

A LOOK AT THE BENEFICIAL USE IMPAIRMENTS OF THE ROCKY RIVER

**Rocky River Watershed Action Plan
Appendix F
May 2006**

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A Look at the Beneficial Use Impairments of the Rocky River

How healthy or polluted is the Rocky River and its tributaries? Impairment to a beneficial use means a change in the chemical, physical, or biological integrity of the river sufficient to cause a change in any one of fourteen uses identified by the Great Lakes Water Quality Agreement. Whenever these uses are impaired, there are grounds for undertaking remedial actions to restore the stream system. Understanding what the problems are is the first step towards identifying the remedial actions needed to fix them. Towards that end, a Use Impairment Statement was generated for the Rocky River. The following discussion documents how that statement was derived. A simplified version of the statement is attached.

Fish & Other Wildlife Should be Safe to Eat: Certain toxins can build up to unsafe levels in the tissues of fish and other wildlife even when very low measurements of these toxins are found in the environment. These toxins can be transferred to humans when contaminated fish, fowl, deer, or other wildlife is eaten. The Ohio Department of Health issues fish advisory statements for various waterways in the State. The most recent version can be viewed at their website (<http://www.odh.state.oh.us/Alerts/fishadv.pdf>). The Department of Health has issued a fish advisory for the West Branch of the Rocky River. They advise that the consumption of rock bass and smallmouth bass be limited to one meal per month. No other advisories apply to Rocky River fish. Fish consumption is therefore rated “**Slightly Impaired**”.

No wildlife consumption advisories are in place in the watershed. The limited tissue studies that have been conducted in the region indicate no consumption problems. Wildlife consumption is rated “**Not Impaired**”.

Fish & Other Wildlife Should Taste Good: There are chemicals that can affect the flavor of fish, ducks, and geese when they are present in high enough quantities in the environment. Fishermen have raised concerns about the taste of Steelhead Trout caught in the mainstem of the Rocky River in the vicinity of Abram Creek. The persistence of this condition has yet to be documented. No other fish or wildlife taste problems have been identified in the watershed. Since the tainting of fish and other wildlife flavor cannot be scientifically established, local officials must rely on prevailing attitudes of consumers. Fishers and hunters are encouraged to report any concerns that they have regarding the flavor tainting issue. This use is currently rated “**Not Impaired**”.

Fish & Other Wildlife Populations Should be Diverse and Healthy: The health of fish that live in the Rocky River are directly affected by the quality of the water in the river. Ducks geese, and other animals that regularly feed or drink from the river can also be affected. The Ohio EPA uses a biological index to gauge the health and diversity of fish communities in the river. The health of the other wildlife that use the river are judged by observation. Based on the results of sampling conducted by Ohio EPA, fish communities are **impaired** at locations along the mainstem, in both the East and West Branches, and in

numerous tributary streams. Abram Creek is **impaired** along most of its length. The dominant causes of the impairments include habitat degradation, nutrient enrichment, flow alterations, and sedimentation.

Wildlife is flourishing in the Rocky River Watershed. There are no known water-based limitations on these populations. Geese and duck populations are commonplace. Blue Herons are plentiful. Deer are present in numbers that are difficult to manage. These populations are rated “**Not Impaired**”.

Fish Should Be Free of Abnormal Tumors and Other Deformities: Exposure to toxic chemicals can result in the development of tumors and other deformities in organism that live in or near the river. Cancerous tumors in fish are frequently noted in highly contaminated systems. Cross-bill deformed birds are one indicator that toxic substances exist in sufficient quantity to harm wildlife. Other deformities and reproductive problems have been noted over the years from sites around the Great Lakes. No abnormal incidences have been reported in fish caught in the watershed. Birds and other animals in the watershed also appear free of deformities or reproductive problems. No reports of any other problems have been noted. Evidence suggests that birds and other animals are reproducing prolifically throughout the watershed. The lack of large-scale industrial discharges to the River limit concerns related to toxic releases. Homeowners can help maintain this situation by the careful use of pesticides and other toxic chemicals around their properties. This use is rated “**Not Impaired**”.

The Macroinvertebrate Community Populations Should be Diverse and Healthy: Macroinvertebrates are those organisms that live in the stream that have no backbones and are big enough to see without a microscope. They include a variety of aquatic insects as well as clams, crayfish, and snails. The macroinvertebrate populations are fairing well throughout most of the watershed. Local impairments are found in Abram Creek, the North Royalton ‘A’ tributary, Plum Creek near Olmsted Falls, Healy Creek, and Plum Creek near Brunswick. These populations are rated “**Slightly Impaired**” in the watershed. The noted limitations in the macroinvertebrate communities at isolated locations in the Rocky River are associated with a variety of causes. Habitat limitations, flow alterations, on-site wastewater treatment discharges, sediment from developing areas, and storm water runoff are all partially responsible for observed conditions.

The Amount and Quality of Sediment in River Should Keep Dredging Activities Within Normal Limits: This category evaluates whether increased sediment loadings related to erosion on agricultural fields, construction sites, or other lands require that waterways need to be dredged more often than would be expected under natural conditions. It also considers whether the sediments that are dredged in the watershed are safe for open lake disposal. Materials dredged from the mouth of the Rocky River are suitable for open lake disposal according to the Lake Erie LaMP Technical Report No. 9 (<http://www.epa.gov/glnpo/lakeerie/buia/lamp9.pdf>). are rated “**Not Impaired**” for Lake disposal.

Both Baldwin Lake and Hinckley Lake have sedimentation problems that are aggravated by increased sediment loadings from land use activities. Rigid enforcement of construction site runoff and sediment control rules/practices can help to minimize problems from future development. The sediments in the Rocky River are rated “**Slightly Impaired**” for Lake Dredging.

There Should be a Lack of Eutrophication or Undesirable Algae: This impairment considers cases when there are persistent water quality problems (e.g. dissolved oxygen depletion of bottom waters, nuisance algal blooms or accumulation, decreased water clarity, etc.) attributed to increased nutrient loadings to the stream. Nutrient levels in the River are well below levels of concern but loadings are elevated enough to be an issue throughout the watershed. Sources include: Sewage treatment facilities, over-fertilization of lawns, areas having improper home sewage treatment systems and from agricultural runoff. However, levels are not high enough to lead to eutrophic conditions or excessive algal populations. Homeowners can help to reduce undesirable algae by controlling their application of fertilizer, and by not dumping yard wastes into local streams. This use is rated “**Not Impaired**” in the watershed.

The River Should be Free of Drinking Water Consumption or Taste & Odor Problems: - The River has a problem if treated drinking water supplies are impacted to the extent that: 1) densities of disease-causing organisms or concentrations of hazardous or toxic chemicals or radioactive substances exceed human health standards, objectives or guidelines; 2) taste and odor problems are present; or 3) treatment needed to make raw water suitable for drinking is beyond the standard treatment used in comparable portions of the Great Lakes which are not degraded (i.e. settling, coagulation, disinfection). There remains only one public water supply intake in the Rocky River watershed. The City of Medina has abandoned Lake Medina as its water source and receives water from Lake Erie. The City of Berea has invested in a capital program that allows it to continue to use water from the River. The drinking water use is rate “**Not Impaired**” in the Rocky River Watershed.

The River Should be safe for Swimming and Wading: Fecal coliform and E. coli bacteria can make contact with the River unsafe when they exceed limits established by the Ohio Department of Health and Ohio EPA. Bacteria levels after storm events often exceed safe levels throughout the watershed. These conditions make swimming and wading inadvisable for up to 48 hours. Bacteria loadings from problematic home sewage treatment systems affect limited areas during dry weather periods. Combined sewer overflows remain a contributor in the lower portions of the watershed. Localized sanitary discharges also contribute. Wildlife and livestock are locally important contributors. Pet owners need to pick up their animal’s waste, and farm animal owners need to manage livestock waste in order to help reduce bacteria levels in the Rocky River. Owners of home sewage treatment systems also need to maintain their systems in order to reduce this problem. Overall, the recreational use of he Rocky River is rated “**Impaired**”.

The River Should be Aesthetically Pleasing: The aesthetics of the River are impaired when any substance in water produces a persistent objectionable deposit, unnatural color or turbidity, or unnatural odor (e.g. oil slick, surface scum). It is also considered to be impaired when the amount of trash and floatable debris is objectionable. Much of the mainstem and the East Branch flow through parkland settings. Major stretches of the West Branch and limited sections of the East Branch flow through sparsely developed areas. In all of these sections, the stream is very aesthetically pleasing. Many tributary streams are highly developed and do suffer from impaired aesthetics. Isolated eyesores related to inappropriate development along the riparian corridor do exist. Litter and debris are not considered to be a big problem in the Rocky River. Rapid development in the watershed can change this. Watershed residents can help by properly disposing of all household wastes and by taking part in litter control programs. Support for riparian setback ordinances can also help to maintain the naturalness of the stream. The aesthetic quality of the Rocky River is rated “Locally Impaired”.

Microscopic Plants and Animals (Phytoplankton & Zooplankton) Populations Should be Healthy and Diverse: Microscopic plants and animals make up a major and important part of the food chain in a river system. They must be healthy and present in sufficient numbers to support all other forms of life in the river. It is unknown if this beneficial use is impaired. No rigorous evaluation tool exists for use in the watersheds that drain to Lake Erie. It is not anticipated that the Rocky River Watershed would have an above average impairment relative to these populations. This use impairment is rated “Unknown” in the watershed.

There Should be no Added Costs to Agriculture and Industry: This use is impaired when there are additional costs required to treat the water prior to use for agricultural purposes (i.e. including livestock watering, irrigation and crop-spraying) or industrial purposes (i.e. intended for commercial or industrial applications). There is low potential for impairment, based on the regular attainment of Water Quality Standards for agricultural water use and industrial water use in the river. This use is rated “Not Impaired”.

Fish and Wildlife Habitat Should be Diverse: All of the animals that live in or along a stream need to have sufficient habitat that is of good quality. If a stream lacks quality habitat, aquatic populations can be greatly reduced even if the water quality is good. Sedimentation, channelization, streambank alterations, low level dams, and increased runoff rates effect habitat conditions for both fish and wildlife at numerous location along the Rocky River. This causes habitat to be “Impaired” at many locations in the watershed. Continuing development in the watershed regularly threatens the habitat of small headwater streams. This can be minimized in communities that pass a riparian setback ordinance.

Beneficial Use Impairment Statement for the Rocky River-Part 1

| BENEFICIAL USE | What is the Concern? | ROCKY RIVER IMPAIRMENT STATUS |
|---|--|---|
| Fish & Other Wildlife are Safe to Eat | Certain toxins can build up to unsafe levels in the tissues of fish and other wildlife even when very low measurements of these toxins are found in the environment. These toxins can be transferred to humans when contaminated fish, fowl, deer, or other wildlife are eaten. | Slightly Impaired for Fish OK for Other Wildlife |
| Fish & Other Wildlife Taste Good | There are chemicals that can affect the flavor of fish, ducks, and geese when they are present in high enough quantities in the environment | OK |
| Fish & Other Wildlife Populations are Diverse and Healthy | The health of fish that live in the Rocky River are directly affected by the quality of the water in the Rocky River. Ducks geese, and other animals that regularly feed or drink from the river can also be affected. The Ohio EPA uses a biological index to gauge the health and diversity of fish communities in the river. The health of the other wildlife that use the river are judged by observation. | Impaired for Fish OK for Other Wildlife |
| Fish are Free of Abnormal Tumors & Other Deformities | Exposure to toxic chemicals can result in the development of tumors and other deformities in organism that live in the river. Cancerous tumors are frequently noted in highly contaminated systems. | OK |
| Bird and Other Animals are Free of Deformities or Reproductive Problems | Cross-bill deformed birds are one indicator that toxic substances exist in sufficient quantity to harm wildlife. Other deformities and reproductive problems have been noted over the years from sites around the Great Lakes. | OK |
| The macroinvertebrate community populations are diverse and healthy | Macroinvertebrates are those organisms that live in the stream that have no backbones and are big enough to see without a microscope. They include a variety of aquatic insects as well as clams, crayfish, and snails. | Slightly Impaired |
| The Amount and Quality of Sediment in River Keeps Dredging Activities Within Normal Limits | This category evaluates whether increased sediment loadings related to erosion on agricultural fields, construction sites, or other lands require that waterways need to be dredged more often than would be expected under natural conditions. It also considers whether the sediments that are dredged in the watershed are safe for open lake disposal. | OK for Lake Disposal Slightly Impaired for Lake Dredging |

Beneficial Use Impairment Statement for the Rocky River-Part 2

| BENEFICIAL USE | What is the Concern? | ROCKY RIVER IMPAIRMENT STATUS |
|--|---|----------------------------------|
| There is a Lack of Eutrophication or Undesirable Algae | This impairment considers cases when there are persistent water quality problems (e.g. dissolved oxygen depletion of bottom waters, nuisance algal blooms or accumulation, decreased water clarity, etc.) attributed to increased nutrient loadings to the stream. | OK |
| The River is free of Drinking Water Consumption or Taste & Odor Problems | - The River has a problem if treated drinking water supplies are impacted to the extent that: 1) densities of disease- causing organisms or concentrations of hazardous or toxic chemicals or radioactive substances exceed human health standards, objectives or guidelines; 2) taste and odor problems are present; or 3) treatment needed to make raw water suitable for drinking is beyond the standard treatment used in comparable portions of the Great Lakes which are not degraded (i.e. settling, coagulation, disinfection). | OK |
| The River is safe for swimming and wading | Fecal coliform and E. coli bacteria can make contact with the River unsafe when they exceed limits established by the Ohio Department of Health and Ohio EPA. | Impaired |
| The River is Aesthetically Pleasing | The aesthetics of the River are impaired when any substance in water produces a persistent objectionable deposit, unnatural color or turbidity, or unnatural odor (e.g. oil slick, surface scum). It is also considered to be impaired when the amount of trash and floatable debris is objectionable. | Locally Impaired |
| Microscopic Plants and Animals (Phytoplankton & Zooplankton) Populations are Healthy and Diverse | Microscopic plants and animals make up a major and important part of the food chain in a river system. They must be healthy and present in sufficient numbers to support all other forms of life in the river. | Unknown |
| There are no Added Costs to Agriculture & Industry | This use is impaired when there are additional costs required to treat the water prior to use for agricultural purposes (i.e. including livestock watering, irrigation and crop-spraying) or industrial purposes (i.e. intended for commercial or industrial applications). | OK |
| Fish & Wildlife Habitat is Diverse | All of the animals that live in or along a stream need to have sufficient habitat that is of good quality. If a stream lacks quality habitat, aquatic populations can be greatly reduced even if the water quality is good. | Impaired |

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