

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY GREAT LAKES NATIONAL PROGRAM OFFICE 77 WEST JACKSON BOULEVARD CHICAGO, IL 60604-3590

Ms. Joy Mulinex Executive Director Ohio Lake Erie Commission P. O. Box 1049 Columbus, Ohio 43216

Dear Ms. Mulinex:

Thank you for your August 27, 2020 request to remove the "*Restrictions on Dredging Activities*" Beneficial Use Impairment (BUI) at the Ashtabula River Area of Concern (AOC). As you know, we share your desire to restore all the Great Lakes AOCs and to formally delist them. Based upon a review of your submittal and supporting data, the U.S. Environmental Protection Agency (EPA) hereby approves your request to remove this BUI from the Ashtabula River AOC. 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 been instrumental in achieving this significant environmental improvement. Removal of the final BUI at this AOC will benefit not only the people who live and work in the AOC, but all the residents of Ohio and the Great Lakes basin as well.

We look forward to the continuation of this productive relationship with your agency, the Ohio Environmental Protection Agency, and the Ashtabula AOC Advisory Council as we work together to delist this AOC in the year to come. If you have any further questions, please contact me at (312) 353-8320 or your staff can contact Leah Medley at (312) 886-1307.

Sincerely, CHRISTOPHER KORLESKI

Chris Korleski, Director Great Lakes National Program Office

cc: Tiffani Kavalec, OEPA Lynn Garrity, OLEC Raj Bejankiwar, IJC



August 27, 2020

Mike DeWine, Governor Jon Husted, Lt. Governor Joy Mulinex, Executive Director Laurie A. Stevenson, Director, Ohio EPA; Chairwoman

Chris Korleski, Director U.S. Environmental Protection Agency Great Lakes National Program Office 77 W. Jackson Boulevard (G-17J) Chicago, IL 60604-3511

RE: Ashtabula River Area of Concern Restrictions on Dredging Activities Beneficial Use Impairment Removal Action

Dear Director Korleski,

The State of Ohio with coordination through the Ohio Lake Erie Commission, Ohio EPA and many partners have worked towards the restoration of the beneficial use impairments identified for the Ashtabula River Area of Concern (AOC).

As a result of the partnerships and progress made over the past two decades, the State of Ohio is submitting its final BUI removal recommendation for the Ashtabula River AOC. The Ohio Lake Erie Commission in partnership with Ohio EPA and the Ashtabula AOC Advisory Council are requesting your concurrence with the enclosed recommendation to remove the Restrictions on Dredging Activities BUI in the Ashtabula River AOC.

This is the final BUI that was identified to be restored under the AOC program for Ashtabula River. We recognize this as a significant milestone for the State of Ohio, the Great Lakes and our local Ashtabula River community as the river continues to be revitalized and improve. We look forward to working with U.S. EPA and the Advisory Council as restoration milestones in the Ashtabula Area of Concern continue to be achieved.

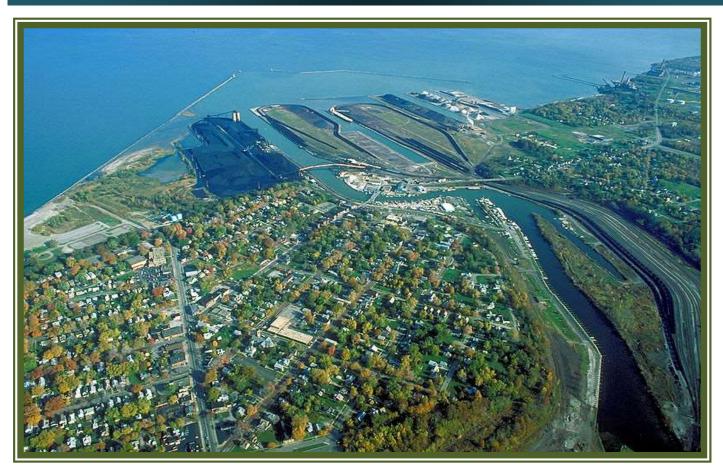
Sincerely,

by Mulines

Joy Mulinex Director, Ohio Lake Erie Commission

Enclosure cc: Tiffani Kavalec Lynn Garrity Leah Medley

# **Removal Recommendation for the Restrictions on Navigational Dredging Activities Beneficial Use Impairment in the** Ashtabula River AOC









The Lower Ashtabula River From US Department of the Interior web page

Ashtabula River Area of Concern **August, 2020** 

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#### Purpose

The purpose of this document is to recommend the removal of the Restrictions on Navigational Dredging Beneficial Use Impairment (BUI) from the Ashtabula River Area of Concern (AOC). This document provides information and documentation of sediment quality assessments and measures the results of the assessments against applicable State of Ohio BUI removal targets.

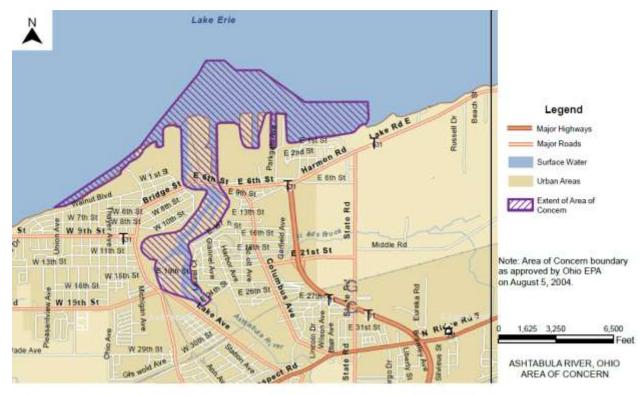
#### Background

The Ashtabula River lies in 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, Strong 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.

The Ashtabula River AOC encompasses the lower 2.32 miles of the Ashtabula River main stem, from the 24th Street Bridge in the City of Ashtabula to the mouth at Lake Erie; the Outer Harbor, within the east and west shore arms in Lake Erie; and the near Lake Erie shoreline from Walnut Beach, west of the river mouth, to Lakeshore Park Beach, east of the river mouth (See Figure 1). The lower Ashtabula River within the AOC is entirely within the lacustuary, or freshwater estuary. A lacustuary is an area in a river where water levels and river flow can be affected by winds and lake seiches. The upstream boundary of a lacustuary is where lotic or flowing water conditions end in the river and the downstream boundary is where the river meets the lake at the river mouth. The Ashtabula River lacustuary has been highly modified having been transformed into a deep draft commercial harbor beginning in the early 1800s.

In the mid-1900s a number of interdependent chemical companies and metals fabrication facilities began operation along Fields Brook, which is a tributary to the lower Ashtabula River. Over time, discharges from these facilities plus sediment and groundwater contamination left Fields Brook heavily polluted with polychlorinated biphenyls (PCBs), chlorinated benzene compounds, chlorinated ethenes, hexachlorobutadiene, polycyclic aromatic hydrocarbons (PAHs), and heavy metals. Fields Brook empties in the lower Ashtabula River mainstem and the contamination eventually migrated into the Ashtabula River. Fields Brook was named a Superfund site in 1983.



**Figure 1: Ashtabula Area of Concern Boundary,** from *Pickard, Scott W., Remediation of Sediments in the Ashtabula River Area of Concern on Lake Erie presentation. International Association of Great Lakes Research Conference.* 2017.

In 1988, the newly formed Ashtabula River AOC Advisory Council agreed to focus upon an AOC defined as the lower two miles of the Ashtabula River, Ashtabula Harbor and the adjacent Lake Erie nearshore. Although Fields Brook was severely contaminated and the major source of contamination to the lower Ashtabula River, the Fields Brook sub-basin was not included in the AOC delineation. The technical and legal issues associated with the Fields Brook clean-up plus the high costs were already being addressed under the federal Superfund program. A variety of agencies and organizations contributed time and resources to the Ashtabula River AOC 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 (BUI) were initially identified for the Ashtabula River AOC by the RAP Advisory Council. Now only one BUI remains impaired, Restrictions on Navigational Dredging Activities.

•	Restrictions on Fish Consumption	REMOVED 2014
•	Degradation of Fish Populations	REMOVED 2014
•	Loss of Fish Habitat	REMOVED 2014
•	Degradation of Benthos	REMOVED 2018
•	Fish Tumors and Other Deformities	REMOVED 2019

Soils eroded from upland areas, including rural farmland and suburban and urban properties are carried by stream or river flow or by a network of storm water conveyance systems, downstream where they are deposited and accumulate as sediment in a deepened river channel. This sedimentation obstructs the federal navigation channel, requiring maintenance dredging. Federally designated navigation channels, of which the lower Ashtabula River is one, must be routinely maintained or dredged to specific depths to accommodate commercial and recreational vessels. The maintenance of navigation channels is typically performed by the U.S. Army Corps of Engineers (USACE). Dredged river sediment, typically called dredged material, must be properly disposed or beneficially used.

The majority of sediment types in the Ashtabula River AOC are fine silts and clays which are washed down from upper watershed areas. As opposed to larger and coarser materials, these silts and clays are types of material on which contaminants readily adsorb. At the onset of the AOC process in the Ashtabula River, the concentration of PCBs in the river sediment were sufficiently elevated that the river sediment was considered to be toxic and needed to be handled under the Toxic Substances Control Act (TSCA) regulations. Due to the high costs of material handling and a lack of suitable locations for the placement of these dredged sediments under TSCA regulations, routine dredging of the river had not occurred since the 1960's until the early 2000's when remediation in the mainstem began.

#### BUI Listing Criteria and Impairment Listing for Restrictions of Dredging Activities

The Ashtabula River Advisory Council listed the impairment for the Restrictions on Navigational Dredging Activities 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) and stated that an impairment "will be listed when contaminants in sediments exceed standards, criteria or guidelines such that there are restrictions on dredging or disposal activities." The Stage 1 Report summarization of the impairment listing, and its causes and sources can be seen in Table 1. The listing of this BUI was warranted at the time.

Table 1. Ashtabula River AOC Stage 1 Report Impairment Listing				
BUI	Impaired?	Causes	Sources	Notes
Restrictions on Navigational Dredging Activities	Yes	Sediments contaminated with PCBs, organic compounds and metals	Historic point source discharges, a potential exists for existing point source discharges and from leachate from hazardous waste sites	Note: There is no available site for disposal of dredged material

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

The Ohio EPA Lake Erie Unit and AOC Coordinators developed an AOC delisting guidance document, *Delisting Guidance and Restoration Targets for Ohio Areas of Concern.* This document states that the Restrictions on Navigational Dredging BUI shall be listed as impaired when "contaminants in sediment exceed sediment quality guidelines used by the State such that there are restrictions on navigational dredging or disposal activities" and under this criterion, the BUI has remained impaired.

#### Summary of BUI Actions and Assessment

#### Remedial Dredging Activities

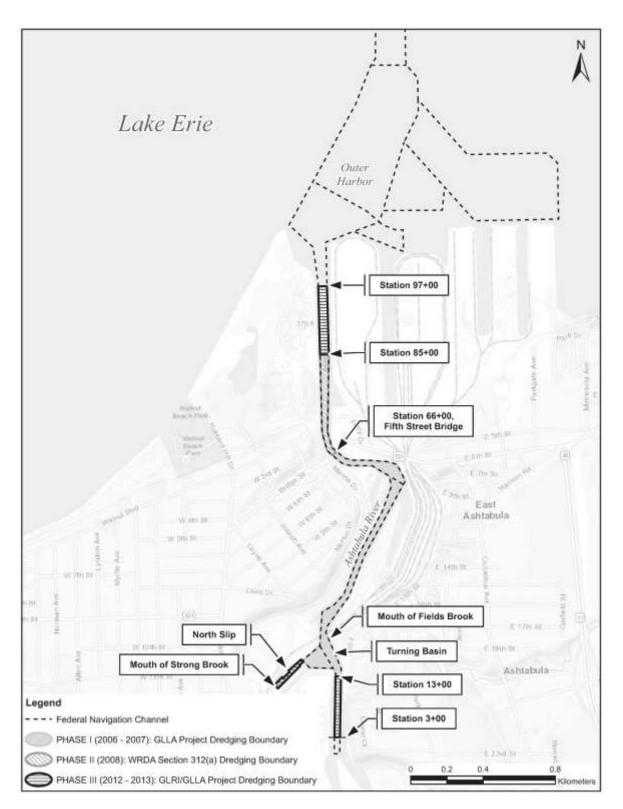
Due to the complexity and costs of the environmental dredging, a responsible party group, the Ashtabula River Partnership was formed in 1994 to facilitate a voluntary cleanup of the Ashtabula River. The Partnership provided a comprehensive organizational structure to get the river remediated with more than 50 official partners, including state, federal and many local entities such as Cabot Corp., Detrex Corp., Elkem Metals Co., First Energy Corp., GenCorp, Inc., Mallinckrodt Inc., Millennium Inorganic Chemicals, Millennium Petrochemicals Inc., Ohio Power Co., Olin Corporation, Occidental Chemical Corporation, Pennsylvania Lines LLC, RMI Titanium Co., The Sherwin Williams Company, Union Carbide Corporation, and Viacom International Inc. Although the AOC Advisory Council was a member, the Advisory Council focused its efforts on addressing other BUIs.

#### Initial Historical Conditions

Core samples collected in the mainstem of the Ashtabula River AOC in 1989 and 1990 had elevated PCB concentrations as high as 660 mg/kg (ppm) and 160 mg/kg, respectively. The Superfund cleanup of Fields Brook, which was completed by 2003 and involved four miles of the stream and six industrial sites, was necessary to remove contamination from Fields Brook and to ensure contamination sources would not continue to impact the lower Ashtabula River.

#### GLLA Dredging 2006-2007

Remediation of the Ashtabula River mainstem occurred when the Great Lakes Legacy Act (GLLA) dredging operation of 2006-2007 removed 497,000 cubic yards of contaminated sediment from within and outside of the federal navigation channel boundary (See Figure 2). Following this dredging, a 6-inch sand cover layer was placed in two locations within Jack's Marine.



**Figure 2: Map of major sediment remediation projects done in the AOC boundary,** from *Pickard, S.W., Lenox, A.M., Hartig, J.H., In Press. Remediation of polluted sediments in the Ashtabula River Area of Concern on Lake Erie: Implementation, ecosystem responses, and status, in: Hartig, J.H., Munawar, M., (Eds.). Ecosystem-Based Management of Laurentian Great Lakes Areas of Concern: Three Decades of U.S.-Canadian Cleanup and Recovery. Ecovision World Monograph Series, Aquatic Ecosystem Health and Management, Burlington, Ontario, Canada.* 

#### Operation & Maintenance/WRDA Section 312(a) Dredging 2008

In 2008, USACE dredged 133,000 cubic yards of contaminated sediment from the 5<sup>th</sup> Street Bridge to Station 85+00 under both the Operation and Maintenance General Authority and Section 312(a) of the Water Resource and Development Act (WRDA) (See Figure 2). USACE dredged an additional 1.5 feet below the authorized dredge depth in the federal navigation channel to allow sediment from upstream to deposit and create a cleaner sediment surface layer.

#### GLRI/GLLA Dredging 2013

Under the Great Lakes Restoration Initiative (GLRI), approximately 113,000 cubic yards were dredged from the lower river reach and upstream of Station 13+00 of the federal navigation channel by USACE. A second GLLA remedial dredging operation was completed in 2013 outside of the federal navigation channel, which removed nearly 12,000 cubic yards of PCB and diesel-range organic sediment contamination from the North Slip site at Jack's Marine. Following this re-dredging, a sand cover was placed at the North Slip (See Figure 2).

#### **Operation & Maintenance Dredging**

As noted in the Background section above, routine dredging of the federal navigation channel by USACE started up again in the early 2000's, with the most recent event taking place in 2019. Operation and Maintenance dredging takes place primarily in the outer harbor, lake approach channel, river mouth, and occasionally in the lower and upper reaches of the river to ensure future navigation activities. Per 401 Permits issued by Ohio EPA, dredged material was managed via open lake disposal in Lake Erie.

#### **Current Issues**

Two facilities, Clean Harbors and former Reliance Industries manufacturing plants (both located upstream of the AOC) have recently detected elevated concentrations of PCBs in their storm sewers. The storm sewers discharge to Strong Brook which then discharges to the Ashtabula AOC at the North Slip of Jack's Marine. In 2019, total PCBs Arochlor concentrations in the storm sewers were detected up to 400 mg/kg. USEPA and Ohio EPA have been actively working with these companies via the National Pollutant Discharge Elimination System (NPDES) Program, Municipal Separate Storm Sewer System (MS4) Program and Toxic Substances Control Act (TSCA) to abate these issues. Although there are PCBs detected in the storm sewers at these two locations, there is no evidence of PCB accumulation in the sediment. The surface sediment concentrations throughout the AOC are much lower than pre-remediation conditions as concluded in the SWAC report (GDIT 2020) and the surface sediment samples collected in Jack's Marine in 2019 are all less than 1 mg/kg for PCBs (LimnoTech 2019). Therefore, it is not expected that any significant recontamination of the sediment will occur based on the current available data.

#### State of Ohio Restoration Target and Removal Criteria

The Ohio EPA Division of Surface Water AOC Program Staff developed an AOC delisting guidance document, *Delisting Guidance and Restoration Targets for Ohio Areas of Concern.* The guidance 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 are assigned to another party or program [e.g., Lakewide Management Plan (LaMP), TMDLs, health department].)

The current State of Ohio Restoration Target and rationale for the Restrictions on Navigational Dredging Activities is provided in Appendix A. It states that this beneficial use can be removed when "There are no restrictions on navigational dredging or disposal activities due to contaminants in sediment, such that there are suitable options available for reuse or disposal of the material." Of note, the current Ohio guidance states that:

- Precautionary seasonal restrictions on dredging to prevent real or anticipated impacts to spawning fish, avian or macroinvertebrate species is not considered to be a cause for impairment;
- Local restrictions due to local detrimental effects of the dredging operation (increased turbidity, noise, channel restrictions, etc.) are not considered to be a cause for impairment for this BUI; and
- If sediment reuse or disposal is restricted solely due to volume, this beneficial use would not be considered to be impaired.

In previous versions of this Guidance, Ohio relied on suitability of dredged sediments for open lake disposal as the BUI restoration target. The suitability for open lake disposal was selected as a measure of sediment quality since Ohio did not have sediment criteria and open lake disposal was considered the least restricted form of disposal at the time. Since this target was originally drafted and implemented back in 2005, Ohio has developed alternative options for Lake Erie dredged sediment beneficial use. In 2015, Ohio prohibited the practice of open lake disposal (effective July 1, 2020) with a few limited exceptions.

In 2017, Ohio developed beneficial use rules authorizing the upland beneficial use of Lake Erie dredge sediment (Ohio Administrative Code (OAC) Chapter 3745-599, effective March 31, 2019). The rules address general and individual beneficial use permit requirements including the establishment of screening levels, restrictions, or standards (OAC 3745-599-200, -310 and -320). To evaluate this BUI, Ohio will compare dredged sediment data to a number of standards and screening levels, including 1) the residential and/or industrial soil U.S. EPA Regional Screening Levels (RSLs) (USEPA 2019) and 2) information regarding ambient background conditions for the upland beneficial use of dredged sediment. If the material would be found suitable for upland beneficial use of the dredged sediment based on the two above evaluation methods, then the restoration target for this BUI will be met.

An alternate evaluation method for achieving the restoration target for this BUI is related to the aquatic beneficial use of dredged sediment such as in-water habitat restoration projects. Placement of material into 'waters of the state' requires a Federal Water Pollution Control Act certification under section 401 from the state of Ohio. To evaluate this BUI, Ohio will evaluate applicable chemical and biological data in accordance with the 401-certification process, such that the dredged sediments would be suitable for inwater use. If the material would be permittable for aquatic beneficial use for dredge sediment based on the 401-certification process, then the restoration target for this BUI has been met.

Additional conditions that may be considered in determining the status of this BUI include:

- Effectiveness and extent of improvements from remedial activities that have been completed and/or,
- Ecological screening levels and any associated restrictions and/or,
- Associated dredge material management plans and navigation dredging permitting that will continue to monitor navigational dredging activities, if applicable.

#### Sediment Data

Sediment data from within and adjacent to the Ashtabula Harbor federal navigation channel was evaluated to determine whether the environmental dredging conducted throughout the AOC had successfully removed the primary chemical of concern, total PCBs, to achieve remedy effectiveness and support removal of the restrictions on navigational dredging BUI. Ashtabula Harbor and the Ashtabula River Channel sediment data were evaluated for upland beneficial use suitability options, including residential, industrial and recreational land application uses. USACE, in collaboration with Ohio EPA and U.S. EPA, conducted a risk-based screening for upland beneficial use determinations. Sediment sampling results collected from 2015 through 2018 by USACE, U.S. EPA and Clean Harbors, as part of the following reports, were included in the data analysis:

- USACE. 2016. Ashtabula Harbor Dredged Sediment Evaluation Lower River Channel and Outer Harbor;
- USACE. 2018(b). Ashtabula Harbor Dredged Sediment Evaluation Fifth Street Bridge Reach: River Channel Station 66+00 to 85+00;
- USACE. 2019(a). Ashtabula Harbor Dredged Sediment Evaluation River Channel Station 00+00 to 66+00 (Upstream of the Fifth Street Bridge) and Turning Basin;
- USACE 2019(b). Sediment Sampling Summary Report, Ashtabula Harbor, Ashtabula County, Ohio; and
- LimnoTech. 2019. Sediment and Surface Water Investigation Report Strong Brook and Jack's Marine, Ashtabula, Ohio.

#### Sediment Risk-Based Screening Evaluation for Upland Beneficial Use

The sediment risk-based screening evaluation for upland beneficial use consisted of comparing the bulk sediment chemistry data to U.S. EPA's Regional Screening Levels (RSLs) for residential direct contact with soil and industrial direct contact with soil, updated November 2019, and found at: <a href="https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables">https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables</a>. Ohio's Voluntary Action Program (VAP) residential, commercial, and industrial soil standards were also included for comparison purposes. An additional category of screening values was derived for recreational receptors. Screening levels for carcinogenic and non-carcinogenic human health effects were used. The initial screening compared maximum constituent concentrations detected and used criteria based on incremental lifetime cancer risks (ILCR) of one in a million (1E-06) and non-cancer health effects with a hazard quotient (HQ) of 0.1. Further screening involved using exposure point concentrations calculated as the 95% upper confidence limit on the mean (UCL95) and using the cumulative ILCR of one in 100,000 (1E-05) and non-cancer hazard quotient of 1.0.

U.S. EPA's RSLs are based on default exposure parameters and factors that represent reasonable maximum exposure conditions for long-term, chronic exposures for residential and industrial soil land use. The residential soil RSLs are conservative human health criteria because they account for daily exposures by both children and adults in a residential setting. Residential exposure factors include living at the same residence 350 days per year for 26 years. The industrial screening levels account for exposures to adults throughout the workday, 250 days per year for 25 years. An additional category of screening was conducted for the recreational land use by adjusting the number of days, known as exposure frequency, to 90 days per year for recreational child and adult receptors, compared to 350 days per year for residential receptors.

Appendix B contains the Ashtabula Harbor and Ashtabula River channel sediment data screened against upland beneficial use criteria. Sediment risk-based screening was completed on the following sediment datasets:

- 1. Sediment data from within the lateral boundaries of the federal navigation channel and shallower than authorized navigation depth ("IN\_ABOVE" version);
- Sediment data from within the lateral boundaries of the federal navigation channel but deeper than authorized depth, indicating these areas would not warrant dredging for navigation purposes at this time ("IN\_BELOW"); and
- 3. Sediment data obtained from outside of the lateral boundaries of the federal navigation channel ("OUT\_NAV").

Based on the risk-based screening evaluation for sediment data from within the lateral boundaries of the federal navigation channel, as well as the deeper sediment data within the lateral boundaries and outside the lateral boundaries of the federal navigation channel, it was determined that:

- Pesticide and herbicide concentrations were less than the detection limits or less than the residential soil RSLs.
- The majority of PCB concentrations were less than the residential RSL at the 1E-06 ILCR. Several sampling locations detected PCBs above the residential soil RSLs at IE-06, but less than the cumulative 1E-05 ILCR. The maximum total PCB concentration detected within the federal navigation channel was 0.68 mg/kg which is less than the residential RSL at the1E-05 ILCR. The 95UCL within the federal navigation channel was 0.13 mg/kg which is below the residential RSL at the 1E-06 ILCR. The maximum total PCB concentration of 3.0 mg/kg was detected at a sampling location deeper than the current authorized depth, with a 95UCL concentration of 0.67 mg/kg in all of these samples (deeper than authorized navigation depth).
- The majority of semi-volatile organic compounds (SVOCs) were less than the detection limits or less than the residential soil RSLs, at the 1E-06 ILCR or noncancer hazard quotient of 0.1, with the exception of several carcinogenic polynuclear aromatic hydrocarbons (PAHs). Carcinogenic PAHs were less than the cumulative ILCR of 1E-05 for residential soil RSLs.
- Metals concentrations were below residential soil RSLs or were determined to be representative of background sediment and soil concentrations.

#### Background Comparison

Concentrations of metals in sediment were additionally compared to concentrations established for background soils and sediment reference values. Background metal concentrations were obtained from Ohio EPA VAP for Cuyahoga County (Ohio EPA 2013) and Lorain County (Ohio EPA 2019) because these are both industrialized ports within the same ecoregion as Ashtabula and Ohio EPA has not generated background metals soil concentrations for counties east of Cuyahoga County to date. In addition, Ohio EPA developed specific sediment reference values (SRVs) available in the Ohio EPA Division of Environmental Response and Revitalization (DERR) *Ecological Risk Assessment Guidance Document* updated in 2018. Ashtabula Harbor metals data for the Lake Erie reference and background locations were also reviewed. As a result of this review and comparisons, Ashtabula Harbor and Ashtabula River metal concentrations were determined to be representative of background metals concentrations.

#### **Total PCBs Sediment Results Analysis**

Because the primary contaminant of concern (COC) for the Ashtabula AOC has been polychlorinated biphenyls (PCBs) associated with sources within the Fields Brook watershed, a detailed analysis of the total PCB (Aroclor) sediment results was conducted. Total PCB Aroclor concentrations were screened against the U.S. EPA residential and industrial cancer RSLs at the screening ILCR of 1E-06 as well as at the cumulative ILCR cancer risk goal 1E-05 as summarized below:

1)	Total PCB < Residential (1E-06 cancer) Screening Level (0.23 mg/kg)
2)	Total PCB Between Residential & Industrial (1E-06 cancer) Screening Levels (0.23 - 0.94 mg/kg)
3)	Total PCB Between Industrial (1E-06 cancer) Screening Level & Residential (1E-05 cancer) Screening Level (0.94 - 2.3 mg/kg)
4)	Total PCB Between Residential & Industrial (1E-05 cancer) Screening Levels (2.3 - 9.4 mg/kg)
5)	Total PCB > Industrial (1E-05 cancer) Screening Levels (9.4 mg/kg)

Figures 3 and 4 below show the total PCB (Aroclor) sediment results screened against the U.S. EPA residential soil and industrial soil RSLs. From this analysis, it was determined that the majority of Ashtabula Harbor and Ashtabula River channel sediment results meet the total PCB residential RSL of 0.23 mg/kg at the 1E-06 ILCR. The maximum total PCB concentration detected within the federal navigation channel was 0.68 mg/kg, which is less than the residential RSL at the1E-05 ILCR. The 95UCL within the federal navigation channel was 0.13 mg/kg which is below the residential RSL at the 1E-06 ILCR. Only two sample locations, that are located deeper than the current authorized depth, exceed the PCB residential RSL of 2.3 at the 1E-05 ILCR. The maximum total PCB concentration of 3.0 mg/kg was detected at a sampling location deeper than the current authorized depth, with a 95UCL concentration of 0.67 mg/kg in the samples deeper than authorized navigation depth. All total PCB results are below the industrial RSL at the 1E-05 ILCR.

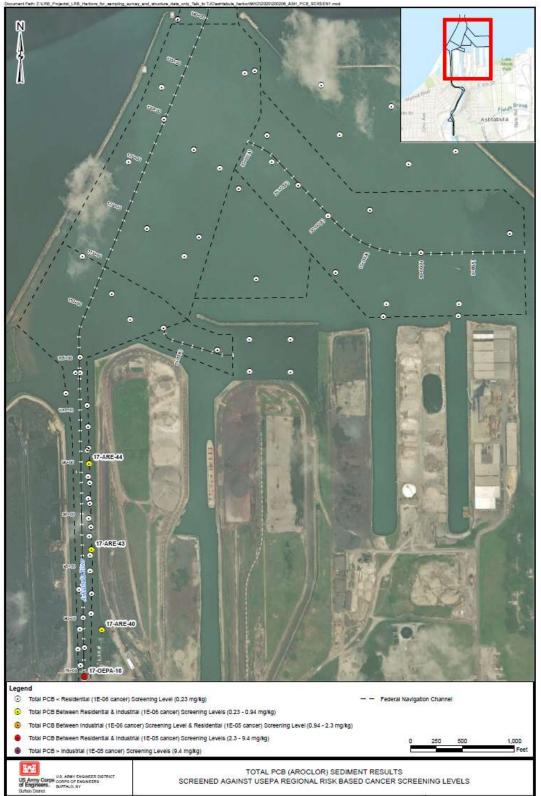


Figure 3: Map of 2015-2018 sampling locations and their associated Total PCB (Aroclor) RSL value, USACE 2020. Includes the Outer Harbor, within the east and west shore arms in Lake Erie to River Mile 0.8.

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Figure 4: Map of 2015-2018 sampling locations and their associated Total PCB (Aroclor) RSL value, USACE 2020. Includes River Mile 0.8 to 2.2

#### Surface Weighted Average Concentrations of Total PCBs

In 2011, U.S. EPA's Office of Research and Development (ORD) and Great Lakes National Program Office (GLNPO) conducted sediment sampling events to assess post-remediation PCB contamination (Battelle 2011). ORD's objective was to evaluate long-term remedy effectiveness of environmental dredging and GLNPO's objective was to evaluate surface sediment conditions in support of BUI removal. In total, over 90 surface and subsurface sediment samples were collected inside and outside the 2006-2007 GLLA project area between 5<sup>th</sup> Street Bridge and the upper reach of the AOC boundary, including the lower turning basin, 5½ slip, River Run, Jack's Marine North Slip, and the upper turning basin. The combined 2011 results were used to estimate surface sediment contamination after remediation and are reported in the *Remedy Effectiveness Assessment for Great Lakes Legacy Act Project in the Ashtabula River Area of Concern* (Battelle 2017). The resulting total PCB Aroclor concentrations yielded a 2011 PCB surface-weighted average concentration (SWAC) of 0.41 mg/kg in the 2006-2007 GLLA project area. In the Jack's Marine North Slip, the 2011 average surface sediment concentration was 1.94 mg/kg, about five times higher than the PCB concentrations that were observed downstream.

In 2018, USACE conducted sampling and analysis activities on behalf of U.S. EPA GLNPO to provide data in support of the Restrictions on Navigational Dredging BUI and to determine long-term remedy effectiveness of the 2006-2007 GLLA dredging project (USACE 2019(b)). Surface sediment samples were collected within and adjacent to the federal navigation channel throughout the AOC boundary. Using this dataset, GLNPO tasked GDIT with calculating 2018 total PCB SWACs for two areas of interest in the Ashtabula River: the 2006-2007 GLLA project remediation area and the AOC-wide boundary (GDIT 2020). The 2018 remediation area total PCB SWAC of 0.16 mg/kg is nearly 80% lower than the 2007 remediation area total PCB SWAC of 0.78 mg/kg, and well below the 10-year remediation area total PCB SWAC of 0.25 mg/kg (CH2M Hill 2008). The 2018 AOC-wide total PCB SWAC is 0.05 mg/kg.

Note: The GDIT SWAC technical memo reports this as "2007" but that the samples were actually collected in 2006 and represent a true pre-remediation condition (Battelle 2007).

#### Sediment Evaluation for Aquatic Beneficial Use

An alternate evaluation method for achieving the restoration target for this BUI is related to the *aquatic* beneficial use of dredged sediment such as in-water habitat restoration projects. Placement of material into 'waters of the state' requires a Federal Water Pollution Control Act certification under section 401 from the state of Ohio. To evaluate this condition of the BUI, Ohio evaluated applicable chemical and biological data in accordance with the 401-certification process, such that the dredged sediments would be suitable for in-water use. If the material would be permittable for *aquatic* beneficial use for dredge sediment based on the 401-certification process, then the restoration target for this BUI has been met.

USACE completed a Section 401 Water Quality Certification (WQC) application for the proposed discharge of dredged sediment and rock associated with the proposed maintenance dredging of the Ashtabula federal navigation channel and the Continuing Authorities Program (CAP) Section 204 beneficial use project. The *Detailed Project Report and Environmental Assessment Section 204 Beneficial Use of Dredge Material for Ecosystem Restoration January 2020* was completed (USACE 2020). Appendix L of this report contains the *Ashtabula Harbor Dredged Sediment Evaluation Section 204 Study Placement Areas April 2018* (USACE 2018(a)).

USACE also completed the Ashtabula Harbor Dredged Sediment Evaluation Fifth Street Bridge Reach: River Channel Station 66+00 to 85+00 November 2018 (USACE 2018(b)). This study included sediment testing and analysis on sediment surface grab samples collected in 2017 within the harbor, and from the open-water placement and reference areas. The River Channel between stations 85+00 and 66+00 was divided into two management units, AMUA (Station 85+00 to 76+00) and AMUB (Station 76+00 to 66+00). PCB bioaccumulation testing and analysis was also conducted in both AMUA and AMUB. Statistically significant elevated bioaccumulation of total PCBs in *Lumbriculus variegatus* was reported in AMUB. Based on these results, it was determined that dredge sediment from AMUB should not be beneficially used at the Section 204 placement area sites.

The USACE Ashtabula Harbor Dredged Sediment Evaluation River Channel Station 0+00 to 66+00 (Upstream of the Fifth Street Bridge) and Turning Basin Ashtabula, Ohio April 2019 study collected sediment surface grab samples on September 17, 2018 from UARMU-1 (reach upstream of Turning Basin), UARMU-2 (reach adjacent to Turning Basin) and UARMU-3 (reach downstream of Turning Basin) (USACE 2019(a)). Based on this dredged sediment evaluation, sediments dredged form the Upper Reach of the Ashtabula River Channel to a depth of -10 feet LWD is not expected to cause unacceptable, adverse, contaminant-related impacts.

The 2018 and 2019 USACE dredged sediment evaluations included bulk sediment chemistry, toxicity testing, and bioaccumulation testing. The *Lumbriculus* PCB bioaccumulation testing was conducted to assess bioaccumulation in the food web. Detailed evaluation of bulk sediment data from the Harbor samples, and Lake Erie placement and reference locations was conducted by USACE. The primary aquatic ecological exposure pathway of concern is PCB bioaccumulation.

These evaluations indicated that, with one exception from Station 66+00 to 76+00, the dredged sediment can be beneficially used for ecosystem restoration. Consistent with these dredged sediment evaluations, this portion of the Ashtabula River, Station 66+00 to Station 76+00, is not included in the dredging area scoped for beneficial use placement in the Section 204 project.

#### Conclusion

All dredge material from the Ashtabula Harbor Federal Navigation Channel have the potential to be beneficially used upland based on the results of the evaluation of the material against the residential and/or industrial soil U.S. EPA Regional Screening Levels (RSLs) and information regarding ambient background conditions for the upland beneficial use of dredged sediment. The majority of dredge material may be able to be used for aquatic beneficial uses in accordance with the 401 water quality certification process.

A 14-day public review period was issued by Ohio EPA and Ohio Lake Erie Commission on August 10, 2020. A summary of the comments received and the state response is provided in Appendix D.

#### **Removal Statement**

Based upon the completion of the contaminated sediment remediation projects and review of the 2015-2018 data, the Ohio Environmental Protection Agency and Ohio Lake Erie Commission recommend the removal of the Restrictions on Dredging Activities BUI for the Ashtabula River Area of Concern. This is the last BUI to be removed before the AOC begins the delisting process.

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## APPENDIX A

## 2020 Delisting Guidance and Restoration Targets for Ohio Areas of Concern

#### **BUI 7: Restrictions on Navigational Dredging Activities**

#### **IJC Listing Guideline**

An impairment will be listed when contaminants in sediments exceed standards, criteria or guidelines such that there are restrictions on dredging or disposal activities.

#### State of Ohio Listing Guideline

This beneficial use shall be listed as impaired if: Contaminants in sediment exceed sediment quality guidelines used by the State such that there are restrictions on navigational dredging or disposal activities.

#### State of Ohio Restoration Target

There are no restrictions on navigational dredging or disposal activities due to contaminants in sediment, such that there are suitable options available for reuse or disposal of the material.

#### Notes

- Navigational dredging refers to dredging of a federally designated ship channel and historically dredged stretches of a river to enable the passage of commercial and/or recreational vessels. Restrictions to disposal activities refer to the prohibition of disposal or re-use of dredged materials due to chemical contamination or biological toxicity of the sediment.
- This does not include the maintenance dredging of private marinas, slips, docks, etc. However, if sediment contaminant concentrations in these areas are a source of contamination that precludes attainment of remedial dredging goals of federally designated ship channels and historically dredged stretches of a river, then dredging of private marinas, slips, docks, etc. may be necessary.

#### **Potential Data Sources**

- Ohio EPA and U.S. Army Corps of Engineers sediment characterization studies
- Other sediment characterization studies

#### Rationale

This BUI specifically addresses areas within the boundaries of AOCs that are historically dredged to maintain navigable depths for commercial and/or recreational vessels. While this beneficial use addresses restrictions on dredging or disposal activities:

- Precautionary seasonal restrictions on dredging to prevent real or anticipated impacts to spawning fish, avian or macroinvertebrate species is not considered to be a cause for impairment;
- 2) Local restrictions due to local detrimental effects of the dredging operation (increased turbidity, noise, channel restrictions, etc.) are not considered to be a cause for impairment for this BUI; and
- 3) If sediment reuse or disposal is restricted solely due to volume, this beneficial use would not be considered to be impaired.

In previous versions of this Guidance, Ohio relied on suitability of dredged sediments for open lake disposal as the BUI restoration target. The suitability for open lake disposal was selected as a measure

of sediment quality since Ohio did not have sediment criteria and open lake disposal was considered the least restricted form of disposal at the time. Since this target was originally drafted and implemented back in 2005, Ohio has developed alternative options for Lake Erie dredged sediment beneficial use. In 2015, Ohio prohibited the practice of open lake disposal (effective July 1, 2020) with a few limited exceptions.

In 2017, Ohio developed beneficial use rules authorizing the upland beneficial use of Lake Erie dredge sediment (Ohio Administrative Code (OAC) Chapter 3745-599, effective March 31, 2019). The rules address individual and general beneficial use permit requirements including the establishment of screening levels, restrictions, or standards (OAC 3745-599-200, -310 and -320). To evaluate this BUI, Ohio will compare dredged sediment data to a number of standards and screening levels, including 1) the residential and/or industrial soil U.S. EPA Regional Screening Levels (RSLs) and 2) information regarding ambient background conditions for the upland beneficial use of dredged sediment. If the material would be found suitable for upland beneficial use of the dredged sediment based on the two above evaluation methods, then the restoration target for this BUI will be met.

An alternate evaluation method for achieving the restoration target for this BUI is related to the aquatic beneficial use of dredged sediment such as in-water habitat restoration projects. Placement of material into 'waters of the state' requires a Federal Water Pollution Control Act certification under section 401 from the state of Ohio. To evaluate this BUI, Ohio will evaluate applicable chemical and biological data in accordance with the 401-certification process, such that the dredged sediments would be suitable for inwater use. If the material would be permittable for aquatic beneficial use for dredge sediment based on the 401-certification process, then the restoration target for this BUI has been met.

Additional conditions that may be considered in determining the status of this BUI include:

- Effectiveness and extent of improvements from remedial activities that have been completed and/or,
- Ecological screening levels and any associated restrictions and/or,
- Associated dredge material management plans and navigation dredging permitting that will continue to monitor navigational dredging activities, if applicable.

## APPENDIX B

## Tables for Ashtabula Harbor and Ashtabula River Channel SedimentRisk-Based Screening for Upland Beneficial Use

Ashtabula Harbor and Ashtabula River AOC sediment sampling results were screened against upland beneficial use criteria. The sediment risk-based screening evaluation consisted of comparing the bulk sediment chemistry data to U.S. EPA's Regional Screening Levels (RSLs) for residential direct contact with soil and industrial direct contact with soil, updated November 2019, and found at: <u>https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables</u>. Ohio's Voluntary Action Program (VAP) residential, commercial, and industrial soil standards were also included for comparison purposes. Screening levels for carcinogenic and non-carcinogenic human health effects were used. The initial screening compared maximum constituent concentrations detected and used criteria based on incremental lifetime cancer risks (ILCR) of one in a million (1E-06) and non-cancer health effects with a hazard quotient (HQ) of 0.1. Further screening was conducted on chemicals that were retained from the initial screening. More refined screening involved using exposure point concentrations calculated as the 95% upper confidence limit on the mean (UCL95) and using the cumulative ILCR of one in 100,000 (1E-05) and non-cancer hazard quotient of 1.0.

Sediment risk-based screening was completed for sediment data from within the lateral boundaries of the federal navigation channel, as well as the deeper sediment data within the lateral boundaries and sediment data near the lateral boundaries of the federal navigation channel. Appendix B contains these three different Excel workbooks, representing the following sediment data:

- a. <u>Sediment data within the lateral boundaries of the federal navigation channel and shallower than authorized navigation depth ("IN ABOVE");</u>
- b. <u>Sediment data within the lateral boundaries of the federal navigation channel but deeper</u> <u>than authorized depth, indicating these areas would not warrant dredging for navigation</u> <u>purposes at this time ("IN BELOW");</u> and
- c. <u>Sediment data obtained from outside of the lateral boundaries of the federal navigation</u> <u>channel ("OUT NAV").</u>

### Appendix C

#### Ashtabula River Area of Concern Advisory Committee Letter of Support



August 26,2020

Ms. Laurie Stevenson, Director Ohio Environmental Protection Agency P.O. Box 1049 Columbus, OH 43216-1049 Ms. Joy Mulinex, Executive Director Ohio Lake Erie Commission P.O. Box 1049 Columbus, OH 43216-1049

Dear Directors Stevenson and Mulinex:

The Ashtabula River AOC Advisory Committee has reviewed available data, materials and documents for the final removal, in the Ashtabula River Area of Concern, of Restrictions on Navigational Dredging Activities BUI.

The Advisory Council has determined that all applicable data meets or exceeds the State of Ohio removal criteria for this BUI and have unanimously voted to support its removal.

If Ohio EPA and the Ohio Lake Erie Commission concurs that the removal of this beneficial use impairment is warranted, the AOC Advisory Council requests the agency to proceed with the Public Notice and Public Meeting process required by US EPA/GLNPO to begin the process of removing these BUIs for the Ashtabula River Area of Concern.

With the removal of this final BUI, the AOC will have no remaining impaired BUI's and will begin the Area of Concern delisting process.

The Ashtabula River AOC Advisory Council will continue its efforts to delisting the Ashtabula River Area of Concern.

Respectfully,

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

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

## Appendix D

#### **Public Comments**

The Ohio EPA and Ohio Lake Erie Commission issued a 14-day public comment period on August 10, 2020. The State received five comments. A summary of the comments and a response is provided below.

Public Comments	Response
Support for BUI removal and recognition of progress and concerted efforts of many. (2 comments)	No response. The State also recognizes the progress and efforts by many.
Consider not to remove the BUI as the community continues to grow in ecological and environmental awareness and the river enhances this process.	Ohio EPA along with many other state, local, and federal partners have worked collaboratively over the years into putting resources towards the restoration of the Ashtabula River. Removing the last BUI will be a significant milestone for the river's recovery and improvement.
Delisting process and the continuation of reported spills and monitoring needs.	Reported spills are regulated by a different division under the state, the Ohio EPA's Division of Emergency Response and they will be continued to be monitored and regulated under this program. The Area of Concern Program addresses long-term legacy issues that have been recovered and remediated. Removing the last BUI will be a significant milestone for the river's recovery and improvement. A next step will be its delisting as an Area of Concern with community input
Concern on proceeding with the delisting process regarding emissions permits with associated entities within the AOC and the loss of regulation if the AOC is delisted.	Facilities for emissions permits are regulated by different divisions under the state at Ohio EPA and they will be continued to be monitored and regulated under these programs. The Area of Concern Program addresses long-term legacy issues that have been recovered and remediated. Removing the last BUI will be a significant milestone for the river's recovery and improvement. The river will be protected through Ohio EPA's oversight of the Clean Water Act, as it currently does and will continue after having the BUI removed and any future delisting. A next step will be its delisting as an Area of Concern with community input.