



John R. Kasich, Governor
Mary Taylor, Lt. Governor
Craig W. Butler, Director

August 14, 2017

Tinka Hyde, Director
U.S. Environmental Protection Agency
Great Lakes National Program Office
77 West Jackson Blvd. (G-17J)
Chicago, Illinois 60604-3511

RE: Cuyahoga River AOC Degradation of Aesthetics Beneficial Use Impairment
(BUI) Removal Action

Dear Ms. Hyde:

The State of Ohio and Ohio EPA are dedicated to the restoration and protection of all waterbodies in the state, including Lake Erie and its tributary river systems. A legacy of the industrial past led four Ohio river systems to be designated as Areas of Concern (AOCs) by the International Joint Commission. No water system in the state and possibly the nation was as recognizable as a symbol of degradation as the Cuyahoga River.

In the last two decades, remarkable progress has been made in the Cuyahoga River AOC, largely due to the determination and hard work of the AOC Advisory Committee and partner organizations. Ohio EPA and the Cuyahoga River AOC Advisory Committee are requesting concurrence with the enclosed recommendation to remove the Degradation of Aesthetics BUI in the Cuyahoga River AOC.

The Cuyahoga River has come a long way from when it was designated a Great Lakes AOC. The progress was not easy and was earned by significant cost and extraordinary cooperation. I commend the effort of the conscientious individuals, groups, organizations and industries that comprise the Cuyahoga River AOC Advisory Committee and who made this improvement possible. We anticipate more improvements to come and we look forward to working with the U.S. EPA and the Cuyahoga River Advisory Committee to remove the remaining BUIs and ultimately delist the Cuyahoga River AOC.

Sincerely,

A handwritten signature in black ink, appearing to read "C. Butler", is written over a horizontal line.

Craig W. Butler
Director

Enclosure



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

NOV 14 2017

REPLY TO THE ATTENTION OF:

Mr. Craig Butler
Director
Ohio Environmental Protection Agency
50 West Town Street, Suite 700
P.O. Box 1049
Columbus, OH 43216-1049

Dear Mr. Butler:

Thank you for your August 14, 2017, request to remove the "Degradation of Aesthetics" Beneficial Use Impairment (BUI) from the Cuyahoga River Area of Concern (AOC), Cleveland, Ohio. As you know, we share your desire to restore all of the Great Lakes AOCs and to formally delist them.

Based upon a review of your submittal and the supporting data, the U.S. Environmental Protection Agency hereby approves your BUI removal request for the Cuyahoga River AOC. In addition, EPA will notify the International Joint Commission of this significant positive environmental change at this AOC.

We congratulate you and your staff, as well as the many federal, state, and local partners who have worked so hard and been instrumental in achieving this important environmental improvement. Removal of this BUI will benefit not only the people who live and work in the Cuyahoga River AOC, but all the residents of Ohio and the Great Lakes basin as well.

We look forward to the continuation of this important and productive relationship with your agency and the local advisory committee as we work together to fully restore all of Ohio's AOCs. If you have any further questions, please contact me at (312) 886-4040, or your staff may contact John Perrecone, at (312) 353-1149.

Sincerely,

A handwritten signature in black ink that reads "Tinka G. Hyde".

Tinka G. Hyde, Director
Great Lakes National Program Office

MEMORANDUM

SUBJECT: Great Lakes National Program Office Technical Review and Removal Recommendation for the Cuyahoga River Area of Concern (AOC) Degradation of Aesthetics Beneficial Use Impairment (BUI)
INFORMATION MEMORANDUM

FROM: John Perrecone
Technical Review Lead

[Signature] 11/9/17

THROUGH: Mark Loomis, Task Force Lead
Cuyahoga River AOC

[Signature] 11/9/17

TO: John Perrecone
BUI Coordinator

This memorandum documents the technical approval of the Ohio Environmental Protection Agency's (OEPA) report entitled: *Removal Recommendation for the Degradation of Aesthetics Beneficial Use Impairment (BUI) in the Cuyahoga River Area of Concern (AOC)*, and to concur with the Cuyahoga River AOC Advisory Committee and OEPA's recommendation to remove this BUI from the Cuyahoga River AOC. This memo responds to a request for review by the U.S. EPA Great Lakes National Program Office (GLNPO) Degradation of Aesthetics BUI Technical Review Lead (TRL) of the BUI Removal Report submitted to GLNPO.

BUI removal is achieved when the guidelines stated in the United States Policy Committee's (USPC) 2001 Delisting Principles and Guidelines document have been met. In accordance with these principals and guidelines, OEPA's BUI Removal Report has shown that the restoration targets have been met and follow up monitoring or other evaluations confirm that the beneficial use has been restored.

After a thorough review for content, completeness, scientific support and an evaluation of the conclusions in reference to the stated restoration targets, the GLNPO Degradation of Aesthetics BUI TRL concurs with the findings of the of the BUI Removal Report and supports the request for removal of the BUI as stated by the State of Ohio and the Cuyahoga River's Advisory Committee in their letter to GLNPO dated July 27, 2017.

The concurrence is based on the following:

- o The BUI Removal Report provides clear historical evidence that the Cuyahoga River haso been impaired due to the presence of debris, oils, solids, turbidity, detergents, color ando odor problems. The restoration target for this BUI is when "...there is no observedo ongoing occurrences of sludge deposits, oil sheens, scum and other objectionableo materials; specifically, materials that produce color, odor, or other nuisances."o
- o ●EPA also requires that this BUI can be removed when combined sewer overflows ando storm water plans are in place to address urban runoff into local streams. OEPA providedo

Removal Recommendation for the Degradation of Aesthetics Beneficial Use Impairment in the Cuyahoga River Area of Concern



Figure 1. Plain Dealer file photograph

July 31, 2017



"By the 1960's, the lower Cuyahoga River and navigation channel through the Cleveland area was a virtual waste treatment lagoon. At times the river was choked with debris, oils, scums and floating organic sludges. Foul-smelling gases rose from the decomposing materials on the river's bottom. Viewed from the city's observation towers, the river appeared to be a chocolate brown or rust colored. During most of the year, this lower section had no visible life, not even low forms such as leaches and sludgeworms, which usually thrive on wastes. Bacteria, debris, suspended solids, oxygen-consuming materials, dead fish, etc., were found along Cleveland's front door – the Lake Erie shoreline.



Figure 2. Cleveland Press, 1964

Unlike many cities, which were able to rid themselves of garbage and wastes by discharging them to a nearby river for someone else to worry about, Cleveland's wastes festered in full view of its citizens. Along with inadequately treated wastes from all Cleveland-area treatment plants, combined sewer and storm water overflows poured bacteria contamination onto the shore. Even during dry weather, raw sewage continuously overflowed from Cleveland's overloaded combined sewer system. The sewage and other wastes polluted the local bathing beaches, and Cleveland residents had to travel 60 to 100 miles to find lakefront beaches suitable for swimming."

From Erie-The Lake that Survived, by Dr. Noel Burns, taken from the 1992 Cuyahoga River Remedial Action Plan Stage One Report



Figure 3. Cleveland's skyline, from Wikipedia



Figure 4. Cleveland, Ohio, from *The Return of the Cuyahoga* PBS Documentary



Figure 5. Cleveland, Ohio, from Yale Cleveland

"The best example of an urban river's recovery is the Cuyahoga, in Cleveland."

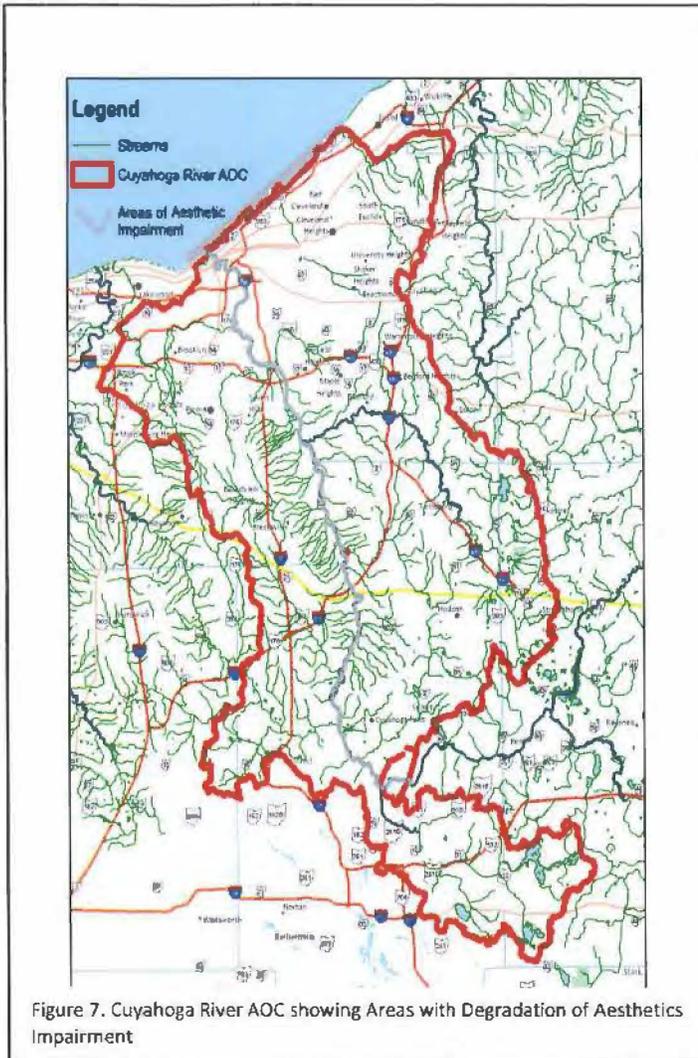
From NBC Channel 5 Chicago
 "What the Chicago River Can Learn from the Cuyahoga"
 By Edward McClelland

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Figure 6. Brandywine Falls. Courtesy of daysinnncleveland.com



Purpose

The purpose of this document is to recommend the removal of the Degradation of Aesthetics beneficial use impairment from the Cuyahoga River Area of Concern. This document provides information on aesthetics conditions and measures the conditions against State of Ohio BUI removal targets. This document also presents the results and a discussion of a local stakeholder opinion survey on aesthetic conditions in the AOC.

Background

The Cuyahoga River lies in northeast Ohio, flowing into Lake Erie's central basin at the city of Cleveland. Its drainage basin covers an area of 809 square miles (2001 Gazetteer of Ohio Streams). For more than 100 years, the lower Cuyahoga River accepted discharges from many treatment systems (from both municipal and industrial facilities), sewer overflows and storm water runoff. The river had become so severely degraded with loose debris, oil, municipal and industrial wastes that it actually ignited several times. The last fire, which occurred in 1969, sparked a national environmental outrage that enabled the first Earth Day Celebration and the U.S. EPA, both in 1970, and the Clean Water Act, in 1972.

The Cuyahoga River from the Gorge Dam (River Mile 45.5) to the mouth at Lake Erie, a few neighboring Lake Erie tributary systems and the associated Lake Erie nearshore areas had become so severely degraded that these areas were designated as a Great Lakes Area of Concern (Figure 7) in 1987 under the U.S./Canada Great Lakes Water Quality Agreement. Nine of the potential fourteen beneficial uses are listed as impaired in the Cuyahoga River AOC, including Degradation of Aesthetics, in the Stage 1 Report. (Table 1.)

Table 1. Beneficial Use Impairments in the Cuyahoga River AOC

Restrictions on Fish Consumption *	Eutrophication of Undesirable Algae
Degradation of Fish Populations *	Beach Closings (Recreational Use)
Fish Tumors and Other Deformities	Recreational Access **
Degradation of Benthos	Degradation of Aesthetics
Restriction on Dredging Activities	Loss of Fish Habitat *
* The wildlife components of these BUIs have not been designated as impaired	
** The Recreational Access BUI is a local impairment, added by the AOC Advisory Committee	

Degradation of Aesthetics BUI Listing in the Cuyahoga River

Historic perceptions of the Cuyahoga River
<p><i>"... an open sewer through the center of the city."</i></p> <p>1881, Mayor, Rensselaer R. Herrick (Cleveland Calamities: A History of Storm, Fire and Pestilence)</p>
<p><i>"...the surface is covered with the brown oily film"</i></p> <p><i>"The velocity is negligible, and sludge accumulates on the bottom. Animal life does not exist. The color changes from gray-brown to rusty brown as the river proceeds downstream. This entire reach is grassly polluted."</i></p> <p>1968 Kent State University symposium proceedings</p>
<p><i>"... chocolate-brown, oily, bubbling with sub-surface gases, it oozes rather than flows."</i></p> <p><i>"Anyone who falls into the Cuyahoga does not drown. He decays."</i></p> <p>Time Magazine August 1, 1969</p>
<p><i>"The Cuyahoga River has had a very colorful history. For generations, it was used as an open sewer."</i></p> <p><i>"Oil and debris continually accumulated along the banks and have caught fire more than once"</i></p> <p><i>"covered with brown oily film"</i></p> <p><i>"large quantities of black heavy oil floating in slicks, sometimes several inches thick. Debris and trash were frequently caught up in these slicks forming an unsightly floating mess."</i></p> <p>Ohio EPA's 1992 Biological and Water Quality Study of the Cuyahoga River</p>
<p><i>"Cleveland became a symbol of environmental degradation"</i></p> <p>Michael Rotman, "Cuyahoga River Fire," Cleveland Historical, accessed March 3, 2017, https://clevelandhistorical.org/items/show/63.</p>

AOC

At the start of the AOC process in the Cuyahoga River, the AOC Committee determined that aesthetic conditions were impaired in three specific areas of the AOC. The Committee based the impaired designation by comparing existing conditions in the Cuyahoga River AOC to the International Joint Commission listing criteria. At the time, the criteria stated that an impairment exists when:

- "Any substance in water produces a persistente objectionable deposit, unnatural coloe or turbidity, ofe unnatural odor (e.g., oil slick, surface scum)." (1992 Stagee 1 Report)e

The three areas designated by the AOC Committee in their Stage 1 Report as impaired are:

- Ohio Edison Dam (Gorge Dam) to head of Navigatione Channel (RM 45.5 to RM 6.5)e
 - o This reach was described as partially impaired withe aesthetic impacts of odor, debris, detergents and oil.
- Navigation Channel (RM 6.5 to RM 0.0)e
 - o This reach was described as impaired with aesthetice impacts of turbidity, debris, floatables and pollutantse from both non-point and point sources.e
- Nearshore Areae
 - o This area of the AOC was described as periodicallye impaired with aesthetic impacts, particularly after highe flow and wet weather events, of debris, trash, algae ande evidence of sanitary discharges washing up one beaches.e

The AOC Committee based their decision upon data from Northeast Ohio Regional Sewer District (NEORS D) since 1986 and Ohio EPA in 1990 plus individual perceptions by field crews, area businesses and users of recreational facilities reporting to recreational land managers.

The "Factors Contributing to Impairment" were noted, by the AOC Committee in the Stage 1 Report as natural debris, litter, oils, trash, solids, turbidity, detergents, color and odor from point sources, failing on-site systems, improper dumping, illegal connections to storm



Figure 8. 1969 Cleveland State University Library Special Collections. Cleveland Press Collection.

sewer systems, occasional spills and run-off from urban streets. Due to the build-up of oils and flammable trash, there have been 13 recorded fires on the Cuyahoga River, the first occurring in 1868 and the last occurred in 1969. (Cleveland Calamities) According to the listing criteria in effect at the time, the impaired listing for the Degradation of Aesthetics BUI in the 1992 Stage 1 report was warranted. The Stage 1 Report also stated that aesthetic impairments in each area were found to be more pronounced during wet weather conditions.

Issue

The Stage 1 Report (and subsequent updates) and the 2001 Cuyahoga River Remedial Action Plan State of the River Report & Proceedings both reported that the Degradation of Aesthetic impairment was due to debris, oils, trash, solids, turbidity, detergents, color and odor problems. At issue is whether current aesthetic conditions have improved in the Cuyahoga River AOC to a point where the current condition now meets the applicable removal criteria proving that the Degradation of Aesthetics BUI should no longer be considered to be an impairment in the Cuyahoga River AOC.

State of Ohio Degradation of Aesthetics BUI Removal Criteria

In order to address the numerous impacts and issues in all four Ohio AOCs, Ohio's AOC Coordinators and Lake Erie program staff developed state-wide, standardized and measurable BUI removal criteria and targets, including the Degradation of Aesthetics BUI. The 2016 version of the Ohio guidance document, *Delisting Guidance and Restoration Targets for Ohio Areas of Concern*, states that the Degradation of Aesthetics BUI can be removed when "There are no observed ongoing occurrences of sludge deposits, oil sheens, scum and other objectionable materials; specifically, materials that produce color, odor, or other nuisances." (Appendix 3)

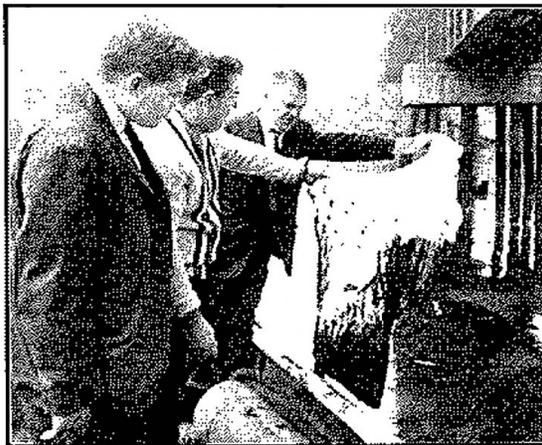


Figure 9. September 1964: Councilmen Edward F. Katalinas (left), Henry Sinkiewicz, and John Piich examine oil-soaked white cloth dipped in the Cuyahoga. Photo, Cleveland Press.



Figure 10. Date unknown: Cleveland Press reporter, Betty Klaric, holding water sample from Cuyahoga River. Photo, Cleveland Memory Project

The Ohio guidance document further states that if there are observed on-going occurrences of problems (noted above) and either Combined Sewer Overflows (CSOs) or Municipal Separate Storm Sewer Systems (MS4s) are a significant cause and the CSOs are being addressed under an approved long term control plan or other legally-binding documents and the MS4s are regulated under an NPDES Permit or other legally-binding document, the Degradation of Aesthetics BUI may be considered restored.

Combined sewer systems (CSOs)

CSOs are wastewater collection systems designed to carry sanitary sewage (consisting of domestic, commercial, and industrial wastewater) and storm water (surface drainage from rainfall

or snowmelt) in a single pipe to a treatment facility. During dry weather, combined systems convey domestic, commercial, and industrial wastewater to treatment facilities but in periods of wet weather, the addition of extra flow from rainfall or snowmelt can exceed the capacity of the combined system and/or the treatment facilities. When this occurs, the system is designed to overflow excess untreated or partially treated water directly to lakes and rivers and the overflow is called a CSO and can be a major source of water pollution. Controlling or eliminating CSOs improve water quality and can be a significant factor in raising the aesthetic condition. Because of the lengthy timeframe and enormous costs of eliminating CSOs, long term control plans (LTCPs) are utilized. A requirement of a long-term control plan (LTCP) is a suite of measures, the nine minimum controls, which are technology-based practices that the owner of a CSO system must use to address CSOs. LTCPs are legally binding documents and when they are in place, aesthetic problems arising from CSOs are not considered to be a cause for an impaired designation for this BUI according to Ohio guidance as the aesthetic problem is being regulated.

Stormwater

Excess storm water runoff and snow melt water, which does not infiltrate into soils or is held on the surface and allowed to evaporate, is commonly transported overland or in underground pipes and released, untreated, to water bodies. To prevent contaminants such as trash, chemicals, oils, dirt and sediment from entering waterbodies, the public entity owning and operating the conveyance system, called a municipal separate storm sewer system (MS4) must be permitted under a National Pollution Discharge Elimination System (NPDES) storm water regulation. The system cannot be a combined sewer nor a part of a sewage treatment plant or publically owned treatment works.

Permitted operators of these systems are required to develop storm water management programs (SWMPs) which are designed to control runoff and reduce the discharge of contaminants and protect water quality, increase groundwater recharge, to enhance stream base flow and to reduce the threat of flooding and stream bank erosion. As is the case with CSOs and LTCPs, proper operation of an MS4 under storm water regulations can significantly improve the aesthetic condition of the receiving water resource. Because the MS4 is permitted by a regulatory authority, any aesthetic problem attributed to the MS4s are not considered to be a cause for an impaired designation for this BUI according to state guidance.

The federal storm water program, including oversight of MS4s, is implemented by Ohio EPA. Additional information can be found at:
<http://www.epa.ohio.gov/dsw/storm/index.aspx#108452495-municipal-ms4>.

Algae and Woody Debris

Finally, the Ohio guidance document stipulates that aesthetic impairments due to algae or excessive nutrient loading will be addressed under BUI 8 (Eutrophication/Undesirable Algae) and natural physical features (e.g., woody debris, logjams, rootwads) and excessive turbidity following storm events or due to agricultural activities are not considered an impairment for the Degradation of Aesthetics BUI.



Figure 11. Cleveland Lakefront near the Rock and Roll Hall of Fame. Courtesy of weatherhead.com

Aesthetic Conditions in the AOC



Figure 12. MS4 Urbanized Area in Cuyahoga River AOC

In their Cuyahoga River Remedial Action Plan State of the River Report & Proceedings of the October 25, 2001 Symposium, the AOC Committee essentially upgraded the status of this BUI when it determined that the aesthetic conditions in the AOC were “better, but still degraded after rain events.” The Report and Proceedings did report that “woody debris, litter, oily runoff from industrial and urban areas, and storm sewer & CSO outfalls” are still contributing to the aesthetic degradation. As previously stated, natural physical features, excessive turbidity following storm events and aesthetic problems caused by regulated CSOs or MS4s are not considered a cause for an impairment listing for the Degradation of Aesthetics BUI.

Aside from the Cuyahoga Valley National Park (CVNP) and some adjacent county metro parks, the whole reach of the lower mainstem, from the Gorge Dam to the mouth at Lake Erie, plus the nearshore areas of the AOC are covered by numerous MS4 permitted operators (Figure 12 and Appendix 2) and, according to Ohio’s AOC guidance document, aesthetic problems associated by storm water collection and conveyance are not causes for

impairment if the problem areas are permitted by an MS4.

In the areas designated as impaired for this BUI in the Cuyahoga River AOC, except for the Cuyahoga Valley National Park (CVNP) and some adjacent county metro parks, LTCPs for NEORS and the City of Akron are in place and these plans will ultimately improve the water quality and aesthetic conditions in the Cuyahoga River AOC. (Figures 13 and 14). More information on Project Clean Lake (NEORS’s CSO long term control plan) and Akron Waterways Renewed! (Akron’s CSO long term control plan) can be found in Appendix 6. Additionally, these programs can be found on the web; NEORS’s Project Clean Lake plan at <http://www.neorsd.org/projectcleanlake.php> and Akron’s Waterways Renewed! Plan <http://www.akronwaterwaysrenewed.com/>.

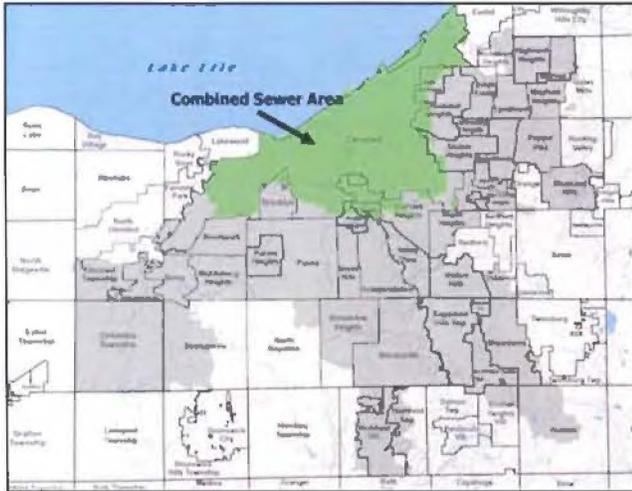


Figure 13. NEORSD Combined Sewer Area

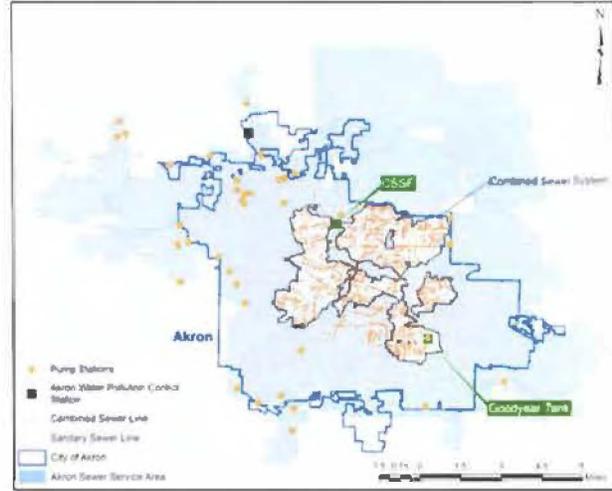


Figure 14. Akron Combined Sewer Area



Figure 15. Courtesy Clean City Blue Lake



Figure 16. Courtesy of Clean City Blue Lake

With regulated authority in place for aesthetic problems with both CSOs and stormwater, neither is considered to be a cause for an impaired listing for the Degradation of Aesthetics BUI according to State of Ohio guidance. The remainder of this removal recommendation document will focus on solids, spills, oil sheens, and floating debris (litter) which the 2001 State of the River Report & Proceedings found to be "still contributing" to the Degradation of Aesthetics impairment in the Cuyahoga River AOC.

Suspended Solids

In the first half of the 20th century, it was common to see orange and rusty-brown runoff flowing from the Cuyahoga River into Lake Erie (Figure 15). Since the onset of the AOC program in the Cuyahoga, suspended matter in areas in the federal navigation channel and upstream of the channel have dramatically decreased (Figures 17 and 18). Now, the flow of river water into the lake is much cleaner (Figure 16).

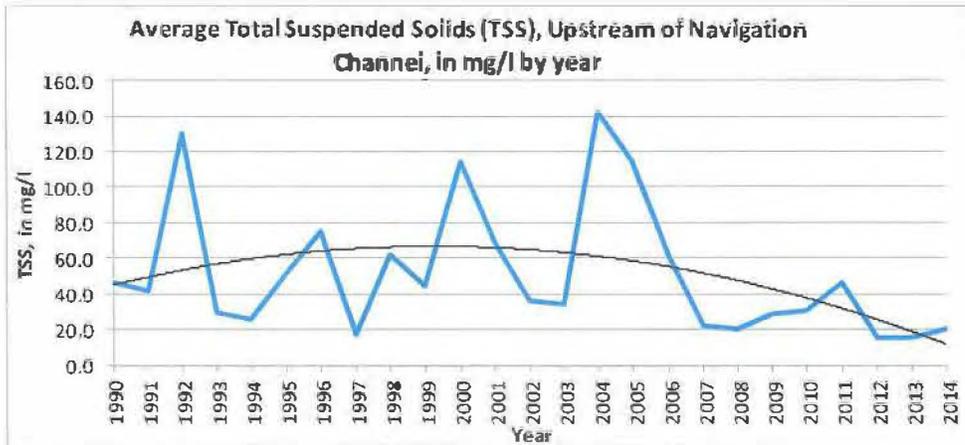


Figure 17. Total Suspended Solids Cuyahoga River mainstem, upstream of Navigation Channel, by year

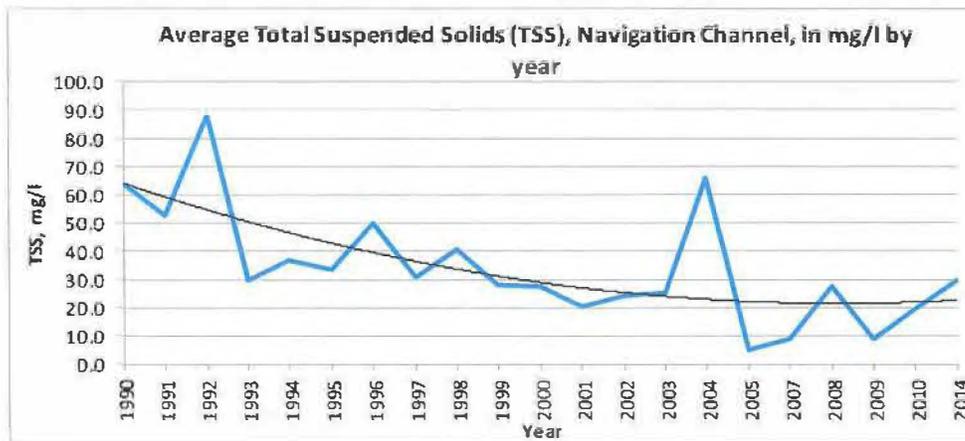


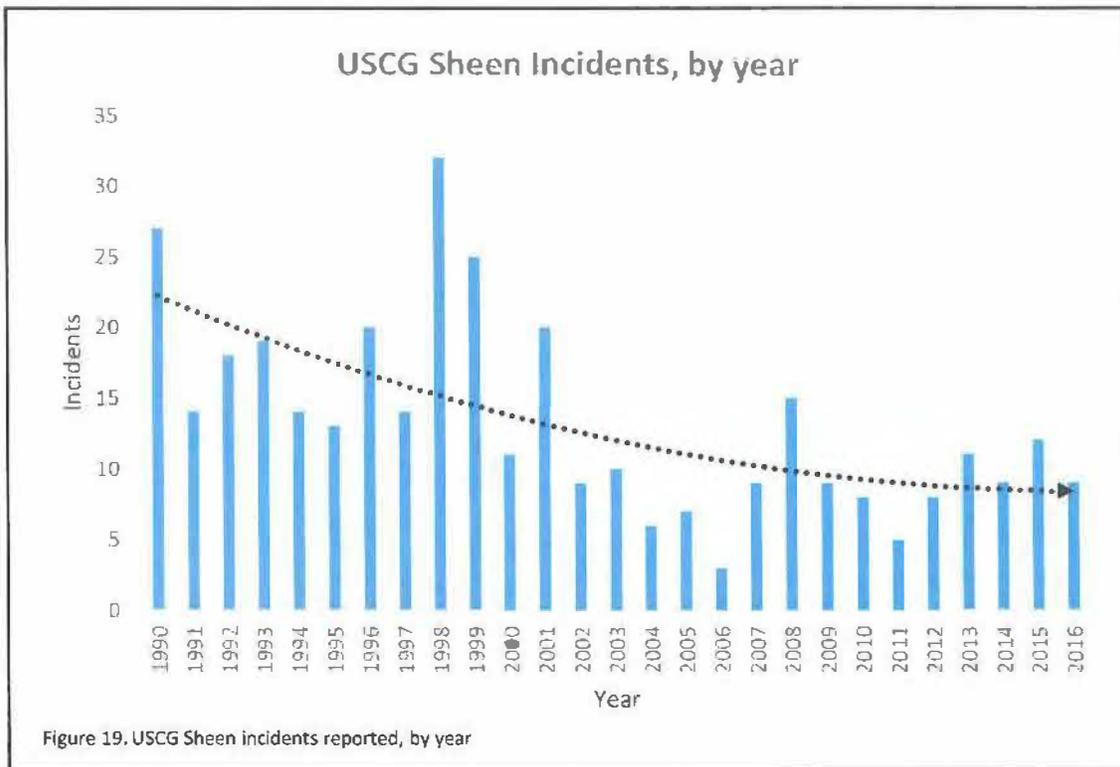
Figure 18. Total Suspended Solids Cuyahoga River mainstem, Navigation Channel, by year

Spills and Oil sheens

The 1968 Kent State University Cuyahoga Watershed symposium described the river as “covered with brown oily film with large quantities of black heavy oil floating in slicks, sometimes several inches thick. Debris and trash were frequently caught up in these slicks forming an unsightly floating mess.” by 1994, Ohio EPA reported, “Visible oil sheens, while not sampled chemically, are not nearly as common in the navigation channel as in previous decades.” (Ohio EPA 1994)

In any area but especially in urban and highly industrial areas such as along the lower Cuyahoga River mainstem, spills will occur and often spills involve oils. Occasional spills are not typically seen as persistent or ‘on-going’ problems and can occur in both AOC and non-AOC areas alike. Therefore, an occasional spill is not, alone, a cause for BUI impairment. But, in the Cuyahoga AOC, the number of spills and related permit violations have been decreasing. Ohio EPA reported 4,108 incidents from 1980 to 1991 (an average of 172 spills per year) in just the middle Cuyahoga River and Tinkers Creek basins and another 82 spills in the Little Cuyahoga River between 1989 and 1996. Although oil is not a routine analytical parameter, the persistent oil slicks have been documented as being in the past and no longer a problem. According to Jim White of the Cleveland-Cuyahoga County Port Authority, “Oil and grease on the water has been gone for years – clearly reflecting the positive effects of the NPDES program and growing public support for clean water.” In 2014 and 2015, less than 10 spills were investigated by NEORS. (Ohio EPA 1991 and 1998) The number of reported sheens investigated by the U.S. Coast Guard in the Cuyahoga River and in nearby Lake Erie waters have also been declining. From 1990 to

1999, the yearly average of sheens reported to the Coast Guard was 19.6. In the period from 2000 to 2009, the average dropped to 9.9. From 2010 to 2016, the average dropped again, to only 8.9. The number of sheens reported each year to the Coast Guard in Cleveland since 1990 can be seen in Figure 19. (U.S. Coast Guard National Response Center)



Floating debris

In any urban setting, debris and trash will end up in the waterways, being carried in by wind or through the network of tributary streams, storm water collection and conveyance systems or combined sewer overflows. Floating debris, while an aspect of aesthetics in any waterway is not a scientifically monitored parameter and therefore difficult to draw comparisons between different locations in the same stream or between different streams. It is, however, unlikely that a floating debris problem in the Cuyahoga River AOC is worse than in any urban waterway.



Figure 20. Flotsam and Jetsam boats, from Cuyahoga Port Authority

Nonetheless, for the past few years, some initiatives have been working on the floating debris problem in the AOC. The Cleveland-Cuyahoga County Port Authority has worked on the water side of the problem to help make the Cuyahoga River and Cleveland harbor areas safe and cleaner. Since 2012, through funding made available from U.S. EPA, the Port Authority have operated two debris harvesting watercraft, named Flotsam and Jetsam.

Flotsam carries a bobcat excavator with a custom shovel for small debris which is



Figure 21. Cleanup following Hurricane Sandy, from Cuyahoga Port Authority

loaded into bagsters (fabric dumpsters). Jetsam carries a crane for grabbing and lifting heavy and bulky items (4,000 lbs.). The two vessels operate yearly from May to October (760 hours per season). Yearly totals of the collected debris are not available but since 2012 they have harvested over 1.2 million pounds of floating debris as well as over 3000 large logs. Cleveland Metroparks partners in this collection effort by providing docking, spring launch, winter lift out and winter storage services plus weekly log removal and disposal at its expense.

In addition, floating debris is collected by the Northeast Ohio Regional Sewer District (NEORS) and the City of Akron before the debris can get to the impaired areas as part of both the CSO long term control plan and the Nine Minimum Controls of the storm water program. Positive feedback from the public on the removal of floating debris from 2008 to 2013 has been received. NEORS alone has yearly removed between 33.3 tons and 105.7 tons of floating debris. A map of the district's netting facilities can be seen in Appendix 4.

Public Perception of Aesthetics in the Cuyahoga River AOC



Figure 22. Cuyahoga Valley National Park. Photo by Tom Jones, Courtesy of Conservancy for CVNP

In the past, much has been written about the degraded condition of the Cuyahoga River, as noted in the numerous quotes within this document. Aesthetics is not a typical analytical parameter and for most people, aesthetics are based on a personal perception of cleanliness or beauty. The 2001 State of the River Report & Proceedings noted a continued impaired state but with improving conditions. To assess the current public perception, the Cuyahoga River AOC Advisory Committee conducted a survey in 2016. The AOC Committee asked 69 local stakeholders to respond to the survey. In addition, the survey was posted on the AOC webpage and visitors to the page were asked to respond.

Fifty-three individuals completed all or part of the aesthetics survey; 17 of the invited local stakeholders (24.6% of those invited to respond) and 36 other individuals on the web page. Ninety-four percent of the respondents have lived in northeast Ohio for "more than 10 years."

The results of the survey show that the areas of the AOC that had been designated as impaired for this BUI were not pristine but the areas designated with aesthetic problems are typical of any urbanized area but overall, improvements in aesthetic conditions were observed by the respondents. An overwhelming majority (nearly 83%) noted that aesthetic conditions in the AOC had "somewhat improved" or "significantly improved." Only about 14% responded with "no change." One respondent (<2%) noted that aesthetics in the AOC had "somewhat declined."

As previously stated, the 2001 Cuyahoga River Symposium found that the aesthetic conditions in the AOC were "better, but still degraded after rain events." Respondents to the survey continued to observe continuing improvements in 2016.

When asked if "persistent sludge, oil sheens or scum" have been observed in the river or shoreline in the last three years, 51 responded and 2 failed to answer. Of those who responded, nearly 63% answered that they had observed no problems with sludge, oil sheens or scum. Of the 19 who responded that they had observed these problems:

- d 68.4% responded that aesthetics in the Cuyahoga AOC had "somewhat improved" to "significantly improved"
- d 21% failed to answer the question
- d One respondent (5%) responded to seeing no change in aesthetics
- d One respondent (5%) responded that aesthetics in the AOC had "somewhat declined."

Many of the respondents who said they observed persistent sludge, oil sheens or scum said the sludge, oil sheens or scum problem lasted only between hours to a few days, a length of time that is unlikely to be determined to be a persistent problem. One responded that the materials are always there but described the materials were coming from nearby CSOs. Ohio's guidance document states that problems coming from CSOs are not a cause for impairment if a CSO long term control plan or other legally binding program is in place.

When asked if "persistent other objectionable materials, such as "trash," or "persistent, obnoxious odors" have been observed in the river or shoreline in the last three years, 42 (79%) individuals responded. Of those, 28 individuals responded as observing such problems and of this group:

- d Twenty-two (68.6%) of those who observed problems responded that aesthetics in the Cuyahoga AOC had "somewhat improved" to "significantly improved"
- d Three (less than 11%) failed to answer the question
- d Two (7%) responded to seeing no change
- d Again, only one respondent (less than 4%) said that aesthetics in the AOC had "somewhat declined."

The results of the survey can be found in Appendix 4 and from the survey results, it is apparent that those who responded felt that while aesthetic conditions are not perfect or pristine, but it is important to note that the survey revealed that nearly 83% of the respondents are continuing to see improvements to aesthetic conditions in the AOC.

Unfortunately, the national perception of the river fire, as well as the degraded environmental conditions that led to the fire, has been cemented in the national memory. In the national coverage of the 2016 Major League Baseball American League Division Series, Turner Broadcasting System (TBS), who was covering the American League playoffs, featured a graphic (Figure 23) of a river in flames emblazoned with a "Welcome to Cleveland" banner.



Figure 23. TBS screenshot, from Cleveland.com website article, "TBS trolls Cleveland photo of burning river in AACs promo." October 11, 2016

The river fire graphic used by TBS was not of any of the Cuyahoga River fires but was later reported to be of an oil spill fire on a river in Moscow. The network's use of this graphic image led to local network and social media outrage by citizens in the greater Cleveland area. Numerous social media responses offered more aesthetically pleasing photographs that would better portray the current conditions. On October 12, 2106, one comment received by the Cleveland Plain Dealer newspaper's web page (Cleveland.com) summed up the outrage of the graphic and how conditions in the river and city have improved:

"This picture of Cleveland upsets residents because we have worked very hard to bring our river and city back to a beautiful place to live, work and vacation!"

For a river and area once described as an "open sewer" with the "gray-brown to rusty brown" water covered with a "brown oily film" and having "black heavy oil floating in slicks" to be now called a "beautiful place to live work and vacation" is a tribute to how far the river has come and a testimony to the effort by the AOC Committee and other stakeholders.

Conclusions and Recommendation

The Cuyahoga River AOC has long been an urban and industrialized area with a history of environmental degradation and therefore, its inclusion in the Great Lakes Area of Concern program was unquestionably warranted. That the AOC's Advisory Committee designated an impairment for the Degradation of Aesthetics BUI in

Recent Perceptions of the Cuyahoga River

"It's a miracle. The river has come back to life."

2009, From the Ashes of '69, a River Reborn
N.Y Times, June 20, 2009

"Once a source of shame, the Cuyahoga is now an inspiration, "We've dealt with aesthetic problems. There's no more floating debris, such as sludge, oil and 'smelly stuff' and goo."

2015, Jane Goodman, Cuyahoga River Restoration "Cuyahoga River Recovers"

"The Cuyahoga River has made a surprising comeback from its highly degraded state in the late 1960's."

"Restoration of the Cuyahoga River in Ohio, 1968-present" Restoration and Reclamation Review Fall 2001

"It's just remarkable. I never thought I would see in my lifetime, let alone in my career, v such an amazing comeback of a river."

Steve Tuckerman, Ohio EPA
From NY Times
"Ashes of '69, a River Reborn"
June 20, 2009

"The Famous Flaming River of Cleveland - The Beautiful Cuyahoga!"

The Cuyahoga River Yesterday and Today from
Creeklife website

"The Cuyahoga River today represents a source of recreation as well as industry. Its remarkable transformation represents the result of a vital environmental movement that started forty years ago."

The Cuyahoga River Yesterday and Today from
Creeklife website

"The Cuyahoga, once renowned far catching fire, has benefited greatly from the environmental movement it ignited. A cleaner, greener river is becoming a place to be."

"Cleaner, greener Cuyahoga River has a new problem: Popularity"
Robert L. Smith, The Plain Dealer
October 12, 2013

their Stage 1 Report was also warranted, given the listing criteria at the time and the well-documented reports, opinions and perceptions of the severity of that degradation, some of which have been included in this document.

The river and area will remain urban and industrialized so its restoration to a pristine water resource is impracticable but since the onset of the AOC process in the Cuyahoga River, improvements have been seen and documented. In 2001, it was reported that the aesthetic conditions in the AOC have dramatically improved from the time when the river was originally designated as a Great Lakes AOC. A recent survey has shown that these improvements have continued.

Since there are no observed ongoing persistent occurrences of sludge deposits, oil sheens, scum and other objectionable materials; specifically materials that produce color, odor, or other nuisances, except those caused by CSOs or MS4s, which are being addressed by long term control plans or permitted under NPDES permits or other legally binding documents, the restoration targets set by Ohio's *Delisting Guidance and Restoration Targets for Ohio Areas of Concern* document are being met and the Cuyahoga River AOC Advisory Committee and Ohio EPA request concurrence from GLNPO with this request to remove the Degradation of Aesthetics BUI from the Cuyahoga River Area of Concern. The Advisory Committee voted unanimously to proceed with the removal of this BUI at their January 16, 2016 Meeting. A public notice of the intent to remove this BUI was issued on May 23, 2017 and an informational public meeting was held on June 28, 2017. The public notice and comments received from the public meeting are in Appendix 2.

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Appendices

Appendix 1. Cuyahoga River AOC Advisory Committee Support Letter



July 27, 2017
Mr. Craig W. Butler, Director
Ohio Environmental Protection Agency
P.O. Box 1049
Columbus, OH 43216-1049

Re: Removal of Beneficial use Impairment #11 (Degradation of Aesthetics) from Cuyahoga Area of Concern

Dear Director Butler:

The Cuyahoga River Area of Concern (AOC) Advisory Committee has reviewed available data, materials and documents for the removal, in the Cuyahoga River AOC, of the following beneficial use impairment (BUI):

- BUI #11: Degradation of Aesthetics

The Advisory Committee has determined that all applicable data meets or exceeds the State of Ohio removal criteria for this BUI and unanimously voted to support its removal during our July 20, 2017 meeting.

If Ohio EPA concurs that the removal of this beneficial use impairment is warranted, the Advisory Committee request the agency to proceed with the process of removing this BUI from the Cuyahoga River AOC.

With the removal of this BUI, the following impairments will remain in the Cuyahoga River AOC.

- BUE #1: Restrictions on Fish Consumption
- BUI #3: Degradation of Fish Populations
- BUI #4: Fish Tumors or Other Deformities
- BUI #6: Degradation of Benthos
- BUI #7: Restrictions on Navigational Dredging
- BUI #8: Eutrophication or Undesirable Algae
- BUI #10a: Beach Closings (Recreational Contact)
- BUI #10b: Public Access and Recreation Impairments (Cuyahoga AOC Only) — See letter, same date, for recommendation to also remove this BUI
- BUI #14: Loss of Fish Habitat

The Cuyahoga River AOC Advisory Committee will continue its efforts to remove the remaining impairments leading to the delisting and the complete restoration of the Cuyahoga River Area of Concern.

Sincerely,

A handwritten signature in blue ink, appearing to read "JG", is written over the word "Sincerely,".

Jennifer Grieser
Chair, Cuyahoga River AOC Advisory Committee

Appendix 2. Public Notice Information

Ohio EPA Public Notice

Public Notice Date: May 23, 2017

**OHIO ENVIRONMENTAL PROTECTION AGENCY
PUBLIC NOTICE
CUYAHOGA RIVER AREA OF CONCERN
REMOVAL RECOMMENDATIONS FOR TWO BENEFICIAL USE IMPAIRMENTS**

Public notice is hereby given that the Ohio Environmental Protection Agency (Ohio EPA) Division of Surface Water (DSW) and the Cuyahoga River Area of Concern (AOC) Advisory Committee are providing for public review and comment two Beneficial Use Impairment Removal Recommendations. The Cuyahoga River Area of Concern (AOC) is located in the Cuyahoga and Summit Counties and has been delineated as the lower Cuyahoga River main stem from the Gorge Dam pool in Akron to the river mouth at Lake Erie and any tributary sub-basins to that reach of the main stem plus a few direct Lake Erie tributary sub-basins between the Cuyahoga River mouth to Euclid Creek.

A public meeting to provide information about the action is being held at the Watershed Stewardship Center at West Creek at 2277 West Ridgewood Drive, Parma, 44134 on Wednesday, June 28th from 6:00 to 8:00 PM.

All interested persons wishing to submit comments for consideration may do so in writing to Ohio EPA, Northeast District Office, 2110 East Aurora Road Twinsburg, Ohio 44087, Attn: Ted Conlin, or by email to ted.conlin@epa.ohio.gov by the close of business, July 28, 2017. Comments received after this date may be considered as time and circumstances permit.

For more information concerning the removal recommendation, please visit Ohio EPA's website at: <http://epa.ohio.gov/dsw/SurfaceWater.aspx>. If you wish to obtain a copy of the Removal Recommendations or other information, or to arrange to inspect Agency files or records pertaining to the Removal Recommendation, or to request notice of when Ohio EPA submits the Document to U.S. EPA, please contact Ted Conlin at the address above or by calling 1-330-963-1131.

Notification of Public Meeting on Ohio EPA webpage



Lake Erie Programs

The Division of Surface Water participates in many Lake Erie and Great Lakes-related efforts. The two main focus areas are:

- Areas of Concern, specifically the development and implementation of Remedial Action Plans (RAPs) for the Maumee, Black, Cuyahoga and Ashtabula river areas of concern; and
- Lake Erie, including the bi-national lakewide management plan (LaMP) for Lake Erie.

Both of these efforts are centered on reducing the loadings of pollutants and restoring all beneficial uses to these waterbodies. Both programs are described in the Great Lakes Water Quality Agreement between Canada and the United States, and are mandated under the Great Lakes Critical Programs Act amendment to the Clean Water Act.

To complement these two focus areas, Ohio EPA is working on a new nearshore monitoring initiative that will provide valuable water quality data to inform management decisions and actions to restore Lake Erie and its tributary streams.

The Ohio Lake Erie Phosphorus Task Force has been reconvened. The Phase II effort will build upon the work of the original task force by incorporating current research results and developing a broader consensus on the management actions necessary to reduce algal blooms in the Lake Erie western basin. The original task force, which concluded its work in 2010, reviewed phosphorus loading data from Ohio tributaries to Lake Erie, considered possible relationships between trends in dissolved reactive phosphorus loading and inflake conditions, determined possible causes for increased soluble phosphorus loading, and evaluated possible management options for reducing soluble phosphorus loading.

PUBLIC MEETING

The Ohio EPA and Cuyahoga River AOC Advisory Committee will host a meeting to discuss the removal of two beneficial use impairments from 6:00 to 8:00 p.m. on June 28, 2017.

Watershed Stewardship Center at West Creek
2277 West Ridgewood Drive
Parma, OH 44134

- [Public Notice](#)
- [Removal Recommendation for Recreational Access BUI](#)
- [Removal Recommendation for Degradation of Aesthetics BUI](#)

Notification of Public Meeting on Cuyahoga River AOC Webpage



Cuyahoga AOC Enews - June 2017

PUBLIC MEETING • JUNE 28

6pm - 8pm • Watershed Stewardship Center, West Creek Reservation

2277 West Ridgewood Dr., Parma, OH 44134

OHIO ENVIRONMENTAL PROTECTION AGENCY PUBLIC NOTICE

CUYAHOGA RIVER AREA OF CONCERN

REMOVAL RECOMMENDATIONS FOR TWO BENEFICIAL USE IMPAIRMENTS

Public notice is hereby given that the Ohio Environmental Protection Agency (Ohio EPA) Division of Surface Water (DSW) and the Cuyahoga River Area of Concern (AOC) Advisory Committee are providing for public review and comment two Beneficial Use Impairment Removal Recommendations. The Cuyahoga River Area of Concern (AOC) is located in the Cuyahoga and Summit Counties and has been delineated as the lower Cuyahoga River main stem from the Gorge Dam pool in Akron to the river mouth at Lake Erie and any tributary sub-basins to that reach of the main stem plus a few direct Lake Erie tributary sub-basins between the Cuyahoga River mouth to Euclid Creek.

A public meeting to provide information about the action is being held at the Watershed Stewardship Center at West Creek at 2277 West Ridgewood Drive, Parma, 44134 on Wednesday, June 28th from 6:00 to 8:00 PM.

Read the draft recommendations prepared by Ohio EPA:

[Removal Recommendation for Recreational Access BUI](#)

[Removal Recommendation for Degradation of Aesthetics BUI](#)

All interested persons wishing to submit comments for consideration may do so in writing to Ohio EPA, Northeast District Office, 2110 East Aurora Road Twinsburg, Ohio 44087, Attn: Ted Conlin, or by [email to ted.conlin@epa.ohio.gov](mailto:ted.conlin@epa.ohio.gov) by the close of business, July 28, 2017. Comments received after this date may be considered as time and circumstances permit.

For more information concerning the removal recommendation, please visit Ohio EPA's website at: <http://epa.ohio.gov/dsw/SurfaceWater.aspx>. If you wish to obtain a copy of the Removal Recommendations or other information, or to arrange to inspect Agency files or records pertaining to the Removal Recommendation, or to request notice of when Ohio EPA submits the Document to U.S. EPA, please contact Ted Conlin at the address above or by calling 1-330-963-1131.



Ohio Environmental Protection Agency

SIGN-IN SHEET

Cuyahoga River AOC Proposed BUI Removal Hearing
June 28, 2017

Thank you for printing your contact information.

NAME Jenn Grieser EMAIL jmg2@clevelandmetro.parks.com
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NAME Kevin Kayle EMAIL kevin.kayle@dnr.state.oh.us
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NAME Lilla Jackson EMAIL LWJB@YAHOO.COM
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Ohio Environmental Protection Agency

SIGN-IN SHEET

Cuyahoga River AOC Proposed BUI Removal Hearing
June 28, 2017

Thank you for printing your contact information.

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NAME Mike Foy EMAIL MFoy@ci.cuyahoga.oh.us
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CITY Mentak STATE OH ZIP 44115
TELEPHONE (216) 443-3055



Ohio Environmental Protection Agency

SIGN-IN SHEET

Cuyahoga River AOC Proposed BUI Removal Hearing
June 28, 2017

Thank you for printing your contact information.

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NAME Jim Rybka EMAIL JRybkaj@cuyahogaseves.org
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CITY Cleveland STATE OH ZIP 44114
TELEPHONE (216) 524 6580

NAME _____ EMAIL _____
STREET ADDRESS _____
CITY _____ STATE _____ ZIP _____
TELEPHONE (_____) _____

NAME _____ EMAIL _____
STREET ADDRESS _____
CITY _____ STATE _____ ZIP _____
TELEPHONE (_____) _____



Ohio Environmental Protection Agency

SIGN-IN SHEET

Cuyahoga River AOC Proposed BUI Removal Hearing
June 28, 2017

Thank you for printing your contact information.

NAME [Handwritten Name] EMAIL [Handwritten Email]
STREET ADDRESS [Handwritten Address]
CITY [Handwritten City] STATE [Handwritten State] ZIP [Handwritten ZIP]
TELEPHONE ([Handwritten Area Code]) [Handwritten Phone Number]

NAME [Handwritten Name] EMAIL [Handwritten Email]
STREET ADDRESS [Handwritten Address]
CITY [Handwritten City] STATE [Handwritten State] ZIP [Handwritten ZIP]
TELEPHONE ([Handwritten Area Code]) [Handwritten Phone Number]

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NAME _____ EMAIL _____
STREET ADDRESS _____
CITY _____ STATE _____ ZIP _____
TELEPHONE (_____) _____

Comment letters

Received June 7, 2017

Mr. Conlin,

I have lived in greater Cleveland for about 50 years and am old enough to remember the awful condition of the Cuyahoga River and the Erie Lakeshore area near downtown Cleveland. I remember what a terrible experience it was to go "downtown" and how sad I felt about the condition of the river, the lake, and most of the entire region.

Over the last 3 decades, I have spent countless hours in the Cuyahoga Valley and I continue to spend more and more time in the valley and near the river. On May 20th, national river day, my wife and I spent a few hours kayaking on the river. We frequently hike along the lower Cuyahoga, using the canal towpath trail at many different locations along the course of the river.

I also have learned a considerable amount of science related to river watersheds, riparian zones, hydrology and many other related topics, including the Great Lakes Areas of Concern. I have a master's degree in Geoscience and currently teach Environmental Science and Astronomy at Garfield Heights High School, just east of the Cuyahoga River Valley.

My educational background and my extensive interactions with and observations of the Cuyahoga River AOC, qualify me to provide an informed perspective on the removal recommendations being proposed. I am in complete agreement with these 2 recommendations. There has been an undeniable, extremely significant improvement in public accessibility and improved aesthetic quality in the Cuyahoga River AOC. I wholeheartedly support the removal of these 2 beneficial use impairments.

Glenn D. Umek
Science Teacher – GHHS

Response to Comment:

Thank you for your comments supporting the removal of the Degradation of Aesthetics and Public Access beneficial use impairments in the Cuyahoga River AOC and thank you for your service to the students of Garfield Heights High School

Received July 3, 2017

Dear Ted:

On behalf of the Cuyahoga Soil & Water Conservation District (SWCD), I support the proposal to remove the following Beneficial Use Impairments (BUI) within the Cuyahoga Area of Concern:

- o Public access
- Degradation of Aesthetics.o

In consideration of the positive impacts that have resulted from environmental regulations, and more than 25 years of collaboration by multiple agencies, organizations, civic groups and the public to address the public access and aesthetic issues, it is appropriate to do so.

The Cuyahoga SWCD is proud of the assistance that we have provided and committed to ongoing participation in the AOC efforts. Our organization currently provides assistance to 51 communities in the county related to community Municipal Separate Storm Sewer System permits--including pollution prevention education and public involvement activities, such as stream clean ups. We will continue to do so into the future. Our work to secure the 2006 Brownfield Assessment grant and ongoing education and restoration efforts on the former Dike 14 doubled access to the lakeshore in the Areas of Concern.

The Cuyahoga SWCD is committed to assisting the Cuyahoga AOC, to the best of our ability, towards the removal of other BUIs.

Sincerely,
Janine Rybka, District Administrator

Response to Comment:

Thank you for your comments supporting the removal of the Degradation of Aesthetics and Public Access beneficial use impairments in the Cuyahoga River AOC and thank you and Cuyahoga Soil & Water Conservation District's assistance in efforts to improve conditions in Cuyahoga County and the Cuyahoga River AOC.

Appendix 3. Ohio Removal Guidance for BUI #11 Degradation of Aesthetics

BUI 11: Degradation of Aesthetics

IJC Listing Guideline

When any substance in water produces a persistent objectionable deposit, unnatural color or turbidity, or unnatural odor (e.g., oil slick, surface scum).

State of Ohio Listing Guideline

Ohio has not established numeric criteria that directly relate to this BUI. Based on Ohio water quality criteria applicable to all waters (OAC 3745-1-04, sections A-C), this beneficial use shall be listed as impaired when human activity routinely causes any of the following persistent conditions:

- u Sludge deposits
- u Oil sheens, scum and other objectionable materials
- u Materials that produce color, odor, or other nuisances.

State of Ohio Restoration Target

This beneficial use will be considered restored when the following conditions are met:

If there are no observed ongoing occurrences of sludge deposits, oil sheens, scum and other objectionable materials; specifically materials that produce color, odor, or other nuisances, then this BUI may be considering restored. OR

- u If there are observed ongoing occurrences and Combined Sewer Overflows (CSOs) are a significant cause of aesthetic impairments but the CSOs are being addressed under an approved long term control plan or other legally-binding document, then this BUI may be considered restored. Where long-term remedies may take several years to be fully implemented, it may be necessary to develop short-term control strategies. AND/OR
- u If there are observed ongoing occurrences and Municipal Separate Storm Sewer Systems (MS4s) are a significant cause of aesthetic impairments but the MS4 is regulated under an NPDES Permit or other legally-binding document, this BUI may be considered restored.

Notes

- u Aesthetic impairments due to algae or excessive nutrient loading will be addressed under BUI 8.
- u Natural physical features (e.g., woody debris, logjams, rootwads) and excessive turbidity following storm events or due to agricultural activities are not considered an impairment under this BUI.

Potential Data Sources

- u Ohio EPA water quality surveys
- u Local water quality surveys or reports
- u Ohio EPA or local CSO discharge reports
- u U.S. Coast Guard spill reports

Rationale

The Degradation of Aesthetics Beneficial Use Impairment (BUI) is more subjective than the other beneficial use impairments. The targets listed above were developed to address aesthetic conditions that interfere with public access or use of the water. OAC 3745-1-04 is provided in Appendix A.

Many of the persistent conditions identified in the listing guideline can be attributed to the presence of active Combined Sewer Overflows (CSOs). Combined sewers were built to collect sanitary and industrial wastewater, as well as storm water runoff, and transport this combined wastewater to treatment facilities. During dry weather, they are designed to transport all flow to the treatment plant. When it rains, the volume of storm water and wastewater may exceed the capacity of the combined sewers or of the treatment plant. When this happens, the combined sewers are designed to allow a portion of the combined wastewater to overflow into the nearest ditch, stream, river or lake. This is a combined sewer overflow (CSO). Ohio has about 1,280 known CSOs in 89 remaining communities (February 2011), ranging from small, rural villages to large metropolitan areas. In 1994, U.S. EPA published the national CSO Control Policy. Working from the national policy, Ohio EPA issued its CSO Control Strategy in 1995. The primary goals of Ohio's Strategy are to control CSOs so that they do not significantly contribute to violations of water quality standards or impairment of designated uses and to minimize the total loading of pollutants discharged during wet weather.

Ohio EPA continues to implement CSO controls through provisions included in NPDES permits and using orders and consent agreements when appropriate. The NPDES permits for our CSO communities require them to implement nine minimum technology-based controls to address CSO problems before long-term measures are taken. USEPA's Guidance for the Nine Control Measures is available online (<http://cfpub.epa.gov/npdes/cso/guidedocs.cfm>). Requirements to develop and implement Long Term Control Plans (LTCPs) are also included where appropriate. In 2007, U.S. EPA adopted a new definition for the Water Safe for Swimming Measure, which sets goals to address the water quality and human health impacts of CSOs. The new definition sets a goal of incorporating an implementation schedule of approved projects into an appropriate enforceable mechanism, including a permit or enforcement order, with specific dates and milestones for 75% of the nation's CSO communities.

Another existing mechanism to address storm water debris and other contaminants is regulation through the MS4 program. Polluted storm water runoff is commonly transported through Municipal Separate Storm Sewer Systems (MS4s), which often discharge untreated waters into local water bodies. Regulated MS4s need to prevent harmful pollutants, litter and other debris from being washed or dumped into local waterbodies. Jurisdictions must obtain a NPDES permit and develop a storm water management program. One of the requirements is to develop and implement a storm water management program (SWMP) to reduce the contamination of storm water runoff and prohibit illicit discharges.

If the RAP identifies debris or other objectionable materials as the primary cause of aesthetic impairment under this BUI, a debris harvester, a regularly scheduled clean-up effort, or other short-term collection or prevention program may be utilized to address the BUI until a LTCP has been approved and substantial implementation is underway.

Degradation of aesthetics due to excessive nutrient and eutrophication are addressed under BUI 8 (Eutrophication or Undesirable Algae). It is important to acknowledge that aesthetics is very subjective and the public will perceive conditions and impaired use differently, based on expectations and experience. It will be important for the RAP to consider multiple lines of evidence for restoration of this beneficial use, including U.S. Coast Guard Spill Reports, Ohio EPA TSD reports and other data sets to document that any degraded conditions are not chronic, are not caused by local sources, or are no worse than the average Lake Erie watershed.

Appendix 4. Storm Water Communities in the lower Cuyahoga River, from 2004 Lower Cuyahoga TMDL

Lower Cuyahoga River Watershed TMDLs, Appendix A

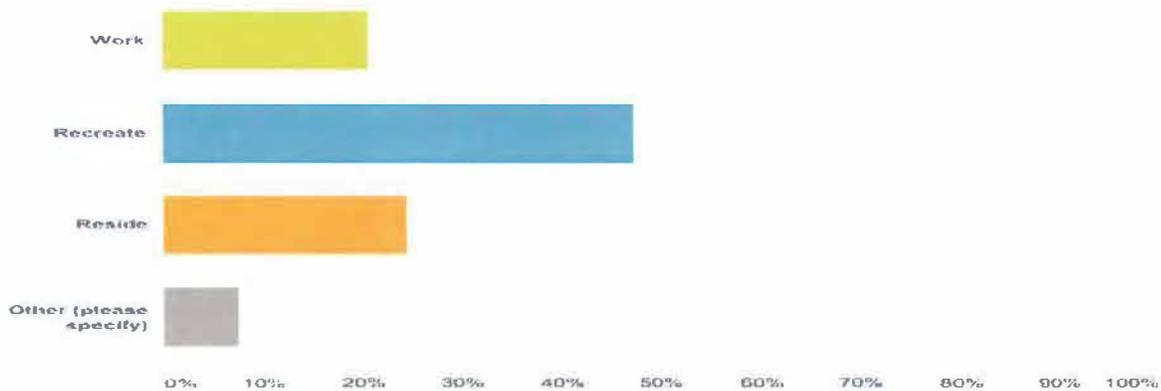
Appendix A. Communities Covered by Phase I and Phase II Storm Water Regulations in the Lower Cuyahoga River TMDL Area

Municipality	Acres		
Aurora	6845.3	Northfield Center Twp.	10533
Beachwood City	2834.9	Richfield Twp.	8308.1
Bedford City	3407.7	Franklin Twp.	415.5
Bedford Heights City	2906.3	Bath Twp.	7598.6
Boston Heights	4388	TOTAL ACRES	253562.96
Brecksville City	12564.5	% of Watershed Area	83.9
Broadview Heights	6831.7		
Brook Park	2378.2	Akron (Phase I)	24638
Brooklyn	2760.4	% of Watershed Area	8.15
Brooklyn Heights	1135		
Cleveland	25665.9	County	
Cuyahoga Falls	16396.8	Cuyahoga	
Fairlawn	1146.7	Geauga	
Garfield Heights	4682.3	Portage	
Glenwillow	1836.5	Summit	
Hudson	2646.1		
Independence	6143.7		
Lakemore	1006		
Linndale	56.3		
Macedonia	6164.4		
Maple Heights	3325.4		
Mayfield Heights	3325.4		
Middleburgh Heights	11		
Mogadore	1341.7		
Munroe Falls	1813.1		
Newburgh Heights	915.7		
North Randall	500.8		
North Royalton	2391.1		
Northfield	687.9		
Oakwood	2219.6		
Orange	877.8		
Parma	11255.9		
Parma Heights	2653.2		
Richfield	4584.6		
Seven Hills	3187.6		
Shaker Heights	951.7		
Silver Lake	1023.9		
Solon	7604.2		
Stow	7150.7		
Streetsboro	8941.7		
Tallmadge	5853.2		
Twinsburg	7806.4		
Valley View	3609.9		
Walton Hills	4426.76		
Warrensville Heights	2567.7		
Townships			
Boston Twp.	9682.9		
Sagamore Hills Twp.	7360		
Twinsburg Twp.	5327.8		
Springfield Twp.	3513.4		

Appendix 5. Summary Results of the Cuyahoga River Area of Concern Aesthetics Survey

Q1 Please indicate which answer best describes what activity you do most in the Cuyahoga River Area of Concern.

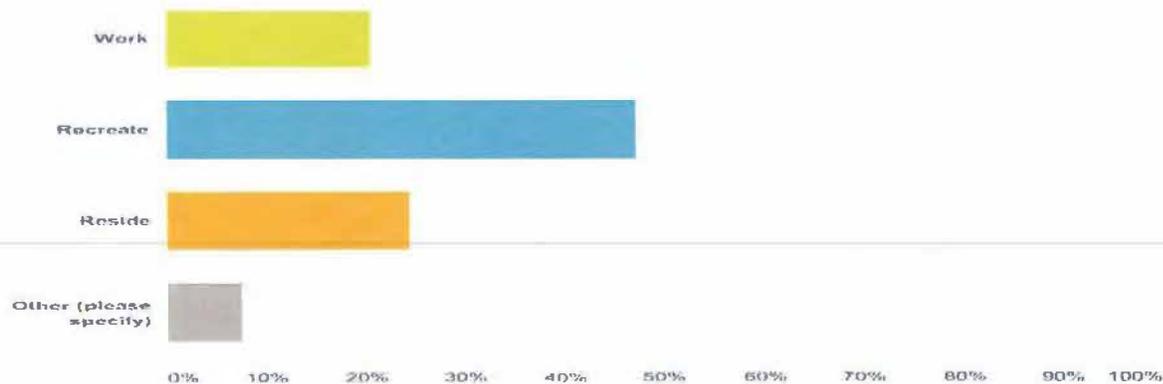
Answered: 53 (Skipped: 0)



Answer Choices	Responses	Count
Work	20.75%	11
Recreate	47.17%	25
Reside	24.53%	13
Other (please specify)	7.55%	4
Total		53

Q2 On average, how often do you work, recreate, or reside and therefore have the opportunity to observe the aesthetic conditions in the Cuyahoga River Area of Concern, along the mainstem and nearshore Lake Erie (see area highlighted in red on map)? Check the one that best applies.

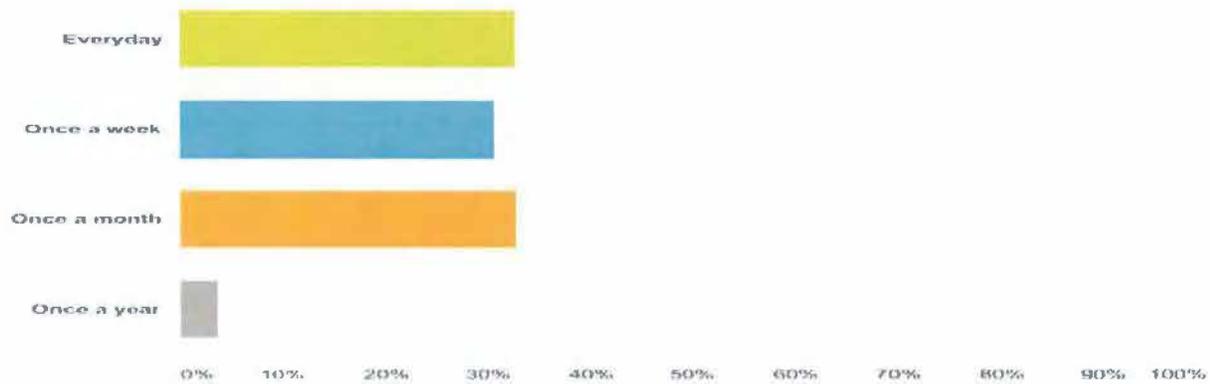
Answered: 53 (Skipped: 0)



Answer Choices	Responses	
Work	20.75%	11
Recreate	47.17%	25
Reside	24.53%	13
Other (please specify)	7.55%	4
Total		53

Q2 On average, how often do you work, recreate, or reside and therefore have the opportunity to observe the aesthetic conditions in the Cuyahoga River Area of Concern, along the mainstem and nearshore Lake Erie (see area highlighted in red on map)? Check the one that best applies.

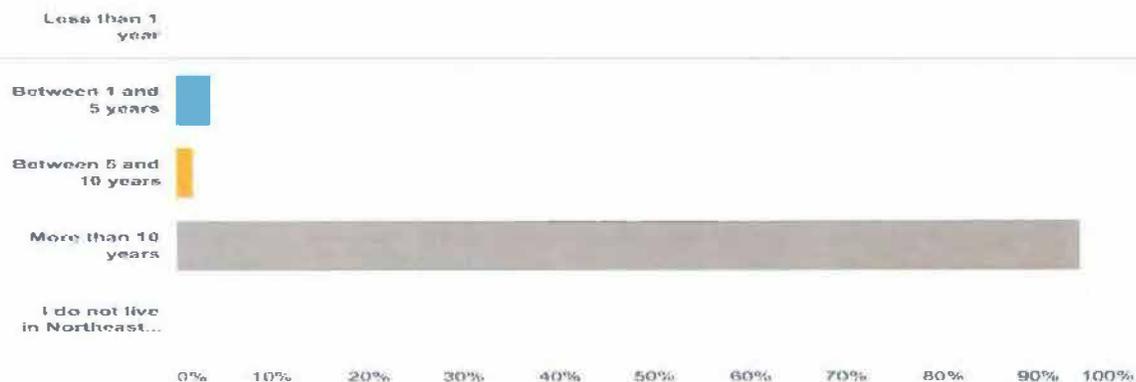
Answered: 52 (skipped: 1)



Answer Choices	Responses	
Everyday	32.69%	17
Once a week	30.77%	16
Once a month	32.69%	17
Once a year	3.85%	2
Total		52

Q3 How long have you lived in Northeast Ohio?

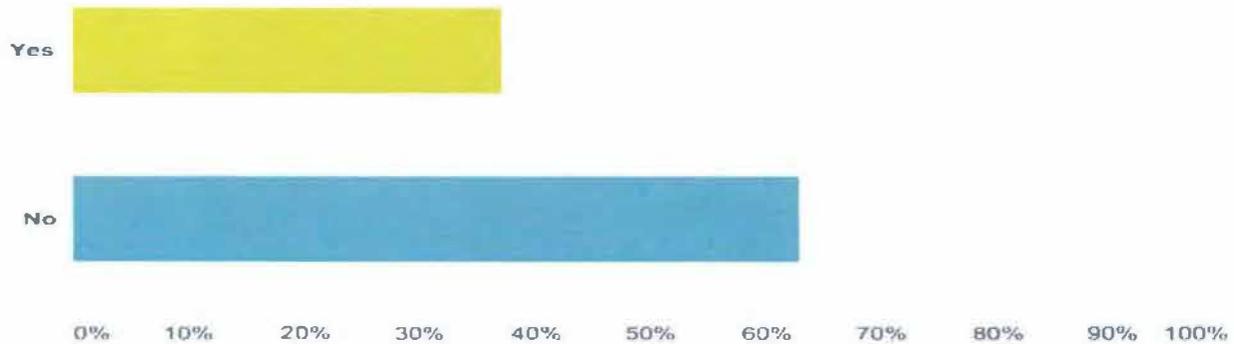
Answered: 53 (skipped: 0)



Answer Choices	Responses	
Less than 1 year	0.00%	0
Between 1 and 5 years	3.77%	2
Between 5 and 10 years	1.89%	1
More than 10 years	94.34%	50
I do not live in Northeast Ohio	0.00%	0
Total		53

Q4 Have you observed persistent sludge, oil sheens, or scum (layers of dirt or froth) in or on the water in the past three years? Persistent is defined as occurring more than two times per year and lasting longer than ten days in duration.

Answers: 31 Skipped: 2



Answer Choices	Responses	
Yes	37.25%	19
No	62.75%	32
Total		51

Q5 Approximately when did you observe the sludge, oil sheens, or scum? Please provide day, month, or year if at all possible.

Answers: 14 Skipped: 37

Narrative answers given, no summation of answers is practicable.

Q6 Where was the sludge, oil sheens, or scum observed? Please describe the nearest landmark or address.

Answers: 13 Skipped: 38

Narrative answers given, no summation of answers is practicable.

Q7 Describe what you observed. Please include description, including color if possible, and any odors.

Answered: 12 Skipped: 40

Narrative answers given, no summation of answers is practicable.

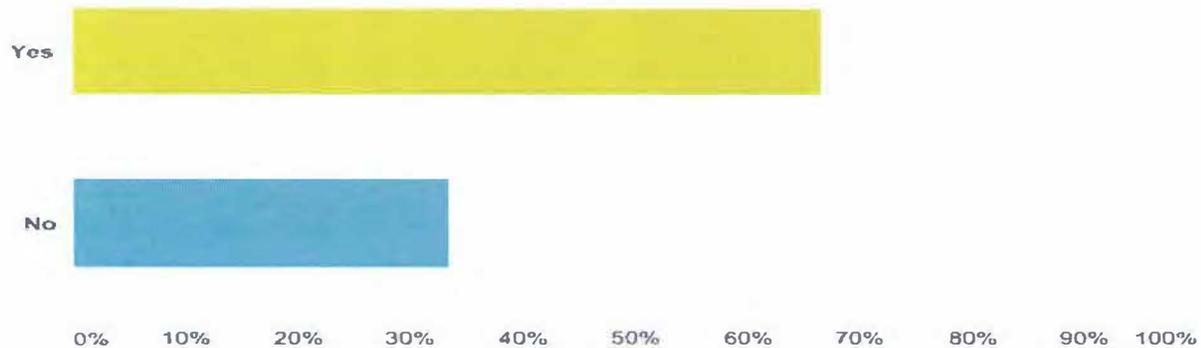
Q8 Approximately how long was the sludge, oil sheens, or scum apparent at this location? Please provide an estimate of time, such as the number of hours, days, weeks, or months.

Answered: 12 Skipped: 40

Narrative answers given, no summation of answers is practicable.

Q9 Have you observed persistent other objectionable materials, such as trash, in or on the water, or persistent obnoxious, offensive odors in the past three years? Persistent is defined as occurring more than two times per year and lasting longer than ten days in duration.

Answered: 42 Skipped: 11



Answer Choices	Responses	
Yes	66.67%	28
No	33.33%	14
Total		42

Q10 Approximately when did you observe the objectionable materials? Please provide day, month, or year if at all possible.

Answered: 24 Skipped: 20

Narrative answers given, no summation of answers is practicable.

Q11 Where was the objectionable materials observed? Please describe the nearest landmark or address.

Answered: 22 Skipped: 21

Narrative answers given, no summation of answers is practicable.

Q12 Describe what you observed. Please include description, including color if possible, and any odors.

Answered: 22 Skipped: 19

Narrative answers given, no summation of answers is practicable.

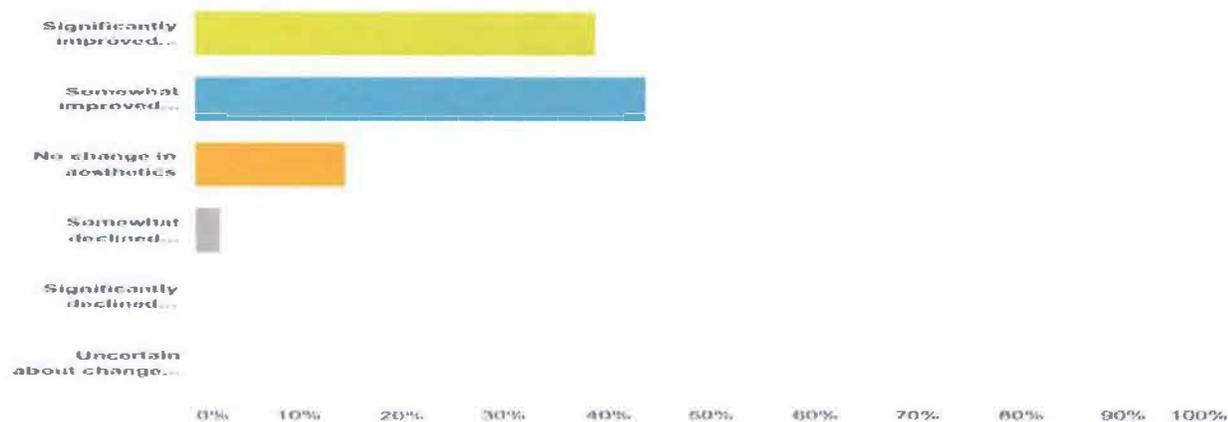
Q13 Approximately how long was the objectionable material apparent at this location? Please provide an estimate of time, such as the number of hours, days, weeks, or months.

Answered: 22 Skipped: 19

Narrative answers given, no summation of answers is practicable.

Q14 Overall, how much has aesthetics improved or declined from when you first started working, recreating, or residing in the Cuyahoga River Area of Concern compared to now?

Answered: 41 Skipped: 12



Answer Choices	Responses	Count
Significantly improved aesthetics	39.02%	16
Somewhat improved aesthetics	43.90%	18
No change in aesthetics	14.63%	6
Somewhat declined aesthetics	2.44%	1
Significantly declined aesthetics	0.00%	0
Uncertain about change in aesthetics	0.00%	0
Total		41

Q15 Do you have any additional observations on aesthetic conditions of the mainstem of the river and nearshore Lake Erie in the Cuyahoga River Area of Concern?

Answered: 19 Skipped: 33

Narrative answers given, no summation of answers is practicable.

NORTHEAST OHIO REGIONAL SEWER DISTRICT | PROJECT CLEAN LAKE



WHAT IS PROJECT CLEAN LAKE?

- ▶ *A program to enable NEORS D to meet Clean Water Act standards and address water quality issues caused by raw sewage that overflows into the environment during rain events.*

In 1972, the Clean Water Act was created to address water quality issues, like raw sewage discharges.

Although NEORS D has reduced raw sewage discharges significantly over the years and holds permits for discharge points, the EPA considers us in violation of the Clean Water Act because not all discharges have been controlled to required levels.

NEORS D and the federal government will enter into a Consent Decree to address this issue.

WHAT'S A CONSENT DECREE?

- ▶ *It's a document that spells out what NEORS D will do to reduce raw sewage discharges and when it will complete the work.*

It is a legally binding document entered into by NEORS D, the Department of Justice, U.S. Environmental Protection Agency, Ohio Environmental Protection Agency, and the Ohio Attorney General's Office. The document details NEORS D's **Project Clean Lake**.

Project Clean Lake is a \$3 billion, 25-year program that will reduce the total volume of raw sewage discharges from 4.5 billion gallons to 494 million gallons annually. Over 98% of wet weather flows in our combined sewer system will be receiving treatment in 25 years.



WHAT'S IN THE PLAN?

At the heart of the proposed Consent Decree is the construction of large-scale storage tunnels and treatment plant enhancements.

- ▶ *"Gray" infrastructure—tunnels*

NEORS D will construct seven tunnels, ranging from two to five miles in length, up to 300 feet underground and up to 24 feet in diameter—large enough to park a semi-truck.

The tunnels are similar to the nearly complete Mill Creek Tunnel, a structure with the capacity to store 75 million gallons of combined sewage for treatment at the NEORS D Southerly Wastewater Treatment Plant.

In 2011, NEORS D will begin construction on its second large-scale project, the Euclid Creek Tunnel System.

The five other remaining tunnel projects are: the Dugway Tunnel, Shoreline Tunnel, Southerly Tunnel, Big Creek Tunnel and the Westerly Tunnel.

- ▶ *Treatment plant enhancements*

At the Easterly and Southerly plants, the maximum amount of wastewater that can receive secondary treatment will increase. Additionally, at the Westerly plant, the maximum amount of treatment that can take place at the District's Combined Sewer Overflow Treatment Facility (located adjacent to Westerly) will increase.

Also, the District has been given an opportunity to demonstrate the effectiveness of lower-energy treatment options through pilot demonstration projects. If successful, NEORS D can avoid implementation of costly, energy-intensive treatment technologies.

- ▶ *"Green" infrastructure—SCMs*

Project Clean Lake includes a minimum of \$42 million in green infrastructure projects. This includes stormwater control measures (or SCMs) to store, infiltrate, and evapotranspire stormwater before it even makes its way to the combined sewer system.

Additionally, NEORS D will work with the City of Cleveland to assess the use of vacant lots for green infrastructure projects and leverage economic development opportunities in redevelopment corridors.

continued ⇨

This could reduce the long-term cost of the program while enhancing neighborhoods, providing economic development opportunities, and rebuilding our community.

WHAT DOES THIS MEAN FOR THE COMMUNITY? FOR CUSTOMERS?

- ▶ *It means a cleaner Lake Erie. But, with a \$3 billion price tag, it also means that rates will increase.*

As our main source of revenue, our customers will fund Project Clean Lake. Rate increases will be significant.

Currently, NEORSRD is working on a rate study, which will define the rate increases for 2012 through 2016. It is anticipated that rate increases for the first three years will be in the double digits.

However, NEORSRD is seeking additional funding and developing rate saving programs to help eligible customers defray the cost.

▶ *Economic impact*

A 2010 economic impact study by Cleveland State University (CSU) determined the economic benefit of sewer construction projects on the community.

Based on the information provided by CSU for the District's five-year CIP (2012-16), Project Clean Lake will generate 31,000 jobs in the seven Northeast Ohio counties and will generate \$3 billion in labor income. Plus, it will generate \$443 million in tax revenue.

WILL NEORSRD PAY ANY PENALTIES?

- ▶ *Yes, but most of our penalty dollars will stay in Northeast Ohio.*

In lieu of a portion of a civil penalty for past discharges, NEORSRD will use traditional penalty funds to invest in other environmentally-beneficial programs. The investment will directly benefit projects in Northeast Ohio.



WHAT'S HAPPENED SO FAR WITH THIS PLAN?

- ▶ *NEORSRD has worked cooperatively and positively with federal and state governments on CSO issues.*

Since 2004, District has negotiated with state and federal environmental regulators to obtain approval of the plan to reduce raw sewage discharges, the last of which was submitted to the state in 2002:

- Easterly District and Southerly District CSO facilities plans were submitted in 2002.
- Westerly District CSO facilities plan was submitted in 1999.
- The Mill Creek facilities plan was submitted in 1996
- Easterly and Southerly Wastewater Treatment Center plant bypass evaluations were submitted in 2008.
- In July 2010, NEORSRD and state and federal environmental regulators agreed on the basic elements of an acceptable proposal. Specific issues included the length of time allotted to complete construction projects, the cost of the program and affordability.

Like NEORSRD, over 770 other cities around the country—including Akron, Cincinnati, Columbus and Toledo—have negotiated (or continue to negotiate) a long-term plan to address sewer discharges.

WHAT'S NEXT?

- ▶ *Federal court*

Project Clean Lake will become final once all parties' signatures are included on the proposed consent decree and it is lodged in federal court.

A 30-day public comment period will then begin. At the end of that period, after it is approved by the federal court, the consent decree will be legally binding. This is anticipated to occur in November 2010.

- ▶ *Communicating to the public*

The Communications & Community Relations department is tasked with communicating to the public Project Clean Lake and its direct financial repercussions—higher sewer rates for NEORSRD customers.

For more information, contact:

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