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Environmental  
Protection Agency

Division of Surface Water

## Appendices to the 2009 Biological and Water Quality Study of the Lower Sandusky River Watershed

Including Wolf Creek, Muskellunge Creek, and Muddy Creek

Sandusky and Seneca Counties



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## TABLE OF CONTENTS

Foreword

Mechanisms for Impairment

Methods

Appendix 1. Inorganic chemistry sampling results, 2009

Appendix 2. Surface water results for volatile and semivolatile organic compounds, herbicides, pesticides, and PCBs, 2009

Appendix 3. Datasonde© hourly data, 2009

Appendix 4. Bacteriological results, 2009

Appendix 5. Concentrations of pesticides and PCBs ( $\mu\text{g}/\text{kg}$  or  $\text{ppb}$  dry weight) and semi-volatile compounds ( $\text{mg}/\text{kg}$  or  $\text{ppm}$  dry weight) in sediment samples

Appendix 6. Qualitative Habitat Evaluation Index (QHEI) Scoring of Select Locations in the Lower Sandusky River Study Area during 2009

Appendix 7. Lower Sandusky River study area Index of Biotic Integrity (IBI) scoring, 2009.

Appendix 8. Lower Sandusky River study area fish species by site, 2009

Appendix 9. Lower Sandusky River study area Invertebrate Community Index (ICI), 2009.

Appendix 10. Lower Sandusky River study area macroinvertebrate community attributes 2009.

Appendix 11. Lower Sandusky River study area macroinvertebrate taxa by site, 2009.



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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 Ohio EPA conducts biosurveys in 4-5 watersheds study areas with an aggregate total of 350-400 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 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 the biennial Integrated Water Quality Monitoring and Assessment Report (305[b] and 303[d]) and Total Maximum Daily Load (TMDL) reports developed to address identified pollutants impairing Ohio waterbodies.

### 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 A). 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,

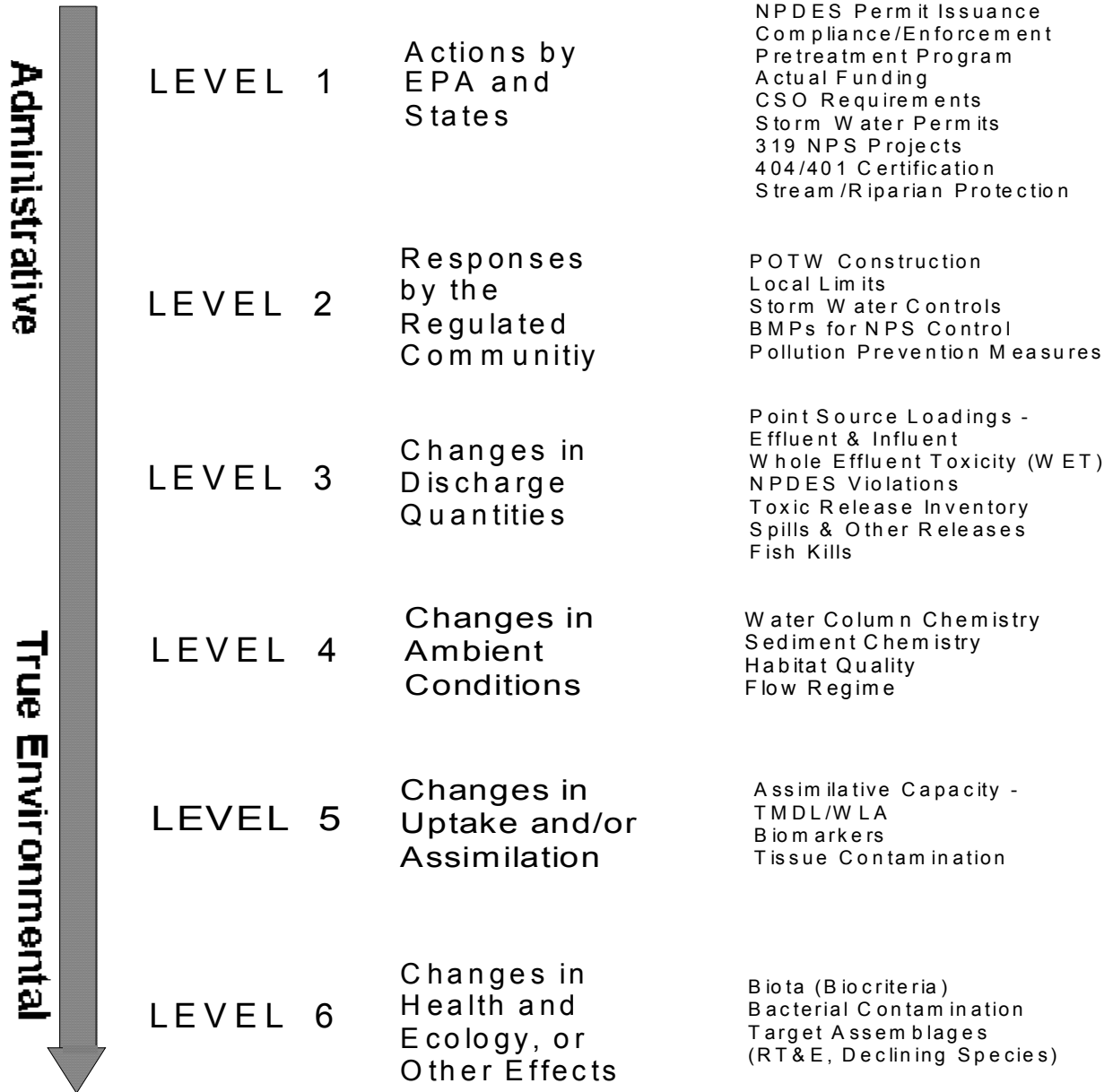


Figure A. Hierarchy of administrative and environmental indicators which can be used for water quality management activities such as monitoring and assessment, reporting, and the evaluation of overall program effectiveness. This is patterned after a model developed by the U.S. EPA.

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 recreation 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 Water Quality Monitoring and Assessment Report (305[b] and 303[d]), the Ohio Nonpoint Source Assessment, and other technical bulletins.

#### Ohio Water Quality Standards: Designated Aquatic Life Use

The Ohio Water Quality Standards (OAC 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) Cold-water Habitat (CWH) -this use is intended for waters which support assemblages of cold water 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 midrainage 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 water quality 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-primary contact recreation) or for partial body contact such as wading (SCR-secondary contact recreation). 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 AWS and 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 describe the various causes of impairment that were encountered during the Ohio Tributaries to the Shenango River study. While these 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 by limiting the complexity of living spaces available to aquatic organisms. Consequently, fish and macroinvertebrate communities are not as diverse. Indirect impacts include agricultural activities such as the removal of trees and shrubs adjacent to streams (described throughout this report as riparian vegetation) and field tiling to facilitate drainage. Urbanization impacts include removal of riparian trees, influx of stormwater run off, straightening and piping of stream channels, and riparian vegetation removal. Following a rain event, most of the water is quickly removed from tiled fields or urban settings rather than filtering through the soil, recharging groundwater, and reaching the stream at a lower volume and more sustained rate. As a result, small streams more frequently go dry or become intermittent.

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 run-off rate into streams, and helps keep soil in place. Erosion impacts channelized streams more severely due to the lack of a riparian buffer to slow runoff, trap sediment and stabilize banks. Deep trapezoidal

channels lack a functioning flood plain and therefore cannot expel sediment as would occur during flood events along natural watercourses. Additionally, 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 degradation from organic loading and nutrient enrichment by limiting reaeration 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 consume dead organic matter. Nutrient enrichment promotes 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 erosional 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 facilitated 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 obligate 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 adsorbed 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.

#### 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 ( $PO_4$ ). 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-site wastewater 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 is most often associated with stormwater runoff. Most of this phosphorus is bound tightly to soil particles and enters streams from erosion, although some comes from tile drainage. Phosphorus input from urban stormwater is more of a concern if combined sewer overflows are involved. Phosphorus loading from rural stormwater 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 the National Pollutant Discharge Elimination System (NPDES). 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 criteria of 0.08 mg/l in headwater streams (<20 mi watershed size), 0.10 mg/l in wadeable streams (>20-200 mi) and 0.17 mg/l in small rivers (>200-1000 mi).

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, livestock waste, 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). EAS/2011-1-2 2008 Ohio Tributaries to the Shenango River APPENDIX March 15, 2011

### Ammonia

Ammonia enters streams as a component of fertilizer and manure run-off and wastewater effluent. Ammonia gas ( $\text{NH}_3$ ) readily dissolves in water to form the compound ammonium hydroxide ( $\text{NH}_4\text{OH}$ ). In aquatic ecosystems an equilibrium is established as ammonia shifts from a gas to undissociated ammonium hydroxide to the dissociated ammonium ion ( $\text{NH}_4^+$ ). Under normal conditions (neutral pH 7 and  $25^\circ\text{C}$ ) 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 wastewater treatment plants. Under these conditions, bacteria first convert ammonia to nitrite and then to nitrate. Nitrate can then be reduced by bacteria through the de-nitrification process 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 by-products 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 the 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 332) 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 infect humans. 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. Potential waterborne viruses that are a concern include polio, hepatitis A, and encephalitis. Disease causing parasitic 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 wastewater treatment 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 as it may seep into field tiles or travel overland during precipitation events.

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 15 recreation season (Administrative Code 3745-1-07, Table 7-13). 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).

### 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 can cause skin irritation, 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.

Sediment chemistry results are evaluated by Ohio EPA using a dual approach, first by ranking relative concentrations based on a system developed by Ohio EPA (1996) 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. Classes are grouped in ranges that are based on the median analytical value (non-elevated) plus 1 (slightly elevated), 2 (elevated), 4 (highly elevated), and 8 (extremely elevated) inter-quartile values. 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  $\geq 60 \mu$ , silt 5-59  $\mu$ , clay  $\leq 4 \mu$ ), % solids, and % organic carbon. Due to the dynamics of flowing water, most natural streams in Central Ohio do not contain a lot of fine grained sediment and samples often consist mostly of sand. 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 polychlorinated biphenyls (PCBs).

## METHODS

All chemical, physical, and biological field, EPA laboratory, data processing, and data analysis methods and procedures adhere to those specified in the Manual of Ohio EPA Surveillance Methods and Quality Assurance Practices (Ohio EPA 2006b), Biological Criteria for the Protection of Aquatic Life, Volumes II - III (Ohio Environmental Protection Agency 1987b, 1989b, 1989c, 2008a, 2008b), The Qualitative Habitat Evaluation Index (QHEI); Rationale, Methods, and Application (Rankin 1989), and Methods for Assessing Habitat in Flowing Waters: Using the Qualitative Habitat Evaluation Index (Ohio EPA 2006a). Sampling locations for the Lower Sandusky River study area are listed in Table 3.

### 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 Index of Biotic Integrity (IBI) and Modified Index of Well-Being (MIwb), indices measuring the response of the fish community, and the Invertebrate Community Index (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 1) 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 Qualitative Habitat Evaluation Index (QHEI) developed by the Ohio EPA for streams and rivers in Ohio (Rankin 1989, 1995, Ohio EPA 2006a). 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 in-stream 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 typify 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. 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 °C) in a cooler, and shipped to the 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 either an Ohio EPA contract lab or the 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).

### **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, and 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 1989c, Ohio EPA 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 1989c, Ohio EPA 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 1995). 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.

Appendix Table 1. Surface water results for conventional nutrient and metals parameters from samples collected in the Lower Sandusky River Basin during 2009.



**2009 Lower Sandusky River Water Quality Data**

Date	Temp C	SpecificC ond.-F uS/cm	D.O. mg/L	pH S.U.	D.O. %	Conduc- tivity uS/cm	SpecificC ond.-L uS/cm	Alka- linity mg/L	TDS mg/L	TSS mg/L	COD mg/L	NO <sub>3</sub> + NO <sub>2</sub> mg/L	NO <sub>2</sub> mg/L	NH <sub>3</sub> mg/L	TKN mg/L	TP mg/L	SO <sub>4</sub> mg/L	Cl mg/L	PO <sub>4</sub> mg/L	BOD <sub>20</sub> mg/L
<b>04100011-11-05 Spicer Creek - Sandusky River</b>																				
<b>Sandusky River at Twp. Road 143 (U04S25) - 31.95</b>																				
06/04/09	15.3	510.3	9.58	8.4	95.7	415.7	520		374	258	21	9.82	0.072	0.133	1.09	0.188			25.3	
06/18/09	22.8	693	8.04	8.41	93.6	663.9	710		462	37	162	3.26	<0.020	<0.050	0.69	0.076			42.7	
07/09/09	22.09	584.4	8.9	8.38	102.1	551.9	592		380	29	<20	1.60	<0.020	<0.050	0.79	0.058			37.4	
07/24/09	21.18	744.2	7.62	8.02	86	689.9	760		548	38	<20	0.80	<0.020	<0.050	0.53	0.059			44.3	
08/06/09	22.9	794.9	8.39	8.17	97.8	763	796		576	38	<20	<0.10	<0.020	<0.050	0.44	0.050			52.0	
<b>Sandusky River at County Road 51 (U04T01) - 26.94</b>																				
06/04/09	15.8	501.3	8.83	8.34	89.2	413.2	513		358	263	<20	9.82	0.070	0.146	0.93	0.251			24.2	
06/18/09	23.31	718.2	8.78	8.33	103.1	695	741		468	58	<20	3.21	<0.020	<0.050	0.86	0.063			42.8	
07/09/09	23.39	575.1	11.82	8.27	139	557.5	586		364	41	<20	2.17	<0.020	<0.050	0.71	0.065			34.8	
07/23/09	22.5	715.3	7.11	7.98	82.3	681.2	737		536	39	<20	<0.10	<0.020	<0.050	0.56	0.055			44.5	
08/06/09	24.17	777.4	7.28	7.92	87	765	777		558	49	<20	<0.10	<0.020	<0.050	0.33	0.219			45.3	
<b>Sandusky River upstream Wolf Creek (U04Q06) - 23.00</b>																				
06/04/09	16.97	529.3	8.53	8.3	88.4	448.1	540		380	149	28	9.73	0.086	0.116	1.06	0.185			26.2	
06/18/09	22.06	733.4	8.5	8.22	97.5	692.2	755		482	60	<20	3.13	<0.020	<0.050	0.64	0.059			42.4	
07/09/09	21.59	608	9.34	8.15	106.2	568.4	619		392	28	<20	2.98	<0.020	<0.050	0.47	0.034			35.4	
07/23/09	20.93	653.3	6.63	7.72	74.4	602.4	679		460	53	<20	<0.10	<0.020	<0.050	0.56	0.069			45.4	
08/06/09	22	808.9	7.33	8.04	84	762.6	815		582	30	<20	<0.10	<0.020	<0.050	0.41	0.164			50.2	
<b>Spicer Creek at County Road 33 (U04Q11) - 0.80</b>																				
06/03/09	14.25	601.8	9.9	8.13	96.8	478.2	650		440	100	<20	7.64	0.040	0.096	0.75	0.083			22.6	
06/17/09	17.64	882.5	8.74	8.11	91.8	758.4	887		590	19	<20	0.54	<0.020	0.063	0.43	0.032			31.8	
07/08/09	16.49	872.7	10.46	8.25	107.3	730.8	883		670	<5	<20	6.42	<0.020	<0.050	0.68	0.019			28.4	
07/22/09	18.36	899	10.75	8.18	114.7	785	913		724	<5	<20	<0.10	<0.020	<0.050	0.37	<0.010			27.1	
08/05/09	18.84	913.7	8.52	8.17	91.8	806.2	928		716	19	<20	0.15	<0.020	<0.050	0.39	0.181			27.7	
<b>04100011-11-04 Sugar Creek - Sandusky River</b>																				
<b>Sugar Creek at Twp. Road 76 (U04Q10) - 3.11</b>																				
06/03/09	13.95	639.9	10.18	8.15	98.8	504.8	682		426	26	<20	2.22	0.040	0.091	0.48	0.056			22.4	
06/17/09	17.38	776.3	8.36	8.01	87.4	663.3	782		506	21	<20	0.82	<0.020	0.081	0.43	0.044			21.7	
07/08/09	16.74	790.7	9.35	8.13	96.4	666	799		592	13	<20	1.76	<0.020	<0.050	0.54	0.035			22.7	
07/22/09	18.34	820.6	9.88	8.14	105.3	716.2	832		608	<5	<20	<0.10	<0.020	<0.050	0.35	0.021			17.7	
08/05/09	19.07	825.2	7.83	8.14	84.7	731.8	834		604	5	<20	0.12	<0.020	<0.050	0.21	0.022			18.1	
<b>04100011-13-01 Muskegon Creek - Sandusky River</b>																				
<b>Muskegon Creek at Twp. Road 84 (300675) -24.44</b>																				
06/09/09	19.84	911.3	5.31	7.69	58.4	821.4	927		588	7	<20	1.60	0.080	<0.050	0.86	0.884			79.5	
06/23/09	18.76	772.1	7.39	7.74	79.5	680.1	789		500	8	<20	6.04	0.159	0.062	0.94	0.350			52.2	
07/14/09	14.91	1050.2	10.16	7.84	100.9	847.8	1060		734	13	24	<0.10	0.024	<0.050	1.23	1.11			112	
07/29/09	20.06	1043.5	5.12	7.64	56.6	945.1	1060		690	120	26	0.15	0.038	0.191	0.99	0.999			118	

**2009 Lower Sandusky River Water Quality Data**

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<b>04100011-13-01 Muskegon Creek - Sandusky River (cont.)</b>																				
<b>Muskegon Creek at State Route 635 (300674) - 16.70</b>																				
06/09/09	19.78	670.4	6.24	7.85	68.5	603.6	672		412	12	<20	2.32	0.064	0.074	0.62	0.046		35.5		
06/23/09	20.83	640	7.67	7.98	85.9	589	652		430	34	<20	8.16	0.070	0.062	0.70	0.089		25.9		
07/14/09	17.54	591.4	7.91	7.93	82.8	507.2	593		402	12	<20	0.77	<0.020	0.066	0.74	0.053		31.5		
07/29/09	20.99	618.7	6.01	7.86	67.5	571.3	628		390	15	<20	0.13	<0.020	0.081	0.44	0.064		38.3		
08/11/09	22.44	621.7	3.97	7.8	45.8	591.3	622		386	6	<20	0.11	<0.020	0.105	0.55	0.097		33.3		
<b>Muskegon Creek at Spieldenner Road (201332) - 5.40</b>																				
06/09/09	19.16	660.1	7.83	8	84.8	586.4	666		406	9	<20	4.18	0.04	<0.05	0.63	0.033		31	0.02	
06/23/09	21.22	621.8	8.89	8.15	100.3	576.9	638		410	11	159	9.17	0.043	<0.05	0.55	0.046		21.9	0.044	
06/30/09									408	5		5.19	<0.02	0.053	0.58	0.051		27.2	0.031	5.4
07/14/09	19.67	587.3	9.74	8.12	106.6	527.5	586		410	<5	<20	0.24	<0.02	<0.05	0.74	0.054		38.4	0.028	
07/29/09	21.47	565.6	6.69	7.93	75.8	527.5	573		364	6	<20	0.13	<0.02	<0.05	0.41	0.064		34.4	0.098	
08/11/09	21.9	589.2	5.52	7.71	63.1	554.2	587		382	<5	<20	0.13	<0.02	<0.05	0.54	0.086		29.4	0.057	
09/01/09									436	<5		<0.1	<0.02	<0.05	0.31	0.046		13.3	0.032	3.5
<b>Muskegon Creek at Fangboner Road (U04P08) - 1.23</b>																				
06/09/09	20.3	731.7	7.02	8.05	77.8	666	733		456	10	<20	3.47	0.029	<0.050	0.60	0.048		47.5		
06/23/09	20.64	653	8.08	8.07	90.1	598.6	666		426	16	<20	9.66	0.047	<0.050	0.78	0.171		28.8		
07/14/09	19.89	711.1	8.15	7.91	89.6	641.7	723		504	7	<20	0.23	<0.020	<0.050	0.56	0.063		60.0		
07/29/09	21.42	729.9	4.9	7.83	55.6	680	737		482	11	<20	0.11	<0.020	<0.050	0.26	0.080		62.3		
08/11/09	23.64	889.5	4.23	7.78	50	866.3	889		570	10	<20	0.13	<0.020	<0.050	0.36	0.105		71.4		
<b>04100011-13-02 Indian Creek - Sandusky River</b>																				
<b>Sandusky River at Rice Road (500820) -20.25</b>																				
06/04/09	16.04	534.5	8.95	8.37	90.9	443	549		412	273	27	9.19	0.072	0.093	0.89	0.178		26.5	0.079	
06/18/09	21.7	715.1	9.83	8.35	112	670	741		478	45	<20	3.19	<0.02	<0.05	0.73	0.054		41.3	<0.01	
06/23/09							401		328	318	157	9.49	0.159	0.082	1.08	0.239		17.3		
06/30/09									420	86		6.23	<0.02	<0.05	0.59	0.116		29.9	0.053	8.1
07/23/09	20.68	653.5	8.04	8.04	89.7	599.6	677		440	37	31	0.11	<0.02	<0.05	0.56	0.057		44.6	0.012	
08/06/09	21.58	814.6	8.34	8.24	94.8	761.5	820		610	35	21	<0.1	<0.02	<0.05	0.45	0.058		52	0.013	
09/01/09									542	39		0.3	<0.02	<0.05	0.48	0.049		52.1	0.01	9.8
09/08/09							701		506	27	<20	2.7	<0.02	<0.05	0.47	0.016		52		
<b>Sandusky River upstream Ballville Dam (U04T02) - 18.05</b>																				
06/04/09	16.32	550.8	8.72	8.36	89.1	459.4	562		380	104	<20	8.39	0.072	0.082	0.86	0.140		0.140		
06/18/09	23.17	695.2	10.41	8.48	121.9	670.9	722		456	35	21	3.41	0.022	<0.050	1.60	0.118		0.118		
07/09/09	23.76	556	14.72	8.59	174.3	542.8	567		364	16	<20	3.18	0.028	<0.050	0.55	0.033		0.033		
07/23/09	23.14	701.7	5.82	7.97	68.2	676.7	725		468	32	22	<0.10	<0.020	0.157	0.90	0.116		0.116		
08/06/09	25.5	820.2	7.9	8.27	96.7	828	824		630	65	21	<0.10	<0.020	<0.050	0.38	0.079		0.079		

**2009 Lower Sandusky River Water Quality Data**

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<b>04100011-13-02 Indian Creek - Sandusky River (Cont.)</b>																				
<b>Sandusky River at Tiffin Road (U04S23) - 17.70</b>																				
06/04/09	16.4	552	9.74	8.44	99.7	461.3	564		388	140	21	8.36	0.068	0.089	0.94	0.151			27.1	
06/18/09	22.93	682.1	9.58	8.55	111.7	655.1	717		448	36	<20	3.57	0.021	<0.050	0.98	0.055			41.0	
07/09/09	23.34	571	8.96	8.65	105.3	552.9	580		378	19	20	3.87	0.028	<0.050	0.67	0.033			33.3	
07/23/09	22.94	675.8	8.02	8.13	93.6	649.3	697		470	42	26	<0.10	<0.020	0.176	0.84	0.114			48.9	
08/06/09	24.8	807.1	9.05	8.49	109.3	804	814		626	29	<20	<0.10	<0.020	<0.050	0.59	0.069			56.4	
<b>Sandusky River at State Street (U04W11) - 15.40</b>																				
06/04/09	16.69	557.6	9.26	8.42	95.4	469	572		382	115	29	8.93	0.078	0.089	1.06	0.157			27.1	
06/18/09	22.56	677.6	9.07	8.49	105	646	707		446	37	<20	3.69	0.021	<0.050	1.01	0.048			40.2	
07/09/09	23.63	595	8.19	8.42	96.7	579.4	611		390	23	<20	3.98	<0.020	<0.050	0.53	0.028			33.9	
07/23/09	21.9	640.5	6.8	7.98	77.7	602.5	665		460	25	22	0.13	<0.020	<0.050	0.74	0.095			46.4	
08/06/09	24	790.6	6.41	8.14	76.3	775.4	796		618	28	<20	<0.10	<0.020	<0.050	0.61	0.105			54.8	
<b>Indian Creek at Hurdick Road (500950) - 0.62</b>																				
06/03/09	14.08	684.6	10.38	8.1	101.1	541.8	725		438	<5	<20	7.81	0.041	<0.050	0.41	0.018			27.0	
06/17/09	18.52	748.6	8.44	7.96	90.3	655.9	750		464	<5	<20	4.61	0.034	<0.050	0.40	0.022			29.0	
07/08/09	16.8	713.4	11.48	8.03	118.5	601.7	719		444	<5	<20	3.21	0.028	<0.050	0.67	0.021			28.6	
07/22/09	19.68	751.7	11.34	7.89	124.2	675.3	763		492	6	<20	0.47	0.048	0.081	0.70	0.028			34.5	
08/05/09	19.75	722.8	6.9	7.89	75.7	650.4	733		488	11	<20	0.35	0.043	0.080	0.48	0.024			35.9	
<b>04100011-13-03 Mouth Sandusky River</b>																				
<b>Sandusky River upstream Wightmans Grove (U04S17) - 4.70</b>																				
06/04/09	18.37	548.2	4.9	8	52.2	478.8	560		386	42	25	9.75	0.216	0.325	1.27	0.133			30.1	
06/18/09	23.15	600.8	6.61	8.11	77.4	579.6	623		402	25	<20	6.84	0.135	0.166	1.35	0.074			36.4	
07/09/09	24.84	529	10.8	8.7	130.5	527.4	540		342	33	20	6.56	0.085	<0.050	0.81	0.076			28.1	
07/23/09	23.6	577.4	6.43	8	75.9	562	594		410	36	20	2.14	0.055	0.091	1.38	0.125			34.2	
08/06/09	24.77	640.5	8.17	8.16	98.7	637.6	643		458	36	21	0.39	0.030	<0.050	0.49	0.075			52.4	
<b>Bark Creek at Kelley Road (300671) - 3.20</b>																				
06/04/09	14.36	759.9	11.08	8.39	108.6	605.4	775		476	15	<20	6.20	0.044	<0.050	0.66	0.020			0.020	
06/18/09	21.3	449.4	6.97	7.84	78.8	417.6	463		286	81	<20	1.75	0.048	0.348	1.13	0.096			0.096	
07/09/09	22.65	748.4	9.33	8.17	108.2	714.9	754		446	17	<20	1.70	<0.020	<0.050	0.72	0.028			0.028	
07/23/09	19.5	500.1	7.76	7.71	84.6	447.6	517		344	116	22	0.31	<0.020	<0.050	0.77	0.215			0.215	
08/06/09	22.5	784.5	9.92	8.09	114.8	747.1	786		496	35	<20	0.14	<0.020	<0.050	0.44	0.027			0.027	
<b>04100011-10-01 East Branch East Branch Wolf Creek</b>																				
<b>East Branch of East Branch Wolf Creek at County Road 26 (U04G13) - 3.52</b>																				
06/08/09	18.74	801	7.48	7.94	80.4	705.2	804		512	29	21	4.88	0.088	0.052	0.75	0.085			59.1	
06/22/09	19.64	679.8	8.14	7.92	89	610.2	688		470	47	<20	9.83	0.107	0.060	1.03	0.108			41.6	
07/13/09	17.75	822.5	9.31	7.93	98	708.5	840		520	29	<20	0.56	<0.020	0.056	0.67	0.152			87.4	
07/28/09	19.58	1071.9	7.16	7.92	78.4	961	1080		628	6	<20	0.58	<0.020	<0.050	0.69	0.110			129	
08/10/09	21.44	1330.3	6.46	7.98	73.4	1239.9	1340		810	6	<20	0.64	<0.020	<0.050	1.29	0.118			196	

**2009 Lower Sandusky River Water Quality Data**

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<b>04100011-10-01 East Branch East Branch Wolf Creek (Cont.)</b>																				
<b>East Branch of East Branch at County Road 48 (300682) - 1.48</b>																				
06/08/09	18.6	736.1	7.83	8.03	83.9	646.1	738		478	30	30	7.02	0.053	<0.050	0.79	0.093				44.4
06/22/09	19.55	623.8	8.31	7.93	90.8	558.8	634		406	50	<20	12.6	0.098	<0.050	1.04	0.120				29.9
07/13/09	18.59	390.9	8.22	7.87	87.9	343	395		264	13	20	0.55	<0.020	<0.050	0.59	0.077				31.7
07/28/09	20.91	706.5	7.17	7.95	80.4	651.3	720		418	7	21	0.44	<0.020	<0.050	0.56	0.084				61.7
08/10/09	22.98	912.3	5.39	7.99	63	877	913		606	7	<20	0.17	<0.020	<0.050	0.67	0.098				87.9
<b>Middle East Branch of East Branch Wolf at County Road 26 (U04G14) - 0.46</b>																				
06/08/09	17.52	737.1	8.09	8.07	84.8	631.8	739		482	17	<20	7.49	0.058	<0.050	0.66	0.089				38.5
06/22/09	19.7	644.9	8.29	8.03	90.8	579.5	659		428	55	<20	12.2	0.079	<0.050	0.99	0.122				29.3
07/13/09	17.22	839.8	10.09	8.11	105.2	715.1	835		550	12	<20	1.85	<0.020	<0.050	1.10	0.168				44.1
07/28/09	19.62	881.8	7.69	8.04	84.1	791.1	904		570	18	<20	1.61	<0.020	<0.050	0.76	0.188				45.2
08/10/09	21.83	811	6.4	7.94	73.1	761.8	806		532	11	<20	3.21	<0.020	<0.050	0.33	0.072				34.4
<b>04100011-10-02 Town of New Riegal - East Branch Wolf Creek</b>																				
<b>East Branch of Wolf Creek at meadowbrook Park (300673) - 19.65</b>																				
06/08/09	19.17	816	5.15	7.71	55.8	725.2	817		510	39	197	7.20	0.148	0.311	1.16	0.133				59.7
06/22/09	22.58	650.4	5.94	7.77	68.8	620.3	660		438	65	<20	14.3	0.311	0.252	1.41	0.148				36.2
07/13/09	20.93	1048.3	6.64	7.84	74.6	966.8	1050		658	11	20	0.49	0.087	0.561	1.55	0.254				103
07/28/09	21.68	1049.8	7.72	7.96	88	983.2	1070		610	15	29	0.72	0.147	4.40	4.93	3.83				125
08/10/09	23.46	1124	5.28	7.8	62.3	1091	1130		704	9	31	1.29	0.356	3.93	4.66	4.54				129
<b>East Branch of Wolf Creek at Twp. Road 132 (U04G15) - 13.63</b>																				
06/08/09	18.16	740.4	8.12	8.1	86.2	643.6	743		484	187	23	5.96	0.042	<0.050	0.63	0.106				42.0
06/22/09	19.87	596.7	8.41	7.99	92.4	538.2	606		422	79	153	15.1	0.295	0.156	1.13	0.160				27.9
07/13/09	18.38	640.1	10.86	8.18	115.8	559.2	649		428	7	<20	0.27	<0.020	<0.050	0.52	0.085				43.2
07/28/09	20.76	807.8	7.66	8.17	85.7	742.5	824		496	9	<20	0.48	<0.020	<0.050	0.57	0.114				72.4
08/10/09	23.14	726.3	7.33	8.23	85.9	700.4	730		478	11	<20	0.54	<0.020	<0.050	0.33	0.396				55.3
<b>Trib. to East Branch Wolf Creek at Twp. Road 112 (300681) - 0.04</b>																				
06/08/09	17.68	790.7	7.52	7.94	79.1	680.2	793		510	5	<20	8.35	0.094	0.059	0.87	0.092				47.0
06/22/09	19.58	704.7	7.89	7.93	86.2	631.8	715		480	22	159	12.7	0.120	0.054	0.96	0.105				33.0
07/13/09	17.62	884.6	9.65	8.08	101.4	759.8	893		608	6	<20	0.51	0.028	0.135	1.13	0.209				63.3
07/28/09	20.3	928.8	6.07	7.91	67.3	845.4	951		538	17	24	0.21	<0.020	0.382	1.27	0.301				77.6
<b>04100011-10-03 Snuff Creek - East Branch Wolf Creek</b>																				
<b>East Branch Wolf Creek Twp. Road 150 (201338) - 9.00</b>																				
06/08/09	18.72	673.6	7.63	8	81.9	592.8	675		420	100	<20	7.16	0.046	<0.050	0.79	0.117				35.5
06/22/09	20.02	577	8.13	7.95	89.5	522.1	585		408	92	35	15.0	0.234	0.176	1.17	0.163				23.4
07/13/09	18.62	739.6	9.08	7.98	97.3	649.5	735		456	44	<20	1.20	<0.020	<0.050	1.33	0.236				47.4
07/28/09	20.47	581	5.98	7.69	66.5	530.7	591		352	76	<20	0.40	<0.020	0.054	0.57	0.170				44.2
08/10/09	22.77	787.5	5.43	7.9	63.1	754	791		522	37	<20	0.27	<0.020	<0.050	0.54	0.130				66.8

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<b>04100011-10-03 Snuff Creek - East Branch Wolf Creek (Cont.)</b>																				
<b>East Branch Wolf Creek at Gilmore Road (U04P03) - 0.86</b>																				
06/08/09	18.45	633	7.8	8.03	83.3	553.8	637		418	35	23	7.87	0.050	<0.050	0.62	0.104			31.8	
06/22/09	20.87	549	7.62	7.88	85.3	505.7	560		408	111	25	15.3	0.274	0.425	1.63	0.155			21.1	
07/13/09	22.29	703.8	9.94	8.44	114.5	667.3	703		482	8	<20	0.17	<0.020	<0.050	1.08	0.051			36.4	
07/28/09	22.66	716.6	7.87	8.26	91.3	684.6	732		440	10	<20	<0.10	<0.020	<0.050	0.52	0.077			44.3	
08/10/09	24.86	819.8	7.03	8.14	85.1	817.6	821		538	7	<20	0.13	<0.020	<0.050	0.53	0.113			43.0	
<b>Snuff Creek at Twp. Road 71 (U04G16) - 0.33</b>																				
06/08/09	17.33	641.8	8.26	7.99	86.2	547.9	645		404	17	<20	7.26	0.060	<0.050	0.80	0.052			21.4	
06/22/09	17.67	582.1	8.76	7.78	92.1	500.6	590		380	18	<20	10.6	0.049	<0.050	0.82	0.061			14.2	
07/13/09	16.89	639.1	10.55	8.09	109.1	540.1	637		422	69	<20	2.04	<0.020	<0.050	1.22	0.117			21.7	
07/28/09	19.02	679.4	6.95	7.85	75.1	601.8	693		418	51	<20	0.53	<0.020	<0.050	0.59	0.102			29.2	
08/10/09	21.31	672.9	4.67	7.88	52.7	625.4	666		454	87	<20	2.44	0.033	0.118	0.61	0.102			26.5	
<b>04100011-10-04 Wolf Creek</b>																				
<b>Wolf Creek at County Road 592 (201336) - 13.60</b>																				
06/08/09	18.75	753.3	7.38	7.82	79.3	663.3	755		464	46	22	5.84	0.046	<0.050	1.41	0.086			59.2	
06/22/09	19.82	623.6	8.05	7.78	88.4	561.9	634		418	49	<20	11.2	0.123	0.075	0.92	0.106			37.9	
07/13/09	19.36	839.7	9.61	8.03	104.6	749.3	835		570	20	22	<0.10	<0.020	<0.050	1.21	0.054			64.4	
07/28/09	22.16	889.8	8.1	7.81	93.2	841.5	906		536	31	<20	0.15	<0.020	<0.050	0.70	0.087			99.6	
08/10/09	23.99	818.8	5.32	7.94	63.3	803	820		556	29	25	0.10	<0.020	0.089	0.47	0.051			44.8	
<b>Wolf Creek at State Route 12 (U04S40) - 5.15</b>																				
06/08/09	19.27	656.7	8.07	8.16	87.7	584.8	661		410	16	190	5.45	0.041	<0.050	0.92	0.095			40.3	
06/22/09	20.78	585.8	8.45	8.05	94.5	538.7	597		408	38	<20	11.9	0.103	0.056	0.94	0.108			25.9	
07/13/09	20.61	668.1	10.17	8.26	113.4	612.1	664		412	<5	<20	1.70	<0.020	<0.050	1.37	0.671			54.8	
07/28/09	21.76	668.9	9.4	8.29	107.2	627.5	683		412	9	<20	0.49	<0.020	<0.050	0.55	0.202			51.4	
08/10/09	24.85	1016.1	8.05	8.26	97.4	1013.2	1020		586	<5	24	0.70	<0.020	<0.050	0.92	1.70			113	
<b>Wolf Creek at Township Line Road (U04G07) - 1.58</b>																				
06/08/09	19.53	645.4	8.48	8.22	92.6	577.9	648		398	15	<20	5.71	0.029	<0.050	0.68	0.074			36.8	0.061 3.6
06/22/09	21.42	572.5	8.31	8.07	94.1	533.4	580		394	40	<20	13.2	0.108	0.053	1.01	0.103			24.1	0.076 4.2
07/13/09	20.65	622.4	11.84	8.45	132.1	570.7	617		394	11	<20	<0.10	<0.020	<0.050	1.55	0.119			47.3	0.036 8.1
07/28/09	21.53	613.9	8.74	8.26	99.2	573.1	626		370	10	<20	0.12	<0.020	<0.050	0.54	0.155			47.7	3.8
08/10/09	24.59	621.5	8.85	8.19	86.9	616.6	625		404	17	29	0.10	<0.020	<0.050	0.93	0.162			53.7	0.083 6.0
<b>Wolf Creek at State Route 53 (U04P04) - 0.04</b>																				
06/08/09	18.96	635.1	8.76	8.32	94.5	561.8	647		410	22	<20	6.83	0.030	<0.050	0.90	0.107			35.7	
06/22/09	21.19	584	7.44	7.99	83.9	541.5	573		398	51	<20	14.3	0.191	0.211	1.55	0.134			22.9	
07/13/09	21.34	670.8	12.87	8.51	145.5	623.9	664		444	<5	<20	<0.10	<0.020	<0.050	1.32	0.039			38.0	
07/28/09	22.2	689	8.7	8.36	100	652.1	702		414	6	24	<0.10	<0.020	<0.050	0.60	0.100			46.2	
08/10/09	25.31	810.2	8.48	8.22	103.5	814.9	806		572	5	<20	0.15	<0.020	<0.050	0.52	0.119			45.2	

**2009 Lower Sandusky River Water Quality Data**

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<b>04100011-10-04 Wolf Creek (Cont.)</b>																				
<b>Harrison Creek at County Road 592 (U04G11) - 0.38</b>																				
06/08/09	18.22	678	8.53	8.06	90.6	590.1	676		416	<5	<20	6.59	0.039	<0.050	0.70	0.033			43.2	
06/22/09	19.13	627.4	8.71	7.91	94.3	557.1	640		430	9	155	13.1	0.119	<0.050	0.89	0.073			28.1	
07/13/09	17.49	697.4	8.65	7.88	90.6	597.4	693		502	<5	<20	<0.10	<0.020	<0.050	0.81	0.016			25.3	
07/28/09	20.48	641.7	4.57	7.5	50.8	586.3	655		412	<5	31	0.13	<0.020	<0.050	0.55	0.284			26.8	
08/10/09	22.46	824.9	6.5	7.93	75.1	785	831		602	5	<20	0.95	0.024	<0.050	0.47	0.024			22.8	
<b>Plum Run at State Route 635 (U04G09) - 0.79</b>																				
06/08/09	18.57	564.9	8.23	8.07	88.1	495.5	567		354	<5	<20	4.91	0.039	<0.050	0.66	0.040			34.4	
06/22/09	20.41	589.6	9.09	8.06	100.9	537.9	598		394	9	<20	9.30	0.071	<0.050	0.80	0.061			25.3	
07/13/09	19.85	554.9	9.15	8.15	100.5	500.3	559		358	10	<20	0.25	<0.020	<0.050	1.25	<0.010			43.0	
07/28/09	21.96	748.3	6.15	7.85	70.4	704.9	753		444	6	<20	<0.10	<0.020	<0.050	0.68	0.027			88.7	
08/10/09	24.22	581.2	4.2	7.73	50.1	572.5	576		358	5	27	<0.10	<0.020	<0.050	0.75	0.050			54.7	
<b>04100011-14-01 Gries Ditch</b>																				
<b>Gries Ditch at US Route 6 (300680) - 4.72</b>																				
06/09/09	18.88	600	7.12	7.68	76.7	7.12	604		384	<5	<20	4.35	0.065	<0.050	0.66	<0.010			20.2	
06/23/09	19.11	688.1	8.05	7.77	87.1	8.05	705		458	<5	<20	10.5	0.086	<0.050	0.86	0.013			16.8	
07/14/09	17.49	526.4	8.77	7.77	91.8	8.77	530		374	<5	<20	0.50	<0.020	<0.050	0.73	<0.010			17.9	
07/29/09	20.9	535	6.79	7.7	76.1	6.79	547		362	<5	<20	0.37	0.041	0.072	0.62	0.024			20.6	
08/11/09	23.14	567.8	2.98	7.75	34.8	2.98	558		354	<5	<20	0.16	0.030	0.270	0.91	0.032			26.7	
<b>Gries Ditch at Staff Road (U04Q16) - 0.90</b>																				
06/09/09	19.44	554.4	11.53	8.23	125.5	495.5	560		390	<5	<20	4.87	0.049	<0.050	0.56	<0.010			21.6	
06/23/09	20.43	664.4	9.42	7.99	104.6	606.4	678		458	<5	20	9.65	0.091	<0.050	0.78	0.022			18.2	
07/14/09	18.88	493.7	10.86	8.14	117	436.1	496		340	<5	22	1.08	<0.020	<0.050	0.86	0.043			23.8	
07/29/09	21.8	510.8	8.83	8.08	100.7	479.5	516		344	<5	<20	0.61	0.044	<0.050	0.48	0.026			22.7	
08/11/09	23.38	453.3	4.09	7.94	48.1	439.3	452		294	<5	22	0.10	<0.020	<0.050	0.87	0.029			24.4	
<b>04100011-14-02 Town of Helena - Muddy Creek</b>																				
<b>Muddy Creek at County Road 58 (U04S07) - 29.36</b>																				
06/09/09	20.36	518	7.22	7.94	80.1	472.1	521		322	5	<20	2.10	0.043	<0.050	0.57	0.014			33.7	
06/23/09	21.07	602.9	7.37	7.91	83	557.6	616		374	21	<20	9.09	0.112	<0.050	0.70	0.034			21.2	
07/14/09	18.65	447.9	9.91	8.21	106.2	393.5	451		306	5	<20	<0.10	<0.020	<0.050	0.71	<0.010			37.1	
07/29/09	22.45	450	6.27	8.01	72.5	428.1	454		252	10	<20	<0.10	<0.020	<0.050	0.26	0.017			36.1	
08/11/09	23.75	531.6	5.59	8	66.2	518.9	531		310	13	<20	<0.10	<0.020	<0.050	0.36	0.019			40.1	
<b>Muddy Creek at Twp. Road 55 (201410) - 21.10</b>																				
06/09/09	19.83	712.7	8.67	8.17	95.2	642.3	716		442	<5	<20	2.85	<0.020	<0.050	0.61	0.032			52.2	
06/23/09	21.67	648.7	8.1	8.09	92.2	607.4	664		414	17	<20	8.01	0.063	<0.050	1.75	0.043			28.1	
07/14/09	18.4	752.9	11.05	8.26	117.9	658	757		542	6	<20	1.06	<0.020	<0.050	0.65	0.028			66.1	
07/29/09	21.07	1864.5	8.16	8.03	92.1	1724.6	1890		1380	7	<20	0.23	<0.020	<0.050	0.56	0.036			224	
08/11/09	23.66	1987.2	8	8.07	95	1936.3	2010		1490	7	<20	0.23	<0.020	<0.050	0.56	0.026			236	

**2009 Lower Sandusky River Water Quality Data**

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<b>04100011-14-02 Town of Helena - Muddy Creek (Cont.)</b>																				
<b>South Branch Muddy Creek at Anderson Road (300679) - 0.99</b>																				
06/09/09	19.92	566.5	6.85	7.89	75.3	511.5	568		354	8	<20	2.25	0.066	<0.050	0.42	0.018				36.8
06/23/09	19.49	603.2	7.99	7.92	87.1	539.7	613		392	<5	<20	8.16	0.084	<0.050	0.51	0.023				24.3
07/14/09	17.57	544.1	8.98	8.07	94.2	466.9	548		358	5	<20	0.36	<0.020	<0.050	1.44	<0.010				47.2
07/29/09	21.84	623.1	7.58	7.93	86.5	585.5	629		362	6	<20	0.46	0.029	<0.050	0.40	<0.010				50.4
08/11/09	23.14	556.7	3.56	7.7	41.7	536.9	559		324	8	<20	0.12	<0.020	0.250	0.65	0.051				43.2
<b>04100011-14-03 Little Muddy Creek</b>																				
<b>Little Muddy Creek at Booktown Road (300677) - 7.55</b>																				
06/09/09	19.41	747.5	8.45	8	92.1	667.7	752		462	8	<20	7.30	0.072	<0.050	0.70	0.052				41.8
06/23/09	20.18	694.5	8.99	7.99	99.4	630.6	713		456	10	<20	8.47	0.039	<0.050	0.77	0.059				33.9
07/14/09	18.7	627.1	9.73	8.02	104.5	551.7	630		412	7	<20	5.24	0.033	<0.050	0.86	0.031				43.6
07/29/09	21.37	734.4	4.98	7.7	56.4	683.5	742		484	21	<20	0.71	<0.020	<0.050	0.86	0.050				68.8
<b>Little Muddy Creek at Kline Road (300676) - 2.50</b>																				
06/09/09	22.56	780.9	7.36	7.95	85.3	744.5	786		500	31	<20	5.36	0.102	<0.050	0.71	0.070				46.1
06/23/09	25.48	670.5	6.21	7.9	76	676.6	674		432	25	23	8.72	0.095	0.090	1.03	0.082				5.3
07/14/09	22.22	623.9	7.83	7.76	90.1	590.8	663		458	26	22	3.50	0.152	0.128	1.15	0.099				51.3
07/29/09	23.96	654.2	4.69	7.64	55.7	641.3	661		408	36	20	<0.10	<0.020	<0.050	0.58	0.172				41.4
08/11/09	27.49	692.8	5.24	7.81	66.5	725.8	687		434	35	31	<0.10	<0.020	<0.050	0.72	0.204				45.8
<b>Fishing Creek at Weickert Road (300678) - 0.20</b>																				
06/09/09	21.68	790.6	6.04	7.8	68.8	740.4	790		504	50	<20	2.52	0.090	0.150	0.74	0.084				46.5
06/23/09	24.62	735.6	5.95	7.81	71.6	730.2	744		478	38	<20	8.00	0.120	0.150	0.79	0.069				34.2
07/14/09	20.78	659.2	7.71	7.67	86.3	606.1	621		408	33	<20	1.96	0.068	0.174	1.09	0.121				47.1
07/29/09	23.08	669.7	4.48	7.49	52.3	645.1	675		416	35	<20	<0.10	<0.020	<0.050	0.50	0.150				48.3
08/11/09	25.8	700.8	3.67	7.47	45.1	711.5	700		454	16	30	<0.10	<0.020	<0.050	0.75	0.229				55.8
<b>04100011-14-04 Town of Lindsey - Muddy Creek</b>																				
<b>Muddy Creek at County Road 90 (U04S05) - 18.68</b>																				
06/09/09	19.82	663.8	9.12	8.21	100.1	598.1	666		414	<5	<20	3.20	0.021	<0.050	0.61	0.032				43.8
06/23/09	21.14	650.8	8.52	8.13	95.9	602.8	661		418	15	<20	8.24	0.064	<0.050	0.78	0.028				24.3
07/14/09	18.69	748.2	11.16	8.26	119.8	658	752		544	<5	<20	0.63	<0.020	<0.050	1.34	0.126				64.9
07/29/09	21.43	1615.3	8.78	8.16	99.8	1505.1	1630		1200	<5	<20	0.17	<0.020	<0.050	0.50	0.029				180
08/11/09	22.87	1509.7	8.23	8.13	96.1	1448.4	1520		1080	<5	<20	0.19	<0.020	<0.050	0.51	0.026				163
<b>Muddy Creek at County Road 153 (U04S01) - 9.79</b>																				
06/09/09	19.7	664.8	7.4	7.97	81.1	597.5	673		418	16	<20	3.34	0.027	<0.050	0.52	0.046			42.8	0.027 <3.0
06/23/09	22.5	628.5	7.78	8.06	90	598.5	642		422	24	<20	9.14	0.072	<0.050	0.94	0.063			22.7	0.041 3.9
07/14/09	19.28	982.1	9.25	7.83	100.6	874.7	983		658	8	<20	1.61	<0.020	<0.050	0.90	0.075			98.3	0.047 4.3
07/29/09	21.46	1228.3	5.79	7.72	65.7	1145.1	1250		826	12	<20	0.36	<0.020	<0.050	0.70	0.075			127	0.040 <3.0
08/11/09	24.52	1622	5.02	7.69	60.5	1607.1	1630		1140	7	20	0.26	<0.020	0.053	0.84	0.086			182	0.041 <3.0

**2009 Lower Sandusky River Water Quality Data**

Date	Temp C	SpecificC	D.O. mg/L	pH S.U.	D.O. %	Conduc- tivity uS/cm	Sprcific Cond.-L uS/cm	Alk- alinity mg/L	TDS mg/L	TSS mg/L	COD mg/L	NO <sub>3</sub> +			TKN mg/L	TP mg/L	SO <sub>4</sub> mg/L	Cl mg/L	PO <sub>4</sub> mg/L	BOD <sub>20</sub> mg/L
		ond.-F uS/cm										NO <sub>2</sub> mg/L	NO <sub>2</sub> mg/L	NH <sub>3</sub> mg/L						
<b>04100011-14-04 Town of Lindsey - Muddy Creek (Cont.)</b>																				
<b>Muddy Creek at State Route 53 (U04Q13) - 1.23</b>																				
06/04/09	18.5	527.3	6.75	8.2	72.1	461.8	537		362	87	22	5.71	0.146	0.572	1.53	0.075		25.6		
06/18/09	22.76	573.3	4.61	7.76	53.6	548.9	586		406	84	25	0.61	0.041	0.185	1.29	0.138		39.1		
07/09/09	24.88	427.2	10.52	8.67	127.2	426.2	432		300	85	21	0.16	<0.020	<0.050	1.31	0.106		24.9		
07/23/09	22.57	479	4.58	8.03	53	456.7	494		356	83	48	<0.10	<0.020	<0.050	1.68	0.273		29.2		
08/06/09	24.03	570.7	5.54	8.05	66	560.1	572		416	105	41	<0.10	<0.020	<0.050	0.70	0.399		35.9		



**2009 Lower Sandusky River Water Quality Data**

Date	Hardness mg/L	As ug/L	Cd ug/L	Cr ug/L	Cu ug/L	Pb ug/L	Ni ug/L	Se ug/L	Al ug/L	Ba ug/L	Ca mg/L	Fe mg/L	Mg mg/L	Mn ug/L	K mg/L	Na mg/L	Sr ug/L	Zn ug/L	Hg ug/L
<b>04100011-11-05 Spicer Creek - Sandusky River</b>																			
<b>Sandusky River at Twp. Road 143 (U04S25) - 31.95</b>																			
06/04/09																			
06/18/09																			
07/09/09																			No metals collected
07/24/09																			
08/06/09																			
<b>Sandusky River at County Road 51 (U04T01) - 26.94</b>																			
06/04/09																			
06/18/09																			
07/09/09																			No metals collected
07/23/09																			
08/06/09																			
<b>Sandusky River upstream Wolf Creek (U04Q06) - 23.00</b>																			
06/04/09																			
06/18/09																			
07/09/09																			No metals collected
07/23/09																			
08/06/09																			
<b>Spicer Creek at County Road 33 (U04Q11) - 0.80</b>																			
06/03/09																			
06/17/09																			
07/08/09																			No metals collected
07/22/09																			
08/05/09																			
<b>04100011-11-04 Sugar Creek - Sandusky River</b>																			
<b>Sugar Creek at Twp. Road 76 (U04Q10) - 3.11</b>																			
06/03/09																			
06/17/09																			
07/08/09																			No metals collected
07/22/09																			
08/05/09																			
<b>04100011-13-01 Muskegon Creek - Sandusky River</b>																			
<b>Muskegon Creek at Twp. Road 84 (300675) -24.44</b>																			
06/09/09	372	11.1	<0.20	<2.0	5.1	<2.0	3.2	<2.0	<200	50	111	318	23	20	7	48	1480	<10	<0.20
06/23/09	358	4.2	<0.20	<2.0	2.3	<2.0	2.9	<2.0	306	51	99	479	27	26	4	27	1370	<10	
07/14/09	390	14.8	<0.20	<2.0	3.1	<2.0	4.0	<2.0	413	62	115	784	25	49	11	67	1860	15	<0.20
07/29/09	394	17.4	<0.20	3.6	5.8	3.3	8.3	2.5	2910	87	115	5090	26	702	13	71	1760	24	<0.20

**2009 Lower Sandusky River Water Quality Data**

Date	Hardness mg/L	As ug/L	Cd ug/L	Cr ug/L	Cu ug/L	Pb ug/L	Ni ug/L	Se ug/L	Al ug/L	Ba ug/L	Ca mg/L	Fe mg/L	Mg mg/L	Mn ug/L	K mg/L	Na mg/L	Sr ug/L	Zn ug/L	Hg ug/L
<b>04100011-13-01 Muskellunge Creek - Sandusky River (cont.)</b>																			
<b>Muskellunge Creek at State Route 635 (300674) - 16.70</b>																			
06/09/09																			
06/23/09																			
07/14/09																			
07/29/09																			
08/11/09																			
<b>Muskellunge Creek at Spieldenner Road (201332) - 5.40</b>																			
06/09/09																			
06/23/09																			
06/30/09	306	<2	<0.2	<2	<2	<2	2.6	<2	<228	74	78	319	27	<10	3	12	4870	<10	
07/14/09																			
07/29/09																			
08/11/09																			
09/01/09	337	<2	<0.2	<2	<2	<2	<2	<2	<200	93	74	155	37	44	2	8	35000	<10	
<b>Muskellunge Creek at Fangboner Road (U04P08) - 1.23</b>																			
06/09/09																			
06/23/09																			
07/14/09																			
07/29/09																			
08/11/09																			
<b>04100011-13-02 Indian Creek - Sandusky River</b>																			
<b>Sandusky River at Rice Raod (500820) -20.25</b>																			
06/04/09	256	3.3	<0.2	5.2	6.6	6.4	8.4	<2	5910	83	68	8930	21	152	5	12	1290	31	<0.2
06/18/09	335	<2	<0.2	<2	2.7	<2	3.6	<2	1240	60	83	1810	31	61	4	23	2740	<10	<0.2
06/23/09	196	3.7	<0.2	8.4	21.4	8.9	17.2	<2	8040	92	52	12200	16	196	6	8	863	39	<0.2
06/30/09	306	2.7	<0.2	2.3	4.4	2.6	6	<2	2200	67	83	3380	24	94	4	16	1880	14	
07/23/09	283	<2	<0.2	<2	3.9	<2	4.7	<2	661	61	64	1030	30	98	4	28	3280	<10	<0.2
08/06/09	360	2.5	<0.2	<2	2.2	<2	4.4	<2	642	73	85	965	36	129	4	31	4250	<10	<0.2
09/01/09	343	2.6	<0.2	<2	2.4	<2	4	<2	754	66	83	1280	33	148	5	32	4330	<10	
09/08/09	286	<2	<0.2	<2	4.6	<2	3.8	<2	592	58	65	820	30	96	5	34	3790	<10	
<b>Sandusky River upstream Ballville Dam (U04T02) - 18.05</b>																			
06/04/09	256	2.9	<0.20	4.0	5.3	4.4	6.9	<2.0	4080	71	68	6010	21	98	5	13	1460	20	<0.20
06/18/09	344	<2.0	<0.20	<2.0	2.8	<2.0	3.6	<2.0	1050	61	85	1570	32	56	4	23	2890	10	<0.20
07/09/09	235	<2.0	<0.20	<2.0	2.4	<2.0	2.4	<2.0	272	42	56	404	23	31	4	19	2260	<10	<0.20
07/23/09	312	3.3	<0.20	<2.0	4.6	<2.0	4.9	<2.0	1090	71	69	1690	34	176	4	31	3740	10	<0.20
08/06/09	365	3.1	<0.20	<2.0	2.9	<2.0	4.9	<2.0	1140	82	85	1970	37	174	5	33	4490	<10	<0.20









**2009 Lower Sandusky River Water Quality Data**

Date	Hard-ness mg/L	As ug/L	Cd ug/L	Cr ug/L	Cu ug/L	Pb ug/L	Ni ug/L	Se ug/L	Al ug/L	Ba ug/L	Ca mg/L	Fe mg/L	Mg mg/L	Mn ug/L	K mg/L	Na mg/L	Sr ug/L	Zn ug/L	Hg ug/L
<b>04100011-14-02 Town of Helena - Muddy Creek (Cont.)</b>																			
<b>South Branch Muddy Creek at Anderson Road (300679) - 0.99</b>																			
06/09/09																			
06/23/09																			
07/14/09																			
07/29/09																			
08/11/09																			
<b>04100011-14-03 Little Muddy Creek</b>																			
<b>Little Muddy Creek at Booktown Road (300677) - 7.55</b>																			
06/09/09																			
06/23/09																			
07/14/09																			
07/29/09																			
<b>Little Muddy Creek at Kline Road (300676) - 2.50</b>																			
06/09/09																			
06/23/09																			
07/14/09																			
07/29/09																			
08/11/09																			
<b>Fishing Creek at Weickert Road (300678) - 0.20</b>																			
06/09/09																			
06/23/09																			
07/14/09																			
07/29/09																			
08/11/09																			
<b>04100011-14-04 Town of Lindsey - Muddy Creek</b>																			
<b>Muddy Creek at County Road 90 (U04S05) - 18.68</b>																			
06/09/09																			
06/23/09																			
07/14/09																			
07/29/09																			
08/11/09																			
<b>Muddy Creek at County Road 153 (U04S01) - 9.79</b>																			
06/09/09	288	<2.0	<0.20	<2.0	4.2	4.2	2.9	<2.0	349	61	66	591	30	27	7.97	17	3310	<10	<0.20
06/23/09	313	<2.0	<0.20	<2.0	2.6	2.6	3.2	<2.0	590	69	84	840	25	26	8.06	10	2110	<10	<0.20
07/14/09	403	<2.0	<0.20	<2.0	<2.0	<2.0	2.9	3.1	227	102	97	322	39	44	7.83	34	5660	<10	<0.20
07/29/09	505	2.9	<0.20	<2.0	<2.0	<2.0	3.6	4.3	277	135	115	448	53	114	7.72	44	9710	<10	<0.20
08/11/09	660	3.6	<0.20	<2.0	<2.0	<2.0	4.1	6.7	224	173	149	368	70	196	7.69	59	10900	<10	<0.20

**2009 Lower Sandusky River Water Quality Data**

Date	Hard- ness mg/L	As ug/L	Cd ug/L	Cr ug/L	Cu ug/L	Pb ug/L	Ni ug/L	Se ug/L	Al ug/L	Ba ug/L	Ca mg/L	Fe mg/L	Mg mg/L	Mn ug/L	K mg/L	Na mg/L	Sr ug/L	Zn ug/L	Hg ug/L
<b>04100011-14-04 Town of Lindsey - Muddy Creek (Cont.)</b>																			
<b>Muddy Creek at State Route 53 (U04Q13) - 1.23</b>																			
06/04/09	257	2.3	<0.20	2.8	4.1	2.7	5.2	<2.0	2600	70	65	3530	23	78	5	12	1880	14	<0.20
06/18/09	259	2.7	<0.20	2.2	3.3	2.1	4.6	<2.0	1820	68	61	2570	26	116	6	17	2160	10	<0.20
07/09/09	197	2.6	<0.20	<2.0	3.2	<2.0	3.9	<2.0	1460	52	46	2090	20	85	5	12	1540	<10	<0.20
07/23/09	221	7.3	<0.20	2.1	3.8	2.2	4.4	<2.0	1920	58	54	2570	21	124	5	14	1790	15	<0.20
08/06/09	273	7.0	<0.20	2.2	3.0	2.8	5.0	<2.0	1990	74	68	3160	25	186	5	16	2120	10	<0.20



## Appendix Table 2. Surface water results for volatile and semivolatile organic compounds, herbicides, pesticides, and PCBs from samples collected in the Lower Sandusky River Basin during 2009.

\*Note: USEPA Method 525.2 is an approved method for the determination of organic compounds in drinking water (including source water), but is not approved for surface water unless it is a drinking water source (PWS use). Although Ohio EPA-DSW utilizes Method 525.2 mostly for the detection of herbicides that are not found using approved surface water methods, not all compounds detected (e.g. bis(2-Ethylhexyl)phthalate) are herbicides, but all analytes reported are reliably recovered using Method 525.2. At any site not designated as a drinking water source (PWS), the results of any compounds detected using Method 525.2 are a good indication of the presence and concentration of the compound, and are used for informational purposes only.

HUC	0410001110-03	0410001110-04	0410001113-01
<b>Location</b>	E BR Wolf Ck at TR 150	Wolf Ck at Township Line Rd (TR 118)	Muskellunge Ck at Spieldenner Rd
<b>River Mile</b>	RM 9.00	RM 1.58	RM 5.40
STORET ID	201338	U04G07	201332
Date Sampled	6/8/2009	6/8/2009	6/9/2009
Method 525.2 – Herbicides & other organic compounds (ug/l)*			
Acetochlor	0.64	0.38	0.3
Alachlor	<0.20	<0.22	<0.21
Atrazine	3.48	1.53	0.95
Benzo[a]pyrene	<0.51	<0.54	<0.51
bis(2-Ethylhexyl)adipate	<0.51	<0.54	<0.51
bis(2-Ethylhexyl)phthalate	<0.51	<0.54	<0.51
Butachlor	<0.20	<0.22	<0.21
Metolachlor	2.24	0.5	<0.21
Metribuzin	<0.20	<0.22	<0.21
Pentachlorophenol	<5.08	<5.43	<5.13
Propachlor	<0.20	<0.22	<0.21
Simazine	<0.20	<0.22	<0.21

HUC	0410001110-03	0410001110-04	0410001113-01
<b>Location</b>	E BR Wolf Ck at TR 150	Wolf Ck at Township Line Rd (TR 118)	Muskellunge Ck at Spieldenner Rd
<b>River Mile</b>	RM 9.00	RM 1.58	RM 5.40
STORET ID	201338	U04G07	201332
Date Sampled	6/22/2009	6/22/2009	6/23/2009
Method 525.2 – Herbicides & other organic compounds (ug/l)*			
Acetochlor	0.64 J	0.77 J	0.62
Alachlor	<0.21	<0.22	<0.22
Atrazine	4.39	5.08	3.51
Benzo[a]pyrene	<0.53	<0.56	<0.54
bis(2-Ethylhexyl)adipate	<0.53	<0.56	<0.54
bis(2-Ethylhexyl)phthalate	<0.53	<0.56	0.54 J
Butachlor	<0.21	<0.22	<0.22
Metolachlor	3.84	1.88	0.31
Metribuzin	<0.21	<0.22	<0.22
Pentachlorophenol	<5.26	<5.59	<5.38
Propachlor	<0.21	<0.22	<0.22
Simazine	<0.21	0.27	0.41

J – the analyte was positively identified, the associated value is estimated.

UJ - Analyte was not detected above the quantitation limit which is estimated.

B – the result is estimated. Analyte was detected in the associated blank as well as in the sample.

PT – result is estimated because the sample was not analyzed within the required holding time.

HUC	0410001113-02			0410001114-04
Location	Sandusky R at Rice Rd	Sandusky R at Tiffin Rd	Sandusky R at State St	Muddy Ck at CR 153
River Mile	RM 20.25	RM 17.70	RM 15.40	RM 9.79
STORET ID	500820	U04S23	U04W11	U04S01
Date Sampled	6/4/2009			6/9/2009
<b>Method 525.2 – Herbicides &amp; other organic compounds (ug/l)*</b>				
Acetochlor	6.26 J			0.26
Alachlor	<0.21 UJ			<0.21
Atrazine	21.6 J			1.03
Benzo[a]pyrene	<0.54 UJ			<0.52
bis(2-Ethylhexyl)adipate	<0.54 UJ			<0.52
bis(2-Ethylhexyl)phthalate	<0.54 UJ			<0.52
Butachlor	<0.21 UJ			<0.21
Metolachlor	6.52 J			<0.21
Metribuzin	0.4 J			<0.21
Pentachlorophenol	<5.35 UJ			<5.15
Propachlor	<0.21 UJ			<0.21
Simazine	0.62 J			<0.21

HUC	0410001113-02			0410001114-04
Location	Sandusky R at Rice Rd	Sandusky R at Tiffin Rd	Sandusky R at State St	Muddy Ck at CR 153
River Mile	RM 20.25	RM 17.70	RM 15.40	RM 9.79
STORET ID	500820	U04S23	U04W11	U04S01
Date Sampled	6/18/2009			6/23/2009
<b>Method 525.2 – Herbicides &amp; other organic compounds (ug/l)*</b>				
Acetochlor	0.42			0.68 J
Alachlor	<0.21			<0.22
Atrazine	2.69			2.44
Benzo[a]pyrene	<0.52			<0.56
bis(2-Ethylhexyl)adipate	<0.52			<0.56
bis(2-Ethylhexyl)phthalate	<0.52			<0.56
Butachlor	<0.21			<0.22
Metolachlor	1.27			0.73
Metribuzin	<0.21			<0.22
Pentachlorophenol	<5.21			<5.56
Propachlor	<0.21			<0.22
Simazine	0.24			0.3

J – the analyte was positively identified, the associated value is estimated.

UJ - Analyte was not detected above the quantitation limit which is estimated.

B – the result is estimated. Analyte was detected in the associated blank as well as in the sample.

PT – result is estimated because the sample was not analyzed within the required holding time.



HUC	0410001113-02				0410001114-04	
Location	Sandusky R at Tiffin Rd	Sandusky R at State St	Sandusky R at Tiffin Rd	Sandusky R at State St	Muddy Ck at CR 153	Muddy Ck at CR 153
River Mile	RM 17.70	RM 15.40	RM 17.70	RM 15.40	RM 9.79	RM 9.79
STORET ID	U04S23	U04W11	U04S23	U04W11	U04S01	U04S01
Date Sampled	7/9/2009	7/9/2009	7/23/2009	7/23/2009	6/23/2009	7/14/2009
<b>Method 624 - Volatile Organic Compounds (ug/l) continued.</b>						
1,1,1,2-Tetrachloroethane	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2,2-Tetrachloroethane	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethene	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Toluene	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2,3-Trichlorobenzene	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2,4-Trichlorobenzene	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,1-Trichloroethane	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2-Trichloroethane	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethene	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichlorofluoromethane	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2,3-Trichloropropane	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2,4-Trimethylbenzene	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,3,5-Trimethylbenzene	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Vinyl chloride	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
o-Xylene	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Total m&p-xylenes	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50

J – the analyte was positively identified, the associated value is estimated.

UJ - Analyte was not detected above the quantitation limit which is estimated.

B – the result is estimated. Analyte was detected in the associated blank as well as in the sample.

PT – result is estimated because the sample was not analyzed within the required holding time.

HUC	0410001113-02				0410001114-04	
Location	Sandusky R at Tiffin Rd	Sandusky R at State St	Sandusky R at Tiffin Rd	Sandusky R at State St	Muddy Ck at CR 153	Muddy Ck at CR 153
River Mile	RM 17.70	RM 15.40	RM 17.70	RM 15.40	RM 9.79	RM 9.79
STORET ID	U04S23	U04W11	U04S23	U04W11	U04S01	U04S01
Date Sampled	7/9/2009	7/9/2009	7/23/2009	7/23/2009	6/23/2009	7/14/2009
Method 625 - Semivolatile Compounds (ug/l)						
Acenaphthene	<5.3	<5.4	<5.4	<5.5	<5.4	<5.4
Acenaphthylene	<5.3	<5.4	<5.4	<5.5	<5.4	<5.4
Anthracene	<2.1	<2.2	<2.1	<2.2	<2.2	<2.2
Benzo[a]anthracene	<2.1	<2.2	<2.1	<2.2	<2.2	<2.2
Benzo[a]pyrene	<2.1	<2.2	<2.1	<2.2	<2.2	<2.2
Benzo[b]fluoranthene	<2.1	<2.2	<2.1	<2.2	<2.2	<2.2
Benzo[g,h,i]perylene	<2.1	<2.2	<2.1	<2.2	<2.2	<2.2
Benzo[k]fluoranthene	<2.1	<2.2	<2.1	<2.2	<2.2	<2.2
bis(2-Chloroethoxy)methane	<5.3	<5.4	<5.4	<5.5	<5.4	<5.4
bis(2-Chloroethyl)ether	<2.1	<2.2	<2.1	<2.2	<2.2	<2.2
bis(2-Chloroisopropyl)ether	<2.1	<2.2	<2.1	<2.2	<2.2	<2.2
bis(2-Ethylhexyl)phthalate	<10.6	<10.8	<10.7	<11.0	<10.9	<10.8
4-Bromophenyl-phenylether	<5.3	<5.4	<5.4	<5.5	<5.4	<5.4
Butylbenzylphthalate	<2.1	<2.2	<2.1	<2.2	<2.2	<2.2
4-Chloro-3-methylphenol	<10.6	<10.8	<10.7	<11.0	<10.9	<10.8
2-Chloronaphthalene	<5.3	<5.4	<5.4	<5.5	<5.4	<5.4
2-Chlorophenol	<2.1	<2.2	<2.1	<2.2	<2.2	<2.2
4-Chlorophenyl-phenylether	<2.1	<2.2	<2.1	<2.2	<2.2	<2.2
Chrysene	<2.1	<2.2	<2.1	<2.2	<2.2	<2.2
Di-n-butylphthalate	<5.3	<5.4	<5.4	<5.5	<5.4	<5.4
Di-n-octylphthalate	<2.1	<2.2	<2.1	<2.2	<2.2	<2.2
Dibenz[a,h]anthracene	<2.1	<2.2	<2.1	<2.2	<2.2	<2.2
1,3-Dichlorobenzene	<2.1	<2.2	<2.1	<2.2	<2.2	<2.2
1,4-Dichlorobenzene	<2.1	<2.2	<2.1	<2.2	<2.2	<2.2
1,2-Dichlorobenzene	<2.1	<2.2	<2.1	<2.2	<2.2	<2.2
2,4-Dichlorophenol	<2.1	<2.2	<2.1	<2.2	<2.2	<2.2
Diethylphthalate	<5.3	<5.4	<5.4	<5.5	<5.4	<5.4
2,4-Dimethylphenol	<10.6	<10.8	<10.7	<11.0	<10.9	<10.8
Dimethylphthalate	<5.3	<5.4	<5.4	<5.5	<5.4	<5.4
4,6-Dinitro-2-methylphenol	<5.3	<5.4	<5.4	<5.5	<5.4	<5.4
2,4-Dinitrophenol	<21.3	<21.6	<21.4	<22.1	<21.7	<21.5
2,6-Dinitrotoluene	<2.1	<2.2	<2.1	<2.2	<2.2	<2.2
2,4-Dinitrotoluene	<2.1	<2.2	<2.1	<2.2	<2.2	<2.2
Fluoranthene	<2.1	<2.2	<2.1	<2.2	<2.2	<2.2
Fluorene	<2.1	<2.2	<2.1	<2.2	<2.2	<2.2
Hexachlorobenzene	<2.1	<2.2	<2.1	<2.2	<2.2	<2.2
Hexachlorobutadiene	<2.1	<2.2	<2.1	<2.2	<2.2	<2.2
Hexachlorocyclopentadiene	<2.1	<2.2	<2.1	<2.2	<2.2	<2.2
Hexachloroethane	<5.3	<5.4	<5.4	<5.5	<5.4	<5.4
Indeno[1,2,3-cd]pyrene	<2.1	<2.2	<2.1	<2.2	<2.2	<2.2
Isophorone	<2.1	<2.2	<2.1	<2.2	<2.2	<2.2
N-Nitroso-di-n-propylamine	<2.1	<2.2	<2.1	<2.2	<2.2	<2.2
N-Nitrosodiphenylamine	<5.3	<5.4	<5.4	<5.5	<5.4	<5.4

HUC	0410001113-02				0410001114-04	
Location	Sandusky R at Tiffin Rd	Sandusky R at State St	Sandusky R at Tiffin Rd	Sandusky R at State St	Muddy Ck at CR 153	Muddy Ck at CR 153
River Mile	RM 17.70	RM 15.40	RM 17.70	RM 15.40	RM 9.79	RM 9.79
STORET ID	U04S23	U04W11	U04S23	U04W11	U04S01	U04S01
Date Sampled	7/9/2009	7/9/2009	7/23/2009	7/23/2009	6/23/2009	7/14/2009
Method 625 - Semivolatile Compounds (ug/l) continued.						
Naphthalene	<2.1	<2.2	<2.1	<2.2	<2.2	<2.2
Nitrobenzene	<2.1	<2.2	<2.1	<2.2	<2.2	<2.2
2-Nitrophenol	<2.1	<2.2	<2.1	<2.2	<2.2	<2.2
4-Nitrophenol	<21.3	<21.6	<21.4	<22.1	<21.7	<21.5
Pentachlorophenol	<10.6	<10.8	<10.7	<11.0	<10.9	<10.8 UJ
Phenanthrene	<2.1	<2.2	<2.1	<2.2	<2.2	<2.2
Phenol	<2.1	<2.2	<2.1	<2.2	<2.2	<2.2
Pyrene	<2.1	<2.2	<2.1	<2.2	<2.2	<2.2
1,2,4-Trichlorobenzene	<2.1	<2.2	<2.1	<2.2	<2.2	<2.2
2,4,6-Trichlorophenol	<5.3	<5.4	<5.4	<5.5	<5.4	<5.4

J – the analyte was positively identified, the associated value is estimated.

UJ - Analyte was not detected above the quantitation limit which is estimated.

B – the result is estimated. Analyte was detected in the associated blank as well as in the sample.

PT – result is estimated because the sample was not analyzed within the required holding time

### Appendix Table 3.

Hourly data recorded with Datasonde© continuous monitors  
in the Lower Sandusky River Basin during 2009.



<b>E. BR. WOLF CREEK SW OF FORT SENECA @ TWP. RD. 150</b>					
<b>Date</b>	<b>Time</b>	<b>Temp C</b>	<b>pH SU</b>	<b>Specific Conductivity mS/cm</b>	<b>Dissolved Oxygen mg/l</b>
7/7/2009	18:00	20.72	7.93	0.716	6.79
7/7/2009	19:00	20.83	7.93	0.714	6.83
7/7/2009	20:00	20.90	7.93	0.714	6.78
7/7/2009	21:00	20.98	7.94	0.712	6.76
7/7/2009	22:00	21.00	7.94	0.711	6.70
7/7/2009	23:00	20.93	7.94	0.709	6.59
7/8/2009	0:00	20.78	7.93	0.707	6.41
7/8/2009	1:00	20.61	7.93	0.706	6.28
7/8/2009	2:00	20.39	7.92	0.704	6.18
7/8/2009	3:00	20.17	7.92	0.703	6.05
7/8/2009	4:00	19.92	7.91	0.702	5.89
7/8/2009	5:00	19.65	7.90	0.701	5.84
7/8/2009	6:00	19.36	7.90	0.705	5.74
7/8/2009	7:00	19.07	7.89	0.703	5.70
7/8/2009	8:00	18.80	7.88	0.701	5.66
7/8/2009	9:00	18.58	7.87	0.699	5.60
7/8/2009	10:00	18.44	7.87	0.699	5.54
7/8/2009	11:00	18.41	7.86	0.699	5.58
7/8/2009	12:00	18.61	7.87	0.700	5.77
7/8/2009	13:00	18.97	7.86	0.700	5.94
7/8/2009	14:00	19.56	7.88	0.701	6.25
7/8/2009	15:00	20.06	7.88	0.703	6.50
7/8/2009	16:00	20.17	7.89	0.704	6.57
7/8/2009	17:00	20.23	7.89	0.706	6.58
7/8/2009	18:00	20.30	7.90	0.706	6.72
7/8/2009	19:00	20.30	7.90	0.707	6.74
7/8/2009	20:00	20.30	7.91	0.708	6.72
7/8/2009	21:00	20.29	7.91	0.709	6.74
7/8/2009	22:00	20.28	7.91	0.709	6.71
7/8/2009	23:00	20.24	7.91	0.710	6.60
7/9/2009	0:00	20.17	7.91	0.714	6.51
7/9/2009	1:00	20.06	7.91	0.714	6.35
7/9/2009	2:00	19.93	7.90	0.714	6.20
7/9/2009	3:00	19.75	7.90	0.714	6.12
7/9/2009	4:00	19.59	7.89	0.713	6.00
7/9/2009	5:00	19.42	7.89	0.713	5.92
7/9/2009	6:00	19.24	7.88	0.712	5.81
7/9/2009	7:00	19.06	7.88	0.711	5.71
7/9/2009	8:00	18.92	7.87	0.709	5.65
7/9/2009	9:00	18.78	7.87	0.708	5.60
7/9/2009	10:00	18.71	7.86	0.707	5.56
7/9/2009	11:00	18.71	7.86	0.706	5.57
7/9/2009	12:00	18.79	7.86	0.704	5.74
7/9/2009	13:00	19.05	7.86	0.703	5.93
7/9/2009	14:00	19.52	7.88	0.703	6.27
7/9/2009	15:00	19.98	7.89	0.702	6.63
7/9/2009	16:00	20.22	7.91	0.702	6.90

<b>MUSKELLUNGE CREEK NEAR FREMONT @ SPIELDENNER RD.</b>					
<b>Date</b>	<b>Time</b>	<b>Temp C</b>	<b>pH SU</b>	<b>Specific Conductivity mS/cm</b>	<b>Dissolved Oxygen mg/l</b>
7/7/2009	13:00	20.98	8.17	0.627	9.30
7/7/2009	14:00	21.54	8.18	0.626	9.79
7/7/2009	15:00	22.14	8.20	0.625	10.04
7/7/2009	16:00	22.52	8.22	0.625	10.07
7/7/2009	17:00	22.59	8.23	0.624	9.90
7/7/2009	18:00	22.55	8.22	0.624	9.43
7/7/2009	19:00	22.53	8.21	0.625	8.99
7/7/2009	20:00	22.46	8.19	0.625	8.46
7/7/2009	21:00	22.36	8.19	0.624	8.14
7/7/2009	22:00	22.16	8.20	0.623	7.86
7/7/2009	23:00	21.88	8.19	0.621	7.60
7/8/2009	0:00	21.55	8.19	0.619	7.42
7/8/2009	1:00	21.24	8.18	0.618	7.31
7/8/2009	2:00	20.94	8.18	0.615	7.24
7/8/2009	3:00	20.66	8.18	0.612	7.23
7/8/2009	4:00	20.35	8.16	0.609	7.21
7/8/2009	5:00	20.03	8.12	0.609	7.10
7/8/2009	6:00	19.69	8.09	0.612	6.95
7/8/2009	7:00	19.34	8.06	0.616	6.88
7/8/2009	8:00	19.06	8.04	0.620	6.94
7/8/2009	9:00	19.08	8.05	0.623	7.24
7/8/2009	10:00	19.37	8.07	0.626	7.72
7/8/2009	11:00	19.75	8.09	0.628	8.12
7/8/2009	12:00	20.11	8.12	0.628	8.53
7/8/2009	13:00	20.45	8.15	0.627	9.11
7/8/2009	14:00	21.25	8.19	0.626	9.73
7/8/2009	15:00	22.06	8.22	0.624	10.09
7/8/2009	16:00	22.37	8.23	0.623	10.03
7/8/2009	17:00	22.30	8.23	0.622	9.89
7/8/2009	18:00	22.15	8.21	0.621	9.52
7/8/2009	19:00	21.93	8.19	0.621	8.91
7/8/2009	20:00	21.87	8.17	0.621	8.54
7/8/2009	21:00	21.84	8.15	0.620	8.11
7/8/2009	22:00	21.73	8.13	0.620	7.76
7/8/2009	23:00	21.61	8.11	0.619	7.51
7/9/2009	0:00	21.46	8.11	0.618	7.33
7/9/2009	1:00	21.26	8.10	0.615	7.2
7/9/2009	2:00	21.01	8.10	0.612	7.12
7/9/2009	3:00	20.81	8.10	0.607	7.08
7/9/2009	4:00	20.58	8.10	0.601	7.04
7/9/2009	5:00	20.38	8.10	0.597	7.01
7/9/2009	6:00	20.20	8.08	0.594	6.91
7/9/2009	7:00	20.05	8.05	0.595	6.84
7/9/2009	8:00	19.98	8.05	0.597	6.99
7/9/2009	9:00	19.99	8.06	0.600	7.25
7/9/2009	10:00	20.01	8.06	0.604	7.42
7/9/2009	11:00	20.55	8.12	0.606	8.41

<b>SANDUSKY R @ RICE RD UPST FREMONT</b>					
<b>Date</b>	<b>Time</b>	<b>Temp C</b>	<b>pH SU</b>	<b>Specific Conductivity mS/cm</b>	<b>Dissolved Oxygen mg/l</b>
7/7/2009	17:00	27.37	8.79	0.616	12.47
7/7/2009	18:00	27.10	8.82	0.612	12.14
7/7/2009	19:00	26.91	8.79	0.606	11.72
7/7/2009	20:00	26.28	8.74	0.609	10.79
7/7/2009	21:00	25.61	8.69	0.616	9.79
7/7/2009	22:00	25.04	8.63	0.624	8.91
7/7/2009	23:00	24.48	8.56	0.629	8.35
7/8/2009	0:00	23.94	8.50	0.633	7.99
7/8/2009	1:00	23.41	8.44	0.637	7.76
7/8/2009	2:00	22.83	8.38	0.64	7.61
7/8/2009	3:00	22.29	8.34	0.642	7.55
7/8/2009	4:00	21.77	8.31	0.643	7.53
7/8/2009	5:00	21.27	8.28	0.645	7.54
7/8/2009	6:00	20.78	8.24	0.647	7.58
7/8/2009	7:00	20.38	8.23	0.648	7.76
7/8/2009	8:00	20.15	8.25	0.648	8.19
7/8/2009	9:00	20.60	8.35	0.646	9.34
7/8/2009	10:00	21.55	8.47	0.644	10.42
7/8/2009	11:00	22.57	8.55	0.642	11.16
7/8/2009	12:00	23.81	8.63	0.639	11.76
7/8/2009	13:00	24.42	8.68	0.636	11.93
7/8/2009	14:00	25.46	8.74	0.626	12.53
7/8/2009	15:00	26.38	8.79	0.618	13.09
7/8/2009	16:00	26.82	8.81	0.608	13.41
7/8/2009	17:00	26.74	8.81	0.595	13.45
7/8/2009	18:00	26.59	8.75	0.58	13.35
7/8/2009	19:00	26.34	8.69	0.567	12.87
7/8/2009	20:00	26.04	8.68	0.559	12.47
7/8/2009	21:00	25.54	8.62	0.562	11.11
7/8/2009	22:00	25.07	8.54	0.567	9.92
7/8/2009	23:00	24.62	8.46	0.574	9.09
7/9/2009	0:00	24.16	8.39	0.580	8.54
7/9/2009	1:00	23.68	8.34	0.584	8.15
7/9/2009	2:00	23.20	8.3	0.586	7.95
7/9/2009	3:00	22.74	8.28	0.589	7.79
7/9/2009	4:00	22.29	8.25	0.592	7.69
7/9/2009	5:00	21.94	8.22	0.596	7.61
7/9/2009	6:00	21.55	8.18	0.601	7.56
7/9/2009	7:00	21.24	8.17	0.605	7.78
7/9/2009	8:00	21.14	8.23	0.608	8.62
7/9/2009	9:00	21.23	8.33	0.608	9.56
7/9/2009	10:00	21.34	8.42	0.608	10.27
7/9/2009	11:00	22.24	8.56	0.604	11.55
7/9/2009	12:00	22.95	8.67	0.602	12.37
7/9/2009	13:00	23.91	8.73	0.597	13.24
7/9/2009	14:00	24.78	8.76	0.593	13.85

<b>SANDUSKY R. @ U.S. RT. 20</b>					
<b>Date</b>	<b>Time</b>	<b>Temp C</b>	<b>pH SU</b>	<b>Specific Conductivity mS/cm</b>	<b>Dissolved Oxygen mg/l</b>
7/7/2009	15:00	23.16	8.01	0.664	9.93
7/7/2009	16:00	23.07	7.98	0.674	9.23
7/7/2009	17:00	22.88	7.89	0.694	8.20
7/7/2009	18:00	22.79	7.87	0.700	7.82
7/7/2009	19:00	23.66	8.26	0.658	12.06
7/7/2009	20:00	24.22	8.57	0.638	15.04
7/7/2009	21:00	24.59	8.65	0.628	16.89
7/7/2009	22:00	24.60	8.68	0.619	17.54
7/7/2009	23:00	25.04	8.61	0.589	19.06
7/8/2009	0:00	24.47	8.56	0.621	16.89
7/8/2009	1:00	24.49	8.57	0.613	16.97
7/8/2009	2:00	24.40	8.59	0.602	17.45
7/8/2009	3:00	24.15	8.56	0.607	16.68
7/8/2009	4:00	24.06	8.51	0.607	16.32
7/8/2009	5:00	23.87	8.51	0.607	16.32
7/8/2009	6:00	23.84	8.49	0.603	16.47
7/8/2009	7:00	23.77	8.44	0.601	16.37
7/8/2009	8:00	23.83	8.43	0.599	16.36
7/8/2009	9:00	23.84	8.32	0.603	15.59
7/8/2009	10:00	23.82	8.30	0.608	15.16
7/8/2009	11:00	23.84	8.30	0.608	14.86
7/8/2009	12:00	23.87	8.30	0.610	14.91
7/8/2009	13:00	23.75	8.19	0.622	13.44
7/8/2009	14:00	23.79	8.19	0.622	13.35
7/8/2009	15:00	23.82	8.15	0.614	14.59
7/8/2009	16:00	23.94	8.21	0.613	14.76
7/8/2009	17:00	23.85	8.09	0.618	12.26
7/8/2009	18:00	23.88	8.05	0.627	12.28
7/8/2009	19:00	24.24	8.02	0.622	13.97
7/8/2009	20:00	24.42	8.02	0.621	17.25
7/8/2009	21:00	24.10	7.89	0.630	12.78
7/8/2009	22:00	24.30	7.96	0.621	12.65
7/8/2009	23:00	24.67	8.10	0.604	15.74
7/9/2009	0:00	24.78	8.22	0.591	19.51
7/9/2009	1:00	25.03	8.26	0.578	19.15
7/9/2009	2:00	24.97	8.13	0.571	18.32
7/9/2009	3:00	24.83	8.20	0.571	18.45
7/9/2009	4:00	24.73	8.12	0.571	17.58
7/9/2009	5:00	24.55	8.23	0.574	17.70
7/9/2009	6:00	24.53	8.24	0.575	17.54
7/9/2009	7:00	24.44	8.13	0.586	14.93
7/9/2009	8:00	24.53	8.10	0.575	17.21
7/9/2009	9:00	24.5	8.04	0.579	15.36
7/9/2009	10:00	24.43	8.07	0.581	15.05
7/9/2009	11:00	24.48	8.12	0.578	16.15
7/9/2009	12:00	24.63	8.10	0.577	16.78

<b>WOLF CREEK @ TOWNSHIP LINE RD. TR-728</b>					
<b>Date</b>	<b>Time</b>	<b>Temp C</b>	<b>pH SU</b>	<b>Specific Conductivity mS/cm</b>	<b>Dissolved Oxygen mg/l</b>
7/7/2009	17:00	23.74	8.51	0.606	12.49
7/7/2009	18:00	23.57	8.52	0.604	11.63
7/7/2009	19:00	23.26	8.48	0.605	10.53
7/7/2009	20:00	22.88	8.41	0.611	9.28
7/7/2009	21:00	22.38	8.33	0.616	8.32
7/7/2009	22:00	21.82	8.24	0.622	7.55
7/7/2009	23:00	21.30	8.17	0.626	7.17
7/8/2009	0:00	20.80	8.12	0.628	6.95
7/8/2009	1:00	20.33	8.07	0.632	6.83
7/8/2009	2:00	19.93	8.02	0.636	6.73
7/8/2009	3:00	19.52	7.98	0.640	6.67
7/8/2009	4:00	19.12	7.95	0.645	6.68
7/8/2009	5:00	18.73	7.93	0.648	6.71
7/8/2009	6:00	18.31	7.91	0.650	6.81
7/8/2009	7:00	17.96	7.91	0.651	7.02
7/8/2009	8:00	17.84	7.95	0.651	7.60
7/8/2009	9:00	17.89	7.99	0.651	8.04
7/8/2009	10:00	18.24	8.06	0.650	8.88
7/8/2009	11:00	18.90	8.15	0.646	10.06
7/8/2009	12:00	20.13	8.30	0.639	12.03
7/8/2009	13:00	21.03	8.38	0.632	12.73
7/8/2009	14:00	22.61	8.49	0.623	14.39
7/8/2009	15:00	23.81	8.56	0.615	14.95
7/8/2009	16:00	24.11	8.56	0.611	14.14
7/8/2009	17:00	23.65	8.54	0.610	12.70
7/8/2009	18:00	23.45	8.54	0.608	11.73
7/8/2009	19:00	23.03	8.49	0.609	10.56
7/8/2009	20:00	22.61	8.45	0.612	9.71
7/8/2009	21:00	22.10	8.36	0.617	8.61
7/8/2009	22:00	21.62	8.27	0.621	7.84
7/8/2009	23:00	21.20	8.21	0.625	7.42
7/9/2009	0:00	20.75	8.14	0.629	7.16
7/9/2009	1:00	20.32	8.07	0.633	6.95
7/9/2009	2:00	19.91	8.02	0.637	6.84
7/9/2009	3:00	19.54	7.98	0.640	6.77
7/9/2009	4:00	19.17	7.95	0.643	6.77
7/9/2009	5:00	18.89	7.92	0.645	6.77
7/9/2009	6:00	18.66	7.91	0.647	6.82
7/9/2009	7:00	18.49	7.91	0.649	6.97
7/9/2009	8:00	18.45	7.95	0.650	7.53
7/9/2009	9:00	18.51	8.01	0.649	8.34
7/9/2009	10:00	18.79	8.12	0.646	9.65
7/9/2009	11:00	19.17	8.22	0.641	10.97
7/9/2009	12:00	19.92	8.39	0.633	12.93
7/9/2009	13:00	20.60	8.46	0.626	13.98
7/9/2009	14:00	21.55	8.55	0.617	15.34
7/9/2009	15:00	22.82	8.62	0.608	15.56

<b>MUDDY CREEK DST. LINDSEY @ CO. RD. 153</b>					
<b>Date</b>	<b>Time</b>	<b>Temp C</b>	<b>pH SU</b>	<b>Specific Conductivity mS/cm</b>	<b>Dissolved Oxygen mg/l</b>
7/7/2009	12:00	19.63	7.90	0.683	6.69
7/7/2009	13:00	19.86	7.79	0.685	6.89
7/7/2009	14:00	20.36	7.84	0.686	7.33
7/7/2009	15:00	20.97	7.89	0.688	7.79
7/7/2009	16:00	21.40	7.95	0.687	8.29
7/7/2009	17:00	21.78	8.02	0.687	8.72

Appendix Table 4. Results of Bacteria sampling at Select Locations in the Lower Sandusky River during 2009.

HUC12	Lab	Sample ID	Station ID	RM	LOCATION	DATE	TIME	PARAMETER	RESULT	PQL	UNIT	METHOD
041000111105	J&H	AF46464	U04S25	31.95	SANDUSKY R AT TR 143	6/4/2009	8:23	e. coli	930	2	#/100ml	EPA 1103.1
041000111105	J&H	AF47723	U04S25	31.95	SANDUSKY R AT TR 143	6/18/2009	8:31	e. coli	460	2	#/100ml	EPA 1103.1
041000111105	Alloway	MP-091049-14	U04S25	31.95	SANDUSKY R AT TR 143	7/1/2009	11:20	e. coli	310	1	per 100mL	SM 9223B
041000111105	J&H	AF49250	U04S25	31.95	SANDUSKY R AT TR 143	7/9/2009	8:57	e. coli	27	2	#/100ml	EPA 1103.1
041000111105	J&H	AF50389	U04S25	31.95	SANDUSKY R AT TR 143	7/23/2009	9:06	e. coli	1200	2	#/100ml	EPA 1103.1
041000111105	J&H	AF51347	U04S25	31.95	SANDUSKY R AT TR 143	8/6/2009	9:05	e. coli	56	2	#/100ml	EPA 1103.1
041000111105	Alloway	MP-091084-14	U04S25	31.95	SANDUSKY R AT TR 143	9/2/2009	11:20	e. coli	320	1	/100mL	SM 9223B
041000111105	Alloway	MP-091313-13	U04S25	31.95	SANDUSKY R AT TR 143	10/5/2009	12:20	e. coli	520	1	/100mL	SM 9223B
041000111105	J&H	AF46465	U04T01	26.94	SANDUSKY R AT CR 51	6/4/2009	8:48	e. coli	670	2	#/100ml	EPA 1103.1
041000111105	J&H	AF47724	U04T01	26.94	SANDUSKY R AT CR 51	6/18/2009	8:47	e. coli	58	2	#/100ml	EPA 1103.1
041000111105	Alloway	MP-091049-15	U04T01	26.94	SANDUSKY R AT CR 51	7/1/2009	10:50	e. coli	200	1	per 100mL	SM 9223B
041000111105	J&H	AF49251	U04T01	26.94	SANDUSKY R AT CR 51	7/9/2009	9:18	e. coli	19	2	#/100ml	EPA 1103.1
041000111105	J&H	AF50390	U04T01	26.94	SANDUSKY R AT CR 51	7/23/2009	9:21	e. coli	240	2	#/100ml	EPA 1103.1
041000111105	J&H	AF51348	U04T01	26.94	SANDUSKY R AT CR 51	8/6/2009	9:17	e. coli	23	2	#/100ml	EPA 1103.1
041000111105	Alloway	MP-091084-15	U04T01	26.94	SANDUSKY R AT CR 51	9/2/2009	11:05	e. coli	120	1	/100mL	SM 9223B
041000111105	Alloway	MP-091313-14	U04T01	26.94	SANDUSKY R AT CR 51	10/5/2009	11:55	e. coli	730	1	/100mL	SM 9223B
041000111105	J&H	AF46461	U04Q06	23	SANDUSKY R UPST WOLF CREEK	6/4/2009	9:04	e. coli	440	2	#/100ml	EPA 1103.1
041000111105	J&H	AF47720	U04Q06	23	SANDUSKY R UPST WOLF CREEK	6/18/2009	9:02	e. coli	200	2	#/100ml	EPA 1103.1
041000111105	Alloway	MP-091049-10	U04Q06	23	SANDUSKY R UPST WOLF CREEK	7/1/2009	10:35	e. coli	340	1	per 100mL	SM 9223B
041000111105	J&H	AF49247	U04Q06	23	SANDUSKY R UPST WOLF CREEK	7/9/2009	9:32	e. coli	120	2	#/100ml	EPA 1103.1
041000111105	J&H	AF50386	U04Q06	23	SANDUSKY R UPST WOLF CREEK	7/23/2009	9:40	e. coli	2000	2	#/100ml	EPA 1103.1
041000111105	J&H	AF51344	U04Q06	23	SANDUSKY R UPST WOLF CREEK	8/6/2009	9:29	e. coli	130	2	#/100ml	EPA 1103.1
041000111105	Alloway	MP-091084-10	U04Q06	23	SANDUSKY R UPST WOLF CREEK	9/2/2009	10:50	e. coli	110	1	/100mL	SM 9223B
041000111105	Alloway	MP-091313-10	U04Q06	23	SANDUSKY R UPST WOLF CREEK	10/5/2009	11:45	e. coli	650	1	/100mL	SM 9223B

HUC12	Lab	Sample ID	Station ID	RM	LOCATION	DATE	TIME	PARAMETER	RESULT	PQL	UNIT	METHOD
041000111302	J&H	AF46459	500820	20.25	SANDUSKY R AT RICE RD	6/4/2009	9:19	e. coli	800	2	#/100ml	EPA 1103.1
041000111302	J&H	AF47718	500820	20.25	SANDUSKY R AT RICE RD	6/18/2009	9:18	e. coli	180	2	#/100ml	EPA 1103.1
041000111302	J&H	AF48052	500820	20.25	SANDUSKY R AT RICE RD	6/23/2009	9:56	e. coli	1000	2	#/100ml	EPA 1103.1
041000111302	Alloway	MP-091049-05	500820	20.25	SANDUSKY R AT RICE RD	7/1/2009	10:05	e. coli	160	1	per 100mL	SM 9223B
041000111302	J&H	AF49245	500820	20.25	SANDUSKY R AT RICE RD	7/9/2009	9:51	e. coli	92	2	#/100ml	EPA 1103.1
041000111302	J&H	AF50384	500820	20.25	SANDUSKY R AT RICE RD	7/23/2009	9:45	e. coli	1600	2	#/100ml	EPA 1103.1
041000111302	J&H	AF51342	500820	20.25	SANDUSKY R AT RICE RD	8/6/2009	9:40	e. coli	56	2	#/100ml	EPA 1103.1
041000111302	Alloway	MP-091084-05	500820	20.25	SANDUSKY R AT RICE RD	9/2/2009	10:25	e. coli	150	1	/100mL	SM 9223B
041000111302	J&H	AF53711	500820	20.25	SANDUSKY R AT RICE RD	9/8/2009	10:33	e. coli	270	2	#/100ml	EPA 1103.1
041000111302	Alloway	MP-091313-04	500820	20.25	SANDUSKY R AT RICE RD	10/5/2009	11:25	e. coli	460	1	/100mL	SM 9223B
041000111302	J&H	AF49252	U04T02	18.05	SANDUSKY R JUST UPST BALLVILLE DAM	7/9/2009	10:07	e. coli	26	2	#/100ml	EPA 1103.1
041000111302	J&H	AF50391	U04T02	18.05	SANDUSKY R JUST UPST BALLVILLE DAM	7/23/2009	9:56	e. coli	70	2	#/100ml	EPA 1103.1
041000111302	J&H	AF51349	U04T02	18.05	SANDUSKY R JUST UPST BALLVILLE DAM	8/6/2009	9:51	e. coli	10	2	#/100ml	EPA 1103.1
041000111302	J&H	AF46466	U04T02	18.05	SANDUSKY R JUST UPST BALLVILLE DAM	6/4/2009	10:02	e. coli	440	2	#/100ml	EPA 1103.1
041000111302	J&H	AF47725	U04T02	18.05	SANDUSKY R JUST UPST BALLVILLE DAM	6/18/2009	9:45	e. coli	120	2	#/100ml	EPA 1103.1
041000111302	J&H	AF46463	U04S23	17.7	SANDUSKY R AT TIFFIN RD	6/4/2009	10:16	e. coli	370	2	#/100ml	EPA 1103.1
041000111302	J&H	AF47722	U04S23	17.7	SANDUSKY R AT TIFFIN RD	6/18/2009	9:58	e. coli	27	2	#/100ml	EPA 1103.1
041000111302	J&H	AF49249	U04S23	17.7	SANDUSKY R AT TIFFIN RD	7/9/2009	10:19	e. coli	58	2	#/100ml	EPA 1103.1
041000111302	J&H	AF50388	U04S23	17.7	SANDUSKY R AT TIFFIN RD	7/23/2009	10:10	e. coli	790	2	#/100ml	EPA 1103.1
041000111302	J&H	AF51346	U04S23	17.7	SANDUSKY R AT TIFFIN RD	8/6/2009	10:04	e. coli	16	2	#/100ml	EPA 1103.1
041000111302	J&H	AF46467	U04W11	15.4	SANDUSKY R AT STATE ST	6/4/2009	10:32	e. coli	540	2	#/100ml	EPA 1103.1
041000111302	J&H	AF47726	U04W11	15.4	SANDUSKY R AT STATE ST	6/18/2009	10:15	e. coli	180	2	#/100ml	EPA 1103.1
041000111302	Alloway	MP-091049-16	U04W11	15.4	SANDUSKY R AT STATE ST	7/1/2009	9:10	e. coli	1000	1	per 100mL	SM 9223B
041000111302	J&H	AF49253	U04W11	15.4	SANDUSKY R AT STATE ST	7/9/2009	10:35	e. coli	140	2	#/100ml	EPA 1103.1
041000111302	J&H	AF50392	U04W11	15.4	SANDUSKY R AT STATE ST	7/23/2009	10:27	e. coli	1800	2	#/100ml	EPA 1103.1
041000111302	J&H	AF51351	U04W11	15.4	SANDUSKY R AT STATE ST	8/6/2009	10:17	e. coli	290	2	#/100ml	EPA 1103.1
041000111302	Alloway	MP-091084-16	U04W11	15.4	SANDUSKY R AT STATE ST	9/2/2009	10:00	e. coli	460	1	/100mL	SM 9223B
041000111303	J&H	AF46462	U04S17	4.7	SANDUSKY R UPST WIGHTMANS GROVE	6/4/2009	11:27	e. coli	260	2	#/100ml	EPA 1103.1
041000111303	J&H	AF47721	U04S17	4.7	SANDUSKY R UPST WIGHTMANS GROVE	6/18/2009	10:56	e. coli	70	2	#/100ml	EPA 1103.1
041000111303	Alloway	MP-091049-13	U04S17	4.7	SANDUSKY R UPST WIGHTMANS GROVE	7/1/2009	8:25	e. coli	110	1	per 100mL	SM 9223B
041000111303	J&H	AF49248	U04S17	4.7	SANDUSKY R UPST WIGHTMANS GROVE	7/9/2009	11:10	e. coli	26	2	#/100ml	EPA 1103.1
041000111303	J&H	AF50387	U04S17	4.7	SANDUSKY R UPST WIGHTMANS GROVE	7/23/2009	11:13	e. coli	76	2	#/100ml	EPA 1103.1
041000111303	J&H	AF51345	U04S17	4.7	SANDUSKY R UPST WIGHTMANS GROVE	8/6/2009	10:55	e. coli	580	2	#/100ml	EPA 1103.1
041000111303	Alloway	MP-091084-13	U04S17	4.7	SANDUSKY R UPST WIGHTMANS GROVE	9/2/2009	8:55	e. coli	190	1	/100mL	SM 9223B



HUC12	Lab	Sample ID	Station ID	RM	LOCATION	DATE	TIME	PARAMETER	RESULT	PQL	UNIT	METHOD
041000111004	J&H	AF46797	U04G07	1.58	WOLF CK AT TOWNSHIP LINE RD (TR 118)	6/8/2009	11:38	e. coli	120	2	#/100ml	EPA 1103.1
041000111004	J&H	AF47962	U04G07	1.58	WOLF CK AT TOWNSHIP LINE RD (TR 118)	6/22/2009	11:16	e. coli	700	2	#/100ml	EPA 1103.1
041000111004	Alloway	MP-091049-07	U04G07	1.58	WOLF CK AT TOWNSHIP LINE RD (TR 118)	7/1/2009	11:10	e. coli	440	1	per 100mL	SM 9223B
041000111004	J&H	AF49544	U04G07	1.58	WOLF CK AT TOWNSHIP LINE RD (TR 118)	7/13/2009	11:40	e. coli	110	2	#/100ml	EPA 1103.1
041000111004	J&H	AF50626	U04G07	1.58	WOLF CK AT TOWNSHIP LINE RD (TR 118)	7/28/2009	11:21	e. coli	360	2	#/100ml	EPA 1103.1
041000111004	J&H	AF51631	U04G07	1.58	WOLF CK AT TOWNSHIP LINE RD (TR 118)	8/10/2009	11:06	e. coli	13	2	#/100ml	EPA 1103.1
041000111004	Alloway	MP-091313-07	U04G07	1.58	WOLF CK AT TOWNSHIP LINE RD (TR 118)	10/5/2009	12:05	e. coli	2000	1	/100mL	SM 9223B
041000111002	J&H	AF46800	U04G15	13.63	E BR WOLF CREEK AT TR 132	6/8/2009	9:25	e. coli	450	2	#/100ml	EPA 1103.1
041000111002	J&H	AF47965	U04G15	13.63	E BR WOLF CREEK AT TR 132	6/22/2009	9:29	e. coli	1200	2	#/100ml	EPA 1103.1
041000111002	Alloway	MP-091049-09	U04G15	13.63	E BR WOLF CREEK AT TR 132	7/1/2009	11:45	e. coli	1300	1	per 100mL	SM 9223B
041000111002	J&H	AF49547	U04G15	13.63	E BR WOLF CREEK AT TR 132	7/13/2009	9:36	e. coli	240	2	#/100ml	EPA 1103.1
041000111002	J&H	AF50628	U04G15	13.63	E BR WOLF CREEK AT TR 132	7/28/2009	9:34	e. coli	320	2	#/100ml	EPA 1103.1
041000111002	J&H	AF51633	U04G15	13.63	E BR WOLF CREEK AT TR 132	8/10/2009	9:28	e. coli	380	2	#/100ml	EPA 1103.1
041000111002	Alloway	MP-091084-09	U04G15	13.63	E BR WOLF CREEK AT TR 132	9/2/2009	11:45	e. coli	360	1	/100mL	SM 9223B
041000111002	Alloway	MP-091313-09	U04G15	13.63	E BR WOLF CREEK AT TR 132	10/5/2009	12:50	e. coli	180	1	/100mL	SM 9223B
041000111003	J&H	AF46795	201338	9	E BR WOLF CK AT TR 150	6/8/2009	8:39	e. coli	300	2	#/100ml	EPA 1103.1
041000111003	J&H	AF47961	201338	9	E BR WOLF CK AT TR 150	6/22/2009	9:05	e. coli	980	2	#/100ml	EPA 1103.1
041000111003	Alloway	MP-091049-03	201338	9	E BR WOLF CK AT TR 150	7/1/2009	11:30	e. coli	520	1	per 100mL	SM 9223B
041000111003	J&H	AF49543	201338	9	E BR WOLF CK AT TR 150	7/13/2009	9:17	e. coli	420	2	#/100ml	EPA 1103.1
041000111003	J&H	AF50625	201338	9	E BR WOLF CK AT TR 150	7/28/2009	9:20	e. coli	530	2	#/100ml	EPA 1103.1
041000111003	J&H	AF51630	201338	9	E BR WOLF CK AT TR 150	8/10/2009	9:12	e. coli	210	2	#/100ml	EPA 1103.1
041000111003	Alloway	MP-091084-02	201338	9	E BR WOLF CK AT TR 150	9/2/2009	11:30	e. coli	610	1	/100mL	SM 9223B
041000111003	Alloway	MP-091313-02	201338	9	E BR WOLF CK AT TR 150	10/5/2009	12:35	e. coli	250	1	/100mL	SM 9223B
041000111001	J&H	AF46799	U04G14	0.46	M BR OF EAST BRANCH OF WOLF CREEK AT CR 26	6/8/2009	10:08	e. coli	380	2	#/100ml	EPA 1103.1
041000111001	J&H	AF47964	U04G14	0.46	M BR OF EAST BRANCH OF WOLF CREEK AT CR 26	6/22/2009	10:06	e. coli	1200	2	#/100ml	EPA 1103.1
041000111001	Alloway	MP-091049-08	U04G14	0.46	M BR OF EAST BRANCH OF WOLF CREEK AT CR 26	7/1/2009	11:55	e. coli	920	1	per 100mL	SM 9223B
041000111001	J&H	AF49546	U04G14	0.46	M BR OF EAST BRANCH OF WOLF CREEK AT CR 26	7/13/2009	10:17	e. coli	560	2	#/100ml	EPA 1103.1
041000111001	J&H	AF50627	U04G14	0.46	M BR OF EAST BRANCH OF WOLF CREEK AT CR 26	7/28/2009	10:10	e. coli	320	2	#/100ml	EPA 1103.1
041000111001	J&H	AF51632	U04G14	0.46	M BR OF EAST BRANCH OF WOLF CREEK AT CR 26	8/10/2009	10:02	e. coli	670	2	#/100ml	EPA 1103.1
041000111001	Alloway	MP-091084-08	U04G14	0.46	M BR OF EAST BRANCH OF WOLF CREEK AT CR 26	9/2/2009	12:00	e. coli	610	1	/100mL	SM 9223B
041000111001	Alloway	MP-091313-08	U04G14	0.46	M BR OF EAST BRANCH OF WOLF CREEK AT CR 26	10/5/2009	13:05	e. coli	82	1	/100mL	SM 9223B

HUC12	Lab	Sample ID	Station ID	RM	LOCATION	DATE	TIME	PARAMETER	RESULT	PQL	UNIT	METHOD
041000111302	J&H	AF46317	500950	0.62	INDIAN CK AT HURDICK RD	6/3/2009	11:20	e. coli	<2	2	#/100ml	EPA 1103.1
041000111302	J&H	AF46314	500950	0.62	INDIAN CK AT HURDICK RD	6/3/2009	8:17	e. coli	590	2	#/100ml	EPA 1103.1
041000111302	J&H	AF47615	500950	0.62	INDIAN CK AT HURDICK RD	6/17/2009	8:40	e. coli	2000	2	#/100ml	EPA 1103.1
041000111302	Alloway	MP-091049-06	500950	0.62	INDIAN CK AT HURDICK RD	7/1/2009	10:15	e. coli	920	1	per 100mL	SM 9223B
041000111302	J&H	AF49117	500950	0.62	INDIAN CK AT HURDICK RD	7/8/2009	8:12	e. coli	1300	2	#/100ml	EPA 1103.1
041000111302	J&H	AF50273	500950	0.62	INDIAN CK AT HURDICK RD	7/22/2009	8:41	e. coli	2200	2	#/100ml	EPA 1103.1
041000111302	J&H	AF51215	500950	0.62	INDIAN CK AT HURDICK RD	8/5/2009	8:24	e. coli	3600	2	#/100ml	EPA 1103.1
041000111302	Alloway	MP-091084-07	500950	0.62	INDIAN CK AT HURDICK RD	9/2/2009	10:35	e. coli	980	1	/100mL	SM 9223B
041000111302	Alloway	MP-091313-06	500950	0.62	INDIAN CK AT HURDICK RD	10/5/2009	11:35	e. coli	550	1	/100mL	SM 9223B
041000111401	J&H	AF46917	U04Q16	0.9	GRIES DITCH AT STAFF RD	6/9/2009	9:14	e. coli	35	2	#/100ml	EPA 1103.1
041000111401	J&H	AF48040	U04Q16	0.9	GRIES DITCH AT STAFF RD	6/23/2009	9:53	e. coli	310	2	#/100ml	EPA 1103.1
041000111401	Alloway	MP-091049-11	U04Q16	0.9	GRIES DITCH AT STAFF RD	7/1/2009	9:40	e. coli	150	1	per 100mL	SM 9223B
041000111401	J&H	AF49626	U04Q16	0.9	GRIES DITCH AT STAFF RD	7/14/2009	9:37	e. coli	540	2	#/100ml	EPA 1103.1
041000111401	J&H	AF50734	U04Q16	0.9	GRIES DITCH AT STAFF RD	7/29/2009	10:36	e. coli	830	2	#/100ml	EPA 1103.1
041000111401	J&H	AF51729	U04Q16	0.9	GRIES DITCH AT STAFF RD	8/11/2009	9:43	e. coli	150	2	#/100ml	EPA 1103.1
041000111401	Alloway	MP-091084-11	U04Q16	0.9	GRIES DITCH AT STAFF RD	9/2/2009	9:45	e. coli	210	1	/100mL	SM 9223B
041000111401	Alloway	MP-091313-11	U04Q16	0.9	GRIES DITCH AT STAFF RD	10/5/2009	10:55	e. coli	45	1	/100mL	SM 9223B
041000111301	J&H	AF46914	201332	5.4	MUSKELLUNGE CK AT SPIELDENNER RD	6/9/2009	9:58	e. coli	450	2	#/100ml	EPA 1103.1
041000111301	J&H	AF48037	201332	5.4	MUSKELLUNGE CK AT SPIELDENNER RD	6/23/2009	10:40	e. coli	390	2	#/100ml	EPA 1103.1
041000111301	Alloway	MP-091049-01	201332	5.4	MUSKELLUNGE CK AT SPIELDENNER RD	7/1/2009	9:20	e. coli	460	1	per 100mL	SM 9223B
041000111301	J&H	AF49629	201332	5.4	MUSKELLUNGE CK AT SPIELDENNER RD	7/14/2009	10:14	e. coli	220	2	#/100ml	EPA 1103.1
041000111301	J&H	AF50732	201332	5.4	MUSKELLUNGE CK AT SPIELDENNER RD	7/29/2009	11:08	e. coli	350	2	#/100ml	EPA 1103.1
041000111301	J&H	AF51726	201332	5.4	MUSKELLUNGE CK AT SPIELDENNER RD	8/11/2009	10:19	e. coli	80	2	#/100ml	EPA 1103.1
041000111301	Alloway	MP-091084-01	201332	5.4	MUSKELLUNGE CK AT SPIELDENNER RD	9/2/2009	9:15	e. coli	120	1	/100mL	SM 9223B
041000111301	Alloway	MP-091313-01	201332	5.4	MUSKELLUNGE CK AT SPIELDENNER RD	10/5/2009	10:40	e. coli	26	1	/100mL	SM 9223B
041000111402	J&H	AF46915	U04S06	21.88	MUDDY CK AT TR 55	6/9/2009	9:24	e. coli	260	2	#/100ml	EPA 1103.1
041000111402	J&H	AF48038	U04S06	21.88	MUDDY CK AT TR 55	6/23/2009	10:04	e. coli	520	2	#/100ml	EPA 1103.1
041000111402	Alloway	MP-091049-17	U04S06	21.88	MUDDY CK AT TR 55	7/1/2009	9:35	e. coli	770	1	per 100mL	SM 9223B
041000111402	J&H	AF49625	U04S06	21.88	MUDDY CK AT TR 55	7/14/2009	9:45	e. coli	520	2	#/100ml	EPA 1103.1
041000111402	J&H	AF50733	U04S06	21.88	MUDDY CK AT TR 55	7/29/2009	10:43	e. coli	400	2	#/100ml	EPA 1103.1
041000111402	J&H	AF51727	U04S06	21.88	MUDDY CK AT TR 55	8/11/2009	9:52	e. coli	280	2	#/100ml	EPA 1103.1
041000111402	Alloway	MP-091084-03	U04S06	21.88	MUDDY CK AT TR 55	9/2/2009	9:30	e. coli	140	1	/100mL	SM 9223B
041000111402	Alloway	MP-091313-03	U04S06	21.88	MUDDY CK AT TR 55	10/5/2009	11:05	e. coli	240	1	/100mL	SM 9223B

HUC12	Lab	Sample ID	Station ID	RM	LOCATION	DATE	TIME	PARAMETER	RESULT	PQL	UNIT	METHOD
041000111403	Alloway	MP-091049-04	300676	2.5	LITTLE MUDDY CK AT KLINE RD	7/1/2009	8:30	e. coli	980	1	per 100mL	SM 9223B
041000111403	Alloway	MP-091084-04	300676	2.5	LITTLE MUDDY CK AT KLINE RD	9/2/2009	8:45	e. coli	210	1	/100mL	SM 9223B
041000111404	J&H	AF46918	U04S01	9.79	MUDDY CK AT CR 153	6/9/2009	10:53	e. coli	180	2	#/100ml	EPA 1103.1
041000111404	J&H	AF48041	U04S01	9.79	MUDDY CK AT CR 153	6/23/2009	11:31	e. coli	690	2	#/100ml	EPA 1103.1
041000111404	Alloway	MP-091049-12	U04S01	9.79	MUDDY CK AT CR 153	7/1/2009	8:45	e. coli	330	1	per 100mL	SM 9223B
041000111404	J&H	AF49627	U04S01	9.79	MUDDY CK AT CR 153	7/14/2009	11:00	e. coli	1100	2	#/100ml	EPA 1103.1
041000111404	J&H	AF50735	U04S01	9.79	MUDDY CK AT CR 153	7/29/2009	11:45	e. coli	2600	2	#/100ml	EPA 1103.1
041000111404	J&H	AF51730	U04S01	9.79	MUDDY CK AT CR 153	8/11/2009	10:53	e. coli	460	2	#/100ml	EPA 1103.1
041000111404	Alloway	MP-091084-12	U04S01	9.79	MUDDY CK AT CR 153	9/2/2009	8:30	e. coli	2400	1	/100mL	SM 9223B
041000111404	Alloway	MP-091313-12	U04S01	9.79	MUDDY CK AT CR 153	10/5/2009	10:25	e. coli	550	1	/100mL	SM 9223B

Appendix Table 5. Concentrations of pesticides and PCBs ( $\mu\text{g}/\text{kg}$  or  $\text{ppb}$  dry weight) and semi-volatile compounds ( $\text{mg}/\text{kg}$  or  $\text{ppm}$  dry weight) in sediment samples collected from the Lower Sandusky River Basin during 2009. Values reported as less than ( $<$ ) were below the quantitation limit.

HUC	0410001111-04		0410001111-05	
Location	Sugar Ck at TR 76	Sugar Ck at TR 148	Sandusky R at TR 143	Sandusky R ust Wolf Ck
River Mile	RM 3.11	RM 1.05	RM 31.95	RM 23.00
STORET ID	U04Q10	U04Q08	U04S25	U04Q06
Date Sampled	8/26/2009	8/26/2009	8/26/2009	8/24/2009
<b>Method 8082A - Pesticides (<math>\mu\text{g}/\text{kg}</math>)</b>				
% Solids	62.8	72.3	62.7	70.4
Aldrin	<6.3	<5.5	<6.4	<5.7
a-BHC	<6.3	<5.5	<6.4	<5.7
b-BHC	<6.3	<5.5	<6.4	<5.7
d-BHC	<6.3	<5.5	<6.4	<5.7
y-BHC	<6.3	<5.5	<6.4	<5.7
4,4'-DDD	<6.3	<5.5	<6.4	<5.7
4,4'-DDE	<6.3	<5.5	<6.4	<5.7
4,4'-DDT	<6.3	<5.5	<6.4	<5.7
Dieldrin	<6.3	<5.5	<6.4	<5.7
Endosulfan I	<6.3	<5.5	<6.4	<5.7
Endosulfan II	<6.3	<5.5	<6.4	<5.7
Endosulfan sulfate	<6.3	<5.5	<6.4	<5.7
Endrin	<6.3	<5.5	<6.4	<5.7
Endrin aldehyde	<6.3	<5.5	<6.4	<5.7
Heptachlor	<6.3	<5.5	<6.4	<5.7
Heptachlor epoxide	<6.3	<5.5	<6.4	<5.7
Methoxychlor	<6.3	<5.5	<6.4	<5.7
Mirex	<6.3	<5.5	<6.4	<5.7
Hexachlorobenzene	<6.3	<5.5	<6.4	<5.7
<b>Method 8082A - PCBs (<math>\mu\text{g}/\text{kg}</math>)</b>				
PCB-1016	<31.6	<27.5	<31.8	<28.3
PCB-1221	<31.6	<27.5	<31.8	<28.3
PCB-1232	<31.6	<27.5	<31.8	<28.3
PCB-1242	<31.6	<27.5	<31.8	<28.3
PCB-1248	<31.6	<27.5	<31.8	<28.3
PCB-1254	<31.6	<27.5	<31.8	<28.3
PCB-1260	<31.6	<27.5	<31.8	<28.3

J – the analyte was positively identified, the associated value is estimated due to poor QC recovery.

UJ - Analyte was not detected above the quantitation limit which is estimated due to poor QC recovery

Appendix Table 5. continued

HUC	0410001111-04		0410001111-05	
Location	Sugar Ck at TR 76	Sugar Ck at TR 148	Sandusky R at TR 143	Sandusky R ust Wolf Ck
River Mile	RM 3.11	RM 1.05	RM 31.95	RM 23.00
STORET ID	U04Q10	U04Q08	U04S25	U04Q06
Date Sampled	8/26/2009	8/26/2009	8/26/2009	8/24/2009
<b>Method 8270 - Semivolatile Compounds (mg/kg)</b>				
Acenaphthene	<0.63	<0.55	<0.64	<0.56
Acenaphthylene	<0.63	<0.55	<0.64	<0.56
Acetophenone	<0.63	<0.55	<0.64	<0.56
2-Acetylaminofluorene	<0.63	<0.55	<0.64	<0.56
Aniline	<3.2	<2.8	<3.2	<2.8
Anthracene	<0.63	<0.55	<0.64	<0.56
Benz[a]anthracene	<0.63	<0.55	<0.64	<0.56
Benzo[a]pyrene	<0.63	<0.55	<0.64	<0.56
Benzo[b]fluoranthene	<0.63	<0.55	<0.64	<0.56
Benzo[g,h,i]perylene	<0.63	<0.55	<0.64	<0.56
Benzo[k]fluoranthene	<0.63	<0.55	<0.64	<0.56
Benzyl alcohol	<0.63	<0.55	<0.64	<0.56
bis(2-Chloroethoxy)methane	<0.63	<0.55	<0.64	<0.56
bis(2-Chloroethyl)ether	<0.63	<0.55	<0.64	<0.56
bis(2-Chloroisopropyl)ether	<0.63	<0.55	<0.64	<0.56
bis(2-Ethylhexyl)phthalate	<0.63	<0.55	<0.64	<0.56
4-Bromophenyl-phenylether	<0.63	<0.55	<0.64	<0.56
Butylbenzylphthalate	<0.63	<0.55	<0.64	<0.56
4-Chloro-3-methylphenol	<0.63	<0.55	<0.64	<0.56
2-Chloronaphthalene	<0.63	<0.55	<0.64	<0.56
2-Chlorophenol	<0.63	<0.55	<0.64	<0.56
4-Chlorophenyl-phenylether	<0.63	<0.55	<0.64	<0.56
Chrysene	<0.63	<0.55	<0.64	<0.56
Di-n-butylphthalate	<0.63	<0.55	<0.64	<0.56
Di-n-octylphthalate	<0.63	<0.55	<0.64	<0.56
Dibenz[a,h]anthracene	<0.63	<0.55	<0.64	<0.56
Dibenzofuran	<0.63	<0.55	<0.64	<0.56
1,3-Dichlorobenzene	<0.63	<0.55	<0.64	<0.56
1,4-Dichlorobenzene	<0.63	<0.55	<0.64	<0.56
1,2-Dichlorobenzene	<0.63	<0.55	<0.64	<0.56
3,3'-Dichlorobenzidine	<3.2	<2.8	<3.2	<2.8
2,6-Dichlorophenol	<0.63	<0.55	<0.64	<0.56
2,4-Dichlorophenol	<0.63	<0.55	<0.64	<0.56
Diethylphthalate	<0.63	<0.55	<0.64	<0.56
p-Dimethylaminoazobenzene	<0.63	<0.55	<0.64	<0.56
7,12-	<3.2	<2.8	<3.2	<2.8
2,4-Dimethylphenol	<0.63	<0.55	<0.64	<0.56
Dimethylphthalate	<0.63	<0.55	<0.64	<0.56
4,6-Dinitro-2-methylphenol	<0.63	<0.55 UJ	<0.64 UJ	<0.56 UJ
1,3-Dinitrobenzene	<0.63	<0.55	<0.64	<0.56
2,4-Dinitrophenol	<3.2	<2.8 UJ	<3.2 UJ	<2.8 UJ
2,6-Dinitrotoluene	<0.63	<0.55	<0.64	<0.56
2,4-Dinitrotoluene	<0.63	<0.55	<0.64	<0.56
Dinoseb	<0.63	<0.55	<0.64	<0.56
Diphenylamine	<0.63	<0.55	<0.64	<0.56
Ethyl methanesulfonate	<0.63	<0.55	<0.64	<0.56
Fluoranthene	<0.63	<0.55	<0.64	<0.56

J – the analyte was positively identified, the associated value is estimated due to poor QC recovery.

UJ - Analyte was not detected above the quantitation limit which is estimated due to poor QC recovery

Appendix Table 5. continued

HUC	0410001111-04		0410001111-05	
Location	Sugar Ck at TR 76	Sugar Ck at TR 148	Sandusky R at TR 143	Sandusky R ust Wolf Ck
River Mile	RM 3.11	RM 1.05	RM 31.95	RM 23.00
STORET ID	U04Q10	U04Q08	U04S25	U04Q06
Date Sampled	8/26/2009	8/26/2009	8/26/2009	8/24/2009
<b>Method 8270 - Semivolatile Compounds (mg/kg)</b>				
Fluorene	<0.63	<0.55	<0.64	<0.56
Hexachlorobenzene	<0.63	<0.55	<0.64	<0.56
Hexachlorobutadiene	<0.63	<0.55	<0.64	<0.56
Hexachlorocyclopentadiene	<0.63	<0.55	<0.64	<0.56
Hexachloroethane	<0.63	<0.55	<0.64	<0.56
Hexachloropropene	<0.63	<0.55	<0.64	<0.56
Indeno[1,2,3-cd]pyrene	<0.63	<0.55	<0.64	<0.56
Isophorone	<0.63	<0.55	<0.64	<0.56
Methyl methanesulfonate	<0.63	<0.55	<0.64	<0.56
3-Methylcholanthrene	<0.63	<0.55	<0.64	<0.56
2-Methylnaphthalene	<0.63	<0.55	<0.64	<0.56
3&4-Methylphenol	<0.63	<0.55	<0.64	<0.56
2-Methylphenol	<0.63	<0.55	<0.64	<0.56
N-Nitroso-di-n-butylamine	<0.63	<0.55	<0.64	<0.56
N-Nitroso-di-n-propylamine	<0.63	<0.55	<0.64	<0.56
N-Nitrosomorpholine	<0.63	<0.55	<0.64	<0.56
N-Nitrosopiperidine	<0.63	<0.55	<0.64	<0.56
N-Nitrosopyrrolidine	<0.63	<0.55	<0.64	<0.56
Naphthalene	<0.63	<0.55	<0.64	<0.56
1,4-Naphthoquinone	<0.63	<0.55	<0.64	<0.56
2-Nitroaniline	<0.63	<0.55	<0.64	<0.56
4-Nitroaniline	<0.63	<0.55	<0.64	<0.56
Nitrobenzene	<0.63	<0.55	<0.64	<0.56
4-Nitrophenol	<3.2	<2.8 UJ	<3.2 UJ	<2.8 UJ
2-Nitrophenol	<0.63	<0.55	<0.64	<0.56
Pentachlorobenzene	<0.63	<0.55	<0.64	<0.56
Pentachlorophenol	<0.63 UJ	<0.55 UJ	<0.64 UJ	<0.56 UJ
Phenacetin	<0.63	<0.55	<0.64	<0.56
Phenanthrene	<0.63	<0.55	<0.64	<0.56
Phenol	<0.63	<0.55	<0.64	<0.56
2-Picoline	<0.63	<0.55	<0.64	<0.56
Pronamide	<0.63	<0.55	<0.64	<0.56
Pyrene	<0.63	<0.55	<0.64	<0.56
Safrole	<0.63	<0.55	<0.64	<0.56
1,2,4,5-Tetrachlorobenzene	<0.63	<0.55	<0.64	<0.56
2,3,4,6-Tetrachlorophenol	<0.63	<0.55	<0.64	<0.56
1,2,4-Trichlorobenzene	<0.63	<0.55	<0.64	<0.56
2,4,6-Trichlorophenol	<0.63	<0.55 UJ	<0.64 UJ	<0.56 UJ
2,4,5-Trichlorophenol	<0.63	<0.55	<0.64	<0.56

J – the analyte was positively identified, the associated value is estimated due to poor QC recovery.

UJ - Analyte was not detected above the quantitation limit which is estimated due to poor QC recovery

Appendix Table 5. continued

Location	Sandusky R at Ohio Turnpike	Sandusky R ust	Gries Ditch at Staff Rd.	Muddy Ck at TR 55	Muddy Ck at SR 53
River Mile	RM 8.94	RM 1.80	RM 0.90	RM 21.88	RM 1.23
STORET ID	U04P01	201314	U04Q16	U04S06	U04Q13
Date Sampled	7/27/2009	7/27/2009	8/24/2009	8/24/2009	8/24/2009
<b>Method 8082A - Pesticides (ug/kg)</b>					
% Solids	50.7	46.9	34.4	59.6	55.7
Aldrin	<7.8	<8.5	<11.5	<6.7	<7.1
a-BHC	<7.8	<8.5	<11.5	<6.7	<7.1
b-BHC	<7.8	<8.5	<11.5	<6.7	<7.1
d-BHC	<7.8	<8.5	<11.5	<6.7	<7.1
y-BHC	<7.8	<8.5	<11.5	<6.7	<7.1
4,4'-DDD	<7.8	<8.5	<11.5	<6.7	<7.1
4,4'-DDE	<7.8	<8.5	<11.5	<6.7	<7.1
4,4'-DDT	<7.8	<8.5	<11.5	<6.7	<7.1
Dieldrin	<7.8	<8.5	<11.5	<6.7	<7.1
Endosulfan I	<7.8	<8.5	<11.5	<6.7	<7.1
Endosulfan II	<7.8	<8.5	<11.5	<6.7	<7.1
Endosulfan sulfate	<7.8	<8.5	<11.5	<6.7	<7.1
Endrin	<7.8	<8.5	<11.5	<6.7	<7.1
Endrin aldehyde	<7.8	<8.5	<11.5	<6.7	<7.1
Heptachlor	<7.8	<8.5	<11.5	<6.7	<7.1
Heptachlor epoxide	<7.8	<8.5	<11.5	<6.7	<7.1
Methoxychlor	<7.8	<8.5	<11.5	<6.7	<7.1
Mirex	<7.8	<8.5	<11.5	<6.7	<7.1
Hexachlorobenzene	<7.8	<8.5	<11.5	<6.7	<7.1
Alpha-Chlordane	<7.8	<8.5			
Gamma-Chlordane	<7.8	<8.5			
Oxychlordane	<7.8	<8.5			
cis-Nonachlor	<7.8	<8.5			
trans-Nonachlor	<7.8	<8.5			
Toxaphene	<39.2	<42.6			
<b>Method 8082A - PCBs (ug/kg)</b>					
PCB-1016	<39.2	<42.6	<57.6	<33.5	<35.7
PCB-1221	<39.2	<42.6	<57.6	<33.5	<35.7
PCB-1232	<39.2	<42.6	<57.6	<33.5	<35.7
PCB-1242	<39.2	<42.6	<57.6	<33.5	<35.7
PCB-1248	<39.2	<42.6	<57.6	<33.5	<35.7
PCB-1254	<39.2	<42.6	<57.6	<33.5	<35.7
PCB-1260	<39.2	<42.6	<57.6	<33.5	<35.7

J – the analyte was positively identified, the associated value is estimated due to poor QC recovery.

UJ - Analyte was not detected above the quantitation limit which is estimated due to poor QC recovery

Appendix Table 5. continued

HUC	0410001113-03		0410001114-01	0410001114-02	0410001114-04
Location	Sandusky R at Ohio Turnpike	Sandusky R ust Yellow Swale	Gries Ditch at Staff Rd.	Muddy Ck at TR 55	Muddy Ck at SR 53
River Mile	RM 8.94	RM 1.80	RM 0.90	RM 21.88	RM 1.23
STORET ID	U04P01	201314	U04Q16	U04S06	U04Q13
Date Sampled	7/27/2009	7/27/2009	8/24/2009	8/24/2009	8/24/2009
<b>Method 8270 - Semivolatile Compounds (mg/kg)</b>					
Acenaphthene	<0.78	<0.85	<1.16	<0.67	<0.7
Acenaphthylene	<0.78	<0.85	<1.16	<0.67	<0.7
Acetophenone	<0.78	<0.85	<1.16	<0.67	<0.7
2-Acetylaminofluorene	<0.78	<0.85	<1.16	<0.67	<0.7
Aniline	<3.9	<4.3	<5.8	<3.3	<3.5
Anthracene	<0.78	<0.85	<1.16	<0.67	<0.7
Benz[a]anthracene	<0.78	<0.85	<1.16	<0.67	<0.7
Benzo[a]pyrene	<0.78	<0.85	<1.16	<0.67	<0.7
Benzo[b]fluoranthene	<0.78	<0.85	<1.16	<0.67	<0.7
Benzo[g,h,i]perylene	<0.78	<0.85	<1.16	<0.67	<0.7
Benzo[k]fluoranthene	<0.78	<0.85	<1.16	<0.67	<0.7
Benzyl alcohol	<0.78	<0.85	<1.16	<0.67	<0.7
bis(2-Chloroethoxy)methane	<0.78	<0.85	<1.16	<0.67	<0.7
bis(2-Chloroethyl)ether	<0.78	<0.85	<1.16	<0.67	<0.7
bis(2-Chloroisopropyl)ether	<0.78	<0.85	<1.16	<0.67	<0.7
bis(2-Ethylhexyl)phthalate	<0.78	<0.85	<1.16	<0.67	<0.7
4-Bromophenyl-phenylether	<0.78	<0.85	<1.16	<0.67	<0.7
Butylbenzylphthalate	<0.78	<0.85	<1.16	<0.67	<0.7
4-Chloro-3-methylphenol	<0.78	<0.85	<1.16	<0.67	<0.7
2-Chloronaphthalene	<0.78	<0.85	<1.16	<0.67	<0.7
2-Chlorophenol	<0.78	<0.85	<1.16	<0.67	<0.7
4-Chlorophenyl-phenylether	<0.78	<0.85	<1.16	<0.67	<0.7
Chrysene	<0.78	<0.85	<1.16	<0.67	<0.7
Di-n-butylphthalate	<0.78	<0.85	<1.16	<0.67	<0.7
Di-n-octylphthalate	<0.78	<0.85	<1.16	<0.67	<0.7
Dibenz[a,h]anthracene	<0.78	<0.85	<1.16	<0.67	<0.7
Dibenzofuran	<0.78	<0.85	<1.16	<0.67	<0.7
1,3-Dichlorobenzene	<0.78	<0.85	<1.16	<0.67	<0.7
1,4-Dichlorobenzene	<0.78	<0.85	<1.16	<0.67	<0.7
1,2-Dichlorobenzene	<0.78	<0.85	<1.16	<0.67	<0.7
3,3'-Dichlorobenzidine	<3.9	<4.3	<5.8	<3.3	<3.5
2,6-Dichlorophenol	<0.78	<0.85	<1.16	<0.67	<0.7
2,4-Dichlorophenol	<0.78	<0.85	<1.16	<0.67	<0.7
Diethylphthalate	<0.78	<0.85	<1.16	<0.67	<0.7
p-Dimethylaminoazobenzene	<0.78	<0.85	<1.16	<0.67	<0.7
7,12-Dimethylbenz[a]anthracene	<3.9	<4.3	<5.8	<3.3	<3.5
2,4-Dimethylphenol	<0.78	<0.85	<1.16	<0.67	<0.7
Dimethylphthalate	<0.78	<0.85	<1.16	<0.67	<0.7
4,6-Dinitro-2-methylphenol	<0.78	<0.85	<1.16 UJ	<0.67 UJ	<0.7 UJ
1,3-Dinitrobenzene	<0.78	<0.85	<1.16	<0.67	<0.7
2,4-Dinitrophenol	<3.9	<4.3	<5.8 UJ	<3.3 UJ	<3.5 UJ
2,6-Dinitrotoluene	<0.78	<0.85	<1.16	<0.67	<0.7
2,4-Dinitrotoluene	<0.78	<0.85	<1.16	<0.67	<0.7
Dinoseb	<0.78	<0.85	<1.16	<0.67	<0.7
Diphenylamine	<0.78	<0.85	<1.16	<0.67	<0.7
Ethyl methanesulfonate	<0.78	<0.85	<1.16	<0.67	<0.7
Fluoranthene	<0.78	<0.85	<1.16	<0.67	<0.7

J – the analyte was positively identified, the associated value is estimated due to poor QC recovery.

UJ - Analyte was not detected above the quantitation limit which is estimated due to poor QC recovery



Appendix Table 5. continued

HUC	0410001113-03		0410001114-01	0410001114-02	0410001114-04
Location	Sandusky R at Ohio Turnpike	Sandusky R ust Yellow Swale	Gries Ditch at Staff Rd.	Muddy Ck at TR 55	Muddy Ck at SR 53
River Mile	RM 8.94	RM 1.80	RM 0.90	RM 21.88	RM 1.23
STORET ID	U04P01	201314	U04Q16	U04S06	U04Q13
Date Sampled	7/27/2009	7/27/2009	8/24/2009	8/24/2009	8/24/2009
Method 8270 - Semivolatile Compounds (mg/kg) continued.					
Fluorene	<0.78	<0.85	<1.16	<0.67	<0.7
Hexachlorobenzene	<0.78	<0.85	<1.16	<0.67	<0.7
Hexachlorobutadiene	<0.78	<0.85	<1.16	<0.67	<0.7
Hexachlorocyclopentadiene	<0.78	<0.85	<1.16	<0.67	<0.7
Hexachloroethane	<0.78	<0.85	<1.16	<0.67	<0.7
Hexachloropropene	<0.78	<0.85	<1.16	<0.67	<0.7
Indeno[1,2,3-cd]pyrene	<0.78	<0.85	<1.16	<0.67	<0.7
Isophorone	<0.78	<0.85	<1.16	<0.67	<0.7
Methyl methanesulfonate	<0.78	<0.85	<1.16	<0.67	<0.7
3-Methylcholanthrene	<0.78	<0.85	<1.16	<0.67	<0.7
2-Methylnaphthalene	<0.78	<0.85	<1.16	<0.67	<0.7
3&4-Methylphenol	<0.78	<0.85	<1.16	<0.67	<0.7
2-Methylphenol	<0.78	<0.85	<1.16	<0.67	<0.7
N-Nitroso-di-n-butylamine	<0.78	<0.85	<1.16	<0.67	<0.7
N-Nitroso-di-n-propylamine	<0.78	<0.85	<1.16	<0.67	<0.7
N-Nitrosomorpholine	<0.78	<0.85	<1.16	<0.67	<0.7
N-Nitrosopiperidine	<0.78	<0.85	<1.16	<0.67	<0.7
N-Nitrosopyrrolidine	<0.78	<0.85	<1.16	<0.67	<0.7
Naphthalene	<0.78	<0.85	<1.16	<0.67	<0.7
1,4-Naphthoquinone	<0.78	<0.85	<1.16	<0.67	<0.7
2-Nitroaniline	<0.78	<0.85	<1.16	<0.67	<0.7
4-Nitroaniline	<0.78	<0.85	<1.16	<0.67	<0.7
Nitrobenzene	<0.78	<0.85	<1.16	<0.67	<0.7
4-Nitrophenol	<3.9	<4.3	<5.8 UJ	<3.3 UJ	<3.5 UJ
2-Nitrophenol	<0.78	<0.85	<1.16	<0.67	<0.7
Pentachlorobenzene	<0.78	<0.85	<1.16	<0.67	<0.7
Pentachlorophenol	<0.78	<0.85	9.41 J	<0.67 UJ	3.48 J
Phenacetin	<0.78	<0.85	<1.16	<0.67	<0.7
Phenanthrene	<0.78	<0.85	<1.16	<0.67	<0.7
Phenol	<0.78	<0.85	<1.16	<0.67	<0.7
2-Picoline	<0.78	<0.85	<1.16	<0.67	<0.7
Pronamide	<0.78	<0.85	<1.16	<0.67	<0.7
Pyrene	<0.78	<0.85	<1.16	<0.67	<0.7
Safrole	<0.78	<0.85	<1.16	<0.67	<0.7
1,2,4,5-Tetrachlorobenzene	<0.78	<0.85	<1.16	<0.67	<0.7
2,3,4,6-Tetrachlorophenol	<0.78	<0.85	<1.16	<0.67	<0.7
1,2,4-Trichlorobenzene	<0.78	<0.85	<1.16	<0.67	<0.7
2,4,6-Trichlorophenol	<0.78	<0.85	<1.16 UJ	<0.67 UJ	<0.7 UJ
2,4,5-Trichlorophenol	<0.78	<0.85	<1.16	<0.67	<0.7

J – the analyte was positively identified, the associated value is estimated due to poor QC recovery.

UJ - Analyte was not detected above the quantitation limit which is estimated due to poor QC recovery

Appendix Table 6. Qualitative Habitat Evaluation Index (QHEI) Scoring of Select Locations in the Lower Sandusky River Study Area during 2009.

WWH Attributes

MWH Attributes

Key  
QHEI  
Components

- No Channelization or Recovered
- Bank/Channel/Gravel Substrates
- Silt Free Substrates
- Good/Excellent Substrates
- Moderate/High Sinuosity
- Extensive/Moderate Cover
- Fast Current/Eddies
- Low/Natural Overall Embeddedness
- Max Depth > 40 cm
- Low/Natural Rifle Embeddedness

High Influence

Moderate Influence

River Mile	QHEI	Gradient (ft/mile)	Total WWH Attributes	Channelized or No Recovery Silt/Cluck Substrates	No Sinuosity Sparse/No Cover Max Depth < 40 cm (WD, HW)	Total H.L. MWH Attributes	Recovering Channel Heavy/Moderate Silt Cover Sand Substrates (Boat)	Handspan Substrate Origin Fair/Poor Development	Low Sinuosity Only 1-2 Cover Types Intermittent and Poor Pools	No Fast Current	High/Med. Overall Embeddedness	High/Med. Rifle Embeddedness	No Rifle	Total M.L. MWH Attributes	(MWH HL+1)/(WWH+1) Ratio	(MWH ML+1)/(MWH+1) Ratio
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(05-001) Sandusky River

Year: 2009

65.1	81.5	2.43	8			0								2	0.11	0.33
53.0	60.5	0.93	4			1								5	0.40	1.40
48.0	86.5	1.72	9			0								1	0.10	0.20
43.2	45.5	0.10	3			1								6	0.50	2.00
41.5	83.0	2.16	8			0								2	0.11	0.33
39.6	82.5	4.67	8			0								1	0.11	0.22
33.6	69.0	2.99	6			0								4	0.14	0.71
27.0	65.0	0.54	5			0								5	0.17	1.00
23.1	83.5	0.54	8			0								2	0.11	0.33
21.3	76.0	3.33	8			0								2	0.11	0.33
19.4	59.0	0.10	5			0								6	0.17	1.17
18.3	52.0	0.10	4			1								6	0.40	1.60
16.8	93.0	7.58	8			0								1	0.11	0.22
15.2	67.0	0.10	6			0								5	0.14	0.86
12.8	67.0	0.10	6			0								5	0.14	0.86
5.5	60.0	0.10	6			1								4	0.29	0.86
1.3	64.5	0.10	6			1								4	0.29	0.86

(05-002) Bark Creek

Year: 2009

3.2	32.0	6.67	1			4								5	2.50	5.00
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(05-003) Muskellunge Creek

Year: 2009

16.7	38.5	3.05	3			2								6	0.75	2.25
5.4	58.5	4.35	3			1								6	0.50	2.00
0.8	69.0	0.10	7			0								3	0.13	0.50

(05-004) Indian Creek

Year: 2009

0.7	42.0	8.93	2			3								5	1.33	3.00
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(05-005) Wolf Creek

Year: 2009

12.9	40.0	4.24	2			2								6	1.00	3.00
5.3	60.5	9.80	4			1								4	0.40	1.20
1.6	53.0	10.00	2			2								7	1.00	3.33

WWH Attributes

MWH Attributes

Key  
QHEI  
Components

- No Channelization or Recovered
- Bankfull/Cobble/Gravel Substrates
- Silt Free Substrates
- Good/Excellent Substrates
- Moderate/High Sinuosity
- Extensive/Moderate Cover
- Fast Current/Eddies
- Low/Natural Overall Embeddedness
- Max Depth > 40 cm
- Low/Natural Rifle Embeddedness

High Influence

Moderate Influence

River Mile	QHEI	Gradient (ft/mile)	WWH Attributes									Total WWH Attributes	High Influence				Moderate Influence				Total M.L. MWH Attributes	(MWH HL+1)/(WWH+1) Ratio	(MWH ML+1)/(MWH+1) Ratio																								
			No Channelization or Recovered	Bankfull/Cobble/Gravel Substrates	Silt Free Substrates	Good/Excellent Substrates	Moderate/High Sinuosity	Extensive/Moderate Cover	Fast Current/Eddies	Low/Natural Overall Embeddedness	Max Depth > 40 cm	Low/Natural Rifle Embeddedness	Channelized or No Recovery	Silt/Cluck Substrates	No Sinuosity	Sparse/No Cover	Max Depth < 40 cm (WD, HW)	Recovering Channel	Heavy/Moderate Silt Cover	Sand Substrates (Boat)	Human Substrate Origin	Fair/Poor Development	Low Sinuosity	Only 1-2 Cover Types	Intermittent and Poor Pools	No Fast Current	High/Med. Overall Embeddedness	High/Med. Rifle Embeddedness	No Rifle																		
(05-005) Wolf Creek																																															
Year: 2009																																															
0.6	84.0	11.36	■	■	■	■	■	■	■	■	■	■	8	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■											
(05-006) East Branch Wolf Creek																																															
Year: 2009																																															
18.9	51.5	8.20	■	■	■	■	■	■	■	■	■	■	2	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■										
13.7	59.5	5.95	■	■	■	■	■	■	■	■	■	■	5	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■								
9.0	52.5	3.03	■	■	■	■	■	■	■	■	■	■	3	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■							
0.5	84.0	10.20	■	■	■	■	■	■	■	■	■	■	7	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■						
(05-007) Snuff Creek																																															
Year: 2009																																															
0.4	39.5	5.21	■	■	■	■	■	■	■	■	■	■	1	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■						
(05-008) East Branch East Branch Wolf Creek																																															
Year: 2009																																															
3.4	42.5	4.17	■	■	■	■	■	■	■	■	■	■	2	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■				
1.5	71.5	10.00	■	■	■	■	■	■	■	■	■	■	6	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■		
(05-009) Middle Branch East Branch Wolf Creek																																															
Year: 2009																																															
0.1	80.0	6.25	■	■	■	■	■	■	■	■	■	■	7	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■			
(05-010) Sugar Creek																																															
Year: 2009																																															
3.1	47.0	20.41	■	■	■	■	■	■	■	■	■	■	2	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■			
1.1	71.0	6.85	■	■	■	■	■	■	■	■	■	■	5	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
(05-011) Spicer Creek																																															
Year: 2009																																															
0.5	67.5	16.67	■	■	■	■	■	■	■	■	■	■	5	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■		
(05-080) Plum Run																																															
Year: 2009																																															
0.8	37.5	5.05	■	■	■	■	■	■	■	■	■	■	1	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
(05-081) Harrison Creek																																															
Year: 2009																																															
0.1	64.5	6.49	■	■	■	■	■	■	■	■	■	■	4	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
(05-098) Trib. to E. Br. Wolf Creek (18.60)																																															
Year: 2009																																															
0.1	29.0	8.20	■	■	■	■	■	■	■	■	■	■	1	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■

WWH Attributes

MWH Attributes

Key  
QHEI  
Components

River Mile	QHEI	Gradient (ft/mile)	WWH Attributes										MWH Attributes										Total M.L. MWH Attributes	(MWH HL+1)/(WWH+1) Ratio	(MWH ML+1)/(WWH+1) Ratio							
			No Channelization/Recreated	Bank/Cobble/Gravel Substrates	Silt Free Substrates	Good/Excellent Substrates	Moderate/Poor Sinuosity	Extensive/Moderate Cover	Fast Current/Eddies	Low/Natural Overall Embeddedness	Max Depth > 40 cm	Low/Natural Riffle Embeddedness	Total WWH Attributes	Channelized or No Recovery	Silt/Cluck Substrates	No Sinuosity	Sparse/No Cover	Max Depth < 40 cm (WD, HW)	Total H.L. MWH Attributes	Recovering Channel	Heavy/Moderate Silt Cover	Sand Substrates (Boat)				Human Substrate Origin	Fair/Poor Development	Low Sinuosity	Only 1-2 Cover Types	Intermittent and Poor Pools	No Fast Current	High/Med. Overall Embeddedness
(05-219) Muddy Creek																																
Year: 2009																																
28.3	29.0	1.62	■								2	◆		◆		2	●		●	●	●	●	●	●	●	●	●	●	●	7	1.00	3.33
21.3	71.0	3.50	■	■	■	■	■				6					0	●													4	0.14	0.71
18.7	76.0	11.63	■	■		■	■			■	6				◆	1			●											3	0.29	0.71
9.8	62.0	7.46	■	■		■	■			■	5					0	●		●											5	0.17	1.00
0.9	50.5	0.10	■	■	■	■				■	5	◆		◆		2	●													4	0.50	1.17
(05-220) Little Muddy Creek																																
Year: 2009																																
7.6	39.0	8.77								■	1	◆		◆	◆	3	●	●		●										6	2.00	5.00
1.7	47.5	0.10	■			■	■			■	4	◆		◆		2	●		●											5	0.60	1.60
(05-222) South Branch Muddy Creek																																
Year: 2009																																
1.6	28.0	3.09	■								1	◆	◆		◆	4	●		●	●										6	2.50	5.50
(05-223) Gries Ditch																																
Year: 2009																																
4.8	24.5	5.88									0	◆		◆	◆	4	●		●		●									6	5.00	*. **
1.0	55.0	14.71	■	■		■				■	4				◆	2	●		●											5	0.60	1.60

Appendix Table 7. Lower Sandusky River study area Index of Biotic Integrity (IBI) scoring, 2009.

River Mile	Type	Date	Drainage area (sq mi)	Number of						Percent of Individuals					Rel.No. minus tolerants /(0.3km)	IBI	
				Total species	Minnow species	Headwater species	Sensitive species	Darter & Sculpin species	Simple Lithophils	Tolerant fishes	Omni- vores	Pioneering fishes	Insect- ivores	DELT anomalies			
<b><i>Bark Creek - (05-002)</i></b>																	
Year: 2009																	
3.20	E	08/11/2009	10.0	9(3)	4(3)	0(1)	0(1)	1(1)	1(1)	91(1)	85(1)	84(1)	12(1)	0.0(5)	33(1)	20	
<b><i>Muskellunge Creek - (05-003)</i></b>																	
Year: 2009																	
16.70	E	08/10/2009	17.7	11(3)	4(3)	1(1)	2(1)	5(5)	5(3)	26(5)	5(5)	47(3)	71(5)	0.0(5)	822(5)	44	
<b><i>Indian Creek - (05-004)</i></b>																	
Year: 2009																	
0.70	E	09/14/2009	11.2	9(3)	8(5)	1(1)	1(1)	0(1)	2(1)	46(3)	43(1)	85(1)	53(5)	0.0(5)	323(3)	30	
<b><i>Snuff Creek - (05-007)</i></b>																	
Year: 2009																	
0.40	E	07/21/2009	4.7	8(3)	5(3)	1(1)	0(1)	2(3)	4(3)	89(1)	21(3)	62(1)	10(1)	0.0(5)	68(1)	26	
<b><i>E. Br. E. Br. Wolf C - (05-008)</i></b>																	
Year: 2009																	
3.40	E	07/22/2009	6.8	8(3)	5(3)	1(1)	0(1)	1(1)	3(3)	65(1)	14(5)	63(1)	9(1)	0.0(5)	818(5)	30	
<b><i>E. Br. E. Br. Wolf C - (05-008)</i></b>																	
Year: 2009																	
1.50	E	08/10/2009	19.7	18(5)	7(5)	2(3)	3(1)	6(5)	8(5)	31(3)	13(5)	36(3)	43(3)	0.0(5)	1566(5)	48	
0.10	E	07/22/2009	11.5	13(3)	6(3)	2(3)	2(1)	5(5)	7(5)	65(1)	15(5)	69(1)	31(3)	0.0(5)	652(3)	38	
<b><i>Sugar Creek - (05-010)</i></b>																	
Year: 2009																	
3.10	E	07/21/2009	9.4	11(3)	5(3)	2(3)	1(1)	3(3)	4(3)	31(5)	3(5)	38(3)	62(5)	0.0(5)	578(3)	42	
1.10	E	07/21/2009	13.0	15(3)	5(3)	3(3)	4(3)	7(5)	8(5)	46(3)	23(3)	32(3)	48(5)	0.0(5)	594(3)	44	
<b><i>Spicer Creek - (05-011)</i></b>																	
Year: 2009																	
0.50	E	07/21/2009	12.4	21(5)	8(5)	1(1)	5(3)	4(3)	6(3)	71(1)	64(1)	72(1)	23(3)	0.0(5)	610(3)	34	
<b><i>Plum Run - (05-080)</i></b>																	
Year: 2009																	
0.80	E	07/21/2009	10.1	18(5)	6(3)	1(1)	2(1)	4(5)	4(3)	43(3)	18(3)	46(3)	53(5)	0.0(5)	1975(5)	42	

◆ - 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						Percent of Individuals					Rel.No. minus tolerants /(0.3km)	IBI	
				Total species	Minnow species	Headwater species	Sensitive species	Darter & Sculpin species	Simple Lithophils	Tolerant fishes	Omni- vores	Pioneering fishes	Insect- ivores	DELT anomalies			
<i>Harrison Creek - (05-081)</i>																	
Year: 2009																	
0.10	E	07/22/2009	13.2	10(3)	4(3)	1(1)	2(1)	4(3)	2(1)	33(3)	13(5)	65(1)	42(3)	0.0(5)	492(3)	32	
<i>E Br Wolf trib 18.6 - (05-098)</i>																	
Year: 2009																	
0.10	E	08/11/2009	8.1	8(3)	3(3)	0(1)	1(1)	3(3)	4(3)	68(1)	10(5)	75(1)	65(5)	0.0(5)	124(1)	32	
<i>Little Muddy Creek - (05-220)</i>																	
Year: 2009																	
7.60	E	08/11/2009	12.4	12(3)	5(3)	0(1)	1(1)	2(1)	3(1)	72(1)	47(1)	55(3)	28(3)	0.0(5)	290(3)	26	
<i>Gries Ditch - (05-223)</i>																	
Year: 2009																	
4.80	E	08/11/2009	9.3	5(1)	1(1)	0(1)	0(1)	1(1)	0(1)	3(5)	0(5)	5(5)	17(1)	0.0(5)	350(3)	30	
1.00	E	08/05/2009	16.3	11(3)	3(1)	0(1)	1(1)	2(1)	2(1)	38(3)	28(3)	30(5)	12(1)	0.0(5)	660(3)	28	

◆ - 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					Percent of Individuals					Rel.No. minus tolerants /(0.3km)	IBI	Modified Iwb	
				Total species	Sunfish species	Sucker species	Intolerant species	Darter species	Simple Lithophils	Tolerant fishes	Omnivores	Top carnivores	Insect- ivores				DELT anomalies
Muskellunge Creek - (05003)																	
Year: 2009																	
5.40	E	08/11/2009	37	13(3)	1(1)	1(1)	0(1)	5(5)	50(5)	19(5)	6(5)	0.8(1)	78(5)	0.0(5)	406(3)	40	6.8
5.40	E	09/08/2009	37	12(3)	1(1)	1(1)	0(1)	5(5)	34(3)	39(3)	17(5)	0.5(1)	53(3)	0.0(5)	488(3)	34	7.0
Wolf Creek - (05005)																	
Year: 2009																	
12.90	E	07/27/2009	27	21(5)	3(3)	3(5)	0(1)	4(5)	18(1)	69(1)	53(1)	0.6(1)	34(3)	0.0(5)	890(5)	36	7.5
5.30	E	08/10/2009	66	19(3)	2(3)	2(3)	1(1)	5(5)	26(3)	46(1)	18(5)	10.5(5)	39(3)	0.0(5)	422(3)	40	8.1
1.60	E	08/11/2009	71	16(3)	1(1)	3(3)	0(1)	5(5)	35(3)	27(3)	20(3)	1.4(3)	51(3)	0.0(5)	206(3)	36	7.1
0.60	E	09/08/2009	158	28(5)	3(3)	5(5)	3(3)	6(5)	29(3)	25(3)	20(3)	3.8(3)	59(5)	0.0(5)	1458(5)	48	10.2
0.60	E	07/29/2009	158	27(5)	3(3)	4(3)	3(3)	6(5)	23(3)	31(3)	28(3)	3.8(3)	48(3)	0.0(5)	1149(5)	44	9.7
E. Br. Wolf Creek - (05006)																	
Year: 2009																	
18.90	D	07/30/2009	21	13(3)	1(1)	1(1)	0(1)	3(3)	59(5)	83(1)	60(1)	0.0(1)	13(1)	0.0(5)	392(3)	26	6.0
13.70	E	08/10/2009	33	17(3)	2(3)	2(3)	0(1)	5(5)	28(3)	54(1)	21(3)	2.5(3)	42(3)	0.0(5)	476(3)	36	7.2
9.00	D	07/29/2009	68	21(3)	5(5)	2(3)	0(1)	6(5)	44(5)	67(1)	51(1)	4.3(3)	30(3)	0.0(5)	267(3)	38	7.7
9.00	D	09/09/2009	68	21(3)	5(5)	2(3)	1(1)	5(5)	59(5)	70(1)	58(1)	4.5(3)	30(3)	0.0(5)	191(1)	36	7.1
0.50	E	09/09/2009	84	29(5)	2(3)	6(5)	4(3)	6(5)	39(5)	26(3)	23(3)	3.3(3)	65(5)	0.0(5)	912(5)	50	10.1
0.50	E	08/11/2009	84	24(5)	2(3)	4(5)	2(1)	6(5)	61(5)	9(5)	6(5)	7.4(5)	81(5)	0.0(5)	392(3)	52	9.2
Muddy Creek - (05219)																	
Year: 2009																	
28.30	D	07/28/2009	35	14(3)	2(3)	2(3)	0(1)	2(1)	14(1)	70(1)	61(1)	4.4(3)	27(3)	0.0(5)	240(3)	28	7.6
28.30	D	09/08/2009	35	19(5)	3(3)	2(3)	1(1)	2(1)	6(1)	85(1)	80(1)	2.0(3)	17(1)	0.0(5)	364(3)	28	6.7
21.30	D	07/28/2009	44	13(3)	2(3)	1(1)	1(1)	2(1)	19(3)	33(3)	19(3)	36.5(5)	42(3)	0.0(5)	53(1) *	32	6.8
21.30	D	08/03/2009	44	12(3)	2(3)	1(1)	1(1)	3(3)	24(3)	29(3)	7(5)	35.7(5)	50(3)	0.0(5)	45(1) *	36	6.7

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					Percent of Individuals					Rel.No. minus tolerants /(0.3km)	IBI	Modified Iwb	
				Total species	Sunfish species	Sucker species	Intolerant species	Darter species	Simple Lithophils	Tolerant fishes	Omni- vores	Top carnivores	Insect- ivores				DELT anomalies
21.30	E	09/14/2009	44	15(3)	2(3)	3(3)	1(1)	3(3)	31(3)	16(5)	1(5)	25.5(5)	64(5)	0.0(5)	158(1) *	42	7.7
18.70	D	08/05/2009	63	14(3)	1(1)	1(1)	1(1)	3(3)	20(3)	34(3)	4(5)	8.4(5)	26(1)	0.0(5)	498(3)	34	8.0
18.70	E	09/09/2009	63	13(3)	1(1)	1(1)	1(1)	3(3)	12(1)	40(3)	3(5)	14.6(5)	18(1)	0.0(5)	240(3)	32	7.1
9.80	D	07/28/2009	74	15(3)	2(3)	1(1)	1(1)	4(3)	31(3)	17(5)	13(5)	14.1(5)	56(5)	0.0(5)	239(3)	42	7.4
9.80	D	08/03/2009	74	18(3)	3(3)	2(3)	0(1)	4(3)	41(5)	13(5)	5(5)	15.3(5)	68(5)	0.0(5)	240(3)	46	7.6
9.80	D	09/10/2009	74	16(3)	2(3)	2(3)	0(1)	4(3)	21(3)	27(3)	21(3)	20.2(5)	55(5)	0.0(5)	114(1) *	38	7.1

S. Br. Muddy Creek - (05222)

Year: 2009

1.60	D	07/27/2009	22	14(3)	2(3)	1(1)	0(1)	2(3)	11(1)	50(3)	31(3)	4.6(3)	46(3)	0.0(5)	756(5)	34	8.5
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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				Percent of Individuals						DELTA anomalies	Rel.No. minus tolerants /(1.0 km)	Modified IBI	lwb
				Total species	Sunfish species	Sucker species	Intolerant species	Rnd-bodied suckers	Simple Lithophils	Tolerant fishes	Omnivores	Top carnivores	Insect- ivores				
Sandusky River - (05-001)																	
Year: 2009																	
65.10	A	06/30/2009	655	16(3)	2(3)	7(5)	3(3)	61(5)	62(5)	4(5)	5(5)	9(3)	83(5)	0.0(5)	310(3)	50	9.1
65.10	A	08/24/2009	655	22(5)	4(5)	8(5)	3(3)	75(5)	77(5)	5(5)	4(5)	6(3)	84(5)	0.3(5)	660(5)	56	9.8
53.00	A	07/01/2009	770	19(3)	4(5)	6(5)	1(1)	30(3)	30(3)	19(3)	17(3)	4(1)	76(5)	1.2(3)	440(5)	40	8.9
53.00	A	08/25/2009	770	18(3)	3(3)	7(5)	2(3)	50(5)	52(5)	16(3)	14(5)	2(1)	77(5)	0.4(5)	438(5)	48	8.5
48.00	A	07/06/2009	774	22(5)	2(3)	9(5)	3(3)	50(5)	52(5)	6(5)	6(5)	8(3)	80(5)	0.2(5)	794(5)	54	10.5
48.00	A	08/25/2009	774	17(3)	2(3)	8(5)	3(3)	70(5)	71(5)	6(5)	5(5)	9(3)	84(5)	0.0(5)	370(3)	50	9.4
43.20	A	06/30/2009	956	13(3)	4(5)	4(3)	1(1)	46(5)	46(5)	16(3)	11(5)	1(1)	84(5)	1.2(3)	284(3)	42	8.1
43.20	A	08/25/2009	956	11(3)	4(5)	3(3)	0(1)	46(5)	46(5)	19(3)	13(5)	9(3)	78(5)	0.0(5)	156(1) *	44	7.4
41.50	A	07/01/2009	964	18(3)	2(3)	7(5)	3(3)	56(5)	58(5)	5(5)	4(5)	9(3)	85(5)	0.0(5)	520(5)	52	9.8
41.50	A	09/02/2009	964	21(5)	2(3)	8(5)	3(3)	49(5)	50(5)	15(3)	13(5)	15(5)	70(5)	0.0(5)	482(5)	54	9.9
39.60	A	07/07/2009	1002	18(3)	2(3)	7(5)	4(5)	55(5)	55(5)	13(5)	19(3)	8(3)	71(5)	0.0(5)	1072(5)	52	10.7
33.60	A	07/07/2009	1045	28(5)	7(5)	8(5)	4(5)	34(3)	35(3)	15(5)	18(3)	6(3)	72(5)	0.4(5)	640(5)	52	10.2
33.60	A	09/02/2009	1045	23(5)	6(5)	8(5)	4(5)	42(5)	42(3)	17(3)	24(3)	8(3)	63(5)	0.0(5)	294(3)	50	9.1
27.00	A	07/08/2009	1067	18(3)	5(5)	4(3)	2(3)	21(3)	21(1)	16(3)	25(3)	7(3)	61(5)	0.0(5)	294(3)	40	9.1
27.00	A	09/02/2009	1067	17(3)	4(5)	5(3)	2(3)	24(3)	24(3)	26(3)	40(1)	9(3)	45(3)	0.0(5)	206(3)	38	8.8
23.10	A	07/08/2009	1073	16(3)	1(1)	6(5)	4(5)	57(5)	61(5)	6(5)	6(5)	16(5)	72(5)	0.3(5)	800(5)	54	10.5
23.10	A	08/26/2009	1073	18(3)	2(3)	7(5)	4(5)	62(5)	63(5)	8(5)	10(5)	13(5)	72(5)	0.0(5)	837(5)	56	10.0
21.30	A	07/08/2009	1238	16(3)	2(3)	7(5)	4(5)	62(5)	66(5)	7(5)	7(5)	9(3)	81(5)	0.0(5)	771(5)	54	9.7
19.40	A	07/14/2009	1254	20(3)	6(5)	7(5)	2(3)	32(3)	34(3)	19(3)	16(5)	3(1)	77(5)	0.0(5)	414(3)	44	8.2
19.40	A	09/01/2009	1254	20(3)	4(5)	5(3)	1(1)	43(5)	43(5)	20(3)	14(5)	3(1)	77(5)	0.7(5)	234(3)	44	7.8
18.30	A	07/14/2009	1255	13(3)	4(5)	4(3)	1(1)	31(3)	31(3)	17(3)	13(5)	3(1)	80(5)	0.0(5)	304(3)	40	8.0
18.30	A	09/01/2009	1255	13(3)	4(5)	4(3)	0(1)	10(1)	10(1)	33(1)	25(3)	5(1)	63(5)	0.0(5)	116(1) *	30	6.5
16.80	A	07/14/2009	1256	28(5)	4(5)	9(5)	3(3)	26(3)	27(3)	21(3)	28(3)	6(3)	51(3)	0.0(5)	706(5)	46	10.6
16.80	A	08/31/2009	1256	21(5)	3(3)	6(5)	2(3)	20(3)	21(1)	32(1)	39(1)	9(3)	45(3)	0.0(5)	328(3)	36	9.2

◆ - 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				Percent of Individuals							DELTA anomalies	Rel.No. minus tolerants /(1.0 km)	Modified IBI	lwb
				Total species	Sunfish species	Sucker species	Intolerant species	Rnd-bodied suckers	Simple Lithophils	Tolerant fishes	Omni- vores	Top carnivores	Insect- ivores					
15.20	A	07/13/2009	1260	21(5)	3(3)	5(3)	1(1)	36(3)	36(3)	7(5)	28(1)	7(3)	56(5)	0.6(3)	574(5)	40	10.1	
15.20	A	08/31/2009	1260	19(3)	5(5)	5(3)	0(1)	18(1)	19(1)	6(5)	68(1)	4(1)	23(1)	0.0(5)	744(5)	32	8.7	
15.20	A	09/15/2009	1260	27(5)	5(5)	9(5)	2(3)	18(1)	18(1)	12(5)	56(1)	7(3)	30(3)	0.0(5)	706(5)	42	10.3	
Muskellunge Creek - (05-003)																		
Year: 2009																		
0.80	A	07/20/2009	46	20(3)	3(3)	7(5)	1(1)	13(1)	14(1)	6(5)	73(1)	2(1)	23(1)	0.0(5)	830(5)	32	9.1	
0.80	A	08/26/2009	46	26(5)	5(5)	9(5)	2(3)	26(3)	28(3)	24(3)	35(1)	8(3)	47(3)	0.0(5)	240(3)	42	9.3	

◆ - 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					Percent of Individuals						Rel.No. minus tolerants /(1.0 km)	Modified	
				Total species	Centrarch. species	Sensitive species	Benthic species	Cyprinid species	Exotics	Tolerant fishes	Omni- vores	Top carnivores	Phyto- phils	DELT anomalies		IBI	lwb
Sandusky River - (05-001)																	
Year: 2009																	
12.80	A	07/13/2009	1264	15(3)	5(3)	2(1)	5(3)	3(3)	12(3)	20(5)	28(1)	5(1)	0.3(1)	0.0(5)	260(1)	26	9.1
12.80	A	08/31/2009	1264	17(5)	4(3)	2(1)	8(5)	3(3)	17(3)	21(3)	20(1)	7(1)	2.7(1)	0.8(5)	246(1)	25	9.2
5.50	A	07/15/2009	1330	20(5)	7(5)	2(1)	5(3)	4(3)	14(3)	30(3)	29(1)	8(1)	5.0(1)	0.7(5)	386(1)	30	8.6
5.50	A	09/01/2009	1330	21(5)	7(5)	3(3)	6(3)	3(3)	13(3)	26(3)	23(1)	13(1)	7.6(1)	0.0(5)	176(1)	34	8.7
1.30	A	09/01/2009	1335	20(5)	5(3)	4(3)	6(3)	3(3)	25(1)	56(1)	53(0)	4(1)	3.8(1)	0.0(5)	154(1)	27	6.6
1.30	A	07/15/2009	1335	20(5)	6(3)	3(3)	7(5)	2(1)	7(5)	24(5)	21(1)	10(1)	7.4(1)	0.0(5)	210(1)	34	8.4
Muddy Creek - (05-219)																	
Year: 2009																	
0.90	A	07/15/2009	110	14(3)	5(3)	1(1)	3(1)	3(3)	34(1)	45(1)	44(1)	6(1)	5.4(1)	0.0(5)	312(1)	23	7.6
0.90	A	09/01/2009	110	12(3)	7(5)	1(1)	3(1)	1(1)	50(0)	71(0)	69(0)	3(1)	8.7(1)	0.0(5)	262(1)	20	5.9
Little Muddy Creek - (05-220)																	
Year: 2009																	
1.70	A	07/20/2009	25	13(3)	4(3)	1(1)	3(1)	1(1)	9(3)	44(5)	41(0)	5(1)	0.7(1)	0.0(5)	216(1)	22	7.7
1.70	A	08/26/2009	25	12(3)	5(3)	0(0)	4(3)	2(1)	67(0)	78(0)	77(0)	0(1)	5.4(1)	0.4(5)	502(3)	18	6.2

Appendix Table 8. Lower Sandusky River study area fish species, 2009.

## Species List

Page 1

River Code: <b>05-001</b>	Stream: <b>Sandusky River</b>	Sample Date: <b>2009</b>
River Mile: <b>65.10</b>	Location: upst. Co. Rd. 16	Date Range: 06/30/2009
Time Fished: 6784 sec	Drainage: 655.0 sq mi	Thru: 08/24/2009
Dist Fished: 1.00 km	Basin: Sandusky 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
Northern Pike	F	P	M	2	2.00	0.39	0.22	0.17	110.00
Quillback	C	O	M	3	3.00	0.59	2.30	1.82	766.67
Silver Redhorse	R	I	S M	24	24.00	4.71	18.17	14.34	756.88
Black Redhorse	R	I	S I	19	19.00	3.73	2.16	1.71	113.68
Golden Redhorse	R	I	S M	252	252.00	49.41	42.69	33.70	169.40
Greater Redhorse [T]	R	I	S R	9	9.00	1.76	8.14	6.42	903.89
River Redhorse [S]	R	I	S I	8	8.00	1.57	5.35	4.22	668.13
Northern Hog Sucker	R	I	S M	30	30.00	5.88	6.11	4.82	203.71
White Sucker	W	O	S T	1	1.00	0.20	0.39	0.31	390.00
Spotted Sucker	R	I	S	17	17.00	3.33	1.36	1.07	79.88
Common Carp	G	O	M T	8	8.00	1.57	16.00	12.63	2,000.00
Suckermouth Minnow	N	I	S	3	3.00	0.59	0.02	0.02	6.67
Spotfin Shiner	N	I	M	39	39.00	7.65	0.12	0.09	2.95
Sand Shiner	N	I	M M	1	1.00	0.20	0.00	0.00	2.00
Bluntnose Minnow	N	O	C T	10	10.00	1.96	0.03	0.02	2.70
Channel Catfish	F		C	25	25.00	4.90	14.65	11.56	586.00
Yellow Bullhead		I	C T	4	4.00	0.78	0.89	0.70	221.50
Stonecat Madtom		I	C I	1	1.00	0.20	0.10	0.08	100.00
White Crappie	S	I	C	3	3.00	0.59	0.51	0.40	170.00
Rock Bass	S	C	C	11	11.00	2.16	1.38	1.09	125.45
Smallmouth Bass	F	C	C M	23	23.00	4.51	5.88	4.64	255.65
Green Sunfish	S	I	C T	2	2.00	0.39	0.01	0.01	6.00
Orangespotted Sunfish	S	I	C	11	11.00	2.16	0.19	0.15	17.45
Blackside Darter	D	I	S	1	1.00	0.20	0.00	0.00	4.00
Logperch	D	I	S M	2	2.00	0.39	0.03	0.02	15.00
Greenside Darter	D	I	S M	1	1.00	0.20	0.00	0.00	3.00
<i>Mile Total</i>				510	510.00		126.68		
<i>Number of Species</i>				26					
<i>Number of Hybrids</i>				0					

## Species List

Page 2

River Code: <b>05-001</b>	Stream: <b>Sandusky River</b>	Sample Date: <b>2009</b>
River Mile: <b>53.00</b>	Location: adj. Walnut Grove Campground	Date Range: 07/01/2009
Time Fished: 6815 sec	Drainage: 770.0 sq mi	Thru: 08/25/2009
Dist Fished: 1.00 km	Basin: Sandusky 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
Northern Pike	F	P	M	1	1.00	0.19	0.50	0.51	500.00
Quillback	C	O	M	5	5.00	0.94	2.05	2.07	410.00
Silver Redhorse	R	I	S M	7	7.00	1.31	4.50	4.55	643.14
Golden Redhorse	R	I	S M	176	176.00	33.02	29.81	30.11	169.34
Greater Redhorse [T]	R	I	S R	4	4.00	0.75	3.67	3.71	917.50
River Redhorse [S]	R	I	S I	1	1.00	0.19	0.50	0.51	500.00
Northern Hog Sucker	R	I	S M	12	12.00	2.25	2.15	2.18	179.42
Spotted Sucker	R	I	S	10	10.00	1.88	0.89	0.90	89.00
Common Carp	G	O	M T	21	21.00	3.94	42.75	43.19	2,035.71
Redfin Shiner	N	I	N	3	3.00	0.56	0.01	0.01	1.67
Spotfin Shiner	N	I	M	140	140.00	26.27	0.34	0.34	2.41
Sand Shiner	N	I	M M	8	8.00	1.50	0.02	0.02	2.13
Silverjaw Minnow	N	I	M	3	3.00	0.56	0.01	0.01	2.33
Bluntnose Minnow	N	O	C T	56	56.00	10.51	0.11	0.11	2.01
Channel Catfish	F		C	27	27.00	5.07	7.81	7.89	289.29
Yellow Bullhead		I	C T	2	2.00	0.38	0.55	0.56	275.00
Rock Bass	S	C	C	7	7.00	1.31	0.93	0.94	132.86
Smallmouth Bass	F	C	C M	7	7.00	1.31	1.30	1.31	185.71
Largemouth Bass	F	C	C	1	1.00	0.19	0.25	0.25	250.00
Green Sunfish	S	I	C T	15	15.00	2.81	0.45	0.46	30.10
Bluegill Sunfish	S	I	C P	1	1.00	0.19	0.01	0.01	5.00
Orangespotted Sunfish	S	I	C	20	20.00	3.75	0.28	0.28	13.95
Blackside Darter	D	I	S	3	3.00	0.56	0.04	0.04	13.33
Logperch	D	I	S M	3	3.00	0.56	0.07	0.07	21.67
<i>Mile Total</i>				533	533.00		98.98		
<i>Number of Species</i>				24					
<i>Number of Hybrids</i>				0					



## Species List

Page 3

River Code: <b>05-001</b>	Stream: <b>Sandusky River</b>	Sample Date: <b>2009</b>
River Mile: <b>48.00</b>	Location: upst. Scott Bridge	Date Range: 07/06/2009
Time Fished: 10481 sec	Drainage: 774.0 sq mi	Thru: 08/25/2009
Dist Fished: 1.00 km	Basin: Sandusky 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	1	1.00	0.16	0.01	0.01	12.00
Quillback	C	O	M	3	3.00	0.48	1.15	0.58	383.33
Silver Redhorse	R	I	S M	15	15.00	2.42	16.30	8.28	1,086.33
Black Redhorse	R	I	S I	25	25.00	4.03	6.10	3.10	244.00
Golden Redhorse	R	I	S M	164	164.00	26.41	41.40	21.05	252.47
Greater Redhorse [T]	R	I	S R	30	30.00	4.83	29.93	15.21	997.50
River Redhorse [S]	R	I	S I	37	37.00	5.96	36.53	18.57	987.20
Northern Hog Sucker	R	I	S M	63	63.00	10.14	12.65	6.43	200.79
White Sucker	W	O	S T	1	1.00	0.16	0.16	0.08	160.00
Spotted Sucker	R	I	S	15	15.00	2.42	2.42	1.23	161.48
Common Carp	G	O	M T	13	13.00	2.09	24.89	12.65	1,914.53
Suckermouth Minnow	N	I	S	4	4.00	0.64	0.03	0.02	7.50
Spotfin Shiner	N	I	M	135	135.00	21.74	0.44	0.22	3.26
Sand Shiner	N	I	M M	2	2.00	0.32	0.00	0.00	2.00
Bluntnose Minnow	N	O	C T	18	18.00	2.90	0.05	0.03	2.89
Channel Catfish	F		C	29	29.00	4.67	11.19	5.69	385.93
Yellow Bullhead		I	C T	3	3.00	0.48	0.78	0.40	260.00
Black Crappie	S	I	C	1	1.00	0.16	0.13	0.07	130.00
Rock Bass	S	C	C	26	26.00	4.19	4.49	2.28	172.56
Smallmouth Bass	F	C	C M	24	24.00	3.86	7.75	3.94	322.75
Largemouth Bass	F	C	C	1	1.00	0.16	0.13	0.07	130.00
Green Sunfish	S	I	C T	4	4.00	0.64	0.09	0.04	21.25
Green Sf X Bluegill Sf				1	1.00	0.16	0.05	0.03	50.00
Blackside Darter	D	I	S	1	1.00	0.16	0.01	0.00	5.00
Logperch	D	I	S M	3	3.00	0.48	0.03	0.02	10.00
Fantail Darter	D	I	C	2	2.00	0.32	0.01	0.00	2.50
<i>Mile Total</i>				621	621.00		196.70		
<i>Number of Species</i>				25					
<i>Number of Hybrids</i>				1					

## Species List

River Code: <b>05-001</b>	Stream: <b>Sandusky River</b>	Sample Date: <b>2009</b>
River Mile: <b>43.20</b>	Location: upst. St. Rt. 224	Date Range: 06/30/2009
Time Fished: 6292 sec	Drainage: 956.0 sq mi	Thru: 08/25/2009
Dist Fished: 1.00 km	Basin: Sandusky 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	1.50	0.08	0.07	18.75
Quillback	C	O	M	1	1.00	0.38	0.75	0.74	750.00
Silver Redhorse	R	I	S M	3	3.00	1.13	2.83	2.78	941.67
Golden Redhorse	R	I	S M	24	24.00	9.02	7.91	7.79	329.40
Greater Redhorse [T]	R	I	S R	2	2.00	0.75	1.29	1.27	645.00
Spotted Sucker	R	I	S	94	94.00	35.34	15.75	15.51	167.51
Common Carp	G	O	M T	25	25.00	9.40	63.80	62.84	2,552.00
Spotfin Shiner	N	I	M	8	8.00	3.01	0.02	0.02	2.25
Sand Shiner	N	I	M M	1	1.00	0.38	0.00	0.00	1.00
Channel Catfish	F		C	7	7.00	2.63	1.63	1.61	232.86
Brown Bullhead		I	C T	3	3.00	1.13	0.89	0.87	295.00
White Crappie	S	I	C	21	21.00	7.89	3.64	3.59	173.48
Largemouth Bass	F	C	C	10	10.00	3.76	1.72	1.69	172.00
Green Sunfish	S	I	C T	18	18.00	6.77	0.51	0.50	28.33
Bluegill Sunfish	S	I	C P	6	6.00	2.26	0.35	0.34	57.50
Orangespotted Sunfish	S	I	C	38	38.00	14.29	0.34	0.33	8.82
Green Sf X Bluegill Sf				1	1.00	0.38	0.04	0.04	44.00
	<i>Mile Total</i>			266	266.00		101.52		
	<i>Number of Species</i>			16					
	<i>Number of Hybrids</i>			1					

## Species List

River Code: <b>05-001</b>	Stream: <b>Sandusky River</b>	Sample Date: <b>2009</b>
River Mile: <b>41.50</b>	Location: dst. Ella St.	Date Range: 07/01/2009
Time Fished: 6877 sec	Drainage: 964.0 sq mi	Thru: 09/02/2009
Dist Fished: 0.95 km	Basin: Sandusky River	Sampler Type: A
	No of Passes: 2	

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	1	1.00	0.18	0.01	0.01	8.00
Northern Pike	F	P	M	2	2.00	0.36	1.40	0.88	700.00
Quillback	C	O	M	2	2.00	0.36	1.50	0.94	750.00
Silver Redhorse	R	I	S M	20	21.00	3.77	29.00	18.27	1,371.25
Black Redhorse	R	I	S I	44	46.78	8.39	8.72	5.49	185.61
Golden Redhorse	R	I	S M	124	129.67	23.27	32.80	20.66	251.41
Greater Redhorse [T]	R	I	S R	1	1.00	0.18	1.40	0.88	1,400.00
River Redhorse [S]	R	I	S I	18	19.00	3.41	22.06	13.89	1,168.89
Northern Hog Sucker	R	I	S M	65	69.56	12.48	11.45	7.21	165.57
White Sucker	W	O	S T	1	1.11	0.20	0.33	0.21	300.00
Spotted Sucker	R	I	S	4	4.22	0.76	0.47	0.30	112.50
Common Carp	G	O	M T	16	16.33	2.93	34.06	21.45	2,093.75
Golden Shiner	N	I	M T	1	1.00	0.18	0.01	0.01	8.00
Suckermouth Minnow	N	I	S	1	1.00	0.18	0.00	0.00	4.00
Striped Shiner	N	I	S	1	1.11	0.20	0.03	0.02	25.00
Spotfin Shiner	N	I	M	99	104.67	18.78	0.15	0.09	1.49
Sand Shiner	N	I	M M	8	8.78	1.57	0.02	0.01	2.00
Mimic Shiner	N	I	M I	7	7.78	1.40	0.02	0.01	2.00
Bluntnose Minnow	N	O	C T	27	27.56	4.94	0.08	0.05	3.04
Channel Catfish	F		C	12	12.78	2.29	4.62	2.91	360.42
Yellow Bullhead		I	C T	3	3.22	0.58	0.86	0.54	266.67
Rock Bass	S	C	C	13	13.44	2.41	1.46	0.92	108.85
Smallmouth Bass	F	C	C M	49	50.89	9.13	7.94	5.00	157.65
Green Sunfish	S	I	C T	7	7.11	1.28	0.30	0.19	43.43
Logperch	D	I	S M	3	3.33	0.60	0.05	0.03	14.67
Greenside Darter	D	I	S M	1	1.00	0.18	0.00	0.00	3.00
<i>Mile Total</i>				530	557.33		158.74		
<i>Number of Species</i>				26					
<i>Number of Hybrids</i>				0					

## Species List

River Code: <b>05-001</b>	Stream: <b>Sandusky River</b>	Sample Date: <b>2009</b>
River Mile: <b>39.60</b>	Location: dst. Pioneer Mill dam	Date Range: 07/07/2009
Time Fished: 1805 sec	Drainage: 1002.0 sq mi	
Dist Fished: 0.25 km	Basin: Sandusky 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	8.00	0.65	5.60	1.58	700.00
Quillback	C	O	M	19	76.00	6.19	20.90	5.89	275.00
Silver Redhorse	R	I	S M	4	16.00	1.30	20.00	5.64	1,250.00
Black Redhorse	R	I	S I	83	332.00	27.04	83.63	23.56	251.89
Golden Redhorse	R	I	S M	50	200.00	16.29	47.27	13.32	236.36
Greater Redhorse [T]	R	I	S R	1	4.00	0.33	3.20	0.90	800.00
River Redhorse [S]	R	I	S I	6	24.00	1.95	35.20	9.92	1,466.67
Northern Hog Sucker	R	I	S M	25	100.00	8.14	16.75	4.72	167.50
Common Carp	G	O	M T	18	72.00	5.86	97.20	27.39	1,350.00
Redfin Shiner	N	I	N	2	8.00	0.65	0.04	0.01	5.00
Spotfin Shiner	N	I	M	33	132.00	10.75	0.32	0.09	2.42
Sand Shiner	N	I	M M	7	28.00	2.28	0.06	0.02	2.00
Mimic Shiner	N	I	M I	4	16.00	1.30	0.03	0.01	2.00
Bluntnose Minnow	N	O	C T	21	84.00	6.84	0.20	0.06	2.38
Channel Catfish	F		C	5	20.00	1.63	9.00	2.54	450.00
Rock Bass	S	C	C	9	36.00	2.93	4.70	1.32	130.56
Smallmouth Bass	F	C	C M	14	56.00	4.56	10.50	2.96	187.50
Orangespotted Sunfish	S	I	C	3	12.00	0.98	0.16	0.05	13.33
Logperch	D	I	S M	1	4.00	0.33	0.12	0.03	30.00
<i>Mile Total</i>				307	1,228.00		354.88		
<i>Number of Species</i>				19					
<i>Number of Hybrids</i>				0					

## Species List

River Code: <b>05-001</b>	Stream: <b>Sandusky River</b>	Sample Date: <b>2009</b>
River Mile: <b>33.60</b>	Location: Wonder farm	Date Range: 07/07/2009
Time Fished: 10290 sec	Drainage: 1045.0 sq mi	Thru: 09/02/2009
Dist Fished: 1.00 km	Basin: Sandusky River	Sampler Type: A
	No of Passes: 2	

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	1.00	0.18	0.50	0.23	500.00
Gizzard Shad		O	M	1	1.00	0.18	0.02	0.01	15.00
Northern Pike	F	P	M	1	1.00	0.18	1.30	0.59	1,300.00
Quillback	C	O	M	35	35.00	6.33	18.17	8.23	519.14
Silver Redhorse	R	I	S M	13	13.00	2.35	17.10	7.74	1,315.38
Black Redhorse	R	I	S I	6	6.00	1.08	2.70	1.22	450.00
Golden Redhorse	R	I	S M	159	159.00	28.75	52.03	23.56	327.26
Greater Redhorse [T]	R	I	S R	5	5.00	0.90	6.60	2.99	1,320.00
River Redhorse [S]	R	I	S I	8	8.00	1.45	2.92	1.32	365.00
Northern Hog Sucker	R	I	S M	7	7.00	1.27	0.70	0.32	100.00
Spotted Sucker	R	I	S	3	3.00	0.54	0.74	0.34	246.67
Common Carp	G	O	M T	50	50.00	9.04	87.95	39.83	1,759.00
Suckermouth Minnow	N	I	S	1	1.00	0.18	0.00	0.00	3.00
Redfin Shiner	N	I	N	1	1.00	0.18	0.00	0.00	3.00
Spotfin Shiner	N	I	M	120	120.00	21.70	0.38	0.17	3.18
Sand Shiner	N	I	M M	3	3.00	0.54	0.01	0.00	2.67
Mimic Shiner	N	I	M I	18	18.00	3.25	0.03	0.01	1.78
Bluntnose Minnow	N	O	C T	22	22.00	3.98	0.05	0.02	2.23
Channel Catfish	F		C	18	18.00	3.25	9.57	4.33	531.67
Yellow Bullhead		I	C T	2	2.00	0.36	0.35	0.16	172.50
White Crappie	S	I	C	2	2.00	0.36	0.20	0.09	102.00
Black Crappie	S	I	C	3	3.00	0.54	0.80	0.36	266.67
Rock Bass	S	C	C	23	23.00	4.16	2.52	1.14	109.35
Smallmouth Bass	F	C	C M	10	10.00	1.81	2.11	0.96	211.11
Largemouth Bass	F	C	C	2	2.00	0.36	0.65	0.29	325.00
Green Sunfish	S	I	C T	12	12.00	2.17	0.55	0.25	45.42
Bluegill Sunfish	S	I	C P	3	3.00	0.54	0.59	0.26	195.00
Orangespotted Sunfish	S	I	C	10	10.00	1.81	0.21	0.10	21.00
Longear Sunfish	S	I	C M	2	2.00	0.36	0.02	0.01	8.50
Logperch	D	I	S M	5	5.00	0.90	0.08	0.04	16.00
Freshwater Drum			M P	7	7.00	1.27	12.00	5.43	1,714.29
<i>Mile Total</i>				553	553.00		220.84		
<i>Number of Species</i>				31					
<i>Number of Hybrids</i>				0					

## Species List

River Code: <b>05-001</b>	Stream: <b>Sandusky River</b>	Sample Date: <b>2009</b>
River Mile: <b>27.00</b>	Location: upst. Co. Rd. 51	Date Range: 07/08/2009
Time Fished: 11434 sec	Drainage: 1067.0 sq mi	Thru: 09/02/2009
Dist Fished: 1.00 km	Basin: Sandusky 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	10	10.00	3.19	4.68	3.15	467.50
Gizzard Shad		O	M	5	5.00	1.60	0.04	0.02	7.00
Quillback	C	O	M	40	40.00	12.78	21.25	14.33	531.25
Silver Redhorse	R	I	S M	7	7.00	2.24	8.30	5.60	1,185.71
Golden Redhorse	R	I	S M	59	59.00	18.85	23.70	15.98	401.61
Greater Redhorse [T]	R	I	S R	2	2.00	0.64	3.10	2.09	1,550.00
River Redhorse [S]	R	I	S I	2	2.00	0.64	1.25	0.84	625.00
Common Carp	G	O	M T	51	51.00	16.29	67.59	45.57	1,325.29
Spotfin Shiner	N	I	M	52	52.00	16.61	0.08	0.05	1.52
Sand Shiner	N	I	M M	2	2.00	0.64	0.00	0.00	2.00
Mimic Shiner	N	I	M I	10	10.00	3.19	0.01	0.01	1.20
Bluntnose Minnow	N	O	C T	2	2.00	0.64	0.01	0.00	2.50
Channel Catfish	F		C	19	19.00	6.07	8.50	5.73	447.37
Brown Bullhead		I	C T	1	1.00	0.32	0.27	0.18	270.00
White Crappie	S	I	C	8	8.00	2.56	2.46	1.66	307.25
Rock Bass	S	C	C	2	2.00	0.64	0.36	0.24	177.50
Smallmouth Bass	F	C	C M	5	5.00	1.60	0.97	0.65	194.00
Largemouth Bass	F	C	C	7	7.00	2.24	1.73	1.16	246.43
Green Sunfish	S	I	C T	9	9.00	2.88	0.12	0.08	12.78
Bluegill Sunfish	S	I	C P	3	3.00	0.96	0.04	0.03	14.00
Orangespotted Sunfish	S	I	C	13	13.00	4.15	0.08	0.06	6.46
Green Sf X Bluegill Sf				3	3.00	0.96	0.25	0.17	83.33
Freshwater Drum			M P	1	1.00	0.32	3.55	2.39	3,550.00
<i>Mile Total</i>				313	313.00		148.31		
<i>Number of Species</i>				22					
<i>Number of Hybrids</i>				1					

## Species List

River Code: <b>05-001</b>	Stream: <b>Sandusky River</b>	Sample Date: <b>2009</b>
River Mile: <b>23.10</b>	Location: just upst. Wolf Creek	Date Range: 07/08/2009
Time Fished: 5976 sec	Drainage: 1073.0 sq mi	Thru: 08/26/2009
Dist Fished: 0.70 km	Basin: Sandusky 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	4	6.67	0.76	5.17	1.39	775.00
Quillback	C	O	M	7	11.67	1.32	5.25	1.41	450.00
Silver Redhorse	R	I	S M	29	42.50	4.81	50.58	13.62	1,270.03
Black Redhorse	R	I	S I	134	174.17	19.73	59.04	15.90	341.53
Golden Redhorse	R	I	S M	173	271.25	30.72	61.72	16.62	239.47
Greater Redhorse [T]	R	I	S R	3	4.58	0.52	7.60	2.05	1,716.67
River Redhorse [S]	R	I	S I	7	9.17	1.04	17.22	4.64	1,961.43
Northern Hog Sucker	R	I	S M	19	25.00	2.83	8.03	2.16	323.89
Common Carp	G	O	M T	36	52.50	5.95	94.06	25.32	1,781.25
Suckermouth Minnow	N	I	S	1	1.25	0.14	0.01	0.00	4.00
Spotfin Shiner	N	I	M	50	69.17	7.83	0.14	0.04	2.00
Sand Shiner	N	I	M M	4	5.00	0.57	0.01	0.00	2.50
Mimic Shiner	N	I	M I	4	6.25	0.71	0.01	0.00	2.25
Bluntnose Minnow	N	O	C T	5	7.50	0.85	0.02	0.00	2.40
Channel Catfish	F		C	35	49.58	5.62	28.21	7.60	586.38
Yellow Bullhead		I	C T	2	2.92	0.33	0.49	0.13	165.00
Brown Bullhead		I	C T	1	1.67	0.19	0.38	0.10	230.00
Rock Bass	S	C	C	39	53.33	6.04	9.18	2.47	174.23
Smallmouth Bass	F	C	C M	46	66.25	7.50	23.99	6.46	378.03
Orangespotted Sunfish	S	I	C	3	5.00	0.57	0.03	0.01	6.67
Logperch	D	I	S M	13	17.50	1.98	0.30	0.08	16.76
<i>Mile Total</i>				615	882.92		371.44		
<i>Number of Species</i>				21					
<i>Number of Hybrids</i>				0					

## Species List

River Code: <b>05-001</b>	Stream: <b>Sandusky River</b>	Sample Date: <b>2009</b>
River Mile: <b>21.30</b>	Location: adj. Hurdic Rd.	Date Range: 07/08/2009
Time Fished: 2488 sec	Drainage: 1238.0 sq mi	
Dist Fished: 0.35 km	Basin: Sandusky 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
Quillback	C	O	M	2	5.71	0.69	1.71	0.69	300.00
Silver Redhorse	R	I	S M	4	11.43	1.38	17.71	7.11	1,550.00
Black Redhorse	R	I	S I	18	51.43	6.23	9.86	3.96	191.67
Golden Redhorse	R	I	S M	139	397.14	48.10	107.59	43.21	270.91
Greater Redhorse [T]	R	I	S R	2	5.71	0.69	3.43	1.38	600.00
River Redhorse [S]	R	I	S I	2	5.71	0.69	10.29	4.13	1,800.00
Northern Hog Sucker	R	I	S M	14	40.00	4.84	6.71	2.70	167.86
Common Carp	G	O	M T	12	34.29	4.15	64.71	25.99	1,887.50
Spotfin Shiner	N	I	M	22	62.86	7.61	0.23	0.09	3.64
Sand Shiner	N	I	M M	10	28.57	3.46	0.06	0.02	2.00
Mimic Shiner	N	I	M I	4	11.43	1.38	0.01	0.01	1.25
Bluntnose Minnow	N	O	C T	7	20.00	2.42	0.03	0.01	1.43
Channel Catfish	F		C	10	28.57	3.46	15.00	6.02	525.00
Rock Bass	S	C	C	13	37.14	4.50	5.64	2.27	151.92
Smallmouth Bass	F	C	C M	12	34.29	4.15	5.22	2.10	152.27
Orangespotted Sunfish	S	I	C	5	14.29	1.73	0.06	0.02	4.00
Logperch	D	I	S M	13	37.14	4.50	0.73	0.29	19.62
<i>Mile Total</i>				289	825.71		249.00		
<i>Number of Species</i>				17					
<i>Number of Hybrids</i>				0					



## Species List

River Code: <b>05-001</b>	Stream: <b>Sandusky River</b>	Sample Date: <b>2009</b>
River Mile: <b>19.40</b>	Location: upst. campground	Date Range: 07/14/2009
Time Fished: 5669 sec	Drainage: 1254.0 sq mi	Thru: 09/01/2009
Dist Fished: 1.00 km	Basin: Sandusky 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	2	2.00	0.50	0.02	0.01	7.50
Quillback	C	O	M	5	5.00	1.24	2.25	1.90	450.00
Silver Redhorse	R	I	S M	4	4.00	1.00	0.48	0.41	120.00
Golden Redhorse	R	I	S M	106	106.00	26.37	25.53	21.54	240.82
Greater Redhorse [T]	R	I	S R	1	1.00	0.25	0.02	0.02	20.00
Northern Hog Sucker	R	I	S M	2	2.00	0.50	0.35	0.29	172.50
White Sucker	W	O	S T	4	4.00	1.00	1.48	1.24	368.75
Spotted Sucker	R	I	S	33	33.00	8.21	7.08	5.97	214.46
Common Carp	G	O	M T	39	39.00	9.70	74.82	63.13	1,918.33
Golden Shiner	N	I	M T	5	5.00	1.24	0.07	0.06	14.00
Spotfin Shiner	N	I	M	77	77.00	19.15	0.18	0.15	2.36
Mimic Shiner	N	I	M I	7	7.00	1.74	0.01	0.01	1.71
Bluntnose Minnow	N	O	C T	10	10.00	2.49	0.03	0.03	3.00
Channel Catfish	F		C	1	1.00	0.25	0.04	0.03	40.00
Yellow Bullhead		I	C T	4	4.00	1.00	0.82	0.69	205.00
Brown Bullhead		I	C T	7	7.00	1.74	1.00	0.84	142.86
White Crappie	S	I	C	9	9.00	2.24	0.84	0.71	93.11
Rock Bass	S	C	C	1	1.00	0.25	0.01	0.01	10.00
Smallmouth Bass	F	C	C M	3	3.00	0.75	0.46	0.39	153.33
Largemouth Bass	F	C	C	8	8.00	1.99	0.93	0.78	115.63
Green Sunfish	S	I	C T	9	9.00	2.24	0.59	0.49	65.00
Bluegill Sunfish	S	I	C P	5	5.00	1.24	0.18	0.15	35.00
Orangespotted Sunfish	S	I	C	41	41.00	10.20	0.28	0.24	6.87
Pumpkinseed Sunfish	S	I	C P	1	1.00	0.25	0.07	0.06	70.00
Green Sf X Bluegill Sf				15	15.00	3.73	0.90	0.76	60.00
Green Sf X Pumpkinseed				1	1.00	0.25	0.05	0.04	50.00
Freshwater Drum			M P	2	2.00	0.50	0.05	0.04	25.00
<i>Mile Total</i>				402	402.00		118.50		
<i>Number of Species</i>				25					
<i>Number of Hybrids</i>				2					

## Species List

River Code: <b>05-001</b>	Stream: <b>Sandusky River</b>	Sample Date: <b>2009</b>
River Mile: <b>18.30</b>	Location: just upst. Ballville Dam	Date Range: 07/14/2009
Time Fished: 4623 sec	Drainage: 1255.0 sq mi	Thru: 09/01/2009
Dist Fished: 1.00 km	Basin: Sandusky 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	6	6.00	2.22	0.14	0.19	22.50
Quillback	C	O	M	7	7.00	2.59	2.22	3.05	317.14
Silver Redhorse	R	I	S M	2	2.00	0.74	1.30	1.79	650.00
Golden Redhorse	R	I	S M	32	32.00	11.85	8.55	11.76	267.19
River Redhorse [S]	R	I	S I	1	1.00	0.37	0.40	0.55	400.00
Spotted Sucker	R	I	S	31	31.00	11.48	5.74	7.90	185.16
Common Carp	G	O	M T	28	28.00	10.37	48.18	66.28	1,720.71
Golden Shiner	N	I	M T	9	9.00	3.33	0.04	0.06	4.70
Spotfin Shiner	N	I	M	37	37.00	13.70	0.06	0.08	1.62
Bluntnose Minnow	N	O	C T	4	4.00	1.48	0.02	0.02	4.25
Brown Bullhead		I	C T	7	7.00	2.59	0.90	1.24	128.57
White Crappie	S	I	C	10	10.00	3.70	1.08	1.49	108.00
Largemouth Bass	F	C	C	9	9.00	3.33	2.65	3.64	293.89
Green Sunfish	S	I	C T	12	12.00	4.44	0.48	0.65	39.58
Bluegill Sunfish	S	I	C P	2	2.00	0.74	0.06	0.08	30.50
Orangespotted Sunfish	S	I	C	59	59.00	21.85	0.27	0.38	4.62
Green Sf X Bluegill Sf				14	14.00	5.19	0.61	0.84	43.83
	<i>Mile Total</i>			270	270.00		72.69		
	<i>Number of Species</i>			16					
	<i>Number of Hybrids</i>			1					

## Species List

River Code: <b>05-001</b>	Stream: <b>Sandusky River</b>	Sample Date: <b>2009</b>
River Mile: <b>16.80</b>	Location: upst. Roger Young Park	Date Range: 07/14/2009
Time Fished: 8737 sec	Drainage: 1256.0 sq mi	Thru: 08/31/2009
Dist Fished: 1.00 km	Basin: Sandusky 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	25	25.00	3.63	14.20	2.23	568.00
Gizzard Shad		O	M	18	18.00	2.62	8.98	1.41	499.01
Redfin Pickerel		P	M	P	1	1.00	0.00	0.00	3.00
Northern Pike	F	P	M	1	1.00	0.15	0.75	0.12	750.00
Bigmouth Buffalo	C	I	M	3	3.00	0.44	7.45	1.17	2,483.33
Smallmouth Buffalo	C	I	M	60	60.00	8.72	82.70	12.98	1,378.28
Quillback	C	O	M	31	31.00	4.51	15.78	2.48	508.87
Silver Redhorse	R	I	S	M	13	13.00	14.85	2.33	1,142.31
Golden Redhorse	R	I	S	M	137	137.00	41.10	6.45	299.96
Shorthead Redhorse	R	I	S	M	4	4.00	1.76	0.28	440.00
Greater Redhorse [T]	R	I	S	R	1	1.00	2.55	0.40	2,550.00
River Redhorse [S]	R	I	S	I	4	4.00	4.65	0.73	1,162.50
Spotted Sucker	R	I	S	5	5.00	0.73	5.75	0.90	1,150.00
Common Carp	G	O	M	T	160	160.00	365.03	57.28	2,281.41
Spotfin Shiner	N	I	M	67	67.00	9.74	0.10	0.02	1.50
Mimic Shiner	N	I	M	I	6	6.00	0.01	0.00	2.17
Ghost Shiner	N	I	M	4	4.00	0.58	0.01	0.00	1.50
Bluntnose Minnow	N	O	C	T	9	9.00	0.02	0.00	2.50
Grass Carp	E		M	2	2.00	0.29	21.32	3.35	10,660.00
Channel Catfish	F		C	44	44.00	6.40	20.50	3.22	465.81
Brown Bullhead		I	C	T	2	2.00	0.36	0.06	177.50
Flathead Catfish	F	P	C	1	1.00	0.15	11.80	1.85	11,804.00
White Bass	F	P	M	4	4.00	0.58	1.02	0.16	255.00
White Perch	E		M	2	2.00	0.29	0.12	0.02	61.00
White Crappie	S	I	C	10	10.00	1.45	1.75	0.27	174.70
Black Crappie	S	I	C	1	1.00	0.15	0.08	0.01	80.00
Smallmouth Bass	F	C	C	M	10	10.00	4.29	0.67	429.00
Largemouth Bass	F	C	C	4	4.00	0.58	2.29	0.36	572.50
Bluegill Sunfish	S	I	C	P	4	4.00	0.37	0.06	92.50
Orangespotted Sunfish	S	I	C	7	7.00	1.02	0.05	0.01	6.43
Green Sf X Bluegill Sf				3	3.00	0.44	0.18	0.03	59.33
Yellow Perch			M	1	1.00	0.15	0.00	0.00	4.00
Logperch	D	I	S	M	6	6.00	0.06	0.01	10.00
Fantail Darter	D	I	C	1	1.00	0.15	0.00	0.00	3.00
Freshwater Drum			M	P	37	37.00	7.42	1.16	200.54
<i>Mile Total</i>				688	688.00		637.28		
<i>Number of Species</i>				34					
<i>Number of Hybrids</i>				1					

## Species List

River Code: <b>05-001</b>	Stream: <b>Sandusky River</b>	Sample Date: <b>2009</b>
River Mile: <b>15.20</b>	Location: dst. State St.	Date Range: 07/13/2009
Time Fished: 9683 sec	Drainage: 1260.0 sq mi	Thru: 09/15/2009
Dist Fished: 1.50 km	Basin: Sandusky River	Sampler Type: A
	No of Passes: 3	

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	7	4.67	0.63	3.48	1.85	744.64
Gizzard Shad		O	M	448	298.67	40.62	3.69	1.96	12.35
Bigmouth Buffalo	C	I	M	1	0.67	0.09	1.57	0.83	2,350.00
Smallmouth Buffalo	C	I	M	32	21.33	2.90	34.76	18.52	1,629.53
Quillback	C	O	M	48	32.00	4.35	17.64	9.40	551.33
Silver Redhorse	R	I	S M	13	8.67	1.18	11.27	6.00	1,300.00
Black Redhorse	R	I	S I	1	0.67	0.09	0.18	0.10	270.00
Golden Redhorse	R	I	S M	230	153.33	20.85	35.42	18.87	230.98
Shorthead Redhorse	R	I	S M	1	0.67	0.09	0.66	0.35	995.00
Greater Redhorse [T]	R	I	S R	4	2.67	0.36	1.27	0.68	477.50
Spotted Sucker	R	I	S	2	1.33	0.18	0.17	0.09	126.50
Common Carp	G	O	M T	49	32.67	4.44	44.13	23.52	1,351.02
Goldfish	G	O	M T	34	22.67	3.08	5.95	3.17	262.31
Emerald Shiner	N	I	M	36	24.00	3.26	0.08	0.04	3.43
Spottail Shiner	N	I	M P	1	0.67	0.09	0.01	0.01	20.00
Spotfin Shiner	N	I	M	10	6.67	0.91	0.01	0.01	2.00
Sand Shiner	N	I	M M	7	4.67	0.63	0.01	0.00	1.43
Ghost Shiner	N	I	M	5	3.33	0.45	0.01	0.00	2.00
Channel Catfish	F		C	2	1.33	0.18	0.88	0.47	660.00
Brown Bullhead		I	C T	2	1.33	0.18	0.27	0.15	205.00
White Bass	F	P	M	23	15.33	2.09	0.88	0.47	57.65
White Perch	E		M	4	2.67	0.36	0.11	0.06	40.00
White Crappie	S	I	C	1	0.67	0.09	0.04	0.02	60.00
Black Crappie	S	I	C	1	0.67	0.09	0.12	0.06	180.00
Rock Bass	S	C	C	7	4.67	0.63	0.33	0.17	70.00
Smallmouth Bass	F	C	C M	22	14.67	1.99	5.62	2.99	383.14
Largemouth Bass	F	C	C	6	4.00	0.54	1.29	0.69	321.67
Green Sunfish	S	I	C T	6	4.00	0.54	0.11	0.06	26.67
Bluegill Sunfish	S	I	C P	12	8.00	1.09	0.49	0.26	61.75
Orangespotted Sunfish	S	I	C	16	10.67	1.45	0.10	0.05	9.06
Green Sf X Bluegill Sf				7	4.67	0.63	0.23	0.12	48.57
Walleye	F	P	S	3	2.00	0.27	0.37	0.20	185.00
Yellow Perch			M	7	4.67	0.63	0.08	0.04	16.86
Logperch	D	I	S M	5	3.33	0.45	0.02	0.01	4.80
Freshwater Drum			M P	50	33.33	4.53	16.45	8.76	493.44
<i>Mile Total</i>				1,103	735.33		187.68		
<i>Number of Species</i>				34					
<i>Number of Hybrids</i>				1					

River Code: <b>05-001</b>	Stream: <b>Sandusky River</b>	Sample Date: <b>2009</b>
River Mile: <b>12.80</b>	Location: dst. U.S. Rt. 20, opposite Fremont Yacht Club	Date Range: 07/13/2009
Time Fished: 5994 sec	Drainage: 1264.0 sq mi	Thru: 08/31/2009
Dist Fished: 1.00 km	Basin: Sandusky 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	258	258.00	50.49	1.04	0.31	4.03
Bigmouth Buffalo	C	I	M	35	35.00	6.85	124.68	37.48	3,562.38
Smallmouth Buffalo	C	I	M	66	66.00	12.92	128.18	38.53	1,942.07
Quillback	C	O	M	14	14.00	2.74	5.81	1.75	415.00
Golden Redhorse	R	I	S M	12	12.00	2.35	2.49	0.75	207.50
Shorthead Redhorse	R	I	S M	1	1.00	0.20	0.12	0.04	120.00
Common Carp	G	O	M T	30	30.00	5.87	47.24	14.20	1,574.67
Goldfish	G	O	M T	14	14.00	2.74	3.32	1.00	237.18
Emerald Shiner	N	I	M	2	2.00	0.39	0.01	0.00	4.00
Spottail Shiner	N	I	M P	2	2.00	0.39	0.01	0.00	4.00
Spotfin Shiner	N	I	M	3	3.00	0.59	0.01	0.00	3.00
Ghost Shiner	N	I	M	5	5.00	0.98	0.01	0.00	2.00
Common Carp X Goldfish	G	O	T	3	3.00	0.59	2.50	0.75	833.33
Channel Catfish	F		C	4	4.00	0.78	5.55	1.67	1,387.50
Yellow Bullhead		I	C T	1	1.00	0.20	0.15	0.05	150.00
Flathead Catfish	F	P	C	2	2.00	0.39	6.95	2.09	3,475.00
White Bass	F	P	M	10	10.00	1.96	1.86	0.56	185.50
White Perch	E		M	10	10.00	1.96	0.06	0.02	6.00
Smallmouth Bass	F	C	C M	1	1.00	0.20	0.16	0.05	160.00
Largemouth Bass	F	C	C	3	3.00	0.59	0.85	0.25	281.67
Green Sunfish	S	I	C T	4	4.00	0.78	0.04	0.01	8.75
Bluegill Sunfish	S	I	C P	6	6.00	1.17	0.21	0.06	34.17
Orangespotted Sunfish	S	I	C	10	10.00	1.96	0.12	0.03	11.60
Green Sf X Bluegill Sf				1	1.00	0.20	0.01	0.00	10.00
Yellow Perch			M	3	3.00	0.59	0.07	0.02	23.33
Freshwater Drum			M P	10	10.00	1.96	1.24	0.37	124.00
Round Goby	E			1	1.00	0.20	0.02	0.01	20.00
<i>Mile Total</i>				511	511.00		332.68		
<i>Number of Species</i>				25					
<i>Number of Hybrids</i>				2					

## Species List

River Code: <b>05-001</b>	Stream: <b>Sandusky River</b>	Sample Date: <b>2009</b>
River Mile: <b>5.50</b>	Location: upst. Whitemans Grove	Date Range: 07/15/2009
Time Fished: 6226 sec	Drainage: 1330.0 sq mi	Thru: 09/01/2009
Dist Fished: 1.00 km	Basin: Sandusky River	Sampler Type: A
	No of Passes: 2	

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	0.32	0.08	0.06	40.00
Gizzard Shad		O	M	350	350.00	55.47	1.17	0.89	3.35
Bigmouth Buffalo	C	I	M	4	4.00	0.63	11.45	8.71	2,862.50
Smallmouth Buffalo	C	I	M	19	19.00	3.01	33.65	25.58	1,771.05
Golden Redhorse	R	I	S M	31	31.00	4.91	3.43	2.60	110.48
Shorthead Redhorse	R	I	S M	6	6.00	0.95	0.09	0.07	15.00
Spotted Sucker	R	I	S	3	3.00	0.48	0.09	0.06	28.33
Common Carp	G	O	M T	40	40.00	6.34	58.55	44.52	1,463.75
Goldfish	G	O	M T	33	33.00	5.23	6.77	5.14	205.00
Emerald Shiner	N	I	M	2	2.00	0.32	0.01	0.00	3.00
Spotfin Shiner	N	I	M	24	24.00	3.80	0.06	0.05	2.58
Mimic Shiner	N	I	M I	2	2.00	0.32	0.00	0.00	2.00
Ghost Shiner	N	I	M	2	2.00	0.32	0.00	0.00	2.00
Bluntnose Minnow	N	O	C T	2	2.00	0.32	0.01	0.00	3.00
Common Carp X Goldfish	G	O	T	1	1.00	0.16	1.00	0.76	1,000.00
Channel Catfish	F		C	5	5.00	0.79	3.05	2.32	610.00
Flathead Catfish	F	P	C	1	1.00	0.16	3.90	2.97	3,900.00
White Bass	F	P	M	10	10.00	1.58	0.66	0.50	66.00
White Perch	E		M	7	7.00	1.11	0.05	0.03	6.43
White Crappie	S	I	C	4	4.00	0.63	0.56	0.43	140.00
Black Crappie	S	I	C	1	1.00	0.16	0.25	0.19	250.00
Rock Bass	S	C	C	1	1.00	0.16	0.14	0.11	140.00
Largemouth Bass	F	C	C	12	12.00	1.90	3.09	2.35	257.50
Green Sunfish	S	I	C T	4	4.00	0.63	0.06	0.04	14.50
Bluegill Sunfish	S	I	C P	31	31.00	4.91	1.66	1.26	53.51
Orangespotted Sunfish	S	I	C	5	5.00	0.79	0.04	0.03	7.60
Pumpkinseed Sunfish	S	I	C P	4	4.00	0.63	0.09	0.07	22.50
Yellow Perch			M	14	14.00	2.22	0.11	0.08	7.86
Logperch	D	I	S M	1	1.00	0.16	0.01	0.01	10.00
Freshwater Drum			M P	10	10.00	1.58	1.52	1.16	152.00
<i>Mile Total</i>				631	631.00		131.53		
<i>Number of Species</i>				29					
<i>Number of Hybrids</i>				1					

## Species List

Page 17

River Code: <b>05-001</b>	Stream: <b>Sandusky River</b>	Sample Date: <b>2009</b>
River Mile: <b>1.30</b>	Location: near mouth	Date Range: 07/15/2009
Time Fished: 6250 sec	Drainage: 1335.0 sq mi	Thru: 09/01/2009
Dist Fished: 1.00 km	Basin: Sandusky River	Sampler Type: A
	No of Passes: 2	

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	1.00	0.21	0.02	0.01	20.00
Gizzard Shad		O	M	301	301.00	62.32	1.16	0.67	3.84
Bigmouth Buffalo	C	I	M	3	3.00	0.62	7.35	4.29	2,450.00
Smallmouth Buffalo	C	I	M	22	22.00	4.55	39.85	23.24	1,811.36
Golden Redhorse	R	I	S M	1	1.00	0.21	0.35	0.20	350.00
Shorthead Redhorse	R	I	S M	3	3.00	0.62	0.10	0.06	31.67
Spotted Sucker	R	I	S	1	1.00	0.21	0.59	0.34	590.00
Common Carp	G	O	M T	53	53.00	10.97	107.65	62.77	2,031.13
Goldfish	G	O	M T	8	8.00	1.66	2.05	1.20	256.25
Emerald Shiner	N	I	M	2	2.00	0.41	0.01	0.00	2.50
Spottail Shiner	N	I	M P	1	1.00	0.21	0.01	0.00	6.00
Spotfin Shiner	N	I	M	7	7.00	1.45	0.08	0.05	11.57
Fathead Minnow	N	O	C T	1	1.00	0.21	0.00	0.00	2.00
Common Carp X Goldfish	G	O	T	1	1.00	0.21	0.41	0.24	410.00
Channel Catfish	F		C	3	3.00	0.62	1.65	0.96	550.00
Yellow Bullhead		I	C T	2	2.00	0.41	0.41	0.24	202.50
Brown Bullhead		I	C T	1	1.00	0.21	0.06	0.03	60.00
Flathead Catfish	F	P	C	2	2.00	0.41	2.60	1.52	1,300.00
Blackstripe Topminnow		I	M	1	1.00	0.21	0.00	0.00	2.00
Brook Silverside		I	M M	1	1.00	0.21	0.00	0.00	3.00
White Bass	F	P	M	4	4.00	0.83	0.04	0.03	11.00
White Crappie	S	I	C	1	1.00	0.21	0.14	0.08	140.00
Smallmouth Bass	F	C	C M	1	1.00	0.21	0.01	0.00	5.00
Largemouth Bass	F	C	C	5	5.00	1.04	1.73	1.01	346.80
Green Sunfish	S	I	C T	2	2.00	0.41	0.07	0.04	35.00
Bluegill Sunfish	S	I	C P	16	16.00	3.31	0.64	0.37	39.69
Orangespotted Sunfish	S	I	C	3	3.00	0.62	0.03	0.02	10.00
Pumpkinseed Sunfish	S	I	C P	13	13.00	2.69	0.41	0.24	31.15
Yellow Perch			M	9	9.00	1.86	0.16	0.09	17.22
Logperch	D	I	S M	3	3.00	0.62	0.02	0.01	6.00
Freshwater Drum			M P	11	11.00	2.28	3.93	2.29	356.82
<i>Mile Total</i>				483	483.00		171.50		
<i>Number of Species</i>				30					
<i>Number of Hybrids</i>				1					

# Species List

River Code: <b>05-002</b>	Stream: <b>Bark Creek</b>	Sample Date: <b>2009</b>
River Mile: <b>3.20</b>	Location: Kelley Rd.	Date Range: 08/11/2009
Time Fished: 1200 sec	Drainage: 10.0 sq mi	
Dist Fished: 0.12 km	Basin: Sandusky 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	7.50	2.17			
Goldfish	G	O	M	T	6	15.00	4.35			
Creek Chub	N	G	N	T	2	5.00	1.45			
Spotfin Shiner	N	I	M		6	15.00	4.35			
Fathead Minnow	N	O	C	T	43	107.50	31.16			
Bluntnose Minnow	N	O	C	T	65	162.50	47.10			
Yellow Bullhead		I	C	T	3	7.50	2.17			
Blackstripe Topminnow		I	M		2	5.00	1.45			
Green Sunfish	S	I	C	T	3	7.50	2.17			
Johnny Darter	D	I	C		3	7.50	2.17			
Round Goby	E				2	5.00	1.45			
<i>Mile Total</i>					138	345.00				
<i>Number of Species</i>					11					
<i>Number of Hybrids</i>					0					



# Species List

River Code: <b>05-003</b> River Mile: <b>16.70</b> Time Fished: 1500 sec Dist Fished: 0.15 km	Stream: <b>Muskellunge Creek</b> Location: St. Rt. 635 Drainage: 17.7 sq mi Basin: Sandusky River	Sample Date: <b>2009</b> Date Range: 08/10/2009  No of Passes: 1 Sampler Type: E
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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	16	32.00	2.88			
White Sucker	W	O	S	T	8	16.00	1.44			
Creek Chub	N	G	N	T	115	230.00	20.68			
Redfin Shiner	N	I	N		3	6.00	0.54			
Common Shiner	N	I	S		131	262.00	23.56			
Bluntnose Minnow	N	O	C	T	22	44.00	3.96			
Blackside Darter	D	I	S		30	60.00	5.40			
Johnny Darter	D	I	C		124	248.00	22.30			
Greenside Darter	D	I	S	M	64	128.00	11.51			
Rainbow Darter	D	I	S	M	6	12.00	1.08			
Fantail Darter	D	I	C		37	74.00	6.65			
<i>Mile Total</i>					556	1,112.00				
<i>Number of Species</i>					11					
<i>Number of Hybrids</i>					0					

# Species List

River Code: <b>05-003</b>	Stream: <b>Muskellunge Creek</b>	Sample Date: <b>2009</b>
River Mile: <b>5.40</b>	Location: Spieldenner Rd.	Date Range: 08/11/2009
Time Fished: 3600 sec	Drainage: 37.0 sq mi	Thru: 09/08/2009
Dist Fished: 0.30 km	Basin: Sandusky River	Sampler Type: E
	No of Passes: 2	

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	14	14.00	2.14	0.03	0.98	1.79
Creek Chub	N	G	N	T	123	123.00	18.84	1.33	52.01	10.81
Redfin Shiner	N	I	N		5	5.00	0.77	0.02	0.78	4.00
Common Shiner	N	I	S		28	28.00	4.29	0.14	5.40	4.93
Silverjaw Minnow	N	I	M		2	2.00	0.31	0.01	0.20	2.50
Bluntnose Minnow	N	O	C	T	67	67.00	10.26	0.17	6.65	2.54
Central Stoneroller	N	H	N		36	36.00	5.51	0.15	5.87	4.17
Yellow Bullhead		I	C	T	2	2.00	0.31	0.00	0.12	1.50
Rock Bass	S	C	C		4	4.00	0.61	0.16	6.26	40.00
Blackside Darter	D	I	S		11	11.00	1.68	0.02	0.70	1.64
Johnny Darter	D	I	C		76	76.00	11.64	0.07	2.74	0.92
Greenside Darter	D	I	S	M	81	81.00	12.40	0.20	7.82	2.47
Rainbow Darter	D	I	S	M	129	129.00	19.75	0.16	6.18	1.22
Fantail Darter	D	I	C		75	75.00	11.49	0.11	4.30	1.47
<i>Mile Total</i>					653	653.00		2.56		
<i>Number of Species</i>					14					
<i>Number of Hybrids</i>					0					

## Species List

River Code: <b>05-003</b>	Stream: <b>Muskellunge Creek</b>	Sample Date: <b>2009</b>
River Mile: <b>0.80</b>	Location: upst. St. Rt. 53	Date Range: 07/20/2009
Time Fished: 8766 sec	Drainage: 46.0 sq mi	Thru: 08/26/2009
Dist Fished: 1.00 km	Basin: Sandusky River	Sampler Type: A
	No of Passes: 2	

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	1.00	0.17	0.02	0.02	20.00
Gizzard Shad		O	M	328	328.00	54.76	1.11	1.22	3.37
Northern Pike	F	P	M	1	1.00	0.17	1.20	1.32	1,200.00
Smallmouth Buffalo	C	I	M	6	6.00	1.00	11.05	12.15	1,841.67
Quillback	C	O	M	3	3.00	0.50	1.55	1.70	516.67
Silver Redhorse	R	I	S M	6	6.00	1.00	6.91	7.60	1,152.17
Black Redhorse	R	I	S I	2	2.00	0.33	0.10	0.11	50.00
Golden Redhorse	R	I	S M	31	31.00	5.18	5.80	6.38	187.10
Shorthead Redhorse	R	I	S M	1	1.00	0.17	0.24	0.26	240.00
Greater Redhorse [T]	R	I	S R	9	9.00	1.50	5.17	5.69	574.44
White Sucker	W	O	S T	4	4.00	0.67	0.48	0.53	121.00
Spotted Sucker	R	I	S	48	48.00	8.01	7.05	7.75	146.88
Common Carp	G	O	M T	21	21.00	3.51	33.64	36.99	1,601.90
Goldfish	G	O	M T	18	18.00	3.01	5.01	5.51	278.47
Golden Shiner	N	I	M T	4	4.00	0.67	0.03	0.03	6.25
Emerald Shiner	N	I	M	18	18.00	3.01	0.06	0.06	3.22
Spotfin Shiner	N	I	M	5	5.00	0.83	0.01	0.01	2.00
Common Carp X Goldfish	G	O	T	2	2.00	0.33	1.30	1.43	650.00
Channel Catfish	F		C	1	1.00	0.17	0.75	0.82	750.00
Yellow Bullhead		I	C T	1	1.00	0.17	0.16	0.18	160.00
Brown Bullhead		I	C T	3	3.00	0.50	0.61	0.67	201.67
White Bass	F	P	M	3	3.00	0.50	0.02	0.02	5.33
White Perch	E		M	6	6.00	1.00	0.04	0.04	6.33
Rock Bass	S	C	C	4	4.00	0.67	0.22	0.24	54.50
Largemouth Bass	F	C	C	14	14.00	2.34	5.87	6.45	418.93
Green Sunfish	S	I	C T	11	11.00	1.84	0.23	0.26	21.09
Bluegill Sunfish	S	I	C P	22	22.00	3.67	0.98	1.08	44.50
Orangespotted Sunfish	S	I	C	3	3.00	0.50	0.02	0.02	6.67
Pumpkinseed Sunfish	S	I	C P	2	2.00	0.33	0.05	0.05	25.00
Green Sf X Bluegill Sf				1	1.00	0.17	0.11	0.12	110.00
Yellow Perch			M	11	11.00	1.84	0.35	0.38	31.45
Logperch	D	I	S M	3	3.00	0.50	0.02	0.02	7.33
Freshwater Drum			M P	6	6.00	1.00	0.80	0.88	133.33
<i>Mile Total</i>				599	599.00		90.94		
<i>Number of Species</i>				31					
<i>Number of Hybrids</i>				2					

# Species List

River Code: <b>05-004</b>	Stream: <b>Indian Creek</b>	Sample Date: <b>2009</b>
River Mile: <b>0.70</b>	Location: upst. Hurdic Rd.	Date Range: 09/14/2009
Time Fished: 1247 sec	Drainage: 11.2 sq mi	
Dist Fished: 0.12 km	Basin: Sandusky 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	15.00	2.52			
Western Blacknose Dace	N	G	S	T	3	7.50	1.26			
Creek Chub	N	G	N	T	3	7.50	1.26			
Spotfin Shiner	N	I	M		9	22.50	3.78			
Sand Shiner	N	I	M	M	16	40.00	6.72			
Silverjaw Minnow	N	I	M		101	252.50	42.44			
Fathead Minnow	N	O	C	T	1	2.50	0.42			
Bluntnose Minnow	N	O	C	T	96	240.00	40.34			
Central Stoneroller	N	H	N		3	7.50	1.26			
<i>Mile Total</i>					238	595.00				
<i>Number of Species</i>					9					
<i>Number of Hybrids</i>					0					

River Code: <b>05-005</b>	Stream: <b>Wolf Creek</b>	Sample Date: <b>2009</b>
River Mile: <b>12.90</b>	Location: upst. Harrison Creek	Date Range: 07/27/2009
Time Fished: 1800 sec	Drainage: 27.0 sq mi	
Dist Fished: 0.15 km	Basin: Sandusky 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	21	42.00	1.48	2.90	3.28	69.05
White Sucker	W	O	S	T	71	142.00	5.01	6.41	7.26	45.15
Spotted Sucker	R	I	S		1	2.00	0.07	0.54	0.61	270.00
Common Carp	G	O	M	T	29	58.00	2.05	64.70	73.27	1,115.59
Creek Chub	N	G	N	T	83	166.00	5.86	1.80	2.04	10.84
Suckermouth Minnow	N	I	S		1	2.00	0.07	0.00	0.00	2.00
Redfin Shiner	N	I	N		91	182.00	6.42	0.28	0.32	1.54
Common Shiner	N	I	S		148	296.00	10.44	2.25	2.55	7.60
Sand Shiner	N	I	M	M	17	34.00	1.20	0.08	0.09	2.35
Fathead Minnow	N	O	C	T	9	18.00	0.64	0.04	0.05	2.22
Bluntnose Minnow	N	O	C	T	649	1,298.00	45.80	2.54	2.87	1.96
Central Stoneroller	N	H	N		85	170.00	6.00	0.51	0.58	2.99
Yellow Bullhead		I	C	T	14	28.00	0.99	1.34	1.52	48.00
Blackstripe Topminnow		I	M		3	6.00	0.21	0.03	0.03	5.00
Largemouth Bass	F	C	C		9	18.00	0.64	0.19	0.22	10.56
Green Sunfish	S	I	C	T	117	234.00	8.26	4.30	4.87	18.38
Bluegill Sunfish	S	I	C	P	4	8.00	0.28	0.06	0.07	7.50
Orangespotted Sunfish	S	I	C		8	16.00	0.56	0.08	0.09	5.00
Green Sf X Bluegill Sf					1	2.00	0.07	0.02	0.02	10.00
Bluegill X Orangespot					2	4.00	0.14	0.04	0.05	10.00
Blackside Darter	D	I	S		4	8.00	0.28	0.03	0.03	3.75
Johnny Darter	D	I	C		46	92.00	3.25	0.14	0.15	1.48
Greenside Darter	D	I	S	M	3	6.00	0.21	0.01	0.01	1.67
Fantail Darter	D	I	C		1	2.00	0.07	0.01	0.01	5.00
<i>Mile Total</i>					1,417	2,834.00		88.31		
<i>Number of Species</i>					22					
<i>Number of Hybrids</i>					2					

## Species List

River Code: <b>05-005</b>	Stream: <b>Wolf Creek</b>	Sample Date: <b>2009</b>
River Mile: <b>5.30</b>	Location: adj. St. Rt. 12	Date Range: 08/10/2009
Time Fished: 1800 sec	Drainage: 66.0 sq mi	
Dist Fished: 0.15 km	Basin: Sandusky 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	12	24.00	3.06	0.25	2.63	10.42
Golden Redhorse	R	I	S	M	1	2.00	0.26	0.10	1.05	50.00
White Sucker	W	O	S	T	19	38.00	4.85	0.72	7.63	19.05
Creek Chub	N	G	N	T	100	200.00	25.51	4.04	42.58	20.20
Redfin Shiner	N	I	N		1	2.00	0.26	0.00	0.04	2.00
Common Shiner	N	I	S		23	46.00	5.87	0.56	5.90	12.17
Spotfin Shiner	N	I	M		1	2.00	0.26	0.01	0.06	3.00
Bluntnose Minnow	N	O	C	T	50	100.00	12.76	0.36	3.79	3.60
Central Stoneroller	N	H	N		31	62.00	7.91	0.44	4.64	7.10
Yellow Bullhead		I	C	T	4	8.00	1.02	0.11	1.16	13.75
Stonecat Madtom		I	C	I	1	2.00	0.26	0.18	1.90	90.00
Tadpole Madtom		I	C		2	4.00	0.51	0.03	0.32	7.50
Rock Bass	S	C	C		29	58.00	7.40	1.82	19.18	31.38
Green Sunfish	S	I	C	T	8	16.00	2.04	0.28	2.95	17.50
Blackside Darter	D	I	S		18	36.00	4.59	0.12	1.26	3.33
Johnny Darter	D	I	C		27	54.00	6.89	0.05	0.57	1.00
Greenside Darter	D	I	S	M	27	54.00	6.89	0.21	2.21	3.89
Rainbow Darter	D	I	S	M	15	30.00	3.83	0.06	0.63	2.00
Fantail Darter	D	I	C		23	46.00	5.87	0.14	1.48	3.04
<i>Mile Total</i>					392	784.00		9.49		
<i>Number of Species</i>					19					
<i>Number of Hybrids</i>					0					

## Species List

River Code: <b>05-005</b>	Stream: <b>Wolf Creek</b>	Sample Date: <b>2009</b>
River Mile: <b>1.60</b>	Location: Co. Rd. 118	Date Range: 08/11/2009
Time Fished: 1800 sec	Drainage: 71.8 sq mi	
Dist Fished: 0.15 km	Basin: Sandusky 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	1	2.00	0.71	0.00	0.58	2.00
Northern Hog Sucker	R	I	S	M	11	22.00	7.80	0.04	5.85	1.82
White Sucker	W	O	S	T	13	26.00	9.22	0.04	5.85	1.54
Creek Chub	N	G	N	T	9	18.00	6.38	0.07	10.23	3.89
Spotfin Shiner	N	I	M		4	8.00	2.84	0.02	2.92	2.50
Sand Shiner	N	I	M	M	2	4.00	1.42	0.01	1.46	2.50
Silverjaw Minnow	N	I	M		1	2.00	0.71	0.01	1.17	4.00
Bluntnose Minnow	N	O	C	T	15	30.00	10.64	0.08	12.28	2.80
Central Stoneroller	N	H	N		30	60.00	21.28	0.12	16.96	1.93
Largemouth Bass	F	C	C		2	4.00	1.42	0.02	2.34	4.00
Green Sunfish	S	I	C	T	1	2.00	0.71	0.08	11.11	38.00
Logperch	D	I	S	M	1	2.00	0.71	0.02	2.92	10.00
Johnny Darter	D	I	C		9	18.00	6.38	0.03	4.68	1.75
Greenside Darter	D	I	S	M	14	28.00	9.93	0.06	8.77	2.14
Rainbow Darter	D	I	S	M	10	20.00	7.09	0.03	4.24	1.43
Fantail Darter	D	I	C		18	36.00	12.77	0.06	8.77	1.67
<i>Mile Total</i>					141	282.00		0.68		
<i>Number of Species</i>					16					
<i>Number of Hybrids</i>					0					

## Species List

River Code: <b>05-005</b>	Stream: <b>Wolf Creek</b>	Sample Date: <b>2009</b>
River Mile: <b>0.60</b>	Location: adj. Little Rd.	Date Range: 07/29/2009
Time Fished: 4500 sec	Drainage: 158.0 sq mi	Thru: 09/08/2009
Dist Fished: 0.40 km	Basin: Sandusky 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
Redfin Pickerel		P	M P	9	6.75	0.37	0.15	0.69	22.22
Silver Redhorse	R	I	S M	1	0.75	0.04	0.02	0.07	20.00
Black Redhorse	R	I	S I	55	41.25	2.29	1.88	8.63	45.63
Golden Redhorse	R	I	S M	59	44.25	2.45	4.54	20.80	102.58
Northern Hog Sucker	R	I	S M	59	44.25	2.45	2.15	9.83	48.47
White Sucker	W	O	S T	51	38.25	2.12	0.16	0.74	4.20
Goldfish	G	O	M T	3	2.25	0.12	0.02	0.10	10.00
Creek Chub	N	G	N T	35	26.25	1.45	0.15	0.68	5.67
Suckermouth Minnow	N	I	S	8	6.00	0.33	0.05	0.21	7.50
Redfin Shiner	N	I	N	47	35.25	1.95	0.06	0.27	1.66
Striped Shiner	N	I	S	3	2.25	0.12	0.05	0.24	23.33
Spotfin Shiner	N	I	M	239	179.25	9.93	0.34	1.56	1.90
Sand Shiner	N	I	M M	57	42.75	2.37	0.07	0.31	1.58
Mimic Shiner	N	I	M I	25	18.75	1.04	0.03	0.11	1.32
Fathead Minnow	N	O	C T	1	0.75	0.04	0.00	0.01	2.00
Bluntnose Minnow	N	O	C T	522	391.50	21.70	0.95	4.35	2.43
Central Stoneroller	N	H	N	387	290.25	16.08	0.92	4.20	3.16
Yellow Bullhead		I	C T	16	12.00	0.67	0.89	4.08	74.25
Stonecat Madtom		I	C I	13	9.75	0.54	0.22	1.00	22.46
Rock Bass	S	C	C	56	42.00	2.33	3.82	17.52	91.06
Smallmouth Bass	F	C	C M	16	12.00	0.67	3.38	15.46	281.25
Largemouth Bass	F	C	C	10	7.50	0.42	0.12	0.57	16.60
Green Sunfish	S	I	C T	40	30.00	1.66	0.62	2.83	20.58
Bluegill Sunfish	S	I	C P	10	7.50	0.42	0.17	0.76	22.10
Green Sf X Bluegill Sf				18	13.50	0.75	0.18	0.81	13.06
Blackside Darter	D	I	S	22	16.50	0.91	0.03	0.16	2.05
Logperch	D	I	S M	3	2.25	0.12	0.03	0.14	13.33
Johnny Darter	D	I	C	69	51.75	2.87	0.06	0.28	1.18
Greenside Darter	D	I	S M	242	181.50	10.06	0.49	2.26	2.72
Rainbow Darter	D	I	S M	128	96.00	5.32	0.13	0.58	1.33
Fantail Darter	D	I	C	202	151.50	8.40	0.17	0.76	1.09
<i>Mile Total</i>				2,406	1,804.50		21.83		
<i>Number of Species</i>				30					
<i>Number of Hybrids</i>				1					



# Species List

River Code: <b>05-006</b> River Mile: <b>18.90</b> Time Fished: 1500 sec Dist Fished: 0.18 km	Stream: <b>East Branch Wolf Creek</b> Location: dst. Wertz Rd. Drainage: 21.4 sq mi Basin: Sandusky River	Sample Date: <b>2009</b> Date Range: 07/30/2009  No of Passes: 1 Sampler Type: D
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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	756	1,260.00	55.38	15.75	66.66	12.50
Golden Shiner	N	I	M	T	2	3.33	0.15	0.03	0.14	10.00
Creek Chub	N	G	N	T	234	390.00	17.14	3.90	16.51	10.00
Redfin Shiner	N	I	N		8	13.33	0.59	0.03	0.14	2.50
Common Shiner	N	I	S		37	61.67	2.71	0.63	2.68	10.28
Fathead Minnow	N	O	C	T	23	38.33	1.68	0.08	0.35	2.17
Bluntnose Minnow	N	O	C	T	43	71.67	3.15	0.17	0.71	2.33
Central Stoneroller	N	H	N		128	213.33	9.38	0.99	4.19	4.65
Yellow Bullhead		I	C	T	4	6.67	0.29	0.65	2.75	97.50
Green Sunfish	S	I	C	T	68	113.33	4.98	1.18	5.01	10.44
Blackside Darter	D	I	S		12	20.00	0.88	0.07	0.28	3.33
Johnny Darter	D	I	C		48	80.00	3.52	0.12	0.50	1.49
Greenside Darter	D	I	S	M	2	3.33	0.15	0.02	0.07	5.00
<i>Mile Total</i>					1,365	2,275.00		23.63		
<i>Number of Species</i>					13					
<i>Number of Hybrids</i>					0					

# Species List

River Code: <b>05-006</b> River Mile: <b>13.70</b> Time Fished: 1500 sec Dist Fished: 0.15 km	Stream: <b>East Branch Wolf Creek</b> Location: upst. Wolfe Rd. Drainage: 33.0 sq mi Basin: Sandusky River	Sample Date: <b>2009</b> Date Range: 08/10/2009  No of Passes: 1 Sampler Type: E
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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	1	2.00	0.19	0.09	1.02	45.00
White Sucker	W	O	S	T	36	72.00	6.98	2.38	26.94	33.06
Western Blacknose Dace	N	G	S	T	4	8.00	0.78	0.02	0.23	2.50
Creek Chub	N	G	N	T	162	324.00	31.40	3.89	44.01	12.00
Suckermouth Minnow	N	I	S		4	8.00	0.78	0.02	0.27	3.00
Redfin Shiner	N	I	N		1	2.00	0.19	0.01	0.07	3.00
Common Shiner	N	I	S		72	144.00	13.95	1.04	11.77	7.22
Sand Shiner	N	I	M	M	4	8.00	0.78	0.02	0.18	2.00
Bluntnose Minnow	N	O	C	T	74	148.00	14.34	0.24	2.76	1.65
Central Stoneroller	N	H	N		8	16.00	1.55	0.08	0.93	5.13
Rock Bass	S	C	C		13	26.00	2.52	0.60	6.79	23.08
Green Sunfish	S	I	C	T	2	4.00	0.39	0.05	0.57	12.50
Blackside Darter	D	I	S		5	10.00	0.97	0.03	0.36	3.20
Johnny Darter	D	I	C		61	122.00	11.82	0.12	1.40	1.02
Greenside Darter	D	I	S	M	5	10.00	0.97	0.02	0.23	2.00
Rainbow Darter	D	I	S	M	18	36.00	3.49	0.04	0.48	1.18
Fantail Darter	D	I	C		46	92.00	8.91	0.18	1.99	1.91
<i>Mile Total</i>					516	1,032.00		8.83		
<i>Number of Species</i>					17					
<i>Number of Hybrids</i>					0					

## Species List

River Code: <b>05-006</b>	Stream: <b>East Branch Wolf Creek</b>	Sample Date: <b>2009</b>
River Mile: <b>9.00</b>	Location: upst. Hammer Rd.	Date Range: 07/29/2009
Time Fished: 4200 sec	Drainage: 68.0 sq mi	Thru: 09/09/2009
Dist Fished: 0.40 km	Basin: Sandusky 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
White Sucker	W	O	S	T	338	253.50	35.54	17.28	51.81	68.18
Spotted Sucker	R	I	S		32	24.00	3.36	1.54	4.60	64.00
Common Carp	G	O	M	T	10	7.50	1.05	6.08	18.21	810.00
Creek Chub	N	G	N	T	99	74.25	10.41	2.03	6.07	27.29
Redfin Shiner	N	I	N		55	41.25	5.78	0.07	0.21	1.73
Common Shiner	N	I	S		52	39.00	5.47	1.08	3.23	27.60
Spotfin Shiner	N	I	M		2	1.50	0.21	0.00	0.01	2.00
Fathead Minnow	N	O	C	T	1	0.75	0.11	0.00	0.00	2.00
Bluntnose Minnow	N	O	C	T	163	122.25	17.14	0.27	0.81	2.20
Central Stoneroller	N	H	N		8	6.00	0.84	0.00	0.01	0.63
Yellow Bullhead		I	C	T	10	7.50	1.05	0.73	2.18	97.00
Stonecat Madtom		I	C	I	1	0.75	0.11	0.05	0.16	70.00
White Crappie	S	I	C		3	2.25	0.32	0.14	0.41	60.67
Rock Bass	S	C	C		39	29.25	4.10	2.15	6.44	73.49
Smallmouth Bass	F	C	C	M	2	1.50	0.21	0.39	1.17	260.00
Largemouth Bass	F	C	C		1	0.75	0.11	0.04	0.11	50.00
Green Sunfish	S	I	C	T	25	18.75	2.63	0.71	2.11	37.60
Bluegill Sunfish	S	I	C	P	22	16.50	2.31	0.50	1.51	30.45
Orangespotted Sunfish	S	I	C		5	3.75	0.53	0.07	0.21	19.00
Green Sf X Bluegill Sf					7	5.25	0.74	0.08	0.24	15.00
Blackside Darter	D	I	S		45	33.75	4.73	0.07	0.22	2.16
Logperch	D	I	S	M	10	7.50	1.05	0.06	0.19	8.50
Johnny Darter	D	I	C		13	9.75	1.37	0.02	0.04	1.54
Greenside Darter	D	I	S	M	4	3.00	0.42	0.01	0.02	2.25
Rainbow Darter	D	I	S	M	1	0.75	0.11	0.00	0.00	2.00
Fantail Darter	D	I	C		3	2.25	0.32	0.01	0.01	2.00
<i>Mile Total</i>					951	713.25		33.36		
<i>Number of Species</i>					25					
<i>Number of Hybrids</i>					1					

## Species List

River Code: <b>05-006</b>	Stream: <b>East Branch Wolf Creek</b>	Sample Date: <b>2009</b>
River Mile: <b>0.50</b>	Location: dst. Gilmore covered bridge	Date Range: 08/11/2009
Time Fished: 3600 sec	Drainage: 84.2 sq mi	Thru: 09/09/2009
Dist Fished: 0.35 km	Basin: Sandusky 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
Redfin Pickerel		P	M P	7	5.75	0.69	0.35	1.33	60.00
Black Redhorse	R	I	S I	26	20.50	2.47	0.92	3.49	44.80
Golden Redhorse	R	I	S M	109	89.25	10.75	4.63	17.59	49.94
Greater Redhorse [T]	R	I	S R	2	1.50	0.18	0.06	0.23	40.00
Northern Hog Sucker	R	I	S M	55	47.00	5.66	2.75	10.45	56.20
White Sucker	W	O	S T	34	27.00	3.25	1.29	4.92	46.03
Spotted Sucker	R	I	S	1	0.75	0.09	0.05	0.20	70.00
Creek Chub	N	G	N T	1	0.75	0.09	0.11	0.43	150.00
Suckermouth Minnow	N	I	S	2	1.75	0.21	0.01	0.04	7.00
Redfin Shiner	N	I	N	18	13.50	1.63	0.03	0.11	2.22
Striped Shiner	N	I	S	8	6.50	0.78	0.18	0.67	27.50
Spotfin Shiner	N	I	M	68	51.75	6.23	0.11	0.43	2.19
Sand Shiner	N	I	M M	19	15.50	1.87	0.03	0.12	1.97
Mimic Shiner	N	I	M I	11	8.25	0.99	0.02	0.07	2.27
Bluntnose Minnow	N	O	C T	166	126.25	15.21	0.38	1.45	3.02
Central Stoneroller	N	H	N	62	48.50	5.84	0.32	1.21	6.66
Channel Catfish	F		C	8	7.00	0.84	8.38	31.84	1,200.00
Yellow Bullhead		I	C T	12	9.75	1.17	0.84	3.20	85.83
Stonecat Madtom		I	C I	5	4.50	0.54	0.15	0.57	30.60
Rock Bass	S	C	C	24	20.25	2.44	1.98	7.53	101.04
Smallmouth Bass	F	C	C M	7	6.25	0.75	2.27	8.64	361.43
Largemouth Bass	F	C	C	5	4.00	0.48	0.33	1.25	83.60
Green Sunfish	S	I	C T	18	14.50	1.75	0.38	1.44	26.22
Green Sf X Bluegill Sf				13	9.75	1.17	0.08	0.29	7.69
Blackside Darter	D	I	S	21	17.00	2.05	0.05	0.18	2.75
Logperch	D	I	S M	15	12.75	1.54	0.12	0.45	9.25
Johnny Darter	D	I	C	18	13.75	1.66	0.02	0.09	1.78
Greenside Darter	D	I	S M	108	90.25	10.87	0.22	0.84	2.47
Rainbow Darter	D	I	S M	70	56.75	6.84	0.09	0.33	1.49
Fantail Darter	D	I	C	122	99.25	11.95	0.16	0.60	1.56
<i>Mile Total</i>				1,035	830.25		26.30		
<i>Number of Species</i>				29					
<i>Number of Hybrids</i>				1					

# Species List

River Code: <b>05-007</b>	Stream: <b>Snuff Creek</b>	Sample Date: <b>2009</b>
River Mile: <b>0.40</b>	Location: upst. Twp. Rd. 171	Date Range: 07/21/2009
Time Fished: 1200 sec	Drainage: 4.7 sq mi	
Dist Fished: 0.12 km	Basin: Sandusky 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	19	47.50	7.95			
Western Blacknose Dace	N	G	S	T	64	160.00	26.78			
Creek Chub	N	G	N	T	98	245.00	41.00			
Common Shiner	N	I	S		1	2.50	0.42			
Bluntnose Minnow	N	O	C	T	31	77.50	12.97			
Central Stoneroller	N	H	N		3	7.50	1.26			
Blackside Darter	D	I	S		4	10.00	1.67			
Johnny Darter	D	I	C		19	47.50	7.95			
<i>Mile Total</i>					239	597.50				
<i>Number of Species</i>					8					
<i>Number of Hybrids</i>					0					

# Species List

River Code: <b>05-008</b> River Mile: <b>3.40</b> Time Fished: 1800 sec Dist Fished: 0.15 km	Stream: <b>East Branch East Branch Wolf Creek</b> Location: dst. Co. Rd. 26, at Tiffin University Drainage: 6.8 sq mi Basin: Sandusky River	Sample Date: <b>2009</b> Date Range: 07/22/2009  No of Passes: 1 Sampler Type: E
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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	100	200.00	8.67			
Western Blacknose Dace	N	G	S	T	7	14.00	0.61			
Creek Chub	N	G	N	T	575	1,150.00	49.87			
Common Shiner	N	I	S		12	24.00	1.04			
Bluntnose Minnow	N	O	C	T	57	114.00	4.94			
Central Stoneroller	N	H	N		314	628.00	27.23			
Green Sunfish	S	I	C	T	5	10.00	0.43			
Johnny Darter	D	I	C		83	166.00	7.20			
<i>Mile Total</i>					1,153	2,306.00				
<i>Number of Species</i>					8					
<i>Number of Hybrids</i>					0					

River Code: <b>05-008</b>	Stream: <b>East Branch East Branch Wolf Creek</b>	Sample Date: <b>2009</b>
River Mile: <b>1.50</b>	Location: upst. Twp. Rd. 120	Date Range: 08/10/2009
Time Fished: 2100 sec	Drainage: 19.7 sq mi	
Dist Fished: 0.15 km	Basin: Sandusky 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	42	84.00	3.71			
Western Blacknose Dace	N	G	S	T	10	20.00	0.88			
Creek Chub	N	G	N	T	183	366.00	16.18			
Suckermouth Minnow	N	I	S		11	22.00	0.97			
Redfin Shiner	N	I	N		4	8.00	0.35			
Common Shiner	N	I	S		234	468.00	20.69			
Bluntnose Minnow	N	O	C	T	107	214.00	9.46			
Central Stoneroller	N	H	N		296	592.00	26.17			
Yellow Bullhead		I	C	T	3	6.00	0.27			
Rock Bass	S	C	C		1	2.00	0.09			
Green Sunfish	S	I	C	T	3	6.00	0.27			
Bluegill Sunfish	S	I	C	P	6	12.00	0.53			
Green Sf X Bluegill Sf					2	4.00	0.18			
Blackside Darter	D	I	S		5	10.00	0.44			
Logperch	D	I	S	M	2	4.00	0.18			
Johnny Darter	D	I	C		112	224.00	9.90			
Greenside Darter	D	I	S	M	19	38.00	1.68			
Rainbow Darter	D	I	S	M	28	56.00	2.48			
Fantail Darter	D	I	C		63	126.00	5.57			
<i>Mile Total</i>					1,131	2,262.00				
<i>Number of Species</i>					18					
<i>Number of Hybrids</i>					1					

# Species List

River Code: <b>05-009</b>	Stream: <b>Middle Branch E. Br. E. Br. Wolf Creek</b>	Sample Date: <b>2009</b>
River Mile: <b>0.10</b>	Location: at mouth	Date Range: 07/22/2009
Time Fished: 2100 sec	Drainage: 11.5 sq mi	
Dist Fished: 0.15 km	Basin: Sandusky 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	77	154.00	8.37			
Western Blacknose Dace	N	G	S	T	2	4.00	0.22			
Creek Chub	N	G	N	T	455	910.00	49.46			
Suckermouth Minnow	N	I	S		1	2.00	0.11			
Common Shiner	N	I	S		158	316.00	17.17			
Bluntnose Minnow	N	O	C	T	57	114.00	6.20			
Central Stoneroller	N	H	N		41	82.00	4.46			
Green Sunfish	S	I	C	T	3	6.00	0.33			
Blackside Darter	D	I	S		7	14.00	0.76			
Johnny Darter	D	I	C		116	232.00	12.61			
Greenside Darter	D	I	S	M	1	2.00	0.11			
Rainbow Darter	D	I	S	M	1	2.00	0.11			
Fantail Darter	D	I	C		1	2.00	0.11			
<i>Mile Total</i>					920	1,840.00				
<i>Number of Species</i>					13					
<i>Number of Hybrids</i>					0					



# Species List

River Code: <b>05-010</b>	Stream: <b>Sugar Creek</b>	Sample Date: <b>2009</b>
River Mile: <b>3.10</b>	Location: upst. Twp. Rd. 76	Date Range: 07/21/2009
Time Fished: 1200 sec	Drainage: 9.4 sq mi	
Dist Fished: 0.12 km	Basin: Sandusky 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	8	20.00	2.40			
Western Blacknose Dace	N	G	S	T	18	45.00	5.39			
Creek Chub	N	G	N	T	72	180.00	21.56			
Common Shiner	N	I	S		18	45.00	5.39			
Bluntnose Minnow	N	O	C	T	1	2.50	0.30			
Central Stoneroller	N	H	N		27	67.50	8.08			
Green Sunfish	S	I	C	T	4	10.00	1.20			
Bluegill Sunfish	S	I	C	P	1	2.50	0.30			
Johnny Darter	D	I	C		49	122.50	14.67			
Rainbow Darter	D	I	S	M	3	7.50	0.90			
Mottled Sculpin		I	C		133	332.50	39.82			
<i>Mile Total</i>					334	835.00				
<i>Number of Species</i>					11					
<i>Number of Hybrids</i>					0					

## Species List

River Code: <b>05-010</b>	Stream: <b>Sugar Creek</b>	Sample Date: <b>2009</b>
River Mile: <b>1.10</b>	Location: Twp. Rd. 148	Date Range: 07/21/2009
Time Fished: 2400 sec	Drainage: 13.0 sq mi	
Dist Fished: 0.15 km	Basin: Sandusky 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	17	34.00	3.10			
White Sucker	W	O	S	T	73	146.00	13.30			
Western Blacknose Dace	N	G	S	T	42	84.00	7.65			
Creek Chub	N	G	N	T	76	152.00	13.84			
Common Shiner	N	I	S		15	30.00	2.73			
Bluntnose Minnow	N	O	C	T	51	102.00	9.29			
Central Stoneroller	N	H	N		44	88.00	8.01			
Green Sunfish	S	I	C	T	10	20.00	1.82			
Blackside Darter	D	I	S		1	2.00	0.18			
Logperch	D	I	S	M	1	2.00	0.18			
Johnny Darter	D	I	C		39	78.00	7.10			
Greenside Darter	D	I	S	M	1	2.00	0.18			
Rainbow Darter	D	I	S	M	11	22.00	2.00			
Fantail Darter	D	I	C		1	2.00	0.18			
Mottled Sculpin		I	C		167	334.00	30.42			
<i>Mile Total</i>					549	1,098.00				
<i>Number of Species</i>					15					
<i>Number of Hybrids</i>					0					

River Code: <b>05-011</b>	Stream: <b>Spicer Creek</b>	Sample Date: <b>2009</b>
River Mile: <b>0.50</b>	Location: dst. Co. Rd. 33	Date Range: 07/21/2009
Time Fished: 2400 sec	Drainage: 12.4 sq mi	
Dist Fished: 0.15 km	Basin: Sandusky 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 Redhorse	R	I	S	M	1	2.00	0.09			
Golden Redhorse	R	I	S	M	5	10.00	0.47			
White Sucker	W	O	S	T	37	74.00	3.49			
Creek Chub	N	G	N	T	39	78.00	3.68			
Suckermouth Minnow	N	I	S		7	14.00	0.66			
Redfin Shiner	N	I	N		12	24.00	1.13			
Spotfin Shiner	N	I	M		24	48.00	2.27			
Sand Shiner	N	I	M	M	5	10.00	0.47			
Silverjaw Minnow	N	I	M		53	106.00	5.00			
Bluntnose Minnow	N	O	C	T	635	1,270.00	59.96			
Central Stoneroller	N	H	N		105	210.00	9.92			
Yellow Bullhead		I	C	T	16	32.00	1.51			
Rock Bass	S	C	C		1	2.00	0.09			
Smallmouth Bass	F	C	C	M	1	2.00	0.09			
Largemouth Bass	F	C	C		3	6.00	0.28			
Green Sunfish	S	I	C	T	27	54.00	2.55			
Bluegill Sunfish	S	I	C	P	2	4.00	0.19			
Blackside Darter	D	I	S		3	6.00	0.28			
Johnny Darter	D	I	C		13	26.00	1.23			
Rainbow Darter	D	I	S	M	1	2.00	0.09			
Mottled Sculpin		I	C		69	138.00	6.52			
<i>Mile Total</i>					1,059	2,118.00				
<i>Number of Species</i>					21					
<i>Number of Hybrids</i>					0					

## Species List

Page 38

River Code: <b>05-080</b>	Stream: <b>Plum Run</b>	Sample Date: <b>2009</b>
River Mile: <b>0.80</b>	Location: St. Rt. 635	Date Range: 07/21/2009
Time Fished: 1800 sec	Drainage: 10.1 sq mi	
Dist Fished: 0.12 km	Basin: Sandusky 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	34	85.00	2.46			
White Sucker	W	O	S	T	48	120.00	3.47			
Creek Chub	N	G	N	T	267	667.50	19.31			
Redfin Shiner	N	I	N		137	342.50	9.91			
Common Shiner	N	I	S		245	612.50	17.72			
Sand Shiner	N	I	M	M	7	17.50	0.51			
Bluntnose Minnow	N	O	C	T	200	500.00	14.46			
Central Stoneroller	N	H	N		95	237.50	6.87			
Yellow Bullhead		I	C	T	42	105.00	3.04			
Tadpole Madtom		I	C		49	122.50	3.54			
Blackstripe Topminnow		I	M		32	80.00	2.31			
Largemouth Bass	F	C	C		9	22.50	0.65			
Green Sunfish	S	I	C	T	36	90.00	2.60			
Bluegill Sunfish	S	I	C	P	9	22.50	0.65			
Blackside Darter	D	I	S		5	12.50	0.36			
Johnny Darter	D	I	C		126	315.00	9.11			
Rainbow Darter	D	I	S	M	1	2.50	0.07			
Fantail Darter	D	I	C		41	102.50	2.96			
<i>Mile Total</i>					1,383	3,457.50				
<i>Number of Species</i>					18					
<i>Number of Hybrids</i>					0					

# Species List

River Code: <b>05-081</b>	Stream: <b>Harrison Creek</b>	Sample Date: <b>2009</b>
River Mile: <b>0.10</b>	Location: at mouth	Date Range: 07/22/2009
Time Fished: 1200 sec	Drainage: 13.2 sq mi	
Dist Fished: 0.15 km	Basin: Sandusky 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	0.27			
Goldfish	G	O	M	T	2	4.00	0.55			
Creek Chub	N	G	N	T	70	140.00	19.18			
Redfin Shiner	N	I	N		14	28.00	3.84			
Bluntnose Minnow	N	O	C	T	45	90.00	12.33			
Central Stoneroller	N	H	N		95	190.00	26.03			
Green Sunfish	S	I	C	T	2	4.00	0.55			
Johnny Darter	D	I	C		121	242.00	33.15			
Greenside Darter	D	I	S	M	1	2.00	0.27			
Banded Darter	D	I	S	I	1	2.00	0.27			
Fantail Darter	D	I	C		13	26.00	3.56			
<i>Mile Total</i>					365	730.00				
<i>Number of Species</i>					11					
<i>Number of Hybrids</i>					0					

# Species List

River Code: <b>05-098</b> River Mile: <b>0.10</b> Time Fished: 1500 sec Dist Fished: 0.15 km	Stream: <b>Trib. to E. Br. Wolf Creek (18.60)</b> Location: Twp. Rd. 112 Drainage: 8.1 sq mi Basin: Sandusky River	Sample Date: <b>2009</b> Date Range: 08/11/2009  No of Passes: 1 Sampler Type: E
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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	19	38.00	9.74			
Creek Chub	N	G	N	T	24	48.00	12.31			
Suckermouth Minnow	N	I	S		1	2.00	0.51			
Central Stoneroller	N	H	N		26	52.00	13.33			
Green Sunfish	S	I	C	T	90	180.00	46.15			
Blackside Darter	D	I	S		1	2.00	0.51			
Johnny Darter	D	I	C		33	66.00	16.92			
Greenside Darter	D	I	S	M	1	2.00	0.51			
<i>Mile Total</i>					195	390.00				
<i>Number of Species</i>					8					
<i>Number of Hybrids</i>					0					

River Code: <b>05-219</b>	Stream: <b>Muddy Creek</b>	Sample Date: <b>2009</b>
River Mile: <b>28.30</b>	Location: adj. Reinbolt Rd.	Date Range: 07/28/2009
Time Fished: 2700 sec	Drainage: 35.0 sq mi	Thru: 09/08/2009
Dist Fished: 0.25 km	Basin: Sandusky 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
Redfin Pickerel		P	M P	14	17.00	1.08	0.82	2.31	49.80
Golden Redhorse	R	I	S M	7	8.50	0.54	3.14	8.89	399.29
White Sucker	W	O	S T	89	104.00	6.58	3.44	9.74	30.65
Common Carp	G	O	M T	9	10.00	0.63	19.39	54.87	2,106.67
Goldfish	G	O	M T	3	3.00	0.19	0.50	1.41	166.67
Creek Chub	N	G	N T	2	2.00	0.13	0.09	0.25	45.00
Redfin Shiner	N	I	N	64	70.50	4.46	0.10	0.29	1.43
Striped Shiner	N	I	S	2	2.00	0.13	0.05	0.14	25.00
Bluntnose Minnow	N	O	C T	1,000	1,067.00	67.49	1.12	3.18	1.03
Central Stoneroller	N	H	N	41	51.00	3.23	0.10	0.27	1.95
Channel Catfish	F		C	1	1.00	0.06	0.04	0.11	40.00
Yellow Bullhead		I	C T	39	45.00	2.85	2.44	6.90	54.22
Black Bullhead		I	C P	7	8.00	0.51	0.47	1.32	59.29
Stonecat Madtom		I	C I	2	2.00	0.13	0.12	0.34	60.00
Blackstripe Topminnow		I	M	15	16.50	1.04	0.05	0.15	3.20
Rock Bass	S	C	C	14	16.00	1.01	1.40	3.95	84.29
Smallmouth Bass	F	C	C M	7	8.00	0.51	0.83	2.33	100.00
Green Sunfish	S	I	C T	42	48.00	3.04	1.03	2.92	21.55
Bluegill Sunfish	S	I	C P	1	1.00	0.06	0.05	0.14	50.00
Blackside Darter	D	I	S	11	13.00	0.82	0.06	0.17	4.55
Johnny Darter	D	I	C	76	87.50	5.53	0.11	0.30	1.14
<i>Mile Total</i>				1,446	1,581.00		35.34		
<i>Number of Species</i>				21					
<i>Number of Hybrids</i>				0					

River Code: <b>05-219</b>	Stream: <b>Muddy Creek</b>	Sample Date: <b>2009</b>
River Mile: <b>21.30</b>	Location: upst. Staff Rd.	Date Range: 07/28/2009
Time Fished: 4241 sec	Drainage: 44.0 sq mi	Thru: 09/14/2009
Dist Fished: 0.55 km	Basin: Sandusky River	Sampler Type: D E
	No of Passes: 3	

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	17	9.83	8.97	0.38	5.27	40.29
Golden Redhorse	R	I	S	M	13	8.17	7.45	2.08	28.75	258.46
Northern Hog Sucker	R	I	S	M	1	0.67	0.61	0.12	1.70	185.00
White Sucker	W	O	S	T	1	0.67	0.61	0.33	4.61	500.00
Creek Chub	N	G	N	T	13	8.00	7.29	0.01	0.20	1.85
Redfin Shiner	N	I	N		8	5.33	4.86	0.01	0.15	2.00
Common Shiner	N	I	S		1	0.50	0.46	0.00	0.01	1.00
Bluntnose Minnow	N	O	C	T	13	6.50	5.93	0.02	0.33	3.65
Yellow Bullhead		I	C	T	11	6.00	5.47	0.40	5.57	66.36
Black Bullhead		I	C	P	1	0.50	0.46	0.04	0.48	70.00
Stonecat Madtom		I	C	I	4	2.17	1.98	0.12	1.61	57.50
Blackstripe Topminnow		I	M		1	0.67	0.61	0.00	0.04	4.00
Rock Bass	S	C	C		26	14.33	13.07	1.41	19.47	100.19
Smallmouth Bass	F	C	C	M	15	8.83	8.05	2.09	28.91	251.00
Green Sunfish	S	I	C	T	6	3.33	3.04	0.10	1.42	31.00
Blackside Darter	D	I	S		29	17.17	15.65	0.07	0.97	4.31
Logperch	D	I	S	M	1	0.67	0.61	0.01	0.11	12.00
Johnny Darter	D	I	C		24	14.83	13.53	0.03	0.37	1.83
Greenside Darter	D	I	S	M	3	1.50	1.37	0.00	0.05	2.33
<i>Mile Total</i>					188	109.67		7.23		
<i>Number of Species</i>					19					
<i>Number of Hybrids</i>					0					



## Species List

River Code: <b>05-219</b>	Stream: <b>Muddy Creek</b>	Sample Date: <b>2009</b>
River Mile: <b>18.70</b>	Location: Co. Rd. 90	Date Range: 08/05/2009
Time Fished: 4737 sec	Drainage: 63.0 sq mi	Thru: 09/09/2009
Dist Fished: 0.30 km	Basin: Sandusky River	Sampler Type: D E
	No of Passes: 2	

Species Name / ODNR status	IBI Grp	Feed Guild	Breed Guild	Tol	# of Fish	Relative Number	% by Number	Relative Weight	% by Weight	Ave(gm) Weight
Rainbow Trout	E		N		1	1.00	0.17	0.02	0.19	20.00
Redfin Pickerel		P	M	P	31	31.00	5.36	0.66	6.12	21.13
Northern Pike	F	P	M		1	1.00	0.17	0.04	0.37	40.00
White Sucker	W	O	S	T	4	4.00	0.69	0.10	0.89	23.75
Creek Chub	N	G	N	T	188	188.00	32.53	4.03	37.70	21.46
Striped Shiner	N	I	S		61	61.00	10.55	1.04	9.72	17.05
Spotfin Shiner	N	I	M		1	1.00	0.17	0.01	0.05	5.00
Bluntnose Minnow	N	O	C	T	16	16.00	2.77	0.07	0.65	4.38
Central Stoneroller	N	H	N		175	175.00	30.28	2.28	21.31	13.03
Yellow Bullhead		I	C	T	1	1.00	0.17	0.00	0.02	2.00
Stonecat Madtom		I	C	I	22	22.00	3.81	0.91	8.51	41.36
Rock Bass	S	C	C		12	12.00	2.08	0.69	6.45	57.50
Smallmouth Bass	F	C	C	M	17	17.00	2.94	0.58	5.42	34.12
Blackside Darter	D	I	S		25	25.00	4.33	0.14	1.31	5.60
Johnny Darter	D	I	C		16	16.00	2.77	0.04	0.33	2.20
Greenside Darter	D	I	S	M	7	7.00	1.21	0.10	0.96	14.71
<i>Mile Total</i>					578	578.00		10.70		
<i>Number of Species</i>					16					
<i>Number of Hybrids</i>					0					

River Code: <b>05-219</b>	Stream: <b>Muddy Creek</b>	Sample Date: <b>2009</b>
River Mile: <b>9.80</b>	Location: upst. Co. Rd. 153	Date Range: 07/28/2009
Time Fished: 5459 sec	Drainage: 74.0 sq mi	Thru: 09/10/2009
Dist Fished: 0.60 km	Basin: Sandusky River	No of Passes: 3
		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	6	3.00	1.26	0.05	1.26	17.17
Northern Pike	F	P	M	2	1.00	0.42	0.07	1.58	65.00
Golden Redhorse	R	I	S M	1	0.50	0.21	0.17	4.14	340.00
White Sucker	W	O	S T	6	3.00	1.26	0.42	10.15	138.83
Spotted Sucker	R	I	S	1	0.50	0.21	0.01	0.29	24.00
Golden Shiner	N	I	M T	1	0.50	0.21	0.00	0.06	5.00
Creek Chub	N	G	N T	8	4.00	1.67	0.09	2.17	22.25
Redfin Shiner	N	I	N	1	0.50	0.21	0.00	0.02	2.00
Common Shiner	N	I	S	1	0.50	0.21	0.00	0.02	1.00
Spotfin Shiner	N	I	M	87	43.50	18.20	0.08	1.94	1.83
Bluntnose Minnow	N	O	C T	49	24.50	10.25	0.08	1.94	3.25
Central Stoneroller	N	H	N	2	1.00	0.42	0.00	0.06	2.50
Yellow Bullhead		I	C T	12	6.00	2.51	0.61	14.86	101.67
Stonecat Madtom		I	C I	1	0.50	0.21	0.07	1.70	140.00
Blackstripe Topminnow		I	M	13	6.50	2.72	0.01	0.33	2.08
Rock Bass	S	C	C	63	31.50	13.18	1.56	38.04	49.58
Smallmouth Bass	F	C	C M	5	2.50	1.05	0.23	5.48	90.00
Green Sunfish	S	I	C T	7	3.50	1.46	0.05	1.21	14.14
Pumpkinseed Sunfish	S	I	C P	1	0.50	0.21	0.02	0.37	30.00
Green Sf X Bluegill Sf				1	0.50	0.21	0.03	0.71	58.00
Blackside Darter	D	I	S	73	36.50	15.27	0.13	3.23	3.63
Logperch	D	I	S M	33	16.50	6.90	0.20	4.94	12.27
Johnny Darter	D	I	C	15	7.50	3.14	0.01	0.36	1.93
Greenside Darter	D	I	S M	41	20.50	8.58	0.07	1.62	3.25
Round Goby	E			48	24.00	10.04	0.15	3.58	6.11
<i>Mile Total</i>				478	239.00		4.11		
<i>Number of Species</i>				24					
<i>Number of Hybrids</i>				1					

## Species List

River Code: <b>05-219</b>	Stream: <b>Muddy Creek</b>	Sample Date: <b>2009</b>
River Mile: <b>0.90</b>	Location: at DeMarr Shooting Club	Date Range: 07/15/2009
Time Fished: 6068 sec	Drainage: 110.0 sq mi	Thru: 09/01/2009
Dist Fished: 1.00 km	Basin: Sandusky 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	0.50	0.22	0.07	108.50	
Gizzard Shad		O	M	117	117.00	28.96	0.64	0.22	5.50	
Smallmouth Buffalo	C	I	M	15	15.00	3.71	11.59	3.91	772.33	
Spotted Sucker	R	I	S	2	2.00	0.50	0.05	0.02	25.00	
Common Carp	G	O	M	T	130	130.00	32.18	266.74	89.94	2,051.82
Goldfish	G	O	M	T	25	25.00	6.19	7.35	2.48	293.82
Golden Shiner	N	I	M	T	1	1.00	0.25	0.00	0.00	2.00
Fathead Minnow	N	O	C	T	1	1.00	0.25	0.01	0.00	6.00
Bluntnose Minnow	N	O	C	T	3	3.00	0.74	0.01	0.00	4.67
Channel Catfish	F		C		6	6.00	1.49	3.20	1.08	533.33
White Bass	F	P	M		8	8.00	1.98	0.02	0.01	2.88
White Perch	E		M		1	1.00	0.25	0.00	0.00	3.00
White Crappie	S	I	C		1	1.00	0.25	0.01	0.00	10.00
Largemouth Bass	F	C	C		3	3.00	0.74	1.05	0.35	350.00
Green Sunfish	S	I	C	T	3	3.00	0.74	0.04	0.01	12.67
Bluegill Sunfish	S	I	C	P	26	26.00	6.44	1.21	0.41	46.50
Orangespotted Sunfish	S	I	C		11	11.00	2.72	0.10	0.03	9.09
Pumpkinseed Sunfish	S	I	C	P	13	13.00	3.22	0.33	0.11	25.00
Green Sf X Bluegill Sf					2	2.00	0.50	0.05	0.02	25.00
Yellow Perch			M		7	7.00	1.73	0.17	0.06	24.29
Logperch	D	I	S	M	4	4.00	0.99	0.04	0.01	9.75
Freshwater Drum			M	P	23	23.00	5.69	3.75	1.27	163.22
				<i>Mile Total</i>	404	404.00		296.57		
				<i>Number of Species</i>	21					
				<i>Number of Hybrids</i>	1					

# Species List

River Code: <b>05-220</b>	Stream: <b>Little Muddy Creek</b>	Sample Date: <b>2009</b>
River Mile: <b>7.60</b>	Location: upst. Booktown Rd.	Date Range: 08/11/2009
Time Fished: 2100 sec	Drainage: 12.4 sq mi	
Dist Fished: 0.12 km	Basin: Sandusky 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	68	170.00	16.67			
Creek Chub	N	G	N	T	43	107.50	10.54			
Redfin Shiner	N	I	N		4	10.00	0.98			
Fathead Minnow	N	O	C	T	78	195.00	19.12			
Bluntnose Minnow	N	O	C	T	44	110.00	10.78			
Central Stoneroller	N	H	N		60	150.00	14.71			
Blackstripe Topminnow		I	M		5	12.50	1.23			
Western Mosquitofish	E	I	N		2	5.00	0.49			
Green Sunfish	S	I	C	T	59	147.50	14.46			
Bluegill Sunfish	S	I	C	P	8	20.00	1.96			
Orangespotted Sunfish	S	I	C		3	7.50	0.74			
Green Sf X Orangespot Sf					1	2.50	0.25			
Blackside Darter	D	I	S		31	77.50	7.60			
Logperch	D	I	S	M	2	5.00	0.49			
<i>Mile Total</i>					408	1,020.00				
<i>Number of Species</i>					13					
<i>Number of Hybrids</i>					1					

River Code: <b>05-220</b>	Stream: <b>Little Muddy Creek</b>	Sample Date: <b>2009</b>
River Mile: <b>1.70</b>	Location: dst. St. Rt. 528	Date Range: 07/20/2009
Time Fished: 5322 sec	Drainage: 25.0 sq mi	Thru: 08/26/2009
Dist Fished: 1.00 km	Basin: Sandusky River	Sampler Type: A
	No of Passes: 2	

Species Name / ODNR status	IBI Grp	Feed Guild	Breed Guild Tol	# of Fish	Relative Number	% by Number	Relative Weight	% by Weight	Ave(gm) Weight
Bowfin		P	C	1	1.00	0.11	1.65	4.58	1,650.00
Gizzard Shad		O	M	567	567.00	61.23	2.80	7.76	4.93
Bigmouth Buffalo	C	I	M	2	2.00	0.22	0.09	0.26	47.00
Smallmouth Buffalo	C	I	M	6	6.00	0.65	0.11	0.32	19.00
Shorthead Redhorse	R	I	S M	1	1.00	0.11	0.09	0.25	90.00
White Sucker	W	O	S T	3	3.00	0.32	0.07	0.19	23.33
Spotted Sucker	R	I	S	5	5.00	0.54	0.21	0.58	42.00
Common Carp	G	O	M T	10	10.00	1.08	9.15	25.38	915.00
Goldfish	G	O	M T	221	221.00	23.87	13.90	38.56	62.90
Emerald Shiner	N	I	M	1	1.00	0.11	0.01	0.01	5.00
Fathead Minnow	N	O	C T	1	1.00	0.11	0.00	0.01	3.00
Bluntnose Minnow	N	O	C T	2	2.00	0.22	0.01	0.02	3.00
Common Carp X Goldfish	G	O	T	1	1.00	0.11	0.15	0.40	145.00
Channel Catfish	F		C	4	4.00	0.43	2.30	6.38	575.00
Brown Bullhead		I	C T	1	1.00	0.11	0.04	0.10	35.00
White Bass	F	P	M	5	5.00	0.54	0.05	0.12	9.00
White Perch	E		M	16	16.00	1.73	0.06	0.17	3.75
Green Sunfish	S	I	C T	4	4.00	0.43	0.11	0.29	26.25
Bluegill Sunfish	S	I	C P	11	11.00	1.19	0.29	0.80	26.36
Orangespotted Sunfish	S	I	C	21	21.00	2.27	0.12	0.34	5.81
Pumpkinseed Sunfish	S	I	C P	6	6.00	0.65	0.14	0.39	23.33
Green Sf X Bluegill Sf				3	3.00	0.32	0.09	0.25	30.00
Yellow Perch			M	9	9.00	0.97	0.10	0.28	11.11
Freshwater Drum			M P	25	25.00	2.70	4.53	12.57	181.20
<i>Mile Total</i>				926	926.00		36.05		
<i>Number of Species</i>				22					
<i>Number of Hybrids</i>				2					

# Species List

River Code: <b>05-222</b> River Mile: <b>1.60</b> Time Fished: 1800 sec Dist Fished: 0.15 km	Stream: <b>South Branch Muddy Creek</b> Location: upst. Anderson Rd. Drainage: 22.0 sq mi Basin: Sandusky River	Sample Date: <b>2009</b> Date Range: 07/27/2009  No of Passes: 1 Sampler Type: D
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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	28	56.00	3.70	2.20	12.78	39.29
White Sucker	W	O	S	T	53	106.00	7.01	1.54	8.95	14.53
Common Carp	G	O	M	T	2	4.00	0.26	0.06	0.35	15.00
Creek Chub	N	G	N	T	14	28.00	1.85	0.58	3.37	20.71
Redfin Shiner	N	I	N		4	8.00	0.53	0.04	0.23	5.00
Striped Shiner	N	I	S		23	46.00	3.04	0.92	5.35	20.00
Bluntnose Minnow	N	O	C	T	176	352.00	23.28	0.77	4.47	2.19
Central Stoneroller	N	H	N		130	260.00	17.20	2.40	13.93	9.22
Yellow Bullhead		I	C	T	110	220.00	14.55	6.10	35.44	27.73
Black Bullhead		I	C	P	1	2.00	0.13	0.10	0.58	50.00
Blackstripe Topminnow		I	M		57	114.00	7.54	0.28	1.63	2.46
Rock Bass	S	C	C		7	14.00	0.93	0.55	3.20	39.29
Green Sunfish	S	I	C	T	23	46.00	3.04	1.35	7.84	29.35
Blackside Darter	D	I	S		9	18.00	1.19	0.12	0.70	6.67
Johnny Darter	D	I	C		119	238.00	15.74	0.20	1.17	0.85
<i>Mile Total</i>					756	1,512.00		17.21		
<i>Number of Species</i>					15					
<i>Number of Hybrids</i>					0					

# Species List

River Code: <b>05-223</b>	Stream: <b>Gries Ditch</b>	Sample Date: <b>2009</b>
River Mile: <b>4.80</b>	Location: upst. U.S. Rt. 6	Date Range: 08/11/2009
Time Fished: 1200 sec	Drainage: 9.3 sq mi	
Dist Fished: 0.12 km	Basin: Sandusky 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	118	295.00	81.94			
Creek Chub	N	G	N	T	1	2.50	0.69			
Blackstripe Topminnow		I	M		19	47.50	13.19			
Green Sunfish	S	I	C	T	3	7.50	2.08			
Johnny Darter	D	I	C		3	7.50	2.08			
<i>Mile Total</i>					144	360.00				
<i>Number of Species</i>					5					
<i>Number of Hybrids</i>					0					

# Species List

River Code: <b>05-223</b>	Stream: <b>Gries Ditch</b>	Sample Date: <b>2009</b>
River Mile: <b>1.00</b>	Location: upst. Staff Rd.	Date Range: 08/05/2009
Time Fished: 1500 sec	Drainage: 16.3 sq mi	
Dist Fished: 0.15 km	Basin: Sandusky 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	23	46.00	4.29			
White Sucker	W	O	S	T	21	42.00	3.92			
Creek Chub	N	G	N	T	25	50.00	4.66			
Bluntnose Minnow	N	O	C	T	130	260.00	24.25			
Central Stoneroller	N	H	N		264	528.00	49.25			
Yellow Bullhead		I	C	T	30	60.00	5.60			
Blackstripe Topminnow		I	M		28	56.00	5.22			
Rock Bass	S	C	C		6	12.00	1.12			
Smallmouth Bass	F	C	C	M	3	6.00	0.56			
Blackside Darter	D	I	S		3	6.00	0.56			
Johnny Darter	D	I	C		3	6.00	0.56			
<i>Mile Total</i>					536	1,072.00				
<i>Number of Species</i>					11					
<i>Number of Hybrids</i>					0					



Appendix Table 9. Lower Sandusky River study area Invertebrate  
Community Index (ICI), 2009.

River Mile	Drainage Area (sq mi)	Number of				Percent:					Qual. EPT	Eco-region	ICI
		Total Taxa	Mayfly Taxa	Caddisfly Taxa	Dipteran Taxa	Mayflies	Caddisflies	Tanytarsini	Other Dipt/NI	Tolerant Organisms			
<b>Sandusky River (05-001)</b>													
Year: 2009													
65.01	655.0	41(6)	9(6)	10(6)	15(6)	24.3(4)	34.5(6)	12.1(2)	27.3(4)	1.8(6)	21(6)	5	52
52.58	770.0	39(6)	12(6)	6(6)	14(6)	41.6(6)	16.3(4)	8.6(2)	32.3(2)	0.2(6)	15(4)	5	48
47.75	774.0	23(4)	8(6)	6(6)	5(2)	19.2(4)	32.6(6)	22.8(4)	24.4(4)	0.0(6)	22(6)	5	48
42.92	960.0	18(2)	2(0)	2(2)	7(2)	0.5(2)	2.7(0)	0.0(0)	94.6(0)	7.5(0)	2(0)	5	8
41.84	964.0	27(4)	7(4)	5(4)	11(4)	11.4(2)	47.7(6)	8.7(2)	32.1(2)	0.0(6)	15(4)	5	38
38.90	1008	26(4)	5(2)	6(4)	10(4)	36.4(6)	32.7(6)	9.9(2)	20.0(4)	0.0(6)	15(4)	5	42
38.50	1028	32(4)	6(4)	6(4)	13(6)	8.6(2)	33.3(6)	5.1(2)	50.0(0)	0.2(6)	8(2)	5	36
26.94	1067	20(2)	3(2)	2(2)	5(2)	0.4(2)	1.1(0)	0.0(0)	96.9(0)	30.0(0)	2(0)	5	10
23.00	1073	41(6)	10(6)	6(4)	16(6)	28.0(6)	47.1(6)	9.5(2)	13.8(6)	0.2(6)	16(4)	1	52
20.25	1251	38(6)	10(6)	8(6)	13(6)	33.3(6)	36.9(6)	12.7(4)	13.5(6)	0.0(6)	17(6)	1	58
18.05	1255	15(2)	1(0)	1(0)	4(2)	0.0(2)	0.7(0)	0.0(0)	98.4(0)	9.3(0)	2(0)	1	6
17.70	1255	38(6)	7(4)	7(6)	14(6)	4.4(2)	29.6(4)	9.6(2)	54.8(0)	4.5(0)	11(4)	1	34
<b>Muskellunge Creek (05-003)</b>													
Year: 2009													
5.40	37.0	22(2)	3(2)	1(2)	12(2)	31.0(6)	0.5(2)	2.3(2)	63.4(0)	19.0(2)	12(4)	1	24
1.23	44.0	23(2)	4(2)	0(0)	12(2)	1.5(2)	0.0(0)	6.2(2)	91.9(0)	61.1(0)	2(0)	1	10
<b>Wolf Creek (05-005)</b>													
Year: 2009													
0.04	158.0	34(4)	7(4)	3(4)	19(6)	27.4(4)	0.2(2)	6.9(2)	65.4(0)	1.1(6)	15(4)	1	36
<b>East Branch Wolf Creek (05-006)</b>													
Year: 2009													
0.86	83.0	33(4)	3(2)	5(6)	17(4)	9.3(2)	19.4(6)	12.1(2)	57.6(2)	2.8(6)	13(4)	1	38
<b>Muddy Creek (05-219)</b>													
Year: 2009													
29.36	33.0	33(4)	6(4)	2(4)	15(4)	5.7(2)	0.6(2)	11.1(2)	63.6(0)	0.9(6)	9(4)	1	32
21.95	43.2	22(2)	4(2)	1(2)	7(2)	26.3(4)	2.5(2)	5.0(2)	60.3(2)	9.2(4)	11(4)	1	26
18.68	63.0	23(2)	6(4)	4(6)	9(2)	35.4(6)	10.6(4)	5.8(2)	46.9(2)	6.6(4)	13(4)	1	36
9.79	74.0	34(4)	5(2)	1(2)	21(6)	48.7(6)	6.4(2)	10.6(2)	23.7(6)	6.6(4)	7(2)	1	36
<b>South Branch Muddy Creek (05-222)</b>													
Year: 2009													
1.54	22.0	38(6)	6(4)	2(4)	17(4)	64.9(6)	0.8(2)	1.2(2)	25.5(6)	1.7(6)	6(2)	1	42

Appendix Table 10. Lower Sandusky River study area  
macroinvertebrate community attributes,  
2009.

River Mile	All Taxa			Sen. Taxa			EPT Taxa		CW Taxa	Ql.	Ql.	QCTV	ICI	Nar.	Drain	Comments
	Total	Qt.	Ql.	Total	Qt.	Ql.	Total	Ql.		Tol.	S					
<b>Sandusky River (05-001)</b>																
Year: 2009																
65.01	67	41	49	26	21	19	26	21	0	5	3.80	43.2	52		655.0	
52.58	55	39	35	19	12	13	23	15	0	7	1.86	42.7	48		770.0	
47.75	57	23	54	21	10	20	24	22	0	10	2.00	42.6	48		774.0	
42.92	35	18	26	3	1	2	6	2	0	12	0.17	32.2	8		960.0	X2,8
41.84	55	27	38	16	10	10	21	15	0	9	1.11	38.9	38		964.0	
38.90	56	26	45	20	13	15	19	15	0	9	1.67	42.5	42		1008.0	
38.50	50	32	34	12	11	7	12	8	0	9	0.78	35.3	36		1028.0	
31.95	46		46	19		19		15	0	8	2.38	41.6		E	1046.0	
26.94	33	20	22	3	3	0	6	2	0	12	0.00	29.3	10		1067.0	X8
23.00	65	41	42	24	19	13	22	16	0	9	1.44	40.0	52		1073.0	
20.25	60	38	41	28	20	17	26	17	0	5	3.40	43.3	58		1251.0	
18.05	37	15	30	2	1	1	4	2	0	17	0.06	28.5	6	P	1255.0	X2,8
17.70	48	38	27	18	14	10	17	11	0	3	3.33	42.7	34		1255.0	
15.40	27		27	11		11		11	0	1	11.00	43.3		G	1260.0	
4.70	20	14	12	0	0	0	2	2	0	3	0.00	39.2	0		1330.0	X8,11
<b>Bark Creek (05-002)</b>																
Year: 2009																
3.20	33		33	1		1		6	0	12	0.08	34.8		F	10.0	
<b>Muskellunge Creek (05-003)</b>																
Year: 2009																
24.44	21		21	0		0		1	0	16	0.00	29.4		P	2.3	
16.70	45		45	5		5		11	0	15	0.33	37.6		G	17.7	
5.40	50	22	40	10	1	10	12	12	0	6	1.67	39.6	24	G	37.0	X8
1.23	35	23	20	2	1	1	5	2	0	3	0.33	37.6	10		44.0	X8
<b>Indian Creek (05-004)</b>																
Year: 2009																
0.62	35		35	5		5		10	0	13	0.38	34.8		MG	11.2	
<b>Wolf Creek (05-005)</b>																
Year: 2009																
13.60	35		35	2		2		9	0	8	0.25	35.6		MG	27.0	
5.15	38		38	6		6		9	0	10	0.60	39.6		G	66.0	
0.04	59	34	44	12	7	10	16	15	0	6	1.67	40.5	36	VG	158.0	X15
<b>East Branch Wolf Creek (05-006)</b>																
Year: 2009																
19.65	21		21	0		0		2	0	11	0.00	31.8		P	19.0	
13.63	45		45	11		11		15	1	4	2.75	39.9		E	33.0	
9.00	36		36	4		4		9	0	7	0.57	39.2		G	68.0	
0.86	61	33	41	13	5	10	17	13	0	12	0.83	38.4	38		83.0	

River Mile	All Taxa			Sen. Taxa			EPT Taxa		CW Taxa	Ql.	Ql.	QCTV	ICI	Nar.	Drain	Comments
	Total	Qt.	Ql.	Total	Qt.	Ql.	Total	Ql.		Tol.	S					
<b>Snuff Creek (05-007)</b>																
Year: 2009																
0.33	28		28	2		2		6	0	10	0.20	35.6		MG	4.7	
<b>East Branch East Branch Wolf Creek (05-008)</b>																
Year: 2009																
3.52	31		31	1		1		4	1	7	0.14	38.0		MG	6.8	
1.48	33		33	6		6		9	1	4	1.50	39.6		G	19.7	
<b>Middle Branch E. Br. E. Br. Wolf Creek (05-009)</b>																
Year: 2009																
0.46	32		32	6		6		8	0	5	1.20	38.9		G	11.3	
<b>Sugar Creek (05-010)</b>																
Year: 2009																
3.11	36		36	5		5		9	0	8	0.63	39.5		G	9.4	
1.05	35		35	13		13		11	0	0	*****	42.5		G	13.0	
<b>Spicer Creek (05-011)</b>																
Year: 2009																
0.80	59		59	11		11		14	0	12	0.92	39.1		E	12.3	
<b>Plum Run (05-080)</b>																
Year: 2009																
0.79	32		32	2		2		7	0	10	0.20	35.6		F	10.1	
<b>Harrison Creek (05-081)</b>																
Year: 2009																
0.38	24		24	0		0		0	0	20	0.00	23.6		P	13.1	X9
<b>Trib. to E. Br. Wolf Creek (18.60) (05-098)</b>																
Year: 2009																
0.04	28		28	2		2		5	0	4	0.50	35.7		MG	8.1	
<b>Muddy Creek (05-219)</b>																
Year: 2009																
29.36	62	33	47	7	4	6	11	9	0	14	0.43	35.6	32	G	33.0	X15
21.95	55	22	46	9	2	8	13	11	0	11	0.73	38.9	26	G	43.2	X15
18.68	55	23	43	12	5	10	16	13	0	6	1.67	39.6	36		63.0	
9.79	52	34	30	5	4	3	8	7	0	7	0.43	38.8	36		74.0	
1.23	28	14	19	0	0	0	3	0	0	14	0.00	28.5	0		110.0	X8,11
<b>Little Muddy Creek (05-220)</b>																
Year: 2009																
7.55	29		29	0		0		2	0	13	0.00	33.1		P	12.4	X9
2.50	36	22	22	0	0	0	6	3	0	13	0.00	28.5	0		25.0	X8,11
<b>South Branch Muddy Creek (05-222)</b>																
Year: 2009																
1.54	60	38	39	6	4	4	11	6	0	21	0.19	33.1	42		22.0	X8
<b>Gries Ditch (05-223)</b>																

River Mile	All Taxa			Sen. Taxa			EPT Taxa		CW Taxa	Ql.	Ql.	QCTV	ICI	Nar.	Drain	Comments
	Total	Qt.	Ql.	Total	Qt.	Ql.	Total	Ql.		Tol.	S					
Year: 2009																
4.72	47	47	1	1	9	0	27	0.04	33.7	HF	9.3					
0.90	61	61	8	8	16	0	23	0.35	38.4	G	16.3					

Appendix Table 11. Lower Sandusky River study area macroinvertebrate taxa, 2009.

**Ohio EPA/DSW Ecological Assessment Section  
Macroinvertebrate Collection**

Site: Sandusky River

Collection Date: 08/24/2009 River Code: 05-001 RM: 65.01

Co. Rd. 16

Taxa Code	Taxa	Quant/Qual	Taxa Code	Taxa	Quant/Qual
01801	<i>Turbellaria</i>	+	78401	<i>Natarsia species A (sensu Roback, 1978)</i>	+
03360	<i>Plumatella sp</i>	+	78450	<i>Nilotanypus fimbriatus</i>	41
03451	<i>Urnatella gracilis</i>	8	78655	<i>Procladius (Holotanypus) sp</i>	+
03600	<i>Oligochaeta</i>	+	81231	<i>Nanocladius (N.) crassicornus or N. (N.) "rectinervis"</i>	21
08250	<i>Orconectes (Procericambarus) rusticus</i>	+	81825	<i>Rheocricotopus (Psilocricotopus) robacki</i>	165 +
08601	<i>Hydrachnidia</i>	16	82141	<i>Thienemanniella xena</i>	21
11120	<i>Baetis flavistriga</i>	+	82730	<i>Chironomus (C.) decorus group</i>	+
11130	<i>Baetis intercalaris</i>	848 +	83040	<i>Dicrotendipes neomodestus</i>	+
11670	<i>Proclaeon viridoculare</i>	+	83300	<i>Glyptotendipes (G.) sp</i>	21
12200	<i>Isonychia sp</i>	164 +	83310	<i>Glyptotendipes (Heynotendipes) amplus</i>	+
13000	<i>Leucrocota sp</i>	6 +	83820	<i>Microtendipes "caelum" (sensu Simpson &amp; Bode, 1980)</i>	41 +
13100	<i>Nixe sp</i>	+	83840	<i>Microtendipes pedellus group</i>	+
13400	<i>Stenacron sp</i>	6 +	84040	<i>Parachironomus frequens</i>	+
13510	<i>Maccaffertium exiguum</i>	40	84155	<i>Paralauterborniella nigrohalteralis</i>	+
13550	<i>Maccaffertium mexicanum integrum</i>	6	84300	<i>Phaenopsectra obediens group</i>	+
13561	<i>Maccaffertium pulchellum</i>	154 +	84450	<i>Polypedilum (Uresipedilum) flavum</i>	785
13570	<i>Maccaffertium terminatum</i>	83 +	84460	<i>Polypedilum (P.) fallax group</i>	103
14950	<i>Leptophlebia sp or Paraleptophlebia sp</i>	+	84520	<i>Polypedilum (Tripodura) halterale group</i>	41
16700	<i>Tricorythodes sp</i>	103 +	84540	<i>Polypedilum (Tripodura) scalaenum group</i>	227 +
17200	<i>Caenis sp</i>	+	85625	<i>Rheotanytarsus sp</i>	703 +
22300	<i>Argia sp</i>	+	86100	<i>Chrysops sp</i>	+
34700	<i>Agnatina capitata complex</i>	1	87501	<i>Empididae</i>	1
45100	<i>Palmacorixa sp</i>	+	93900	<i>Elimia sp</i>	1 +
45400	<i>Trichocorixa sp</i>	+			
48410	<i>Corydalus cornutus</i>	3			
50315	<i>Chimarra obscura</i>	22 +			
50906	<i>Psychomyia flavida</i>	1 +	No. Quantitative Taxa: 41		Total Taxa: 67
51600	<i>Polycentropus sp</i>	1 +	No. Qualitative Taxa: 49		ICI: 52
52200	<i>Cheumatopsyche sp</i>	1105 +	Number of Organisms: 5791		Qual EPT: 21
52430	<i>Ceratopsyche morosa group</i>	566 +			
52520	<i>Hydropsyche bidens</i>	27			
52570	<i>Hydropsyche simulans</i>	270 +			
53400	<i>Protophila sp</i>	1 +			
53800	<i>Hydroptila sp</i>	1			
59407	<i>Nectopsyche candida</i>	+			
59410	<i>Nectopsyche diarina</i>	1 +			
68075	<i>Psephenus herricki</i>	+			
68708	<i>Dubiraphia vittata group</i>	+			
68901	<i>Macronychus glabratus</i>	26 +			
69400	<i>Stenelmis sp</i>	73 +			
71100	<i>Hexatoma sp</i>	1			
74100	<i>Simulium sp</i>	4 +			
77120	<i>Ablabesmyia mallochi</i>	+			
77750	<i>Hayesomyia senata or Thienemannimyia norena</i>	83			



**Ohio EPA/DSW Ecological Assessment Section  
Macroinvertebrate Collection**

Site: Sandusky River

Collection Date: 08/24/2009 River Code: 05-001 RM: 52.58

adj. Walnut Grove Campground

Taxa Code	Taxa	Quant/Qual	Taxa Code	Taxa	Quant/Qual
01320	<i>Hydra sp</i>	944	83300	<i>Glyptotendipes (G.) sp</i>	151 +
01801	<i>Turbellaria</i>	46 +	83670	<i>Lipiniella sp</i>	+
03360	<i>Plumatella sp</i>	13	83840	<i>Microtendipes pedellus group</i>	32 +
03600	<i>Oligochaeta</i>	+	84300	<i>Phaenopsectra obediens group</i>	11
05800	<i>Caecidotea sp</i>	+	84450	<i>Polypedilum (Uresipedilum) flavum</i>	248
08250	<i>Orconectes (Procericambarus) rusticus</i>	+	84520	<i>Polypedilum (Tripodura) halterale group</i>	+
11130	<i>Baetis intercalaris</i>	97 +	84540	<i>Polypedilum (Tripodura) scalaenum group</i>	11
11650	<i>Procloeon sp (w/ hindwing pads)</i>	1 +	85625	<i>Rheotanytarsus sp</i>	355
11670	<i>Procloeon viridoculare</i>	+	85821	<i>Tanytarsus glabrescens group sp 7</i>	11
12200	<i>Isonychia sp</i>	70	85840	<i>Tanytarsus sepp</i>	54
13000	<i>Leucrocota sp</i>	64 +	93900	<i>Elimia sp</i>	+
13400	<i>Stenacron sp</i>	208 +			
13510	<i>Maccaffertium exiguum</i>	+	No. Quantitative Taxa: 39		Total Taxa: 55
13550	<i>Maccaffertium mexicanum integrum</i>	16	No. Qualitative Taxa: 35		ICI: 48
13561	<i>Maccaffertium pulchellum</i>	144	Number of Organisms: 4870		Qual EPT: 15
13570	<i>Maccaffertium terminatum</i>	216 +			
14950	<i>Leptophlebia sp or Paraleptophlebia sp</i>	8			
16700	<i>Tricorythodes sp</i>	1184 +			
17200	<i>Caenis sp</i>	8 +			
18600	<i>Ephemera sp</i>	12			
18700	<i>Hexagenia sp</i>	+			
22300	<i>Argia sp</i>	1 +			
24900	<i>Gomphus sp</i>	+			
45100	<i>Palmacorixa sp</i>	+			
45400	<i>Trichocorixa sp</i>	+			
48410	<i>Corydalus cornutus</i>	1			
51206	<i>Cyrnellus fraternus</i>	1			
51600	<i>Polycentropus sp</i>	106 +			
52200	<i>Cheumatopsyche sp</i>	464 +			
52520	<i>Hydropsyche bidens</i>	88 +			
52570	<i>Hydropsyche simulans</i>	105			
53800	<i>Hydroptila sp</i>	32			
59300	<i>Mystacides sp</i>	+			
59407	<i>Nectopsyche candida</i>	+			
68075	<i>Psephenus herricki</i>	+			
68901	<i>Macronychus glabratus</i>	6 +			
69400	<i>Stenelmis sp</i>	43 +			
77120	<i>Ablabesmyia mallochi</i>	22 +			
77750	<i>Hayesomyia senata or Thienemannimyia norena</i>	32			
78450	<i>Nilotanypus fimbriatus</i>	32			
78655	<i>Procladius (Holotanypus) sp</i>	+			
82730	<i>Chironomus (C.) decorus group</i>	11 +			
82820	<i>Cryptochironomus sp</i>	11 +			
83040	<i>Dicrotendipes neomodestus</i>	11			

Ohio EPA/DSW Ecological Assessment Section  
 Macroinvertebrate Collection

Site: Sandusky River  
 Scott Bridge

Collection Date: 08/24/2009 River Code: 05-001 RM: 47.75

Taxa Code	Taxa	Quant/Qual	Taxa Code	Taxa	Quant/Qual
01320	<i>Hydra sp</i>	743	79085	<i>Telopelopia okoboji</i>	+
01801	<i>Turbellaria</i>	+	80410	<i>Cricotopus (C.) sp</i>	20
03360	<i>Plumatella sp</i>	+	82730	<i>Chironomus (C.) decorus group</i>	+
03600	<i>Oligochaeta</i>	+	82820	<i>Cryptochironomus sp</i>	+
06201	<i>Hyaella azteca</i>	+	83300	<i>Glyptotendipes (G.) sp</i>	+
11120	<i>Baetis flavistriga</i>	+	83820	<i>Microtendipes "caelum" (sensu Simpson &amp; Bode, 1980)</i>	+
11130	<i>Baetis intercalaris</i>	96 +	83840	<i>Microtendipes pedellus group</i>	+
11650	<i>Procloeon sp (w/ hindwing pads)</i>	+	84010	<i>Parachironomus "abortivus" (sensu Simpson &amp; Bode, 1980)</i>	+
11670	<i>Procloeon viridoculare</i>	+	84450	<i>Polypedilum (Uresipedilum) flavum</i>	528 +
12200	<i>Isonychia sp</i>	46 +	84540	<i>Polypedilum (Tripodura) scalaenum group</i>	+
13000	<i>Leucrocuta sp</i>	6 +	84800	<i>Tribelos jucundum</i>	20 +
13400	<i>Stenacron sp</i>	6 +	85625	<i>Rheotanytarsus sp</i>	1341 +
13550	<i>Maccaffertium mexicanum integrum</i>	11 +	95100	<i>Physella sp</i>	+
13561	<i>Maccaffertium pulchellum</i>	103 +	98600	<i>Sphaerium sp</i>	+
13570	<i>Maccaffertium terminatum</i>	9			
16700	<i>Tricorythodes sp</i>	849 +			
17200	<i>Caenis sp</i>	+			
18100	<i>Anthopotamus sp</i>	+			
18750	<i>Hexagenia limbata</i>	+			
22001	<i>Coenagrionidae</i>	+			
22300	<i>Argia sp</i>	+			
23909	<i>Boyeria vinosa</i>	+			
43300	<i>Ranatra sp</i>	+			
45300	<i>Sigara sp</i>	+			
47600	<i>Sialis sp</i>	+			
48410	<i>Corydalus cornutus</i>	1 +			
50315	<i>Chimarra obscura</i>	+			
50906	<i>Psychomyia flavida</i>	+			
51600	<i>Polycentropus sp</i>	1 +			
52200	<i>Cheumatopsyche sp</i>	1176 +			
52430	<i>Ceratopsyche morosa group</i>	472 +			
52510	<i>Hydropsyche aerata</i>	204 +			
52530	<i>Hydropsyche depravata group</i>	60 +			
53800	<i>Hydroptila sp</i>	1			
59160	<i>Ceraclea spongillovorax</i>	+			
59410	<i>Nectopsyche diarina</i>	+			
59970	<i>Petrophila sp</i>	+			
68075	<i>Psephenus herricki</i>	+			
68708	<i>Dubiraphia vittata group</i>	+			
68901	<i>Macronychus glabratus</i>	9 +			
69400	<i>Stenelmis sp</i>	50 +			
72700	<i>Anopheles sp</i>	+			
77740	<i>Hayesomyia senata</i>	122 +			
78655	<i>Procladius (Holotanypus) sp</i>	+			

No. Quantitative Taxa: 23      Total Taxa: 58  
 No. Qualitative Taxa: 54      ICI: 48  
 Number of Organisms: 5874      Qual EPT: 22

**Ohio EPA/DSW Ecological Assessment Section  
Macroinvertebrate Collection**

Site: Sandusky River  
U.S. Rt. 224

Collection Date: 08/24/2009 River Code: 05-001 RM: 42.92

Taxa Code	Taxa	Quant/Qual	Taxa Code	Taxa	Quant/Qual
01320	<i>Hydra sp</i>	35			
01801	<i>Turbellaria</i>	110			
03360	<i>Plumatella sp</i>	11 +			
03600	<i>Oligochaeta</i>	216 +			
04964	<i>Mooreobdella microstoma</i>	+			
06201	<i>Hyalella azteca</i>	+			
08250	<i>Orconectes (Procericambarus) rusticus</i>	+			
13400	<i>Stenacron sp</i>	11			
16700	<i>Tricorythodes sp</i>	5			
17200	<i>Caenis sp</i>	+			
22001	<i>Coenagrionidae</i>	+			
22300	<i>Argia sp</i>	64 +			
28908	<i>Perithemis tenera</i>	+			
45100	<i>Palmacorixa sp</i>	+			
51206	<i>Cyrnellus fraternus</i>	70			
52430	<i>Ceratopsyche morosa group</i>	+			
53800	<i>Hydroptila sp</i>	18			
60900	<i>Peltodytes sp</i>	+			
65800	<i>Berosus sp</i>	+			
68708	<i>Dubiraphia vittata group</i>	1 +			
69400	<i>Stenelmis sp</i>	10 +			
71300	<i>Limonia sp</i>	+			
77750	<i>Hayesomyia senata or Thienemannimyia norena</i>	+			
78655	<i>Procladius (Holotanypus) sp</i>	31 +			
83000	<i>Dicrotendipes sp</i>	+			
83050	<i>Dicrotendipes lucifer</i>	31			
83051	<i>Dicrotendipes simpsoni</i>	31			
83158	<i>Endochironomus nigricans</i>	31			
83300	<i>Glyptotendipes (G.) sp</i>	2552 +			
83310	<i>Glyptotendipes (Heynotendipes) amplus</i>	+			
84470	<i>Polypedilum (P.) illinoense</i>	+			
84520	<i>Polypedilum (Tripodura) halterale group</i>	31 +			
84800	<i>Tribelos jucundum</i>	31 +			
86100	<i>Chrysops sp</i>	+			
95100	<i>Physella sp</i>	+			

No. Quantitative Taxa: 18      Total Taxa: 35

No. Qualitative Taxa: 26      ICI: 8

Number of Organisms: 3289      Qual EPT: 2

Ohio EPA/DSW Ecological Assessment Section  
Macroinvertebrate Collection

Site: Sandusky River

Collection Date: 08/24/2009 River Code: 05-001 RM: 41.84

Ella St.

Taxa Code	Taxa	Quant/Qual	Taxa Code	Taxa	Quant/Qual
01320	<i>Hydra sp</i>	128	82820	<i>Cryptochironomus sp</i>	+
01801	<i>Turbellaria</i>	+	83300	<i>Glyptotendipes (G.) sp</i>	+
03600	<i>Oligochaeta</i>	+	83840	<i>Microtendipes pedellus group</i>	+
06201	<i>Hyalella azteca</i>	+	84010	<i>Parachironomus "abortivus" (sensu Simpson &amp; Bode, 1980)</i>	25
06700	<i>Crangonyx sp</i>	+	84450	<i>Polypedilum (Uresipedilum) flavum</i>	1704 +
08250	<i>Orconectes (Procericambarus) rusticus</i>	+	84540	<i>Polypedilum (Tripodura) scalaenum group</i>	+
11120	<i>Baetis flavistriga</i>	+	85625	<i>Rheotanytarsus sp</i>	585
11130	<i>Baetis intercalaris</i>	443 +	85800	<i>Tanytarsus sp</i>	25
11200	<i>Callibaetis sp</i>	+	85840	<i>Tanytarsus sepp</i>	25
11650	<i>Procloeon sp (w/ hindwing pads)</i>	+	93900	<i>Elimia sp</i>	+
11670	<i>Procloeon viridoculare</i>	+	98600	<i>Sphaerium sp</i>	+
12200	<i>Isonychia sp</i>	1			
13000	<i>Leucrocota sp</i>	94	No. Quantitative Taxa: 27		Total Taxa: 55
13400	<i>Stenacron sp</i>	59 +	No. Qualitative Taxa: 38		ICI: 38
13521	<i>Stenonema femoratum</i>	+	Number of Organisms: 7314		Qual EPT: 15
13561	<i>Maccaffertium pulchellum</i>	18			
13570	<i>Maccaffertium terminatum</i>	56			
16700	<i>Tricorythodes sp</i>	163 +			
18750	<i>Hexagenia limbata</i>	+			
22001	<i>Coenagrionidae</i>	+			
22300	<i>Argia sp</i>	+			
43300	<i>Ranatra sp</i>	+			
45400	<i>Trichocorixa sp</i>	+			
50315	<i>Chimarra obscura</i>	+			
51400	<i>Nyctiophylax sp</i>	+			
51600	<i>Polycentropus sp</i>	1 +			
52200	<i>Cheumatopsyche sp</i>	2216 +			
52430	<i>Ceratopsyche morosa group</i>	741 +			
52510	<i>Hydropsyche aerata</i>	513			
53800	<i>Hydroptila sp</i>	16			
59300	<i>Mystacides sp</i>	+			
59970	<i>Petrophila sp</i>	8 +			
60900	<i>Peltodytes sp</i>	+			
65800	<i>Berosus sp</i>	+			
68901	<i>Macronychus glabratus</i>	1			
69400	<i>Stenelmis sp</i>	1 +			
72420	<i>Chaoborus sp</i>	75			
74100	<i>Simulium sp</i>	40 +			
77750	<i>Hayesomyia senata or Thienemannimyia norena</i>	127			
77800	<i>Helopelopia sp</i>	+			
78450	<i>Nilotanypus fimbriatus</i>	192			
78655	<i>Procladius (Holotanypus) sp</i>	+			
78750	<i>Rheopelopia paramaculipennis</i>	25			
80370	<i>Corynoneura lobata</i>	32			

**Ohio EPA/DSW Ecological Assessment Section  
Macroinvertebrate Collection**

Site: Sandusky River  
upst. Tiffin WWTP

Collection Date: 08/25/2009 River Code: 05-001 RM: 38.90

Taxa Code	Taxa	Quant/Qual	Taxa Code	Taxa	Quant/Qual
00401	<i>Spongillidae</i>	+	79100	<i>Thienemannimyia</i> group	41
01801	<i>Turbellaria</i>	16 +	81231	<i>Nanocladius (N.) crassicornus</i> or <i>N. (N.) "rectinervis"</i>	41 +
03360	<i>Plumatella</i> sp	+	82101	<i>Thienemanniella taurocapita</i>	50
03600	<i>Oligochaeta</i>	+	82220	<i>Tvetenia discoloripes</i> group	284
05800	<i>Caecidotea</i> sp	+	82730	<i>Chironomus (C.) decorus</i> group	+
06700	<i>Crangonyx</i> sp	+	83300	<i>Glyptotendipes (G.)</i> sp	41
08250	<i>Orconectes (Procericambarus) rusticus</i>	+	83840	<i>Microtendipes pedellus</i> group	+
08601	<i>Hydrachnidia</i>	32	84450	<i>Polypedilum (Uresipedilum) flavum</i>	1581 +
11130	<i>Baetis intercalaris</i>	3648 +	84540	<i>Polypedilum (Tripodura) scalaenum</i> group	+
11670	<i>Procloeon viridoculare</i>	+	85625	<i>Rheotanytarsus</i> sp	1176 +
13000	<i>Leucrocuta</i> sp	130 +	85800	<i>Tanytarsus</i> sp	+
13400	<i>Stenacron</i> sp	+	93900	<i>Elimia</i> sp	+
13521	<i>Stenonema femoratum</i>	+			
13550	<i>Maccaffertium mexicanum integrum</i>	32	No. Quantitative Taxa: 26		Total Taxa: 56
13561	<i>Maccaffertium pulchellum</i>	487 +	No. Qualitative Taxa: 45		ICI: 42
13570	<i>Maccaffertium terminatum</i>	16 +	Number of Organisms: 11836		Qual EPT: 15
17200	<i>Caenis</i> sp	+			
18100	<i>Anthopotamus</i> sp	+			
18600	<i>Ephemera</i> sp	+			
22001	<i>Coenagrionidae</i>	+			
22300	<i>Argia</i> sp	+			
48410	<i>Corydalus cornutus</i>	2 +			
49200	<i>Climacia</i> sp	+			
52200	<i>Cheumatopsyche</i> sp	664 +			
52430	<i>Ceratopsyche morosa</i> group	2987 +			
52510	<i>Hydropsyche aerata</i>	166 +			
52540	<i>Hydropsyche dicantha</i>	55			
52590	<i>Hydropsyche venularis</i>	+			
53800	<i>Hydroptila</i> sp	1			
59300	<i>Mystacides</i> sp	+			
59407	<i>Nectopsyche candida</i>	1			
59970	<i>Petrophila</i> sp	95 +			
60900	<i>Peltodytes</i> sp	+			
65800	<i>Berosus</i> sp	+			
68075	<i>Psephenus herricki</i>	+			
68708	<i>Dubiraphia vittata</i> group	+			
68901	<i>Macronychus glabratus</i>	+			
69400	<i>Stenelmis</i> sp	14 +			
72420	<i>Chaoborus</i> sp	32			
74501	<i>Ceratopogonidae</i>	+			
77120	<i>Ablabesmyia mallochi</i>	+			
78450	<i>Nilotanypus fimbriatus</i>	41			
78655	<i>Procladius (Holotanypus)</i> sp	+			
78750	<i>Rheopelopia paramaculipennis</i>	203 +			

**Ohio EPA/DSW Ecological Assessment Section  
Macroinvertebrate Collection**

Site: Sandusky River  
dst. Tiffin WWTP

Collection Date: 08/25/2009 River Code: 05-001 RM: 38.50

Taxa Code	Taxa	Quant/Qual	Taxa Code	Taxa	Quant/Qual
01320	<i>Hydra sp</i>	16	84960	<i>Pseudochironomus sp</i>	+
01801	<i>Turbellaria</i>	36 +	85625	<i>Rheotanytarsus sp</i>	533
03360	<i>Plumatella sp</i>	5 +	85821	<i>Tanytarsus glabrescens group sp 7</i>	67
03600	<i>Oligochaeta</i>	32 +	85840	<i>Tanytarsus sepp</i>	67
06700	<i>Crangonyx sp</i>	+	93900	<i>Elimia sp</i>	+
08250	<i>Orconectes (Procericambarus) rusticus</i>	+	96900	<i>Ferrissia sp</i>	+
11130	<i>Baetis intercalaris</i>	560 +	98600	<i>Sphaerium sp</i>	+
13000	<i>Leucrocuta sp</i>	104			
13400	<i>Stenacron sp</i>	104 +	No. Quantitative Taxa: 32		Total Taxa: 50
13561	<i>Maccaffertium pulchellum</i>	177	No. Qualitative Taxa: 34		ICI: 36
13570	<i>Maccaffertium terminatum</i>	95	Number of Organisms: 12985		Qual EPT: 8
16700	<i>Tricorythodes sp</i>	77 +			
22300	<i>Argia sp</i>	+			
45400	<i>Trichocorixa sp</i>	+			
52200	<i>Cheumatopsyche sp</i>	1645 +			
52430	<i>Ceratopsyche morosa group</i>	2232 +			
52510	<i>Hydropsyche aerata</i>	117 +			
52520	<i>Hydropsyche bidens</i>	29			
52590	<i>Hydropsyche venularis</i>	264 +			
53800	<i>Hydroptila sp</i>	32 +			
59970	<i>Petrophila sp</i>	377 +			
65800	<i>Berosus sp</i>	+			
66500	<i>Enochrus sp</i>	+			
67800	<i>Tropisternus sp</i>	+			
68901	<i>Macronychus glabratus</i>	1			
69400	<i>Stenelmis sp</i>	8			
74100	<i>Simulium sp</i>	1 +			
77500	<i>Conchapelopia sp</i>	133			
77750	<i>Hayesomyia senata or Thienemannimyia norena</i>	+			
78655	<i>Procladius (Holotanypus) sp</i>	+			
78750	<i>Rheopelopia paramaculipennis</i>	600 +			
80370	<i>Corynoneura lobata</i>	16			
80410	<i>Cricotopus (C.) sp</i>	67			
80420	<i>Cricotopus (C.) bicinctus</i>	+			
81231	<i>Nanocladius (N.) crassicornus or N. (N.) "rectinervis"</i>	200			
82101	<i>Thienemanniella taurocapita</i>	124			
82730	<i>Chironomus (C.) decorus group</i>	+			
82820	<i>Cryptochironomus sp</i>	+			
83040	<i>Dicrotendipes neomodestus</i>	200 +			
83300	<i>Glyptotendipes (G.) sp</i>	67			
84300	<i>Phaenopsectra obediens group</i>	+			
84450	<i>Polypedilum (Uresipedilum) flavum</i>	4999 +			
84540	<i>Polypedilum (Tripodura) scalaenum group</i>	+			

Ohio EPA/DSW Ecological Assessment Section  
 Macroinvertebrate Collection

Site: Sandusky River

Collection Date: 08/25/2009 River Code: 05-001 RM: 31.95

Twp. Rd. 143

Taxa Code	Taxa	Quant/Qual	Taxa Code	Taxa	Quant/Qual
01801	<i>Turbellaria</i>	+	99480	<i>Cyclonaias tuberculata</i>	+
03121	<i>Paludicella articulata</i>	+	99880	<i>Lampsilis cardium</i>	+
03360	<i>Plumatella sp</i>	+			
03451	<i>Urnatella gracilis</i>	+	No. Quantitative Taxa: 0		Total Taxa: 46
03600	<i>Oligochaeta</i>	+	No. Qualitative Taxa: 46		ICI:
08250	<i>Orconectes (Procericambarus) rusticus</i>	+	Number of Organisms: 0		Qual EPT: 15
11130	<i>Baetis intercalaris</i>	+			
11670	<i>Proclaeon viridoculare</i>	+			
12200	<i>Isonychia sp</i>	+			
13400	<i>Stenacron sp</i>	+			
13561	<i>Maccaffertium pulchellum</i>	+			
16700	<i>Tricorythodes sp</i>	+			
17200	<i>Caenis sp</i>	+			
18100	<i>Anthopotamus sp</i>	+			
22001	<i>Coenagrionidae</i>	+			
22300	<i>Argia sp</i>	+			
27307	<i>Epiptera (Epicordulia) princeps</i>	+			
42700	<i>Belostoma sp</i>	+			
43300	<i>Ranatra sp</i>	+			
45100	<i>Palmacorixa sp</i>	+			
50315	<i>Chimarra obscura</i>	+			
52200	<i>Cheumatopsyche sp</i>	+			
52430	<i>Ceratopsyche morosa group</i>	+			
52540	<i>Hydropsyche dicantha</i>	+			
53400	<i>Protoptila sp</i>	+			
59407	<i>Nectopsyche candida</i>	+			
59410	<i>Nectopsyche diarina</i>	+			
65800	<i>Berosus sp</i>	+			
68075	<i>Psephenus herricki</i>	+			
68601	<i>Ancyronyx variegata</i>	+			
68901	<i>Macronychus glabratus</i>	+			
69400	<i>Stenelmis sp</i>	+			
74100	<i>Simulium sp</i>	+			
78655	<i>Procladius (Holotanypus) sp</i>	+			
82820	<i>Cryptochironomus sp</i>	+			
83040	<i>Dicrotendipes neomodestus</i>	+			
83300	<i>Glyptotendipes (G.) sp</i>	+			
83820	<i>Microtendipes "caelum" (sensu Simpson &amp; Bode, 1980)</i>	+			
84450	<i>Polypedilum (Uresipedilum) flavum</i>	+			
85625	<i>Rheotanytarsus sp</i>	+			
93900	<i>Elimia sp</i>	+			
95100	<i>Physella sp</i>	+			
98600	<i>Sphaerium sp</i>	+			
99380	<i>Quadrula pustulosa pustulosa</i>	+			

**Ohio EPA/DSW Ecological Assessment Section  
Macroinvertebrate Collection**

Site: Sandusky River  
Co. Rd. 51 at Old Fort

Collection Date: 08/25/2009 River Code: 05-001 RM: 26.94

Taxa Code	Taxa	Quant/Qual	Taxa Code	Taxa	Quant/Qual
01801	<i>Turbellaria</i>	2			
03360	<i>Plumatella sp</i>	29 +			
03451	<i>Urnatella gracilis</i>	8			
03600	<i>Oligochaeta</i>	4821 +			
04964	<i>Mooreobdella microstoma</i>	+			
08250	<i>Orconectes (Procericambarus) rusticus</i>	+			
11200	<i>Callibaetis sp</i>	+			
12501	<i>Heptageniidae</i>	32			
16700	<i>Tricorythodes sp</i>	20			
17200	<i>Caenis sp</i>	13 +			
22001	<i>Coenagrionidae</i>	+			
22300	<i>Argia sp</i>	175 +			
45100	<i>Palmacorixa sp</i>	+			
51206	<i>Cyrnellus fraternus</i>	10			
53800	<i>Hydroptila sp</i>	181			
60300	<i>Dineutus sp</i>	1			
65800	<i>Berosus sp</i>	4 +			
68901	<i>Macronychus glabratus</i>	+			
69400	<i>Stenelmis sp</i>	111 +			
72700	<i>Anopheles sp</i>	+			
78200	<i>Larsia sp</i>	+			
78655	<i>Procladius (Holotanypus) sp</i>	+			
82890	<i>Demeijerea sp</i>	121			
83051	<i>Dicrotendipes simpsoni</i>	121			
83158	<i>Endochironomus nigricans</i>	+			
83300	<i>Glyptotendipes (G.) sp</i>	11229 +			
83310	<i>Glyptotendipes (Heynotendipes) amplus</i>	121			
84415	<i>Polypedilum (P.) sp</i>	121			
84470	<i>Polypedilum (P.) illinoense</i>	+			
84540	<i>Polypedilum (Tripodura) scalaenum group</i>	+			
84800	<i>Tribelos jucundum</i>	+			
95100	<i>Physella sp</i>	8 +			
96900	<i>Ferrissia sp</i>	266 +			

No. Quantitative Taxa: 20      Total Taxa: 33  
 No. Qualitative Taxa: 22      ICI: **10**  
 Number of Organisms: 17394      Qual EPT: 2



**Ohio EPA/DSW Ecological Assessment Section  
Macroinvertebrate Collection**

Site: Sandusky River  
just upst. Wolf Creek

Collection Date: 08/24/2009 River Code: 05-001 RM: 23.00

Taxa Code	Taxa	Quant/Qual	Taxa Code	Taxa	Quant/Qual
00401	<i>Spongillidae</i>	+	77750	<i>Hayesomyia senata or Thienemannimyia norena</i>	17
01200	<i>Cordylophora lacustris</i>	1			
01320	<i>Hydra sp</i>	16	78450	<i>Nilotanytus fimbriatus</i>	17 +
01801	<i>Turbellaria</i>	98 +	78750	<i>Rheopelopia paramaculipennis</i>	67
03360	<i>Plumatella sp</i>	1 +	79085	<i>Telopelopia okoboji</i>	34
03600	<i>Oligochaeta</i>	+	81231	<i>Nanocladius (N.) crassicornus or N. (N.) "rectinervis"</i>	17
06700	<i>Crangonyx sp</i>	+	82101	<i>Thienemanniella taurocapita</i>	24
08250	<i>Orconectes (Procericambarus) rusticus</i>	+	82820	<i>Cryptochironomus sp</i>	+
11130	<i>Baetis intercalaris</i>	727 +	83300	<i>Glyptotendipes (G.) sp</i>	17 +
11650	<i>Procloeon sp (w/ hindwing pads)</i>	+	83310	<i>Glyptotendipes (Heynotendipes) amplus</i>	67
11670	<i>Procloeon viridoculare</i>	15 +	83840	<i>Microtendipes pedellus group</i>	+
12200	<i>Isonychia sp</i>	34 +	84300	<i>Phaenopsectra obediens group</i>	17
13000	<i>Leucrocota sp</i>	100 +	84450	<i>Polypedilum (Uresipedilum) flavum</i>	570
13400	<i>Stenacron sp</i>	137 +	84470	<i>Polypedilum (P.) illinoense</i>	17 +
13510	<i>Maccaffertium exiguum</i>	2	84540	<i>Polypedilum (Tripodura) scalaenum group</i>	+
13521	<i>Stenonema femoratum</i>	+	84960	<i>Pseudochironomus sp</i>	+
13550	<i>Maccaffertium mexicanum integrum</i>	14	85625	<i>Rheotanytarsus sp</i>	688
13561	<i>Maccaffertium pulchellum</i>	761 +	85800	<i>Tanytarsus sp</i>	17
13570	<i>Maccaffertium terminatum</i>	276	85840	<i>Tanytarsus sepp</i>	17
16700	<i>Tricorythodes sp</i>	66 +	93900	<i>Elimia sp</i>	1 +
17200	<i>Caenis sp</i>	+	95100	<i>Physella sp</i>	+
22001	<i>Coenagrionidae</i>	+	98600	<i>Sphaerium sp</i>	1 +
22300	<i>Argia sp</i>	+			
43300	<i>Ranatra sp</i>	+			
45300	<i>Sigara sp</i>	+	No. Quantitative Taxa: 41		Total Taxa: 65
45400	<i>Trichocorixa sp</i>	+	No. Qualitative Taxa: 42		ICI: 52
48410	<i>Corydalis cornutus</i>	3	Number of Organisms: 7608		Qual EPT: 16
51400	<i>Nyctiophylax sp</i>	+			
51600	<i>Polycentropus sp</i>	+			
52200	<i>Cheumatopsyche sp</i>	2369 +			
52430	<i>Ceratopsyche morosa group</i>	617 +			
52510	<i>Hydropsyche aerata</i>	444 +			
52520	<i>Hydropsyche bidens</i>	86			
52801	<i>Potamyia flava</i>	37			
53800	<i>Hydroptila sp</i>	28			
57400	<i>Neophylax sp</i>	+			
59970	<i>Petrophila sp</i>	83			
68075	<i>Psephenus herricki</i>	+			
68601	<i>Ancyronyx variegata</i>	+			
69400	<i>Stenelmis sp</i>	40 +			
71300	<i>Limonia sp</i>	+			
72420	<i>Chaoborus sp</i>	64			
74100	<i>Simulium sp</i>	1			
74501	<i>Ceratopogonidae</i>	+			

**Ohio EPA/DSW Ecological Assessment Section  
Macroinvertebrate Collection**

Site: Sandusky River

Collection Date: 08/24/2009 River Code: 05-001 RM: 20.25

Rice Rd.

Taxa Code	Taxa	Quant/Qual	Taxa Code	Taxa	Quant/Qual
01320	<i>Hydra sp</i>	16	77750	<i>Hayesomyia senata or Thienemannimyia norena</i>	16
01801	<i>Turbellaria</i>	39 +	78450	<i>Nilotanytus fimbriatus</i>	96 +
03600	<i>Oligochaeta</i>	+	78750	<i>Rheopelopia paramaculipennis</i>	80
04666	<i>Helobdella triserialis</i>	+	80360	<i>Corynoneura "celeripes" (sensu Simpson &amp; Bode, 1980)</i>	16
06700	<i>Crangonyx sp</i>	+	81231	<i>Nanocladius (N.) crassicornus or N. (N.) "rectinervis"</i>	32
08250	<i>Orconectes (Procericambarus) rusticus</i>	+	82820	<i>Cryptochironomus sp</i>	16 +
11119	<i>Plauditus dubius or P. virilis</i>	62	83300	<i>Glyptotendipes (G.) sp</i>	16
11130	<i>Baetis intercalaris</i>	915 +	83310	<i>Glyptotendipes (Heynotendipes) amplus</i>	16
11650	<i>Procloeon sp (w/ hindwing pads)</i>	+	83840	<i>Microtendipes pedellus group</i>	32
11670	<i>Procloeon viridoculare</i>	+	84450	<i>Polypedilum (Uresipedilum) flavum</i>	384 +
12200	<i>Isonychia sp</i>	32 +	84540	<i>Polypedilum (Tripodura) scalaenum group</i>	32 +
13000	<i>Leucrocota sp</i>	61 +	84750	<i>Stictochironomus sp</i>	+
13400	<i>Stenacron sp</i>	59 +	85625	<i>Rheotanytarsus sp</i>	736 +
13510	<i>Maccaffertium exiguum</i>	2	85800	<i>Tanytarsus sp</i>	16
13550	<i>Maccaffertium mexicanum integrum</i>	21	93900	<i>Elimia sp</i>	9 +
13561	<i>Maccaffertium pulchellum</i>	642 +	98600	<i>Sphaerium sp</i>	+
13570	<i>Maccaffertium terminatum</i>	61			
16700	<i>Tricorythodes sp</i>	115 +			
17200	<i>Caenis sp</i>	+			
18700	<i>Hexagenia sp</i>	+			
21300	<i>Hetaerina sp</i>	+			
22001	<i>Coenagrionidae</i>	+			
22300	<i>Argia sp</i>	+			
26700	<i>Macromia sp</i>	+			
43300	<i>Ranatra sp</i>	+			
45100	<i>Palmarcorixa sp</i>	+			
45400	<i>Trichocorixa sp</i>	+			
48410	<i>Corydalus cornutus</i>	14 +			
50315	<i>Chimarra obscura</i>	9 +			
52200	<i>Cheumatopsyche sp</i>	1421 +			
52430	<i>Ceratopsyche morosa group</i>	464 +			
52510	<i>Hydropsyche aerata</i>	58			
52520	<i>Hydropsyche bidens</i>	171			
52540	<i>Hydropsyche dicantha</i>	21			
52801	<i>Potamyia flava</i>	31			
53400	<i>Protophila sp</i>	+			
53800	<i>Hydroptila sp</i>	10			
57400	<i>Neophylax sp</i>	+			
59407	<i>Nectopsyche candida</i>	+			
59410	<i>Nectopsyche diarina</i>	+			
59970	<i>Petrophila sp</i>	9 +			
68075	<i>Psephenus herricki</i>	+			
68901	<i>Macronychus glabratus</i>	6			
69400	<i>Stenelmis sp</i>	178 +			

No. Quantitative Taxa: 38      Total Taxa: 60  
 No. Qualitative Taxa: 41      ICI: 58  
 Number of Organisms: 5914      Qual EPT: 17

**Ohio EPA/DSW Ecological Assessment Section  
Macroinvertebrate Collection**

Site: Sandusky River  
just upst. Ballville Dam

Collection Date: 08/24/2009 River Code: 05-001 RM: 18.05

Taxa Code	Taxa	Quant/Qual	Taxa Code	Taxa	Quant/Qual
01200	<i>Cordylophora lacustris</i>	1			
01801	<i>Turbellaria</i>	57 +			
03360	<i>Plumatella sp</i>	1 +			
03600	<i>Oligochaeta</i>	1178 +			
06201	<i>Hyaella azteca</i>	+			
11200	<i>Callibaetis sp</i>	+			
13400	<i>Stenacron sp</i>	+			
17200	<i>Caenis sp</i>	1			
22001	<i>Coenagrionidae</i>	+			
22300	<i>Argia sp</i>	91 +			
24107	<i>Nasiaeschna pentacantha</i>	+			
27400	<i>Neurocordulia sp</i>	+			
28955	<i>Plathemis lydia</i>	+			
42700	<i>Belostoma sp</i>	+			
43300	<i>Ranatra sp</i>	+			
45400	<i>Trichocorixa sp</i>	+			
45900	<i>Notonecta sp</i>	+			
51206	<i>Cyrenellus fraternus</i>	97			
60900	<i>Peltodytes sp</i>	+			
65501	<i>Hydrophilidae</i>	+			
65800	<i>Berosus sp</i>	+			
68708	<i>Dubiraphia vittata group</i>	+			
68901	<i>Macronychus glabratus</i>	2 +			
69400	<i>Stenelmis sp</i>	28 +			
78655	<i>Procladius (Holotanypus) sp</i>	+			
83000	<i>Dicrotendipes sp</i>	+			
83050	<i>Dicrotendipes lucifer</i>	96			
83051	<i>Dicrotendipes simpsoni</i>	96			
83158	<i>Endochironomus nigricans</i>	+			
83300	<i>Glyptotendipes (G.) sp</i>	11964 +			
83310	<i>Glyptotendipes (Heynotendipes) amplus</i>	+			
84000	<i>Parachironomus sp</i>	96			
84470	<i>Polypedilum (P.) illinoense</i>	+			
84800	<i>Tribelos jucundum</i>	+			
92615	<i>Cipangopaludina japonica</i>	+			
93900	<i>Elimia sp</i>	1			
95100	<i>Physella sp</i>	1 +			

No. Quantitative Taxa: 15      Total Taxa: 37

No. Qualitative Taxa: 30      ICI: 6

Number of Organisms: 13710      Qual EPT: 2

Ohio EPA/DW Ecological Assessment Section  
 Macroinvertebrate Collection

Site: Sandusky River  
 Tiffin Rd.

Collection Date: 08/24/2009 River Code: 05-001 RM: 17.70

Taxa Code	Taxa	Quant/Qual	Taxa Code	Taxa	Quant/Qual
01320	<i>Hydra sp</i>	67	84540	<i>Polypedilum (Tripodura) scalaenum group</i>	+
01801	<i>Turbellaria</i>	182 +	85625	<i>Rheotanytarsus sp</i>	1125 +
03360	<i>Plumatella sp</i>	1	96930	<i>Laevapex fuscus</i>	+
03451	<i>Urnatella gracilis</i>	64	98600	<i>Sphaerium sp</i>	+
03600	<i>Oligochaeta</i>	352			
05900	<i>Lirceus sp</i>	+	No. Quantitative Taxa: 38		Total Taxa: 48
11130	<i>Baetis intercalaris</i>	134 +	No. Qualitative Taxa: 27		ICI: 34
11650	<i>Procloeon sp (w/ hindwing pads)</i>	+	Number of Organisms: 11758		Qual EPT: 11
12200	<i>Isonychia sp</i>	4			
13000	<i>Leucrocuta sp</i>	19			
13400	<i>Stenacron sp</i>	29 +			
13561	<i>Maccaffertium pulchellum</i>	219 +			
13570	<i>Maccaffertium terminatum</i>	29			
16700	<i>Tricorythodes sp</i>	82 +			
21200	<i>Calopteryx sp</i>	2			
22300	<i>Argia sp</i>	1 +			
48410	<i>Corydalus cornutus</i>	1 +			
50315	<i>Chimarra obscura</i>	+			
51206	<i>Cyrnellus fraternus</i>	178 +			
51600	<i>Polycentropus sp</i>	+			
52200	<i>Cheumatopsyche sp</i>	1709 +			
52430	<i>Ceratopsyche morosa group</i>	1322 +			
52510	<i>Hydropsyche aerata</i>	97			
52520	<i>Hydropsyche bidens</i>	32			
52540	<i>Hydropsyche dicantha</i>	32 +			
53800	<i>Hydroptila sp</i>	109			
59970	<i>Petrophila sp</i>	166 +			
69400	<i>Stenelmis sp</i>	26 +			
74100	<i>Simulium sp</i>	+			
78140	<i>Labrundinia pilosella</i>	87			
78450	<i>Nilotanypus fimbriatus</i>	87			
80410	<i>Cricotopus (C.) sp</i>	173			
81231	<i>Nanocladius (N.) crassicornus</i> or <i>N. (N.) "rectinervis"</i>	173			
81240	<i>Nanocladius (N.) distinctus</i>	87 +			
82101	<i>Thienemanniella taurocapita</i>	32			
82220	<i>Tvetenia discoloripes group</i>	+			
83040	<i>Dicrotendipes neomodestus</i>	260 +			
83050	<i>Dicrotendipes lucifer</i>	173			
83300	<i>Glyptotendipes (G.) sp</i>	87			
83310	<i>Glyptotendipes (Heynotendipes) amplus</i>	87			
83840	<i>Microtendipes pedellus group</i>	87			
84450	<i>Polypedilum (Uresipedilum) flavum</i>	4356 +			
84460	<i>Polypedilum (P.) fallax group</i>	+			
84470	<i>Polypedilum (P.) illinoense</i>	87			

**Ohio EPA/DSW Ecological Assessment Section  
Macroinvertebrate Collection**

Site: Sandusky River  
State St.

Collection Date: 09/01/2009 River Code: 05-001 RM: 15.40

Taxa Code	Taxa	Quant/Qual	Taxa Code	Taxa	Quant/Qual
01801	<i>Turbellaria</i>	+			
03121	<i>Paludicella articulata</i>	+			
03600	<i>Oligochaeta</i>	+			
11119	<i>Plauditus dubius or P. virilis</i>	+			
11120	<i>Baetis flavistriga</i>	+			
11130	<i>Baetis intercalaris</i>	+			
12200	<i>Isonychia sp</i>	+			
13000	<i>Leucrocuta sp</i>	+			
13400	<i>Stenacron sp</i>	+			
13561	<i>Maccaffertium pulchellum</i>	+			
16700	<i>Tricorythodes sp</i>	+			
22300	<i>Argia sp</i>	+			
44501	<i>Corixidae</i>	+			
48410	<i>Corydalus cornutus</i>	+			
50315	<i>Chimarra obscura</i>	+			
52200	<i>Cheumatopsyche sp</i>	+			
52430	<i>Ceratopsyche morosa group</i>	+			
59970	<i>Petrophila sp</i>	+			
69400	<i>Stenelmis sp</i>	+			
77120	<i>Ablabesmyia mallochi</i>	+			
83040	<i>Dicrotendipes neomodestus</i>	+			
84450	<i>Polypedilum (Uresipedilum) flavum</i>	+			
84540	<i>Polypedilum (Tripodura) scalaenum group</i>	+			
85625	<i>Rheotanytarsus sp</i>	+			
85800	<i>Tanytarsus sp</i>	+			
93900	<i>Elimia sp</i>	+			
98600	<i>Sphaerium sp</i>	+			

No. Quantitative Taxa: 0	Total Taxa: 27
No. Qualitative Taxa: 27	ICI:
Number of Organisms: 0	Qual EPT: 11

**Ohio EPA/DSW Ecological Assessment Section  
Macroinvertebrate Collection**

Site: Sandusky River  
upst. Wightman's Grove

Collection Date: 08/25/2009 River Code: 05-001 RM: 4.70

Taxa Code	Taxa	Quant/Qual	Taxa Code	Taxa	Quant/Qual
01200	<i>Cordylophora lacustris</i>	1			
01801	<i>Turbellaria</i>	139			
03360	<i>Plumatella sp</i>	+			
03600	<i>Oligochaeta</i>	121			
06201	<i>Hyaella azteca</i>	2 +			
08601	<i>Hydrachnidia</i>	8 +			
17200	<i>Caenis sp</i>	25 +			
22300	<i>Argia sp</i>	2			
44501	<i>Corixidae</i>	+			
51206	<i>Cyrmellus fraternus</i>	316 +			
60300	<i>Dineutus sp</i>	1			
77120	<i>Ablabesmyia mallochi</i>	77 +			
78450	<i>Nilotanytus fimbriatus</i>	77			
82710	<i>Chironomus (C.) sp</i>	+			
83050	<i>Dicrotendipes lucifer</i>	155			
83051	<i>Dicrotendipes simpsoni</i>	1159			
83300	<i>Glyptotendipes (G.) sp</i>	4636 +			
84450	<i>Polypedilum (Uresipedilum) flavum</i>	+			
84520	<i>Polypedilum (Tripodura) halterale group</i>	+			
85800	<i>Tanytarsus sp</i>	+			

No. Quantitative Taxa: 14      Total Taxa: 20

No. Qualitative Taxa: 12      ICI: **14**

Number of Organisms: 6719      Qual EPT: 2

**Ohio EPA/DSW Ecological Assessment Section  
Macroinvertebrate Collection**

Site: Bark Creek  
Kelley Rd.

Collection Date: 07/21/2009 River Code: 05-002 RM: 3.20

Taxa Code	Taxa	Quant/Qual	Taxa Code	Taxa	Quant/Qual
01801	<i>Turbellaria</i>	+			
03360	<i>Plumatella sp</i>	+			
04964	<i>Mooreobdella microstoma</i>	+			
08220	<i>Orconectes (Gremicambarus) immunis</i>	+			
08250	<i>Orconectes (Procericambarus) rusticus</i>	+			
11120	<i>Baetis flavistriga</i>	+			
11130	<i>Baetis intercalaris</i>	+			
11200	<i>Callibaetis sp</i>	+			
22001	<i>Coenagrionidae</i>	+			
22300	<i>Argia sp</i>	+			
52200	<i>Cheumatopsyche sp</i>	+			
52530	<i>Hydropsyche depravata group</i>	+			
53800	<i>Hydroptila sp</i>	+			
63900	<i>Laccophilus sp</i>	+			
65800	<i>Berosus sp</i>	+			
69400	<i>Stenelmis sp</i>	+			
74100	<i>Simulium sp</i>	+			
77500	<i>Conchapelopia sp</i>	+			
78655	<i>Procladius (Holotanypus) sp</i>	+			
80420	<i>Cricotopus (C.) bicinctus</i>	+			
80430	<i>Cricotopus (C.) tremulus group</i>	+			
82820	<i>Cryptochironomus sp</i>	+			
83820	<i>Microtendipes "caelum" (sensu Simpson &amp; Bode, 1980)</i>	+			
84300	<i>Phaenopsectra obediens group</i>	+			
84315	<i>Phaenopsectra flavipes</i>	+			
84450	<i>Polypedilum (Uresipedilum) flavum</i>	+			
84470	<i>Polypedilum (P.) illinoense</i>	+			
84960	<i>Pseudochironomus sp</i>	+			
85500	<i>Paratanytarsus sp</i>	+			
85625	<i>Rheotanytarsus sp</i>	+			
85800	<i>Tanytarsus sp</i>	+			
95100	<i>Physella sp</i>	+			
98600	<i>Sphaerium sp</i>	+			

No. Quantitative Taxa: 0            Total Taxa: 33  
 No. Qualitative Taxa: 33            ICI:  
 Number of Organisms: 0            Qual EPT: 6

**Ohio EPA/DSW Ecological Assessment Section  
Macroinvertebrate Collection**

Site: Muskellunge Creek  
Twp. Rd. 84

Collection Date: 07/21/2009 River Code: 05-003 RM: 24.44

Taxa Code	Taxa	Quant/Qual	Taxa Code	Taxa	Quant/Qual
01801	<i>Turbellaria</i>	+			
03600	<i>Oligochaeta</i>	+			
04664	<i>Helobdella stagnalis</i>	+			
04935	<i>Erpobdella punctata punctata</i>	+			
05900	<i>Lirceus sp</i>	+			
08601	<i>Hydrachnidia</i>	+			
11200	<i>Callibaetis sp</i>	+			
45300	<i>Sigara sp</i>	+			
60800	<i>Haliplus sp</i>	+			
63300	<i>Hydroporini</i>	+			
63900	<i>Laccophilus sp</i>	+			
65800	<i>Berosus sp</i>	+			
67000	<i>Helophorus sp</i>	+			
67800	<i>Tropisternus sp</i>	+			
69400	<i>Stenelmis sp</i>	+			
71900	<i>Tipula sp</i>	+			
78655	<i>Procladius (Holotanypus) sp</i>	+			
85821	<i>Tanytarsus glabrescens group sp 7</i>	+			
87400	<i>Stratiomys sp</i>	+			
95100	<i>Physella sp</i>	+			
98200	<i>Pisidium sp</i>	+			

No. Quantitative Taxa: 0	Total Taxa: 21
No. Qualitative Taxa: 21	ICI:
Number of Organisms: 0	Qual EPT: 1



Ohio EPA/DSW Ecological Assessment Section  
 Macroinvertebrate Collection

Site: Muskellunge Creek  
 St. Rt. 635

Collection Date: 07/21/2009 River Code: 05-003 RM: 16.70

Taxa Code	Taxa	Quant/Qual	Taxa Code	Taxa	Quant/Qual
03600	<i>Oligochaeta</i>	+	98600	<i>Sphaerium sp</i>	+
04685	<i>Placobdella ornata</i>	+			
05900	<i>Lirceus sp</i>	+	No. Quantitative Taxa: 0		Total Taxa: 45
08250	<i>Orconectes (Procericambarus) rusticus</i>	+	No. Qualitative Taxa: 45		ICI:
08601	<i>Hydrachnidia</i>	+	Number of Organisms: 0		Qual EPT: 11
11120	<i>Baetis flavistriga</i>	+			
11130	<i>Baetis intercalaris</i>	+			
11670	<i>Procladius viridoculare</i>	+			
13400	<i>Stenacron sp</i>	+			
17200	<i>Caenis sp</i>	+			
18750	<i>Hexagenia limbata</i>	+			
22001	<i>Coenagrionidae</i>	+			
22300	<i>Argia sp</i>	+			
23909	<i>Boyeria vinosa</i>	+			
24900	<i>Gomphus sp</i>	+			
28955	<i>Plathemis lydia</i>	+			
43300	<i>Ranatra sp</i>	+			
45300	<i>Sigara sp</i>	+			
45400	<i>Trichocorixa sp</i>	+			
51400	<i>Nyctiophylax sp</i>	+			
52200	<i>Cheumatopsyche sp</i>	+			
52530	<i>Hydropsyche depravata group</i>	+			
59300	<i>Mystacides sp</i>	+			
59728	<i>Triaenodes marginatus</i>	+			
60900	<i>Peltodytes sp</i>	+			
65800	<i>Berosus sp</i>	+			
67000	<i>Helophorus sp</i>	+			
67800	<i>Tropisternus sp</i>	+			
68708	<i>Dubiraphia vittata group</i>	+			
69400	<i>Stenelmis sp</i>	+			
72700	<i>Anopheles sp</i>	+			
77120	<i>Ablabesmyia mallochi</i>	+			
77355	<i>Clinotanypus pinguis</i>	+			
77500	<i>Conchapelopia sp</i>	+			
78401	<i>Natarsia species A (sensu Roback, 1978)</i>	+			
78655	<i>Procladius (Holotanypus) sp</i>	+			
82820	<i>Cryptochironomus sp</i>	+			
83820	<i>Microtendipes "caelum" (sensu Simpson &amp; Bode, 1980)</i>	+			
83840	<i>Microtendipes pedellus group</i>	+			
84315	<i>Phaenopsectra flavipes</i>	+			
84540	<i>Polypedilum (Tripodura) scalaenum group</i>	+			
84750	<i>Stictochironomus sp</i>	+			
85800	<i>Tanytarsus sp</i>	+			
93900	<i>Elimia sp</i>	+			

**Ohio EPA/DSW Ecological Assessment Section  
Macroinvertebrate Collection**

Site: Muskellunge Creek  
Spieldenner Rd.

Collection Date: 08/25/2009 River Code: 05-003 RM: 5.40

Taxa Code	Taxa	Quant/Qual	Taxa Code	Taxa	Quant/Qual
00653	<i>Eunapius fragilis</i>	+	85625	<i>Rheotanytarsus sp</i>	3
01801	<i>Turbellaria</i>	+	85821	<i>Tanytarsus glabrescens group sp 7</i>	2
02600	<i>Nematomorpha</i>	+	87540	<i>Hemerodromia sp</i>	+
03600	<i>Oligochaeta</i>	3 +	93900	<i>Elimia sp</i>	40 +
05900	<i>Lirceus sp</i>	+	96900	<i>Ferrissia sp</i>	2
06700	<i>Crangonyx sp</i>	+	98600	<i>Sphaerium sp</i>	+
08250	<i>Orconectes (Procericambarus) rusticus</i>	+			
08601	<i>Hydrachnidia</i>	+	No. Quantitative Taxa: 22		Total Taxa: 50
11020	<i>Acerpenna pygmaea</i>	+	No. Qualitative Taxa: 40		ICI: <b>24</b>
11130	<i>Baetis intercalaris</i>	+	Number of Organisms: 216		Qual EPT: 12
13000	<i>Leucrocuta sp</i>	+			
13400	<i>Stenacron sp</i>	48 +			
13521	<i>Stenonema femoratum</i>	16 +			
14950	<i>Leptophlebia sp or Paraleptophlebia sp</i>	3 +			
17200	<i>Caenis sp</i>	+			
21200	<i>Calopteryx sp</i>	+			
45300	<i>Sigara sp</i>	+			
50315	<i>Chimarra obscura</i>	+			
51600	<i>Polycentropus sp</i>	+			
52200	<i>Cheumatopsyche sp</i>	1 +			
57400	<i>Neophylax sp</i>	+			
58505	<i>Helicopsyche borealis</i>	+			
59970	<i>Petrophila sp</i>	+			
60900	<i>Peltodytes sp</i>	+			
66500	<i>Enochrus sp</i>	+			
68075	<i>Psephenus herricki</i>	+			
68708	<i>Dubiraphia vittata group</i>	1			
68901	<i>Macronychus glabratus</i>	1 +			
69400	<i>Stenelmis sp</i>	4 +			
71900	<i>Tipula sp</i>	+			
77120	<i>Ablabesmyia mallochii</i>	2 +			
78140	<i>Labrundinia pilosella</i>	1			
78450	<i>Nilotanytus fimbriatus</i>	1			
79100	<i>Thienemannimyia group</i>	2			
80370	<i>Corynoneura lobata</i>	39			
81060	<i>Lopescladius sp</i>	+			
82820	<i>Cryptochironomus sp</i>	+			
83040	<i>Dicrotendipes neomodestus</i>	1			
83840	<i>Microtendipes pedellus group</i>	8 +			
84210	<i>Paratendipes albimanus or P. duplicatus</i>	1 +			
84450	<i>Polypedilum (Uresipedilum) flavum</i>	1 +			
84460	<i>Polypedilum (P.) fallax group</i>	36			
84540	<i>Polypedilum (Tripodura) scalaenum group</i>	+			
84750	<i>Stictochironomus sp</i>	+			

**Ohio EPA/DSW Ecological Assessment Section  
Macroinvertebrate Collection**

Site: Muskellunge Creek  
Fangboner Rd.

Collection Date: 08/25/2009 River Code: 05-003 RM: 1.23

Taxa Code	Taxa	Quant/Qual	Taxa Code	Taxa	Quant/Qual
01320	<i>Hydra sp</i>	23			
01801	<i>Turbellaria</i>	1			
03040	<i>Fredericella sp</i>	+			
03600	<i>Oligochaeta</i>	24			
05800	<i>Caecidotea sp</i>	16			
06201	<i>Hyalella azteca</i>	+			
08250	<i>Orconectes (Procericambarus) rusticus</i>	+			
11651	<i>Procloeon sp (w/o hindwing pads)</i>	1			
13400	<i>Stenacron sp</i>	22			
13521	<i>Stenonema femoratum</i>	13			
17200	<i>Caenis sp</i>	1	+		
21200	<i>Calopteryx sp</i>		+		
22300	<i>Argia sp</i>	7	+		
43300	<i>Ranatra sp</i>		+		
59300	<i>Mystacides sp</i>		+		
60400	<i>Gyrinus sp</i>		+		
60900	<i>Peltodytes sp</i>		+		
68601	<i>Ancyronyx variegata</i>		+		
68901	<i>Macronychus glabratus</i>	1			
77800	<i>Helopelopia sp</i>		+		
78655	<i>Procladius (Holotanypus) sp</i>	21	+		
82730	<i>Chironomus (C.) decorus group</i>	106			
83040	<i>Dicrotendipes neomodestus</i>	255	+		
83050	<i>Dicrotendipes lucifer</i>	276			
83051	<i>Dicrotendipes simpsoni</i>	1276	+		
83300	<i>Glyptotendipes (G.) sp</i>	21			
84210	<i>Paratendipes albimanus or P. duplicatus</i>	85	+		
84300	<i>Phaenopsectra obediens group</i>	21			
84460	<i>Polypedilum (P.) fallax group</i>	64			
84750	<i>Stictochironomus sp</i>		+		
84790	<i>Tribelos fuscicorne</i>	21			
85500	<i>Paratanytarsus sp</i>	128	+		
85800	<i>Tanytarsus sp</i>		+		
85821	<i>Tanytarsus glabrescens group sp 7</i>	21	+		
98001	<i>Sphaeriidae</i>	1			

No. Quantitative Taxa: 23      Total Taxa: 35  
 No. Qualitative Taxa: 20      ICI: **10**  
 Number of Organisms: 2405      Qual EPT: 2

**Ohio EPA/DSW Ecological Assessment Section  
Macroinvertebrate Collection**

Site: Indian Creek  
Hurdic Rd.

Collection Date: 07/21/2009 River Code: 05-004 RM: 0.62

Taxa Code	Taxa	Quant/Qual	Taxa Code	Taxa	Quant/Qual
01801	<i>Turbellaria</i>	+			
04666	<i>Helobdella triserialis</i>	+			
04935	<i>Erpobdella punctata punctata</i>	+			
08601	<i>Hydrachnidia</i>	+			
11120	<i>Baetis flavistriga</i>	+			
11200	<i>Callibaetis sp</i>	+			
11650	<i>Procloeon sp (w/ hindwing pads)</i>	+			
11670	<i>Procloeon viridoculare</i>	+			
12200	<i>Isonychia sp</i>	+			
13400	<i>Stenacron sp</i>	+			
17200	<i>Caenis sp</i>	+			
22001	<i>Coenagrionidae</i>	+			
23909	<i>Boyeria vinosa</i>	+			
45300	<i>Sigara sp</i>	+			
52200	<i>Cheumatopsyche sp</i>	+			
52530	<i>Hydropsyche depravata group</i>	+			
59410	<i>Nectopsyche diarina</i>	+			
60400	<i>Gyrinus sp</i>	+			
60900	<i>Peltodytes sp</i>	+			
65800	<i>Berosus sp</i>	+			
72700	<i>Anopheles sp</i>	+			
72900	<i>Culex sp</i>	+			
74100	<i>Simulium sp</i>	+			
74501	<i>Ceratopogonidae</i>	+			
77500	<i>Conchapelopia sp</i>	+			
78655	<i>Procladius (Holotanypus) sp</i>	+			
82820	<i>Cryptochironomus sp</i>	+			
83040	<i>Dicrotendipes neomodestus</i>	+			
83158	<i>Endochironomus nigricans</i>	+			
84450	<i>Polypedilum (Uresipedilum) flavum</i>	+			
84470	<i>Polypedilum (P.) illinoense</i>	+			
84750	<i>Stictochironomus sp</i>	+			
85800	<i>Tanytarsus sp</i>	+			
93900	<i>Elimia sp</i>	+			
95100	<i>Physella sp</i>	+			

No. Quantitative Taxa: 0                      Total Taxa: 35  
 No. Qualitative Taxa: 35                      ICI:  
 Number of Organisms: 0                      Qual EPT: 10

**Ohio EPA/DSW Ecological Assessment Section  
Macroinvertebrate Collection**

Site: Wolf Creek  
upst. Co. Rd. 592

Collection Date: 08/05/2009 River Code: 05-005 RM: 13.60

Taxa Code	Taxa	Quant/Qual	Taxa Code	Taxa	Quant/Qual
01801	<i>Turbellaria</i>	+			
03360	<i>Plumatella sp</i>	+			
03600	<i>Oligochaeta</i>	+			
08250	<i>Orconectes (Procericambarus) rusticus</i>	+			
11120	<i>Baetis flavistriga</i>	+			
11130	<i>Baetis intercalaris</i>	+			
11200	<i>Callibaetis sp</i>	+			
13400	<i>Stenacron sp</i>	+			
13521	<i>Stenonema femoratum</i>	+			
17200	<i>Caenis sp</i>	+			
22001	<i>Coenagrionidae</i>	+			
43300	<i>Ranatra sp</i>	+			
45100	<i>Palmacorixa sp</i>	+			
45300	<i>Sigara sp</i>	+			
52200	<i>Cheumatopsyche sp</i>	+			
53800	<i>Hydroptila sp</i>	+			
58505	<i>Helicopsyche borealis</i>	+			
65800	<i>Berosus sp</i>	+			
68708	<i>Dubiraphia vittata group</i>	+			
69400	<i>Stenelmis sp</i>	+			
72340	<i>Dixella sp</i>	+			
72700	<i>Anopheles sp</i>	+			
74100	<i>Simulium sp</i>	+			
82820	<i>Cryptochironomus sp</i>	+			
83158	<i>Endochironomus nigricans</i>	+			
83300	<i>Glyptotendipes (G.) sp</i>	+			
83820	<i>Microtendipes "caelum" (sensu Simpson &amp; Bode, 1980)</i>	+			
84210	<i>Paratendipes albimanus or P. duplicatus</i>	+			
84450	<i>Polypedilum (Uresipedilum) flavum</i>	+			
84470	<i>Polypedilum (P.) illinoense</i>	+			
84540	<i>Polypedilum (Tripodura) scalaenum group</i>	+			
84750	<i>Stictochironomus sp</i>	+			
85500	<i>Paratanytarsus sp</i>	+			
85821	<i>Tanytarsus glabrescens group sp 7</i>	+			
98600	<i>Sphaerium sp</i>	+			

No. Quantitative Taxa: 0            Total Taxa: 35  
 No. Qualitative Taxa: 35            ICI:  
 Number of Organisms: 0            Qual EPT: 9

**Ohio EPA/DSW Ecological Assessment Section  
Macroinvertebrate Collection**

Site: Wolf Creek

Collection Date: 08/05/2009 River Code: 05-005 RM: 5.15

Taxa Code	Taxa	Quant/Qual	Taxa Code	Taxa	Quant/Qual
00653	<i>Eunapius fragilis</i>	+			
01801	<i>Turbellaria</i>	+			
04964	<i>Mooreobdella microstoma</i>	+			
05900	<i>Lirceus sp</i>	+			
06700	<i>Crangonyx sp</i>	+			
11120	<i>Baetis flavistriga</i>	+			
11130	<i>Baetis intercalaris</i>	+			
13400	<i>Stenacron sp</i>	+			
13521	<i>Stenonema femoratum</i>	+			
22001	<i>Coenagrionidae</i>	+			
22300	<i>Argia sp</i>	+			
50315	<i>Chimarra obscura</i>	+			
52200	<i>Cheumatopsyche sp</i>	+			
52530	<i>Hydropsyche depravata group</i>	+			
57400	<i>Neophylax sp</i>	+			
59300	<i>Mystacides sp</i>	+			
59970	<i>Petrophila sp</i>	+			
65700	<i>Anacaena sp</i>	+			
65800	<i>Berosus sp</i>	+			
68025	<i>Ectopria sp</i>	+			
68601	<i>Ancyronyx variegata</i>	+			
68700	<i>Dubiraphia sp</i>	+			
68901	<i>Macronychus glabratus</i>	+			
69400	<i>Stenelmis sp</i>	+			
71900	<i>Tipula sp</i>	+			
72700	<i>Anopheles sp</i>	+			
77500	<i>Conchapelopia sp</i>	+			
78655	<i>Procladius (Holotanypus) sp</i>	+			
83158	<i>Endochironomus nigricans</i>	+			
83410	<i>Harnischia curtilamellata</i>	+			
83840	<i>Microtendipes pedellus group</i>	+			
84450	<i>Polypedilum (Uresipedilum) flavum</i>	+			
84470	<i>Polypedilum (P.) illinoense</i>	+			
84750	<i>Stictochironomus sp</i>	+			
85720	<i>Stempellinella fimbriata</i>	+			
85800	<i>Tanytarsus sp</i>	+			
93900	<i>Elimia sp</i>	+			
95100	<i>Physella sp</i>	+			

No. Quantitative Taxa: 0                      Total Taxa: 38  
 No. Qualitative Taxa: 38                      ICI:  
 Number of Organisms: 0                      Qual EPT: 9

Ohio EPA/DSW Ecological Assessment Section  
 Macroinvertebrate Collection

Site: Wolf Creek  
 St. Rt. 53

Collection Date: 08/25/2009 River Code: 05-005 RM: 0.04

Taxa Code	Taxa	Quant/Qual	Taxa Code	Taxa	Quant/Qual
00401	<i>Spongillidae</i>	+		<i>Bode, 1980)</i>	
01801	<i>Turbellaria</i>	7 +	83840	<i>Microtendipes pedellus group</i>	253
03360	<i>Plumatella sp</i>	1	84210	<i>Paratendipes albimanus or P. duplicatus</i>	55 +
03600	<i>Oligochaeta</i>	+	84300	<i>Phaenopsectra obediens group</i>	7
04964	<i>Mooreobdella microstoma</i>	+	84450	<i>Polypedilum (Uresipedilum) flavum</i>	21 +
08250	<i>Orconectes (Procericambarus) rusticus</i>	+	84460	<i>Polypedilum (P.) fallax group</i>	7 +
11120	<i>Baetis flavistriga</i>	2 +	84540	<i>Polypedilum (Tripodura) scalaenum group</i>	+
11130	<i>Baetis intercalaris</i>	5 +	84750	<i>Stictochironomus sp</i>	+
11651	<i>Procloeon sp (w/o hindwing pads)</i>	30 +	84800	<i>Tribelos jucundum</i>	+
13400	<i>Stenacron sp</i>	337 +	84888	<i>Xenochironomus xenolabis</i>	+
13521	<i>Stenonema femoratum</i>	5 +	85625	<i>Rheotanytarsus sp</i>	21
13561	<i>Maccaffertium pulchellum</i>	4	85720	<i>Stempellinella fimbriata</i>	14
17200	<i>Caenis sp</i>	1 +	85800	<i>Tanytarsus sp</i>	21
18100	<i>Anthopotamus sp</i>	+	85821	<i>Tanytarsus glabrescens group sp 7</i>	41 +
22300	<i>Argia sp</i>	2	93900	<i>Elimia sp</i>	9 +
23909	<i>Boyeria vinosa</i>	+	96900	<i>Ferrissia sp</i>	1
43300	<i>Ranatra sp</i>	+			
45300	<i>Sigara sp</i>	+	No. Quantitative Taxa: 34		Total Taxa: 59
45400	<i>Trichocorixa sp</i>	+	No. Qualitative Taxa: 44		ICI: 36
49200	<i>Climacia sp</i>	+	Number of Organisms: 1403		Qual EPT: 15
50315	<i>Chimarra obscura</i>	+			
52200	<i>Cheumatopsyche sp</i>	+			
52430	<i>Ceratopsyche morosa group</i>	1 +			
53800	<i>Hydroptila sp</i>	1 +			
57400	<i>Neophylax sp</i>	+			
57900	<i>Pycnopsyche sp</i>	1 +			
59300	<i>Mystacides sp</i>	+			
59500	<i>Oecetis sp</i>	+			
59970	<i>Petrophila sp</i>	+			
68700	<i>Dubiraphia sp</i>	+			
69400	<i>Stenelmis sp</i>	+			
72700	<i>Anopheles sp</i>	+			
74100	<i>Simulium sp</i>	+			
77120	<i>Ablabesmyia mallochi</i>	116 +			
77500	<i>Conchapelopia sp</i>	7			
77750	<i>Hayesomyia senata or Thienemannimyia norena</i>	7 +			
77800	<i>Helopelopia sp</i>	+			
78140	<i>Labrundinia pilosella</i>	14			
78450	<i>Nilotanypus fimbriatus</i>	14			
78655	<i>Procladius (Holotanypus) sp</i>	7 +			
80370	<i>Corynoneura lobata</i>	363			
82730	<i>Chironomus (C.) decorus group</i>	7			
83040	<i>Dicrotendipes neomodestus</i>	14			
83820	<i>Microtendipes "caelum" (sensu Simpson &amp;</i>	7 +			

**Ohio EPA/DSW Ecological Assessment Section  
Macroinvertebrate Collection**

Site: East Branch Wolf Creek  
Meadowbrook Park

Collection Date: 07/22/2009 River Code: 05-006 RM: 19.65

Taxa Code	Taxa	Quant/Qual	Taxa Code	Taxa	Quant/Qual
01801	<i>Turbellaria</i>	+			
04664	<i>Helobdella stagnalis</i>	+			
04666	<i>Helobdella triserialis</i>	+			
05800	<i>Caecidotea sp</i>	+			
06700	<i>Crangonyx sp</i>	+			
08250	<i>Orconectes (Procericambarus) rusticus</i>	+			
11200	<i>Callibaetis sp</i>	+			
45300	<i>Sigara sp</i>	+			
52200	<i>Cheumatopsyche sp</i>	+			
65800	<i>Berosus sp</i>	+			
68300	<i>Cyphon sp</i>	+			
74100	<i>Simulium sp</i>	+			
77500	<i>Conchapelopia sp</i>	+			
82820	<i>Cryptochironomus sp</i>	+			
84210	<i>Paratendipes albimanus or P. duplicatus</i>	+			
84450	<i>Polypedilum (Uresipedilum) flavum</i>	+			
84470	<i>Polypedilum (P.) illinoense</i>	+			
84800	<i>Tribelos jucundum</i>	+			
89716	<i>Limnophora discreta</i>	+			
98600	<i>Sphaerium sp</i>	+			
99160	<i>Anodontoides ferussacianus</i>	+			

No. Quantitative Taxa: 0	Total Taxa: 21
No. Qualitative Taxa: 21	ICI:
Number of Organisms: 0	Qual EPT: 2



Ohio EPA/DSW Ecological Assessment Section  
 Macroinvertebrate Collection

Site: East Branch Wolf Creek

Collection Date: 08/26/2009 River Code: 05-006 RM: 13.63

Twp. Rd. 132

Taxa Code	Taxa	Quant/Qual	Taxa Code	Taxa	Quant/Qual
04685	<i>Placobdella ornata</i>	+	98600	<i>Sphaerium sp</i>	+
05900	<i>Lirceus sp</i>	+			
06700	<i>Crangonyx sp</i>	+	No. Quantitative Taxa: 0		Total Taxa: 45
08250	<i>Orconectes (Procericambarus) rusticus</i>	+	No. Qualitative Taxa: 45		ICI:
11020	<i>Acerpenna pygmaea</i>	+	Number of Organisms: 0		Qual EPT: 15
11120	<i>Baetis flavistriga</i>	+			
11130	<i>Baetis intercalaris</i>	+			
11650	<i>Procloeon sp (w/ hindwing pads)</i>	+			
11670	<i>Procloeon viridoculare</i>	+			
13000	<i>Leucrocuta sp</i>	+			
13400	<i>Stenacron sp</i>	+			
13521	<i>Stenonema femoratum</i>	+			
14950	<i>Leptophlebia sp or Paraleptophlebia sp</i>	+			
21200	<i>Calopteryx sp</i>	+			
23909	<i>Boyeria vinosa</i>	+			
45300	<i>Sigara sp</i>	+			
52200	<i>Cheumatopsyche sp</i>	+			
53800	<i>Hydroptila sp</i>	+			
57400	<i>Neophylax sp</i>	+			
57900	<i>Pycnopsyche sp</i>	+			
58505	<i>Helicopsyche borealis</i>	+			
59410	<i>Nectopsyche diarina</i>	+			
59970	<i>Petrophila sp</i>	+			
68075	<i>Psephenus herricki</i>	+			
68708	<i>Dubiraphia vittata group</i>	+			
69400	<i>Stenelmis sp</i>	+			
72340	<i>Dixella sp</i>	+			
72700	<i>Anopheles sp</i>	+			
74100	<i>Simulium sp</i>	+			
77120	<i>Ablabesmyia mallochi</i>	+			
77750	<i>Hayesomyia senata or Thienemannimyia norena</i>	+			
77800	<i>Helopelopia sp</i>	+			
79400	<i>Zavrelimyia sp</i>	+			
81825	<i>Rheocricotopus (Psilocricotopus) robacki</i>	+			
84210	<i>Paratendipes albimanus or P. duplicatus</i>	+			
84450	<i>Polypedilum (Uresipedilum) flavum</i>	+			
84540	<i>Polypedilum (Tripodura) scalaenum group</i>	+			
84700	<i>Stenochironomus sp</i>	+			
85500	<i>Paratanytarsus sp</i>	+			
85800	<i>Tanytarsus sp</i>	+			
85840	<i>Tanytarsus sepp</i>	+			
87540	<i>Hemerodromia sp</i>	+			
93900	<i>Elimia sp</i>	+			
96900	<i>Ferrissia sp</i>	+			

**Ohio EPA/DSW Ecological Assessment Section  
Macroinvertebrate Collection**

Site: East Branch Wolf Creek  
upst. Hammer Rd.

Collection Date: 09/01/2009 River Code: 05-006 RM: 9.00

Taxa Code	Taxa	Quant/Qual	Taxa Code	Taxa	Quant/Qual
00401	<i>Spongillidae</i>	+			
03360	<i>Plumatella sp</i>	+			
03600	<i>Oligochaeta</i>	+			
05800	<i>Caecidotea sp</i>	+			
06201	<i>Hyaella azteca</i>	+			
08601	<i>Hydrachnidia</i>	+			
11120	<i>Baetis flavistriga</i>	+			
11130	<i>Baetis intercalaris</i>	+			
11200	<i>Callibaetis sp</i>	+			
13400	<i>Stenacron sp</i>	+			
13521	<i>Stenonema femoratum</i>	+			
14950	<i>Leptophlebia sp or Paraleptophlebia sp</i>	+			
17200	<i>Caenis sp</i>	+			
21200	<i>Calopteryx sp</i>	+			
22300	<i>Argia sp</i>	+			
44501	<i>Corixidae</i>	+			
52200	<i>Cheumatopsyche sp</i>	+			
59300	<i>Mystacides sp</i>	+			
68075	<i>Psephenus herricki</i>	+			
68601	<i>Ancyronyx variegata</i>	+			
68708	<i>Dubiraphia vittata group</i>	+			
69400	<i>Stenelmis sp</i>	+			
72700	<i>Anopheles sp</i>	+			
77120	<i>Ablabesmyia mallochi</i>	+			
77500	<i>Conchapelopia sp</i>	+			
78655	<i>Procladius (Holotanypus) sp</i>	+			
82820	<i>Cryptochironomus sp</i>	+			
83300	<i>Glyptotendipes (G.) sp</i>	+			
83820	<i>Microtendipes "caelum" (sensu Simpson &amp; Bode, 1980)</i>	+			
84210	<i>Paratendipes albimanus or P. duplicatus</i>	+			
84460	<i>Polypedilum (P.) fallax group</i>	+			
84470	<i>Polypedilum (P.) illinoense</i>	+			
84540	<i>Polypedilum (Tripodura) scalaenum group</i>	+			
85800	<i>Tanytarsus sp</i>	+			
93900	<i>Elimia sp</i>	+			
95100	<i>Physella sp</i>	+			

No. Quantitative Taxa: 0                      Total Taxa: 36  
 No. Qualitative Taxa: 36                      ICI:  
 Number of Organisms: 0                      Qual EPT: 9

Ohio EPA/DSW Ecological Assessment Section  
 Macroinvertebrate Collection

Site: East Branch Wolf Creek  
 near Bettsville at Gilmore

Collection Date: 08/26/2009 River Code: 05-006 RM: 0.86

Taxa Code	Taxa	Quant/Qual	Taxa Code	Taxa	Quant/Qual
00401	<i>Spongillidae</i>	+	83840	<i>Microtendipes pedellus group</i>	152 +
01320	<i>Hydra sp</i>	24	84210	<i>Paratendipes albimanus or P. duplicatus</i>	203 +
01801	<i>Turbellaria</i>	304 +	84300	<i>Phaenopsectra obediens group</i>	+
03121	<i>Paludicella articulata</i>	+	84450	<i>Polypedilum (Uresipedilum) flavum</i>	76
03360	<i>Plumatella sp</i>	17 +	84460	<i>Polypedilum (P.) fallax group</i>	101
03600	<i>Oligochaeta</i>	+	84520	<i>Polypedilum (Tripodura) halterale group</i>	25 +
04666	<i>Helobdella triserialis</i>	+	84750	<i>Stictochironomus sp</i>	+
04964	<i>Mooreobdella microstoma</i>	+	84800	<i>Tribelos jucundum</i>	+
05800	<i>Caecidotea sp</i>	+	84888	<i>Xenochironomus xenolabis</i>	+
08250	<i>Orconectes (Procericambarus) rusticus</i>	+	85625	<i>Rheotanytarsus sp</i>	178
11120	<i>Baetis flavistriga</i>	+	85720	<i>Stempellinella fimbriata</i>	51
11130	<i>Baetis intercalaris</i>	+	85800	<i>Tanytarsus sp</i>	127
11651	<i>Proclaoon sp (w/o hindwing pads)</i>	1 +	85821	<i>Tanytarsus glabrescens group sp 7</i>	127
13400	<i>Stenacron sp</i>	204 +	93900	<i>Elimia sp</i>	400 +
13521	<i>Stenonema femoratum</i>	+	95100	<i>Physella sp</i>	1
17200	<i>Caenis sp</i>	165 +	95907	<i>Gyraulus (Torquis) parvus</i>	+
22001	<i>Coenagrionidae</i>	+	96900	<i>Ferrissia sp</i>	10
22300	<i>Argia sp</i>	50			
23909	<i>Boyeria vinosa</i>	+	No. Quantitative Taxa: 33		Total Taxa: 61
45400	<i>Trichocorixa sp</i>	+	No. Qualitative Taxa: 41		ICI: 38
50315	<i>Chimarra obscura</i>	+	Number of Organisms: 3980		Qual EPT: 13
52200	<i>Cheumatopsyche sp</i>	43 +			
52430	<i>Ceratopsyche morosa group</i>	+			
53800	<i>Hydroptila sp</i>	720			
57400	<i>Neophylax sp</i>	+			
57900	<i>Pycnopsyche sp</i>	+			
59100	<i>Ceraclea sp</i>	1			
59160	<i>Ceraclea spongillovorax</i>	1			
59300	<i>Mystacides sp</i>	+			
59400	<i>Nectopsyche sp</i>	+			
59500	<i>Oecetis sp</i>	8			
59970	<i>Petrophila sp</i>	+			
60900	<i>Peltodytes sp</i>	+			
65800	<i>Berosus sp</i>	+			
69400	<i>Stenelmis sp</i>	11 +			
74100	<i>Simulium sp</i>	+			
77120	<i>Ablabesmyia mallochi</i>	178 +			
77500	<i>Conchapelopia sp</i>	76			
77750	<i>Hayesomyia senata or Thienemannimyia norena</i>	330			
78600	<i>Pentaneura inconspicua</i>	76			
78655	<i>Procladius (Holotanypus) sp</i>	25 +			
80370	<i>Corynoneura lobata</i>	16			
83158	<i>Endochironomus nigricans</i>	25			
83300	<i>Glyptotendipes (G.) sp</i>	254			

**Ohio EPA/DSW Ecological Assessment Section  
Macroinvertebrate Collection**

Site: Snuff Creek  
Twp. Rd. 71

Collection Date: 07/15/2009 River Code: 05-007 RM: 0.33

Taxa Code	Taxa	Quant/Qual	Taxa Code	Taxa	Quant/Qual
03600	<i>Oligochaeta</i>	+			
05900	<i>Lirceus sp</i>	+			
06700	<i>Crangonyx sp</i>	+			
08220	<i>Orconectes (Gremicambarus) immunis</i>	+			
08250	<i>Orconectes (Procericambarus) rusticus</i>	+			
11120	<i>Baetis flavistriga</i>	+			
11125	<i>Pseudocloeon frondale</i>	+			
11650	<i>Procloeon sp (w/ hindwing pads)</i>	+			
13400	<i>Stenacron sp</i>	+			
13521	<i>Stenonema femoratum</i>	+			
23600	<i>Aeshna sp</i>	+			
23909	<i>Boyeria vinosa</i>	+			
27500	<i>Somatochlora sp</i>	+			
45300	<i>Sigara sp</i>	+			
52200	<i>Cheumatopsyche sp</i>	+			
68708	<i>Dubiraphia vittata group</i>	+			
72700	<i>Anopheles sp</i>	+			
72900	<i>Culex sp</i>	+			
74100	<i>Simulium sp</i>	+			
78140	<i>Labrundinia pilosella</i>	+			
80204	<i>Brillia flavifrons group</i>	+			
84210	<i>Paratendipes albimanus or P. duplicatus</i>	+			
84450	<i>Polypedilum (Uresipedilum) flavum</i>	+			
84520	<i>Polypedilum (Tripodura) halterale group</i>	+			
84750	<i>Stictochironomus sp</i>	+			
86100	<i>Chrysops sp</i>	+			
95100	<i>Physella sp</i>	+			
98600	<i>Sphaerium sp</i>	+			

No. Quantitative Taxa: 0	Total Taxa: 28
No. Qualitative Taxa: 28	ICI:
Number of Organisms: 0	Qual EPT: 6

**Ohio EPA/DSW Ecological Assessment Section  
Macroinvertebrate Collection**

Site: East Branch East Branch Wolf Creek  
Co. Rd. 26

Collection Date: 08/05/2009 River Code: 05-008 RM: 3.52

Taxa Code	Taxa	Quant/Qual	Taxa Code	Taxa	Quant/Qual
01801	<i>Turbellaria</i>	+			
03600	<i>Oligochaeta</i>	+			
05800	<i>Caecidotea sp</i>	+			
08250	<i>Orconectes (Procericambarus) rusticus</i>	+			
11120	<i>Baetis flavistriga</i>	+			
13400	<i>Stenacron sp</i>	+			
21200	<i>Calopteryx sp</i>	+			
22001	<i>Coenagrionidae</i>	+			
22300	<i>Argia sp</i>	+			
45300	<i>Sigara sp</i>	+			
52200	<i>Cheumatopsyche sp</i>	+			
52530	<i>Hydropsyche depravata group</i>	+			
68708	<i>Dubiraphia vittata group</i>	+			
69400	<i>Stenelmis sp</i>	+			
72340	<i>Dixella sp</i>	+			
72700	<i>Anopheles sp</i>	+			
74100	<i>Simulium sp</i>	+			
77500	<i>Conchapelopia sp</i>	+			
77800	<i>Helopelopia sp</i>	+			
78401	<i>Natarsia species A (sensu Roback, 1978)</i>	+			
81650	<i>Parametriocnemus sp</i>	+			
81825	<i>Rheocricotopus (Psilocricotopus) robacki</i>	+			
82141	<i>Thienemanniella xena</i>	+			
84450	<i>Polypedilum (Uresipedilum) flavum</i>	+			
84470	<i>Polypedilum (P.) illinoense</i>	+			
84480	<i>Polypedilum (P.) laetum group</i>	+			
84750	<i>Stictochironomus sp</i>	+			
85625	<i>Rheotanytarsus sp</i>	+			
85800	<i>Tanytarsus sp</i>	+			
95100	<i>Physella sp</i>	+			
98600	<i>Sphaerium sp</i>	+			

No. Quantitative Taxa: 0            Total Taxa: 31  
 No. Qualitative Taxa: 31            ICI:  
 Number of Organisms: 0            Qual EPT: 4

**Ohio EPA/DSW Ecological Assessment Section  
Macroinvertebrate Collection**

Site: East Branch East Branch Wolf Creek  
Co. Rd. 48

Collection Date: 08/04/2009 River Code: 05-008 RM: 1.48

Taxa Code	Taxa	Quant/Qual	Taxa Code	Taxa	Quant/Qual
01801	<i>Turbellaria</i>	+			
03360	<i>Plumatella sp</i>	+			
03600	<i>Oligochaeta</i>	+			
05800	<i>Caecidotea sp</i>	+			
06700	<i>Crangonyx sp</i>	+			
08250	<i>Orconectes (Procericambarus) rusticus</i>	+			
11120	<i>Baetis flavistriga</i>	+			
11130	<i>Baetis intercalaris</i>	+			
13400	<i>Stenacron sp</i>	+			
13521	<i>Stenonema femoratum</i>	+			
17200	<i>Caenis sp</i>	+			
50315	<i>Chimarra obscura</i>	+			
52200	<i>Cheumatopsyche sp</i>	+			
52530	<i>Hydropsyche depravata group</i>	+			
57400	<i>Neophylax sp</i>	+			
59970	<i>Petrophila sp</i>	+			
68708	<i>Dubiraphia vittata group</i>	+			
68901	<i>Macronychus glabratus</i>	+			
69400	<i>Stenelmis sp</i>	+			
70600	<i>Antocha sp</i>	+			
74100	<i>Simulium sp</i>	+			
77500	<i>Conchapelopia sp</i>	+			
77800	<i>Helopelopia sp</i>	+			
81650	<i>Parametriocnemus sp</i>	+			
83300	<i>Glyptotendipes (G.) sp</i>	+			
83820	<i>Microtendipes "caelum" (sensu Simpson &amp; Bode, 1980)</i>	+			
83840	<i>Microtendipes pedellus group</i>	+			
84210	<i>Paratendipes albimanus or P. duplicatus</i>	+			
84300	<i>Phaenopsectra obediens group</i>	+			
84750	<i>Stictochironomus sp</i>	+			
87540	<i>Hemerodromia sp</i>	+			
93900	<i>Elimia sp</i>	+			
96900	<i>Ferrissia sp</i>	+			

No. Quantitative Taxa: 0            Total Taxa: 33  
 No. Qualitative Taxa: 33            ICI:  
 Number of Organisms: 0            Qual EPT: 9

**Ohio EPA/DSW Ecological Assessment Section  
Macroinvertebrate Collection**

Site: Middle Branch E. Br. E. Br. Wolf Creek  
Co. Rd. 26

Collection Date: 08/05/2009 River Code: 05-009 RM: 0.46

Taxa Code	Taxa	Quant/Qual	Taxa Code	Taxa	Quant/Qual
01801	<i>Turbellaria</i>	+			
05800	<i>Caecidotea sp</i>	+			
06201	<i>Hyaella azteca</i>	+			
06700	<i>Crangonyx sp</i>	+			
08250	<i>Orconectes (Procericambarus) rusticus</i>	+			
11120	<i>Baetis flavistriga</i>	+			
13000	<i>Leucrocuta sp</i>	+			
13400	<i>Stenacron sp</i>	+			
13521	<i>Stenonema femoratum</i>	+			
22300	<i>Argia sp</i>	+			
23909	<i>Boyeria vinosa</i>	+			
45300	<i>Sigara sp</i>	+			
51600	<i>Polycentropus sp</i>	+			
52200	<i>Cheumatopsyche sp</i>	+			
57400	<i>Neophylax sp</i>	+			
59001	<i>Leptoceridae</i>	+			
68130	<i>Helichus sp</i>	+			
68708	<i>Dubiraphia vittata group</i>	+			
69400	<i>Stenelmis sp</i>	+			
72700	<i>Anopheles sp</i>	+			
74100	<i>Simulium sp</i>	+			
77800	<i>Helopelopia sp</i>	+			
83820	<i>Microtendipes "caelum" (sensu Simpson &amp; Bode, 1980)</i>	+			
83840	<i>Microtendipes pedellus group</i>	+			
84450	<i>Polypedilum (Uresipedilum) flavum</i>	+			
84470	<i>Polypedilum (P.) illinoense</i>	+			
84480	<i>Polypedilum (P.) laetum group</i>	+			
84750	<i>Stictochironomus sp</i>	+			
86100	<i>Chrysops sp</i>	+			
93900	<i>Elimia sp</i>	+			
98200	<i>Pisidium sp</i>	+			
98600	<i>Sphaerium sp</i>	+			

No. Quantitative Taxa: 0                      Total Taxa: 32  
 No. Qualitative Taxa: 32                      ICI:  
 Number of Organisms: 0                      Qual EPT: 8

**Ohio EPA/DSW Ecological Assessment Section  
Macroinvertebrate Collection**

Site: Sugar Creek

Collection Date: 08/04/2009 River Code: 05-010 RM: 3.11

Taxa Code	Taxa	Quant/Qual	Taxa Code	Taxa	Quant/Qual
03600	<i>Oligochaeta</i>	+			
06201	<i>Hyalella azteca</i>	+			
08250	<i>Orconectes (Procericambarus) rusticus</i>	+			
08601	<i>Hydrachnidia</i>	+			
11120	<i>Baetis flavistriga</i>	+			
11651	<i>Proclotron sp (w/o hindwing pads)</i>	+			
13400	<i>Stenacron sp</i>	+			
13521	<i>Stenonema femoratum</i>	+			
13590	<i>Maccaffertium vicarium</i>	+			
14950	<i>Leptophlebia sp or Paraleptophlebia sp</i>	+			
23909	<i>Boyeria vinosa</i>	+			
45100	<i>Palmacorixa sp</i>	+			
45300	<i>Sigara sp</i>	+			
45900	<i>Notonecta sp</i>	+			
52200	<i>Cheumatopsyche sp</i>	+			
58505	<i>Helicopsyche borealis</i>	+			
59570	<i>Oecetis nocturna</i>	+			
60400	<i>Gyrinus sp</i>	+			
63300	<i>Hydroporini</i>	+			
68130	<i>Helichus sp</i>	+			
68702	<i>Dubiraphia bivittata</i>	+			
68708	<i>Dubiraphia vittata group</i>	+			
69400	<i>Stenelmis sp</i>	+			
72340	<i>Dixella sp</i>	+			
72700	<i>Anopheles sp</i>	+			
78655	<i>Procladius (Holotanypus) sp</i>	+			
80420	<i>Cricotopus (C.) bicinctus</i>	+			
81825	<i>Rheocricotopus (Psilocricotopus) robacki</i>	+			
84470	<i>Polypedilum (P.) illinoense</i>	+			
84480	<i>Polypedilum (P.) laetum group</i>	+			
85625	<i>Rheotanytarsus sp</i>	+			
85840	<i>Tanytarsus sepp</i>	+			
86100	<i>Chrysops sp</i>	+			
93900	<i>Elimia sp</i>	+			
95100	<i>Physella sp</i>	+			
98600	<i>Sphaerium sp</i>	+			

No. Quantitative Taxa: 0                      Total Taxa: 36  
 No. Qualitative Taxa: 36                      ICI:  
 Number of Organisms: 0                      Qual EPT: 9



**Ohio EPA/DSW Ecological Assessment Section  
Macroinvertebrate Collection**

Site: Sugar Creek  
Twp. Rd. 148

Collection Date: 08/04/2009 River Code: 05-010 RM: 1.05

Taxa Code	Taxa	Quant/Qual	Taxa Code	Taxa	Quant/Qual
08260	<i>Orconectes (Crockerinus) sanbornii sanbornii</i>	+			
08601	<i>Hydrachnidia</i>	+			
11120	<i>Baetis flavistriga</i>	+			
11250	<i>Centroptilum sp (w/o hindwing pads)</i>	+			
13400	<i>Stenacron sp</i>	+			
13521	<i>Stenonema femoratum</i>	+			
13590	<i>Maccaffertium vicarium</i>	+			
21200	<i>Calopteryx sp</i>	+			
22300	<i>Argia sp</i>	+			
23909	<i>Boyeria vinosa</i>	+			
44501	<i>Corixidae</i>	+			
51600	<i>Polycentropus sp</i>	+			
52200	<i>Cheumatopsyche sp</i>	+			
52530	<i>Hydropsyche depravata group</i>	+			
57400	<i>Neophylax sp</i>	+			
57900	<i>Pycnopsyche sp</i>	+			
59300	<i>Mystacides sp</i>	+			
67750	<i>Sperchopsis tessellatus</i>	+			
68130	<i>Helichus sp</i>	+			
68707	<i>Dubiraphia quadrinotata</i>	+			
68708	<i>Dubiraphia vittata group</i>	+			
69200	<i>Optioservus sp</i>	+			
69400	<i>Stenelmis sp</i>	+			
70600	<i>Antocha sp</i>	+			
71100	<i>Hexatoma sp</i>	+			
72340	<i>Dixella sp</i>	+			
74100	<i>Simulium sp</i>	+			
77800	<i>Helopelopia sp</i>	+			
81690	<i>Paratrichocladius sp</i>	+			
81825	<i>Rheocricotopus (Psilocricotopus) robacki</i>	+			
82200	<i>Tvetenia bavarica group</i>	+			
83840	<i>Microtendipes pedellus group</i>	+			
84480	<i>Polypedilum (P.) laetum group</i>	+			
84750	<i>Stictochironomus sp</i>	+			
93900	<i>Elimia sp</i>	+			

No. Quantitative Taxa: 0                      Total Taxa: 35  
 No. Qualitative Taxa: 35                      ICI:  
 Number of Organisms: 0                      Qual EPT: 11

Ohio EPA/DSW Ecological Assessment Section  
 Macroinvertebrate Collection

Site: Spicer Creek  
 Co. Rd. 33

Collection Date: 08/04/2009 River Code: 05-011 RM: 0.80

Taxa Code	Taxa	Quant/Qual	Taxa Code	Taxa	Quant/Qual
01320	<i>Hydra sp</i>	+	84210	<i>Paratendipes albimanus or P. duplicatus</i>	+
08250	<i>Orconectes (Procericambarus) rusticus</i>	+	84300	<i>Phaenopsectra obediens group</i>	+
08601	<i>Hydrachnidia</i>	+	84450	<i>Polypedilum (Uresipedilum) flavum</i>	+
11120	<i>Baetis flavistriga</i>	+	84480	<i>Polypedilum (P.) laetum group</i>	+
11130	<i>Baetis intercalaris</i>	+	84540	<i>Polypedilum (Tripodura) scalaenum group</i>	+
11200	<i>Callibaetis sp</i>	+	84750	<i>Stictochironomus sp</i>	+
13400	<i>Stenacron sp</i>	+	85500	<i>Paratanytarsus sp</i>	+
13521	<i>Stenonema femoratum</i>	+	85800	<i>Tanytarsus sp</i>	+
17200	<i>Caenis sp</i>	+	86100	<i>Chrysops sp</i>	+
21200	<i>Calopteryx sp</i>	+	86401	<i>Atherix lantha</i>	+
22001	<i>Coenagrionidae</i>	+	89001	<i>Sciomyzidae</i>	+
22300	<i>Argia sp</i>	+	93900	<i>Elimia sp</i>	+
23909	<i>Boyeria vinosa</i>	+	95100	<i>Physella sp</i>	+
45300	<i>Sigara sp</i>	+	96900	<i>Ferrissia sp</i>	+
52200	<i>Cheumatopsyche sp</i>	+	98600	<i>Sphaerium sp</i>	+
52430	<i>Ceratopsyche morosa group</i>	+			
52530	<i>Hydropsyche depravata group</i>	+	No. Quantitative Taxa: 0		Total Taxa: 59
53800	<i>Hydroptila sp</i>	+	No. Qualitative Taxa: 59		ICI:
57400	<i>Neophylax sp</i>	+	Number of Organisms: 0		Qual EPT: 14
58505	<i>Helicopsyche borealis</i>	+			
59300	<i>Mystacides sp</i>	+			
59410	<i>Nectopsyche diarina</i>	+			
60900	<i>Peltodytes sp</i>	+			
65800	<i>Berosus sp</i>	+			
67000	<i>Helophorus sp</i>	+			
67700	<i>Paracymus sp</i>	+			
67800	<i>Tropisternus sp</i>	+			
68130	<i>Helichus sp</i>	+			
68708	<i>Dubiraphia vittata group</i>	+			
69225	<i>Optioservus fastiditus</i>	+			
69400	<i>Stenelmis sp</i>	+			
70600	<i>Antocha sp</i>	+			
72340	<i>Dixella sp</i>	+			
72700	<i>Anopheles sp</i>	+			
74100	<i>Simulium sp</i>	+			
77120	<i>Ablabesmyia mallochi</i>	+			
77500	<i>Conchapelopia sp</i>	+			
78140	<i>Labrundinia pilosella</i>	+			
78655	<i>Procladius (Holotanypus) sp</i>	+			
80420	<i>Cricotopus (C.) bicinctus</i>	+			
81825	<i>Rheocricotopus (Psilocricotopus) robacki</i>	+			
82820	<i>Cryptochironomus sp</i>	+			
83040	<i>Dicrotendipes neomodestus</i>	+			
83820	<i>Microtendipes "caelum" (sensu Simpson &amp; Bode, 1980)</i>	+			

**Ohio EPA/DSW Ecological Assessment Section  
Macroinvertebrate Collection**

Site: Plum Run  
St. Rt. 635

Collection Date: 07/22/2009 River Code: 05-080 RM: 0.79

Taxa Code	Taxa	Quant/Qual	Taxa Code	Taxa	Quant/Qual
01801	<i>Turbellaria</i>	+			
04685	<i>Placobdella ornata</i>	+			
05900	<i>Lirceus sp</i>	+			
08250	<i>Orconectes (Procericambarus) rusticus</i>	+			
11120	<i>Baetis flavistriga</i>	+			
11130	<i>Baetis intercalaris</i>	+			
11200	<i>Callibaetis sp</i>	+			
22001	<i>Coenagrionidae</i>	+			
22300	<i>Argia sp</i>	+			
45100	<i>Palmacorixa sp</i>	+			
52200	<i>Cheumatopsyche sp</i>	+			
52430	<i>Ceratopsyche morosa group</i>	+			
52530	<i>Hydropsyche depravata group</i>	+			
59300	<i>Mystacides sp</i>	+			
65800	<i>Berosus sp</i>	+			
67000	<i>Helophorus sp</i>	+			
68708	<i>Dubiraphia vittata group</i>	+			
69400	<i>Stenelmis sp</i>	+			
71900	<i>Tipula sp</i>	+			
72340	<i>Dixella sp</i>	+			
72700	<i>Anopheles sp</i>	+			
74100	<i>Simulium sp</i>	+			
77120	<i>Ablabesmyia mallochi</i>	+			
77500	<i>Conchapelopia sp</i>	+			
78655	<i>Procladius (Holotanypus) sp</i>	+			
82820	<i>Cryptochironomus sp</i>	+			
84315	<i>Phaenopsectra flavipes</i>	+			
84450	<i>Polypedilum (Uresipedilum) flavum</i>	+			
84470	<i>Polypedilum (P.) illinoense</i>	+			
85500	<i>Paratanytarsus sp</i>	+			
95100	<i>Physella sp</i>	+			
98600	<i>Sphaerium sp</i>	+			

No. Quantitative Taxa: 0            Total Taxa: 32  
 No. Qualitative Taxa: 32            ICI:  
 Number of Organisms: 0            Qual EPT: 7

**Ohio EPA/DSW Ecological Assessment Section  
Macrobenthic Collection**

Site: Harrison Creek  
Co. Rd. 592

Collection Date: 07/21/2009 River Code: 05-081 RM: 0.38

Taxa Code	Taxa	Quant/Qual	Taxa Code	Taxa	Quant/Qual
01801	<i>Turbellaria</i>	+			
03600	<i>Oligochaeta</i>	+			
04664	<i>Helobdella stagnalis</i>	+			
04964	<i>Mooreobdella microstoma</i>	+			
05900	<i>Lirceus sp</i>	+			
06700	<i>Crangonyx sp</i>	+			
08220	<i>Orconectes (Gremicambarus) immunis</i>	+			
22001	<i>Coenagrionidae</i>	+			
45300	<i>Sigara sp</i>	+			
60900	<i>Peltodytes sp</i>	+			
61400	<i>Agabus sp</i>	+			
63300	<i>Hydroporini</i>	+			
63700	<i>Ilybius sp</i>	+			
63900	<i>Laccophilus sp</i>	+			
65800	<i>Berosus sp</i>	+			
72700	<i>Anopheles sp</i>	+			
78655	<i>Procladius (Holotanypus) sp</i>	+			
82730	<i>Chironomus (C.) decorus group</i>	+			
83003	<i>Dicrotendipes fumidus</i>	+			
94400	<i>Fossaria sp</i>	+			
95100	<i>Physella sp</i>	+			
96264	<i>Planorbella (Pierosoma) pilsbryi</i>	+			
98200	<i>Pisidium sp</i>	+			
98600	<i>Sphaerium sp</i>	+			

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

**Ohio EPA/DSW Ecological Assessment Section  
Macroinvertebrate Collection**

Site: Trib. to E. Br. Wolf Creek (18.60)  
Twp. Rd. 112

Collection Date: 07/22/2009 River Code: 05-098 RM: 0.04

Taxa Code	Taxa	Quant/Qual	Taxa Code	Taxa	Quant/Qual
01801	<i>Turbellaria</i>	+			
08250	<i>Orconectes (Procericambarus) rusticus</i>	+			
11125	<i>Pseudocloeon frondale</i>	+			
11130	<i>Baetis intercalaris</i>	+			
11250	<i>Centroptilum sp (w/o hindwing pads)</i>	+			
21001	<i>Calopterygidae</i>	+			
23600	<i>Aeshna sp</i>	+			
23909	<i>Boyeria vinosa</i>	+			
45300	<i>Sigara sp</i>	+			
52200	<i>Cheumatopsyche sp</i>	+			
59570	<i>Oecetis nocturna</i>	+			
63300	<i>Hydroporini</i>	+			
68700	<i>Dubiraphia sp</i>	+			
71900	<i>Tipula sp</i>	+			
74100	<i>Simulium sp</i>	+			
77120	<i>Ablabesmyia mallochi</i>	+			
77500	<i>Conchapelopia sp</i>	+			
78140	<i>Labrundinia pilosella</i>	+			
82820	<i>Cryptochironomus sp</i>	+			
83000	<i>Dicrotendipes sp</i>	+			
83840	<i>Microtendipes pedellus group</i>	+			
84210	<i>Paratendipes albimanus or P. duplicatus</i>	+			
84612	<i>Saetheria tylus</i>	+			
84700	<i>Stenochironomus sp</i>	+			
84750	<i>Stictochironomus sp</i>	+			
85500	<i>Paratanytarsus sp</i>	+			
86100	<i>Chrysops sp</i>	+			
95100	<i>Physella sp</i>	+			

No. Quantitative Taxa: 0	Total Taxa: 28
No. Qualitative Taxa: 28	ICI:
Number of Organisms: 0	Qual EPT: 5

**Ohio EPA/DSW Ecological Assessment Section  
Macroinvertebrate Collection**

Site: Muddy Creek

Collection Date: 08/26/2009 River Code: 05-219 RM: 29.36

Co. Rd. 58

Taxa Code	Taxa	Quant/Qual	Taxa Code	Taxa	Quant/Qual
01801	<i>Turbellaria</i>	6 +	78655	<i>Procladius (Holtanypus) sp</i>	+
02600	<i>Nematomorpha</i>	2 +	82820	<i>Cryptochironomus sp</i>	+
03600	<i>Oligochaeta</i>	+	82885	<i>Cryptotendipes pseudotener</i>	+
04686	<i>Placobdella papillifera</i>	+	83840	<i>Microtendipes pedellus group</i>	87
06201	<i>Hyalella azteca</i>	10 +	84155	<i>Paralauterborniella nigrohalteralis</i>	+
08250	<i>Orconectes (Procericambarus) rusticus</i>	+	84210	<i>Paratendipes albimanus or P. duplicatus</i>	+
08601	<i>Hydrachnidia</i>	+	84300	<i>Phaenopsectra obediens group</i>	58
11651	<i>Procloeon sp (w/o hindwing pads)</i>	5 +	84460	<i>Polypedilum (P.) fallax group</i>	9
11670	<i>Procloeon viridoculare</i>	1 +	84470	<i>Polypedilum (P.) illinoense</i>	+
13400	<i>Stenacron sp</i>	37 +	84540	<i>Polypedilum (Tripodura) scalaenum group</i>	9 +
13521	<i>Stenonema femoratum</i>	2	85201	<i>Cladotanytarsus species group A</i>	+
17200	<i>Caenis sp</i>	6 +	85230	<i>Cladotanytarsus mancus group</i>	9
18700	<i>Hexagenia sp</i>	8 +	85720	<i>Stempellinella fimbriata</i>	9
21200	<i>Calopteryx sp</i>	1	85800	<i>Tanytarsus sp</i>	39 +
21300	<i>Hetaerina sp</i>	8 +	85801	<i>Tanytarsus Type 1</i>	9
22001	<i>Coenagrionidae</i>	8 +	85821	<i>Tanytarsus glabrescens group sp 7</i>	49
22300	<i>Argia sp</i>	142 +	95100	<i>Physella sp</i>	+
23704	<i>Anax junius</i>	+	96264	<i>Planorbella (Pierosoma) pilsbryi</i>	+
28955	<i>Plathemis lydia</i>	+			
42700	<i>Belostoma sp</i>	+	No. Quantitative Taxa: 33		Total Taxa: 62
43300	<i>Ranatra sp</i>	+	No. Qualitative Taxa: 47		ICI: 32
45100	<i>Palmacorixa sp</i>	+	Number of Organisms: 1039		Qual EPT: 9
45300	<i>Sigara sp</i>	+			
45400	<i>Trichocorixa sp</i>	+			
52200	<i>Cheumatopsyche sp</i>	5			
57400	<i>Neophylax sp</i>	+			
58505	<i>Helicopsyche borealis</i>	+			
59300	<i>Mystacides sp</i>	+			
59410	<i>Nectopsyche diarina</i>	1 +			
60300	<i>Dineutus sp</i>	+			
60400	<i>Gyrinus sp</i>	+			
60900	<i>Peltodytes sp</i>	+			
65800	<i>Berosus sp</i>	15 +			
68700	<i>Dubiraphia sp</i>	20			
68702	<i>Dubiraphia bivittata</i>	+			
68708	<i>Dubiraphia vittata group</i>	+			
69400	<i>Stenelmis sp</i>	4 +			
72340	<i>Dixella sp</i>	+			
74501	<i>Ceratopogonidae</i>	4			
77120	<i>Ablabesmyia mallochi</i>	19 +			
77500	<i>Conchapelopia sp</i>	58			
77800	<i>Helopelopia sp</i>	379 +			
78200	<i>Larsia sp</i>	10			
78600	<i>Pentaneura inconspicua</i>	10			

**Ohio EPA/DSW Ecological Assessment Section  
Macroinvertebrate Collection**

Site: Muddy Creek  
upst. Co. Rd. 55

Collection Date: 08/25/2009 River Code: 05-219 RM: 21.95

Taxa Code	Taxa	Quant/Qual	Taxa Code	Taxa	Quant/Qual
01801	<i>Turbellaria</i>	24 +	80370	<i>Corynoneura lobata</i>	21
04685	<i>Placobdella ornata</i>	+	83840	<i>Microtendipes pedellus group</i>	58
05900	<i>Lirceus sp</i>	+	84210	<i>Paratendipes albimanus or P. duplicatus</i>	46 +
06201	<i>Hyalella azteca</i>	10 +	84460	<i>Polypedilum (P.) fallax group</i>	48
08250	<i>Orconectes (Procericambarus) rusticus</i>	1 +	84470	<i>Polypedilum (P.) illinoense</i>	+
08601	<i>Hydrachnidia</i>	+	85821	<i>Tanytarsus glabrescens group sp 7</i>	13
11120	<i>Baetis flavistriga</i>	+	85840	<i>Tanytarsus sepp</i>	13
11200	<i>Callibaetis sp</i>	+	87540	<i>Hemerodromia sp</i>	+
11650	<i>Procloeon sp (w/ hindwing pads)</i>	2	93900	<i>Elimia sp</i>	28 +
13400	<i>Stenacron sp</i>	125 +	95100	<i>Physella sp</i>	+
13521	<i>Stenonema femoratum</i>	1 +	98600	<i>Sphaerium sp</i>	+
14950	<i>Leptophlebia sp or Paraleptophlebia sp</i>	9			
21200	<i>Calopteryx sp</i>	1 +	No. Quantitative Taxa: 22		Total Taxa: 55
22001	<i>Coenagrionidae</i>	14 +	No. Qualitative Taxa: 46		ICI: 26
22300	<i>Argia sp</i>	1	Number of Organisms: 521		Qual EPT: 11
23600	<i>Aeshna sp</i>	+			
23909	<i>Boyeria vinosa</i>	4 +			
43300	<i>Ranatra sp</i>	+			
45300	<i>Sigara sp</i>	+			
45900	<i>Notonecta sp</i>	+			
50315	<i>Chimarra obscura</i>	+			
52200	<i>Cheumatopsyche sp</i>	13 +			
52530	<i>Hydropsyche depravata group</i>	+			
53800	<i>Hydroptila sp</i>	+			
57400	<i>Neophylax sp</i>	+			
58505	<i>Helicopsyche borealis</i>	+			
59410	<i>Nectopsyche diarina</i>	+			
59970	<i>Petrophila sp</i>	+			
60400	<i>Gyrinus sp</i>	+			
60900	<i>Peltodytes sp</i>	+			
67800	<i>Tropisternus sp</i>	+			
68025	<i>Ectopria sp</i>	+			
68075	<i>Psephenus herricki</i>	+			
68201	<i>Scirtidae</i>	+			
68708	<i>Dubiraphia vittata group</i>	+			
68901	<i>Macronychus glabratus</i>	10			
69400	<i>Stenelmis sp</i>	1 +			
71100	<i>Hexatoma sp</i>	+			
71900	<i>Tipula sp</i>	+			
72700	<i>Anopheles sp</i>	+			
77120	<i>Ablabesmyia mallochi</i>	+			
77800	<i>Helopelopia sp</i>	78 +			
80001	<i>Orthocladiinae</i>	+			
80351	<i>Corynoneura n.sp 1</i>	+			

**Ohio EPA/DSW Ecological Assessment Section  
Macroinvertebrate Collection**

Site: Muddy Creek

Collection Date: 08/25/2009 River Code: 05-219 RM: 18.68

Co. Rd. 90

Taxa Code	Taxa	Quant/Qual	Taxa Code	Taxa	Quant/Qual
01801	<i>Turbellaria</i>	3 +	80370	<i>Corynoneura lobata</i>	107
03600	<i>Oligochaeta</i>	+	81825	<i>Rheocricotopus (Psilocricotopus) robacki</i>	5
04964	<i>Mooreobdella microstoma</i>	+	83840	<i>Microtendipes pedellus group</i>	9 +
05900	<i>Lirceus sp</i>	+	84210	<i>Paratendipes albimanus or P. duplicatus</i>	+
06810	<i>Gammarus fasciatus</i>	+	84450	<i>Polypedilum (Uresipedilum) flavum</i>	40
08250	<i>Orconectes (Procericambarus) rusticus</i>	+	84460	<i>Polypedilum (P.) fallax group</i>	40
11120	<i>Baetis flavistriga</i>	134 +	84540	<i>Polypedilum (Tripodura) scalaenum group</i>	+
11130	<i>Baetis intercalaris</i>	1 +	84700	<i>Stenochironomus sp</i>	+
11650	<i>Procloeon sp (w/ hindwing pads)</i>	+	85625	<i>Rheotanytarsus sp</i>	35
12200	<i>Isonychia sp</i>	6 +	86100	<i>Chrysops sp</i>	+
13400	<i>Stenacron sp</i>	63 +	93900	<i>Elimia sp</i>	21 +
13521	<i>Stenonema femoratum</i>	6			
13561	<i>Maccaffertium pulchellum</i>	4	No. Quantitative Taxa: 23		Total Taxa: 55
14950	<i>Leptophlebia sp or Paraleptophlebia sp</i>	+	No. Qualitative Taxa: 43		ICI: 36
21200	<i>Calopteryx sp</i>	+	Number of Organisms: 605		Qual EPT: 13
22001	<i>Coenagrionidae</i>	3			
22300	<i>Argia sp</i>	+			
23909	<i>Boyeria vinosa</i>	+			
43300	<i>Ranatra sp</i>	+			
45300	<i>Sigara sp</i>	+			
47600	<i>Sialis sp</i>	+			
50315	<i>Chimarra obscura</i>	+			
52200	<i>Cheumatopsyche sp</i>	55 +			
52430	<i>Ceratopsyche morosa group</i>	1 +			
52530	<i>Hydropsyche depravata group</i>	6 +			
52590	<i>Hydropsyche venularis</i>	2			
57400	<i>Neophylax sp</i>	+			
57900	<i>Pycnopsyche sp</i>	+			
59410	<i>Nectopsyche diarina</i>	+			
59970	<i>Petrophila sp</i>	+			
63300	<i>Hydroporini</i>	+			
68075	<i>Psephenus herricki</i>	+			
68601	<i>Ancyronyx variegata</i>	+			
68702	<i>Dubiraphia bivittata</i>	+			
68708	<i>Dubiraphia vittata group</i>	+			
68901	<i>Macronychus glabratus</i>	5 +			
69400	<i>Stenelmis sp</i>	+			
71900	<i>Tipula sp</i>	+			
72700	<i>Anopheles sp</i>	+			
74100	<i>Simulium sp</i>	+			
77120	<i>Ablabesmyia mallochi</i>	+			
77740	<i>Hayesomyia senata</i>	5			
77800	<i>Helopelopia sp</i>	20			
78450	<i>Nilotanypus fimbriatus</i>	34			



Ohio EPA/DSW Ecological Assessment Section  
 Macroinvertebrate Collection

Site: Muddy Creek

Collection Date: 08/25/2009 River Code: 05-219 RM: 9.79

Taxa Code	Taxa	Quant/Qual	Taxa Code	Taxa	Quant/Qual
01801	<i>Turbellaria</i>	1	85264	<i>Cladotanytarsus vanderwulpi</i> group Type 4	2
05800	<i>Caecidotea</i> sp	7 +	85625	<i>Rheotanytarsus</i> sp	36
05900	<i>Lirceus</i> sp	1 +	85720	<i>Stempellinella fimbriata</i>	7
06201	<i>Hyalella azteca</i>	+	85821	<i>Tanytarsus glabrescens</i> group sp 7	7
08250	<i>Orconectes (Procericambarus) rusticus</i>	+	85840	<i>Tanytarsus sepp</i>	27 +
11020	<i>Acerpenna pygmaea</i>	5 +	87540	<i>Hemerodromia</i> sp	1
11651	<i>Procloeon</i> sp (w/o hindwing pads)	+	93900	<i>Elimia</i> sp	8 +
13400	<i>Stenacron</i> sp	277 +	98600	<i>Sphaerium</i> sp	+
13521	<i>Stenonema femoratum</i>	7 +			
14950	<i>Leptophlebia</i> sp or <i>Paraleptophlebia</i> sp	74 +	No. Quantitative Taxa: 34		Total Taxa: 52
17200	<i>Caenis</i> sp	1 +	No. Qualitative Taxa: 30		ICI: 36
18700	<i>Hexagenia</i> sp	+	Number of Organisms: 748		Qual EPT: 7
21200	<i>Calopteryx</i> sp	+			
22001	<i>Coenagrionidae</i>	+			
22300	<i>Argia</i> sp	16 +			
23909	<i>Boyeria vinosa</i>	+			
43300	<i>Ranatra</i> sp	+			
45100	<i>Palmacorixa</i> sp	+			
45300	<i>Sigara</i> sp	+			
45400	<i>Trichocorixa</i> sp	+			
47600	<i>Sialis</i> sp	+			
52200	<i>Cheumatopsyche</i> sp	48			
68601	<i>Ancyronyx variegata</i>	+			
68708	<i>Dubiraphia vittata</i> group	+			
68901	<i>Macronychus glabratus</i>	62 +			
69400	<i>Stenelmis</i> sp	2 +			
77120	<i>Ablabesmyia mallochi</i>	2			
77500	<i>Conchapelopia</i> sp	2			
77750	<i>Hayesomyia senata</i> or <i>Thienemannimyia norena</i>	13			
77800	<i>Helopelopia</i> sp	4			
78140	<i>Labrundinia pilosella</i>	2			
78450	<i>Nilotanytarsus fimbriatus</i>	13			
78655	<i>Procladius (Holotanytarsus) sp</i>	+			
80370	<i>Corynoneura lobata</i>	14			
81825	<i>Rheocricotopus (Psilocricotopus) robacki</i>	4			
82141	<i>Thienemanniella xena</i>	2			
83840	<i>Microtendipes pedellus</i> group	31			
84210	<i>Paratendipes albimanus</i> or <i>P. duplicatus</i>	13			
84450	<i>Polypedilum (Uresipedilum) flavum</i>	4			
84460	<i>Polypedilum (P.) fallax</i> group	49			
84540	<i>Polypedilum (Tripodura) scalaenum</i> group	4			
84750	<i>Stictochironomus</i> sp	+			
84790	<i>Tribelos fuscicorne</i>	2			
85201	<i>Cladotanytarsus species</i> group A	+			

**Ohio EPA/DSW Ecological Assessment Section  
Macroinvertebrate Collection**

Site: Muddy Creek  
east side of St. Rt. 53

Collection Date: 08/25/2009 River Code: 05-219 RM: 1.23

Taxa Code	Taxa	Quant/Qual	Taxa Code	Taxa	Quant/Qual
01200	<i>Cordylophora lacustris</i>	5			
01320	<i>Hydra sp</i>	16			
01801	<i>Turbellaria</i>	2			
03360	<i>Plumatella sp</i>	1 +			
03600	<i>Oligochaeta</i>	3051 +			
04935	<i>Erpobdella punctata punctata</i>	+			
04964	<i>Mooreobdella microstoma</i>	+			
06810	<i>Gammarus fasciatus</i>	39 +			
08250	<i>Orconectes (Procericambarus) rusticus</i>	+			
08451	<i>Palaemonetes kadiakensis</i>	+			
08601	<i>Hydrachnidia</i>	1			
17200	<i>Caenis sp</i>	3			
22001	<i>Coenagrionidae</i>	1 +			
45300	<i>Sigara sp</i>	+			
45400	<i>Trichocorixa sp</i>	+			
51206	<i>Cyrenellus fraternus</i>	46			
59520	<i>Oecetis cinerascens</i>	1			
60300	<i>Dineutus sp</i>	1			
60900	<i>Peltodytes sp</i>	+			
79040	<i>Tanytus stellatus</i>	+			
82820	<i>Cryptochironomus sp</i>	+			
83051	<i>Dicrotendipes simpsoni</i>	1029			
83158	<i>Endochironomus nigricans</i>	+			
83300	<i>Glyptotendipes (G.) sp</i>	9579 +			
84520	<i>Polypedilum (Tripodura) halterale group</i>	+			
94603	<i>Pseudosuccinea columella</i>	+			
95100	<i>Physella sp</i>	+			
96264	<i>Planorbella (Pierosoma) pilsbryi</i>	+			

No. Quantitative Taxa: 14      Total Taxa: 28  
 No. Qualitative Taxa: 19      ICI: 12  
 Number of Organisms: 13775      Qual EPT: 0

**Ohio EPA/DSW Ecological Assessment Section  
Macrobenthic Collection**

Site: Little Muddy Creek

Collection Date: 09/01/2009 River Code: 05-220 RM: 7.55

Taxa Code	Taxa	Quant/Qual	Taxa Code	Taxa	Quant/Qual
01801	<i>Turbellaria</i>	+			
03360	<i>Plumatella sp</i>	+			
04964	<i>Mooreobdella microstoma</i>	+			
05900	<i>Lirceus sp</i>	+			
08220	<i>Orconectes (Gremicambarus) immunis</i>	+			
11200	<i>Callibaetis sp</i>	+			
17200	<i>Caenis sp</i>	+			
43570	<i>Neoplea sp</i>	+			
45300	<i>Sigara sp</i>	+			
45400	<i>Trichocorixa sp</i>	+			
60400	<i>Gyrinus sp</i>	+			
60900	<i>Peltodytes sp</i>	+			
72700	<i>Anopheles sp</i>	+			
77120	<i>Ablabesmyia mallochi</i>	+			
77500	<i>Conchapelopia sp</i>	+			
78200	<i>Larsia sp</i>	+			
78500	<i>Paramerina fragilis</i>	+			
82730	<i>Chironomus (C.) decorus group</i>	+			
82820	<i>Cryptochironomus sp</i>	+			
83003	<i>Dicrotendipes fumidus</i>	+			
83040	<i>Dicrotendipes neomodestus</i>	+			
83300	<i>Glyptotendipes (G.) sp</i>	+			
84210	<i>Paratendipes albimanus or P. duplicatus</i>	+			
84470	<i>Polypedilum (P.) illinoense</i>	+			
84750	<i>Stictochironomus sp</i>	+			
85500	<i>Paratanytarsus sp</i>	+			
95100	<i>Physella sp</i>	+			
96264	<i>Planorbella (Pierosoma) pilsbryi</i>	+			
98600	<i>Sphaerium sp</i>	+			

No. Quantitative Taxa: 0	Total Taxa: 29
No. Qualitative Taxa: 29	ICI:
Number of Organisms: 0	Qual EPT: 2

**Ohio EPA/DSW Ecological Assessment Section  
Macroinvertebrate Collection**

Site: Little Muddy Creek  
Kline Rd.

Collection Date: 08/25/2009 River Code: 05-220 RM: 2.50

Taxa Code	Taxa	Quant/Qual	Taxa Code	Taxa	Quant/Qual
01200	<i>Cordylophora lacustris</i>	1			
01801	<i>Turbellaria</i>	271			
03600	<i>Oligochaeta</i>	1257 +			
04601	<i>Glossiphoniidae</i>	1			
08250	<i>Orconectes (Procericambarus) rusticus</i>	+			
08451	<i>Palaemonetes kadiakensis</i>	+			
11200	<i>Callibaetis sp</i>	+			
13521	<i>Stenonema femoratum</i>	1			
17200	<i>Caenis sp</i>	17 +			
18750	<i>Hexagenia limbata</i>	+			
22001	<i>Coenagrionidae</i>	+			
22300	<i>Argia sp</i>	16			
45100	<i>Palmacorixa sp</i>	+			
45400	<i>Trichocorixa sp</i>	+			
47600	<i>Sialis sp</i>	2			
51206	<i>Cyrnellus fraternus</i>	95			
52001	<i>Hydropsychidae</i>	8			
60300	<i>Dineutus sp</i>	13			
60900	<i>Peltodytes sp</i>	+			
68708	<i>Dubiraphia vittata group</i>	9			
72420	<i>Chaoborus sp</i>	+			
74501	<i>Ceratopogonidae</i>	8			
77355	<i>Clinotanypus pinguis</i>	+			
79040	<i>Tanypus stellatus</i>	+			
82800	<i>Cladopelma sp</i>	+			
82820	<i>Cryptochironomus sp</i>	+			
83051	<i>Dicrotendipes simpsoni</i>	596			
83111	<i>Einfeldia nr. natchitocheae</i>	28 +			
83158	<i>Endochironomus nigricans</i>	85 +			
83300	<i>Glyptotendipes (G.) sp</i>	1505 +			
83320	<i>Glyptotendipes (Caulochironomus) sp</i>	+			
84520	<i>Polypedilum (Tripodura) halterale group</i>	57 +			
85500	<i>Paratanytarsus sp</i>	28			
85625	<i>Rheotanytarsus sp</i>	28			
95100	<i>Physella sp</i>	3 +			
98001	<i>Sphaeriidae</i>	1 +			

No. Quantitative Taxa: 22            Total Taxa: 36

No. Qualitative Taxa: 22            ICI: **20**

Number of Organisms: 4030        Qual EPT: 3

**Ohio EPA/DSW Ecological Assessment Section  
Macroinvertebrate Collection**

Site: South Branch Muddy Creek  
Anderson Rd.

Collection Date: 08/26/2009 River Code: 05-222 RM: 1.54

Taxa Code	Taxa	Quant/Qual	Taxa Code	Taxa	Quant/Qual
01320	<i>Hydra sp</i>	64	84155	<i>Paralauterborniella nigrohalteralis</i>	4 +
01801	<i>Turbellaria</i>	7 +	84210	<i>Paratendipes albimanus</i> or <i>P. duplicatus</i>	7
03600	<i>Oligochaeta</i>	11 +	84470	<i>Polypedilum (P.) illinoense</i>	+
04666	<i>Helobdella triserialis</i>	1	84800	<i>Tribelos jucundum</i>	1
04685	<i>Placobdella ornata</i>	+	85500	<i>Paratanytarsus sp</i>	1
04935	<i>Erpobdella punctata punctata</i>	+	85615	<i>Rheotanytarsus pellucidus</i>	+
06201	<i>Hyaella azteca</i>	35 +	85625	<i>Rheotanytarsus sp</i>	+
08250	<i>Orconectes (Procericambarus) rusticus</i>	+	85800	<i>Tanytarsus sp</i>	1
08601	<i>Hydrachnidia</i>	1 +	85801	<i>Tanytarsus Type 1</i>	1
11020	<i>Acerpenna pygmaea</i>	+	85802	<i>Tanytarsus curticornis</i>	1
11200	<i>Callibaetis sp</i>	+	85821	<i>Tanytarsus glabrescens group sp 7</i>	2
11651	<i>Procloeon sp (w/o hindwing pads)</i>	82 +	85840	<i>Tanytarsus sepp</i>	2
13000	<i>Leucrocota sp</i>	2	95100	<i>Physella sp</i>	+
13400	<i>Stenacron sp</i>	297	96264	<i>Planorbella (Pierosoma) pilsbryi</i>	+
13521	<i>Stenonema femoratum</i>	8	98200	<i>Pisidium sp</i>	1 +
13561	<i>Maccaffertium pulchellum</i>	1	98600	<i>Sphaerium sp</i>	+
17200	<i>Caenis sp</i>	28 +			
18700	<i>Hexagenia sp</i>	+	No. Quantitative Taxa: 38		Total Taxa: 60
22001	<i>Coenagrionidae</i>	6 +	No. Qualitative Taxa: 39		ICI: 42
22300	<i>Argia sp</i>	+	Number of Organisms: 644		Qual EPT: 6
23704	<i>Anax junius</i>	+			
28208	<i>Erythemis simplicicollis</i>	+			
28500	<i>Libellula sp</i>	1 +			
28955	<i>Plathemis lydia</i>	+			
42700	<i>Belostoma sp</i>	+			
45400	<i>Trichocorixa sp</i>	+			
59500	<i>Oecetis sp</i>	2			
59730	<i>Triaenodes melaca</i>	3 +			
60300	<i>Dineutus sp</i>	1 +			
60800	<i>Halipus sp</i>	+			
60900	<i>Peltodytes sp</i>	+			
65800	<i>Berosus sp</i>	28 +			
68708	<i>Dubiraphia vittata group</i>	12 +			
69400	<i>Stenelmis sp</i>	1			
77120	<i>Ablabesmyia mallochi</i>	12			
77130	<i>Ablabesmyia rhamphe group</i>	1 +			
77355	<i>Clinotanypus pinguis</i>	4 +			
78600	<i>Pentaneura inconspicua</i>	+			
78655	<i>Procladius (Holotanypus) sp</i>	2 +			
80370	<i>Corynoneura lobata</i>	4			
82820	<i>Cryptochironomus sp</i>	2			
83040	<i>Dicrotendipes neomodestus</i>	5			
83300	<i>Glyptotendipes (G.) sp</i>	2			
83840	<i>Microtendipes pedellus group</i>	+			

Ohio EPA/DSW Ecological Assessment Section  
 Macroinvertebrate Collection

Site: Gries Ditch

Collection Date: 07/21/2009 River Code: 05-223 RM: 4.72

Taxa Code	Taxa	Quant/Qual	Taxa Code	Taxa	Quant/Qual
01801	<i>Turbellaria</i>	+	95907	<i>Gyraulus (Torquis) parvus</i>	+
04685	<i>Placobdella ornata</i>	+	96264	<i>Planorbella (Pierosoma) pilsbryi</i>	+
04935	<i>Erpobdella punctata punctata</i>	+	98600	<i>Sphaerium sp</i>	+
04964	<i>Mooreobdella microstoma</i>	+			
05900	<i>Lirceus sp</i>	+	No. Quantitative Taxa: 0		Total Taxa: 47
06700	<i>Crangonyx sp</i>	+	No. Qualitative Taxa: 47		ICI:
08220	<i>Orconectes (Gremicambarus) immunis</i>	+	Number of Organisms: 0		Qual EPT: 9
08601	<i>Hydrachnidia</i>	+			
11200	<i>Callibaetis sp</i>	+			
13400	<i>Stenacron sp</i>	+			
13521	<i>Stenonema femoratum</i>	+			
17200	<i>Caenis sp</i>	+			
22001	<i>Coenagrionidae</i>	+			
23704	<i>Anax junius</i>	+			
23909	<i>Boyeria vinosa</i>	+			
42700	<i>Belostoma sp</i>	+			
44300	<i>Pelocoris sp</i>	+			
45400	<i>Trichocorixa sp</i>	+			
53800	<i>Hydroptila sp</i>	+			
59300	<i>Mystacides sp</i>	+			
59550	<i>Oecetis inconspicua complex sp A (sensu Floyd, 1995)</i>	+			
59570	<i>Oecetis nocturna</i>	+			
59728	<i>Triaenodes marginatus</i>	+			
60300	<i>Dineutus sp</i>	+			
60400	<i>Gyrinus sp</i>	+			
60800	<i>Haliphus sp</i>	+			
60900	<i>Peltodytes sp</i>	+			
61400	<i>Agabus sp</i>	+			
63300	<i>Hydroporini</i>	+			
65800	<i>Berosus sp</i>	+			
66500	<i>Enochrus sp</i>	+			
67000	<i>Helophorus sp</i>	+			
67700	<i>Paracymus sp</i>	+			
67800	<i>Tropisternus sp</i>	+			
72340	<i>Dixella sp</i>	+			
72700	<i>Anopheles sp</i>	+			
74501	<i>Ceratopogonidae</i>	+			
77120	<i>Ablabesmyia mallochi</i>	+			
77500	<i>Conchapelopia sp</i>	+			
83840	<i>Microtendipes pedellus group</i>	+			
84750	<i>Stictochironomus sp</i>	+			
92615	<i>Cipangopaludina japonica</i>	+			
94400	<i>Fossaria sp</i>	+			
95100	<i>Physella sp</i>	+			

Ohio EPA/DSW Ecological Assessment Section  
 Macroinvertebrate Collection

Site: Gries Ditch  
 Staff Rd.

Collection Date: 07/21/2009 River Code: 05-223 RM: 0.90

Taxa Code	Taxa	Quant/Qual	Taxa Code	Taxa	Quant/Qual
01801	<i>Turbellaria</i>	+	77800	<i>Helopelopia sp</i>	+
03600	<i>Oligochaeta</i>	+	78140	<i>Labrundinia pilosella</i>	+
04664	<i>Helobdella stagnalis</i>	+	78655	<i>Procladius (Holotanypus) sp</i>	+
04666	<i>Helobdella triserialis</i>	+	82820	<i>Cryptochironomus sp</i>	+
04935	<i>Erpobdella punctata punctata</i>	+	83840	<i>Microtendipes pedellus group</i>	+
05900	<i>Lirceus sp</i>	+	84210	<i>Paratendipes albimanus or P. duplicatus</i>	+
08601	<i>Hydrachnidia</i>	+	84300	<i>Phaenopsectra obediens group</i>	+
11020	<i>Acerpenna pygmaea</i>	+	84450	<i>Polypedilum (Uresipedilum) flavum</i>	+
11120	<i>Baetis flavistriga</i>	+	84520	<i>Polypedilum (Tripodura) halterale group</i>	+
11125	<i>Pseudocloeon frondale</i>	+	84540	<i>Polypedilum (Tripodura) scalaenum group</i>	+
11130	<i>Baetis intercalaris</i>	+	85625	<i>Rheotanytarsus sp</i>	+
13000	<i>Leucrocuta sp</i>	+	85821	<i>Tanytarsus glabrescens group sp 7</i>	+
13400	<i>Stenacron sp</i>	+	92904	<i>Viviparus georgianus</i>	+
13521	<i>Stenonema femoratum</i>	+	93900	<i>Elimia sp</i>	+
17200	<i>Caenis sp</i>	+	95100	<i>Physella sp</i>	+
22300	<i>Argia sp</i>	+	95907	<i>Gyraulus (Torquis) parvus</i>	+
23704	<i>Anax junius</i>	+	96264	<i>Planorbella (Pierosoma) pilsbryi</i>	+
28500	<i>Libellula sp</i>	+			
29020	<i>Sympetrum vicinum</i>	+	No. Quantitative Taxa: 0		Total Taxa: 61
42700	<i>Belostoma sp</i>	+	No. Qualitative Taxa: 61		ICI:
45300	<i>Sigara sp</i>	+	Number of Organisms: 0		Qual EPT: 16
45400	<i>Trichocorixa sp</i>	+			
45900	<i>Notonecta sp</i>	+			
52200	<i>Cheumatopsyche sp</i>	+			
52430	<i>Ceratopsyche morosa group</i>	+			
52530	<i>Hydropsyche depravata group</i>	+			
57400	<i>Neophylax sp</i>	+			
58505	<i>Helicopsyche borealis</i>	+			
59300	<i>Mystacides sp</i>	+			
59555	<i>Oecetis inconspicua complex sp F (sensu Floyd, 1995)</i>	+			
59728	<i>Triaenodes marginatus</i>	+			
60900	<i>Peltodytes sp</i>	+			
65800	<i>Berosus sp</i>	+			
67000	<i>Helophorus sp</i>	+			
67700	<i>Paracymus sp</i>	+			
67800	<i>Tropisternus sp</i>	+			
68702	<i>Dubiraphia bivittata</i>	+			
69400	<i>Stenelmis sp</i>	+			
71900	<i>Tipula sp</i>	+			
72340	<i>Dixella sp</i>	+			
72700	<i>Anopheles sp</i>	+			
74100	<i>Simulium sp</i>	+			
74501	<i>Ceratopogonidae</i>	+			
77500	<i>Conchapelopia sp</i>	+			