



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

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

JAN 25 2018

Dear Mr. Butler:

Thank you for your January 3, 2018, request to remove the "Degradation of Benthos" Beneficial Use Impairment (BUI) from the Ashtabula River Area of Concern (AOC), Ashtabula, 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 Ashtabula 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 Ashtabula 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 blue ink that reads "Tinka G. Hyde".

Tinka G. Hyde, Director
Great Lakes National Program Office



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

January 3, 2018

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

RE: Ashtabula River Area of Concern Degradation of Benthos Beneficial
Use Impairment 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, including the Ashtabula River system, to be designated as Areas of Concern (AOCs) by the International Joint Commission.

In the last two decades, remarkable progress has been made in the Ashtabula River AOC, largely due to the determination and hard work of the AOC Advisory Council, Ashtabula River Cooperative Group and other partner organizations, including U.S. EPA and the U.S Army Corps of Engineers. Ohio EPA and the Ashtabula River AOC Advisory Council contend that sufficient progress has been made in the benthic communities in the AOC and are requesting concurrence with the enclosed recommendation to remove the Degradation of Benthos Beneficial Use Impairment (BUI) in the Ashtabula River AOC.

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

Sincerely,

A handwritten signature in black ink, appearing to read "C. Butler".

Craig W. Butler
Director

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OHIO EPA NEDO

Removal Recommendation for the Degradation of Benthos Beneficial Use Impairment in the Ashtabula River AOC



The Lower Ashtabula River

From US Department of the Interior, www.

Ashtabula River Area of Concern

December 19, 2017

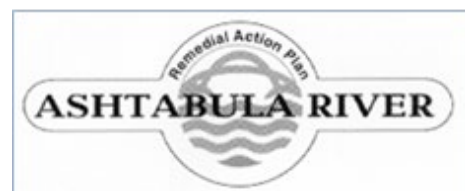


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Background

The Ashtabula River lies in extreme northeast Ohio, flowing into Lake Erie's central basin at the city of Ashtabula. Its drainage basin covers an area of 137 square miles, with 8.9 square miles in western Pennsylvania. Major tributaries include Fields Brook, Hubbard Run and Ashtabula Creek. Native American inhabitants referred to the river as the Hash-tah-buh-lah or "river of many fish." The city of Ashtabula, with an estimated population of 19,124 (2010 Census, <http://censusviewer.com/city/OH/Ashtabula>) is the only significant urban and industrialized center in the watershed, the rest of the drainage basin being predominantly rural and agricultural.



Figure 1. Sheet-piled and natural riverbanks in the Ashtabula AOC

shipping and shipbuilding enterprises. The land adjacent to the lower river was lined with train tracks to accommodate the rail transport enterprises that handled the inland movement of the coal and iron ore. The riverbanks were hardened with wood and steel sheet-piling to protect from riverbank erosion and to provide commercial ship dockage. Now, almost no natural riverbank habitat remains in the lower river (Figure 1) as the sheet-piled riverbanks now provide dockage for numerous recreation boating marinas (Figure 2). These armored riverbanks continue to impact aquatic habitats.

In the mid-1900s several chemical production companies began operation along Fields Brook, which is a tributary to the lower river (Figure 3). Over time, discharges from these facilities left Fields Brook and the lower Ashtabula River heavily contaminated with polychlorinated biphenyls (PCBs), chlorinated benzene compounds,



Figure 2. Marinas in the Ashtabula River AOC

The Ashtabula River, upstream of the City of Ashtabula, has been designated an Ohio Scenic River due to pristine natural features including wooded riparian corridors and diverse communities of wildlife. Beginning in the early 1800s, the lower Ashtabula River was widened and deepened into a deep draft harbor to accommodate commercial

chlorinated ethenes, hexachlorobutadiene, polycyclic aromatic hydrocarbons (PAHs), and heavy metals. Fields Brook was named a Superfund site in 1983 and a cleanup of the brook and associated industrial sites occurred in 1999-2001.

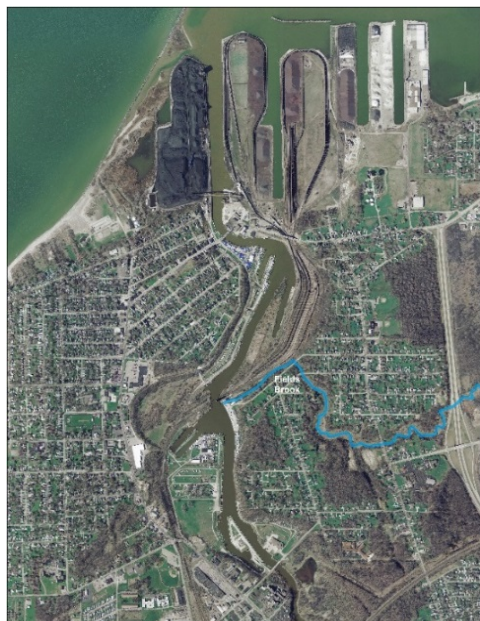


Figure 3. Fields Brook Locator Map

Under the 1987 Great Lakes Water Quality Agreement, the lower two miles of the Ashtabula River were designated as a Great Lakes Area of Concern (AOC). In 1988, the newly formed Ashtabula River Remedial Action Plan (RAP) Advisory Council agreed to focus upon an AOC defined as the lower 2.5 miles of the Ashtabula River, Ashtabula Harbor and the adjacent Lake Erie nearshore. The entire mainstem within the AOC is a lacustrine or freshwater estuary. In this area, river flow can be affected by adverse weather patterns and water levels of the Lake Erie. At times, the river flow slows and occasionally stops or reverses and during these times, additional stress is subjected to the resident aquatic fauna.

A variety of agencies and organizations contributed to the Ashtabula River Remedial Action Plan (RAP) including the Ashtabula River Partnership, Ohio EPA, Ohio Sea Grant College Program, Ashtabula Soil and Water Conservation District, U.S.

Army Corps of Engineers, United States Environmental Protection Agency (U.S. EPA), angler groups, local businesses and industries, marinas, port industries, local governments, economic development offices, Kent State University and unaffiliated citizens.

Six beneficial use impairments (BUIs) were initially identified for the Ashtabula River AOC by the RAP Advisory Council. In 2014, that list was reduced to three when BUI #1 Restrictions on Fish and Wildlife Consumption, BUI #3 Degradation of Fish and Wildlife Populations and BUI #14 Loss of Fish and Wildlife Habitat were removed. Currently, the three remaining BUIs in the Ashtabula AOC

- BUI #4 Fish Tumors and Other Deformities,
- BUI #6 Degradation of Benthos and
- BUI #7 Restrictions on Dredging Activities.

The Degradation of Benthos beneficial use was listed as impaired by the Ashtabula River AOC Advisory Council in their Stage 1 Report of 1991. The Advisory Council determined that Invertebrate Community Index (ICI) values “decreased downstream from Fields Brook.” ICI is an assessment tool used by Ohio EPA to evaluate benthic community structure and health. It measures the attributes of species composition, diversity and functional organization and yields a narrative or numeric value. Ohio EPA

later modified the ICI assessment to be more representative of conditions in lacustraries and near shore Lake Erie sites. That new assessment method is called a Lacustrary Invertebrate Community Index (L-ICI). It should be noted that the differences in methodologies between ICI and L-ICI makes any comparison between the numeric values generated by each method impossible. The L-ICI index takes into consideration the altered habitats of typical lacustraries but does not address either water column contaminants or excessive sedimentation.

Concerning the benthos impairment, the Advisory Council stated that there was a degree of “chemical impact recorded near the confluence of Fields Brook.” The river sediments consisted of silts and fine clays which are materials that readily absorb the types of organic contamination found in the Ashtabula AOC. The Advisory Council also reported that other impacts to the macroinvertebrate communities “appeared to be habitat related and affected by the heavy recreational use of the river.” Remediation of the contaminated sediment problem began with the Great Lakes Legacy Act dredging operation of 2005-2007 when 500,000 cubic yards of sediment containing an estimated 25,000 pounds of PCBs and other contaminants were removed from the river bottom. A second remedial dredging operation was completed in 2013 which removed 11,000 cubic yards of PCB and diesel-range organic contamination from the North Slip site at Jack’s Marine.

After 2005-2007 Legacy Act dredging operations were completed, the RAP Advisory Council and Ohio EPA began work on restoring habitat in the AOC. By 2010, through a Natural Resource Damage Assessment (NRDA) settlement, Great Lakes Legacy Act (GLLA) and Great Lakes Restoration Initiative (GLRI) funding, over 2300 linear feet of in-water habitat shelf was constructed at the 5 ½ Slip peninsula site which was determined to be the optimal location as it is centrally located in the 2.32-mile AOC and offered the longest continual stretch of non-armored riverbank. In addition, approximately 3.6 acres of improved upland habitat was created on the peninsula. By 2012, an additional 1540 linear feet of in-water habitat shelf was constructed by Ohio EPA through Great Lakes Restoration Initiative (GLRI) funding.

Throughout the remedial process, the RAP Advisory Council has monitored improvements in the river habitat, resident and transient communities of organisms. The in-water habitat structures allowed for the removal of two BUIs (Degradation of Fish and Wildlife Populations and Loss of Fish and Wildlife Habitat) in the Ashtabula AOC and were expected to benefit benthic communities as well.

BUI Listing Criteria and the Impaired Listing for Benthos in the AOC

The Ashtabula River Advisory Council listed the impairment for the Degradation of Benthos BUI in their 1991 Stage 1 Report, according to the listing criteria in effect at the time which came from the International Joint Commission (IJC). The IJC listing criteria stated that the Degradation of Benthos BUI should be listed as impaired when the structure of benthic macroinvertebrate communities diverges from benthic community structures at reference locations. The Stage 1 Report noted the cause of the

impairment was organic enrichment of the river sediment and that pollution-tolerant species dominate.” (See Table 1.)

Table 1. Ashtabula River AOC Stage 1 Report Impairment Listing				
BUI	Impaired?	Causes	Sources	Notes
Degradation of Benthos	Yes	Organic Enrichment & Habitat Destruction	Bottom Sediments	Pollution-tolerant species dominant

(From Ashtabula River Remedial Action Plan Stage 1 Investigation Report December 1991)

At the time, Lake Erie lacustrine warmwater habitat water quality biocriteria, including benthic macroinvertebrate criteria, had not been established but the 1992 Ohio EPA *Biological Community Status of the Lower Ashtabula River and Harbor within the Area of Concern (AOC)* suggested that an ICI value of 22 is a level of “attainment that can be reasonably expected at least impacted sites.” Deviations of 4 or less points from 22 were considered “to be insignificant departures from the expected value and within the range of attainment.” One of the ICI scores from 1989, at River Mile 1.90, was outside the significant departure value.

Table 2. 1989 Ashtabula River AOC Benthic Community (ICI) Scores, from RAP Stage 1 Document		
River Mile	Year	Invertebrate Community Index (ICI) Score
0.60	1989	20
1.30	1989	18
1.90	1989	16

The Stage 1 Report based the impaired listing on available benthic community data and that a mayfly and water flea bioassay study found the sediments of the upper turning basin and a reach downstream of Fields Brook were classified as toxic. The sediments in the remainder of the river channel were classified as heavily-polluted and the Outer Harbor as moderately polluted to non-polluted. According to the listing criteria in effect at the time, the original impaired listing for the Degradation of Benthos BUI was warranted with the impairment primarily due to the contaminated sediments.

Issue

Restoring an AOC to a pristine condition has never been a practical goal of the Great Lakes AOC program and therefore, an issue has always been to what degree of restoration should be necessary before a BUI can be removed. This conflict is especially pertinent with the Degradation of Benthos BUI in the Ashtabula AOC. What is reasonably possible (dredging of contaminated sediments and aquatic habitat construction) has been done to improve aquatic habitat in the maintained navigation channel reach of the AOC where the channel has been unnaturally deepened and widened and where most of the riverbanks must remain sheet-piled for use by numerous operating marinas operating in this area. The issue now is not if the benthic communities can develop into a higher attainment level but, considering natural and anthropogenic impacts to the benthic communities, should the length of time for benthic recovery delay the removal of this BUI. Due to natural conditions and man-made changes to the Ashtabula River AOC, the time necessary for the recovery of the benthic communities may be prolonged.

Degradation of Benthos BUI Removal Criteria

The Ohio EPA Lake Erie Unit and AOC Coordinators developed a BUI delisting guidance document, *Delisting Guidance and Restoration Targets for Ohio Areas of Concern* and this document has been updated twice, most recently in 2017. The general guidance, for all BUIs, states that BUIs can be removed under any of the following circumstances:

- Removal targets have been met and follow up monitoring or other evaluations confirm that the beneficial use has been restored;
- It can be demonstrated that the BUI is due to natural rather than human causes;
- It can be demonstrated that the impairment is not limited to the local geographic extent of the AOC, but rather is typical of lake-wide, region-wide, or area-wide conditions (under this situation, the beneficial use may be incorrectly recognized as impaired); or
- The impairment is caused by sources outside the AOC. The impairment is not restored, but the impairment classification can be removed or changed to “impaired-not due to local sources.” (Responsibility for addressing “out of AOC” sources is assigned to another party or program (e.g., Lakewide Management Plan (LaMP), TMDLs, health department).)

The current removal targets, specific for the Degradation of Benthos BUI, states that this beneficial use can be removed in a lacustrary when either:

- The average of the combined quantitative L-ICI values and the numerically converted qualitative values do not significantly diverge from the State of Ohio’s BUI Restoration Targets for macroinvertebrate community (Table 3).

Table 3. Degradation of Benthos BUI Removal Targets
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	EWH, WWH, MWH	LRW
Lacustrary L-ICI Value	34	12
EWH = Exceptional Warmwater Habitat Sites	WWH = Warmwater Habitat Sites	
MWH = Modified Warmwater Habitat Sites	LRW = Limited Resource Water Habitat Sites	

Note: The ICI target for lacustraries is based on an Ohio EPA study in 1994 that identified 34 as a value considered an attainable goal for the Lake Erie lacustraries given the current altered habitat conditions in the absence of excessive sedimentation and water column enrichment or toxicity.

OR

- In waters where routine dredging has not occurred due to the severity of contaminated sediments and where benthic degradation has been caused by the contaminated sediments, this BUI can be considered restored when remediation actions, such as Superfund, Resource Conservation and Recovery Act (RCRA) and Great Lakes Legacy Act (GLLA), of those contaminated sediments have been implemented at all known contamination sites to the extent practicable.

As previously stated, the entire Ashtabula River mainstem within the AOC is located within the lacustrary. The Ashtabula River has been designated by Ohio EPA as a warm-water habitat (WWH) stream and therefore an L-ICI value of 34 would be the benthic assessment removal target. The Degradation of Benthos BUI was originally listed in the Stage 1 Report because benthic assessments found that pollution tolerant species were dominant and that bioassays found the bottom sediments of some areas of the AOC to be heavily polluted to toxic.

Ohio's 2017 guidance also recognized that the disruptive nature of routine dredging operations could make attainment of Benthos BUI removal targets impracticable as the dredging and removal operations are disruptive to benthic communities and their habitat. The guidance document stated that it would be unrealistic for a healthy benthos community to be restored and maintained in routinely dredged river systems and that the ICIs and L-ICIs would not be evaluated in these areas and the Degradation of Benthos BUI would not be applicable. Unfortunately, routine dredging has not occurred in the Ashtabula River, due to the severity of sediment contamination. The Legacy Act dredging of 2005-2007 was the first dredging operation in the lower Ashtabula River since 1979. Therefore, the exemption for routinely dredged river systems would not pertain to the Ashtabula River AOC.

A downturn in the regional economy has closed many operations that had used the river channel for shipping. It is not expected that the routine maintenance dredging operations for commercial shipping

in the river channel, upstream of River Mile 0.6, will continue. Therefore, the exemption for routinely dredged river systems remains not applicable to the Ashtabula AOC.

This recommendation to remove the Degradation of Benthos from the Ashtabula AOC therefore offers that the benthic communities in the Ashtabula River mainstem have not recovered from the remedial dredging operations of 2005-2007 and 2011 and, despite a remedial project designed to improve in-stream habitat, the numeric restoration target is not being achieved for a suite of natural and anthropogenic reasons. The recovery may yet occur but it may take several years.

Benthic Community Assessments in the Ashtabula River AOC

The Ashtabula River AOC has a long history of non-attaining benthic community performance that has been documented in Ohio EPA's water quality reports since 1992. For the 1992 report, three sites were assessed for benthic community status using the agency's Invertebrate Community Index (ICI). The average ICI value for the four sites assessed was 18 (Table 4). At the time, a 1992 Ohio EPA report noted that an ICI score of 22 should be reasonably attainable at Lake Erie lacustrine sites. No Ashtabula AOC site assessed for the 1992 report achieved this value.

Starting in 1995 Ashtabula AOC sites were assessed using a newer L-ICI methodology. With the new methodology, the upstream sites of the AOC (above RM 1.86) in 1995 and 2003 showed attainment to the current BUI removal criteria (L-ICI \geq 34) but the downstream sites failed to meet the criteria and one site, at River Mile 1.30 in 1995, failed to meet 50% of the current removal target of an L-ICI value of 34. Ohio EPA conducted additional L-ICI assessments in 2003 and 2005 for the *Biological Study of the Lower Ashtabula River and Conneaut Creek, Ashtabula River NRDA Project 2005*. At that time, the L-ICI average in the AOC was 35.6 and this average value would have met the current BUI removal target but a removal recommendation for the Degradation of Benthos BUI was not offered at that time as benthic communities and habitat would be decimated with the scheduled Great Lakes Legacy Act (GLLA) dredging operation that occurred between 2005 and 2007.

As expected, the decimation of benthic communities and their habitat was reflected in the assessments of 2011, 2014 and 2015. The AOC average for L-ICI was 30.7 in 2011, 28.0 in 2014 and 23.4 in 2015 (Table 4). All were below the removal target of an average L-ICI value of 34 and as can be seen in Figure 4. Although, the AOC average has been digressing, Jeff DeShon of Ohio EPA offered that "while we seem to be on a trajectory to get back to those pre-project ICI scores, the most recent data we collected in 2015 suggests we are not there yet." (J.D. DeShon, personal communication, Jan. 1, 2017)

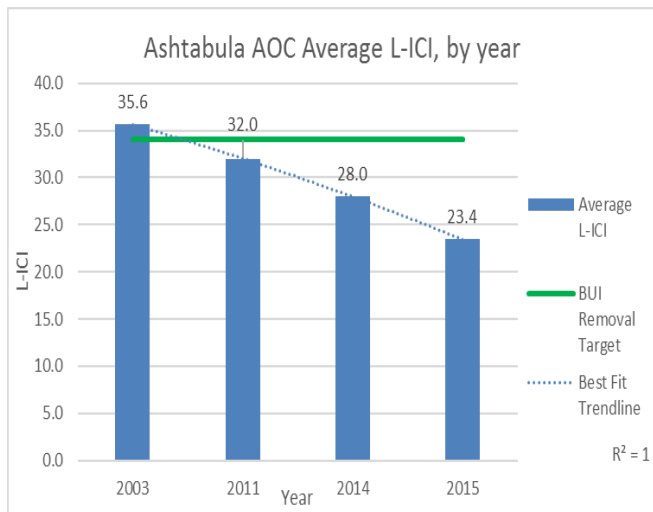


Figure 4. Ashtabula AOC Average L-ICI, by year



Figure 5. L-ICI Assessment Sites, by River Mile

Table 4. Benthic Community Assessment (ICI and L-ICI) Results									
Year	River Mile	ICI	L-ICI	Yearly Average	Year	River Mile	ICI	L-ICI	Yearly Average
1989	0.60	20	Not Applicable	18	2011	0.6	Not Applicable	26	32.0
	1.30	18				0.9		22	
	1.90	16				1.1		44	
1993	0.3	14		1.6		24			
1995	0.8	Not Applicable	26	29.5	2014	2.4	Not Applicable	44	28.0
	1.3		14			0.3		24	
	2.3		38			0.9		26	
	2.5		40			1.5		26	
2003	0.58	Not Applicable	42	35.6	1.6	Not Applicable	20		
	1.04		32		1.8		30		
	1.28		28		2.32		42		

	1.5		30			0.3		30	
	1.58		22			0.9		26	
	1.65		18			1.5		28	
	1.66		24		2015	1.6		20	23.4
	1.86		42			1.65		10	
	1.95		48			1.7		20	
	2.15		56			2.32		30	
	2.34		50						

Discussion of Local Impediments to Benthic Community Recovery

In 2003, the benthic communities of the Ashtabula River met the current removal target, so it is likely that a recovery following the past dredging operations will occur, but recovery has been impeded, beyond the expectations, due to the lacustrine nature of the AOC coupled with seasonal low river flows, habitat disruption, excessive siltation exacerbated by a high level of recreational boat traffic, that continually resuspends bottom sediments, and low dissolved oxygen. These additional factors are either natural to the Ashtabula River or unfeasible for remediation due to local economic reasons.

Low River Flow

Low river flow is already considered to be a natural condition of the whole Ashtabula River basin, especially in the summer. According to Ohio EPA's water quality reports of the Ashtabula River system (1997, 2007 and 2014) and an ODNR report (2008), low river flows, especially in the dry summer months have a deleterious effect on aquatic life. The low summer flows can be adversely affected by lake levels and opposing wind patterns as seen in the lacustrine Ashtabula River AOC. At one time, USGS operated a gaging station at RM 5.5 but this station was discontinued in 1980. River Mile 5.5 is upstream of the AOC boundary but the flow data from this site is indicative of the flow entering the AOC. The Stage 1 Report also noted that typical dry weather flow was "around 10 cfs" at this site but "occasionally decreases to zero" and that "low flow conditions prevail 90 percent of the time."

Additionally, the Stage 1 Report noted that the flushing times for the AOC, "when the average flow was 586 cfs (more than 3 times the average annual flow), was 2.83 days. Flushing time calculated in September 1973 when the average flow was 1.57 cfs was 137.1 days." At these low flow times, the flushing time would correlate to more than 4.5 months. From flow data reported in the Stage 1 Report, Figure 6 shows the mean river flow by month from 1970 to 1980.

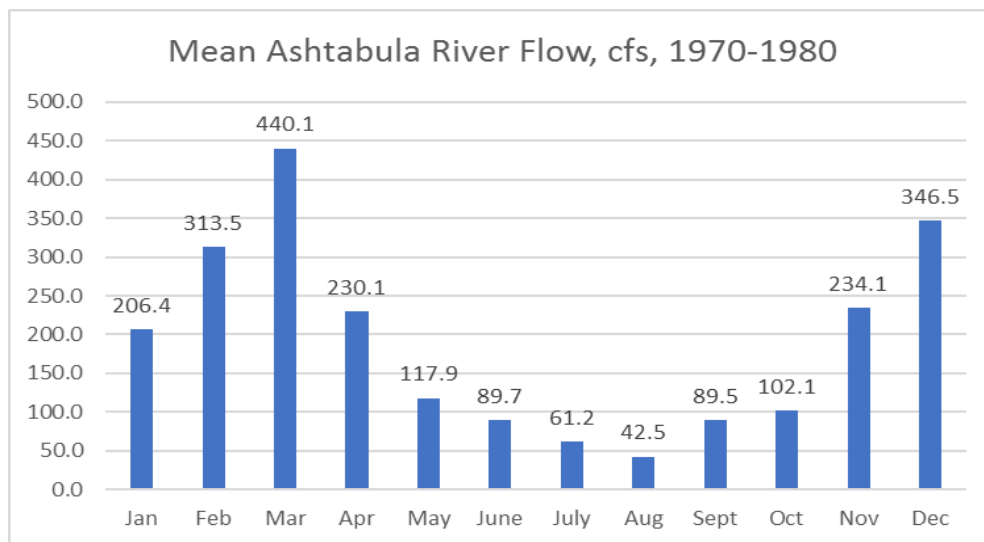


Figure 6. Mean Ashtabula River Flow, USGS Gage 1970-1980, from RAP Stage 1 Report

In the 1997 Ashtabula River water quality report, Ohio EPA found that although “the physical habitat is very good, extremely low or intermittent flows occur every summer in the Ashtabula River (USGS reference) limiting the amount of habitat available to aquatic fauna. The low flows in summer are due to the limited ground water capacity of the shale bedrock aquifers” and that benthic “communities throughout the Ashtabula River basin reflected moderate stresses from the late summer-low flow conditions.” The Ohio EPA 2014 water quality report determined that although “the Ashtabula River basin annually receives above Ohio average rainfall, it also annually exhibits low to nearly intermittent flow” and “the lack of flow was deemed more stressful and the variable source of water was accepted as a

natural or typical background exposure condition.” In addition, and as previously discussed, the low river flow causes lengthy flushing time that allows the river water to warm in the summer. As the waters warm, there is a further decreasing of available dissolved oxygen.



Figure 7. Cycling of river flow in turning basin

River flow in lacustraries is affected by adverse wind patterns and lake levels and it has often been reported that the flow stops or even reverses. In the Ashtabula River AOC, which is entirely in the lacustrary, the river channel is confined at the railroad bridge at River Mile 1.60, forcing the flow through a much narrower channel and continuing to impede flow. This location is at the downstream end of the turning basin and accepts flow from Strong and Fields Brooks. At times, Ashtabula River flow has been seen to stop and even cycle, counterclockwise, within the turning basin (Figure 7).

Habitat Disruption

As previously stated, modifications made to the Ashtabula River navigation channel to facilitate commercial and recreational navigation and the continuing use of the river for these purposes have

altered aquatic habitat making attaining and maintaining the L-ICI removal target impractical. These modifications are not reasonably restorable due to local economic reasons. As can be seen in Figure 1, of the approximately 5.5 miles of riverbank in the AOC, about 75% is armored with steel sheet-piling.



Figure 8. 5 ½ Slip Habitat Shelf & Upland Remedial Work

The current Ohio guidance states that an average value of all assessments within a reach or sub-basin should be used for BUI attainment studies but if any site falls below 50% of the current removal target, the whole reach of sub-basin would remain impaired. In these situations, the Ohio guidance states that remedial efforts should be directed to that low-value site. A remedial effort was undertaken in 2010 with the installation of an underwater habitat shelf, between RM 1.1 and RM 1.5 (Called the 5 ½ Slip Site), through funding available by the Great Lakes Restoration Initiative. (Figures 8 and 9).

The shelf project was designed to improve aquatic habitat and therefore fish and benthic community scores in the AOC. The location was chosen for the creation of an underwater habitat shelf because:

- The site offered the longest continuous section of unarmored riverbanks in the AOC and
- The site is located at the mid-point of the AOC where improved habitat might migrate beneficial effects throughout the small AOC and

- The site consistently yielded low ICI/L-ICI values and it was decided that any improvement at this location would translate to better AOC average values.

Originally, the 5 ½ Slip underwater habitat shelf showed great promise and helped remove the Fish Populations and Fish Habitat BUIs but the shelf site has not been able to maintain the level of benthic community health and L-ICI attainment values as had been anticipated due to excessive siltation blanketing the site and smothering habitat.

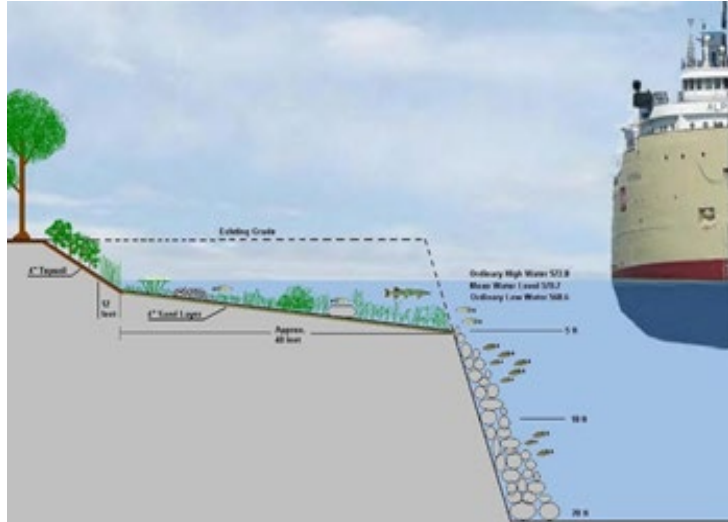


Figure 9. Cross-section of Ashtabula River Habitat Shelf (adapted from Black River Ecological Restoration Master Plan)

Excessive Siltation

Although the river channel has not been actively maintained since 1979, the historically deepened river channel exasperates other problems. Ohio EPA has noted problems (1992 and 1997) associated with excessive siltation and the predomination of silt/muck substrates has led to a High to Moderate degree substrate embeddedness in QHEI habitat assessments. The silt/muck substrates tend to blanket the benthic habitat and hinder community performance. Ohio EPA's 1992 water quality report on the Ashtabula River noted, "Aquatic macrophytes in this area also had a heavy layer of clay silts." Upstream of the AOC is of sufficient quality that the upstream areas have been designated a State Scenic River but this high-quality portion of the watershed is the source of the silt. The silt migrates downstream but drops out of the water column and smothers benthic habitat when river flow slows, as what happens in the artificially widened and deepened navigation channel that makes up the AOC. Excessive sedimentation can hinder benthic community recovery and attainment and the Ohio BUI removal guidance states that the ICI numeric target for lacustuaries is based on an "Ohio EPA study in 1994 that identified 34 as a value considered an attainable goal for the Lake Erie lacustuaries given the current altered habitat conditions in the absence of excessive sedimentation and water column enrichment or toxicity." (Emphasis added)

Marinas and Recreational Uses

Along the river channel, the armored banks are now being used for recreational marinas and Ohio EPA reported in 1992 that "marina development exists on about 50% of the river's shoreline from RM 0.7 to RM 2.2." The impacts from marinas and the recreational boat traffic in Ashtabula River AOC are likely increasing. In the past, sediment contamination problems led many recreational boaters to moor their boats at other Lake Erie harbors and the occupancy at many Ashtabula marinas had declined. Since the

Legacy Act dredging, the marina occupancy rates are recovering and no less than six marinas are operating on the riverbanks of the AOC, which is only 2.5 miles in length. The marinas and associated recreational watercraft activity have become important to the economic health of region and City of Ashtabula. The Stage 1 Report noted that the silt impaired benthic assessments: “Moderate to heavy siltation was observed on the artificial substrate samplers suggesting that heavy recreational boat traffic was impacting the colonization of the samplers by covering them with silt.” The Stage 1 Report was issued in 1991. With the increased use of the river by recreational boaters, the impacts from recreational boat traffic must be increasing.

Dissolved Oxygen

The wide and deep river channel, coupled with the natural low flow conditions in the lacustrary where river flows are affected by lake levels and wind patterns, is affecting dissolved oxygen levels which could be inhibiting benthic performance. The Stage 1 Report noted that USGS operated a water quality monitor at RM 0.8, within the AOC, from 1968 to 1979 and that “DO standards were violated numerous times from June to September throughout the period of record.” The Stage 1 Report further described that “dissolved oxygen concentrations in the lower river are strongly influenced by harbor morphology, low flow, meteorological conditions and lake levels, so low DO’s are not related solely to chemically degraded water quality.”

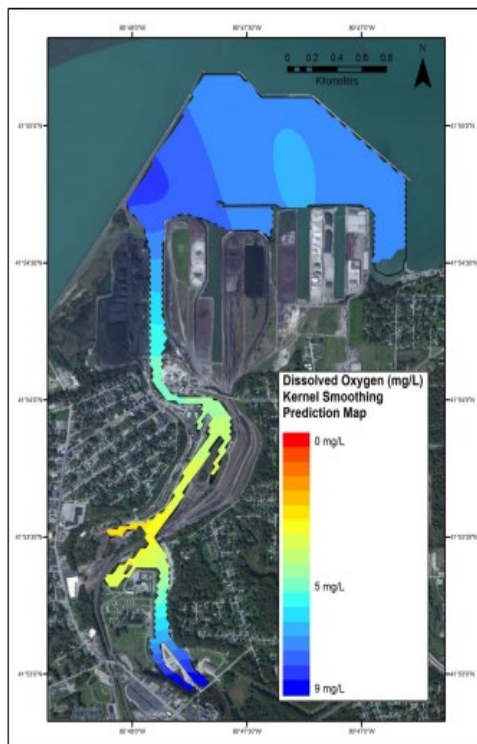


Figure 10. Dissolved Oxygen Prediction Map (from NOAA 2012)

In 2012, NOAA produced a study (*Assessment of Ecological Condition and Stressor Impacts within Great Lakes Region Areas of Concern (AOCs): Ashtabula River and Milwaukee Estuary*) that predicted dissolved oxygen levels. The study stated, “One station (A12) had DO values in a range considered poor (< 2 mg/L) and often associated with adverse conditions for benthic fauna while an additional 4 stations (A6, A7, A9, A10) had DO values considered fair or moderate (2 – 5 mg/L range).” NOAA’s station A12 roughly corresponds to RM 1.60 site in Figure 5 and since 2003, benthic assessments at and around this site have yielded L-ICI values well below the removal target value of 34. As can be seen in Figure 10, adequate levels of dissolved oxygen can be predicted coming in from upstream and from Lake Erie but the lowest dissolved oxygen values are predicted in the middle of the AOC between River Mile 1.0 and 1.8 (in and around the turning basin), exactly where the lowest L-ICI values have been consistently found.

This study did not, however, answer why, in all areas of the AOC (turning basin, downstream of turning basin, upstream of turning basin) have seen L-ICI assessments trending downward. (Figure 11) In fact, where the NOAA study predicted the highest dissolved oxygen concentrations in the river (most upstream location) has also seen a downward trend in L-ICI values.

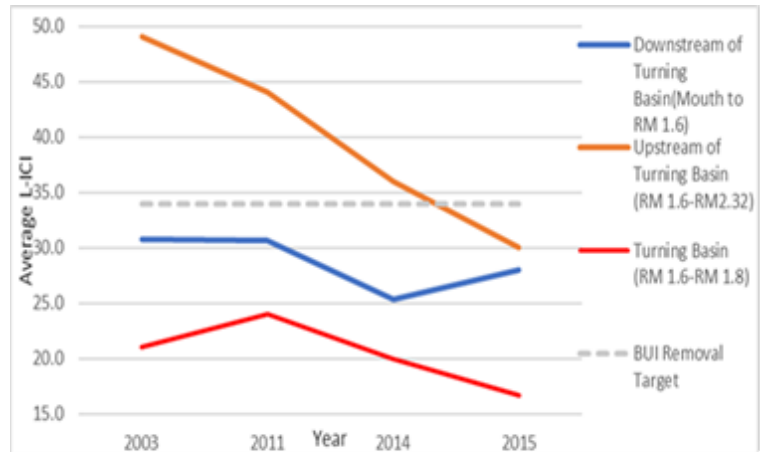
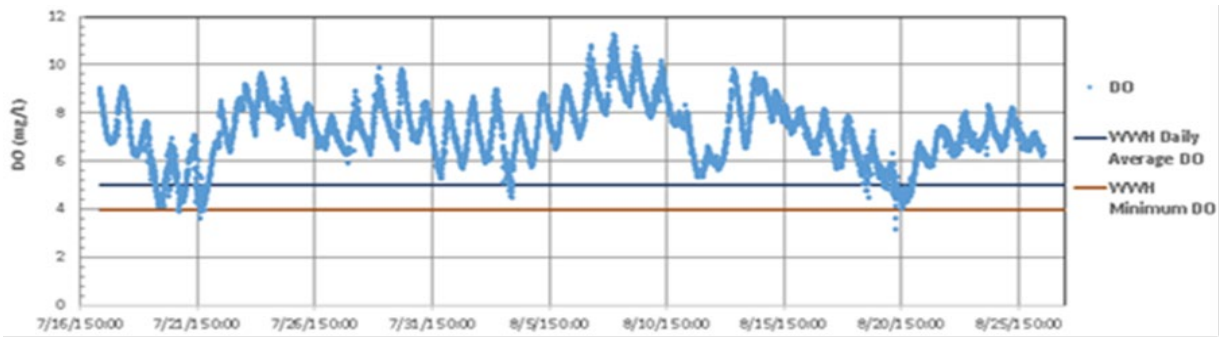


Figure 11. L-ICI trend chart for the Ashtabula River AOC, by year

During the summer of 2015, U.S. EPA's National Risk Management Research Laboratory (NRMRL) and Ohio EPA collaborated on a water quality study (Technical Memo: 2015 Water quality during the LICI survey in the Ashtabula River AOC) in the Ashtabula River AOC. The diurnal dissolved oxygen results from this study can be seen in Figure 12 and an argument could be made of a relationship between dissolved oxygen and L-ICI values.

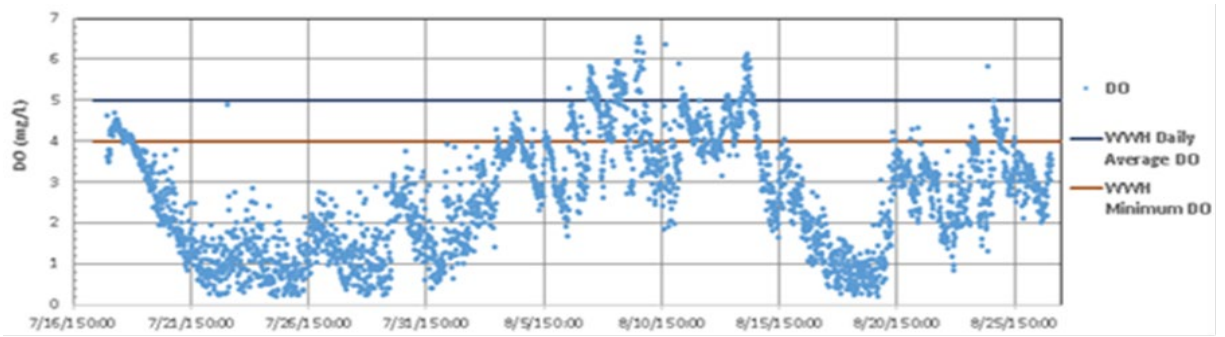
Ash01 (RM 2.32)

L-ICI = 30 (88.2% of removal target)



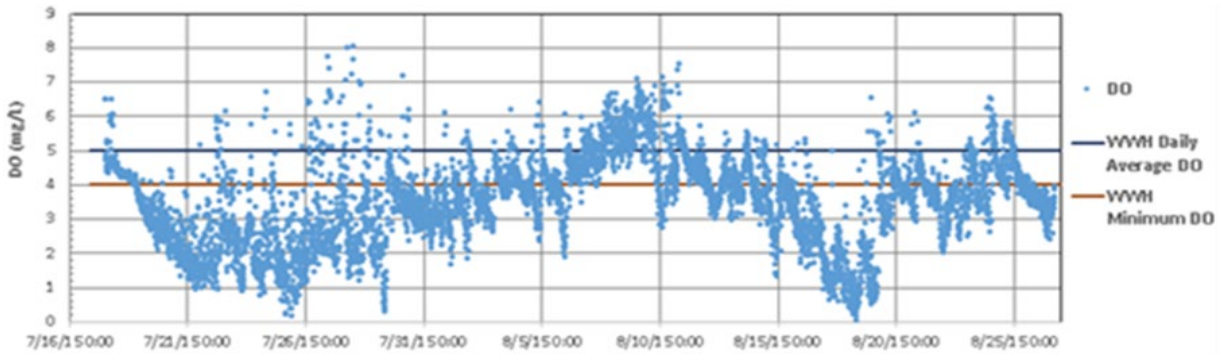
Ash02 (RM 1.7)

L-ICI = 20 (58.8% of removal target)



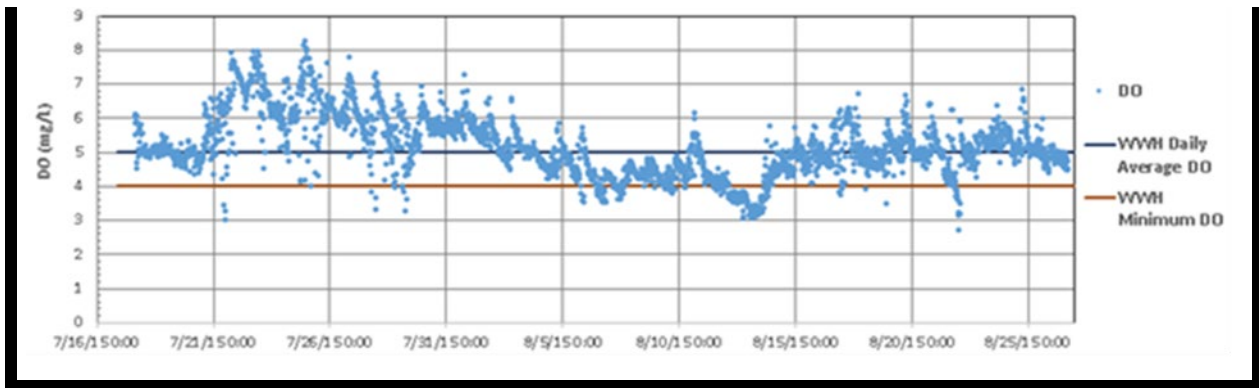
Ash04 (RM 1.6)

L-ICI = 20 (58.8% of removal target)



Ash06 (RM 0.9)

L-ICI = 26 (76.5% of removal target)



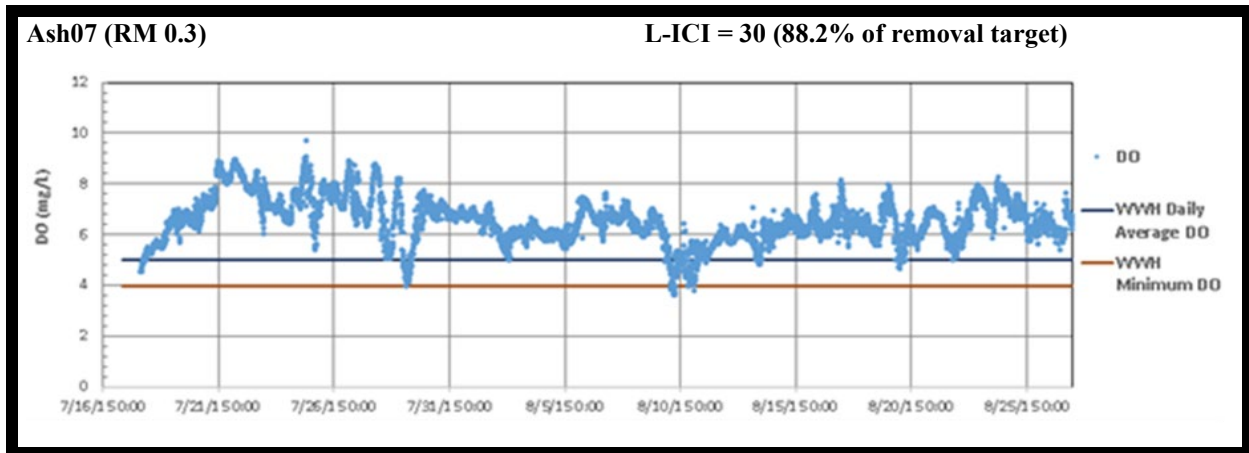


Figure 12. Diurnal time series charts for DO (mg/L), July-August 2015 from NRML 2015



Figure 13. NRMRL Sample Sites to River Mile Sites

As can be seen in the diurnal dissolved oxygen graphs from this study, each site experienced episodes when the dissolved oxygen levels fell below the warmwater habitat minimum value of 4.0 mg/l but at two sites, Ash02 (RM 1.7) and Ash04 (RM 1.6), routinely fell below that minimum value, with extended periods when the dissolved oxygen fell to or even below 2 mg/l or half of minimum value. Coincidentally, the study showed that these two sites were also found to have the lowest L-ICI values (L-ICI = 20 for both sites). It is a reasonable assumption that low dissolved oxygen levels are impacting benthic community performance.

Recommendation

Benthic community recovery, following the disrupting effects of the Legacy Act dredging operations, is being impeded throughout the AOC by the degrading effects of a suite of natural and immitigable anthropogenic issues and as recognized by the Ohio guidance document, following a dredging operation, "the extended recovery time should not preclude the removal of the Degradation of Benthos BUI."

Ohio EPA and Ashtabula AOC Advisory Council request concurrence with the recommendation to remove the Degradation of Benthos BUI from the Ashtabula River AOC as the following conditions are being met:

- Prior to the Legacy Act dredging operation, routine dredging has not occurred in the Ashtabula River channel since 1979, due to the severity of contaminated sediments,

- The source of the impaired listing, according to the Stage 1 Report, is contaminated sediments with the listed cause being organic enrichment of the sediments and habitat destruction,
- Remediation of the contaminated sediments through Resource Conservation and Recovery Act (RCRA) and Great Lakes Legacy Act (GLLA) have been implemented at all known contaminated sediment sites to the extent practicable to meet the AOC goals of removing contaminated sediments and protecting and enhancing habitat,
- Additional habitat remediation efforts are not economically practical due to the current use of the riverbanks by recreational boating marinas,
- Other natural and unmitigable impacts (low flow, low dissolved oxygen, excessive sedimentation and re-suspension of the sediments by the high degree of recreational boat traffic) are impeding benthic community recovery.

The benthic communities in the Ashtabula River AOC are expected to recover but the recovery may take considerable time. The Ashtabula River AOC Advisory Council voted unanimously to proceed with the removal of this BUI at their November 9th meeting. A public meeting was hosted by Ohio EPA and the Ashtabula River AOC Advisory Council on December 4, 2017 that was attended by five individuals. At this meeting, relevant data and a comparison of data to specific removal criteria were discussed. The public meeting opened a 2-week public comment period. No public comments were received during.

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Appendices

Appendix A - Support Letter from Ashtabula AOC Advisory Council

December 19, 2017

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

Dear Director Butler:

The Ashtabula River Area of Concern (AOC) Advisory Council has reviewed available data, materials and documents for the Degradation of Benthos beneficial use impairment (BUI) in the Ashtabula River AOC. The Advisory Council 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 at our November 9, 2017 meeting.

If Ohio EPA concurs that the removal of this beneficial use impairment is warranted, the AOC Advisory Council requests the agency to proceed with the process of submitting this removal recommendation.

With this BUI removal, the following impairments will remain in the Ashtabula River AOC:

- BUI #4: Fish Tumors and Other Deformities
- BUI #7: Restrictions on Dredging Activities

The Ashtabula River AOC Advisory Council will continue its efforts to restore conditions for the remaining impairments leading to their removal and ultimately, the complete restoration of the Ashtabula River Area of Concern.

Sincerely,

A handwritten signature in cursive script, appearing to read "F. Leitert".

Fred Leitert, Co-Chair
Ashtabula River AOC Advisory Council
Ashtabula River Area of Concern

A handwritten signature in cursive script, appearing to read "Matthew Smith".

Matthew Smith, Co-Chair
Ashtabula River AOC Advisory Council
Ashtabula River Area of Concern

2017 Delisting Guidance

BUI 6: Degradation of Benthos

IJC Listing Guideline

An impairment will be listed when benthic macroinvertebrate community structure significantly diverges from unimpacted control sites of comparable physical and chemical characteristics. In addition, this use will be considered impaired when toxicity (as defined by relevant, field-validated, bioassays with appropriate quality assurance/quality controls) of sediment-associated contaminants at a site is significantly higher than controls.

State of Ohio Listing Guideline

This beneficial use shall be listed as impaired if:

Biological surveys report that the average score for a 12-digit HU or Large River Assessment Unit (or other agreed upon stream segment or subwatershed) are in significant departure from the State of Ohio's BUI Restoration Targets for macroinvertebrate community.

State of Ohio Restoration Target

In the riverine areas, upstream from the lake affected waters (lacustrary or fresh water estuary), the average of the combined quantitative Invertebrate Community Index (ICI) values and the numerically converted qualitative values within the assessment unit do not significantly diverge from the State of Ohio's BUI Restoration Targets for macroinvertebrate community;

AND

In lake affected waters (lacustrary or fresh water estuary), the average of the combined quantitative L-ICI values and the numerically converted qualitative values do not significantly diverge from the State of Ohio's BUI Restoration Targets for macroinvertebrate community. (See Appendix B for additional information);

OR

In waters where benthic degradation has been attributed to the contaminated sediments, this BUI can be considered restored in these areas when the remedial action(s) to address the contaminated sediments have been implemented to the extent practicable and the associated short-term remediation goals have been achieved.

Site Type	Invertebrate Community Index (ICI) Restoration Target			
	EWH	WWH	MWH	LRW ³
Riverine ¹	42	30	22	8
Lacustrary ²⁴	34	34	34	12

¹Ohio EPA has determined the WQS non-significant departure value for EWH and WWH riverine ICIs to be 4 points; the BUI restoration targets presented in this table are based on the values of the non-significant departure from Ohio WQS.

²Non-significant departure for the lacustrary ICI value (L-ICI) has not yet been determined. A study is currently underway in to determine lacustrary criteria in Ohio. Once the study is complete, Ohio EPA will review the results and determine if the current target should be revised.

³BUI restoration targets for MWH and LRW are based on benchmarks as there are no criteria in Ohio WQS. The narrative evaluation is not applicable for LRW; if other criteria exist in the assessment unit it should be used.

⁴ The ICI target for lacustraries is based on an Ohio EPA study in 1994 that identified 34 as a value considered an attainable goal for the Lake Erie lacustraries given the current altered habitat conditions in the absence of excessive sedimentation and water column enrichment or toxicity.

OR (Maumee AOC only)

In Maumee Bay, *Hexagenia* (burrowing mayfly nymphs) measured on a three-year moving average (collected April to June) should range between 101 to 400 nymphs/m², with the ideal range between 201 and 300 nymphs/m².

Note

- If both qualitative (narrative) and quantitative (ICI) data were collected at the same time for the same sample site; only the ICI data should be used to determine status.
- Assessment units can have qualitative (narrative) and quantitative (ICI) data that were collected at different sites. All sites within the same assessment unit should be averaged together when determining the overall average value for that assessment unit.
- The overall assessment unit average can be based on data from different years.
- Assessment units are the 12-digit HU, Large River Assessment Unit (LRAU) or other agreed upon stream segment or subwatershed.

- This BUI will not be evaluated for ICI in waters that are routinely dredged as it is unrealistic for a healthy benthos community to be restored under these conditions.
- Examples of remedial programs that could be used to address contaminated sediment impacts to benthic community health include, but are not limited to Superfund, Resource Conservation and Recovery Act (RCRA) or Great Lakes Legacy Act (GLLA).

Potential Data Sources

- Ohio EPA ICI data
- Ohio EPA Mayfly data
- Other Mayfly data

Rationale

The Ohio Water Quality Standards (WQS; Ohio Administrative Code Chapter 3745-1) consist of designated uses and chemical and biological criteria designed to represent measurable properties of the environment that are consistent with the narrative goals specified by each use designation. Use designations consist of two broad use groups: aquatic life (i.e., aquatic community status) and human life (i.e., water supply, recreational use).

Every named waterbody in Ohio has an assigned aquatic use designation and there are target biological criteria for each use designation. The biocriteria for waterways are codified in the Ohio WQS.

Chemical and/or biological criteria are generally assigned to each use designation in accordance with the broad goals defined by each. This constitutes a “tiered” approach in that varying and graduated levels of protection are provided by each criterion. This hierarchy is especially apparent for the biological criteria. The aquatic life use criteria frequently control the resulting protection and restoration requirements as an emphasis on protecting aquatic life generally results in water quality suitable for all uses. This is why the aquatic life use criteria are emphasized in Ohio EPA biological and water quality reports (see Appendix B).

When measuring the status of this BUI, the quantitative Invertebrate Community Index (ICI) and the qualitative narrative evaluations should be used to assess the macroinvertebrate community characteristics.

Qualitative narrative macroinvertebrate sampling based on Ohio EPA protocol does not yield a numeric value. Since a large number of the sites only have qualitative narrative data for macroinvertebrates, a numeric equivalent has been outlined for each narrative value. The table below should be used to make a narrative to numeric conversion. Once converted the numeric value should be average with any other qualitative and quantitative data for an overall assessment unit average; resulting in one value for determining status for that assessment unit.

Qualitative Macroinvertebrate Narrative Conversion	
Narrative Evaluation	Equivalent Value for Averaging Narratives
Exceptional	46
Very Good	42
Good	34
Marginally Good/Moderately Good	30
Fair	21
Non-significant Departure/Low Fair	13
Poor	8
Very Poor	6

The quantitative ICI is a multi-metric index patterned after an original Index of Biological Integrity (IBI) for fish communities described by Karr (1981) and Fausch et al. (1984). The ICI was developed by Ohio EPA and further described by DeShon (1995). There are no differences in ICI criteria between the two ecoregions where Ohio’s AOCs are located – EOLP and HELP. Ohio EPA has determined non-significant departure for EWH and WWH from ICI values to be 4 points. The ICI values for the tributaries are considered biological water quality criteria and adopted in the State WQS. Currently, there are no WQS for ICI in Modified Warmwater Habitat (MWH) or Limited Resources Waters (LRW) but benchmarks or narrative values were used as a basis for the BUI restoration targets in riverine and lacustrary waters.

In addition to the river habitat areas, two other zones exist – the Lake Erie shoreline and an area where river and lake water mix. Ohio EPA refers to the former as the Nearshore Area and the latter area as a lacustrary (combination of the terms lacustrine and estuary). These areas could also be described as drowned river mouths (lake water flows into the river essentially “drowning” the river mouth). There are no differences in lacustrary ICI (L-ICI) guidelines between the two ecoregions – EOLP and HELP. A non-significant departure value for L-ICI has not yet been determined. The ICI values for the lacustraries are guidance and have not yet been finalized or adopted into State rules (see Appendix B for more detail and a description of lacustraries within Ohio’s AOCs). It was determined that for this BUI restoration

target an evaluation of the *Hexagenia* (burrowing mayfly nymphs) would be used as a restoration target for the nearshore area, not a nearshore ICI (N-ICI) value.

The restoration target for this BUI was developed from WQS and guidance for macroinvertebrate community evaluation, but the restoration targets are not the same as the WQS or guidance. These differences include: 1) the non-significant departure values were used to set the restoration target (where appropriate) and 2) metric scores are averaged across an assessment unit for each aquatic life use. Additional information on how to calculate the average index value for comparison to the restoration target follows.

For the purpose of this restoration target, the ICI values should be averaged across a designated assessment unit. If a single assessment unit has multiple criteria that apply to that unit (e.g., wading, boating, lacustrary), then the unit should be evaluated in segments based on each criterium. For consistency with other Ohio EPA programs, it is recommended that 12-digit HU or Large River Assessment Unit (LRAU) be used. RAPs may elect to use an alternate assessment unit, provided the proposed assessment unit will result in an equivalent evaluation of the conditions and Ohio EPA concurs with that determination.

The calculated average value for an assessment unit needs to meet the restoration target set for ICI and L-ICI for this BUI to be removable for that assessment unit. The calculated average value of each assessment unit in the AOC needs to meet the restoration target value in order for the BUI to be removable for the AOC. Assessment unit averages should NOT be averaged to determine BUI impairment status for an AOC.

Ohio EPA recommends the following guidelines for averaging data:

1. If multiple assessments were conducted at an individual site during a single year or field season, the results should be evaluated to determine an annual average for each individual site. Otherwise, use the most current data available for each site, collected within the last 10 years.
2. The averages for individual sites (as calculated in #1) should be combined with other sites within the same assessment unit to determine the overall average value for the assessment unit. The overall assessment unit average can be based on data from different years as long as all data is no older than 10 years.

For BUI restoration target assessments, if any single ICI sample is 50% or less of the target or any single narrative is "Very Poor", then the whole assessment unit may be considered impaired. These conditions may be indicative of a hotspot being present and additional investigation and, potentially, restoration actions may be needed.

For nearshore areas (e.g., open water areas, bays), the status of the BUI should be measured using the population density of *Hexagenia* (burrowing mayflies) nymphs in the spring prior to “hatching”. In Ohio, this is applicable only to the Maumee AOC. Measuring a “moving” average is more likely than individual yearly averages to reflect long-term changes in water and sediment quality. In addition, because three-year moving averages appear to well reveal the underlying long-term trend in population density, they, rather than annual averages, should be used to determine the extent to which the *Hexagenia* metric is attaining the target density (Kreiger, 2004).

Based on studies of the Lake Erie Western Basin, it is believed that the *Hexagenia* densities between 201 and 300 should be scored as “Excellent” and then bracketed above and below by two separate ranges of densities between 101 to 200 and 301 to 400 that should be scored as “Good.” That is, a low density of mayflies will not sustain the Lake Erie fishery, but high densities of mayflies indicate over-enrichment and potential dissolved oxygen problems. For the purpose of this restoration target, the desired population density is between 101 and 400 nymphs /m², with the ideal range between 201 and 300 (Kreiger, 2004).

Ohio’s BUI restoration target for the Degradation of Benthos includes multiple pathways for removal. The first pathway utilizes an established comprehensive multi-metric set of indices (ICI, L-ICI) for evaluating the health of the macroinvertebrate community. The second pathway is only applicable in the open waters of Maumee Bay within the Maumee AOC. This pathway is based on the density of the *Hexagenia* (burrowing mayflies) nymphs. Both of these pathways are described above and are applicable to those areas that do not have sediment contamination problems.

The third pathway was added to this BUI restoration target to address those areas where chemical contamination of the bottom sediments has been identified as the primary cause of the benthic impairment. This pathway recognizes that after remedial actions of the contaminated sediments have been implemented, the primary cause of the impairment will have been remediated but the full recovery of the benthic communities, to the ICI/L-ICI numeric targets, may take decades. The extended recovery time should not preclude the removal of the Degradation of Benthos BUI and therefore, when the remedial action to address sediment contamination has been completed to the extent practicable and the short-term remediation goals have been achieved, this BUI can be consider restored.

Public Meeting Information



NEWS RELEASE

Public Interest Center (614) 644-2160

FOR RELEASE: November 20, 2017

MEDIA CONTACT: Dina Pierce, (614) 644-2160

CITIZEN CONTACT: Heather Lauer, (614) 644-2160

Ohio EPA Accepting Public Comments on Proposal to Remove

Beneficial Use Impairment from Ashtabula River Area of Concern

Public meeting set for Dec. 4 in Ashtabula

Ohio EPA will hold a public meeting on a proposal to remove a Beneficial Use Impairment from the federally designated Ashtabula River Area of Concern (AOC). The meeting will be held Dec. 4, 2017, at 6 p.m. in Meeting Room A at the Harbor-Topky Memorial Library, 1633 Walnut Blvd., Ashtabula.

Ohio EPA believes the “degradation of benthos” beneficial use impairment can be removed because the causes of the impairment have been remediated. “Benthos” is a term for aquatic organisms that live all or part of their life cycles in the bottom sediments of a stream.

Approximately 500,000 cubic yards of contaminated sediments were dredged from the lower 2.5 miles of the river from 2005-2007. In 2010 and 2012, more than 3,800 feet of instream habitat was restored. However, most of the stream banks in this area remain hardened with wood and steel sheet piling to prevent erosion and provide ship docking.

While these structures impact aquatic life, they are used for boat docking at local marinas and cannot be removed. Additionally, the lower reach of the river is influenced by natural low flows and Lake Erie levels, both of which cause excessive sedimentation that affect benthic communities.

The benthic organisms should continue to recover over time. The extended time necessary for additional recovery should not prevent this beneficial use impairment from being removed from the AOC. Ohio EPA and the Ashtabula AOC Advisory Council are requesting public input on the recommendation.

For additional information or to submit comments, contact Ted Conlin at Ohio EPA Northeast District Office, 2110 E. Aurora Road, Twinsburg, OH 44087, or

Ted.Conlin@epa.ohio.gov. Comments can be presented at the public meeting or submitted in writing by Dec. 18, 2017.

www.epa.ohio.gov

The Ohio Environmental Protection Agency was created in 1972 to consolidate efforts to protect and improve air quality, water quality and waste management in Ohio. Since then, air pollutants dropped by as much as 90 percent; large rivers meeting standards improved from 21 percent to 89 percent; and hundreds of polluting, open dumps were replaced with engineered landfills and an increased emphasis on waste reduction and recycling.



Search...



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 inlake conditions, determined possible causes for increased soluble phosphorus loading, and evaluated possible management options for reducing soluble phosphorus loading.

Maumee River AOC Habitat Restoration Planning Grants Request for Proposals

Ohio EPA is soliciting proposals to develop Habitat Restoration Plans for select tributaries within the Maumee Area of Concern (AOC). The application deadline is July 28, 2017.

- Maumee River AOC RFP
- Application Form [Word, PDF]

Areas of Concern Lakewide Management Plan Phosphorus Task Force Nearshore Monitoring

The Ohio Areas of Concern (AOCs) were initially identified in the early 1980s as the most environmentally degraded areas along Ohio's Lake Erie coast.

The Great Lakes Water Quality Agreement (GLWQA) lays out 14 beneficial use impairments (BUIs) that must be remediated in order to restore the AOCs. In many ways these BUIs reflect the same goals as represented in the Ohio water quality standards (WQS) for attainment of beneficial uses. The BUIs include:

1. restrictions on fish and wildlife consumption;
2. tainting of fish and wildlife flavor;
3. degradation of fish and wildlife populations;
4. fish tumors or other deformities;
5. bird or animal deformities or reproductive problems;
6. degradation of benthos;
7. restrictions on dredging;
8. eutrophication or undesirable algae;
9. restrictions on drinking water or taste and odor problems;
10. beach closings;
11. degradation of aesthetics;
12. added costs to agriculture and industry;
13. degradation of phytoplankton and zooplankton populations; and
14. loss of fish and wildlife habitat.

PUBLIC MEETING

Ohio EPA and the Ashtabula River AOC Advisory Council will host a meeting to discuss the removal of the Degradation of Benthos beneficial use impairment (BUI) from 6 p.m. on Dec. 4, 2017 in Meeting Room A at the Harbor-Topky Memorial Library, 1633 Walnut Blvd., Ashtabula, OH.

For a copy of the removal recommendation document, please contact:

Ted Conlin
Ohio EPA
2110 East Aurora Rd.
Twinsburg, OH 44087
Ted.conlin@epa.ohio.gov



On Oct. 20, 2014, U.S. EPA announced the award of four Great Lakes Restoration initiative grants to protect public health by targeting harmful algal blooms in western Lake Erie.

Ohio Lake Erie Phosphorus Task Force II Final Report



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SIGN-IN SHEET

Subject: Removal of B/U Impairment – Ashtabula River AOC

County: Ashtabula Date: December 4, 2017

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