MICHIGAN DEPARTMENT OF
ENVIRONMENT, GREAT LAKES, AND ENERGY

Rouge River Area of Concern

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Current Status

Zero BUIs removed

Nine remain in various phases of restoration and/or assessment

AOCs are complicated!

Who are the partners that play a role in AOCs?

Federal – USEPA-GLNPO, NOAA, USACE, USFWS, USGS

State – EGLE, MDARD, MDNR, MDHHS

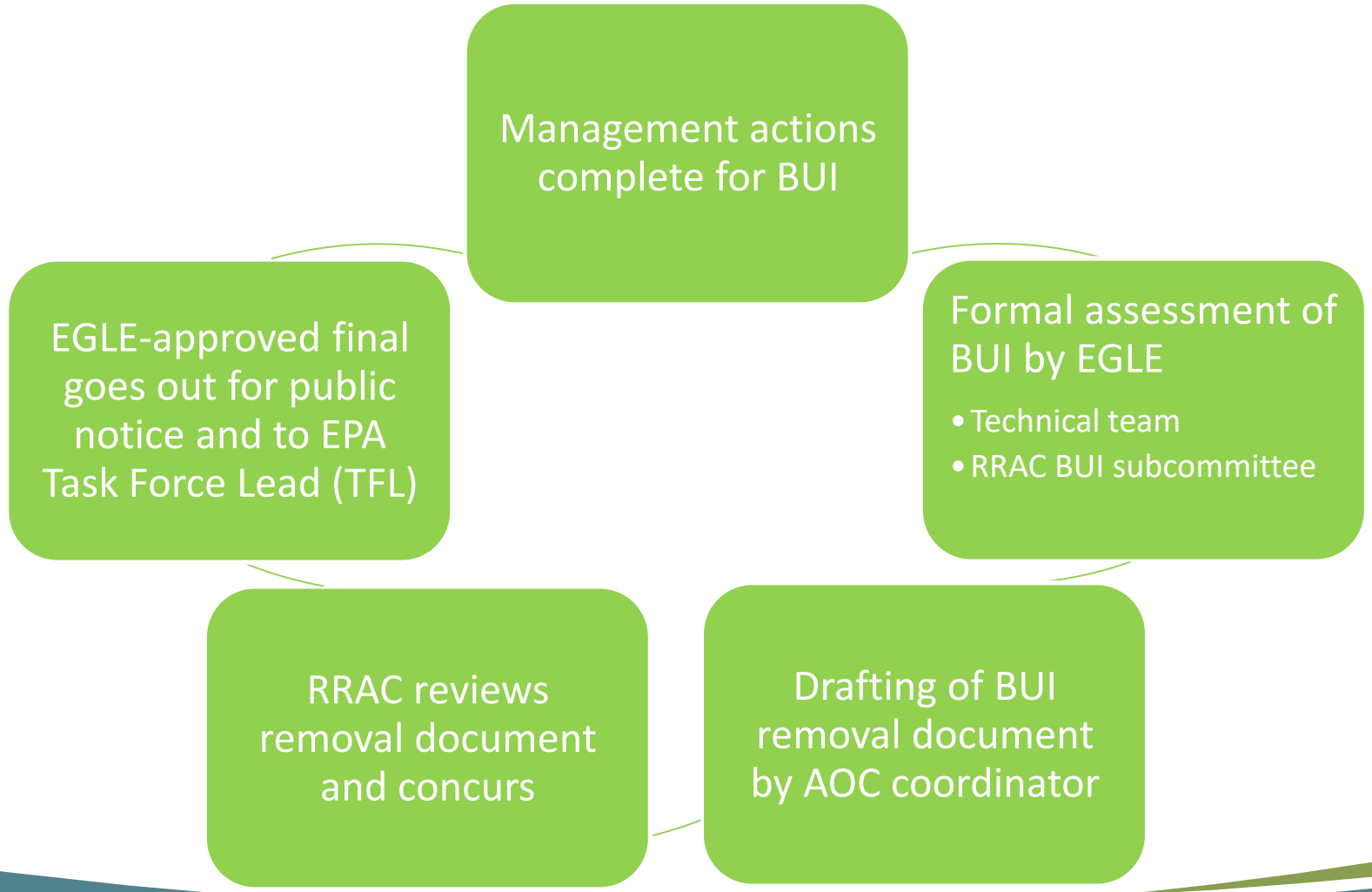
Local – Counties, Municipalities, Townships, Conservation Districts, Non-Profits, Academia, Consultants, Other Stakeholders

Others!

What is the State's role in the AOC Program?

- Facilitate communication and decision-making efforts between EPA and the local stakeholders
- Draft an approvable Management Action List (MAL) for each AOC
- Review requests with EPA quarterly for management action funding
- Initiate BUI removal with consultation from the RRAC

BUI Removal Process



BUI Removal Process

- Public and TFL comments reviewed and addressed, if needed
- Final removal document sent to EPA-GLNPO for approval
- Formal response from EPA of removal
- BUI removal press release
- Celebrate!!

AOC Delisting Process

Very similar to BUI removal process administratively

Takes much more time and there's a bigger party!

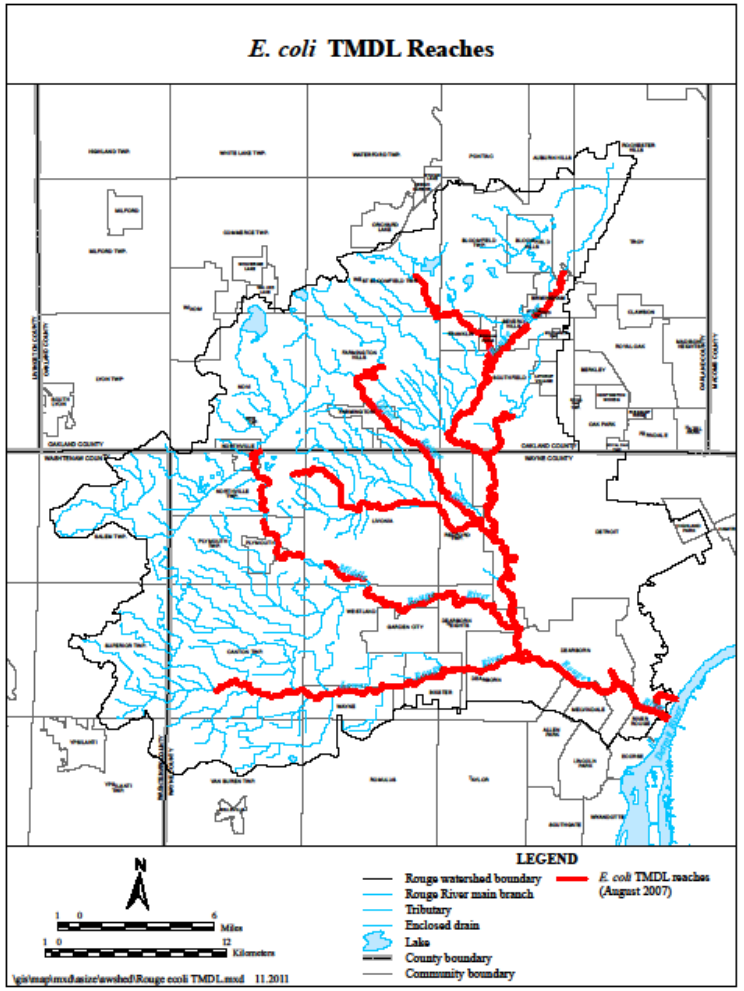
BUI History, Removal Criteria, and Current Status

Beach Closings
Historical Context

Historically sources of bacterial contamination include:

Discharges from upstream wastewater facilities, especially CSOs	Illegal connections to storm sewers	Urban and rural stormwater runoff	Failing septic systems

The Rouge River AOC has not met state WQS for full or partial body contact recreation due to elevated *E. coli* and a TMDL was developed for the entire watershed


E. coli TMDL Reaches
LEGEND
Rouge watershed boundary
Rouge River main branch
Tributary
Enclosed drain
Lake
County boundary
Community boundary
E. coli TMDL reaches (August 2007)
N
Miles
Kilometers

Beach Closings
State Removal Criteria

In cases where waterbodies within the AOC are on the list of non-attaining waters due to human pathogens, this BUI will be considered restored when human sources of pathogens regulated under the National Pollutant Discharge Elimination System (NPDES) are on schedule to be controlled through implementation of permit requirements.

Beach Closings Current Status

Eutrophication and Undesirable Algae
Historical Context

Monitoring during the 1970s showed that turbidity and total phosphorus were consistently high, indicative of eutrophic conditions

Excessive algal growth in the impoundments of the Middle Rouge River primarily due to high nutrients from CSOs, stormwater runoff and low flow in the river

Communities in the Rouge River watershed have used failing septic systems or had illegal connections to storm sewer systems

Eutrophication and Undesirable Algae State Removal Criteria

AOC on the non-attainment list and exhibit excessive algal growth from high nutrient loadings

BUI considered restored when no persistent or high levels of nuisance algal growths or nuisance algal blooms occur for 2 consecutive monitoring cycles

Properties that cause AOC BUI impairment are unnatural or natural algal growths which are exacerbated by human activities

Must be persistent and high enough levels to be a nuisance

Eutrophication and Undesirable Algae
Current Status

- CSOs and other point sources for nutrients have not been fully controlled
- Non-point sources continue to play a role in smaller algal blooms within the AOC
- Two large-scale sediment remediation projects will lessen eutrophic conditions in the lower river
- Habitat restoration projects within the Middle Rouge will assist with eutrophication in the impoundments
- Long-term monitoring data will be needed for further assessment of the BUI
- Local criteria?

Restrictions on Dredging
Historical Context

The maintained commercial navigation channel exists only in the lower four miles of the of the Main Branch of the Rouge River.

The known remaining contaminated sediment "hot spots" are found in this lower portion of the river downstream of Michigan Ave are include PCBs, oils, metals, and polycyclic aromatic hydrocarbons (PAHs)

PCBs have caused fish consumption advisories throughout this reach and further upstream

Restrictions on Dredging State Removal Criteria

The most recent routine dredging in the designated navigational channel does not require use of a confined disposal facility or TSCA-level landfill for dredge spoils due to chemical contamination

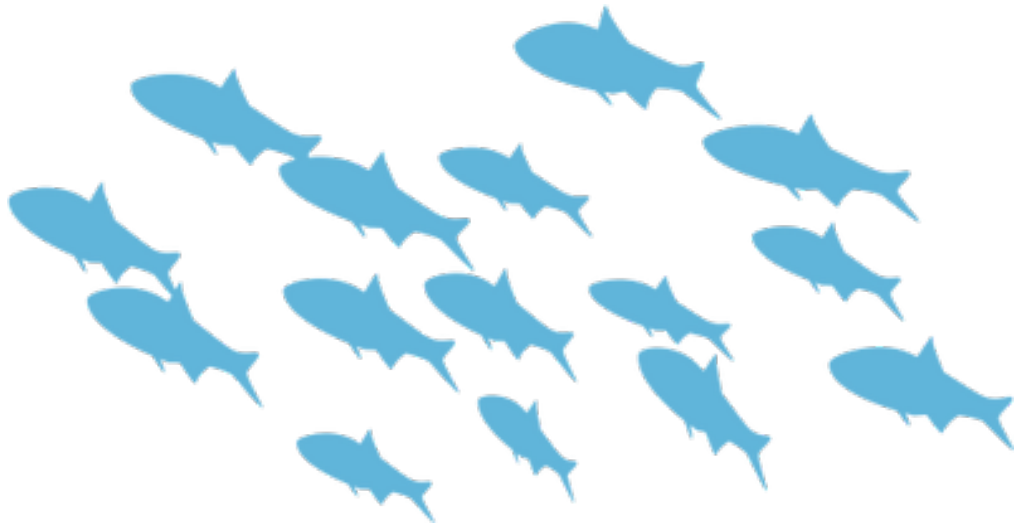
Restrictions on Fish Consumption
Historical Context

As a result of the historical chemical contamination in the Rouge River, a fish consumption advisory has been identified as an impaired use in the AOC

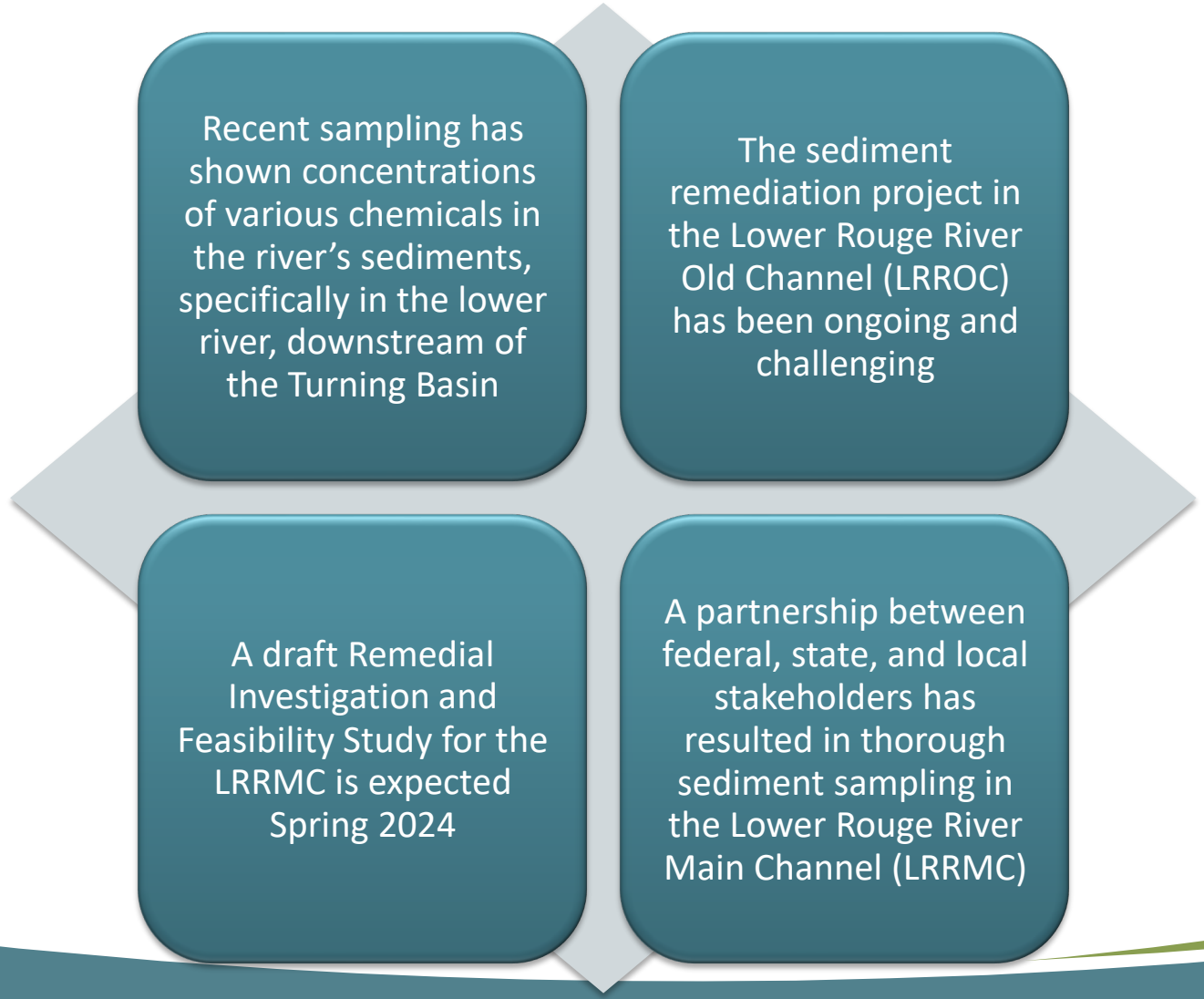
MDHHS provides Eat Safe Fish guidance for the river

Restrictions on Fish Consumption
State Removal Criteria

The beneficial use will be considered restored when the fish consumption advisories in the AOC are the same or less restrictive than the associated Great Lake or appropriate control site



Restrictions on Dredging and Fish Consumption Current Status



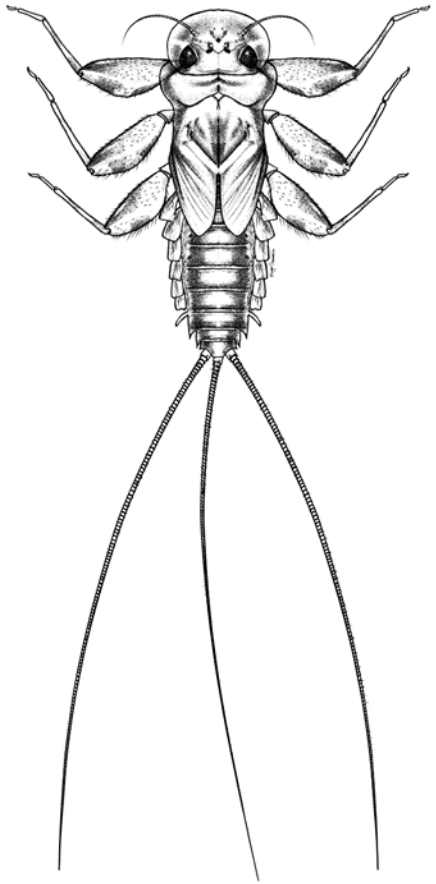
Current LRRMC Estimates*

- 486,386 cubic yards of contaminated sediment
- GLLA cost - $118,000,000
- NFP cost - $57,000,000
- Orphan site cost - $7,000,000

- Total Cost - $182,000,000

*Volume and costs will be better defined by RI/FS

Degradation of Benthos
Historical Context



Benthic impairments due to historical PCB contamination from a variety of sources from within the AOC included:

- Erratic stream flows
- Storm water discharges
- CSOs and SSOs
- Siltation from upland and stream-bank erosion
- Illegal spills and discharges
- Municipal and industrial discharges
- Contaminated sediments
- Loss of habitat
- Temperature and DO fluctuations

Degradation of Benthos State Removal Criteria

An assessment of benthic community that yields a score for the benthic metrics which meets the standards for aquatic life in any 2 successive monitoring cycles

OR

In cases where the benthic degradation is caused by contaminated sediments remedial actions for known contaminated sediment sites are completed (Superfund, GLLA, etc.)

Degradation of Benthos
Current Status

Pre-assessment work of the benthic community has been completed

Habitat projects have been completed or are in-progress

The LRROC and LRRMC contaminated sediment sites are primarily confined to the navigation channel but are still significant to the ecosystem as a whole

Degradation of Fish and Wildlife Habitats and Loss of Fish and Wildlife Populations (DFWHLFWP)

Historical Context

- Rapid urban expansion has led to degradation of fish and wildlife habitat and populations
- Wetlands and other wildlife habitat almost eliminated from the downstream portion of the basin
- Geology of the area and the increasing amounts of impervious surfaces has resulted in a variable stream flow and unnatural drainage
- Low flows during dry periods and high flows that scour stream channels and banks during rainstorms
- Seawalls, dredging, and draining reduced or eliminated hydrologic connections between wetlands and their source of water
- Dams and lake level controls upstream have altered natural flows impacting the fish population in the river

DFWHLFWP
State Removal Criteria….but, not really

- The relevant resource management agencies determine a “healthy fish population” exists within the AOC at selected sites (to be determined cooperatively by the RRAC, EGLE, and MDNR)
- Degradation of Benthos BUI is removed
- No waterbodies within the AOC are included on the list of non-attaining waters due to low dissolved oxygen on the most recent CWA Integrated Report – reasonable?

DFWHLFWP
Current Status

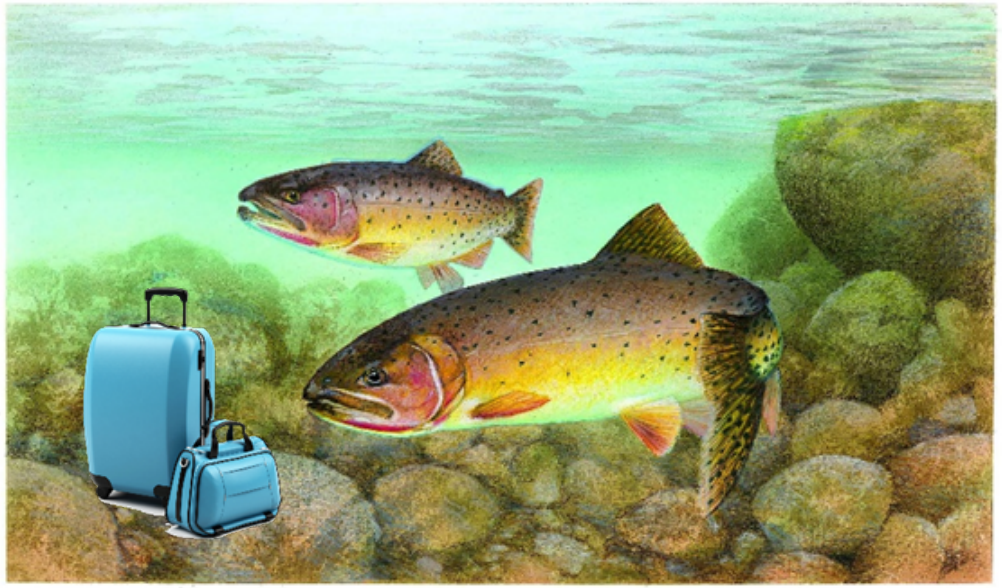
Eleven habitat restoration projects have been completed; others such as Concrete Channel and Fordson Island are more long-term

Potential need for post monitoring

Formal assessment of the BUI by RRAC and technical committee

DFWHLFWP

- If we build it, will they come? Can they sustain?



Degradation of Aesthetics
Historical Context

Impaired use due to widespread erosion, in-stream sedimentation, contaminated sediments, localized algal blooms, habitat degradation, and litter throughout the watershed

Studies conducted in the Rouge River during the 1970s documented poor water quality due in part to high turbidity, high suspended solids, and total phosphorus loadings

Degradation of Aesthetics State Removal Criteria

Monitoring data for two successive monitoring cycles indicate that water bodies in the AOC do not have any of the following physical properties in unnatural quantities which interfere with any designated use:

- Turbidity
- Foams
- Color
- Settleable solids
- Oil films
- Suspended solids
- Floating solids
- Deposits

These eight properties impair aesthetic values if they are unnatural, persistent, and are exacerbated by human activities

Degradation of Aesthetics
Current Status

Improvement of water quality with the implementation of the state NPDES regulatory program to address stormwater runoff from municipal separate storm sewer systems, industrial sites, and construction sites

Improvements include reduction of in-stream sedimentation and fewer localized algal blooms

Local stakeholders have made significant progress in addressing litter and illegal dumping into the river

Statewide assessment completed in 2011 and identified lower four miles as not meeting criteria

Completion of contaminated sediment projects and implementation of CSO controls will address this BUI

Fish Tumors or Other Deformities
Historical Context

In 1995, the MDNR, Fisheries Division, documented the presence of fish tumors and other anomalies in fish throughout the Rouge River

Fish tumors occur due to natural causes, such as viruses or hereditary weaknesses

Contaminants in the Rouge River were believed to cause fish tumors or other deformities in more than one percent of the total fish community

Fish Tumors or Other Deformities State Removal Criteria

The BUI will be considered restored when no reports of fish tumors or deformities due to chemical contaminants which have been verified through observation and analysis by the MDNR or EGLE for a period of five years

Or

in cases where any tumors have been reported, a comparison study of resident benthic fish, or of fish species which have historically been associated with this BUI, in the AOC and a non-impacted control site indicates that there is no statistically significant difference (with a 95% confidence interval) in the incidence of liver tumors or deformities

Fish Tumors or Other Deformities
Current Status

In 2024, EGLE will be funding the collection of Brown bullhead livers from the Rouge River that will be extracted, preserved and analyzed for neoplastic (cancerous) tumors. This will be baseline data prior to the remediation of the contaminated sediment sites

Brown bullhead will be collected again after remediation to compare samples

Further management actions or monitoring may be required to fully assess the BUI

What role do the PACs play in AOCs in MI?

- Advisory role to EGLE and coordination and communication with the AOC Coordinator
- Facilitation of meetings and PAC support grant funds, projects to assist BUI removals, eyes and ears on the ground, etc.
- Participation in Statewide Public Advisory Council (SPAC)
- Public education efforts to local stakeholders outside of PAC
- Local efforts to diversify PAC and/or provide inclusivity for underrepresented communities
- Whatever makes the AOC better ☺

Open discussion for questions or comments

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