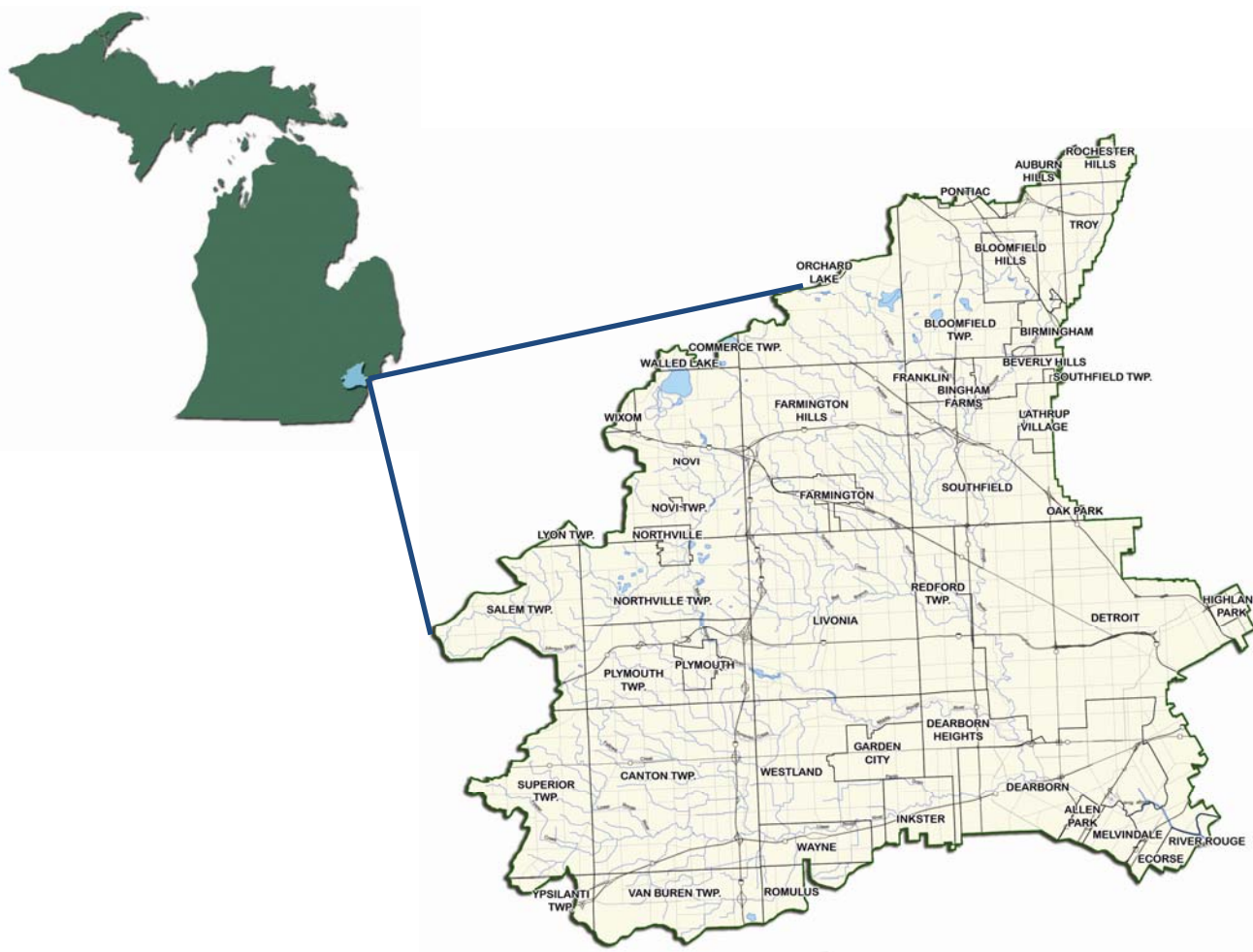


Rouge River Watershed Great Lakes Area of Concern Beneficial Use Impairment 2013 Report Card



Prepared by:
Rouge River Advisory Council



November 8, 2013



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November 8, 2013

Dear Rouge River Watershed Stakeholder:

The Rouge River watershed was designated as a Great Lakes Area of Concern (AOC) in 1987. Since then, the Rouge River Advisory Council (RRAC) has been actively working with the State of Michigan, MDNR and MDEQ, local communities and other interested parties to enhance public awareness and education concerning AOC issues, seeking broad-based support for the Rouge AOC, assisting in implementation of the Rouge River restoration activities, and independently evaluating progress toward the goal of restoring designated uses and delisting the Rouge River watershed as an Area of Concern.

RRAC has issued previous report cards. The first was issued in 1999 and the second was issued in 2005. We felt it was time to do so again. While the earlier report cards focused on the overall status of pollution control efforts and natural resource conditions, this one is different. It is a report card specifically on the geographic extent of Beneficial Use Impairments (BUIs) that make the entire Rouge River watershed an Area of Concern. Maps and highlighted colors are used to demonstrate the extent and progress made on the nine remaining Rouge BUIs. Please note that there has been progress made on all nine.

On behalf of RRAC, I would like to thank the individuals and organizations who contributed to the completion of this document. I would also like to thank the U.S. EPA and the Rouge Congressional delegation for the resources in the form of the Rouge River National Wet Weather Demonstration Project, the Great Lakes Legacy Act and the Great Lakes Restoration Initiative. Without these programs the progress that has been made would not have been achievable. Continued federal and local community funding has been and will be critical to maintaining our momentum and sustaining efforts to achieve our common goal of delisting the Rouge River as a Great Lakes Area of Concern.

Sincerely,

Daniel C. Ballnik
Chair, Rouge River Advisory Council

INTRODUCTION

This report card documents the status of the Beneficial Use Impairments (BUIs) that make the Rouge River Watershed a Great Lakes Area of Concern (AOC). Working with the Michigan Department of Environmental Quality (MDEQ), the Rouge River Advisory Council (RRAC) has summarized the best available information to describe the current geographic extent of each BUI as compared to historic conditions. The purpose of this report card is to 1) inform the public on the progress that has been made in the watershed and 2) help focus future restoration efforts.

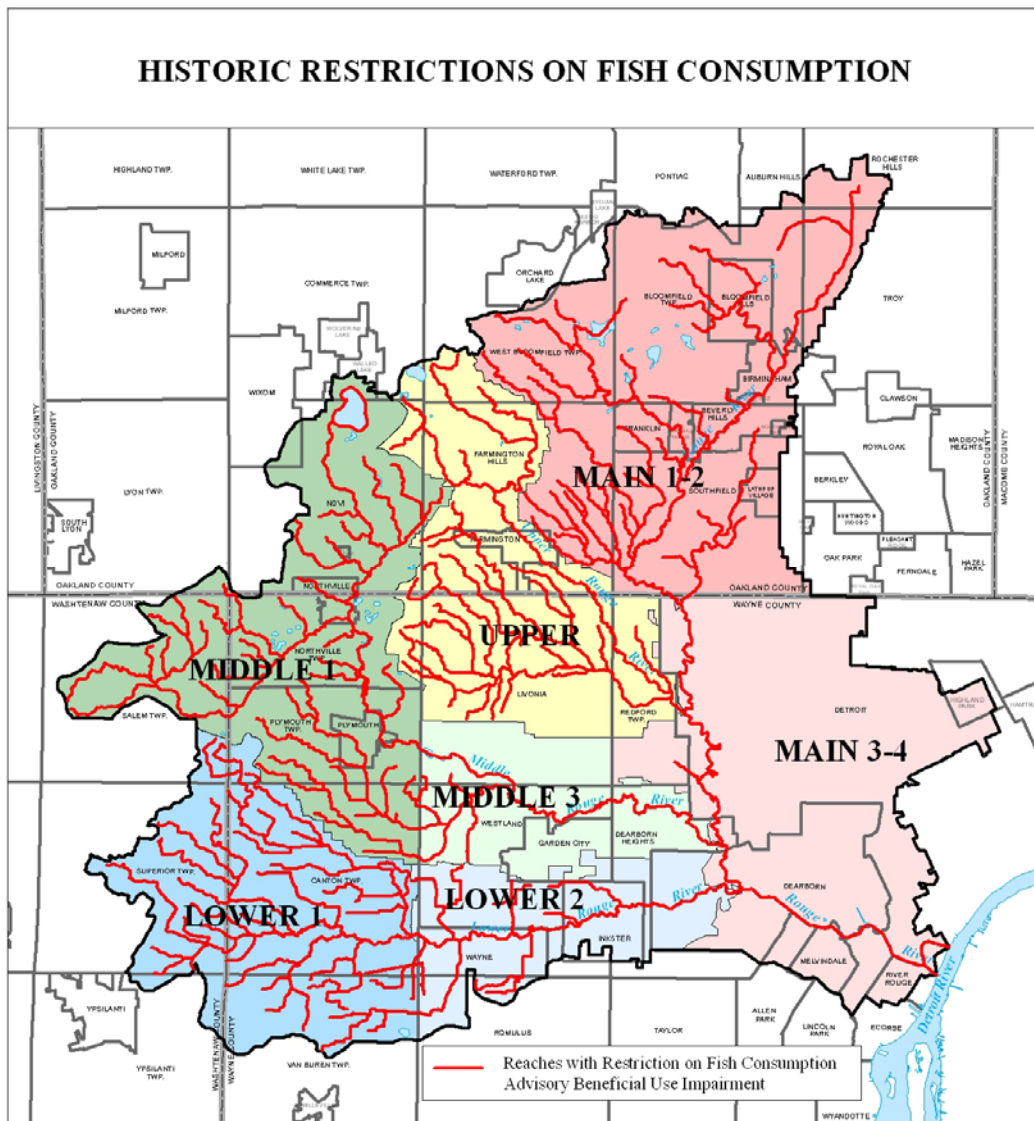
Rather than a thick, detailed document with a lot of graphs, charts, definitions, lists and photographs, this report card is designed to provide the reader with a concise description of the status of the BUIs. A more in depth description of the AOC program, acronyms, studies and other details can be found by referring to documents and websites listed on pages 20 and 21.

The extent of each BUI is displayed on two maps that depict the historic and current status of the Rouge River. Red indicates the portion of the river that is impaired, blue indicates that the river is not impaired (at least as defined by the AOC program), and yellow indicates that improvement is occurring, but data is not yet available to eliminate the impairment. Not all of the progress, depicted by the maps, is the result of actual improvements to the ecosystem. Some differences are due to an improved understanding of the extent of the impairment or a better definition of the criteria for removing the BUI designation.

While the entire watershed is defined as an AOC, it is the condition of the river that is being evaluated in this report card. The condition of the river is mostly the result of how we treat the land. Therefore, this Report Card is really not about how the river is doing. It cannot restore itself. This Report Card is about us, what we did, what we have done, what we are doing, and what we need to do to reach the conditions necessary to remove each of the BUIs which will result in **DELISTING** the Rouge River watershed as a Great Lakes AOC. The only way to restore the river is for industry, business, government, and citizens to invest in restoring it and follow better environmental practices.

The RRAC believes the Rouge River AOC is improving. The Clean Water Act (CWA) has been and is being successful in reducing industrial discharges and combined sewer overflows and managing storm water. Sanitary sewer capacity and combined sewer overflow control has dramatically reduced the amount of raw sewage entering the river during rain events. Under the municipal storm water program, in place since 1998, municipalities are identifying and eliminating illicit discharges to storm sewers, raising the public's awareness, changing behaviors and improving perceptions. When one RRAC member was asked about the condition of the river she said, "It is better than you think, thank you."

While we have done much and invested huge sums of money, we still have to do more and invest more to achieve our goals. We hope this report card inspires you to come join us in Restoring the Rouge!

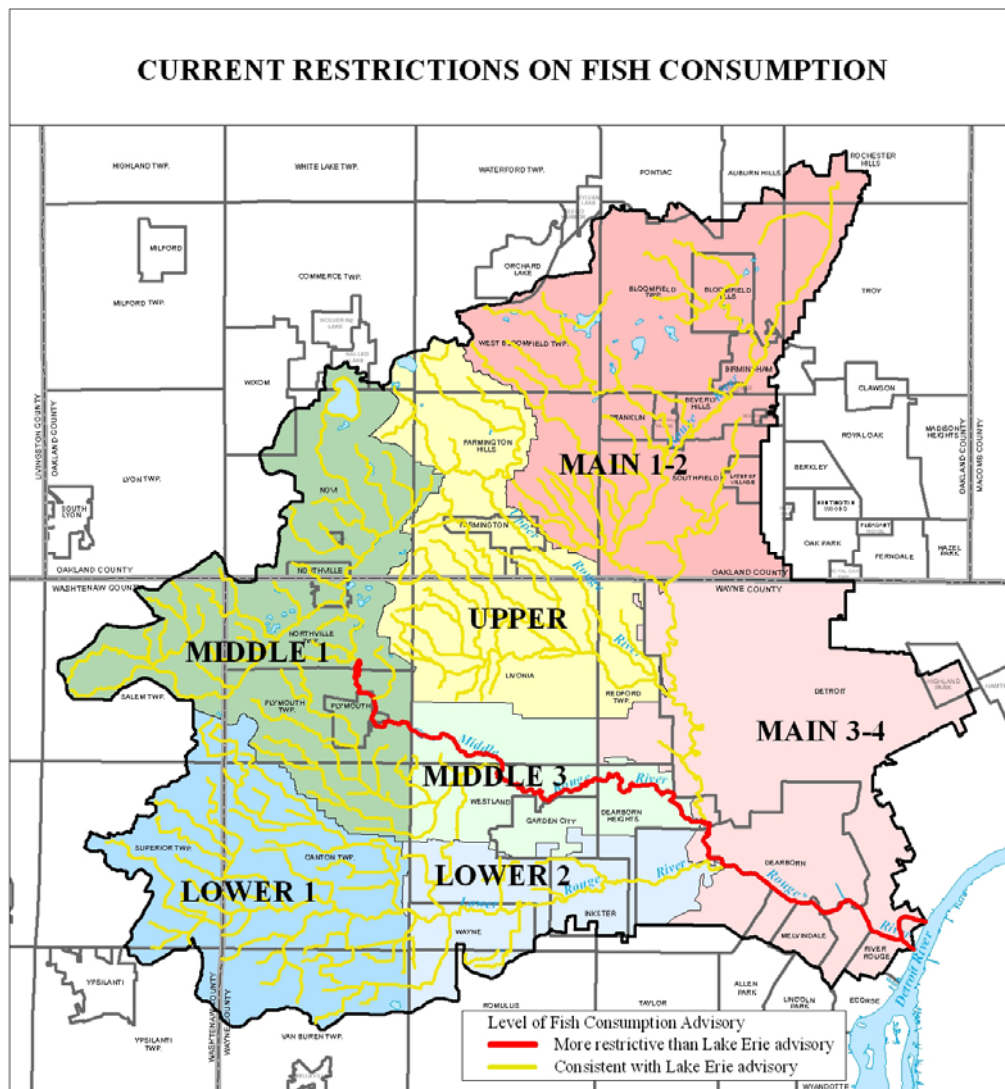


Where We Were:

Based on MDEQ assessments and other available data, virtually all of the Rouge River and its tributaries were listed as not supporting the fish consumption designated use due to polychlorinated biphenyls (PCBs) in fish tissue and the water column (2010 Integrated Report). Restrictions on fish consumption have historically been issued by the Michigan Department of Public Health for several species of fish within the Rouge River Watershed including carp, catfish, suckers, bass, and northern pike. Elevated levels of PCBs and mercury in these fish required fish consumption to be restricted in the Main, Middle and Lower branches of the river (1994 RAP).

Why We Were There:

PCB contamination of fish in the Rouge River is believed to have originated from sediments that became contaminated from historic industrial discharges (1994 RAP). Other sources for PCBs are municipal point sources, storm water discharges, nonpoint source pollution, CSOs and SSOs (2004 RAP). As a result, fish consumption advisories, throughout the Rouge River watershed, were substantially more restrictive than the fish consumption advisories for Lake Erie.

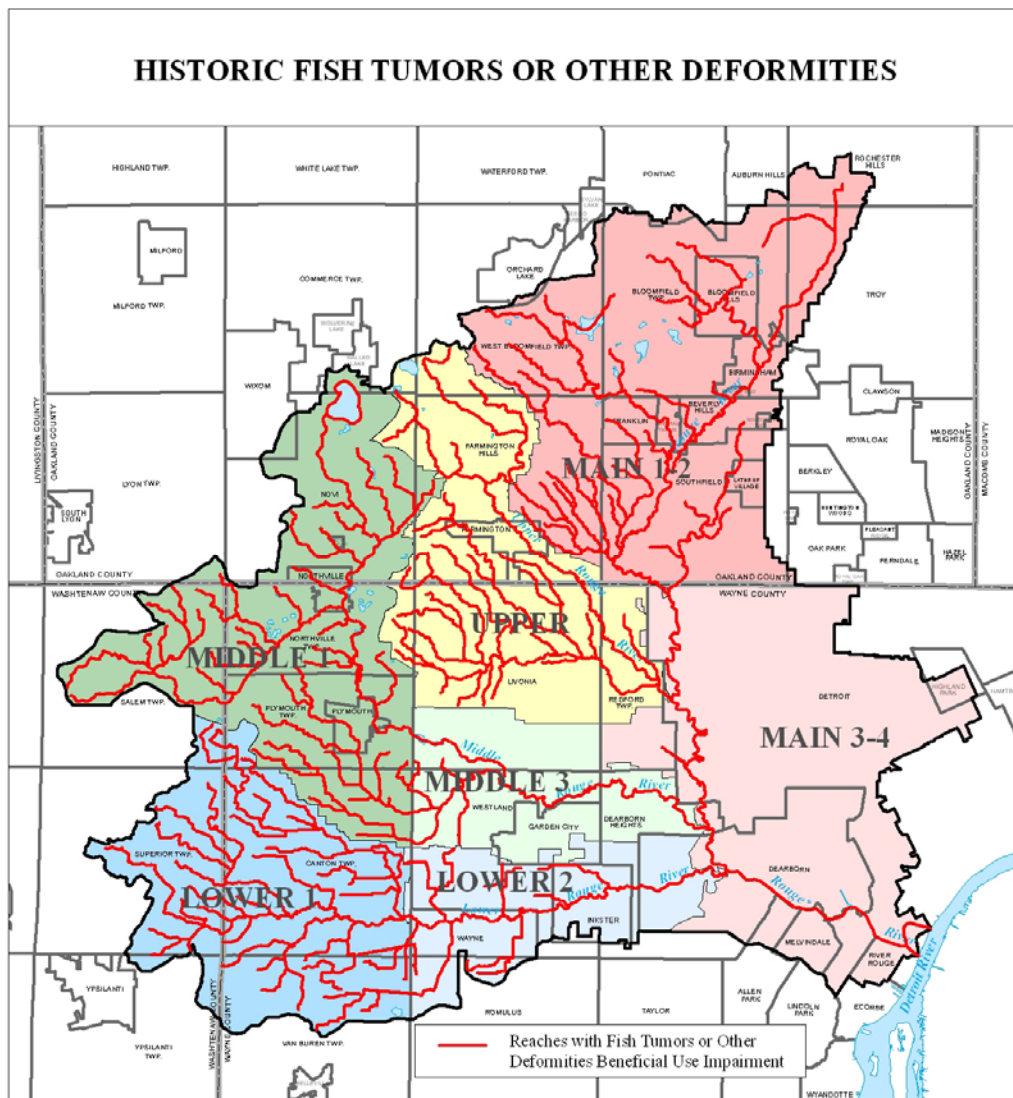


Where We Are:

Fish consumption advisories still exist, but the geographic extent of advisories that are more restrictive than the consumption advisories for Lake Erie has been dramatically reduced. Except for localized sediment deposits in the Main 3-4, potentially harmful concentrations of toxic chemicals are no longer present in most of the watershed (1999 Report Card). MDEQ reviews of more recent Michigan Department of Community Health (MDCH) fish consumption advisories indicate that only the Middle Branch down to the mouth of the river are more restrictive than the Lake Erie advisory.

Where We Want to Be:

- Fish consumption advisories within the Rouge River AOC are determined to be no more restrictive than the fish consumption advisories for Lake Erie; and
- Implement the Great Lakes Legacy Act (GLLA) contaminated sediment remediation projects in the lower portion of the Main 3-4 Rouge subwatershed. These projects include the “Old Channel” section of the Rouge River around Zug Island and the Lower Rouge River Main Channel from just upstream of the Turning Basin to the Detroit River.

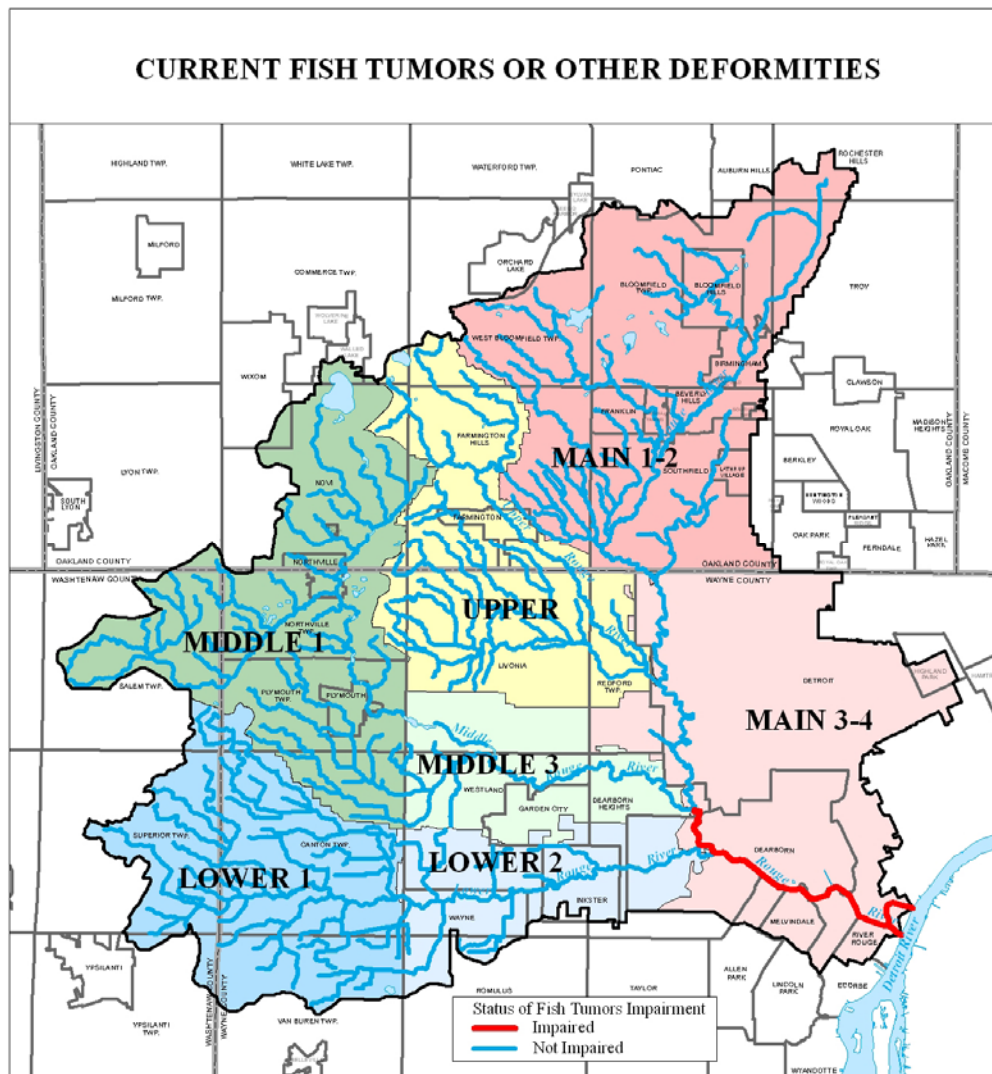


Where We Were:

Consistent with the fish consumption advisories and the known presence of contaminated sediments, Fish Tumors and Other Deformities were believed to be widespread throughout the watershed (1994 RAP).

Why We Were There:

Michigan Department of Natural Resources (MDNR) observed fish with visible external tumors during exploratory surveying of the lower portion of the Main 3-4 downstream of the concrete channel (1993 MDNR). Surveys for internal tumors had never been performed, but concentrations of the chemicals most often associated with tumors in fish were known to be widespread throughout the Rouge River (1994 RAP).

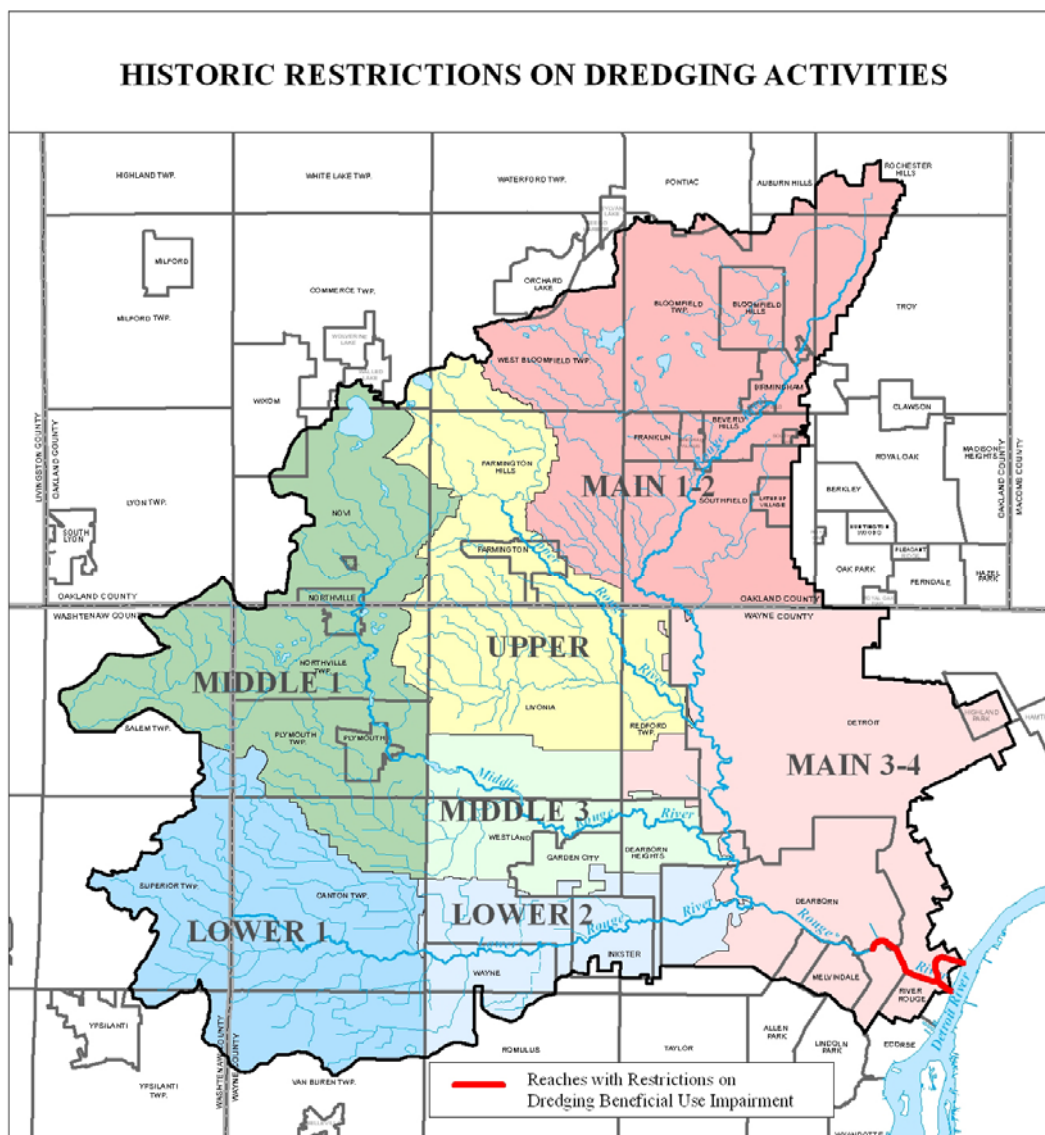


Where We Are:

The geographic extent of Fish Tumors and Other Deformities has been dramatically reduced, if not eliminated (2012 Rouge Delisting Strategy). If fish tumors persist, it is believed that they are confined to the lower portion of the Main 3-4 subwatershed. RRAC has requested MDEQ/MDCH perform an assessment for the removal of this BUI. In response to this request, the state is sampling fish in 2013 to determine the presence and extent of tumors and other deformities.

Where We Want to Be:

MDEQ will have completed their sampling and assessment, and concluded that the Fish Tumors or Other Deformities BUI is no longer applicable to the Rouge River watershed.



Where We Were:

Historically it was believed that toxic chemicals, sedimentation, and the large number of log jams throughout the watershed were the focus for this impairment. The 2004 RAP Revision clarified that the true focus of this BUI to be the sediment quality in the federal navigation channel located in the lower stretch of the river.

Why We Were There:

Prior to passage of the Clean Water Act, numerous contaminants had been identified in the sediments and water in the river (1989 RAP Executive Summary). These contaminants came from storm water discharges, CSOs, industrial discharges, and other nonpoint pollution sources. As the velocity of the river slowed near the Detroit River, contaminants settled out in the river bottom. These contaminants limit the disposal options for sediments removed from the navigation channel when it is dredged by the U.S Army Corp of Engineers.

CURRENT RESTRICTIONS ON DREDGING ACTIVITIES

The map displays the Detroit River watershed, categorized by the status of dredging impairment. The regions are color-coded and labeled as follows:

- MAIN 1-2** (Pink): Located in the upper right portion of the watershed.
- UPPER** (Yellow): Located in the central upper portion.
- MIDDLE 1** (Green): Located in the central left portion.
- MIDDLE 3** (Light Green): Located in the central lower portion.
- LOWER 1** (Blue): Located in the lower left portion.
- LOWER 2** (Light Blue): Located in the lower central portion.
- MAIN 3-4** (Pink): Located in the lower right portion, extending towards Lake St. Clair.

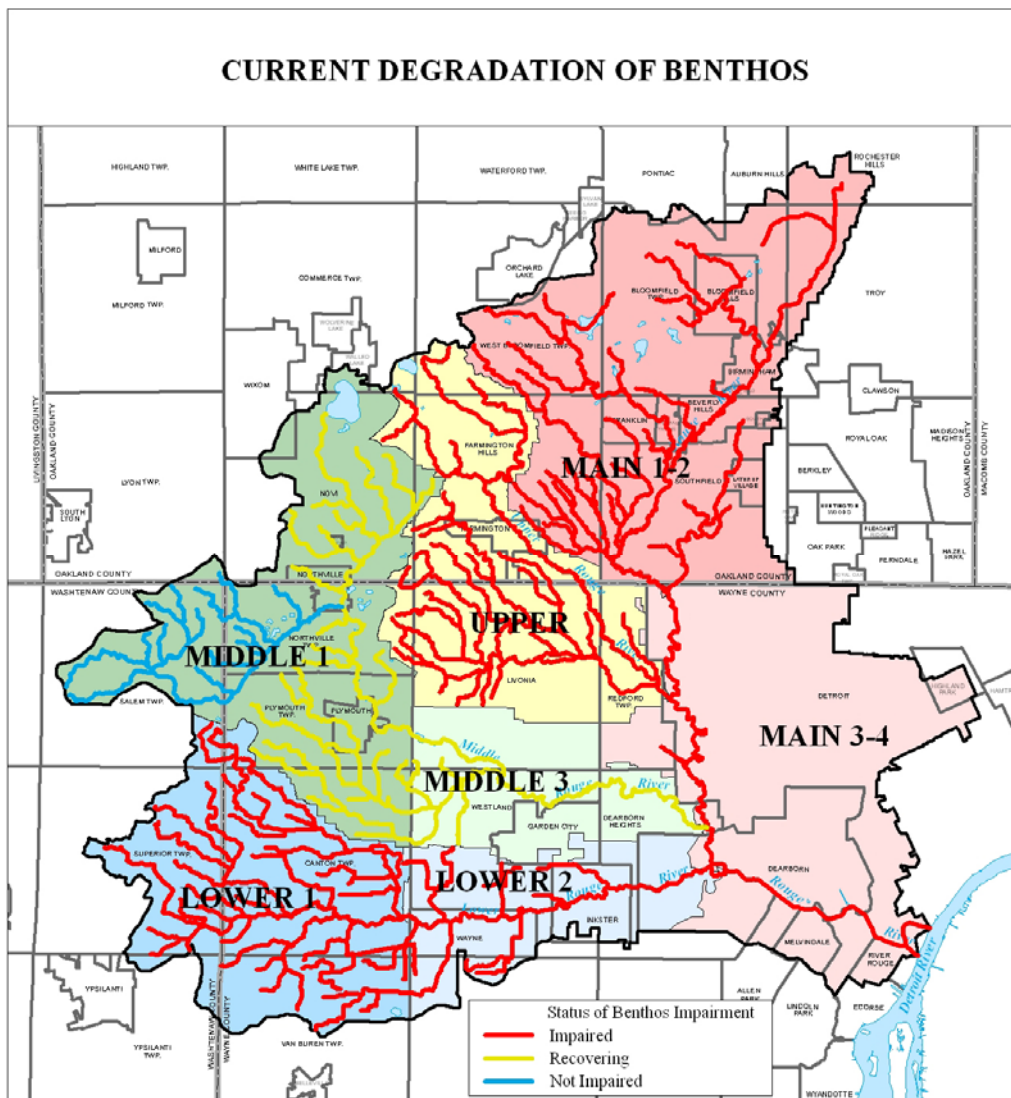
A legend at the bottom center indicates the status of dredging impairment:

- Impaired** (Red line)
- Not Impaired** (Blue line)

The map also shows various municipalities and towns, including Highland Twp., White Lake Twp., Waterford Twp., Pontiac, Auburn Hills, Farmington Hills, West Bloomfield Twp., Bloomfield Hills, Troy, Clawson, Royal Oak, Berkley, Warren, Dearborn, and others. The Detroit River is shown flowing from Lake St. Clair into Lake Erie, with the Rouge River and other tributaries also depicted.

While most of the sources of contamination have been eliminated, legacy contaminants still remain within the sediment of the lower Main 3-4. MDEQ analysis of 2003 ACOE sediment data indicate that dredging spoils from the navigation channel do not meet the State's delisting criteria. PCB, dioxin, furan, metal and PAH concentrations do not meet requirements for upland unrestricted disposal or beach nourishment and are statistically worse than the concentrations from Bolles Harbor (Monroe, MI) which is the chosen comparable non-AOC federal navigation channel (2012 Rouge Delisting Strategy).

Implement the GLLA contaminated sediment remediation projects in the lower portion of the Main 3-4 Rouge subwatershed (described above). After investing so much in reducing sewage overflows, addressing point sources, stabilizing stream banks, and nonpoint pollution prevention programs via municipal storm water permits, we still must remediate the “legacy pollutants” within the last 4.8 miles of the river, to a point where future dredging can meet both the upland unrestricted and beach replenishment criteria.

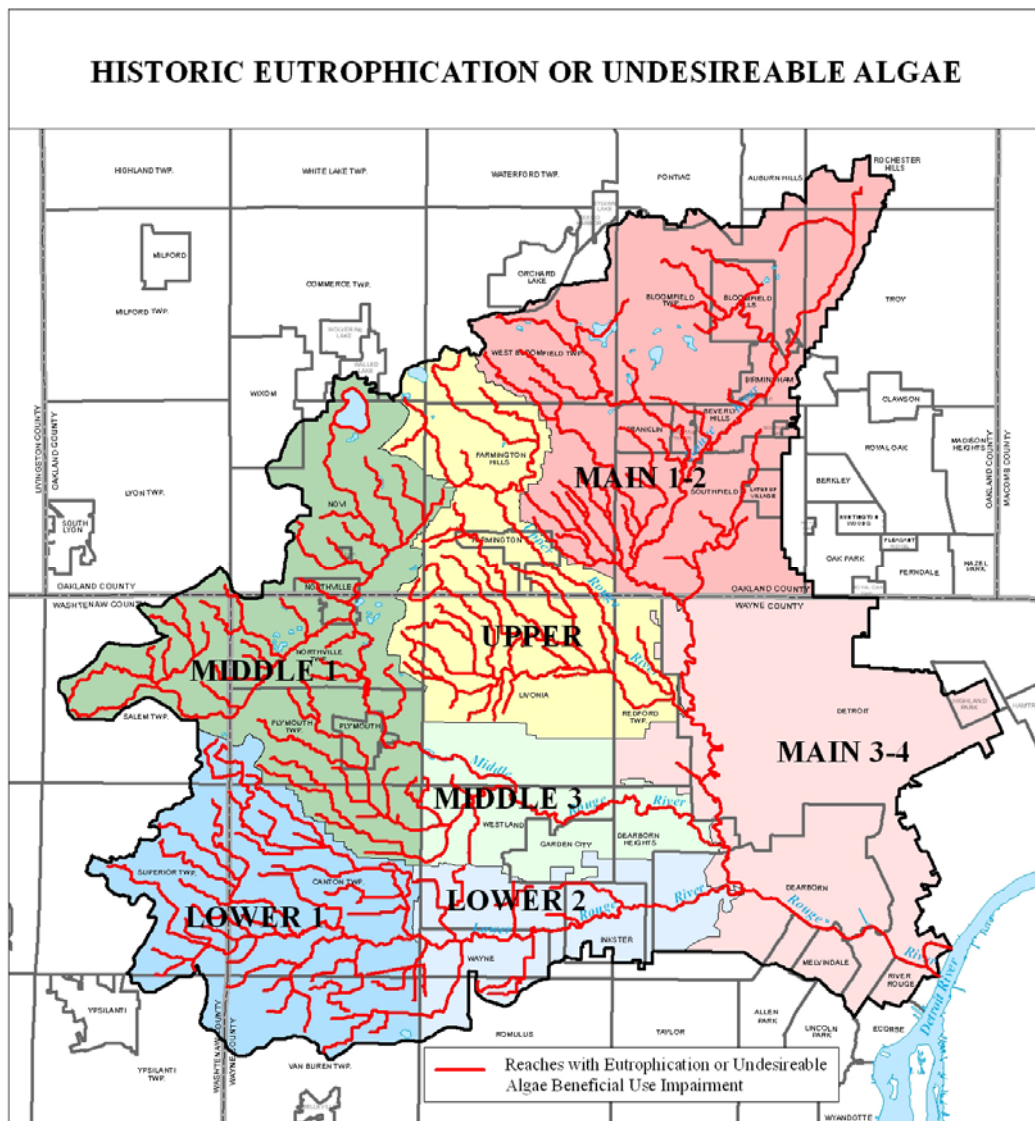


Where We Are:

Pollution prevention and remediation efforts have helped improve water quality and lower stream flow velocities, while decreasing contaminants and sedimentation. Better riparian corridor management practices and implementation of grow zones (green infrastructure) are helping to improve habitat. Based on benthos trend analysis (Spring & Fall 2012) conducted by Friends of the Rouge (FOTR) and Wayne County, the benthos in Johnson Creek are not impaired and the Middle Branch benthos are recovering. Across the rest of the watershed, benthos are still impaired.

Where We Want to Be:

- Benthos populations are no longer impaired across the Rouge River watershed;
- Implement the priority projects identified in the 2012 Rouge Delisting Strategy;
- Continue to implement green infrastructure projects; and
- Complete the modifications to the concrete channel and fish passage at the Henry Ford Estate Dam.

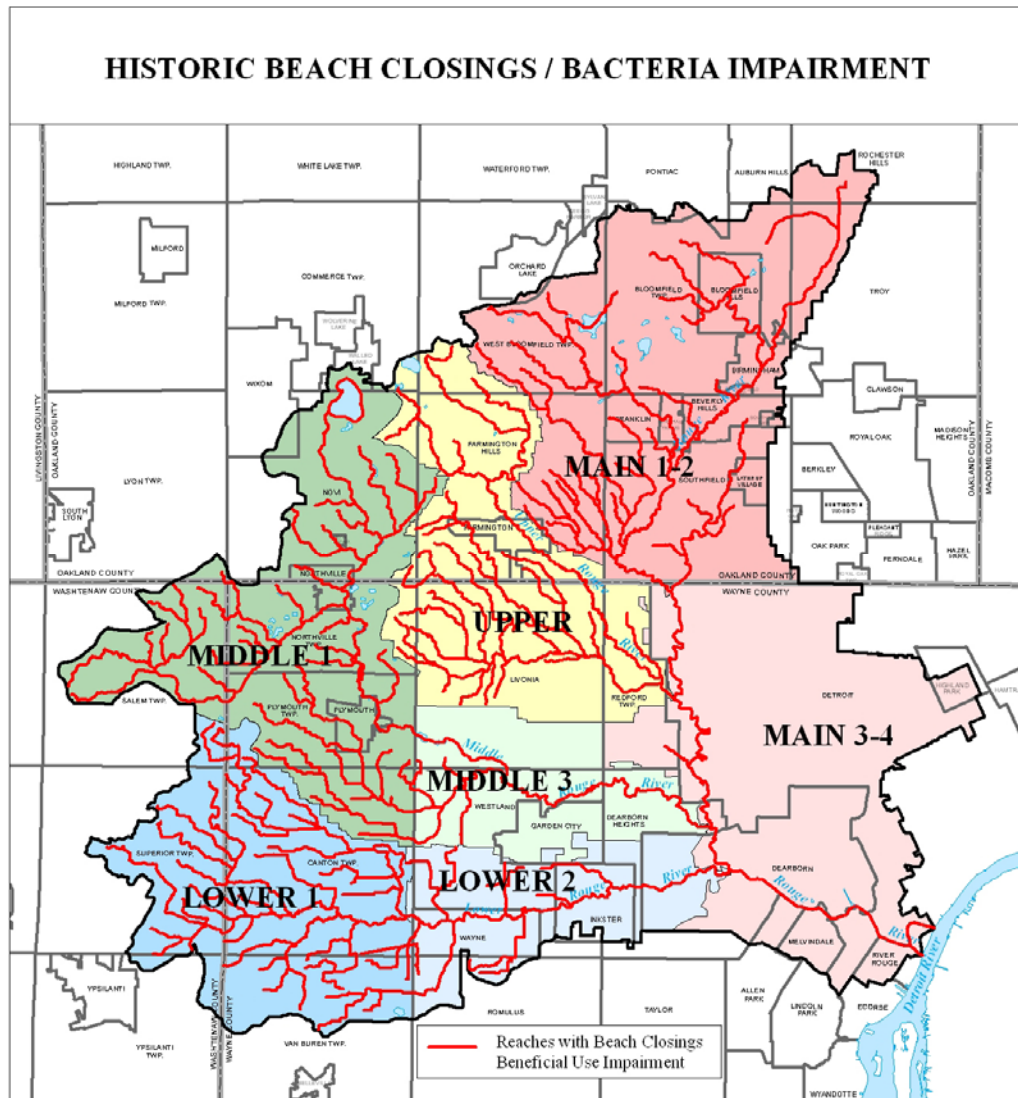


Where We Were:

Eutrophication or undesirable algae were found in all branches of the Rouge River, but was less evident in headwaters areas (1994 RAP). The statewide dissolved oxygen water quality standard of 5 mg/l was routinely not being met, and the designated use of the Rouge as a warm water fishery was not being supported (1989 RAP).

Why We Were There:

Human activities significantly accelerated eutrophication by adding excessive nutrients to the river. Excessive nutrients from stream bank erosion, lawn fertilizers and sewage (SSOs, CSOs, and leaking septic systems) caused significant algal blooms. Excessive algae and decaying organic matter (from sewage) depleted oxygen levels in the river, which caused fish kills and dramatically impaired aquatic life.

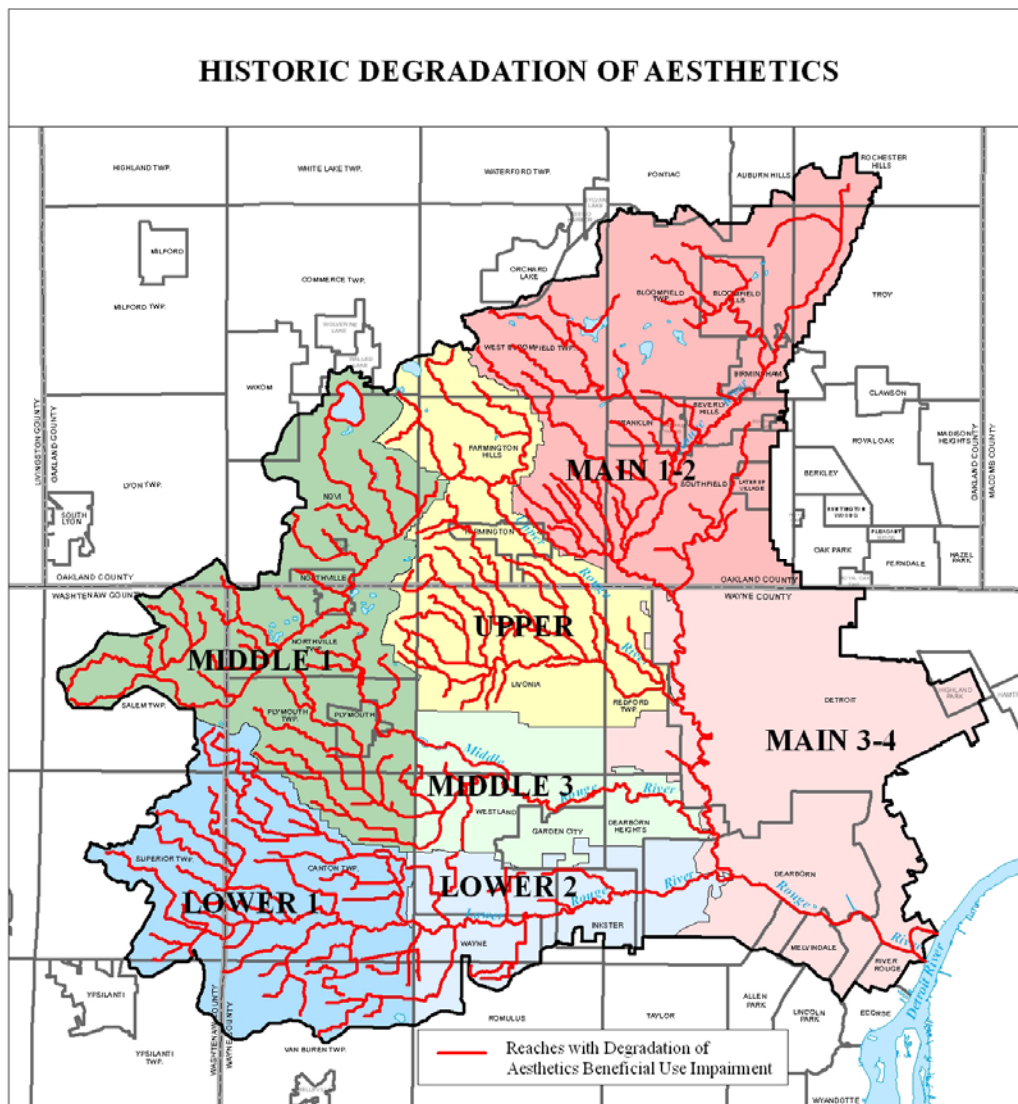


Where We Were:

Recreational use was restricted in all branches of the Rouge River AOC due to bacterial levels that were not safe for full- or partial-body contact activities (1989 & 1994 RAP). There has been a long-standing health advisory for the entire AOC for total body contact activities.

Why We Were There:

Bacteria from sewer overflows (CSOs, SSOs), failing septic systems, polluted storm water runoff, and illegal connections to storm sewers were widespread throughout the watershed. The 1989 RAP identified SSO problems due to inadequate sewer capacity in many areas of the watershed. Combined sewers serviced approximately 20% of the watershed and the 157 CSO outfalls discharged an estimated 7.8 billion gallons of raw sanitary sewage and storm water into the Rouge River each year. Polluted storm water from the municipal separate storm sewer system was identified as a major contributor to use impairments in 8 of 11 subwatersheds (1999 Rouge Report Card).

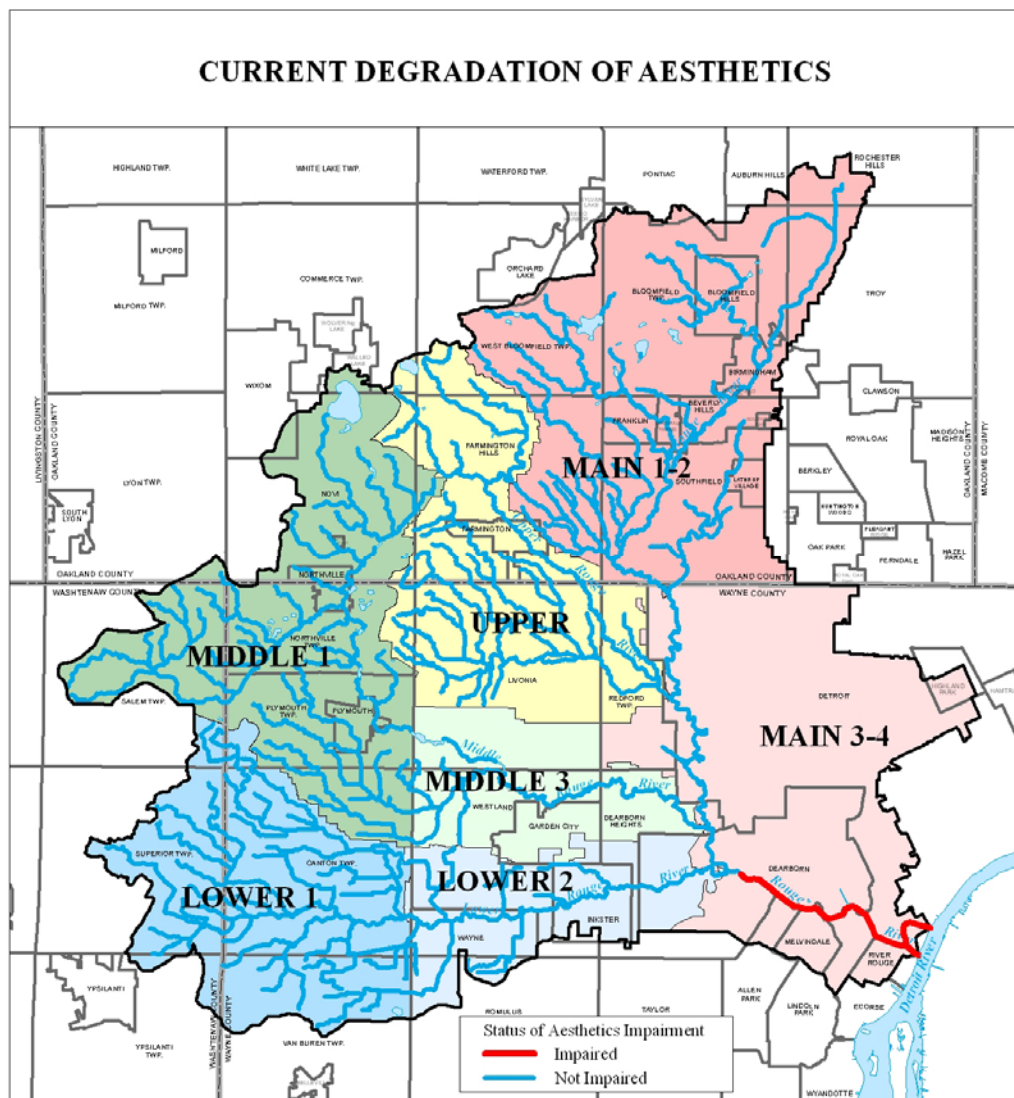


Where We Were:

The Rouge River caught fire in 1969 (Burning Rivers 2010). The river looked bad and smelled bad. The Rouge watershed was designated an AOC in 1987. The 1989 RAP established a goal of eliminating nuisance odors, debris, and log jams. The river was considered impaired for aesthetics in all branches, except the headwaters (1994 RAP).

Why We Were There:

The aesthetic value of the Rouge River was severely degraded resulting in unnatural color, odor and appearance in terms of turbidity or cloudiness, trash and debris, oil sheens, and unnatural odors. Sources that contribute to degradation include nonpoint source pollution, storm sewer discharges, CSOs, SSOs, contaminated sediments, erratic stream flows, unpermitted industrial discharges and illegal dumping (1994 RAP).

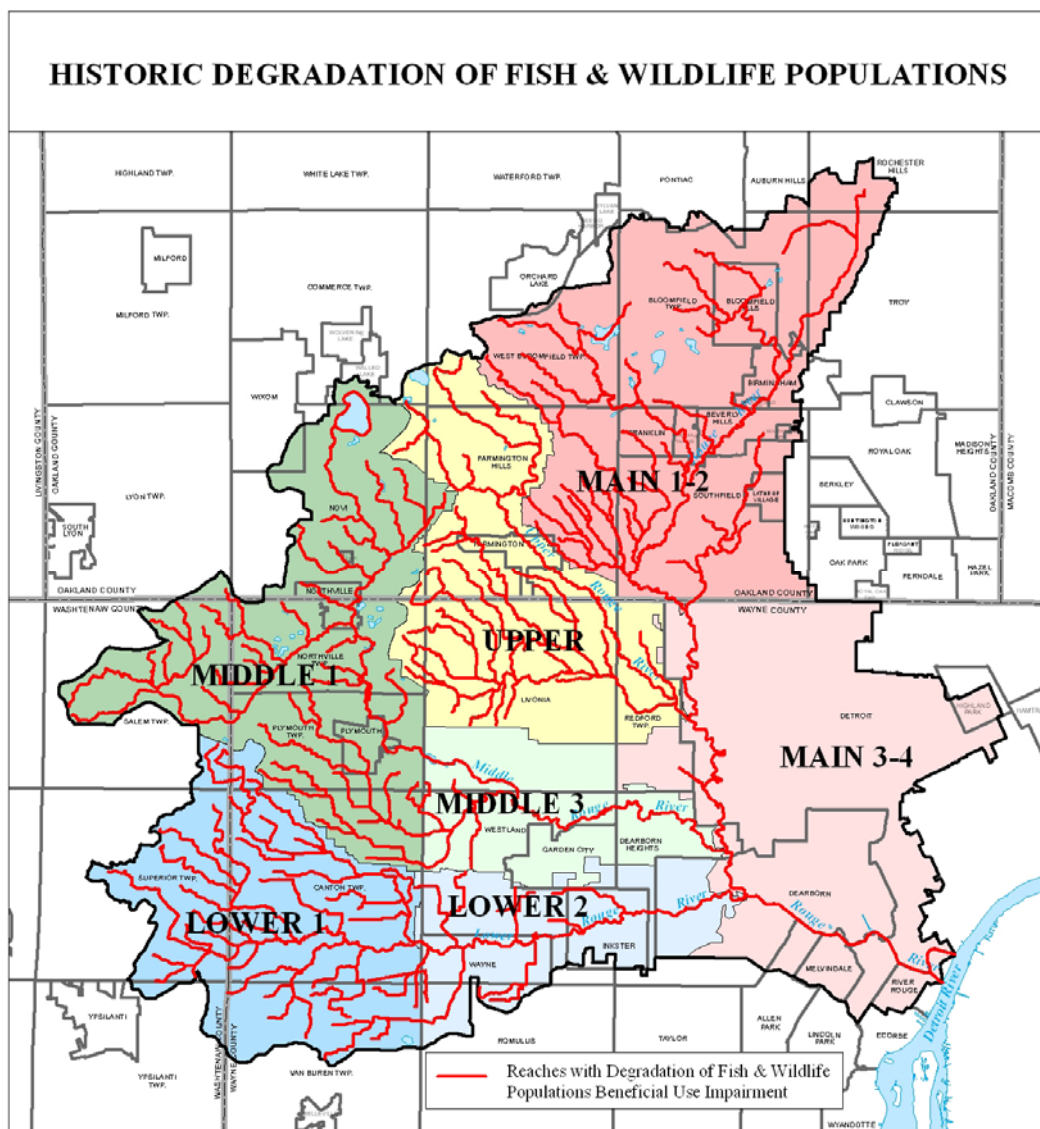


Where We Are:

Twenty-five years of Rouge Rescues and hundreds of millions of dollars spent by the Rouge community have helped clean out the trash, minimize the unnatural odors and clarify the water. Log jams are now being addressed by woody debris management practices. With implementation of the CWA, point sources are regulated, nonpoint pollution programs are in place, CSOs, SSOs and illegal connections to storm sewers are being eliminated, and commercial, municipal, and residential good housekeeping practices have greatly improved. MDEQ conducted an aesthetic assessment of the Rouge River AOC in 2011 and 2012 and it was found that only the Main 3-4 from the concrete channel to the mouth of the river remains impaired.

Where We Want to Be:

- Eliminate or control all remaining SSOs and CSOs; and
- Implement the Great Lakes Legacy Act (GLLA) contaminated sediment remediation projects in the lower portion of the Main 3-4 Rouge subwatershed.

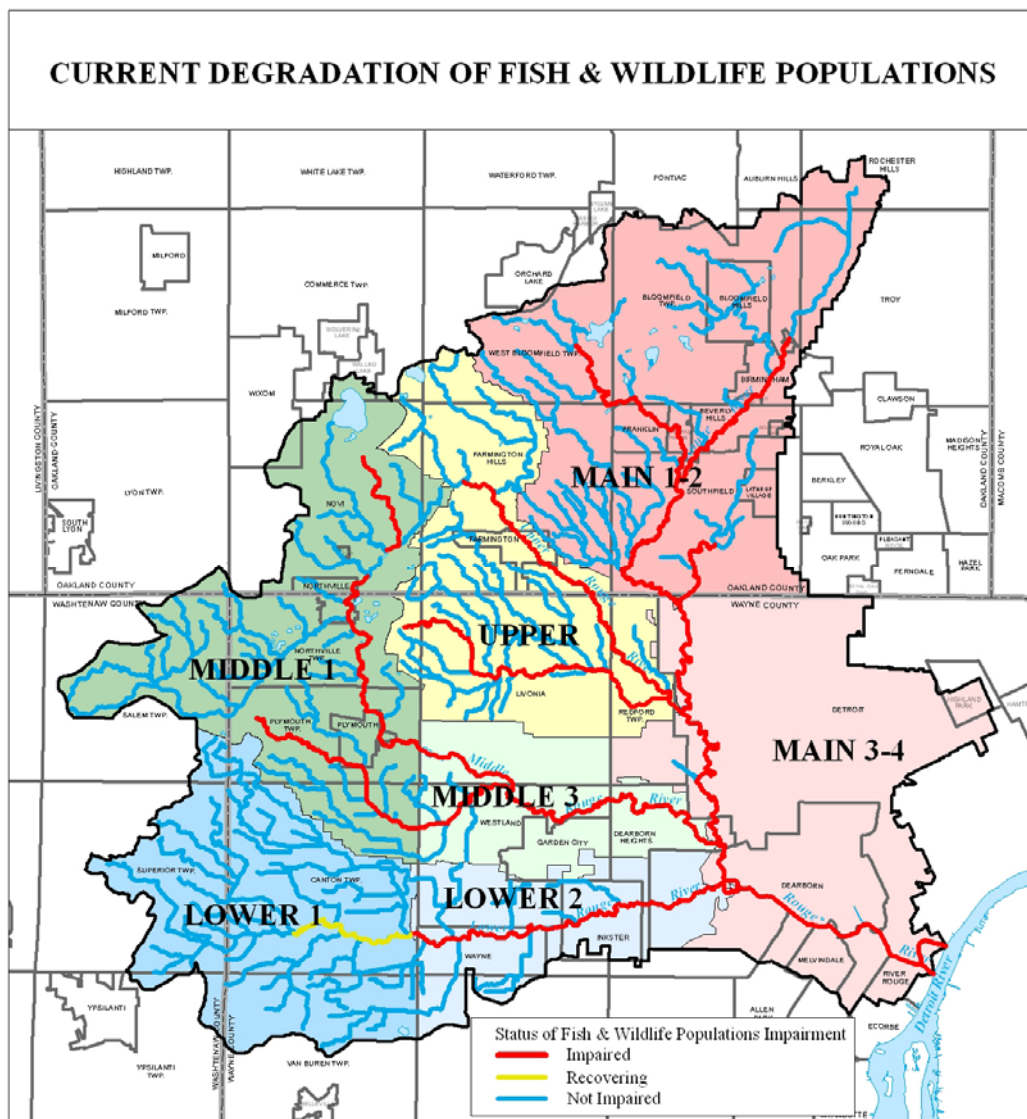


Where We Were:

Overall, the fish community in the Rouge River watershed lacked integrity with a few exceptions in the headwater areas. Sites that lacked integrity were dominated by pollution-tolerant species such as creek chub and green sunfish while sites with some remaining integrity tended to support more sensitive species such as the mottled sculpin, redbreast dace, and brown trout. Piscivore (predatory) fish were basically absent at all sites (1995 MDNR Assessment of Rouge River Fish Community).

Why We Were There:

Urbanization changed the land. Wetlands and forests were eliminated. The river received contaminated discharges from municipalities and industries, point and nonpoint source pollution, ever increasing volumes of storm water, and contaminated sediments, which degraded water quality, in-stream habitat and subsequently the fish and wildlife populations. Flow regime, water quality, and loss of food and habitat limited the biotic integrity of fish communities in the Rouge River (1995 MDNR Assessment of Rouge River Fish Community).

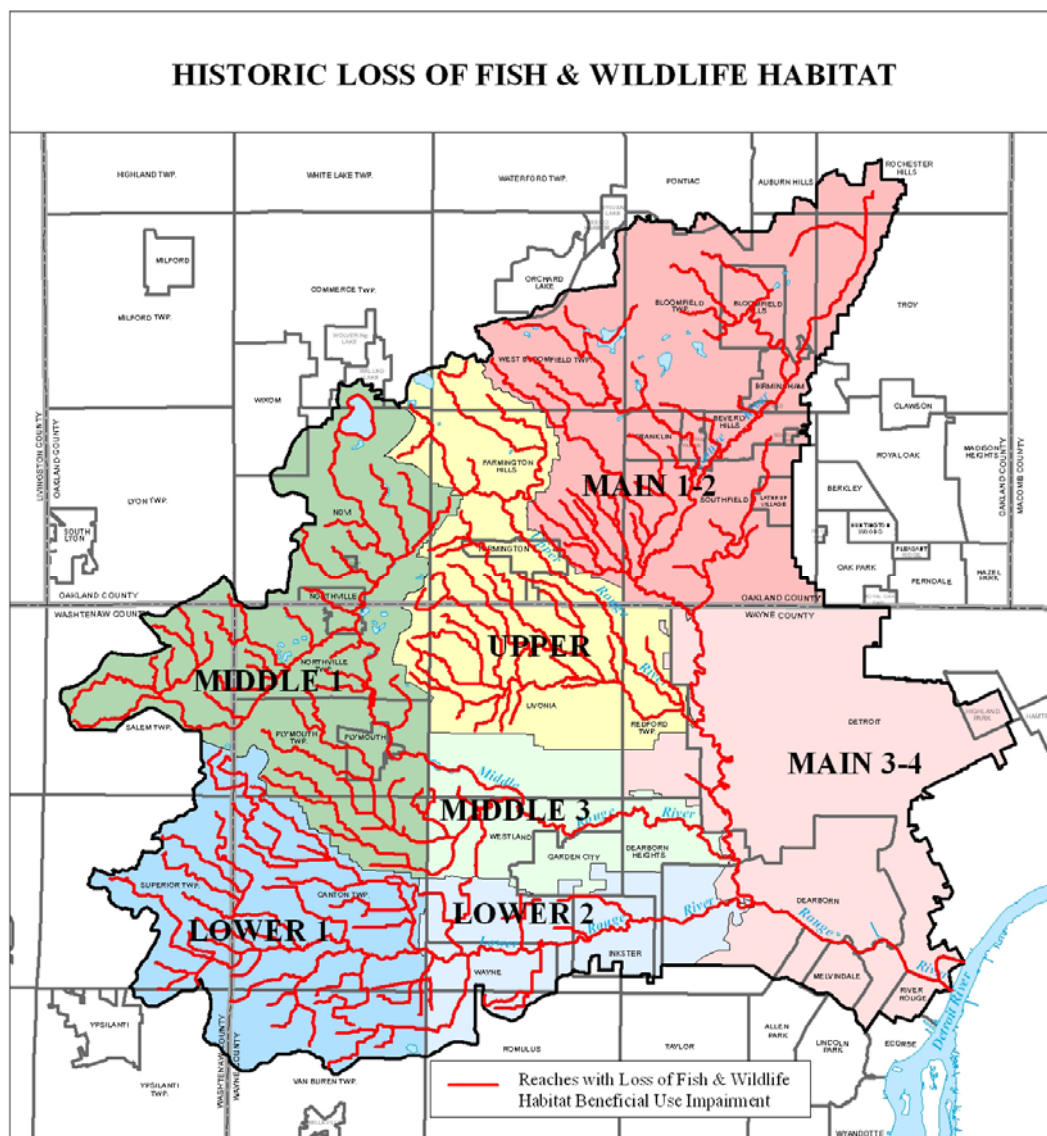


Where We Are:

Water quality conditions have improved and fish communities are better than would be expected for this highly urbanized and industrialized watershed (2005 Report Card). Based on the MDEQ's Rouge River Biota TMDL and preliminary review of recent fish sampling in the Lower subwatersheds, the main branches, except for the Lower 1 area and a few tributary streams, remain impaired for the Fish & Wildlife Populations BUI.

Where We Want to Be:

Realize the fish community targets identified in the 2008 Delisting Targets Report. Perform an assessment of recent fish community data against the fish community targets. Continue to reduce impediments to fish passage and migration to maintain and increase target populations. Implement priority projects identified in the 2012 Rouge Delisting Strategy including implementation of GLLA contaminated sediment remediation projects in the lower portion of the Main 3-4; green infrastructure implementation projects; modifications to the concrete channel and fish passage at the Henry Ford Estate Dam.



Where We Were:

The 1989 RAP identified all subwatersheds, with the exception of the Main 1-2, to be severely impaired as a warm water fishery based on 1988 MDNR biological survey. In 1992, the MDNR evaluated 22 stations throughout the Rouge watershed and rated all as unacceptable for overall biological quality and specifically benthos communities (1992 MDNR Investigation and Evaluation Report).

Why We Were There:

Much of the land area within the Rouge River AOC has been transformed into impervious surface resulting in loss of native, deep-rooted vegetation causing significant nonpoint source storm water runoff challenges. This additional storm water runoff creates a flashy flow regime that destabilizes stream banks, creates large moving sediment bed loads, dislodges and destroys riparian and stream habitat, strands and kills organisms, and interferes with recreational uses of the river (2008 Delisting Targets Report).

Primary Sources Documents Used For This Report Card and Website (If Available)

2010 Integrated Report: *Water Quality and Pollution Control in Michigan 2010 Sections 303(d), 303(b), and 314 Integrated Report. Appendix C - Detail - Detailed List of Assessment units not supporting designated uses and are scheduled for a TMDL (Category 5).* http://www.michigan.gov/deq/1,1607,7-135-3313_3686_3728-12711--,00.html

1994 RAP: *1994 Rouge River Remedial Action Plan Update.*
http://www.allianceofrougecommunities.com/PDFs/rrac/1994_Rouge-River-RAP-Update.pdf

2004 RAP: *2004 Rouge River Remedial Action Plan Revision.*
http://www.allianceofrougecommunities.com/PDFs/rrac/2004_Rouge-River-RAP-Revision.pdf

1999 Report Card: *Rouge River Report Card December 1999.*
http://www.allianceofrougecommunities.com/PDFs/rrac/1999_%20Rouge%20River%20Report%20Card_color.pdf

1993 MDNR: Michigan Department of Natural Resources – Fisheries Division Survey; Hay-Chmielewski

2012 Rouge Delisting Strategy: *Rouge River Area of Concern Beneficial Use Impairments Delisting Strategy.*
<http://www.allianceofrougecommunities.com/PDFs/PI/Final%20Revised%20Strategy%20Report050812.pdf>

1989 RAP Executive Summary: *Remedial Action Plan of the Rouge River Basin Volume 1 Executive Summary.* http://www.epa.gov/greatlakes/aoc/rougeriver/pdfs/1990_Rouge-River-RAP-Update.pdf

1992 MDNR Investigation and Evaluation Report: *An Investigation and Evaluation of Biological Communities Inhabiting the Rouge River Tributaries in Wayne County, June-July 1992.*
<http://www.rougeriver.com/techtop/sample/pdfs/investigation1.pdf>

1995 MDNR Assessment of Rouge River Fish Community: *An Assessment of the Rouge River Fish Community, 1995.* <http://www.rougeriver.com/techtop/sample/pdfs/FishAssessment.pdf>

Spring & Fall 2012: *Rouge River Benthic Macroinvertebrate Monitoring Program Spring Results 2012; Rouge River Benthic Macroinvertebrate Monitoring Program Fall Results 2012.*
<http://therouge.org/index.php?id=687847>

2012 Rouge River WMP: *Rouge River Watershed Management Plan, Revised June 21, 2012.*
<http://www.allianceofrougecommunities.com/login.html>

MDEQ 2007 E. coli TMDL: *Total Maximum Daily Load for E.coli for the Rouge River Wayne and Oakland Counties, Michigan.* http://www.michigan.gov/documents/deq/wb-sw-as-tmdl-ecoli-riverrouge_214464_7.pdf

Burning Rivers 2010: *Burning Rivers Revival of Four Urban-Industrial River that Caught on Fire.*
<http://www.aehms.org/Ecovision/BooksPublished.html>

2005 Report Card: *Rouge River Report Card December 2005.*
<http://www.allianceofrougecommunities.com/PDFs/rrac/Report%20card%202005.pdf>

2008 Delisting Targets Report: *Delisting Targets for Fish & Wildlife Habitat & Population Beneficial Use Impairments for the Rouge River Area of Concern 2008.*
<http://www.allianceofrougecommunities.com/PDFs/rrac/Final%20Rouge%20AOC%20Delisting%20Targets%20for%20Fish%20%20Wildlife%20PopHab%20BUIsdoc.pdf>

Websites for More Information on the AOC Program and Rouge River AOC Activities

- International Joint Commission: www.ijc.org/rel/focus/listdelist
- Great Lakes Commission: www.glc.org/spac/rapdocs
- US Environmental Protection Agency: www.epa.gov
 - Clean Water Act: www.epa.gov/laws-regulatory/summary-clean-water-act
 - Areas of Concern: www.epa.gov/glnpo/aoc/index
 - Great Lakes Legacy Act: www.epa.gov/glnpo/sediment/legacy
 - Great Lakes Restoration Initiative: www.epa.gov/greatlakes/glri/
- Michigan Department of Environmental Quality: www.michigan.gov
- Wayne County, Water Quality Management Division www.waynecounty.com/doe_wqm
- The Rouge River National Wet Weather Demonstration Project: www.rougeriver.com
- Friends of the Rouge: www.therouge.org
- Rouge River Advisory Council: www.allianceofrougecommunities.com/rrac.html
- Alliance of Rouge Communities: www.allianceofrougecommunities.com