00	1.86			
Largemouth Bass	F	C	C		4	8.00	0.57			
Green Sunfish	S	I	C	T	44	88.00	6.30			
Bluegill Sunfish	S	I	C	P	2	4.00	0.29			
Hybrid X Sunfish					6	12.00	0.86			
Johnny Darter	D	I	C		29	58.00	4.15			
Greenside Darter	D	I	S	M	7	14.00	1.00			
Fantail Darter	D	I	C		36	72.00	5.16			
Mile Total					698	1,396.00				
Number of Species					15					
Number of Hybrids					1					

River Code: **17-956**	Stream: **Symmes Creek**	Sample Date: **2010**
River Mile: **2.30**	Location: dst. North Fork	Date Range: 07/01/2010
Time Fished: 4664 sec	Drainage: 31.4 sq mi	Thru: 08/20/2010
Dist Fished: 0.40 km	Basin: Muskingum River No of Passes: 2	Sampler Type: D

Species Name / ODNR status	IBI Grp	Feed Guild	Breed Guild	Tol	# of Fish	Relative Number	% by Number	Relative Weight	% by Weight	Ave(gm) Weight
Least Brook Lamprey		F	N		1	0.75	0.06	0.00	0.02	3.00
Amer Brook Lamprey		F	N	R	1	0.75	0.06	0.00	0.01	2.00
Golden Redhorse	R	I	S	M	18	13.50	1.01	0.36	3.11	26.33
Northern Hog Sucker	R	I	S	M	194	145.50	10.89	3.14	27.50	21.59
White Sucker	W	O	S	T	41	30.75	2.30	1.05	9.20	34.16
Spotted Sucker	R	I	S		1	0.75	0.06	0.02	0.14	22.00
Bigeye Chub	N	I	S	I	12	9.00	0.67	0.02	0.21	2.67
Western Blacknose Dace	N	G	S	T	31	23.25	1.74	0.04	0.36	1.76
Creek Chub	N	G	N	T	42	31.50	2.36	0.38	3.35	12.15
Redside Dace	N	I	S	I	1	0.75	0.06	0.00	0.01	1.00
Silver Shiner	N	I	S	I	5	3.75	0.28	0.01	0.06	1.70
Striped Shiner	N	I	S		3	2.25	0.17	0.12	1.01	51.00
Common Shiner	N	I	S		2	1.50	0.11	0.01	0.08	6.00
Spotfin Shiner	N	I	M		127	95.25	7.13	0.09	0.74	0.90
Sand Shiner	N	I	M	M	9	6.75	0.51	0.01	0.10	1.67
Mimic Shiner	N	I	M	I	8	6.00	0.45	0.01	0.08	1.50
Silverjaw Minnow	N	I	M		49	36.75	2.75	0.06	0.53	1.63
Bluntnose Minnow	N	O	C	T	450	337.50	25.27	0.62	5.40	1.83
Central Stoneroller	N	H	N		310	232.50	17.41	1.26	11.07	5.44
Striped Sh X Common Sh		I			1	0.75	0.06	0.00	0.01	2.00
White Crappie	S	I	C		2	1.50	0.11	0.06	0.54	41.00
Rock Bass	S	C	C		17	12.75	0.95	1.17	10.25	91.76
Smallmouth Bass	F	C	C	M	16	12.00	0.90	2.23	19.51	185.68
Warmouth Sunfish	S	C	C		1	0.75	0.06	0.01	0.12	18.00
Green Sunfish	S	I	C	T	27	20.25	1.52	0.19	1.66	9.37
Bluegill Sunfish	S	I	C	P	16	12.00	0.90	0.17	1.51	14.33
Pumpkinseed Sunfish	S	I	C	P	4	3.00	0.22	0.06	0.52	19.75
Hybrid X Sunfish					1	0.75	0.06	0.00	0.02	3.00
Blackside Darter	D	I	S		3	2.25	0.17	0.01	0.08	4.00
Logperch	D	I	S	M	2	1.50	0.11	0.02	0.20	15.00
Johnny Darter	D	I	C		84	63.00	4.72	0.04	0.35	0.64
Greenside Darter	D	I	S	M	119	89.25	6.68	0.11	0.95	1.21
Banded Darter	D	I	S	I	69	51.75	3.87	0.05	0.44	0.97
Variegate Darter	D	I	S	I	5	3.75	0.28	0.01	0.09	2.80
Rainbow Darter	D	I	S	M	89	66.75	5.00	0.07	0.65	1.11
Fantail Darter	D	I	C		20	15.00	1.12	0.02	0.16	1.19
	Mile Total				1,781	1,335.75		11.42		
	Number of Species				34					
	Number of Hybrids				2					

River Code: **17-957**	Stream: **North Branch Symmes Creek**	Sample Date: **2010**
River Mile: **4.30**	Location: Steel Hill Rd.	Date Range: 07/26/2010
Time Fished: 2325 sec	Drainage: 8.2 sq mi	
Dist Fished: 0.15 km	Basin: Muskingum River No of Passes: 1	Sampler Type: E

Species Name / ODNR status	IBI Grp	Feed Guild	Breed Guild	Tol	# of Fish	Relative Number	% by Number	Relative Weight	% by Weight	Ave(gm) Weight
Least Brook Lamprey		F	N		23	46.00	2.16			
Northern Hog Sucker	R	I	S	M	31	62.00	2.91			
White Sucker	W	O	S	T	35	70.00	3.28			
Spotted Sucker	R	I	S		3	6.00	0.28			
Western Blacknose Dace	N	G	S	T	6	12.00	0.56			
Creek Chub	N	G	N	T	112	224.00	10.50			
Redside Dace	N	I	S	I	40	80.00	3.75			
Striped Shiner	N	I	S		29	58.00	2.72			
Common Shiner	N	I	S		50	100.00	4.69			
Spotfin Shiner	N	I	M		37	74.00	3.47			
Silverjaw Minnow	N	I	M		34	68.00	3.19			
Bluntnose Minnow	N	O	C	T	359	718.00	33.65			
Central Stoneroller	N	H	N		95	190.00	8.90			
Yellow Bullhead		I	C	T	1	2.00	0.09			
Trout-perch		I	M		4	8.00	0.37			
Largemouth Bass	F	C	C		4	8.00	0.37			
Green Sunfish	S	I	C	T	36	72.00	3.37			
Bluegill Sunfish	S	I	C	P	44	88.00	4.12			
Pumpkinseed Sunfish	S	I	C	P	2	4.00	0.19			
Johnny Darter	D	I	C		59	118.00	5.53			
Greenside Darter	D	I	S	M	12	24.00	1.12			
Fantail Darter	D	I	C		51	102.00	4.78			
Mile Total					1,067	2,134.00				
Number of Species					22					
Number of Hybrids					0					

River Code: **17-957**	Stream: **North Branch Symmes Creek**	Sample Date: **2010**
River Mile: **0.10**	Location: at mouth	Date Range: 07/01/2010
Time Fished: 2714 sec	Drainage: 15.0 sq mi	
Dist Fished: 0.15 km	Basin: Muskingum River No of Passes: 1	Sampler Type: E

Species Name / ODNR status	IBI Grp	Feed Guild	Breed Guild	Tol	# of Fish	Relative Number	% by Number	Relative Weight	% by Weight	Ave(gm) Weight
Golden Redhorse	R	I	S	M	2	4.00	0.32	0.30	2.40	74.00
Northern Hog Sucker	R	I	S	M	46	92.00	7.26	2.09	16.94	22.72
White Sucker	W	O	S	T	5	10.00	0.79	0.71	5.79	71.40
Bigeye Chub	N	I	S	I	2	4.00	0.32	0.01	0.06	2.00
Western Blacknose Dace	N	G	S	T	10	20.00	1.58	0.04	0.32	2.00
Creek Chub	N	G	N	T	25	50.00	3.94	0.59	4.78	11.79
South. Redbelly Dace	N	H	S		1	2.00	0.16	0.01	0.05	3.00
Striped Shiner	N	I	S		3	6.00	0.47	0.09	0.70	14.50
Spotfin Shiner	N	I	M		7	14.00	1.10	0.03	0.24	2.14
Sand Shiner	N	I	M	M	1	2.00	0.16	0.00	0.02	1.00
Bluntnose Minnow	N	O	C	T	102	204.00	16.09	0.47	3.78	2.29
Central Stoneroller	N	H	N		257	514.00	40.54	3.64	29.52	7.09
Rock Bass	S	C	C		5	10.00	0.79	1.40	11.34	140.00
Smallmouth Bass	F	C	C	M	6	12.00	0.95	2.40	19.46	200.20
Green Sunfish	S	I	C	T	15	30.00	2.37	0.34	2.79	11.47
Bluegill Sunfish	S	I	C	P	4	8.00	0.63	0.02	0.19	3.00
Johnny Darter	D	I	C		12	24.00	1.89	0.02	0.19	1.00
Greenside Darter	D	I	S	M	31	62.00	4.89	0.06	0.52	1.03
Banded Darter	D	I	S	I	23	46.00	3.63	0.02	0.19	0.52
Variegate Darter	D	I	S	I	2	4.00	0.32	0.02	0.13	4.00
Rainbow Darter	D	I	S	M	56	112.00	8.83	0.05	0.41	0.45
Fantail Darter	D	I	C		19	38.00	3.00	0.02	0.16	0.53
Mile Total					634	1,268.00		12.34		
Number of Species					22					
Number of Hybrids					0					

River Code: **17-958**	Stream: **South Branch Symmes Creek**	Sample Date: **2010**
River Mile: **0.20**	Location: Sheck Rd.	Date Range: 08/02/2010
Time Fished: 2067 sec	Drainage: 4.3 sq mi	
Dist Fished: 0.15 km	Basin: Muskingum River No of Passes: 1	Sampler Type: E

Species Name / ODNR status	IBI Grp	Feed Guild	Breed Guild	Tol	# of Fish	Relative Number	% by Number	Relative Weight	% by Weight	Ave(gm) Weight
Least Brook Lamprey		F	N		2	4.00	0.27			
Northern Hog Sucker	R	I	S	M	13	26.00	1.74			
White Sucker	W	O	S	T	13	26.00	1.74			
Western Blacknose Dace	N	G	S	T	32	64.00	4.29			
Creek Chub	N	G	N	T	335	670.00	44.91			
South. Redbelly Dace	N	H	S		5	10.00	0.67			
Redside Dace	N	I	S	I	98	196.00	13.14			
Silverjaw Minnow	N	I	M		11	22.00	1.47			
Bluntnose Minnow	N	O	C	T	30	60.00	4.02			
Central Stoneroller	N	H	N		13	26.00	1.74			
Green Sunfish	S	I	C	T	95	190.00	12.73			
Bluegill Sunfish	S	I	C	P	1	2.00	0.13			
Longear Sunfish	S	I	C	M	1	2.00	0.13			
Hybrid X Sunfish					4	8.00	0.54			
Johnny Darter	D	I	C		48	96.00	6.43			
Fantail Darter	D	I	C		45	90.00	6.03			
	Mile Total				746	1,492.00				
	Number of Species				15					
	Number of Hybrids				1					

River Code: **17-979**	Stream: **Robinson Run**	Sample Date: **2010**
River Mile: **1.80**	Location: behind house, off Co. Rd. 277	Date Range: 07/26/2010
Time Fished: 1800 sec	Drainage: 3.5 sq mi	
Dist Fished: 0.15 km	Basin: Muskingum River No of Passes: 1	Sampler Type: E

Species Name / ODNR status	IBI Grp	Feed Guild	Breed Guild	Tol	# of Fish	Relative Number	% by Number	Relative Weight	% by Weight	Ave(gm) Weight
White Sucker	W	O	S	T	3	6.00	1.53			
Creek Chub	N	G	N	T	181	362.00	92.35			
Central Stoneroller	N	H	N		11	22.00	5.61			
Green Sunfish	S	I	C	T	1	2.00	0.51			
Mile Total					196	392.00				
Number of Species					4					
Number of Hybrids					0					

Dist Fished: 10.58 km | No of Streams: 19 | No of Passes: 44

Grand Total of All Streams
Date Range: 07/09/2007
Thru: 08/23/2010

Species Name / ODNR status	IBI Grp	Feed Guild	Breed Guild	Tol	# of Fish	Relative Number	% by Number	Relative Weight	% by Weight	Ave(gm) Weight
Silver Lamprey		P	N		2	0.09	0.01			
Least Brook Lamprey		F	N		139	6.24	0.42	0.00	0.00	4.25
Amer Brook Lamprey		F	N	R	48	1.64	0.11	0.03	0.02	7.56
Longnose Gar		P	M		5	0.23	0.02	0.33	0.30	683.40
Bowfin		P	C		7	0.31	0.02	0.61	0.55	915.00
Gizzard Shad		O	M		86	3.90	0.26	0.65	0.59	79.08
Redfin Pickerel		P	M	P	6	0.28	0.02	0.00	0.00	29.00
Northern Pike	F	P	M		2	0.09	0.01			
Quillback	C	O	M		22	1.00	0.07	1.50	1.37	717.73
Highfin Carpsucker	C	O	M		7	0.32	0.02	0.37	0.34	557.14
Silver Redhorse	R	I	S	M	145	6.31	0.42	11.00	10.04	821.03
Black Redhorse	R	I	S	I	165	7.50	0.50	6.37	5.81	405.43
Golden Redhorse	R	I	S	M	825	35.80	2.41	14.53	13.26	210.98
River Redhorse [S]	R	I	S	I	80	3.64	0.24	17.04	15.55	2,236.29
Northern Hog Sucker	R	I	S	M	1,265	53.53	3.60	6.53	5.96	81.11
White Sucker	W	O	S	T	1,752	74.85	5.04	0.96	0.87	25.81
Spotted Sucker	R	I	S		5	0.22	0.01	0.00	0.00	22.00
Smallmouth Redhorse	R	I	S	M	255	11.59	0.78	11.23	10.25	462.61
Common Carp	G	O	M	T	48	2.18	0.15	13.52	12.34	2,957.71
Golden Shiner	N	I	M	T	1	0.05	0.00			
River Chub	N	I	N	I	18	0.82	0.06	0.05	0.05	29.00
Bigeye Chub	N	I	S	I	320	12.77	0.86	0.06	0.05	2.41
Streamline Chub	N	I	S	R	236	10.73	0.72	0.20	0.18	8.92
Gravel Chub	N	I	S	M	29	1.32	0.09	0.01	0.01	3.95
Western Blacknose Dace	N	G	S	T	1,554	74.64	5.03	0.01	0.01	1.76
Creek Chub	N	G	N	T	4,276	189.85	12.78	0.38	0.35	9.38
Suckermouth Minnow	N	I	S		3	0.10	0.01	0.00	0.00	4.00
South. Redbelly Dace	N	H	S		277	12.73	0.86	0.00	0.00	3.00
Redside Dace	N	I	S	I	1,254	56.70	3.82	0.01	0.01	2.57
Silver Shiner	N	I	S	I	205	8.52	0.57	0.06	0.05	4.21
Rosyface Shiner	N	I	S	I	261	10.24	0.69	0.04	0.04	2.04
Striped Shiner	N	I	S		392	15.93	1.07	0.14	0.12	7.61
Common Shiner	N	I	S		1,706	72.47	4.88	0.11	0.10	3.15
Spotfin Shiner	N	I	M		1,105	46.32	3.12	0.25	0.23	3.61
Sand Shiner	N	I	M	M	780	29.82	2.01	0.06	0.06	1.37
Mimic Shiner	N	I	M	I	533	21.22	1.43	0.05	0.05	1.58
Silverjaw Minnow	N	I	M		806	32.55	2.19	0.07	0.06	2.11
Bullhead Minnow	N	O	C		3	0.14	0.01	0.00	0.00	4.67
Fathead Minnow	N	O	C	T	8	0.33	0.02	0.00	0.00	1.00
Bluntnose Minnow	N	O	C	T	5,472	226.05	15.22	0.35	0.32	1.94
Central Stoneroller	N	H	N		3,591	152.20	10.25	0.63	0.57	6.72
Striped Sh X Common Sh		I			16	0.72	0.05	0.00	0.00	2.00
Common Sh X Creek Chub					2	0.09	0.01			
Hybrid X Minnow					2	0.09	0.01			
Channel Catfish	F		C		101	4.57	0.31	11.17	10.19	1,168.61
Yellow Bullhead		I	C	T	16	0.70	0.05	0.08	0.08	125.71
Flathead Catfish	F	P	C		5	0.23	0.02	1.35	1.24	2,844.00

Species Name / ODNR status	IBI Grp	Feed Guild	Breed Guild	Tol	# of Fish	Relative Number	% by Number	Relative Weight	% by Weight	Ave(gm) Weight
Stonecat Madtom		I	C	I	11	0.47	0.03	0.02	0.02	23.09
Mountain Madtom [E]		I	C	R	1	0.05	0.00	0.00	0.00	3.00
Northern Madtom [E]		I	C	R	1	0.05	0.00	0.00	0.00	1.00
Tadpole Madtom		I	C		1	0.05	0.00			
Western Mosquitofish	E	I	N		11	0.50	0.03			
Trout-perch		I	M		296	12.15	0.82	0.04	0.03	4.45
Brook Silverside		I	M	M	6	0.25	0.02	0.00	0.00	2.25
White Bass	F	P	M		1	0.05	0.00	0.14	0.13	1,500.00
White Crappie	S	I	C		2	0.07	0.00	0.01	0.01	41.00
Black Crappie	S	I	C		7	0.32	0.02	0.16	0.15	245.29
Rock Bass	S	C	C		225	8.98	0.60	0.98	0.89	64.31
Smallmouth Bass	F	C	C	M	300	13.29	0.89	4.07	3.72	151.63
Spotted Bass	F	C	C		7	0.31	0.02	0.04	0.04	65.29
Largemouth Bass	F	C	C		49	2.11	0.14	0.17	0.16	120.27
Warmouth Sunfish	S	C	C		3	0.13	0.01	0.00	0.00	18.00
Green Sunfish	S	I	C	T	352	15.72	1.06	0.04	0.03	9.37
Bluegill Sunfish	S	I	C	P	176	7.65	0.52	0.19	0.18	28.19
Longear Sunfish	S	I	C	M	1	0.05	0.00			
Redear Sunfish	E	I	C		1	0.05	0.00	0.01	0.01	60.00
Pumpkinseed Sunfish	S	I	C	P	12	0.49	0.03	0.04	0.04	62.43
Green Sf X Bluegill Sf					1	0.05	0.00	0.00	0.00	50.00
Hybrid X Sunfish					14	0.61	0.04	0.00	0.00	25.50
Yellow Perch			M		2	0.09	0.01	0.02	0.02	111.00
Dusky Darter	D	I	S	M	1	0.05	0.00	0.00	0.00	10.00
Blackside Darter	D	I	S		131	5.04	0.34	0.01	0.01	2.49
Logperch	D	I	S	M	126	5.45	0.37	0.13	0.12	11.64
Eastern Sand Darter [S]	D	I	S	R	2	0.08	0.01	0.00	0.00	1.50
Johnny Darter	D	I	C		1,836	77.66	5.23	0.04	0.03	0.84
Greenside Darter	D	I	S	M	922	35.92	2.42	0.07	0.07	1.76
Banded Darter	D	I	S	I	502	18.85	1.27	0.03	0.03	1.00
Variegate Darter	D	I	S	I	70	3.13	0.21	0.02	0.01	3.02
Bluebreast Darter [T]	D	I	S	R	41	1.86	0.13	0.01	0.01	2.20
Rainbow Darter	D	I	S	M	402	16.66	1.12	0.01	0.01	1.02
Fantail Darter	D	I	C		1,135	51.01	3.43	0.02	0.01	1.37
Sauger X Walleye	E	P			17	0.77	0.05	0.71	0.65	438.82
Freshwater Drum			M	P	20	0.91	0.06	2.84	2.59	1,490.00
Mottled Sculpin		I	C		275	12.44	0.84	0.00	0.00	3.83
Brook Stickleback		I	C		7	0.32	0.02			
Grand Total					34,803	1,485.18		109.58		
Number of Species					79					
Number of Hybrids					6					

Appendix J – Invertebrate Community Index metrics for Walhonding River and Walhonding and Muskingum River tributaries, 1987-2010.

River Mile	Drainage Area (sq mi)	Number of				Percent:					Qual. EPT	Eco-region	ICI
		Total Taxa	Mayfly Taxa	Caddisfly Taxa	Dipteran Taxa	Mayflies	Caddis-flies	Tany-tarsini	Other Dipt/NI	Tolerant Organisms			
Walhonding River (17-600)													
Year: 2007													
20.40	1490	41(6)	12(6)	10(6)	9(4)	46.3(6)	25.5(4)	16.6(4)	10.4(6)	1.6(4)	28(6)	4	52
7.60	1575	33(4)	12(6)	8(6)	7(2)	55.5(6)	25.3(4)	9.3(2)	9.8(6)	0.1(6)	28(6)	4	48
1.20	2254	34(6)	10(6)	9(6)	7(4)	39.5(6)	34.8(4)	9.8(4)	15.0(4)	0.1(6)	19(6)	4	52
Year: 1994													
15.60	1505	50(6)	15(6)	9(6)	15(6)	36.4(6)	19.8(4)	28.8(6)	13.8(6)	0.1(6)	14(4)	4	56
7.70	1577	43(6)	10(6)	8(6)	14(6)	47.0(6)	20.5(4)	17.6(4)	13.2(6)	0.8(6)	18(6)	4	56
0.80	2255	35(6)	11(6)	9(6)	7(4)	11.9(4)	30.5(4)	41.0(6)	16.2(4)	0.0(6)	18(6)	4	52
Year: 1988													
15.60	1505	50(6)	11(6)	6(4)	25(6)	43.4(6)	17.0(2)	24.2(6)	14.2(6)	1.0(6)	13(4)	4	52
0.80	2255	43(6)	11(6)	11(6)	12(6)	45.6(6)	36.8(4)	4.0(2)	12.0(6)	0.0(6)	19(6)	4	54
Mohawk Creek (17-607)													
Year: 2010													
1.48	22.6	41(6)	7(6)	3(6)	20(6)	11.1(2)	1.4(2)	57.0(6)	27.0(6)	8.4(4)	21(6)	4	50
Mill Creek (17-610)													
Year: 2010													
3.54	39.9	26(4)	4(2)	3(4)	10(2)	5.8(2)	2.9(2)	57.4(6)	33.5(4)	7.7(4)	18(6)	4	36
0.40	51.1	34(4)	5(2)	8(6)	11(2)	3.4(2)	12.5(6)	53.8(6)	29.1(4)	5.6(6)	23(6)	4	44
Symmes Creek (17-956)													
Year: 2010													
2.35	31.4	44(6)	5(4)	3(6)	27(6)	20.0(4)	0.9(2)	39.3(6)	29.3(4)	1.6(6)	14(6)	4	50

Appendix L – Macroinvertebrate summary for Walhonding River and Walhonding and Muskingum River tributaries, 1987-2010.

River Mile	All Taxa			Sen. Taxa			EPT Taxa		CW Taxa	Ql. Tol. Taxa	Ql. S T	QCTV	ICI	Nar.	Drain	Comments
	Total	Qt.	Ql.	Total	Qt.	Ql.	Total	Ql.								
Walhonding River (17-600)																
Year: 2007																
20.40	75	41	60	40	23	32	34	28	1	7	4.57	43.9	52		1490.0	
15.50	69		69	39		39		27	0	9	4.33	44.2		E	1505.0	
9.20	37		37	10		10		9	0	12	0.83	38.4		HF	1574.0	X2
7.60	79	33	72	41	22	38	31	28	0	13	2.92	44.2	48		1575.0	
1.20	47	34	36	28	20	19	26	19	0	2	9.50	45.6	52		2254.0	
Year: 1994																
15.60	66	50	34	33	27	15	29	14	0	4	3.75	42.4	56		1505.0	X18
7.70	74	43	57	35	21	28	26	18	1	8	3.50	40.9	56		1577.0	
0.80	55	35	42	30	22	22	25	18	0	4	5.50	43.6	52		2255.0	
Year: 1988																
15.60	70	50	43	26	21	14	20	13	0	8	1.75	39.9	52		1505.0	
0.80	65	43	47	33	24	21	27	19	0	8	2.63	42.1	54		2255.0	
Year: 1987																
0.10	52		52	19		19		19	0	7	2.71	42.0			2256.0	
Crooked Run (17-601)																
Year: 2010																
0.98	45		45	8		8		10	0	7	1.14	40.5		MG	8.0	
0.06	30		30	5		5		8	0	6	0.83	39.3		F	9.0	
Simmons Run (17-603)																
Year: 2010																
2.97	36		36	6		6		7	1	6	1.00	40.5		F	6.9	
0.60	52		52	10		10		13	0	6	1.67	40.1		G	16.3	
Flint Run (17-604)																
Year: 2010																
0.40	37		37	7		7		8	0	7	1.00	36.4		F	2.3	
Beaver Run (17-605)																
Year: 2010																
2.60	55		55	17		17		17	2	10	1.70	42.3		VG	8.4	
0.30	47		47	11		11		15	1	10	1.10	40.6		G	14.1	
Darling Run (17-606)																
Year: 2010																
0.10	24		24	6		6		6	1	2	3.00	40.3		F	3.3	
Mohawk Creek (17-607)																
Year: 2010																
4.10	47		47	15		15		19	2	9	1.67	42.8		VG	9.5	
1.48	84	41	64	24	10	18	24	21	0	6	3.00	41.6	50		22.6	
Dutch Run (17-608)																
Year: 2010																
0.80	46		46	20		20		20	10	3	6.67	43.4		E	4.7	

River Mile	All Taxa Total	All Taxa Qt.	All Taxa Ql.	Sen. Taxa Total	Sen. Taxa Qt.	Sen. Taxa Ql.	EPT Taxa Total	EPT Taxa Ql.	CW Taxa	Ql. Tol. Taxa	Ql. S T	QCTV	ICI	Nar.	Drain	Comments
Honey Run (17-609)																
Year: 2010																
0.60	49		49	16		16		15	9	9	1.78	42.5		VG	1.9	
Mill Creek (17-610)																
Year: 2010																
12.50	51		51	7		7		12	1	12	0.58	38.6		MG	8.8	
8.50	48		48	14		14		16	0	4	3.50	42.1		VG	18.5	
7.90	66		66	16		16		15	0	9	1.78	41.0		VG	27.1	
3.54	57	26	49	16	8	16	18	18	1	3	5.33	42.3	36		39.9	
0.40	81	34	70	25	11	23	25	23	0	11	2.09	41.6	44		51.1	
Turkey Run (17-612)																
Year: 2010																
0.19	60		60	17		17		20	3	7	2.43	42.3		E	5.5	
Little Mill Creek (17-613)																
Year: 2010																
0.30	50		50	13		13		13	1	8	1.63	41.5		G	8.4	
Beards Run (17-614)																
Year: 2010																
1.30	21		21	0		0		0	0	11	0.00	34.3		P	1.7	
Trib. to Mohawk Creek (2.93) (17-626)																
Year: 2010																
0.60	52		52	21		21		22	1	5	4.20	43.1		E	6.4	
Symmes Creek (17-956)																
Year: 2010																
5.65	44		44	14		14		17	0	5	2.80	42.6		VG	8.3	
4.35	51		51	12		12		15	2	8	1.50	41.0		VG	15.3	
2.35	79	44	56	14	6	10	18	14	0	9	1.11	40.6	50		31.4	X15
North Branch Symmes Creek (17-957)																
Year: 2010																
4.25	47		47	11		11		15	0	8	1.38	41.5		G	8.2	
0.10	47		47	11		11		13	1	4	2.75	42.6		G	15.0	
South Branch Symmes Creek (17-958)																
Year: 2010																
0.15	36		36	9		9		12	2	5	1.80	41.6		G	4.3	
Robinson Run (17-979)																
Year: 2010																
1.35	6		6	0		0		1	0	1	0.00	40.3		VP	4.2	

Appendix M – Macroinvertebrate taxa by location in Walhonding River and Walhonding and Muskingum River tributaries, 1987-2010.

Ohio EPA/DSW Ecological Assessment Section
Macroinvertebrate Collection

Site: Walhonding River
Twp. Rd. 41

Collection Date: 08/01/2007 River Code: 17-600 RM: 20.40

Taxa Code	Taxa	Quant/Qual	
01801	*Turbellaria*	48	
03600	*Oligochaeta*	56	+
06830	*Gammarus minus*		+
08250	*Orconectes (Procericambarus) rusticus*		+
11110	*Acentrella parvula*	25	+
11130	*Baetis intercalaris*	32	+
11250	*Centroptilum sp (w/o hindwing pads)*		+
12200	*Isonychia sp*	456	+
13400	*Stenacron sp*	13	+
13510	*Maccaffertium exiguum*	238	+
13521	*Stenonema femoratum*		+
13540	*Maccaffertium mediopunctatum*	13	
13561	*Maccaffertium pulchellum*	634	+
13570	*Maccaffertium terminatum*	13	+
16324	*Teloganopsis deficiens*	168	+
16700	*Tricorythodes sp*	400	+
17200	*Caenis sp*	65	+
18100	*Anthopotamus sp*		+
19102	*Ephoron album*	1	+
19107	*Ephoron leukon*		+
24900	*Gomphus sp*		+
25600	*Stylurus sp*		+
30800	*Pteronarcys sp*		+
34140	*Acroneuria internata*	1	
34300	*Neoperla clymene complex*	1	+
45100	*Palmacorixa sp*		+
47600	*Sialis sp*		+
48410	*Corydalus cornutus*	18	+
50906	*Psychomyia flavida*		+
51300	*Neureclipsis sp*	2	
51600	*Polycentropus sp*	2	
52200	*Cheumatopsyche sp*	473	+
52430	*Ceratopsyche morosa group*	473	+
52540	*Hydropsyche dicantha*	13	
52550	*Hydropsyche frisoni*	92	+
52590	*Hydropsyche venularis*	13	+
53400	*Protoptila sp*		+
53800	*Hydroptila sp*	64	+
54160	*Ochrotrichia sp*		+
57900	*Pycnopsyche sp*		+
59300	*Mystacides sp*	2	
59407	*Nectopsyche candida*		+
59580	*Oecetis persimilis*	1	+
59970	*Petrophila sp*		+
60900	*Peltodytes sp*		+
66500	*Enochrus sp*		+
68075	*Psephenus herricki*		+
68601	*Ancyronyx variegata*	2	
68901	*Macronychus glabratus*	27	+
69400	*Stenelmis sp*	1	
74501	*Ceratopogonidae*		+
77750	*Hayesomyia senata or Thienemannimyia norena*	31	
80410	*Cricotopus (C.) sp*	21	
82101	*Thienemanniella taurocapita*	21	
82220	*Tvetenia discoloripes group*	10	
82820	*Cryptochironomus sp*		+
83040	*Dicrotendipes neomodestus*	10	
84450	*Polypedilum (Uresipedilum) flavum*	216	+
85625	*Rheotanytarsus sp*	719	+
85821	*Tanytarsus glabrescens group sp 7*	21	
85840	*Tanytarsus sepp*		+
86200	*Tabanus sp*		+
87540	*Hemerodromia sp*	8	+
92615	*Cipangopaludina japonica*		+
93900	*Elimia sp*	24	+
95100	*Physella sp*		+
96900	*Ferrissia sp*	17	+
97601	*Corbicula fluminea*		+
97710	*Dreissena polymorpha*		+
98600	*Sphaerium sp*		+
99180	*Strophitus undulatus undulatus*		+
99280	*Lasmigona costata*		+
99420	*Amblema plicata plicata*		+
99600	*Actinonaias ligamentina carinata*		+
99880	*Lampsilis cardium*		+

No. Quantitative Taxa: 41 Total Taxa: 75
No. Qualitative Taxa: 60 ICI: **52**
Number of Organisms: 4445 Qual EPT: 28

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Ohio EPA/DSW Ecological Assessment Section
Macroinvertebrate Collection

Site: Walhonding River
dst. U.S. Rt. 36 (Nellie)

Collection Date: 08/02/2007 River Code: 17-600 RM: 15.50

Taxa Code	Taxa	Quant/Qual
01801	*Turbellaria*	+
03600	*Oligochaeta*	+
05800	*Caecidotea sp*	+
05900	*Lirceus sp*	+
06810	*Gammarus fasciatus*	+
08250	*Orconectes (Procericambarus) rusticus*	+
08260	*Orconectes (Crokerinus) sanbornii sanbornii*	+
08601	*Hydrachnidia*	+
11110	*Acentrella parvula*	+
11130	*Baetis intercalaris*	+
11150	*Labiobaetis propinquus*	+
11503	*Heterocloeon (H.) sp*	+
11670	*Procloeon viridoculare*	+
12200	*Isonychia sp*	+
13400	*Stenacron sp*	+
13561	*Maccaffertium pulchellum*	+
13570	*Maccaffertium terminatum*	+
16324	*Teloganopsis deficiens*	+
16700	*Tricorythodes sp*	+
17200	*Caenis sp*	+
19102	*Ephoron album*	+
23909	*Boyeria vinosa*	+
24900	*Gomphus sp*	+
25300	*Ophiogomphus sp*	+
25600	*Stylurus sp*	+
30800	*Pteronarcys sp*	+
34140	*Acroneuria internata*	+
34300	*Neoperla clymene complex*	+
48410	*Corydalus cornutus*	+
50906	*Psychomyia flavida*	+
51300	*Neureclipsis sp*	+
52200	*Cheumatopsyche sp*	+
52430	*Ceratopsyche morosa group*	+
52510	*Hydropsyche aerata*	+
52540	*Hydropsyche dicantha*	+
52550	*Hydropsyche frisoni*	+
53400	*Protoptila sp*	+
53800	*Hydroptila sp*	+
54160	*Ochrotrichia sp*	+
59500	*Oecetis sp*	+
59970	*Petrophila sp*	+
68075	*Psephenus herricki*	+
68130	*Helichus sp*	+
69400	*Stenelmis sp*	+
70600	*Antocha sp*	+
74100	*Simulium sp*	+
78750	*Rheopelopia paramaculipennis*	+
80310	*Cardiocladius obscurus*	+
80420	*Cricotopus (C.) bicinctus*	+
80430	*Cricotopus (C.) tremulus group*	+
82130	*Thienemanniella similis*	+
82220	*Tvetenia discoloripes group*	+
82730	*Chironomus (C.) decorus group*	+
83410	*Harnischia curtilamellata*	+
83820	*Microtendipes "caelum" (sensu Simpson & Bode, 1980)*	+
84450	*Polypedilum (Uresipedilum) flavum*	+
84470	*Polypedilum (P.) illinoense*	+
84520	*Polypedilum (Tripodura) halterale group*	+
85625	*Rheotanytarsus sp*	+
93900	*Elimia sp*	+
95100	*Physella sp*	+
96900	*Ferrissia sp*	+
97601	*Corbicula fluminea*	+
99240	*Lasmigona complanata*	+
99320	*Tritogonia verrucosa*	+
99420	*Amblema plicata plicata*	+
99560	*Ptychobranchus fasciolaris*	+
99600	*Actinonaias ligamentina carinata*	+
99880	*Lampsilis cardium*	+

No. Quantitative Taxa: 0 Total Taxa: 69
No. Qualitative Taxa: 69 ICI:
Number of Organisms: 0 Qual EPT: 27

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Ohio EPA/DSW Ecological Assessment Section
Macroinvertebrate Collection

Site: Walhonding River

Collection Date: 09/06/2007 River Code: 17-600 RM: 9.20

Taxa Code	Taxa	Quant/Qual
01801	*Turbellaria*	+
03600	*Oligochaeta*	+
05800	*Caecidotea sp*	+
06201	*Hyalella azteca*	+
06810	*Gammarus fasciatus*	+
11150	*Labiobaetis propinquus*	+
11250	*Centroptilum sp (w/o hindwing pads)*	+
13400	*Stenacron sp*	+
16700	*Tricorythodes sp*	+
17200	*Caenis sp*	+
18100	*Anthopotamus sp*	+
22001	*Coenagrionidae*	+
22300	*Argia sp*	+
24900	*Gomphus sp*	+
26705	*Macromia illinoiensis*	+
47600	*Sialis sp*	+
53800	*Hydroptila sp*	+
57900	*Pycnopsyche sp*	+
59400	*Nectopsyche sp*	+
59970	*Petrophila sp*	+
60900	*Peltodytes sp*	+
63900	*Laccophilus sp*	+
67800	*Tropisternus sp*	+
68075	*Psephenus herricki*	+
68901	*Macronychus glabratus*	+
69400	*Stenelmis sp*	+
72700	*Anopheles sp*	+
83300	*Glyptotendipes (G.) sp*	+
84315	*Phaenopsectra flavipes*	+
85615	*Rheotanytarsus pellucidus*	+
85625	*Rheotanytarsus sp*	+
92615	*Cipangopaludina japonica*	+
93900	*Elimia sp*	+
94400	*Fossaria sp*	+
95100	*Physella sp*	+
96900	*Ferrissia sp*	+
97601	*Corbicula fluminea*	+

No. Quantitative Taxa: 0	Total Taxa: 37
No. Qualitative Taxa: 37	ICI:
Number of Organisms: 0	Qual EPT: 9

Ohio EPA/DSW Ecological Assessment Section
Macroinvertebrate Collection

Site: Walhonding River

Collection Date: 08/02/2007 River Code: 17-600 RM: 7.60 U.S. Rt. 36 upst. Killbuck Cr.

Taxa Code	Taxa	Quant/Qual	
00653	*Eunapius fragilis*		+
01801	*Turbellaria*	17	
03600	*Oligochaeta*		+
04666	*Helobdella triserialis*		+
06201	*Hyalella azteca*		+
06700	*Crangonyx sp*		+
08250	*Orconectes (Procericambarus) rusticus*		+
11014	*Acentrella turbida*	23	+
11110	*Acentrella parvula*		+
11119	*Plauditus dubius or P. virilis*	105	+
11130	*Baetis intercalaris*	725	+
11150	*Labiobaetis propinquus*	12	+
11503	*Heterocloeon (H.) sp*	246	+
11600	*Paracloeodes fleeki*		+
12200	*Isonychia sp*	560	+
13400	*Stenacron sp*		+
13510	*Maccaffertium exiguum*	127	+
13540	*Maccaffertium mediopunctatum*	5	+
13561	*Maccaffertium pulchellum*	453	+
13570	*Maccaffertium terminatum*		+
16324	*Teloganopsis deficiens*	254	+
16700	*Tricorythodes sp*	147	+
17200	*Caenis sp*	8	
19102	*Ephoron album*		+
22001	*Coenagrionidae*		+
22300	*Argia sp*		+
30800	*Pteronarcys sp*	1	+
34140	*Acroneuria internata*		+
34300	*Neoperla clymene complex*		+
43300	*Ranatra sp*		+
45400	*Trichocorixa sp*		+
48410	*Corydalus cornutus*	1	
51600	*Polycentropus sp*		+
52200	*Cheumatopsyche sp*	279	+
52430	*Ceratopsyche morosa group*	664	+
52510	*Hydropsyche aerata*	166	+
52540	*Hydropsyche dicantha*	32	
52550	*Hydropsyche frisoni*	22	+
52570	*Hydropsyche simulans*	2	
53800	*Hydroptila sp*	33	+
54160	*Ochrotrichia sp*	16	+
57400	*Neophylax sp*		+
59407	*Nectopsyche candida*		+
59970	*Petrophila sp*		+
60300	*Dineutus sp*		+
63900	*Laccophilus sp*		+
65800	*Berosus sp*		+
66500	*Enochrus sp*		+
67800	*Tropisternus sp*		+
68075	*Psephenus herricki*	1	+
68130	*Helichus sp*		+
68901	*Macronychus glabratus*	8	
69275	*Optioservus trivittatus*		+
69400	*Stenelmis sp*		+
70502	*Limoniinae*		+
71300	*Limonia sp*		+
74100	*Simulium sp*	41	+
74501	*Ceratopogonidae*		+
80310	*Cardiocladius obscurus*		+
80360	*Corynoneura "celeripes" (sensu Simpson & Bode, 1980)*		+
80420	*Cricotopus (C.) bicinctus*	7	+
80430	*Cricotopus (C.) tremulus group*		+
81690	*Paratrichocladius sp*	7	+
82220	*Tvetenia discoloripes group*	122	+
83040	*Dicrotendipes neomodestus*		+
84450	*Polypedilum (Uresipedilum) flavum*	251	+
85625	*Rheotanytarsus sp*	445	+
85752	*Sublettea coffmani*		+
86200	*Tabanus sp*		+
87540	*Hemerodromia sp*	24	
93900	*Elimia sp*	1	+
95100	*Physella sp*		+
96900	*Ferrissia sp*		+
97710	*Dreissena polymorpha*		+
99240	*Lasmigona complanata*		+
99320	*Tritogonia verrucosa*		+
99380	*Quadrula pustulosa pustulosa*		+
99420	*Amblema plicata plicata*		+
99600	*Actinonaias ligamentina carinata*		+

No. Quantitative Taxa: 33 Total Taxa: 79

No. Qualitative Taxa: 72 ICI: **48**

Number of Organisms: 4805 Qual EPT: 28

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Ohio EPA/DSW Ecological Assessment Section
Macroinvertebrate Collection

Site: Walhonding River
upst. U.S. Rt. 36

Collection Date: 08/02/2007 River Code: 17-600 RM: 1.20

Taxa Code	Taxa	Quant/Qual	
01801	*Turbellaria*	24	
03600	*Oligochaeta*	8	+
06700	*Crangonyx sp*		+
08601	*Hydrachnidia*		+
11014	*Acentrella turbida*	1	
11119	*Plauditus dubius or P. virilis*	8	+
11130	*Baetis intercalaris*	623	+
11503	*Heterocloeon (H.) sp*	64	+
12200	*Isonychia sp*	272	+
13510	*Maccaffertium exiguum*	315	+
13561	*Maccaffertium pulchellum*	470	
13570	*Maccaffertium terminatum*		+
16324	*Teloganopsis deficiens*	281	
16700	*Tricorythodes sp*	416	+
17200	*Caenis sp*	8	+
34140	*Acroneuria internata*	1	
34300	*Neoperla clymene complex*		+
34700	*Agnetina capitata complex*	9	
45100	*Palmacorixa sp*		+
48410	*Corydalus cornutus*		+
50906	*Psychomyia flavida*		+
52200	*Cheumatopsyche sp*	381	+
52430	*Ceratopsyche morosa group*	1124	+
52510	*Hydropsyche aerata*	261	+
52550	*Hydropsyche frisoni*	161	+
52570	*Hydropsyche simulans*		+
52620	*Macrostemum zebratum*	201	+
53400	*Protoptila sp*		+
53800	*Hydroptila sp*	16	+
54160	*Ochrotrichia sp*	16	
59407	*Nectopsyche candida*	1	+
59510	*Oecetis avara*	2	
59970	*Petrophila sp*		+
68601	*Ancyronyx variegata*	17	+
68901	*Macronychus glabratus*	26	
69400	*Stenelmis sp*		+
74100	*Simulium sp*	192	+
77750	*Hayesomyia senata or Thienemannimyia norena*	52	+
78750	*Rheopelopia paramaculipennis*	21	
82220	*Tvetenia discoloripes group*	73	
84300	*Phaenopsectra obediens group*		+
84450	*Polypedilum (Uresipedilum) flavum*	388	+
85615	*Rheotanytarsus pellucidus*		+
85625	*Rheotanytarsus sp*	609	+
87540	*Hemerodromia sp*	146	+
93900	*Elimia sp*	17	+
97601	*Corbicula fluminea*	14	+

No. Quantitative Taxa: 34 Total Taxa: 47
No. Qualitative Taxa: 36 ICI: **52**
Number of Organisms: 6218 Qual EPT: 19

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Ohio EPA/DSW Ecological Assessment Section
Macroinvertebrate Collection

Site: Walhonding River
Collection Date: 09/06/1994 River Code: 17-600 RM: 15.60 dst. U.S. Rt. 36 (Nellie)

Taxa Code	Taxa	Quant/Qual	
00401	*Spongillidae*		+
01801	*Turbellaria*		+
03360	*Plumatella sp*	2	+
03451	*Urnatella gracilis*	9	+
03600	*Oligochaeta*	8	+
05800	*Caecidotea sp*		+
06700	*Crangonyx sp*		+
08260	*Orconectes (Crokerinus) sanbornii sanbornii*		+
11010	*Acentrella sp*	1	
11110	*Acentrella parvula*	10	
11118	*Plauditus dubius*	9	
11130	*Baetis intercalaris*	55	+
11155	*Iswaeon anoka*	2	
11650	*Procloeon sp (w/ hindwing pads)*		+
11670	*Procloeon viridoculare*		+
12200	*Isonychia sp*	1006	+
13400	*Stenacron sp*	74	+
13510	*Maccaffertium exiguum*	64	
13550	*Maccaffertium mexicanum integrum*	7	
13561	*Maccaffertium pulchellum*	950	+
13570	*Maccaffertium terminatum*	24	
14950	*Leptophlebia sp or Paraleptophlebia sp*	16	
16324	*Teloganopsis deficiens*	56	
16700	*Tricorythodes sp*	270	+
17200	*Caenis sp*	8	+
18100	*Anthopotamus sp*		+
22300	*Argia sp*	16	+
23804	*Basiaeschna janata*		+
23909	*Boyeria vinosa*		+
24900	*Gomphus sp*		+
25620	*Stylurus spiniceps*		+
27406	*Neurocordulia obsoleta*		+
30800	*Pteronarcys sp*	1	+
34140	*Acroneuria internata*	8	+
47600	*Sialis sp*		+
48410	*Corydalus cornutus*	15	+
51300	*Neureclipsis sp*	11	+
52200	*Cheumatopsyche sp*	504	+
52430	*Ceratopsyche morosa group*	424	
52550	*Hydropsyche frisoni*	230	
52560	*Hydropsyche orris*	2	
52570	*Hydropsyche simulans*	108	
52620	*Macrostemum zebratum*	9	+
52801	*Potamyia flava*	81	

Taxa Code	Taxa	Quant/Qual	
59500	*Oecetis sp*	16	
60300	*Dineutus sp*		+
68075	*Psephenus herricki*		+
68601	*Ancyronyx variegata*	8	
68901	*Macronychus glabratus*	29	+
69400	*Stenelmis sp*	5	+
74100	*Simulium sp*	8	
78750	*Rheopelopia paramaculipennis*	59	
80350	*Corynoneura sp*	29	
80410	*Cricotopus (C.) sp*	117	
81231	*Nanocladius (N.) crassicornus or N. (N.) "rectinervis"*	29	
82141	*Thienemanniella xena*	123	
82220	*Tvetenia discoloripes group*	29	
84060	*Parachironomus pectinatellae*	29	
84450	*Polypedilum (Uresipedilum) flavum*	497	
84540	*Polypedilum (Tripodura) scalaenum group*	29	
85615	*Rheotanytarsus pellucidus*	88	
85625	*Rheotanytarsus sp*	1755	
85752	*Sublettea coffmani*	59	
85800	*Tanytarsus sp*	29	
85814	*Tanytarsus glabrescens group*	88	
96900	*Ferrissia sp*	1	

No. Quantitative Taxa: 50 Total Taxa: 66
No. Qualitative Taxa: 34 ICI: **56**
Number of Organisms: 7007 Qual EPT: 14

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Ohio EPA/DSW Ecological Assessment Section
Macroinvertebrate Collection

Site: Walhonding River
upst. U.S. Rt. 36, upst. Killbuck Creek

Collection Date: 09/06/1994 River Code: 17-600 RM: 7.70

Taxa Code	Taxa	Quant/Qual
01801	*Turbellaria*	+
03360	*Plumatella sp*	1 +
03600	*Oligochaeta*	8 +
04685	*Placobdella ornata*	+
05900	*Lirceus sp*	+
06201	*Hyalella azteca*	+
08260	*Orconectes (Crokerinus) sanbornii sanbornii*	+
11014	*Acentrella turbida*	+
11101	*Plauditus sp*	+
11118	*Plauditus dubius*	22 +
11130	*Baetis intercalaris*	147 +
11503	*Heterocloeon (H.) sp*	+
12200	*Isonychia sp*	818 +
13000	*Leucrocuta sp*	+
13400	*Stenacron sp*	55 +
13510	*Maccaffertium exiguum*	71
13550	*Maccaffertium mexicanum integrum*	25
13561	*Maccaffertium pulchellum*	673 +
16324	*Teloganopsis deficiens*	32
16700	*Tricorythodes sp*	25 +
17200	*Caenis sp*	10
22001	*Coenagrionidae*	+
22300	*Argia sp*	2 +
25620	*Stylurus spiniceps*	+
27409	*Neurocordulia yamaskanensis*	+
30800	*Pteronarcys sp*	+
34140	*Acroneuria internata*	2 +
34410	*Paragnetina media*	9
45100	*Palmacorixa sp*	+
48410	*Corydalus cornutus*	4 +
51300	*Neureclipsis sp*	9
51600	*Polycentropus sp*	+
52200	*Cheumatopsyche sp*	185 +
52430	*Ceratopsyche morosa group*	385 +
52540	*Hydropsyche dicantha*	14
52550	*Hydropsyche frisoni*	67 +
52570	*Hydropsyche simulans*	25 +
52620	*Macrostemum zebratum*	133 +
59520	*Oecetis cinerascens*	1
59970	*Petrophila sp*	+
60300	*Dineutus sp*	1 +
68901	*Macronychus glabratus*	36 +
69400	*Stenelmis sp*	14 +
74100	*Simulium sp*	+
77750	*Hayesomyia senata or Thienemannimyia norena*	24
78650	*Procladius sp*	+
79400	*Zavrelimyia sp*	+
80310	*Cardiocladius obscurus*	+
80370	*Corynoneura lobata*	8
80410	*Cricotopus (C.) sp*	+
80420	*Cricotopus (C.) bicinctus*	+
82141	*Thienemanniella xena*	76
82220	*Tvetenia discoloripes group*	36 +
83300	*Glyptotendipes (G.) sp*	48
84060	*Parachironomus pectinatellae*	+
84450	*Polypedilum (Uresipedilum) flavum*	230 +
84460	*Polypedilum (P.) fallax group*	24
84480	*Polypedilum (P.) laetum group*	12
84540	*Polypedilum (Tripodura) scalaenum group*	36
84700	*Stenochironomus sp*	12
85615	*Rheotanytarsus pellucidus*	48 +
85625	*Rheotanytarsus sp*	653 +
86100	*Chrysops sp*	+
86401	*Atherix lantha*	1 +
87540	*Hemerodromia sp*	8
92615	*Cipangopaludina japonica*	+
93900	*Elimia sp*	1 +
95100	*Physella sp*	+
96900	*Ferrissia sp*	1 +
97601	*Corbicula fluminea*	+
98600	*Sphaerium sp*	+
99240	*Lasmigona complanata*	+
99280	*Lasmigona costata*	+
99680	*Leptodea fragilis*	+

No. Quantitative Taxa: 43 Total Taxa: 74
No. Qualitative Taxa: 57 ICI: **56**
Number of Organisms: 3992 Qual EPT: 18

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Ohio EPA/DSW Ecological Assessment Section
Macroinvertebrate Collection

Site: Walhonding River
U.S. Rt. 36, at Coshocton

Collection Date: 09/06/1994 River Code: 17-600 RM: 0.80

Taxa Code	Taxa	Quant/Qual
00401	*Spongillidae*	+
01801	*Turbellaria*	11 +
03073	*Lophopodella carteri*	33
03360	*Plumatella sp*	+
05800	*Caecidotea sp*	+
06700	*Crangonyx sp*	+
11014	*Acentrella turbida*	13
11130	*Baetis intercalaris*	408 +
11503	*Heterocloeon (H.) sp*	130 +
12200	*Isonychia sp*	378 +
13400	*Stenacron sp*	22 +
13510	*Maccaffertium exiguum*	101 +
13561	*Maccaffertium pulchellum*	498 +
13570	*Maccaffertium terminatum*	3
15501	*Ephemerellidae*	24
16700	*Tricorythodes sp*	37 +
17200	*Caenis sp*	17
22300	*Argia sp*	+
25620	*Stylurus spiniceps*	+
27406	*Neurocordulia obsoleta*	+
30800	*Pteronarcys sp*	+
34410	*Paragnetina media*	9
34700	*Agnetina capitata complex*	+
48410	*Corydalus cornutus*	3 +
52200	*Cheumatopsyche sp*	632 +
52430	*Ceratopsyche morosa group*	1281 +
52520	*Hydropsyche bidens*	+
52540	*Hydropsyche dicantha*	74
52550	*Hydropsyche frisoni*	143 +
52560	*Hydropsyche orris*	283 +
52570	*Hydropsyche simulans*	231 +
52620	*Macrostemum zebratum*	1149 +
52801	*Potamyia flava*	404 +
53400	*Protoptila sp*	1
53800	*Hydroptila sp*	+
59970	*Petrophila sp*	+
68901	*Macronychus glabratus*	18
69400	*Stenelmis sp*	25 +
74100	*Simulium sp*	878
77750	*Hayesomyia senata or Thienemannimyia norena*	+
78750	*Rheopelopia paramaculipennis*	76
82141	*Thienemanniella xena*	76
82220	*Tvetenia discoloripes group*	686 +
82730	*Chironomus (C.) decorus group*	+
83000	*Dicrotendipes sp*	+
84060	*Parachironomus pectinatellae*	+
84450	*Polypedilum (Uresipedilum) flavum*	305 +
84480	*Polypedilum (P.) laetum group*	+
84520	*Polypedilum (Tripodura) halterale group*	+
85625	*Rheotanytarsus sp*	5641 +
85800	*Tanytarsus sp*	+
87540	*Hemerodromia sp*	160
93900	*Elimia sp*	3 +
96900	*Ferrissia sp*	+
98600	*Sphaerium sp*	1 +

No. Quantitative Taxa: 35 Total Taxa: 55
No. Qualitative Taxa: 42 ICI: **52**
Number of Organisms: 13754 Qual EPT: 18

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Ohio EPA/DSW Ecological Assessment Section
Macroinvertebrate Collection

Site: Walhonding River
Collection Date: 09/16/1988 River Code: 17-600 RM: 15.60 dst. U.S. Rt. 36 (Nellie)

Taxa Code	Taxa	Quant/Qual	
03360	*Plumatella sp*	1	+
03451	*Urnatella gracilis*	1	+
03600	*Oligochaeta*	16	+
06201	*Hyalella azteca*		+
08260	*Orconectes (Crokerinus) sanbornii sanbornii*		+
11100	*Baetis sp*	57	+
11300	*Procloeon sp (formerly in Centroptilum)*		+
11700	*Acentrella sp or Plauditus sp (formerly in Pseudocloeon)*	21	
12200	*Isonychia sp*	478	+
13400	*Stenacron sp*	128	+
13510	*Maccaffertium exiguum*	192	
13540	*Maccaffertium mediopunctatum*	64	
13561	*Maccaffertium pulchellum*	576	+
13570	*Maccaffertium terminatum*	64	
16700	*Tricorythodes sp*	118	+
17200	*Caenis sp*	90	+
18100	*Anthopotamus sp*	2	+
22001	*Coenagrionidae*		+
22300	*Argia sp*	3	+
24900	*Gomphus sp*		+
25305	*Ophiogomphus rupinsulensis*		+
25620	*Stylurus spiniceps*		+
34130	*Acroneuria frisoni*	1	
34700	*Agnetina capitata complex*		+
43300	*Ranatra sp*		+
47600	*Sialis sp*		+
48410	*Corydalus cornutus*	9	+
51300	*Neureclipsis sp*	1	
52200	*Cheumatopsyche sp*	402	+
52430	*Ceratopsyche morosa group*	145	+
52550	*Hydropsyche frisoni*	130	+
52620	*Macrostemum zebratum*	8	+
59100	*Ceraclea sp*	16	
68708	*Dubiraphia vittata group*		+
68901	*Macronychus glabratus*	29	
69400	*Stenelmis sp*	6	+
72700	*Anopheles sp*		+
74100	*Simulium sp*	82	
74501	*Ceratopogonidae*	8	
77500	*Conchapelopia sp*	13	
77750	*Hayesomyia senata or Thienemannimyia norena*	26	+
78401	*Natarsia species A (sensu Roback, 1978)*		+
78450	*Nilotanypus fimbriatus*	13	
78750	*Rheopelopia paramaculipennis*	26	
80360	*Corynoneura "celeripes" (sensu Simpson & Bode, 1980)*	8	
80410	*Cricotopus (C.) sp*	52	
81230	*Nanocladius (N.) crassicornus (old)*	26	
81250	*Nanocladius (N.) minimus*	13	
81631	*Parakiefferiella n.sp 1*	13	
81825	*Rheocricotopus (Psilocricotopus) robacki*	13	
82101	*Thienemanniella taurocapita*	26	
82141	*Thienemanniella xena*	39	
82220	*Tvetenia discoloripes group*	39	
82820	*Cryptochironomus sp*		+
83040	*Dicrotendipes neomodestus*	13	+
83300	*Glyptotendipes (G.) sp*	52	+
84040	*Parachironomus frequens*	26	
84450	*Polypedilum (Uresipedilum) flavum*	52	
84460	*Polypedilum (P.) fallax group*	26	
84470	*Polypedilum (P.) illinoense*		+
85625	*Rheotanytarsus sp*	829	+
85752	*Sublettea coffmani*	13	
85800	*Tanytarsus sp*	13	+
85814	*Tanytarsus glabrescens group*	91	
85840	*Tanytarsus sepp*	52	+
86401	*Atherix lantha*		+
93200	*Hydrobiidae*		+
94400	*Fossaria sp*		+
95100	*Physella sp*		+
97601	*Corbicula fluminea*		+

No. Quantitative Taxa: 50 Total Taxa: 70
No. Qualitative Taxa: 43 ICI: **52**
Number of Organisms: 4122 Qual EPT: 13

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Ohio EPA/DSW Ecological Assessment Section
Macroinvertebrate Collection

Site: Walhonding River
U.S. Rt. 36, at Coshocton

Collection Date: 09/16/1988 River Code: 17-600 RM: 0.80

Taxa Code	Taxa	Quant/Qual
01801	*Turbellaria*	1 +
03451	*Urnatella gracilis*	1
03600	*Oligochaeta*	+
04962	*Mooreobdella fervida*	+
06700	*Crangonyx sp*	+
08260	*Orconectes (Crokerinus) sanbornii sanbornii*	+
11100	*Baetis sp*	177 +
11300	*Procloeon sp (formerly in Centroptilum)*	+
11700	*Acentrella sp or Plauditus sp (formerly in Pseudocloeon)*	1
12200	*Isonychia sp*	155 +
13000	*Leucrocuta sp*	+
13400	*Stenacron sp*	149 +
13510	*Maccaffertium exiguum*	410 +
13540	*Maccaffertium mediopunctatum*	55 +
13550	*Maccaffertium mexicanum integrum*	+
13561	*Maccaffertium pulchellum*	328 +
13570	*Maccaffertium terminatum*	246
16700	*Tricorythodes sp*	215 +
17200	*Caenis sp*	127 +
18100	*Anthopotamus sp*	2 +
22300	*Argia sp*	+
25620	*Stylurus spiniceps*	+
34700	*Agnetina capitata complex*	3 +
45100	*Palmacorixa sp*	+
47600	*Sialis sp*	+
48410	*Corydalus cornutus*	1 +
50906	*Psychomyia flavida*	+
51300	*Neureclipsis sp*	1
52200	*Cheumatopsyche sp*	510 +
52430	*Ceratopsyche morosa group*	151 +
52520	*Hydropsyche bidens*	4
52540	*Hydropsyche dicantha*	36
52550	*Hydropsyche frisoni*	218 +
52560	*Hydropsyche orris*	52
52620	*Macrostemum zebratum*	441 +
52801	*Potamyia flava*	77
53800	*Hydroptila sp*	1 +
59400	*Nectopsyche sp*	16
59970	*Petrophila sp*	+
68075	*Psephenus herricki*	+
68601	*Ancyronyx variegata*	1
68901	*Macronychus glabratus*	32
69400	*Stenelmis sp*	29 +
70800	*Erioptera sp*	+

Taxa Code	Taxa	Quant/Qual
74100	*Simulium sp*	10
77750	*Hayesomyia senata or Thienemannimyia norena*	139 +
78450	*Nilotanypus fimbriatus*	6
78750	*Rheopelopia paramaculipennis*	6
79085	*Telopelopia okoboji*	+
80310	*Cardiocladius obscurus*	6
80370	*Corynoneura lobata*	6
82220	*Tvetenia discoloripes group*	61
82820	*Cryptochironomus sp*	+
83300	*Glyptotendipes (G.) sp*	18 +
83820	*Microtendipes "caelum" (sensu Simpson & Bode, 1980)*	+
84450	*Polypedilum (Uresipedilum) flavum*	146 +
84470	*Polypedilum (P.) illinoense*	+
84540	*Polypedilum (Tripodura) scalaenum group*	12 +
85625	*Rheotanytarsus sp*	146 +
85814	*Tanytarsus glabrescens group*	18
93900	*Elimia sp*	75 +
95100	*Physella sp*	+
96900	*Ferrissia sp*	+
97601	*Corbicula fluminea*	2 +
98600	*Sphaerium sp*	+

No. Quantitative Taxa: 43 Total Taxa: 65
No. Qualitative Taxa: 47 ICI: **54**
Number of Organisms: 4091 Qual EPT: 19

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Ohio EPA/DSW Ecological Assessment Section
Macroinvertebrate Collection

Site: Walhonding River
at mouth

Collection Date: 09/25/1987 River Code: 17-600 RM: 0.10

Taxa Code	Taxa	Quant/Qual
00401	*Spongillidae*	+
01801	*Turbellaria*	+
03360	*Plumatella sp*	+
03600	*Oligochaeta*	+
06201	*Hyalella azteca*	+
06700	*Crangonyx sp*	+
08260	*Orconectes (Crokerinus) sanbornii sanbornii*	+
11100	*Baetis sp*	+
12200	*Isonychia sp*	+
13000	*Leucrocuta sp*	+
13400	*Stenacron sp*	+
13510	*Maccaffertium exiguum*	+
13540	*Maccaffertium mediopunctatum*	+
16700	*Tricorythodes sp*	+
17200	*Caenis sp*	+
18100	*Anthopotamus sp*	+
22001	*Coenagrionidae*	+
22300	*Argia sp*	+
24900	*Gomphus sp*	+
30800	*Pteronarcys sp*	+
34410	*Paragnetina media*	+
34700	*Agnetina capitata complex*	+
47600	*Sialis sp*	+
48410	*Corydalus cornutus*	+
51300	*Neureclipsis sp*	+
52200	*Cheumatopsyche sp*	+
52430	*Ceratopsyche morosa group*	+
52550	*Hydropsyche frisoni*	+
52560	*Hydropsyche orris*	+
52620	*Macrostemum zebratum*	+
52801	*Potamyia flava*	+
66500	*Enochrus sp*	+
68130	*Helichus sp*	+
69400	*Stenelmis sp*	+
74100	*Simulium sp*	+
77120	*Ablabesmyia mallochi*	+
77750	*Hayesomyia senata or Thienemannimyia norena*	+
78750	*Rheopelopia paramaculipennis*	+
80410	*Cricotopus (C.) sp*	+
80440	*Cricotopus (C.) trifascia*	+
81460	*Orthocladius (O.) sp*	+
82100	*Thienemanniella sp*	+
82220	*Tvetenia discoloripes group*	+
84450	*Polypedilum (Uresipedilum) flavum*	+
84470	*Polypedilum (P.) illinoense*	+
85625	*Rheotanytarsus sp*	+
85800	*Tanytarsus sp*	+
86100	*Chrysops sp*	+
93900	*Elimia sp*	+
95100	*Physella sp*	+
97601	*Corbicula fluminea*	+
98600	*Sphaerium sp*	+

No. Quantitative Taxa: 0 Total Taxa: 52
No. Qualitative Taxa: 52 ICI:
Number of Organisms: 0 Qual EPT: 19

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Ohio EPA/DSW Ecological Assessment Section
Macroinvertebrate Collection

Site: Crooked Run
driveway off Co. Rd. 23

Collection Date: 08/05/2010 River Code: 17-601 RM: 0.98

Taxa Code	Taxa	Quant/Qual
03000	*Ectoprocta*	+
03600	*Oligochaeta*	+
08260	*Orconectes (Crokerinus) sanbornii sanbornii*	+
08601	*Hydrachnidia*	+
11250	*Centroptilum sp (w/o hindwing pads)*	+
11650	*Procloeon sp (w/ hindwing pads)*	+
11670	*Procloeon viridoculare*	+
13590	*Maccaffertium vicarium*	+
17200	*Caenis sp*	+
21200	*Calopteryx sp*	+
22001	*Coenagrionidae*	+
22300	*Argia sp*	+
23600	*Aeshna sp*	+
24501	*Gomphidae*	+
43570	*Neoplea sp*	+
52200	*Cheumatopsyche sp*	+
52430	*Ceratopsyche morosa group*	+
52530	*Hydropsyche depravata group*	+
54300	*Oxyethira sp*	+
59410	*Nectopsyche diarina*	+
67500	*Laccobius sp*	+
68130	*Helichus sp*	+
68707	*Dubiraphia quadrinotata*	+
68708	*Dubiraphia vittata group*	+
68901	*Macronychus glabratus*	+
69400	*Stenelmis sp*	+
70600	*Antocha sp*	+
71900	*Tipula sp*	+
72700	*Anopheles sp*	+
77120	*Ablabesmyia mallochi*	+
77750	*Hayesomyia senata or Thienemannimyia norena*	+
78401	*Natarsia species A (sensu Roback, 1978)*	+
78655	*Procladius (Holotanypus) sp*	+
82730	*Chironomus (C.) decorus group*	+
82885	*Cryptotendipes pseudotener*	+
83820	*Microtendipes "caelum" (sensu Simpson & Bode, 1980)*	+
84450	*Polypedilum (Uresipedilum) flavum*	+
84469	*Polypedilum (P.) illinoense group*	+
85625	*Rheotanytarsus sp*	+
85821	*Tanytarsus glabrescens group sp 7*	+
85840	*Tanytarsus sepp*	+
87540	*Hemerodromia sp*	+
95100	*Physella sp*	+
96900	*Ferrissia sp*	+
98600	*Sphaerium sp*	+

No. Quantitative Taxa: 0
No. Qualitative Taxa: 45
Number of Organisms: 0

Total Taxa: 45
ICI:
Qual EPT: 10

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Ohio EPA/DSW Ecological Assessment Section
Macroinvertebrate Collection

Site: Crooked Run

Collection Date: 08/05/2010 River Code: 17-601 RM: 0.06

Taxa Code	Taxa	Quant/Qual
03600	*Oligochaeta*	+
06810	*Gammarus fasciatus*	+
08260	*Orconectes (Crokerinus) sanbornii sanbornii*	+
11670	*Procloeon viridoculare*	+
13590	*Maccaffertium vicarium*	+
17200	*Caenis sp*	+
21200	*Calopteryx sp*	+
22001	*Coenagrionidae*	+
22300	*Argia sp*	+
23909	*Boyeria vinosa*	+
50804	*Lype diversa*	+
52200	*Cheumatopsyche sp*	+
52530	*Hydropsyche depravata group*	+
57900	*Pycnopsyche sp*	+
59410	*Nectopsyche diarina*	+
65501	*Hydrophilidae*	+
68601	*Ancyronyx variegata*	+
68707	*Dubiraphia quadrinotata*	+
68708	*Dubiraphia vittata group*	+
68901	*Macronychus glabratus*	+
71700	*Pilaria sp*	+
71900	*Tipula sp*	+
72700	*Anopheles sp*	+
74100	*Simulium sp*	+
78655	*Procladius (Holotanypus) sp*	+
84470	*Polypedilum (P.) illinoense*	+
85500	*Paratanytarsus sp*	+
87601	*Dolichopodidae*	+
95100	*Physella sp*	+
96900	*Ferrissia sp*	+

Taxa Code	Taxa	Quant/Qual

No. Quantitative Taxa: 0 Total Taxa: 30

No. Qualitative Taxa: 30 ICI:

Number of Organisms: 0 Qual EPT: 8

Ohio EPA/DSW Ecological Assessment Section
Macroinvertebrate Collection

Site: Simmons Run
Twp. Rd. 78

Collection Date: 08/03/2010 River Code: 17-603 RM: 2.97

Taxa Code	Taxa	Quant/Qual	Taxa Code	Taxa	Quant/Qual
06201	*Hyalella azteca*	+			
08260	*Orconectes (Crokerinus) sanbornii sanbornii*	+			
11130	*Baetis intercalaris*	+			
11150	*Labiobaetis propinquus*	+			
11651	*Procloeon sp (w/o hindwing pads)*	+			
13400	*Stenacron sp*	+			
17200	*Caenis sp*	+			
21200	*Calopteryx sp*	+			
22300	*Argia sp*	+			
23804	*Basiaeschna janata*	+			
23909	*Boyeria vinosa*	+			
44501	*Corixidae*	+			
52200	*Cheumatopsyche sp*	+			
52430	*Ceratopsyche morosa group*	+			
60900	*Peltodytes sp*	+			
64050	*Liodessus sp*	+			
68130	*Helichus sp*	+			
68601	*Ancyronyx variegata*	+			
68707	*Dubiraphia quadrinotata*	+			
68708	*Dubiraphia vittata group*	+			
69210	*Optioservus ampliatus*	+			
69400	*Stenelmis sp*	+			
70700	*Dicranota sp*	+			
72700	*Anopheles sp*	+			
77500	*Conchapelopia sp*	+			
78655	*Procladius (Holotanypus) sp*	+			
80420	*Cricotopus (C.) bicinctus*	+			
82730	*Chironomus (C.) decorus group*	+			
82820	*Cryptochironomus sp*	+			
83040	*Dicrotendipes neomodestus*	+			
83820	*Microtendipes "caelum" (sensu Simpson & Bode, 1980)*	+			
83840	*Microtendipes pedellus group*	+			
84155	*Paralauterborniella nigrohalteralis*	+			
84470	*Polypedilum (P.) illinoense*	+			
96900	*Ferrissia sp*	+			
98600	*Sphaerium sp*	+			

No. Quantitative Taxa: 0 Total Taxa: 36
No. Qualitative Taxa: 36 ICI:
Number of Organisms: 0 Qual EPT: 7

Ohio EPA/DSW Ecological Assessment Section
Macroinvertebrate Collection

Site: Simmons Run

Collection Date: 08/03/2010 River Code: 17-603 RM: 0.60 Twp. Rd. 413

Taxa Code	Taxa	Quant/Qual
03000	*Ectoprocta*	+
03600	*Oligochaeta*	+
06201	*Hyalella azteca*	+
08260	*Orconectes (Crokerinus) sanbornii sanbornii*	+
11130	*Baetis intercalaris*	+
13000	*Leucrocuta sp*	+
13400	*Stenacron sp*	+
13521	*Stenonema femoratum*	+
13590	*Maccaffertium vicarium*	+
17200	*Caenis sp*	+
21200	*Calopteryx sp*	+
22001	*Coenagrionidae*	+
22300	*Argia sp*	+
23909	*Boyeria vinosa*	+
47600	*Sialis sp*	+
48410	*Corydalus cornutus*	+
50315	*Chimarra obscura*	+
51400	*Nyctiophylax sp*	+
51600	*Polycentropus sp*	+
52200	*Cheumatopsyche sp*	+
57900	*Pycnopsyche sp*	+
59720	*Triaenodes ignitus*	+
59728	*Triaenodes marginatus*	+
60300	*Dineutus sp*	+
68201	*Scirtidae*	+
68601	*Ancyronyx variegata*	+
68708	*Dubiraphia vittata group*	+
68901	*Macronychus glabratus*	+
69400	*Stenelmis sp*	+
71100	*Hexatoma sp*	+
72340	*Dixella sp*	+
74100	*Simulium sp*	+
77120	*Ablabesmyia mallochi*	+
77800	*Helopelopia sp*	+
81825	*Rheocricotopus (Psilocricotopus) robacki*	+
82730	*Chironomus (C.) decorus group*	+
82820	*Cryptochironomus sp*	+
83040	*Dicrotendipes neomodestus*	+
83840	*Microtendipes pedellus group*	+
84450	*Polypedilum (Uresipedilum) flavum*	+
84460	*Polypedilum (P.) fallax group*	+
84470	*Polypedilum (P.) illinoense*	+
84700	*Stenochironomus sp*	+
84750	*Stictochironomus sp*	+
85615	*Rheotanytarsus pellucidus*	+
85625	*Rheotanytarsus sp*	+
85840	*Tanytarsus sepp*	+
86100	*Chrysops sp*	+
95100	*Physella sp*	+
96900	*Ferrissia sp*	+
98600	*Sphaerium sp*	+
99100	*Pyganodon grandis*	+

No. Quantitative Taxa: 0 Total Taxa: 52

No. Qualitative Taxa: 52 ICI:

Number of Organisms: 0 Qual EPT: 13

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Ohio EPA/DSW Ecological Assessment Section
Macroinvertebrate Collection

Site: Flint Run
driveway off St. Rt. 60

Collection Date: 08/03/2010 River Code: 17-604 RM: 0.40

Taxa Code	Taxa	Quant/Qual	Taxa Code	Taxa	Quant/Qual
06201	*Hyalella azteca*	+			
08260	*Orconectes (Crokerinus) sanbornii sanbornii*	+			
11121	*Labiobaetis sp*	+			
11250	*Centroptilum sp (w/o hindwing pads)*	+			
13590	*Maccaffertium vicarium*	+			
14950	*Leptophlebia sp or Paraleptophlebia sp*	+			
17200	*Caenis sp*	+			
21200	*Calopteryx sp*	+			
22300	*Argia sp*	+			
45300	*Sigara sp*	+			
47600	*Sialis sp*	+			
50804	*Lype diversa*	+			
57400	*Neophylax sp*	+			
57900	*Pycnopsyche sp*	+			
60400	*Gyrinus sp*	+			
63300	*Hydroporini*	+			
68130	*Helichus sp*	+			
68707	*Dubiraphia quadrinotata*	+			
68708	*Dubiraphia vittata group*	+			
68901	*Macronychus glabratus*	+			
72700	*Anopheles sp*	+			
78140	*Labrundinia pilosella*	+			
78500	*Paramerina fragilis*	+			
78655	*Procladius (Holotanypus) sp*	+			
80420	*Cricotopus (C.) bicinctus*	+			
82820	*Cryptochironomus sp*	+			
82885	*Cryptotendipes pseudotener*	+			
83820	*Microtendipes "caelum" (sensu Simpson & Bode, 1980)*	+			
84210	*Paratendipes albimanus or P. duplicatus*	+			
84750	*Stictochironomus sp*	+			
85500	*Paratanytarsus sp*	+			
85625	*Rheotanytarsus sp*	+			
95100	*Physella sp*	+			
96002	*Helisoma anceps anceps*	+			
96900	*Ferrissia sp*	+			
98200	*Pisidium sp*	+			
98600	*Sphaerium sp*	+			

No. Quantitative Taxa: 0 Total Taxa: 37
No. Qualitative Taxa: 37 ICI:
Number of Organisms: 0 Qual EPT: 8

Ohio EPA/DSW Ecological Assessment Section
Macroinvertebrate Collection

Site: Beaver Run
Co. Rd. 22

Collection Date: 08/06/2010 River Code: 17-605 RM: 2.60

Taxa Code	Taxa	Quant/Qual
06201	*Hyalella azteca*	+
08601	*Hydrachnidia*	+
11115	*Baetis tricaudatus*	+
11119	*Plauditus dubius or P. virilis*	+
11125	*Labiobaetis frondalis*	+
11150	*Labiobaetis propinquus*	+
11430	*Diphetor hageni*	+
11650	*Procloeon sp (w/ hindwing pads)*	+
13590	*Maccaffertium vicarium*	+
15000	*Paraleptophlebia sp*	+
16700	*Tricorythodes sp*	+
18600	*Ephemera sp*	+
21001	*Calopterygidae*	+
23909	*Boyeria vinosa*	+
45300	*Sigara sp*	+
47600	*Sialis sp*	+
50804	*Lype diversa*	+
52200	*Cheumatopsyche sp*	+
52315	*Diplectrona modesta*	+
53501	*Hydroptilidae*	+
57900	*Pycnopsyche sp*	+
59410	*Nectopsyche diarina*	+
59720	*Triaenodes ignitus*	+
66500	*Enochrus sp*	+
67000	*Helophorus sp*	+
67500	*Laccobius sp*	+
68130	*Helichus sp*	+
68707	*Dubiraphia quadrinotata*	+
68708	*Dubiraphia vittata group*	+
68901	*Macronychus glabratus*	+
69225	*Optioservus fastiditus*	+
69400	*Stenelmis sp*	+
70600	*Antocha sp*	+
71700	*Pilaria sp*	+
77500	*Conchapelopia sp*	+
78140	*Labrundinia pilosella*	+
80420	*Cricotopus (C.) bicinctus*	+
80430	*Cricotopus (C.) tremulus group*	+
81825	*Rheocricotopus (Psilocricotopus) robacki*	+
82200	*Tvetenia bavarica group*	+
84155	*Paralauterborniella nigrohalteralis*	+
84470	*Polypedilum (P.) illinoense*	+
84540	*Polypedilum (Tripodura) scalaenum group*	+
84612	*Saetheria tylus*	+
85500	*Paratanytarsus sp*	+
85800	*Tanytarsus sp*	+
85802	*Tanytarsus n. sp nr. curticornis*	+
86100	*Chrysops sp*	+
86401	*Atherix lantha*	+
87400	*Stratiomys sp*	+
87540	*Hemerodromia sp*	+
94400	*Fossaria sp*	+
95100	*Physella sp*	+
96900	*Ferrissia sp*	+
98600	*Sphaerium sp*	+

No. Quantitative Taxa: 0 Total Taxa: 55
No. Qualitative Taxa: 55 ICI:
Number of Organisms: 0 Qual EPT: 17

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Ohio EPA/DSW Ecological Assessment Section
Macroinvertebrate Collection

Site: Beaver Run
St. Rt. 36

Collection Date: 08/05/2010 River Code: 17-605 RM: 0.30

Taxa Code	Taxa	Quant/Qual
03600	*Oligochaeta*	+
05800	*Caecidotea sp*	+
06201	*Hyalella azteca*	+
08260	*Orconectes (Crokerinus) sanbornii sanbornii*	+
08601	*Hydrachnidia*	+
11120	*Baetis flavistriga*	+
11125	*Labiobaetis frondalis*	+
11130	*Baetis intercalaris*	+
11200	*Callibaetis sp*	+
11670	*Procloeon viridoculare*	+
13400	*Stenacron sp*	+
13590	*Maccaffertium vicarium*	+
14950	*Leptophlebia sp or Paraleptophlebia sp*	+
16700	*Tricorythodes sp*	+
17200	*Caenis sp*	+
43570	*Neoplea sp*	+
45300	*Sigara sp*	+
51600	*Polycentropus sp*	+
52200	*Cheumatopsyche sp*	+
52430	*Ceratopsyche morosa group*	+
53400	*Protoptila sp*	+
56650	*Goera stylata*	+
64800	*Uvarus sp*	+
67500	*Laccobius sp*	+
67800	*Tropisternus sp*	+
68130	*Helichus sp*	+
68601	*Ancyronyx variegata*	+
68708	*Dubiraphia vittata group*	+
68901	*Macronychus glabratus*	+
69225	*Optioservus fastiditus*	+
69400	*Stenelmis sp*	+
70600	*Antocha sp*	+
71300	*Limonia sp*	+
74100	*Simulium sp*	+
74501	*Ceratopogonidae*	+
77120	*Ablabesmyia mallochi*	+
78655	*Procladius (Holotanypus) sp*	+
81825	*Rheocricotopus (Psilocricotopus) robacki*	+
82730	*Chironomus (C.) decorus group*	+
83840	*Microtendipes pedellus group*	+
84155	*Paralauterborniella nigrohalteralis*	+
84470	*Polypedilum (P.) illinoense*	+
84700	*Stenochironomus sp*	+
85625	*Rheotanytarsus sp*	+
86401	*Atherix lantha*	+
96900	*Ferrissia sp*	+
98600	*Sphaerium sp*	+

No. Quantitative Taxa: 0
No. Qualitative Taxa: 47
Number of Organisms: 0

Total Taxa: 47
ICI:
Qual EPT: 15

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Ohio EPA/DSW Ecological Assessment Section
Macroinvertebrate Collection

Site: Darling Run
Twp. Rd. 340

Collection Date: 07/01/2010 River Code: 17-606 RM: 0.10

Taxa Code	Taxa	Quant/Qual
03600	*Oligochaeta*	+
07800	*Cambarus sp*	+
08601	*Hydrachnidia*	+
11101	*Plauditus sp*	+
11119	*Plauditus dubius or P. virilis*	+
11125	*Labiobaetis frondalis*	+
11150	*Labiobaetis propinquus*	+
15000	*Paraleptophlebia sp*	+
23909	*Boyeria vinosa*	+
57900	*Pycnopsyche sp*	+
68130	*Helichus sp*	+
68707	*Dubiraphia quadrinotata*	+
71700	*Pilaria sp*	+
71900	*Tipula sp*	+
72330	*Dixa sp*	+
74100	*Simulium sp*	+
77500	*Conchapelopia sp*	+
80204	*Brillia flavifrons group*	+
83840	*Microtendipes pedellus group*	+
84155	*Paralauterborniella nigrohalteralis*	+
84300	*Phaenopsectra obediens group*	+
84315	*Phaenopsectra flavipes*	+
85501	*Paratanytarsus longistilus*	+
85625	*Rheotanytarsus sp*	+

Taxa Code	Taxa	Quant/Qual

No. Quantitative Taxa: 0 Total Taxa: 24
No. Qualitative Taxa: 24 ICI:
Number of Organisms: 0 Qual EPT: 6

Ohio EPA/DSW Ecological Assessment Section
Macroinvertebrate Collection

Site: Mohawk Creek
Twp. Rd. 409

Collection Date: 07/06/2010 River Code: 17-607 RM: 4.10

Taxa Code	Taxa	Quant/Qual
03600	*Oligochaeta*	+
04686	*Placobdella papillifera*	+
08260	*Orconectes (Crokerinus) sanbornii sanbornii*	+
08601	*Hydrachnidia*	+
11120	*Baetis flavistriga*	+
11125	*Labiobaetis frondalis*	+
11130	*Baetis intercalaris*	+
11250	*Centroptilum sp (w/o hindwing pads)*	+
11651	*Procloeon sp (w/o hindwing pads)*	+
12200	*Isonychia sp*	+
13400	*Stenacron sp*	+
13521	*Stenonema femoratum*	+
13590	*Maccaffertium vicarium*	+
15000	*Paraleptophlebia sp*	+
17200	*Caenis sp*	+
18700	*Hexagenia sp*	+
33100	*Leuctra sp*	+
34500	*Perlesta placida complex*	+
45300	*Sigara sp*	+
47600	*Sialis sp*	+
50301	*Chimarra aterrima*	+
51600	*Polycentropus sp*	+
52200	*Cheumatopsyche sp*	+
57400	*Neophylax sp*	+
57900	*Pycnopsyche sp*	+
63300	*Hydroporini*	+
63900	*Laccophilus sp*	+
68075	*Psephenus herricki*	+
68130	*Helichus sp*	+
68708	*Dubiraphia vittata group*	+
69225	*Optioservus fastiditus*	+
69400	*Stenelmis sp*	+
71100	*Hexatoma sp*	+
72700	*Anopheles sp*	+
74100	*Simulium sp*	+
74501	*Ceratopogonidae*	+
77500	*Conchapelopia sp*	+
80430	*Cricotopus (C.) tremulus group*	+
83840	*Microtendipes pedellus group*	+
84210	*Paratendipes albimanus or P. duplicatus*	+
84440	*Polypedilum (Uresipedilum) aviceps*	+
84750	*Stictochironomus sp*	+
85625	*Rheotanytarsus sp*	+
86401	*Atherix lantha*	+
95100	*Physella sp*	+
96900	*Ferrissia sp*	+
98600	*Sphaerium sp*	+

No. Quantitative Taxa: 0
No. Qualitative Taxa: 47
Number of Organisms: 0

Total Taxa: 47
ICI:
Qual EPT: 19

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Ohio EPA/DSW Ecological Assessment Section
Macroinvertebrate Collection

Site: Mohawk Creek
Co. Rd. 82

Collection Date: 08/17/2010 River Code: 17-607 RM: 1.48

Taxa Code	Taxa	Quant/Qual	
01320	*Hydra sp*	1	
01801	*Turbellaria*	10	+
03360	*Plumatella sp*	2	
03600	*Oligochaeta*	72	+
06201	*Hyalella azteca*		+
08260	*Orconectes (Crokerinus) sanbornii sanbornii*		+
08601	*Hydrachnidia*	1	+
11130	*Baetis intercalaris*	10	+
11150	*Labiobaetis propinquus*	1	
11250	*Centroptilum sp (w/o hindwing pads)*		+
11650	*Procloeon sp (w/ hindwing pads)*		+
11670	*Procloeon viridoculare*		+
12200	*Isonychia sp*	46	
13000	*Leucrocuta sp*		+
13400	*Stenacron sp*	95	+
13540	*Maccaffertium mediopunctatum*	2	+
13590	*Maccaffertium vicarium*	238	
14950	*Leptophlebia sp or Paraleptophlebia sp*	17	+
17200	*Caenis sp*		+
17600	*Baetisca sp*		+
18700	*Hexagenia sp*		+
21200	*Calopteryx sp*		+
23909	*Boyeria vinosa*	1	+
24900	*Gomphus sp*		+
45100	*Palmacorixa sp*		+
47600	*Sialis sp*		+
50301	*Chimarra aterrima*		+
50315	*Chimarra obscura*		+
50804	*Lype diversa*		+
51400	*Nyctiophylax sp*	11	+
52200	*Cheumatopsyche sp*	41	+
52430	*Ceratopsyche morosa group*	1	+
52530	*Hydropsyche depravata group*		+
57900	*Pycnopsyche sp*		+
59300	*Mystacides sp*		+
59720	*Triaenodes ignitus*		+
60300	*Dineutus sp*	1	
67100	*Hydrobius sp*		+
67750	*Sperchopsis tesselatus*		+
68130	*Helichus sp*	3	+
68601	*Ancyronyx variegata*		+
68708	*Dubiraphia vittata group*		+
68901	*Macronychus glabratus*	75	+
69225	*Optioservus fastiditus*		+
69400	*Stenelmis sp*	52	+
71100	*Hexatoma sp*		+
72340	*Dixella sp*		+
72700	*Anopheles sp*		+
74501	*Ceratopogonidae*		+
77120	*Ablabesmyia mallochi*		+
77500	*Conchapelopia sp*	61	+
77750	*Hayesomyia senata or Thienemannimyia norena*		+
78655	*Procladius (Holotanypus) sp*		+
80370	*Corynoneura lobata*	176	
81240	*Nanocladius (N.) distinctus*	31	
82101	*Thienemanniella taurocapita*	32	
82121	*Thienemanniella lobapodema*	216	
82141	*Thienemanniella xena*	16	
82820	*Cryptochironomus sp*		+
83003	*Dicrotendipes fumidus*	31	
83820	*Microtendipes "caelum" (sensu Simpson & Bode, 1980)*		+
84155	*Paralauterborniella nigrohalteralis*		+
84210	*Paratendipes albimanus or P. duplicatus*	31	
84300	*Phaenopsectra obediens group*		+
84302	*Phaenopsectra punctipes*		+
84450	*Polypedilum (Uresipedilum) flavum*	61	
84470	*Polypedilum (P.) illinoense*		+
84540	*Polypedilum (Tripodura) scalaenum group*	31	+
84750	*Stictochironomus sp*		+
85230	*Cladotanytarsus mancus group*		+
85615	*Rheotanytarsus pellucidus*	31	
85625	*Rheotanytarsus sp*	1629	+
85720	*Stempellinella fimbriata*	16	
85800	*Tanytarsus sp*	31	
85802	*Tanytarsus n. sp nr. curticornis*	92	
85815	*Tanytarsus glabrescens group sp 1*	31	+
85821	*Tanytarsus glabrescens group sp 7*	246	
85840	*Tanytarsus sepp*	31	+
86100	*Chrysops sp*		+
86401	*Atherix lantha*	2	+
87540	*Hemerodromia sp*	16	
95100	*Physella sp*		+
96900	*Ferrissia sp*	208	+
98600	*Sphaerium sp*		+

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Ohio EPA/DSW Ecological Assessment Section
Macroinvertebrate Collection

Site: Mohawk Creek
Co. Rd. 82

Collection Date: 08/17/2010 River Code: 17-607 RM: 1.48

Taxa Code	Taxa	Quant/Qual	Taxa Code	Taxa	Quant/Qual

No. Quantitative Taxa: 41 Total Taxa: 84
No. Qualitative Taxa: 64 ICI: **50**
Number of Organisms: 3699 Qual EPT: 21

Ohio EPA/DSW Ecological Assessment Section
Macroinvertebrate Collection

Site: Dutch Run

Collection Date: 07/01/2010 River Code: 17-608 RM: 0.80

Taxa Code	Taxa	Quant/Qual
03600	*Oligochaeta*	+
06830	*Gammarus minus*	+
08601	*Hydrachnidia*	+
11018	*Acerpenna macdunnoughi*	+
11101	*Plauditus sp*	+
11115	*Baetis tricaudatus*	+
11119	*Plauditus dubius or P. virilis*	+
11150	*Labiobaetis propinquus*	+
11155	*Iswaeon anoka*	+
11430	*Diphetor hageni*	+
13590	*Maccaffertium vicarium*	+
15000	*Paraleptophlebia sp*	+
16700	*Tricorythodes sp*	+
18600	*Ephemera sp*	+
21200	*Calopteryx sp*	+
33100	*Leuctra sp*	+
34500	*Perlesta placida complex*	+
50410	*Dolophilodes distinctus*	+
52200	*Cheumatopsyche sp*	+
52440	*Ceratopsyche slossonae*	+
52530	*Hydropsyche depravata group*	+
55107	*Oligostomis pardalis*	+
57900	*Pycnopsyche sp*	+
58020	*Lepidostoma sp*	+
67500	*Laccobius sp*	+
68708	*Dubiraphia vittata group*	+
69225	*Optioservus fastiditus*	+
70700	*Dicranota sp*	+
71800	*Pseudolimnophila sp*	+
72330	*Dixa sp*	+
74100	*Simulium sp*	+
74501	*Ceratopogonidae*	+
77500	*Conchapelopia sp*	+
79300	*Trissopelopia ogemawi*	+
80420	*Cricotopus (C.) bicinctus*	+
81650	*Parametriocnemus sp*	+
82820	*Cryptochironomus sp*	+
84116	*Paracladopelma nereis*	+
84155	*Paralauterborniella nigrohalteralis*	+
84450	*Polypedilum (Uresipedilum) flavum*	+
84540	*Polypedilum (Tripodura) scalaenum group*	+
85615	*Rheotanytarsus pellucidus*	+
85625	*Rheotanytarsus sp*	+
85800	*Tanytarsus sp*	+
85840	*Tanytarsus sepp*	+
86100	*Chrysops sp*	+

No. Quantitative Taxa: 0 Total Taxa: 46

No. Qualitative Taxa: 46 ICI:

Number of Organisms: 0 Qual EPT: 20

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Ohio EPA/DSW Ecological Assessment Section
Macroinvertebrate Collection

Site: Honey Run

Collection Date: 07/01/2010 River Code: 17-609 RM: 0.60

Taxa Code	Taxa	Quant/Qual
03600	*Oligochaeta*	+
05900	*Lirceus sp*	+
07800	*Cambarus sp*	+
11014	*Acentrella turbida*	+
11119	*Plauditus dubius or P. virilis*	+
11120	*Baetis flavistriga*	+
11150	*Labiobaetis propinquus*	+
11430	*Diphetor hageni*	+
16200	*Eurylophella sp*	+
17200	*Caenis sp*	+
34500	*Perlesta placida complex*	+
47600	*Sialis sp*	+
52200	*Cheumatopsyche sp*	+
52430	*Ceratopsyche morosa group*	+
52440	*Ceratopsyche slossonae*	+
53300	*Glossosoma sp*	+
53800	*Hydroptila sp*	+
55107	*Oligostomis pardalis*	+
57400	*Neophylax sp*	+
63300	*Hydroporini*	+
67000	*Helophorus sp*	+
68707	*Dubiraphia quadrinotata*	+
69400	*Stenelmis sp*	+
72340	*Dixella sp*	+
72700	*Anopheles sp*	+
74100	*Simulium sp*	+
74501	*Ceratopogonidae*	+
79300	*Trissopelopia ogemawi*	+
80430	*Cricotopus (C.) tremulus group*	+
80570	*Doncricotopus bicaudatus*	+
80850	*Heterotrissocladius marcidus*	+
81650	*Parametriocnemus sp*	+
81690	*Paratrichocladius sp*	+
82141	*Thienemanniella xena*	+
82200	*Tvetenia bavarica group*	+
82730	*Chironomus (C.) decorus group*	+
83840	*Microtendipes pedellus group*	+
84114	*Paracladopelma nais*	+
84300	*Phaenopsectra obediens group*	+
84430	*Polypedilum (P.) albicorne*	+
84440	*Polypedilum (Uresipedilum) aviceps*	+
84750	*Stictochironomus sp*	+
85501	*Paratanytarsus longistilus*	+
85625	*Rheotanytarsus sp*	+
85800	*Tanytarsus sp*	+
85821	*Tanytarsus glabrescens group sp 7*	+
85840	*Tanytarsus sepp*	+
86100	*Chrysops sp*	+
95100	*Physella sp*	+

No. Quantitative Taxa: 0 Total Taxa: 49

No. Qualitative Taxa: 49 ICI:

Number of Organisms: 0 Qual EPT: 15

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Ohio EPA/DSW Ecological Assessment Section
Macroinvertebrate Collection

Site: Mill Creek
Collection Date: 08/06/2010 River Code: 17-610 RM: 12.50 Twp. Rd. 215

Taxa Code	Taxa	Quant/Qual
03600	*Oligochaeta*	+
04666	*Helobdella triserialis*	+
04685	*Placobdella ornata*	+
06201	*Hyalella azteca*	+
08260	*Orconectes (Crokerinus) sanbornii sanbornii*	+
11120	*Baetis flavistriga*	+
11130	*Baetis intercalaris*	+
12200	*Isonychia sp*	+
13400	*Stenacron sp*	+
13590	*Maccaffertium vicarium*	+
17200	*Caenis sp*	+
21200	*Calopteryx sp*	+
22001	*Coenagrionidae*	+
22300	*Argia sp*	+
23909	*Boyeria vinosa*	+
33100	*Leuctra sp*	+
42700	*Belostoma sp*	+
47600	*Sialis sp*	+
50315	*Chimarra obscura*	+
51600	*Polycentropus sp*	+
52200	*Cheumatopsyche sp*	+
52430	*Ceratopsyche morosa group*	+
52530	*Hydropsyche depravata group*	+
60400	*Gyrinus sp*	+
60900	*Peltodytes sp*	+
63300	*Hydroporini*	+
63900	*Laccophilus sp*	+
67500	*Laccobius sp*	+
68201	*Scirtidae*	+
68601	*Ancyronyx variegata*	+
68708	*Dubiraphia vittata group*	+
69400	*Stenelmis sp*	+
71100	*Hexatoma sp*	+
72340	*Dixella sp*	+
77120	*Ablabesmyia mallochi*	+
77750	*Hayesomyia senata or Thienemannimyia norena*	+
77800	*Helopelopia sp*	+
81270	*Nanocladius (N.) spiniplenus*	+
82820	*Cryptochironomus sp*	+
83300	*Glyptotendipes (G.) sp*	+
83840	*Microtendipes pedellus group*	+
84210	*Paratendipes albimanus or P. duplicatus*	+
84450	*Polypedilum (Uresipedilum) flavum*	+
84460	*Polypedilum (P.) fallax group*	+
84470	*Polypedilum (P.) illinoense*	+
84540	*Polypedilum (Tripodura) scalaenum group*	+
84750	*Stictochironomus sp*	+
85625	*Rheotanytarsus sp*	+
95100	*Physella sp*	+
96900	*Ferrissia sp*	+
98600	*Sphaerium sp*	+

No. Quantitative Taxa: 0 Total Taxa: 51
No. Qualitative Taxa: 51 ICI:
Number of Organisms: 0 Qual EPT: 12

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Ohio EPA/DSW Ecological Assessment Section
Macroinvertebrate Collection

Site: Mill Creek
Collection Date: 08/06/2010 River Code: 17-610 RM: 8.50 Twp. Rd. 206

Taxa Code	Taxa	Quant/Qual
03000	*Ectoprocta*	+
06201	*Hyalella azteca*	+
08260	*Orconectes (Crokerinus) sanbornii sanbornii*	+
08601	*Hydrachnidia*	+
11130	*Baetis intercalaris*	+
11650	*Procloeon sp (w/ hindwing pads)*	+
12200	*Isonychia sp*	+
13100	*Nixe sp*	+
13400	*Stenacron sp*	+
13590	*Maccaffertium vicarium*	+
17200	*Caenis sp*	+
18600	*Ephemera sp*	+
21200	*Calopteryx sp*	+
23909	*Boyeria vinosa*	+
34130	*Acroneuria frisoni*	+
47600	*Sialis sp*	+
50804	*Lype diversa*	+
51600	*Polycentropus sp*	+
52200	*Cheumatopsyche sp*	+
52430	*Ceratopsyche morosa group*	+
57900	*Pycnopsyche sp*	+
59410	*Nectopsyche diarina*	+
59720	*Triaenodes ignitus*	+
60300	*Dineutus sp*	+
63300	*Hydroporini*	+
66500	*Enochrus sp*	+
68130	*Helichus sp*	+
68708	*Dubiraphia vittata group*	+
68901	*Macronychus glabratus*	+
69400	*Stenelmis sp*	+
71100	*Hexatoma sp*	+
72340	*Dixella sp*	+
72700	*Anopheles sp*	+
77120	*Ablabesmyia mallochi*	+
77800	*Helopelopia sp*	+
82141	*Thienemanniella xena*	+
82300	*Xylotopus par*	+
82770	*Chironomus (C.) riparius group*	+
83840	*Microtendipes pedellus group*	+
84210	*Paratendipes albimanus or P. duplicatus*	+
84302	*Phaenopsectra punctipes*	+
84700	*Stenochironomus sp*	+
84750	*Stictochironomus sp*	+
85625	*Rheotanytarsus sp*	+
85800	*Tanytarsus sp*	+
85840	*Tanytarsus sepp*	+
96900	*Ferrissia sp*	+
98600	*Sphaerium sp*	+

No. Quantitative Taxa: 0 Total Taxa: 48
No. Qualitative Taxa: 48 ICI:
Number of Organisms: 0 Qual EPT: 16

Ohio EPA/DSW Ecological Assessment Section
Macroinvertebrate Collection

Site: Mill Creek
farm lane off Co. Rd. 12

Collection Date: 08/17/2010 River Code: 17-610 RM: 7.90

Taxa Code	Taxa	Quant/Qual
01801	*Turbellaria*	+
03360	*Plumatella sp*	+
06201	*Hyalella azteca*	+
06700	*Crangonyx sp*	+
08260	*Orconectes (Crokerinus) sanbornii sanbornii*	+
08601	*Hydrachnidia*	+
11121	*Labiobaetis sp*	+
11130	*Baetis intercalaris*	+
11670	*Procloeon viridoculare*	+
12200	*Isonychia sp*	+
13100	*Nixe sp*	+
13400	*Stenacron sp*	+
13590	*Maccaffertium vicarium*	+
17200	*Caenis sp*	+
21200	*Calopteryx sp*	+
22001	*Coenagrionidae*	+
23804	*Basiaeschna janata*	+
23909	*Boyeria vinosa*	+
44501	*Corixidae*	+
47600	*Sialis sp*	+
50315	*Chimarra obscura*	+
50804	*Lype diversa*	+
52200	*Cheumatopsyche sp*	+
52430	*Ceratopsyche morosa group*	+
53501	*Hydroptilidae*	+
57900	*Pycnopsyche sp*	+
59720	*Triaenodes ignitus*	+
60300	*Dineutus sp*	+
60400	*Gyrinus sp*	+
63300	*Hydroporini*	+
66500	*Enochrus sp*	+
67700	*Paracymus sp*	+
68075	*Psephenus herricki*	+
68130	*Helichus sp*	+
68601	*Ancyronyx variegata*	+
68708	*Dubiraphia vittata group*	+
68901	*Macronychus glabratus*	+
69275	*Optioservus trivittatus*	+
69400	*Stenelmis sp*	+
70600	*Antocha sp*	+
71100	*Hexatoma sp*	+
71900	*Tipula sp*	+
72340	*Dixella sp*	+
77120	*Ablabesmyia mallochi*	+
77500	*Conchapelopia sp*	+
77800	*Helopelopia sp*	+
80370	*Corynoneura lobata*	+
80410	*Cricotopus (C.) sp*	+
81690	*Paratrichocladius sp*	+
81825	*Rheocricotopus (Psilocricotopus) robacki*	+
82730	*Chironomus (C.) decorus group*	+
82820	*Cryptochironomus sp*	+
83840	*Microtendipes pedellus group*	+
84210	*Paratendipes albimanus or P. duplicatus*	+
84450	*Polypedilum (Uresipedilum) flavum*	+
84470	*Polypedilum (P.) illinoense*	+
84540	*Polypedilum (Tripodura) scalaenum group*	+
84750	*Stictochironomus sp*	+
85625	*Rheotanytarsus sp*	+
85821	*Tanytarsus glabrescens group sp 7*	+
86100	*Chrysops sp*	+
86401	*Atherix lantha*	+
87540	*Hemerodromia sp*	+
95100	*Physella sp*	+
96900	*Ferrissia sp*	+
98600	*Sphaerium sp*	+

No. Quantitative Taxa: 0 Total Taxa: 66
No. Qualitative Taxa: 66 ICI:
Number of Organisms: 0 Qual EPT: 15

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Ohio EPA/DSW Ecological Assessment Section
Macroinvertebrate Collection

Site: Mill Creek
Twp. Rd. 322

Collection Date: 08/16/2010 River Code: 17-610 RM: 3.54

Taxa Code	Taxa	Quant/Qual	
03360	*Plumatella sp*	1	+
03600	*Oligochaeta*	250	+
06201	*Hyalella azteca*		+
08260	*Orconectes (Crokerinus) sanbornii sanbornii*		+
08601	*Hydrachnidia*	72	+
11670	*Procloeon viridoculare*		+
12200	*Isonychia sp*	265	+
13000	*Leucrocuta sp*		+
13400	*Stenacron sp*		+
13510	*Maccaffertium exiguum*	28	+
13590	*Maccaffertium vicarium*	70	+
14950	*Leptophlebia sp or Paraleptophlebia sp*		+
16700	*Tricorythodes sp*	34	+
17200	*Caenis sp*		+
21200	*Calopteryx sp*		+
22001	*Coenagrionidae*		+
22300	*Argia sp*		+
23909	*Boyeria vinosa*		+
33100	*Leuctra sp*		+
48410	*Corydalus cornutus*	3	+
50315	*Chimarra obscura*	80	+
52200	*Cheumatopsyche sp*	87	+
52430	*Ceratopsyche morosa group*	31	+
52530	*Hydropsyche depravata group*		+
52620	*Macrostemum zebratum*		+
59410	*Nectopsyche diarina*		+
59580	*Oecetis persimilis*		+
59720	*Triaenodes ignitus*		+
60300	*Dineutus sp*	2	
68130	*Helichus sp*		+
68708	*Dubiraphia vittata group*		+
68901	*Macronychus glabratus*	14	+
69400	*Stenelmis sp*	13	+
71100	*Hexatoma sp*	2	+
72700	*Anopheles sp*		+
73601	*Simuliidae*		+
77120	*Ablabesmyia mallochi*		+
77500	*Conchapelopia sp*		+
77800	*Helopelopia sp*		+
78140	*Labrundinia pilosella*		+
78450	*Nilotanypus fimbriatus*	32	
80370	*Corynoneura lobata*	64	
82141	*Thienemanniella xena*	16	
82730	*Chironomus (C.) decorus group*		+
82820	*Cryptochironomus sp*		+
83840	*Microtendipes pedellus group*		+
84210	*Paratendipes albimanus or P. duplicatus*		+
84450	*Polypedilum (Uresipedilum) flavum*	1380	+
84460	*Polypedilum (P.) fallax group*	276	
84540	*Polypedilum (Tripodura) scalaenum group*	138	+
85625	*Rheotanytarsus sp*	3796	+
85821	*Tanytarsus glabrescens group sp 7*	138	
86401	*Atherix lantha*		+
87540	*Hemerodromia sp*	59	
96900	*Ferrissia sp*	2	
97601	*Corbicula fluminea*	5	+
98600	*Sphaerium sp*		+

No. Quantitative Taxa: 26 Total Taxa: 57
No. Qualitative Taxa: 49 ICI: **36**
Number of Organisms: 6858 Qual EPT: 18

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Ohio EPA/DSW Ecological Assessment Section
Macroinvertebrate Collection

Site: Mill Creek
Collection Date: 08/10/2010 River Code: 17-610 RM: 0.40 Co. Rd. 24

Taxa Code	Taxa	Quant/Qual
00401	*Spongillidae*	+
01320	*Hydra sp*	16
01801	*Turbellaria*	+
03121	*Paludicella articulata*	+
03360	*Plumatella sp*	1
03600	*Oligochaeta*	576 +
06201	*Hyalella azteca*	+
06700	*Crangonyx sp*	+
08260	*Orconectes (Crokerinus) sanbornii sanbornii*	+
08601	*Hydrachnidia*	337
11014	*Acentrella turbida*	+
11130	*Baetis intercalaris*	94 +
11650	*Procloeon sp (w/ hindwing pads)*	+
11670	*Procloeon viridoculare*	+
12200	*Isonychia sp*	232 +
13100	*Nixe sp*	+
13400	*Stenacron sp*	+
13510	*Maccaffertium exiguum*	62 +
13561	*Maccaffertium pulchellum*	4 +
13590	*Maccaffertium vicarium*	1 +
17200	*Caenis sp*	+
18700	*Hexagenia sp*	+
21200	*Calopteryx sp*	+
22001	*Coenagrionidae*	+
22300	*Argia sp*	+
23909	*Boyeria vinosa*	+
45100	*Palmacorixa sp*	+
47600	*Sialis sp*	+
48410	*Corydalus cornutus*	12 +
50315	*Chimarra obscura*	22 +
50804	*Lype diversa*	+
51400	*Nyctiophylax sp*	+
51600	*Polycentropus sp*	+
52200	*Cheumatopsyche sp*	565 +
52430	*Ceratopsyche morosa group*	582 +
52530	*Hydropsyche depravata group*	1 +
52550	*Hydropsyche frisoni*	102
52620	*Macrostemum zebratum*	136 +
53800	*Hydroptila sp*	34 +
59410	*Nectopsyche diarina*	+
59500	*Oecetis sp*	1
59720	*Triaenodes ignitus*	+
60300	*Dineutus sp*	3 +
67700	*Paracymus sp*	+
68130	*Helichus sp*	+
68601	*Ancyronyx variegata*	+
68708	*Dubiraphia vittata group*	+
68901	*Macronychus glabratus*	117 +
69400	*Stenelmis sp*	1 +
70600	*Antocha sp*	1
71100	*Hexatoma sp*	+
74100	*Simulium sp*	8
74501	*Ceratopogonidae*	+
77120	*Ablabesmyia mallochi*	+
77750	*Hayesomyia senata or Thienemannimyia norena*	108 +
78450	*Nilotanypus fimbriatus*	+
78655	*Procladius (Holotanypus) sp*	+
80370	*Corynoneura lobata*	16
81690	*Paratrichocladius sp*	108 +
81825	*Rheocricotopus (Psilocricotopus) robacki*	+
82121	*Thienemanniella lobapodema*	+
82730	*Chironomus (C.) decorus group*	+
82820	*Cryptochironomus sp*	+
83003	*Dicrotendipes fumidus*	54
83040	*Dicrotendipes neomodestus*	+
83300	*Glyptotendipes (G.) sp*	54
84450	*Polypedilum (Uresipedilum) flavum*	1888 +
84520	*Polypedilum (Tripodura) halterale group*	+
84540	*Polypedilum (Tripodura) scalaenum group*	+
85265	*Cladotanytarsus vanderwulpi group sp 5*	+
85615	*Rheotanytarsus pellucidus*	+
85625	*Rheotanytarsus sp*	6096 +
85800	*Tanytarsus sp*	+
85821	*Tanytarsus glabrescens group sp 7*	108 +
87540	*Hemerodromia sp*	85
93900	*Elimia sp*	+
95100	*Physella sp*	+
96900	*Ferrissia sp*	69 +
97601	*Corbicula fluminea*	32 +
98200	*Pisidium sp*	+
98600	*Sphaerium sp*	+

No. Quantitative Taxa: 34 Total Taxa: 81
No. Qualitative Taxa: 70 ICI: **44**
Number of Organisms: 11526 Qual EPT: 23

200

Ohio EPA/DSW Ecological Assessment Section
Macroinvertebrate Collection

Site: Turkey Run
Co. Rd. 12

Collection Date: 07/27/2010 River Code: 17-612 RM: 0.19

Taxa Code	Taxa	Quant/Qual
03000	*Ectoprocta*	+
03600	*Oligochaeta*	+
07860	*Cambarus (Puncticambarus) robustus*	+
08260	*Orconectes (Crokerinus) sanbornii sanbornii*	+
11120	*Baetis flavistriga*	+
11130	*Baetis intercalaris*	+
11250	*Centroptilum sp (w/o hindwing pads)*	+
12200	*Isonychia sp*	+
13400	*Stenacron sp*	+
13590	*Maccaffertium vicarium*	+
15000	*Paraleptophlebia sp*	+
17200	*Caenis sp*	+
21200	*Calopteryx sp*	+
25510	*Stylogomphus albistylus*	+
33100	*Leuctra sp*	+
34130	*Acroneuria frisoni*	+
47600	*Sialis sp*	+
50301	*Chimarra aterrima*	+
50315	*Chimarra obscura*	+
50804	*Lype diversa*	+
51600	*Polycentropus sp*	+
52200	*Cheumatopsyche sp*	+
52430	*Ceratopsyche morosa group*	+
52440	*Ceratopsyche slossonae*	+
52530	*Hydropsyche depravata group*	+
59720	*Triaenodes ignitus*	+
59730	*Triaenodes melaca*	+
63300	*Hydroporini*	+
66500	*Enochrus sp*	+
68075	*Psephenus herricki*	+
68130	*Helichus sp*	+
68201	*Scirtidae*	+
68601	*Ancyronyx variegata*	+
68708	*Dubiraphia vittata group*	+
68901	*Macronychus glabratus*	+
69400	*Stenelmis sp*	+
71300	*Limonia sp*	+
71700	*Pilaria sp*	+
71900	*Tipula sp*	+
71930	*Ulomorpha sp*	+
72700	*Anopheles sp*	+
77120	*Ablabesmyia mallochi*	+
77500	*Conchapelopia sp*	+
77800	*Helopelopia sp*	+
80430	*Cricotopus (C.) tremulus group*	+
81650	*Parametriocnemus sp*	+
83040	*Dicrotendipes neomodestus*	+
83840	*Microtendipes pedellus group*	+
84210	*Paratendipes albimanus or P. duplicatus*	+
84300	*Phaenopsectra obediens group*	+
84450	*Polypedilum (Uresipedilum) flavum*	+
84469	*Polypedilum (P.) illinoense group*	+
84540	*Polypedilum (Tripodura) scalaenum group*	+
85625	*Rheotanytarsus sp*	+
85720	*Stempellinella fimbriata*	+
85840	*Tanytarsus sepp*	+
86401	*Atherix lantha*	+
87400	*Stratiomys sp*	+
95100	*Physella sp*	+
96900	*Ferrissia sp*	+

No. Quantitative Taxa: 0 Total Taxa: 60
No. Qualitative Taxa: 60 ICI:
Number of Organisms: 0 Qual EPT: 20

201

Ohio EPA/DSW Ecological Assessment Section
Macroinvertebrate Collection

Site: Little Mill Creek

Collection Date: 08/06/2010 River Code: 17-613 RM: 0.30

Taxa Code	Taxa	Quant/Qual
03000	*Ectoprocta*	+
03600	*Oligochaeta*	+
04685	*Placobdella ornata*	+
06201	*Hyalella azteca*	+
08260	*Orconectes (Crokerinus) sanbornii sanbornii*	+
08601	*Hydrachnidia*	+
11121	*Labiobaetis sp*	+
11130	*Baetis intercalaris*	+
11200	*Callibaetis sp*	+
11250	*Centroptilum sp (w/o hindwing pads)*	+
12200	*Isonychia sp*	+
13400	*Stenacron sp*	+
13590	*Maccaffertium vicarium*	+
17200	*Caenis sp*	+
21200	*Calopteryx sp*	+
22001	*Coenagrionidae*	+
22300	*Argia sp*	+
23909	*Boyeria vinosa*	+
50804	*Lype diversa*	+
51600	*Polycentropus sp*	+
52200	*Cheumatopsyche sp*	+
52430	*Ceratopsyche morosa group*	+
59410	*Nectopsyche diarina*	+
63300	*Hydroporini*	+
67500	*Laccobius sp*	+
68601	*Ancyronyx variegata*	+
68708	*Dubiraphia vittata group*	+
69225	*Optioservus fastiditus*	+
69400	*Stenelmis sp*	+
71100	*Hexatoma sp*	+
71800	*Pseudolimnophila sp*	+
72700	*Anopheles sp*	+
74100	*Simulium sp*	+
77120	*Ablabesmyia mallochi*	+
81650	*Parametriocnemus sp*	+
82141	*Thienemanniella xena*	+
82820	*Cryptochironomus sp*	+
83820	*Microtendipes "caelum" (sensu Simpson & Bode, 1980)*	+
84300	*Phaenopsectra obediens group*	+
84450	*Polypedilum (Uresipedilum) flavum*	+
84470	*Polypedilum (P.) illinoense*	+
84520	*Polypedilum (Tripodura) halterale group*	+
84750	*Stictochironomus sp*	+
85625	*Rheotanytarsus sp*	+
85720	*Stempellinella fimbriata*	+
85800	*Tanytarsus sp*	+
85821	*Tanytarsus glabrescens group sp 7*	+
87540	*Hemerodromia sp*	+
94603	*Pseudosuccinea columella*	+
98600	*Sphaerium sp*	+

No. Quantitative Taxa: 0 Total Taxa: 50

No. Qualitative Taxa: 50 ICI:

Number of Organisms: 0 Qual EPT: 13

202

Ohio EPA/DSW Ecological Assessment Section
Macroinvertebrate Collection

Site: Beards Run

Collection Date: 08/06/2010 River Code: 17-614 RM: 1.30

Taxa Code	Taxa	Quant/Qual
01801	*Turbellaria*	+
03000	*Ectoprocta*	+
03600	*Oligochaeta*	+
22001	*Coenagrionidae*	+
22300	*Argia sp*	+
43570	*Neoplea sp*	+
63300	*Hydroporini*	+
64050	*Liodessus sp*	+
65800	*Berosus sp*	+
66500	*Enochrus sp*	+
67000	*Helophorus sp*	+
67800	*Tropisternus sp*	+
68707	*Dubiraphia quadrinotata*	+
69400	*Stenelmis sp*	+
77500	*Conchapelopia sp*	+
80420	*Cricotopus (C.) bicinctus*	+
82730	*Chironomus (C.) decorus group*	+
84210	*Paratendipes albimanus or P. duplicatus*	+
85625	*Rheotanytarsus sp*	+
86100	*Chrysops sp*	+
98200	*Pisidium sp*	+

Taxa Code	Taxa	Quant/Qual

No. Quantitative Taxa: 0 Total Taxa: 21

No. Qualitative Taxa: 21 ICI:

Number of Organisms: 0 Qual EPT: 0

Ohio EPA/DSW Ecological Assessment Section
Macroinvertebrate Collection

Site: Trib. to Mohawk Creek (2.93)

Collection Date: 08/05/2010 River Code: 17-626 RM: 0.60 Twp. Rd. 373

Taxa Code	Taxa	Quant/Qual
06201	*Hyalella azteca*	+
07860	*Cambarus (Puncticambarus) robustus*	+
08260	*Orconectes (Crokerinus) sanbornii sanbornii*	+
08601	*Hydrachnidia*	+
11250	*Centroptilum sp (w/o hindwing pads)*	+
12200	*Isonychia sp*	+
13400	*Stenacron sp*	+
13521	*Stenonema femoratum*	+
13590	*Maccaffertium vicarium*	+
14950	*Leptophlebia sp or Paraleptophlebia sp*	+
16700	*Tricorythodes sp*	+
17200	*Caenis sp*	+
18600	*Ephemera sp*	+
21200	*Calopteryx sp*	+
25510	*Stylogomphus albistylus*	+
33100	*Leuctra sp*	+
45300	*Sigara sp*	+
50301	*Chimarra aterrima*	+
50804	*Lype diversa*	+
51400	*Nyctiophylax sp*	+
51600	*Polycentropus sp*	+
52200	*Cheumatopsyche sp*	+
52430	*Ceratopsyche morosa group*	+
52530	*Hydropsyche depravata group*	+
57400	*Neophylax sp*	+
57900	*Pycnopsyche sp*	+
59310	*Mystacides sepulchralis*	+
59720	*Triaenodes ignitus*	+
59730	*Triaenodes melaca*	+
63300	*Hydroporini*	+
67500	*Laccobius sp*	+
68201	*Scirtidae*	+
68707	*Dubiraphia quadrinotata*	+
68708	*Dubiraphia vittata group*	+
69225	*Optioservus fastiditus*	+
69400	*Stenelmis sp*	+
72340	*Dixella sp*	+
77500	*Conchapelopia sp*	+
78655	*Procladius (Holotanypus) sp*	+
82200	*Tvetenia bavarica group*	+
82730	*Chironomus (C.) decorus group*	+
83840	*Microtendipes pedellus group*	+
84450	*Polypedilum (Uresipedilum) flavum*	+
84475	*Polypedilum (P.) ophioides*	+
84480	*Polypedilum (P.) laetum group*	+
85625	*Rheotanytarsus sp*	+
85818	*Tanytarsus glabrescens group sp 4*	+
86100	*Chrysops sp*	+
86200	*Tabanus sp*	+
86401	*Atherix lantha*	+
95100	*Physella sp*	+
96900	*Ferrissia sp*	+

No. Quantitative Taxa: 0 Total Taxa: 52

No. Qualitative Taxa: 52 ICI:

Number of Organisms: 0 Qual EPT: 22

204

Ohio EPA/DSW Ecological Assessment Section
Macroinvertebrate Collection

Site: Symmes Creek
Steel Hill Rd.

Collection Date: 07/20/2010 River Code: 17-956 RM: 5.65

Taxa Code	Taxa	Quant/Qual
08601	*Hydrachnidia*	+
11150	*Labiobaetis propinquus*	+
11250	*Centroptilum sp (w/o hindwing pads)*	+
11651	*Procloeon sp (w/o hindwing pads)*	+
11670	*Procloeon viridoculare*	+
12200	*Isonychia sp*	+
13400	*Stenacron sp*	+
13590	*Maccaffertium vicarium*	+
17200	*Caenis sp*	+
21200	*Calopteryx sp*	+
22300	*Argia sp*	+
23909	*Boyeria vinosa*	+
24900	*Gomphus sp*	+
47600	*Sialis sp*	+
50301	*Chimarra aterrima*	+
51400	*Nyctiophylax sp*	+
51600	*Polycentropus sp*	+
52200	*Cheumatopsyche sp*	+
52430	*Ceratopsyche morosa group*	+
52530	*Hydropsyche depravata group*	+
53800	*Hydroptila sp*	+
57900	*Pycnopsyche sp*	+
59720	*Triaenodes ignitus*	+
68130	*Helichus sp*	+
68708	*Dubiraphia vittata group*	+
68901	*Macronychus glabratus*	+
69250	*Optioservus ovalis*	+
69400	*Stenelmis sp*	+
70600	*Antocha sp*	+
74100	*Simulium sp*	+
77120	*Ablabesmyia mallochi*	+
78140	*Labrundinia pilosella*	+
78655	*Procladius (Holotanypus) sp*	+
80410	*Cricotopus (C.) sp*	+
82730	*Chironomus (C.) decorus group*	+
82885	*Cryptotendipes pseudotener*	+
84060	*Parachironomus pectinatellae*	+
84750	*Stictochironomus sp*	+
85625	*Rheotanytarsus sp*	+
87540	*Hemerodromia sp*	+
95100	*Physella sp*	+
96900	*Ferrissia sp*	+
98200	*Pisidium sp*	+
98600	*Sphaerium sp*	+

Taxa Code	Taxa	Quant/Qual

No. Quantitative Taxa: 0
No. Qualitative Taxa: 44
Number of Organisms: 0

Total Taxa: 44
ICI:
Qual EPT: 17

205

Ohio EPA/DSW Ecological Assessment Section
Macroinvertebrate Collection

Site: Symmes Creek
Morton Ridge Rd.

Collection Date: 07/13/2010 River Code: 17-956 RM: 4.35

Taxa Code	Taxa	Quant/Qual
01900	*Nemertea*	+
03000	*Ectoprocta*	+
03600	*Oligochaeta*	+
06201	*Hyalella azteca*	+
07860	*Cambarus (Puncticambarus) robustus*	+
08260	*Orconectes (Crokerinus) sanbornii sanbornii*	+
08601	*Hydrachnidia*	+
11130	*Baetis intercalaris*	+
11250	*Centroptilum sp (w/o hindwing pads)*	+
11670	*Procloeon viridoculare*	+
12200	*Isonychia sp*	+
13400	*Stenacron sp*	+
13590	*Maccaffertium vicarium*	+
17200	*Caenis sp*	+
21001	*Calopterygidae*	+
22300	*Argia sp*	+
24900	*Gomphus sp*	+
33100	*Leuctra sp*	+
47600	*Sialis sp*	+
50301	*Chimarra aterrima*	+
50315	*Chimarra obscura*	+
51600	*Polycentropus sp*	+
52200	*Cheumatopsyche sp*	+
52430	*Ceratopsyche morosa group*	+
52530	*Hydropsyche depravata group*	+
57900	*Pycnopsyche sp*	+
60400	*Gyrinus sp*	+
63300	*Hydroporini*	+
68130	*Helichus sp*	+
68708	*Dubiraphia vittata group*	+
68901	*Macronychus glabratus*	+
69250	*Optioservus ovalis*	+
69400	*Stenelmis sp*	+
70700	*Dicranota sp*	+
71100	*Hexatoma sp*	+
71300	*Limonia sp*	+
72700	*Anopheles sp*	+
74501	*Ceratopogonidae*	+
78655	*Procladius (Holotanypus) sp*	+
80410	*Cricotopus (C.) sp*	+
80420	*Cricotopus (C.) bicinctus*	+
82730	*Chironomus (C.) decorus group*	+
82885	*Cryptotendipes pseudotener*	+
83840	*Microtendipes pedellus group*	+
84155	*Paralauterborniella nigrohalteralis*	+
84470	*Polypedilum (P.) illinoense*	+
84540	*Polypedilum (Tripodura) scalaenum group*	+
84750	*Stictochironomus sp*	+
85625	*Rheotanytarsus sp*	+
85800	*Tanytarsus sp*	+
96900	*Ferrissia sp*	+

No. Quantitative Taxa: 0 Total Taxa: 51
No. Qualitative Taxa: 51 ICI:
Number of Organisms: 0 Qual EPT: 15

206

Ohio EPA/DSW Ecological Assessment Section
Macroinvertebrate Collection

Site: Symmes Creek
Collection Date: 08/16/2010 River Code: 17-956 RM: 2.35 Mollie's Rock Rd.

Taxa Code	Taxa	Quant/Qual
01801	*Turbellaria*	12
03000	*Ectoprocta*	+
03600	*Oligochaeta*	+
06201	*Hyalella azteca*	+
07860	*Cambarus (Puncticambarus) robustus*	+
08260	*Orconectes (Crokerinus) sanbornii sanbornii*	+
11130	*Baetis intercalaris*	+
11200	*Callibaetis sp*	+
11250	*Centroptilum sp (w/o hindwing pads)*	+
12200	*Isonychia sp*	+
13400	*Stenacron sp*	52 +
13590	*Maccaffertium vicarium*	1
14950	*Leptophlebia sp or Paraleptophlebia sp*	8
16700	*Tricorythodes sp*	1
17200	*Caenis sp*	423 +
18700	*Hexagenia sp*	+
21200	*Calopteryx sp*	1 +
22001	*Coenagrionidae*	+
22300	*Argia sp*	28 +
23909	*Boyeria vinosa*	+
24900	*Gomphus sp*	+
47600	*Sialis sp*	+
48410	*Corydalus cornutus*	1
50315	*Chimarra obscura*	+
51600	*Polycentropus sp*	+
52200	*Cheumatopsyche sp*	18 +
52430	*Ceratopsyche morosa group*	+
53501	*Hydroptilidae*	2
57900	*Pycnopsyche sp*	+
59580	*Oecetis persimilis*	2 +
59720	*Triaenodes ignitus*	+
60300	*Dineutus sp*	+
63300	*Hydroporini*	+
68130	*Helichus sp*	+
68601	*Ancyronyx variegata*	+
68708	*Dubiraphia vittata group*	1 +
68901	*Macronychus glabratus*	116 +
69250	*Optioservus ovalis*	+
69400	*Stenelmis sp*	108 +
71100	*Hexatoma sp*	1 +
72340	*Dixella sp*	+
72700	*Anopheles sp*	+
74501	*Ceratopogonidae*	+
77120	*Ablabesmyia mallochi*	14
77500	*Conchapelopia sp*	43 +
77750	*Hayesomyia senata or Thienemannimyia norena*	71 +
78140	*Labrundinia pilosella*	8
78450	*Nilotanypus fimbriatus*	8 +
78655	*Procladius (Holotanypus) sp*	+
80370	*Corynoneura lobata*	48
80420	*Cricotopus (C.) bicinctus*	+
80430	*Cricotopus (C.) tremulus group*	142
81825	*Rheocricotopus (Psilocricotopus) robacki*	14
82121	*Thienemanniella lobapodema*	56
82820	*Cryptochironomus sp*	14 +
82885	*Cryptotendipes pseudotener*	+
83040	*Dicrotendipes neomodestus*	71 +
83840	*Microtendipes pedellus group*	14
84155	*Paralauterborniella nigrohalteralis*	+
84210	*Paratendipes albimanus or P. duplicatus*	28
84300	*Phaenopsectra obediens group*	14
84450	*Polypedilum (Uresipedilum) flavum*	71 +
84460	*Polypedilum (P.) fallax group*	28
84540	*Polypedilum (Tripodura) scalaenum group*	14 +
85200	*Cladotanytarsus sp*	+
85500	*Paratanytarsus sp*	43
85625	*Rheotanytarsus sp*	242 +
85720	*Stempellinella fimbriata*	16
85800	*Tanytarsus sp*	256
85802	*Tanytarsus n. sp nr. curticornis*	14
85815	*Tanytarsus glabrescens group sp 1*	14 +
85821	*Tanytarsus glabrescens group sp 7*	242 +
85840	*Tanytarsus sepp*	128
86401	*Atherix lantha*	+
87540	*Hemerodromia sp*	25
94400	*Fossaria sp*	+
96900	*Ferrissia sp*	12 +
98200	*Pisidium sp*	4
98600	*Sphaerium sp*	+

No. Quantitative Taxa: 44 Total Taxa: 79
No. Qualitative Taxa: 56 ICI: **50**
Number of Organisms: 2429 Qual EPT: 14

207

Ohio EPA/DSW Ecological Assessment Section
Macroinvertebrate Collection

Site: North Branch Symmes Creek
Steel Hill Rd.

Collection Date: 07/20/2010 River Code: 17-957 RM: 4.25

Taxa Code	Taxa	Quant/Qual
03000	*Ectoprocta*	+
03600	*Oligochaeta*	+
06201	*Hyalella azteca*	+
08260	*Orconectes (Crokerinus) sanbornii sanbornii*	+
11120	*Baetis flavistriga*	+
11130	*Baetis intercalaris*	+
11250	*Centroptilum sp (w/o hindwing pads)*	+
12200	*Isonychia sp*	+
13400	*Stenacron sp*	+
13590	*Maccaffertium vicarium*	+
17200	*Caenis sp*	+
21200	*Calopteryx sp*	+
23600	*Aeshna sp*	+
23909	*Boyeria vinosa*	+
24900	*Gomphus sp*	+
47600	*Sialis sp*	+
50804	*Lype diversa*	+
51400	*Nyctiophylax sp*	+
52200	*Cheumatopsyche sp*	+
52430	*Ceratopsyche morosa group*	+
52530	*Hydropsyche depravata group*	+
57900	*Pycnopsyche sp*	+
59720	*Triaenodes ignitus*	+
59730	*Triaenodes melaca*	+
67700	*Paracymus sp*	+
68130	*Helichus sp*	+
68707	*Dubiraphia quadrinotata*	+
68708	*Dubiraphia vittata group*	+
69400	*Stenelmis sp*	+
71100	*Hexatoma sp*	+
72340	*Dixella sp*	+
77120	*Ablabesmyia mallochi*	+
78655	*Procladius (Holotanypus) sp*	+
80420	*Cricotopus (C.) bicinctus*	+
82820	*Cryptochironomus sp*	+
82885	*Cryptotendipes pseudotener*	+
83040	*Dicrotendipes neomodestus*	+
84210	*Paratendipes albimanus or P. duplicatus*	+
84450	*Polypedilum (Uresipedilum) flavum*	+
84470	*Polypedilum (P.) illinoense*	+
85500	*Paratanytarsus sp*	+
85625	*Rheotanytarsus sp*	+
86401	*Atherix lantha*	+
87540	*Hemerodromia sp*	+
96264	*Planorbella (Pierosoma) pilsbryi*	+
97601	*Corbicula fluminea*	+
98600	*Sphaerium sp*	+

No. Quantitative Taxa: 0 Total Taxa: 47
No. Qualitative Taxa: 47 ICI:
Number of Organisms: 0 Qual EPT: 15

208

Ohio EPA/DSW Ecological Assessment Section
Macroinvertebrate Collection

Site: North Branch Symmes Creek
at mouth

Collection Date: 07/20/2010 River Code: 17-957 RM: 0.10

Taxa Code	Taxa	Quant/Qual
01801	*Turbellaria*	+
06201	*Hyalella azteca*	+
07860	*Cambarus (Puncticambarus) robustus*	+
08260	*Orconectes (Crokerinus) sanbornii sanbornii*	+
11130	*Baetis intercalaris*	+
11250	*Centroptilum sp (w/o hindwing pads)*	+
11650	*Procloeon sp (w/ hindwing pads)*	+
13100	*Nixe sp*	+
13400	*Stenacron sp*	+
14950	*Leptophlebia sp or Paraleptophlebia sp*	+
17200	*Caenis sp*	+
21001	*Calopterygidae*	+
22001	*Coenagrionidae*	+
22300	*Argia sp*	+
23909	*Boyeria vinosa*	+
33100	*Leuctra sp*	+
47600	*Sialis sp*	+
48410	*Corydalus cornutus*	+
50315	*Chimarra obscura*	+
51600	*Polycentropus sp*	+
52200	*Cheumatopsyche sp*	+
52430	*Ceratopsyche morosa group*	+
52540	*Hydropsyche dicantha*	+
60300	*Dineutus sp*	+
67500	*Laccobius sp*	+
68130	*Helichus sp*	+
68707	*Dubiraphia quadrinotata*	+
68708	*Dubiraphia vittata group*	+
68901	*Macronychus glabratus*	+
69250	*Optioservus ovalis*	+
69400	*Stenelmis sp*	+
71100	*Hexatoma sp*	+
72340	*Dixella sp*	+
74501	*Ceratopogonidae*	+
74673	*Atrichopogon websteri*	+
77800	*Helopelopia sp*	+
82820	*Cryptochironomus sp*	+
82885	*Cryptotendipes pseudotener*	+
83840	*Microtendipes pedellus group*	+
84450	*Polypedilum (Uresipedilum) flavum*	+
84750	*Stictochironomus sp*	+
86401	*Atherix lantha*	+
87540	*Hemerodromia sp*	+
89501	*Ephydridae*	+
95100	*Physella sp*	+
96900	*Ferrissia sp*	+
98600	*Sphaerium sp*	+

No. Quantitative Taxa: 0
No. Qualitative Taxa: 47
Number of Organisms: 0

Total Taxa: 47
ICI:
Qual EPT: 13

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Ohio EPA/DSW Ecological Assessment Section
Macroinvertebrate Collection

Site: South Branch Symmes Creek
Sheck Rd.

Collection Date: 07/13/2010 River Code: 17-958 RM: 0.15

Taxa Code	Taxa	Quant/Qual
03000	*Ectoprocta*	+
03600	*Oligochaeta*	+
07860	*Cambarus (Puncticambarus) robustus*	+
08260	*Orconectes (Crokerinus) sanbornii sanbornii*	+
08601	*Hydrachnidia*	+
11250	*Centroptilum sp (w/o hindwing pads)*	+
11670	*Procloeon viridoculare*	+
12200	*Isonychia sp*	+
13400	*Stenacron sp*	+
13590	*Maccaffertium vicarium*	+
17200	*Caenis sp*	+
21001	*Calopterygidae*	+
23909	*Boyeria vinosa*	+
33100	*Leuctra sp*	+
34130	*Acroneuria frisoni*	+
47600	*Sialis sp*	+
50301	*Chimarra aterrima*	+
52200	*Cheumatopsyche sp*	+
52430	*Ceratopsyche morosa group*	+
52530	*Hydropsyche depravata group*	+
68130	*Helichus sp*	+
68708	*Dubiraphia vittata group*	+
68901	*Macronychus glabratus*	+
69400	*Stenelmis sp*	+
71100	*Hexatoma sp*	+
74501	*Ceratopogonidae*	+
77120	*Ablabesmyia mallochi*	+
77800	*Helopelopia sp*	+
81650	*Parametriocnemus sp*	+
82820	*Cryptochironomus sp*	+
82885	*Cryptotendipes pseudotener*	+
84155	*Paralauterborniella nigrohalteralis*	+
85800	*Tanytarsus sp*	+
94400	*Fossaria sp*	+
95100	*Physella sp*	+
96002	*Helisoma anceps anceps*	+

Taxa Code	Taxa	Quant/Qual

No. Quantitative Taxa: 0 Total Taxa: 36
No. Qualitative Taxa: 36 ICI:
Number of Organisms: 0 Qual EPT: 12

Ohio EPA/DSW Ecological Assessment Section
Macroinvertebrate Collection

Site: Robinson Run
Co. Rd. 271

Collection Date: 07/22/2010 River Code: 17-979 RM: 1.35

Taxa Code	Taxa	Quant/Qual
07800	*Cambarus sp*	+
21001	*Calopterygidae*	+
52530	*Hydropsyche depravata group*	+
71900	*Tipula sp*	+
71910	*Tipula abdominalis*	+
95100	*Physella sp*	+

Taxa Code	Taxa	Quant/Qual

No. Quantitative Taxa: 0 Total Taxa: 6
No. Qualitative Taxa: 6 ICI:
Number of Organisms: 0 Qual EPT: 1