



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

April 4, 2014

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

RE: Ashtabula River AOC BUI Removal Recommendation for BUIs

Dear Mr. Korleski:

Ohio EPA and the Ashtabula River RAP Advisory Council are requesting concurrence with the recommendation to remove the Fish and Wildlife Consumption, Fish and Wildlife Population and Fish and Wildlife Habitat beneficial use impairments in the Ashtabula River AOC. The attached "Removal Recommendations for Three Beneficial Use Impairments in the Ashtabula River AOC" provides a detailed assessment of each BUI and outlines the rationale for removal. The package also contains a letter of support from the RAP Advisory Council.

Ohio EPA worked with the local RAP advisory council to develop the recommendations and conducted a public meeting on February 20, 2014 to inform the public about the proposal and to solicit comment. Only one public comment was received and it was supportive of the proposal to remove the BUIs.

The resources provided by the Great Lakes Restoration Initiative have been absolutely vital in the restoration of Ohio's AOCs and have lead us to this historic milestone in Ashtabula. We look forward to working with the U.S EPA and the RAP advisory council to remove the three remaining three BUIs and ultimately delist the Ashtabula River AOC.

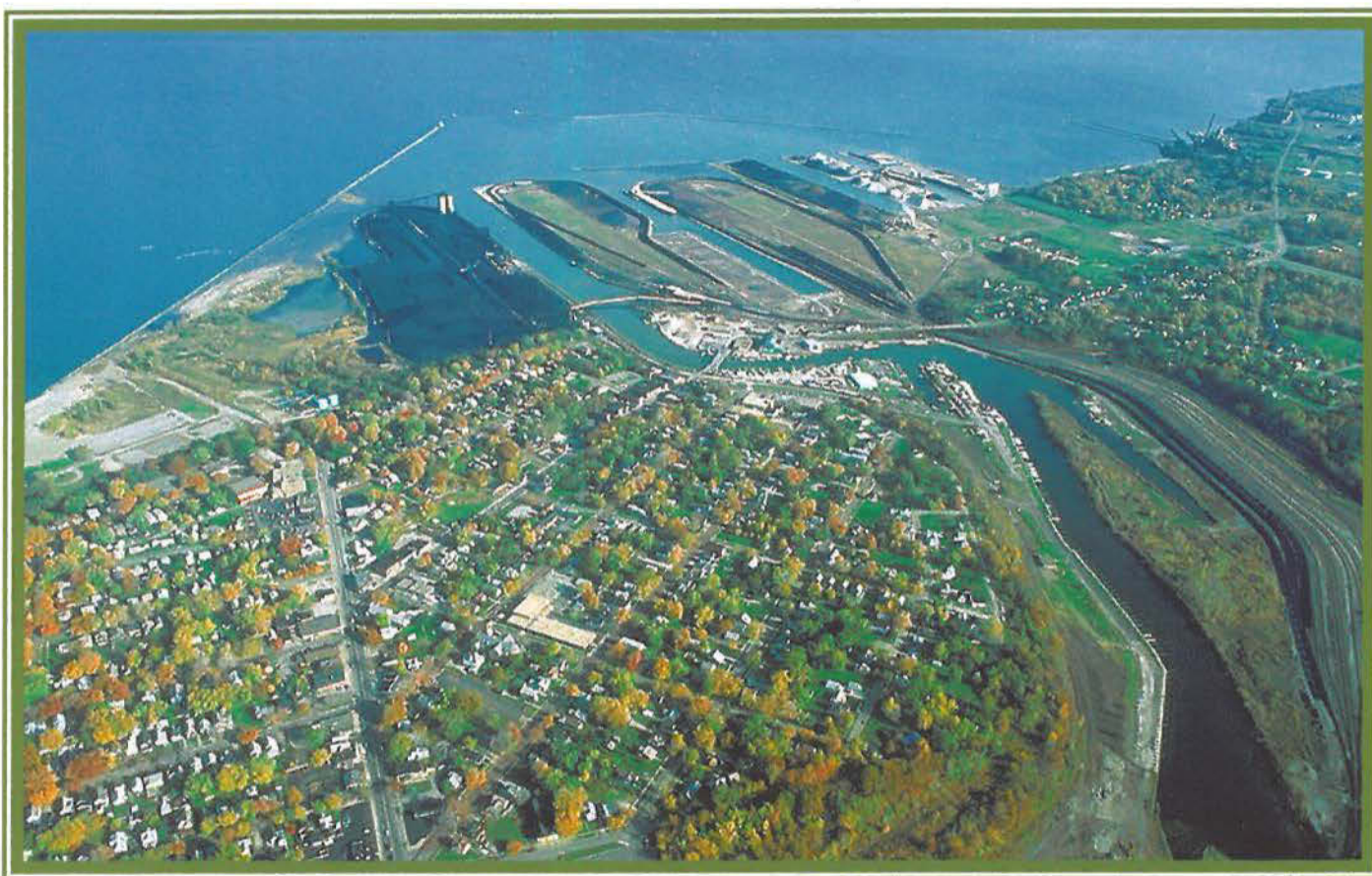
Sincerely,

Brian Hall
Assistant Chief, Division of Surface Water
Ohio Environmental Protection Agency

cc: Fred Leitert, Ashtabula River RAP Advisory Council, Co-Chair
Matthew Smith, Ashtabula River RAP Advisory Council, Co-Chair
Russ Gibson, Ohio EPA-DSW Manager
Amy Jo Klei, Ohio EPA-DSW Lake Erie Coordinator
Kurt Princic, Ohio EPA- NEDO District Chief
Ted Conlin, Ohio EPA-NEDO Ashtabula RAP Coordinator
John Perrecone, U.S.EPA-GLNPO AOC
Amy Mucha, USEPA-GLNPO

Removal Recommendations for Three Beneficial Use Impairments in the Ashtabula River AOC

Restrictions on Fish and Wildlife Consumption
Degradation of Fish and Wildlife Populations
Loss of Fish and Wildlife Habitat



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



**Ashtabula River
Remedial Action Plan
March 21, 2014**



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March 21, 2014

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

Dear Director Korleski:

The State of Ohio is dedicated to the restoration and protection of all waterbodies in the state, including Lake Erie and its tributary river systems. A legacy of Lake Erie's industrial past led four Ohio rivers 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 restoration processes of the Ashtabula, Black, Cuyahoga and Maumee AOCs. These improvements are largely due to the determination and hard work of the Remedial Action Plan (RAP) organizations. An important element of Ohio's commitment to the restoration and protection of the Lake Erie basin is participating in and continued support for the RAPs.

Although returning to pristine conditions may not be realistic for these AOCs, the restoration of impairments to beneficial uses is both desirable and achievable. The progress made in the removal of contamination that necessitated the posting of fish consumption advisories and adversely affected fish populations and habitat in the Ashtabula River is proof of what is possible.

The progress was not easy and was earned with significant cost and exceptional cooperation. An investment of \$75 million by way of the Great Lakes Legacy Act and from the U.S. Army Corps of Engineers, \$7 million of which came as cost-share from the State of Ohio, allowed for the removal of 630,000 cubic yards of contaminated sediments from the river in 2008. An NRDA Consent Decree has provided \$5.5 million to acquire ecologically sensitive sites along the river and to undertake habitat restoration projects. By 2011, Ohio EPA, through Great Lakes Restoration Initiative funding, completed a \$1.5 million habitat restoration project at the 5½ Slip.

The cost is merely an investment in the future of the region and the City of Ashtabula. Therefore, I am pleased to recommend the removal recommendations for the Fish and Wildlife Consumption, Fish and Wildlife Population and Fish and Wildlife Habitat beneficial use impairments in the Ashtabula River AOC.

I commend the work of the conscientious individuals, groups, organizations and industries that comprise the Ashtabula River RAP Advisory Council. Realizing the importance of the Ashtabula River they committed themselves to spear-heading the effort to locate the funding necessary to remove the contaminated sediments and improve the habitat in the AOC. The progress made in the reduction in contamination to fish tissue and improvements documented in fish population and habitat index scores are but milestones leading toward the complete restoration of the Ashtabula River, and I am certain that other significant improvements will soon follow.

Sincerely,

A handwritten signature in blue ink that reads "Craig W. Butler". The signature is written in a cursive, flowing style.

Craig W. Butler, Director

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. Iroquois 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 center in the watershed, the rest of the drainage basin being predominantly rural and agricultural.

In the mid-1900s a number of interdependent chemical companies began operation along Fields Brook, which is a tributary to the lower river. Over time, Fields Brook and the lower Ashtabula River became heavily contaminated with polychlorinated biphenyls (PCBs), chlorinated benzene compounds, chlorinated ethenes, hexachlorobutadiene, polycyclic aromatic hydrocarbons (PAHs), and heavy metals. Fields Brook was named a Superfund site in 1983. The lower two miles of the Ashtabula River were designated as a Great Lakes Area of Concern (AOC) under the 1987 Great Lakes Water Quality Agreement.

In 1988, the newly formed Ashtabula River Remedial Action Plan (RAP) 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. The AOC is wholly within the Ashtabula River lacustrary, which encompasses the lower 2.5 mile of the mainstem. A lacustrary is a freshwater estuary where water levels and river flow can be affected by winds and lake seiches. The upstream boundary of a lacustrary 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.

A variety of agencies and organizations contributed to the Ashtabula River Remedial Action Plan (RAP) including the Ashtabula River Partnership, 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 identified for the Ashtabula River AOC by the RAP Advisory Council:

- Restrictions on Fish Consumption *
- Degradation of Fish Populations *
- Fish Tumors and Other Deformities
- Degradation of Benthos
- Restrictions on Dredging Activities
- Loss of Fish Habitat *

* The wildlife components of BUIs dealing with consumption, populations and habitat are not considered to be impaired by the Ashtabula River RAP Advisory Council.

Regular dredging has long been prevented due to the contaminated sediments and sedimentation led to shallower water in the river channel, seriously impeding both commercial and recreational navigation. In addition, a loss of fish and near-shore terrestrial habitat began when the lower Ashtabula River was transformed into a deep draft commercial harbor beginning in the early 1800s. Much of the river shoreline was altered to support various port-based industries and bulk-headed to accommodate shipping and shipbuilding. The land adjacent to the lower river was lined with rails to accommodate the train transport industry that handled the inland movement of the coal and iron ore. Virtually no natural habitat remained along the river banks. Most of the river shoreline remains bulk-headed today and now provides dockage for numerous recreation boating marinas.

Remediation work began on the cleanup of the Fields Brook Superfund site in the late 1980s and the local community became very involved in developing a RAP for the river. The Ashtabula River RAP Advisory Council realized that habitat improvements in a river system as severely contaminated as the AOC needed to be a secondary concern so the Advisory Council temporarily set aside its efforts and merged with a new partnership that was formed to focus exclusively on dredging the river. That new group was called the Ashtabula River Partnership (ARP) and it included federal, state and local government agencies as well as local businesses, citizens and the industries responsible for contributing to the pollution in the river. Through Great Lakes Legacy Act funding with local and state cost-sharing, approximately 640,000 cubic yards of contaminated sediments were removed from the river between 2006 and 2008. The State of Ohio, Ashtabula River Cooperating Group, and the Ashtabula Port Authority also contributed funding to the cleanup. Total cost was approximately \$75 million.

After dredging operations were completed, the RAP Advisory Council reconvened and work began on restoring habitat in the AOC. By 2010, through Natural Resource Damage Assessment (NRDA) settlement and Great Lakes Legacy Act (GLLA) funding, 800 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 riverbank without sheet-pilings. In addition, approximately 3.6 acres of 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 and resident and transient communities of organisms and the Council has determined that sufficient improvement has been documented to allow the Council to prepare the following BUI removal recommendations.

The Ohio EPA Lake Erie Unit and RAP Coordinators have developed a RAP delisting guidance document, Delisting Guidance and Restoration Targets for Ohio Areas of Concern. The Ohio delisting document is available at: [Http://epa.ohio.gov/portals/35/rap/DelistingTargetsOhioAOC_2008Revision.pdf](http://epa.ohio.gov/portals/35/rap/DelistingTargetsOhioAOC_2008Revision.pdf). On January 14, 2009, the Ashtabula River RAP Advisory Council adopted this document as the RAP guidance for delisting the Ashtabula River AOC. The BUI removal targets listed in the state guidance document were used in data review for each of the three BUI removal recommendations in this document.

Removal Recommendation for the Restrictions on Fish and Wildlife Consumption Beneficial Use Impairment in the Ashtabula River Area of Concern

Issue

The Ashtabula River Remedial Action Plan Advisory Council and Ohio EPA request concurrence with this recommendation to remove the Restrictions on Fish and Wildlife Consumption BUI in the Ashtabula River AOC. This recommendation is made with the support of staff from the Ohio EPA Division of Surface Water (including the Water Quality Standards and Technical Support Section). This request is made in accordance with the process and criteria set forth in the *Delisting Targets for Ohio Areas of Concern* (Ohio EPA, 2008) and the *Restoring United States Great Lakes Areas of Concern: Delisting Principles and Guidelines* (US Policy Committee, 2001).

This beneficial use contains two components, fish consumption and wildlife consumption. Snapping turtles are currently the only wildlife species with a consumption advisory in effect in the Ashtabula River AOC as issued by the Ohio Department of Health. This advisory was listed based on the results of a one-time study done in 1997. All turtles had high levels of PCB and mercury in fat and liver tissue and advisories stress not eating those portions of the turtle. Currently, turtles from the Black, Ashtabula and Maumee Rivers have a one meal per week advisory for mercury which is similar to the statewide blanket advisory for fish, and therefore the levels of contamination found in turtle tissues in these rivers are considered to be background levels and the wildlife consumption component of this BUI is not considered impaired by the individual RAP organizations, including the Ashtabula River RAP Advisory Council, and the State of Ohio. For the consumption of snapping turtles, the Ottawa River has a 'do not eat' advisory due to mercury, and it is the only portion of an Ohio AOC where impairment is listed for wildlife consumption.

Fish consumption advisories, in varying frequencies, have been posted for the lower reach of the Ashtabula River that eventually was designated as the AOC. Prior to being designated a Great Lakes Area of Concern, an advisory was issued in 1983 by the Ohio Department of Health and Ohio EPA that recommended that no fish caught in the lower two miles of the Ashtabula River should be eaten. That advisory was based on results of fish tissue sampling conducted between 1978 and 1981. At the time, forty-five organic chemicals had been detected in fish tissues including PCBs, hexachlorobenzene, hexachlorobutadiene, pentachlorobenzene, tetrachloroethane and octachlorostyrene. Many of the identified chemicals were classified as carcinogens.

Table 1. Summary of Ashtabula River AOC Fish Consumption Advisories (1983 - Present)			
Year(s)	Species	Contaminant(s)	Advisory Frequency
1983 - 1997	All	PCBs, Hexachlorobenzene, Pentachlorobenzene, Tetrachloroethane	Do Not Eat Any Fish
1998 - 2003	Smallmouth Bass	PCBs	1 Meal / Week
	Largemouth Bass, Walleye	Mercury, PCBs	1 Meal / Month
	Channel Catfish, Common Carp	PCBs	1 Meal / 2 Months
2004 - 2007	Channel Catfish, Common Carp	PCBs	1 Meal / 2 Months
	Brown Bullhead, Yellow Bullhead	PCBs	1 Meal / Month
	Largemouth Bass, Walleye	Mercury, PCBs	1 Meal / Month
2007 - 2013	All	PCBs	Do Not Eat Any Fish *
2013	Common Carp, Freshwater Drum	PCBs	1 Meal / Month

- * The 2007–2013 Do Not Eat Any Fish advisory was a precautionary advisory issued for the period of time during and immediately after the remedial dredging project and was replaced with the 2013 advisories which were based on tissue samples collected in 2011.

Although ambient concentrations of the organic contaminants in the water column were very low or below detectable limits, the chemicals found in fish tissue were also detected in the sediments of the lower Ashtabula River and the tributary system, Fields Brook. The contaminated sediments were identified as a concentrated source of pollutants causing contamination of fish tissue, particularly since the highest tissue contaminant levels had been found in bottom feeding fish species. Sediment sampling subsequent to the posting of the 1983 consumption advisory found surficial sediments to contain much lower levels of contamination than deeper sediments and fish tissue sampling at the time indicated that contaminant tissue levels had also declined.

After many years spent in securing the necessary funds to clean up the river sediments, a federal-state-local agreement was signed in 2005, to fund and carry out a \$75 million cleanup of contaminated sediment from the Ashtabula River, under the Great Lakes Legacy Act of 2002. US EPA in cooperation with the Ashtabula City Port Authority (the non-federal sponsor) agreed to clean up 600,000 cubic yards of PCB-contaminated sediment from a one-mile stretch of river. The State of Ohio provided \$7 million as part of the Port Authority's cost share. Additional dredging of 130,000 cubic yards was also made available under the Water Resource and Development Act (WRDA) of 1990. The complete dredging project was completed in October 2009, with the closing of the consolidation facility.

Impairment Listing Criteria

Ohio's delisting guidance states that this beneficial use shall be listed as impaired if an advisory or restriction to fish or wildlife consumption of one meal per month (or more stringent) is imposed by the Ohio Department of Health and is due to sources within the AOC. Starting in 2003, the Ohio Department of Health began advising that everyone limit consumption of sport fish caught from all water bodies in Ohio to one meal per week due to mercury, unless there is a more restrictive advisory.

The IJC listing criteria states that "an impairment will be listed when contaminant levels in fish or wildlife populations exceed current standards, objectives or guidelines, or public health advisories are in effect for human consumption of fish or wildlife. Contaminant levels in fish and wildlife must be due to contaminant input from the watershed." Ohio's current sport fish consumption advisory committee issues public health advisories related to fish consumption under a Memorandum of Understanding (MOU) among Ohio EPA, Ohio Department of Natural Resources, and Ohio Department of Health (ODH). Agency technical staffs meet periodically to coordinate fish consumption advisories and other issues related to fish contaminants.

Because of the "Do Not Eat" any fish advisory of 1983-1997, the RAP Advisory Council was justified when it listed, in the December 1991 RAP Stage 1 Report, that this beneficial use was impaired. (The Advisory Council did not list wildlife consumption as impaired as there was no information on wildlife tissue contamination available and no state consumption advisories had been issued.)

Impairment Removal Criteria

Ohio's guidance document states that the removal of the fish consumption portion of this BUI can occur when no fish consumption advisories of one meal per month (or more stringent) have been issued by the Ohio Department of Health that can be attributed to sources within the AOC. Therefore, the removal of the fish consumption portion of this BUI is solely based upon the frequency of fish consumption advisories issued by the state and the advisory frequency compared to background levels of contamination. In addition to the one meal per week state-wide advisory noted above, there are consumption advisories listed for specific fish species caught from Lake Erie and Lake Erie tributary waters. Both the state-wide and specific Lake Erie and Lake Erie tributary advisories are considered to be regional, background levels of contamination.

The Ashtabula River AOC is wholly located within the Ashtabula River lacustrary. A lacustrary is a fresh water estuary or a place where river flow is affected by wind patterns and lake levels, sometimes halting or reversing river flow, pushing lake water into the lacustrary, and causing the lake-affected portion of the river system to act more as a component or bay of the larger lake system. With unrestricted access between the lake and lacustrary, fish species can and do readily move between the two areas. The primary contaminant of concern for Ashtabula River AOC fish consumption advisories is PCB. Once in the environment, PCBs do not readily break down and therefore may remain for long periods of time cycling between air, water, and soil. PCBs can be carried long distances and are found across the globe (US EPA 2013). PCBs have been found in numerous Lake Erie fish species, particularly in the same Ashtabula River AOC species for which consumption advisories have been issued.

At present, the State delisting guidance document is being revised to be more reflective of current science and to provide more specificity to removal criteria. The Fish Consumption Advisory BUI currently relies upon attributing an advisory to a source within the AOC. This portion of the removal criteria is difficult to determine and is therefore likely to be revised in the next version of the State delisting document. However, Ohio EPA and the Ashtabula RAP believe that there is a large amount of data available to demonstrate that the BUI can be removed and validates an alternative approach to address the local source requirement. The concentrations of contaminants in the AOC, as compared to the background levels of Lake Erie and its tributaries adequately show that there is no difference in concentration or advice between similar species and size fish in the AOC and the background locations, warranting the removal of the BUI.

Tissue Sample Collection

Ohio's current sport fish consumption advisory committee functions under a Memorandum of Understanding (MOU) among Ohio EPA, Ohio Department of Natural Resources, and Ohio Department of Health (ODH). Agency technical staffs meet periodically to coordinate fish advisories and other issues related to fish contaminants. The fish contaminant monitoring sites are typically selected to coordinate with other water quality monitoring survey sites on an annual basis. The State of Ohio Cooperative Fish Tissue Monitoring Program Sport Fish Tissue Consumption Advisory Program (last revised October 2010) provides the assessment procedures for evaluating fish tissue data and advisory decision making and is available online at <http://www.epa.ohio.gov/portals/35/fishadvisory/FishAdvisoryProcedure.pdf>. In cases where an advisory decision is needed for constituents not addressed in the protocol, the protocol is used as a framework for developing appropriate thresholds.

Ohio EPA is responsible for collecting Ohio fish tissue samples for Ohio's Fish Tissue Monitoring Program. Fish tissue collection is performed in accordance with the Ohio Fish Tissue Collection Manual. For fish tissue contamination, levels of the contamination are tiered in accordance with five levels of consumption frequency, developed to be protective of human health. In the Ashtabula River AOC, the current contaminant of concern is polychlorinated biphenyls, or PCBs and the tiered levels of consumption frequency is shown below.

Table 2. Ohio Fish Consumption Advisory Chemicals: (ODH 10/25/99) Fillet Chemical Upper Bound Limit Concentrations (PPM) and Advisory Meal Consumption Rate Using the Great Lakes' Governors Procedure					
Chemical	Unrestricted	1 / week	1 / month	1 / 2 months	Do Not Eat
PCBs	<0.050	0.220	1.000	1.999	> 1.999

In order to be proactively protective of human health, Ohio Department of Health, Ohio DNR and Ohio EPA issued a precautionary do not eat any fish advisory in 2007. This advisory was issued for the time during and immediately after the remedial dredging operation that occurred in 2007-2008 and would remain in effect until new fish tissue results showed that the advisory could be revised. In 2011, tissue samples were collected from sport fish caught from the Ashtabula River and Lake Erie, according to the

State of Ohio's Sport Fish Tissue Monitoring Program. Table 3 provides a summary of the 2011 average PCB tissue concentrations. Please note that in 2011, the average length of common carp individuals caught in the Ashtabula River AOC was 20.75 inches (minimum of 15.75 inches and maximum of 23.50 inches). A common carp individual of almost 27" was found to contain a PCB tissue concentration that triggered a more stringent one meal per two month advisory level for larger individuals caught from Lake Erie waters. A total of 15 fish were collected from the Ashtabula and 56 from Lake Erie; tissue concentrations were determined according to procedures outlined in the State of Ohio's Sport Fish Tissue Consumption Advisory Program

LE Fish	Ashtabula River AOC Fish
Common Carp	Common Carp
0.749	0.642
2.381 *	
Freshwater Drum	Freshwater Drum
0.398	0.367

* In 2011, the average length of common carp individuals caught in the Ashtabula River AOC was 20.75 inches (minimum of 15.75 inches and maximum of 23.50 inches). The common carp from Lake Erie with the 2.381 ppm PCB concentration came from an individual that was 26.73 inches in length, warranting a more stringent consumption advisory.

Comparison Ashtabula River AOC and Lake Erie Fish Consumption Advisories

The PCB tissue concentrations in Ashtabula River AOC common carp and freshwater drum species were sufficient to cause the posting of a one meal per month advisory for both species. However, the tissue concentrations in the Ashtabula River AOC fish were lower than what was detected in same species samples from Lake Erie.

According to fish tissue results from this assessment, the advisory was revised in 2013 for the Ashtabula River AOC to include only common carp and freshwater drum to an advisory frequency of one meal per month. In 2013, the advisories posted for Lake Erie fish species also included common carp and freshwater drum. The Lake Erie advisories for these fish species were equal to or more stringent than the same fish found in the Ashtabula River AOC. A comparison of advisory frequency for these fish species in the AOC and Lake Erie is shown in Table 4.

Species	Lake Erie Advisory Frequency		Ashtabula River AOC Advisory Frequency	Comparison
Common Carp	For individuals \geq 27"	1 Meal / 2 Months	1 Meal / Month (regardless of size)	AOC Advisory is identical to or less stringent than Lake Erie advisories
	For individuals < 27"	1 Meal / Month		
Freshwater Drum	1 Meal / Month		1 Meal / Month	AOC Advisory is identical to Lake Erie advisory

Conclusions

Aside from the precautionary Do Not Eat any fish advisory of 2007–2013, the advisories listed for the Ashtabula River AOC showed continued improvement over time (Table 1). From 1983 to 2007, the improvement has been attributed to cleaner surficial sediments which prevent access to the older and more contaminated deeper sediment layers. Since the remedial dredging, the improvements can be attributed to the removal of the contamination pathway through the efforts of the remedial dredging operation.

In spite of that, the concentration of PCBs found in Ashtabula River fish in 2011, used for the posting of the 2013 advisory frequencies, are lower than the concentration of PCBs found in Lake Erie fish of the same species. In fact, no Ashtabula River common carp were found with a tissue contaminant concentration as high as was found in the larger (≥ 27) Lake Erie common carp. The Ashtabula River AOC fish consumption advisories are equal to or less stringent than the advisories posted for Lake Erie fish of the same species.

It's noted that the current Ashtabula consumption advisories are based off a single year of fish tissue data. This is not unusual; limited resources often dictate that a water body is sampled for fish tissue only one or two times during the ten-year analysis window used by the advisory program. Normally, Ohio EPA requires two years' worth of tissue data to rescind an advisory such as a "Do Not Eat" advisory. However, in the case of the Ashtabula the "Do Not Eat" advisory was precautionary; fish tissue data never indicated tissue contamination warranting this stringent advisory, and the advisory committee felt that a single year's worth of data post-dredging was sufficient to issue the revised "Once Per Month" advisory for the river. Also, a comparison of the two most recent years of tissue data for the Ashtabula shows a fish tissue PCB decrease of more than 80% for both common carp and freshwater drum between 2002 and 2011. Although this trend analysis is based on a limited sample size, it supports the advisory committee's decision to post a less-restrictive "Once Per Month" advisory.

Ohio Department of Health, Ohio DNR and Ohio EPA has issued consumption advisories for two Ashtabula River AOC fish species (common carp and freshwater drum) that are equal to or less stringent than the advisories posted for Lake Erie fish of the same species.

As described above, the Fish Consumption BUI currently relies upon attributing an advisory to a source within the AOC. However, Ohio EPA and the Ashtabula RAP believe that the information and data summarized above demonstrate that the BUI can be removed by documenting that the advisory levels and fish tissue contaminant levels are no worse than the current Lake Erie advisory levels and contaminant levels. The concentrations of contaminants in the AOC, as compared to the background levels of Lake Erie and its tributaries adequately show that there is no difference in concentration or advice between similar species and size fish in the AOC and the background locations, warranting the removal of the BUI.

Recommendation

Based upon review of the data and technical input from Ohio EPA, removal of the Restrictions on Fish and Wildlife Consumption BUI in the Ashtabula River AOC is being recommended. This Removal Recommendation was discussed with the Ashtabula River RAP Advisory Council at their July 2, 2013 RAP meeting where the RAP Council voted to proceed with the removal of this impairment. The RAP Council and Ohio EPA held a public informational meeting on this proposal on March 20, 2014. The Ashtabula River RAP Advisory Council submitted a formal letter of support for removal of the BUI, dated July 17, 2013 (Attachment 1).

Removal Recommendation for the Degradation of Fish and Wildlife Populations Beneficial Use Impairment in the Ashtabula River Area of Concern

Issue

This beneficial use contains two components, fish populations and wildlife populations. The Ashtabula River Remedial Action Plan Advisory Council does not list the wildlife population component as an impaired beneficial use in the Area of Concern. This removal recommendation, therefore, deals only with the listed impaired component, fish populations.

The river was called Hash-tah-buh-lah, or river of many fish, by Native Americans, but commercial port development and improvements degraded fish populations. By the middle 1800s the Ashtabula River and Harbor area had become a significant Lake Erie port, receiving vast amounts of coal and iron ore and transporting these commodities to the expanding railway system. Modifications that were made to the river to facilitate port operations, such as channel dredging and sheet-piling of river banks severely modified or removed critical aquatic habitat and limited fish populations. In addition, contamination of river sediments from numerous chemical operations located around Fields Brook further degraded fish populations.

Due to recent remedial dredging projects and habitat restoration activities, fish populations in the Ashtabula River AOC now meet not only BUI removal criteria but are approaching or exceeding Ohio water quality standards. The Ashtabula River Remedial Action Plan Advisory Council and Ohio EPA request concurrence with this recommendation to remove the Degradation of Fish and Wildlife Population Beneficial Use Impairment (BUI) in the Ashtabula River AOC. This recommendation is made with the support of staff from the Ohio EPA Division of Surface Water. This request is made in accordance with the process and criteria set forth in the *Delisting Targets for Ohio Areas of Concern* (Ohio EPA, 2008).

Removal Criteria

Ohio EPA's approach to surface water monitoring and management essentially serves as an environmental feedback process taking "cues" from environmental indicators to effect needed changes or adjustments within water quality management. The presence, condition, and numbers of the types of fish, insects, algae, plants and other aquatic life provide accurate information about the health of freshwater resources.

For aquatic life uses, the community and population response parameters that are represented by the biological indices that comprise Ohio EPA's biological criteria are the principal response indicators. The principal biological evaluation tools used by Ohio EPA are the Index of Biotic Integrity (IBI), the Modified Index of Well-Being (MIwb) and the Invertebrate Community Index (ICI). These three indices are based on species richness, trophic composition, diversity, presence of pollution-tolerant individuals or species, abundance of biomass, and the presence of diseased or abnormal organisms. The IBI and the MIwb apply to fish; the ICI applies to macroinvertebrates. Ohio EPA uses the results of sampling reference sites to set minimum criteria index scores for aquatic life use designations in water quality standards.

Biological information provided by the agency's Index of Biotic Integrity (IBI) and Modified Index of Well-being (MIwb) furnish numeric measures of the current condition of resident fish populations and are often used to demonstrate progress in ecological restoration. These indices are used by Ohio RAP organizations to determine the status of the fish population component of the Fish and Wildlife Consumption beneficial use impairment.

According to the Ohio delisting guidance, the fish population component of this BUI can be considered restored when:

1. Index of Biotic Integrity (IBI) and Modified Index of Well Being (MIwb) values do not significantly diverge from state applicable ecoregional biological criteria.
2. For lacustuaries and nearshore areas, IBI and MIwb values do not significantly diverge from target scores based on Thoma 1999.

Type	State Water Quality Attainment Criteria/Target		Ohio AOC Non-Significant Departure Value	Ohio AOC Removal Target
	IBI	MIwb		
Warmwater Habitat (WWH) Streams	IBI	40 *	4	36
	MIwb	8.7 *	0.5	8.2
Lacustuaries	L-IBI	42 **	4	38
	MIwb	8.7 *	0.5	8.2

* From Ohio WQS

** From recommended target

The Ashtabula River AOC is wholly within the lacustuary so restoration target #2, above, is the applicable BUI delisting target. The Ohio delisting guidance specific for this BUI can be seen in Attachment B.

Fish Population Assessments

Data from fish population assessments in the Ashtabula River AOC are generally available from 1989 to 2011 with most assessment sites centrally located in the 2.32 mile AOC, around River Miles 1.1 and 1.3, the location of recently constructed in-water and riparian habitat improvements.

River Mile	1989	1993	1995	1998	2002	2003	2004	2005	2009	2011	2013
0.30		4.68		4.74							
0.60	2.59									9.3	
0.73			3.81								
0.90										9.35	
1.10				8.19		8.49	7.85	8.86	8.72	8.71	
1.20										9.92	11.7
1.25	6.02		6.52	7.47	9.43	8.16	7.59	8.65	8.37	8.96	11.4
1.60										9.01	
1.80	7.97										
2.25			8.82	9.27							
2.32										9.01	
Average, by year	5.53	4.68	6.38	7.42	9.43	8.33	7.72	8.76	8.55	9.18	11.55
BUI Removal Target	8.2										
% of Removal Target	67.4%	57.1%	77.8%	90.5%	115.0%	101.5%	94.1%	106.8%	104.2%	112.0%	140.9%

Table 5. Ashtabula River AOC IBI Data (1989 – 2013)											
River Mile	1989	1993	1995	1998	2002	2003	2004	2005	2009	2011	2013
0.30		25.1		28.5							
0.60	27									42	
0.73			30								
0.90										40	
1.10				32.5		44	40	37.5	44	37	
1.20										46	48
1.25	31.4		24.5	33.5	37.3	34.5	44	36	46	45.8	52
1.60										45.5	
1.80	36.4										
2.25			45	44							
2.32										44	
Average, by year	31.6	25.1	33.2	34.6	37.3	39.3	42.0	36.8	45.0	42.9	50.0
BUI Removal Target	38										
% of Removal Target	83.2%	66.1%	87.3%	91.1%	98.2%	103.3%	110.5%	96.7%	118.4%	112.9%	131.6%

Below, the fish community improvement, over time, is depicted graphically:

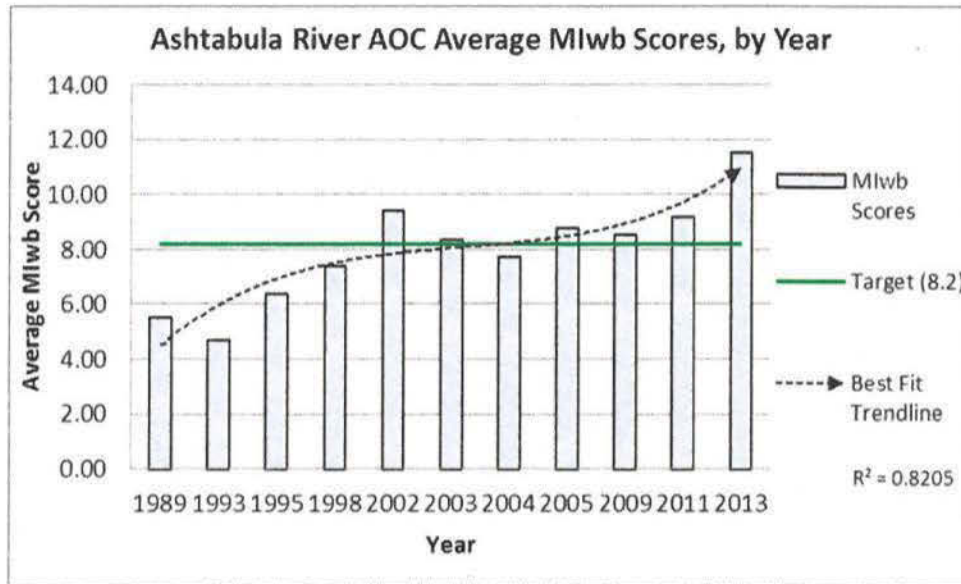


Figure 1. Ashtabula River AOC Average MIwb Scores

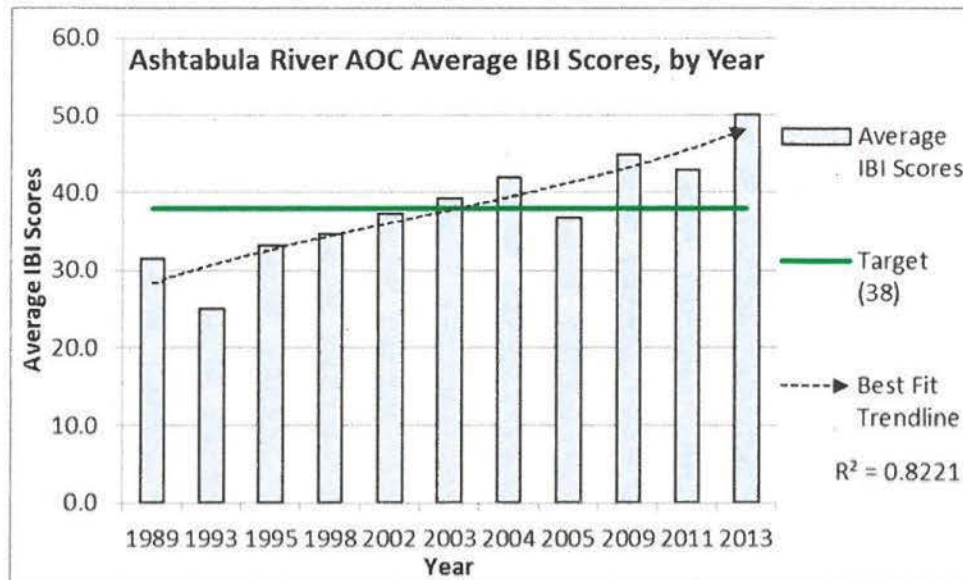


Figure 2. Ashtabula River AOC Average IBI Scores

Conclusions

As can be seen in the trend lines in the above graphs, both fish community indices showed a remarkable and consistent improvement in the Ashtabula River AOC. In addition, the fish communities exceeded the MIwb restoration target in the last four assessments and six of the last seven. For the L-IBI assessments, the AOC fish communities met or exceeded the restoration target in the last three assessments and in five of the last six. Since consistent improvement in fish community scores has been noted since 1989 and that Ohio delisting criteria has been met, removal of the Degradation of Fish and Wildlife Populations BUI is warranted.

With the strategic navigation dredging of the upper river channel, the GLRI-funded dredging of Jack's Marine North Slip (both scheduled for completion in 2013), the completion and maturation of NRDA habitat projects and finally the maturation of the fish habitat shelves at the 5 ½ Slip (which was completed in 2011), the upward trends seen in the above charts are expected to continue in the Ashtabula River AOC.

Recommendation

With the Wildlife Population component of this BUI not impaired and upon a review of the Fish Population data and technical input from Ohio EPA, removal of the Restrictions on Fish and Wildlife Population BUI in the Ashtabula River AOC is recommended. The data and this Removal Recommendation were discussed with the Ashtabula River RAP Advisory Council at their July 2, 2013 RAP meeting. At the meeting, the RAP Council voted to proceed with the removal of this impairment. The RAP Council and Ohio EPA held a public informational meeting on this proposal on March 20, 2014. The Ashtabula River RAP Advisory Council submitted a formal letter of support for removal of the BUI, dated July 17, 2013 (Attachment 1).

Removal Recommendation for the Degradation of Fish and Wildlife Habitat Beneficial Use Impairment in the Ashtabula River Area of Concern

Issue

This beneficial use contains two components, fish populations and wildlife habitat. The Ashtabula River Remedial Action Plan Advisory Council does not list the wildlife habitat component as an impaired beneficial use in the Area of Concern. This removal recommendation, therefore, deals only with the listed impaired component, fish habitat.

Due to recent remedial dredging and habitat restoration activities, fish habitat in the Ashtabula River AOC now meet not only BUI removal criteria but are approaching or exceeding Ohio water quality standards as evidenced by attainment of biological criteria. The Ashtabula River Remedial Action Plan Advisory Council and Ohio EPA request concurrence with this recommendation to remove the Degradation of Fish and Wildlife Habitat Beneficial Use Impairment (BUI) in the Ashtabula River AOC. This recommendation is made with the support of staff from the Ohio EPA Division of Surface Water. This request is made in accordance with the process and criteria set forth in the *Delisting Targets for Ohio Areas of Concern* (Ohio EPA, 2008).

Removal Criteria

According to the Ohio delisting guidance, the fish habitat component of this BUI can be considered restored when:

1. For mainstem and tributaries, habitat quality shall average a Qualitative Habitat Evaluation Index (QHEI) score of 60 or better throughout the free-flowing stream stretches of the AOC,
 2. For nearshore, harbor or lacustrine areas, Lake Erie QHEI (L-QHEI) results do not indicate an impairment, and
 3. Ohio Aquatic Life Water Quality Standards are met
- _____ OR _____
1. Fish and Wildlife officials do not identify loss of or poor quality habitat as cause for non-attainment with fishery goals.

The Ashtabula River AOC is wholly within the lacustrine so restoration targets #2 and #3, above, are the applicable BUI delisting targets. Appendix B of the Ohio delisting guidance document states that an L-QHEI score greater than 55 is considered to be an acceptable target. The L-QHEI target value is based on Thoma (2006) and a correlation between L-QHEI values and IBI values. The L-QHEI target is expected to be the point at which fish populations can attain WWH criteria. The state's delisting guidance specific for this BUI can be seen in Attachment C.

Assessments

Fish Habitat Assessments

Data from fish habitat assessments in the Ashtabula River AOC are generally available from 1989 to 2011 with most assessment sites centrally located in the 2.32 mile AOC, around River Miles 1.1 and 1.3, the location of recently constructed in-water and riparian habitat improvements.

Table 6. Ashtabula River AOC L-QHEI Assessment Data						
Location (River Mile or Breakwall)	1989	1995	2002	2003	2005	2011 (2013)
0.30		33				
0.50	35					
0.60						45
0.90						67
1.10			39	44	41	54.5
1.20						65
1.30	41.5	43	38.5	44.5	44	33* (69.5)
1.66						
1.80	55					38.5
2.00		54.5				
2.32						53
Inner Breakwall						72
West Breakwall						51
Yearly Average	43.8	43.5	38.8	44.3	42.5	57.3
Removal Target	55					
% of Removal Target	79%	79%	70%	80%	77%	104.1%

* **Note:** The 2011 LQHEI assessment at River Mile 1.30 was conducted at the site of a GLRI fish habitat shelf constructed in September-November 2011. The shelf construction destroyed conditions at the site that led to the L-QHEI score of 33. After construction, Ohio EPA re-assessed the site on July 10, 2013 and that assessment produced the updated LQHEI score of 69.5.

Since 2002, the fish habitat scores in the Ashtabula River AOC, as measured by L-QHEI, have demonstrated a constant improvement. Below, the fish habitat improvement over time is depicted graphically:

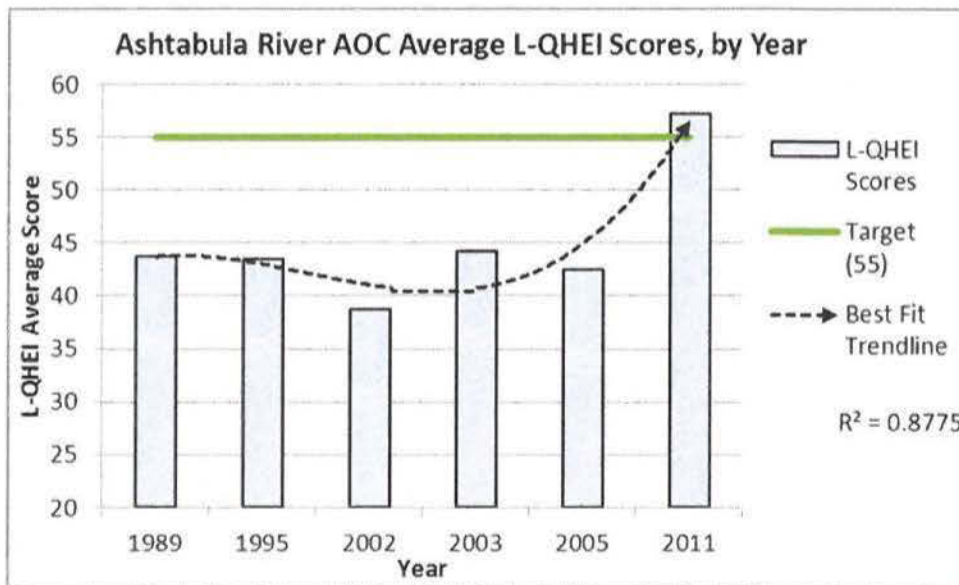


Figure 3. Ashtabula River AOC Average L-QHEI Scores, by year

Fish Population Assessments

A secondary state removal target for the Fish Habitat component of this BUI is that Ohio Aquatic Life Use Water Quality Standards must be met. The Ashtabula River has been designated a warmwater habitat (WWH) stream and therefore the BUI removal target is the water quality standard for WWH streams in the Erie/Ontario Lake Plain ecoregion. The average Ashtabula River AOC MIwb and IBI scores met or exceeded Ohio Aquatic Life Use Water Quality Standards for WWH in three of the last four MIwb assessments and in four of the last five IBI assessments. A removal recommendation for the Fish and Wildlife Populations BUI is included in this document.

	MIwb				IBI				
Year	2005	2009	2011	2013	2004	2005	2009	2011	2013
Average	8.76	8.55	9.18	11.55	42.0	36.8	45.0	42.9	50.0
Ohio Aquatic Life Use Criteria	8.7				42				
% of Criteria	101%	98.3%	106%	133%	100%	87.6%	107%	102%	119%

Conclusions

Since a consistent improvement in fish habitat scores has been noted since 2002, Ohio's fish habitat BUI removal targets have been met and the fish community component of the state's ALU designations now meet applicable criteria in the AOC, the removal of the Degradation of Fish and Wildlife Habitat BUI is warranted.

With 1) the strategic navigation dredging of the upper river channel (scheduled for completion in 2013), 2) the GLRI-funded dredging of Jack's Marine North Slip (also scheduled for completion in 2013), 3) the completion and maturation of NRDA habitat projects and finally 4) the maturation of the fish habitat shelves at the 5 ½ Slip (which was completed in 2012), the upward trend documented in this removal recommendation can be expected to continue in the Ashtabula River AOC.

Recommendation

With the Wildlife Habitat component of this BUI not impaired and upon a review of the L-QHEI data and technical input from Ohio EPA, removal of the Degradation on Fish and Wildlife Habitat BUI in the Ashtabula River AOC is recommended. The data and this Removal Recommendation were discussed with the Ashtabula River RAP Advisory Council at their July 2, 2013 RAP meeting. At the meeting, the RAP Council voted to proceed with the removal of this impairment. The RAP Council and Ohio EPA held a public informational meeting on this proposal on March 20, 2014. The Ashtabula River RAP Advisory Council submitted a formal letter of support for removal of the BUI, dated July 17, 2013 (Attachment 1).

2008 Delisting Targets for Ohio Areas of Concern

BUI 1: Restrictions on Fish and Wildlife Consumption**IJC Listing Guideline**

An impairment will be listed when contaminant levels in fish or wildlife populations exceed current standards, objectives or guidelines, or public health advisories are in effect for human consumption of fish or wildlife. Contaminant levels in fish and wildlife must be due to contaminant input from the watershed.

State of Ohio Listing Guideline

This beneficial use shall be listed as impaired if:

- 1) An advisory or restriction to fish or wildlife consumption of one meal per month (or more stringent) is imposed by the Ohio Department of Health **and** 2) is due to sources within the AOC.

State of Ohio Delisting Target

✓ No fish consumption advisories of one meal per month (or more stringent) have been issued by the Ohio Department of Health that can be attributed to sources within the AOC.

AND

✓ No wildlife consumption advisories of one meal per month (or more stringent) have been issued by the Ohio Department of Health that can be attributed to sources within the AOC.

State of Ohio Delisting Milestones

- Track change in number/type of consumption advisories.
- Track change in levels of contaminants in species with consumption advisories. Contaminant levels in fish tissue should not exceed 220 µg/kg (ppb) PCBs, or 220 µg/kg mercury.
- Track change in levels of contaminants in the water column and sediment.
- ✓ No consumption advisories of one meal per month (or more stringent) in effect due to contaminant sources from within the AOC.

Rationale

While most Ohio sport fish are of high quality and a good source of protein, levels of chemicals such as PCBs, mercury, lead, and other metals and pesticides have been found in some fish from certain waters. To ensure the continued good health of Ohioans, the Ohio Department of Health, in cooperation with the Ohio Environmental Protection Agency and Ohio Department of Natural Resources, issues fish consumption advisories per Chapter 3701 or the Ohio Revised Code. Ohio uses the Protocol for a Uniform Great Lakes Sport Fish Advisory (1993) and the 2005 addendum to establish fish consumption advisories for PCBs and mercury, respectively. These are the contaminants that drive most of the advisories in Ohio waters.

Snapping turtles are currently the only wildlife species with a consumption advisory in effect as issued by the Ohio Department of Health. This advisory was listed based on the results of a one-time study done in 1997. All turtles had high levels of PCB and mercury in fat and liver tissue and advisories stress not eating those portions of the turtle. Currently, turtles from the Black, Ashtabula and Maumee Rivers have a one meal per week advisory for mercury which is similar to the statewide blanket advisory for fish, and not considered impaired. The Ottawa River has a do not eat advisory due to mercury, and it is the only portion of an Ohio AOC with a wildlife consumption impairment.

Note that the status and types of consumption advisories currently in effect are most likely quite different than what was reported in the RAP Stage 1 Reports. Most fish consumption advisories now are driven by PCB or mercury contamination. Earlier advisories may also have been issued due to elevated levels of tumors in brown bullhead associated with high PAH concentrations in sediments, the presence of a myriad of chlorinated organic chemicals, or for some other reason.

Sources of contaminants originating outside an AOC (upstream, long range transport of contaminants released to the air and deposited in the AOC, from open lake waters, etc.) that result in a fish or wildlife consumption advisory should not impinge on the ability to delist an AOC. In these instances, a listing of "Impaired – Not Due to Local Sources" could be used. However, whenever possible, the RAP should attempt to ensure that another responsible party or existing program is addressing source control outside the AOC boundaries.

Up-to-date comprehensive fish and wildlife consumption advice is available on the Ohio EPA web page at: www.epa.ohio.gov/dsw/fishadvisory/index.aspx. In 2003 a general state-wide restriction was issued advising not to eat more than one meal per week of fish caught from any waters in Ohio due to widespread low levels of mercury. This blanket statewide advisory is protective of the most sensitive human populations and pre-empted the listing of other one week advisories that were mostly due to PCBs. In order to keep the fish consumption advisory information as simple as possible, the web page now only lists the more restrictive one month or greater advisories. This does not mean the PCBs have gone away. Therefore, when conducting a study to determine if the local advisories are strictly related to sources from outside an AOC, it is important to examine the actual fish tissue data for the area in question and not just whether an advisory is listed on the web page. Fish tissue data is available from Ohio EPA. In the Ohio Integrated Report, beginning in 2006, water body impairments were included based on fish tissue concentrations as related to water quality criteria. These numbers and results are somewhat different than the concentrations that trigger fish consumption advisories. For the AOC delisting targets, we will continue to keep the targets focused on the existence of fish consumption advisories rather than fish tissue concentrations.

2008 Delisting Targets for Ohio Areas of Concern

BUI 3: Degradation of Fish and Wildlife Populations

IJC Listing Guideline

An impairment will be listed when fish and wildlife management programs have identified degraded fish or wildlife populations due to a cause within the watershed. 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:

For Fish:

Ohio EPA surveys or other studies report significant non-attainment of Ohio fish community biological indices due to a cause within the watershed.

For Wildlife:

Wildlife studies or surveys of wildlife managers indicate degraded or absent populations of selected sentinel species.

**State of Ohio
Delisting Target**

For Fish:

- ✓ Index of Biotic Integrity (IBI) and Modified Index of Well Being (MIwb) riverine stretches, values do not significantly diverge from state applicable ecoregional biological criteria.
- ✓ For lacustraries and nearshore areas, IBI and MIwb values do not significantly diverge from guidelines based on Thoma 1999.

For Wildlife:

- ✓ Healthy, reproducing populations of great blue heron, mink, bald eagle, osprey, river otter or other appropriate sentinel species are present.
- OR**
- ✓ ODNR restoration goals and management objectives are met and wildlife managers indicate populations are not degraded.

**State of Ohio
Delisting Milestones**

- Track changes in IBI and MIwb fish community survey results.
- In Recovery Stage Criteria:
 - Both IBI and MIwb values in a designated segment or sub-watershed show continued improvement over 5 years and are within 1.5 times state specified non-significant departure range.
- ✓ Results show compliance with target values.

For Wildlife:

- Select appropriate sentinel wildlife species to monitor in the AOC
- Track changes in wildlife population survey results.
- Track progress toward achievement of ODNR restoration goals and management objectives related to sites within the boundaries of the AOC.
- ✓ Wildlife managers indicate no problems with wildlife populations.

Rationale

For Fish Populations:

The Ohio Water Quality Standards (WQS), Chapter 3745-1 of the Ohio Administrative Code, consist of use designations, chemical criteria and biological criteria designed to represent measurable properties of the environment that are consistent with the narrative goals specified for each use designation. Use designations consist of two broad groups, aquatic life (i.e., aquatic community status) and human use (i.e., water supply, recreational use). In applications of the Ohio WQS to the management of water resource issues in rivers and streams, the aquatic life use criteria frequently control the resulting protection and restoration requirements, hence their emphasis in biological and water quality reports. Also, an emphasis on protecting aquatic life generally results in water quality suitable for all uses. The six different aquatic life uses currently defined in the Ohio WQS are: Warmwater Habitat (WWH), Exceptional Warmwater Habitat (EWH), Coldwater Habitat (CWH), Seasonal Salmonid Habitat (SSH), Modified Warmwater Habitat (MWH), and Limited Resource Water (LRW) (See Appendix A).

Chemical and/or biological criteria are generally assigned to each use designation. As such, the system of use designations employed in the Ohio WQS constitutes a "tiered" approach in that varying and graduated levels of protection are provided by each. This hierarchy is especially apparent for parameters such as the biological criteria.

The attainment status of aquatic life use in rivers is determined by using the biological criteria codified in the Ohio WQS. The biological community performance measures based on fish community characteristics are the Index of Biotic Integrity (IBI) and the Modified Index of Well-Being (MIwb). The IBI is a multimetric index patterned after an original IBI described by Karr (1981) and Fausch *et al.* (1984). The MIwb is a measure of fish community abundance and diversity using numbers and weight information, and is a modification of the original Index of Well-Being applied to fish community information from the Wabash River (Gammon 1976; Gammon *et al.* 1981). The modification corrects for a predominance and high abundance of fish species tolerant to environmental degradation that would otherwise produce false high readings. The Lake Erie watershed falls within two ecoregions – geographic regions with unique ecological characteristics. These are the Erie/Ontario Lake Plain (EOLP) and the Huron/Erie Lake Plain (HELP). Different biological criteria objectives have been developed for each ecoregion.

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 this 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). No differences in lacustrary IBI and MIwb guidelines are noted between the two ecoregions - EOLP and HELP. Every named public waterbody in the state has an assigned aquatic life use designation and there are target biological criteria for each use designation. The biocriteria for rivers are codified in the Ohio WQS. The indices for the shoreline and lacustrary zones have not been codified and should be considered guidelines (See Appendix B).

In the Ohio WQS, a stream is considered to be in attainment when fish (IBI and MIwb) and benthos (ICI) community surveys result in attainment of all indices or if only one of the indices is found to be in non-significant departure. Stream evaluation criteria differ between the two ecoregions where the Ohio AOCs are located. The attainment criteria can be seen below:

	Maumee AOC			Ashtabula River, Black River and Cuyahoga River AOCs		
	Huron-Erie Lake Plain Ecoregion (HELP)			Erie-Ontario Lake Plain Ecoregion (EOLP)		
Index – Site Type	WWH	EWH	MWH	WWH	EWH	MWH
IBI – Headwaters	28	50	20	40	50	24
IBI – Wading	32	50	20	38	50	24
IBI – Boat	34	48	20	40	48	24
MIwb – Wading	7.3	9.4	5.6	7.9	9.4	6.2
Miwb – Boat	8.6	9.6	5.7	8.7	9.6	5.8

Ohio EPA has determined non-significant departure for either ecoregion is:

- 4 points for IBI, and
- 0.5 points for MIwb.

Delisting criteria for fish shall be when values for fish community surveys for a designated stream segment of a sub-watershed meet Ohio WQS or are within non-significant departure levels for both indices (IBI and MIwb). Localized problem areas in a sub-watershed or stream segment may result in lower values, but for this beneficial use, the individual RAPs will determine the average value for designated mainstem and tributary watersheds and utilize this value for comparison to Ohio WQS.

For a designated stream or sub-watershed segment to be considered for a listing of “In Recovery”, all actions identified as needed to restore the fish community have been implemented and the fish community survey values must show continued improvement over 5 years and not diverge more than 1.5 times Ohio’s non-significant departure range.

For Wildlife Populations:

Barring the existence of a wildlife study, two methods of assessing wildlife populations are possible. First, a survey of wildlife officials (county, state, local, or other appropriate organizations) should be able to indicate if any fish-eating or water dependent wildlife populations in the AOC are stressed and for what reason. Second, the establishment of wildlife sentinel species can provide a surrogate to monitor for an indication of the overall health of the wildlife populations.

Great blue heron, bald eagle, osprey, mink, and river otter are the top-level fish eating predatory animals of the Lake Erie watershed and are good indicators of ecosystem health. As such, they are considered to be the primary sentinel species in Ohio. Population studies of these birds and mammals indicate that their numbers are increasing, due to successful reintroduction efforts and declining levels of pollution. Wildlife officials, managers, and other organizations should be able to provide adequate information regarding the status of these populations.

According to the Lake Erie LaMP, if one or more of the following definitions applies to wildlife species in the applicable jurisdiction, this use is considered impaired:

- The wildlife population is below a stated objective;
- The wildlife population is below the demand placed on it;
- The wildlife population is rare, threatened, endangered, or of special concern;
- The wildlife population is unable to sustain itself in terms of amount or condition;
- The wildlife population is suspected to be degraded, but data is insufficient or inconclusive;
- The wildlife population has contaminant burdens that may impair behavior or reproduction, or that of higher trophic level organisms.

Note that most of the suggested sentinel species require a much larger area than the AOC to support sustainable populations. It may be acceptable just to monitor the presence of a species in the area and if it is reproducing or increasing. The input of wildlife managers is important in this decision.

2008 Delisting Targets for Ohio Areas of Concern

BUI 14: Loss of Fish and Wildlife Habitat

IJC Listing Guideline

An impairment will be listed when fish and wildlife management goals have not been met as a result of loss of fish and wildlife habitat due to a perturbation in the physical, chemical or biological integrity of the Boundary Waters, including wetlands.

State of Ohio Listing Guideline

This beneficial use shall be listed as impaired if:

Fish Habitat:

- ✓ Habitat quality, as applicable and measured by the Qualitative Habitat Evaluation Index (QHEI), averages below a score of 60 throughout the free-flowing stream stretches of the AOC;
 - ✓ An assessment of the nearshore, harbor or lacustuary areas using the Lake Erie QHEI methodology indicates impairment; or
 - ✓ Ohio Aquatic Life WQS are not being met
- Or-----
- ✓ Fish management officials identify loss of or poor quality habitat as cause for non-attainment with fishery goals.

Wildlife Habitat:

- ✓ Wildlife management officials identify loss of or poor quality habitat as cause for non-attainment with wildlife goals.

State of Ohio Delisting Target

Fish Habitat:

- ✓ For mainstem and tributaries, habitat quality shall average a QHEI score of 60 or better throughout the free-flowing stream stretches of the AOC
- ✓ For nearshore, harbor or lacustrary areas, Lake Erie QHEI results do not indicate an impairment, **and**
- ✓ Ohio Aquatic Life Water Quality Standards are met
_____ **OR** _____
- ✓ Fish and Wildlife officials do not identify loss of or poor quality habitat as cause for non-attainment with fishery goals.

Wildlife Habitat:

- ✓ Forested buffers exist on 50% of residential tributaries and 25% of urban tributaries **and**
- ✓ For headwater streams, HHEI habitat quality shall average a score of 30 for warm water streams and 70 for cold water streams
_____ **OR** _____
- ✓ For headwater streams and wetlands, State Aquatic Life Use Water Quality Standards are met
_____ **OR** _____
- ✓ Wildlife officials do not identify loss of or poor quality habitat as cause for non-attainment with wildlife goals.

State of Ohio Delisting Milestones

Fish Habitat:

- Track changes in QHEI scores
- Track watershed survey results (Technical Support Documents, TMDLs, Ohio Integrated Water Quality Monitoring and Assessment Report, etc.) for compliance with State Aquatic Life Water Quality Standards
- Conduct a habitat assessment of the nearshore and lacustrary areas using the Lake Erie QHEI methodology
- ✓ Habitat is sufficient to support achievement of the biocriteria associated with State Aquatic Life Use Water Quality Standards in the free-flowing stream segments of the AOC, to support achievement of biological index guidance for the lacustrary and nearshore segments of the AOC, and to meet fishery goals set by fish and wildlife officials.

Wildlife Habitat:

- Buffers, conservation easements, riparian setback ordinances or other protective mechanisms are in place on more than 80% of the streams and tributaries
- Over 10% of major watershed and over 6% of sub-watershed is high quality wetland habitat
- Over 75% of the stream length is naturally vegetated
- Less than 15% of the watershed is impervious
- Over 30% of the watershed is in forest cover
- Track HHEI scores
- Track percentage of forested riparian buffers along streams in residential and urban areas
- Track wildlife management goal attainment
- ✓ Habitat is sufficient to support wildlife goals

Rationale

The International Joint Commission (IJC) listing guideline includes consideration for both fish and wildlife habitat. An AOC must determine there is no loss of habitat for both fish and wildlife due to disproportionate or undue alterations in the chemical, physical or biological components of the waters of the AOC. The development of the greater Lake Erie basin will cause some habitat areas to suffer, but the

state strives to limit those impacts or allow for mitigation of those impacts. A moratorium on future development or returning developed lands to a pristine state is not, nor can it be, the goal in restoring this beneficial use impairment. The primary goal is reasonable protection in place for existing un-impacted habitat areas, followed by restoration or rehabilitation of degraded habitat areas. According to *"Restoring United States Areas of Concern: Delisting Principles and Guidelines,"* the beneficial use restoration process must include a maintenance plan to reduce the risk of future degradation. Adjacent land use practices have considerable impact on water quality and habitat. Development pressures will continue and reasonable assurances that future degradation of certain areas may not be practical. However, developmental impacts to the quantity and quality of habitats can be lessened or mitigated. The Ohio Lake Erie Balanced Growth Program, which is now being initiated statewide, may be a potential program to partner with to preserve or restore this beneficial use.

Fish Habitat Assessment:

The Ohio EPA has a long history of assessing aquatic biological communities, including habitat, during their routine environmental surveys. Two main components of aquatic health assessment in regard to habitat are the QHEI for streams and the Lake Erie nearshore, and HHEI for headwater streams. The HHEI evaluates the habitat potential in watersheds less than or equal to 1 mi². State numeric values have been set for fish communities according to size and type of the water resource. From the State's perspective, if aquatic life use designations in the Ohio WQS for the AOC water bodies are being met, then habitat will not be considered impaired. A methodology to conduct a QHEI along the Lake Erie shoreline and in the lacustrine areas has been developed, but no scoring system has yet been adopted into rules nor correlated to aquatic life uses. The Lake Erie QHEI can, nonetheless, be used as an indicator of whether these areas are potentially degraded.

Wildlife Habitat Assessment:

While aquatic habitat assessment methodologies have been a proven tool in monitoring aquatic habitat potential, little data is available on terrestrial or amphibian habitat evaluations associated with the water resource. For this reason, indirect assessment through the use of land cover, riparian and aquatic vegetation, acres of wetland, wetland quality and total suspended sediment in the stream are utilized. Individual RAP organizations are tasked with restoring the beneficial uses in distinctly different areas with differing land use, location and size. Each RAP organization should utilize any or all of this indirect assessment approach to address wildlife habitat concerns for their particular AOC.

Since it is commonly agreed healthy riparian borders protect and enhance both the aquatic and terrestrial habitats, the presence of these riparian areas are of vital importance to habitat evaluations. These borders also function as migratory pathways for animals traversing the area, especially into the more traditionally forested habitat areas. In addition, wetlands serve as both aquatic and terrestrial habitats and a certain amount of acreage is desirable. Higher quality wetlands are also desirable as measured by the Ohio Rapid Assessment Method and as compared to Ohio wetland standards. Aquatic habitats in streams too small for fish are evaluated using the headwater habitat evaluation index (HHEI). Smaller watersheds may not be of sufficient size or depth to accommodate fish, so the HHEI was developed for these smaller systems and this index determines the habitat potential for other aquatic organisms, such as salamanders. State numeric values have been set according to type of headwater resource but have not been adopted into rules. The values can be used as an assessment guidance.

Most wildlife population goals set by wildlife managers are based on areas much larger than the AOC boundaries. Each RAP will have to establish a vision of the aquatic and associated terrestrial habitat that can be achieved in their AOC based on original habitat, amount and type of habitat that has been irreplaceably lost, how their AOC may fit into the larger regional picture for such things as importance as a migratory corridor or important bird area, and what can reasonably be protected or restored. Wetland acreage lost in Ohio and the percent of Ohio Lake Erie shoreline that has been altered are extensive. Protection of what remains should be a high priority. The suggested percentages listed in the milestones are based on work done to guide the Canadian AOCs in setting targets for habitat rehabilitation

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Attachment 1

The Ashtabula River Remedial Action Plan Advisory Council's Letter of Support

July 17, 2013

Mr. Scott Nally, Director
Ohio Environmental Protection Agency
P.O. Box 1049
Columbus, OH 43216-1049

Dear Director Nally:

The Ashtabula River RAP Advisory Council has reviewed available data, materials and documents for the final removal, in the Ashtabula River Area of Concern, of the following beneficial use impairments (BUIs):

- BUI #1: Restrictions on Fish and Wildlife Consumption
- BUI #3: Degradation of Fish and Wildlife Populations
- BUI#14: Loss of Fish and Wildlife Habitat

The Advisory Council has determined that all applicable data meets or exceeds the State of Ohio removal criteria for each BUI and unanimously voted to support the removal of these BUIs during our July 2, 2013 meeting.

If Ohio EPA concurs that the removal of these beneficial use impairments is warranted, the RAP 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 these BUIs, the following impairments will remain in the Ashtabula River AOC:

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

The Ashtabula River RAP Advisory Council will continue its efforts to remove the remaining impairments leading to the delisting and the complete restoration of the Ashtabula River Area of Concern.

Sincerely,



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



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

Attachment 2

Information on the February 20, 2014 Informational Public Meeting

On Thursday, February 20th, Ohio EPA, in conjunction with the Ashtabula River RAP Advisory Council, held a public informational meeting regarding three Ashtabula River AOC beneficial use impairment (BUI) removal recommendations at the Kent State University-Ashtabula Campus.

The purpose of the meeting was to present data applicable to each BUI and to explain how Ohio EPA and the RAP Advisory Council compared the data to Ohio BUI removal targets. The meeting began with a welcome by Heather Lauer of Ohio EPA's Public Interest Center and an introduction of all interested parties in attendance. About fifteen individuals attended the meeting.

Ted Conlin, Ohio EPA's Ashtabula River RAP Coordinator then gave a presentation and answered technical questions about the data, comparisons to BUI removal targets and the BUI removal procedures. During the discussion, it was explained that official comments on the removal recommendations needed to be made in writing and this meeting was being held solely to explain the data and respond to any questions about the data and the comparison to applicable BUI removal targets.

The public comment period, as explained in the meeting and in the public notice, would close on Monday, March 10, 2014. Following the meeting, only one comment letter was received.

Comment Letter

Feb. 21, 2014

To Whom it May Concern:

My name is Frank Lichtkoppler. I am an Extension Specialist with the Ohio Sea Grant College Program and the Ohio State University Extension. I have worked in northeast Ohio for over 30 years, primarily in Ashtabula and Lake Counties. I do a little teaching, some research and a lot of outreach education on Lake Erie issues. In the past 26 years I have participated in and worked at over 220 meetings in Ashtabula, Buffalo, Cleveland and Chicago – all to address the environmental problems of the Ashtabula River and Harbor.

I would like to speak in support of the removal of the three Beneficial Use Impairments identified below from the Ashtabula River Area of Concern:

- 1) Degradation of Fish and Wildlife Habitat;
- 2) Degradation of Fish and Wildlife Populations; and,
- 3) Restrictions on Fish and Wildlife Consumption Beneficial Use Impairments.

I was one of the founding members of the Ashtabula Remedial Action Plan Council in 1988. I currently serve as the Secretary to the Ashtabula RAP Council. The Ashtabula RAP Council has worked to identify the environmental issues and restore the beneficial uses of the Ashtabula River and Harbor. A key impairment was the limitation on dredging the Ashtabula River for commercial and recreational navigation.

To address this problem the Ashtabula River Partnership was formed in 1994 and members of the Ashtabula RAP Council became members of the Ashtabula River Partnership. The Ashtabula River Partnership brought local citizens, government and private industry together to focus on the environmental dredging of the Ashtabula River.

Once this environmental dredging has largely been accomplished, the Ashtabula River Partnership was dissolved. Now with the removal and placement in a specially designed and constructed facility of the contaminated sediment the Ashtabula River is recovering from decades of pollution.

Led by the Ohio EPA, the federal EPA and the US Army Corps of Engineers, scores of individuals and almost two dozen agencies, government offices, private industry groups, and non-profit organizations have worked on the environmental dredging and restoration of the Ashtabula River.

The Ashtabula RAP Council is now focusing on the restoration of the impaired beneficial uses of the Ashtabula River. We have the scientific data proving that the Ashtabula River is recovering. That data allowed the Ashtabula RAP Council to vote on July 2, 2013 to recommend to the Ohio EPA that the three Beneficial Use Impairments be removed.

I would like to thank all of the individuals, agencies, officials and groups involved in the remediation, restoration and recovery of the Ashtabula River and Harbor Area of Concern.

Thank you.

Sincerely,

Frank Lichtkoppler



Frank R. Lichtkoppler

Professor OSU Extension and Extension Specialist, Sea Grant

Ohio Sea Grant and Stone Lab

99 East Erie Street, Painesville, OH 4077

440.350.2267 Office / 440.364.5946 Mobile

flichtkoppler@lakecountyohio.gov or lichtkoppler.1@osu.edu

Response:

Thank you for your comment, your support of the removal recommendations and your long service to the restoration efforts of the Ashtabula River Area of Concern.



SIGN-IN SHEET

Subject: Restoration of the Ashtabula River Area of Concern
County: Ashtabula Date: February 20, 2014

PLEASE PRINT PLEASE PRINT PLEASE PRINT PLEASE PRINT

NAME: Jill Stockel E-MAIL:
STREET ADDRESS:
CITY: Key West STATE: FL ZIP: 33040
TELEPHONE: FAX:

NAME: Kim Nordquest E-MAIL: Kwnordquest@yahoo.com
STREET ADDRESS: 2606 W. 8th St.
CITY: Ashtabula STATE: OH ZIP: 44004
TELEPHONE: 440-564-8862 FAX:

NAME: Ronald R. Kister E-MAIL:
STREET ADDRESS: 1444 Mount Dr
CITY: Ashtabula STATE: Ohio ZIP: 44005
TELEPHONE: 964 9309 FAX:

NAME: Jennifer Gray E-MAIL: rhombus102182@yahoo.com
STREET ADDRESS: 1520 State Route 307 West
CITY: Jefferson STATE: Ohio ZIP: 44047
TELEPHONE: 440-218-0205 FAX:

NAME: Ed Wilk E-MAIL: ed.wilkepa.state.oh.us
STREET ADDRESS: 2110 E Aurora Rd.
CITY: Twinsburg STATE: oh ZIP: 44087
TELEPHONE: 330-962-1172 FAX:

NAME: Matthew Smith E-MAIL: matthew.smith@dnr.state.oh.us
STREET ADDRESS: 2016 Milton Blvd Po Box 441
CITY: Newton Falls STATE: Ohio ZIP: 44444
TELEPHONE: 330 872 0040 FAX:



SIGN-IN SHEET

Subject: Restoration of the Ashtabula River Area of Concern

County: Ashtabula

Date: February 20, 2014

PLEASE PRINT PLEASE PRINT PLEASE PRINT PLEASE PRINT

NAME: J. Konter E-MAIL:
STREET ADDRESS: 3201 Blair Ave
CITY: Ashtabula STATE: OH ZIP: 44004
TELEPHONE: 440-998-1253 FAX:

NAME: Frank Lichtkoppler E-MAIL: flichtkoppler@lshkocounty.go
STREET ADDRESS:
CITY: STATE: ZIP:
TELEPHONE: 440.350.2267 FAX:

NAME: Alice Cook E-MAIL: alcook@windstream.net
STREET ADDRESS: 1742 W. 14th St
CITY: ASHTABULA STATE: OH ZIP: 44004
TELEPHONE: 440-964-7703 FAX:
440-478-3204 cell

NAME: AUGIE PUGLIESE E-MAIL:
STREET ADDRESS: 943 EAST 24TH ST
CITY: ASHTABULA STATE: OHIO ZIP: 44004
TELEPHONE: 440-993-4363 FAX:

NAME: FRED LEITERT E-MAIL: leitertf@gmail.com
STREET ADDRESS: 2033 WINDY BLDG
CITY: ASHTABULA STATE: OH ZIP: 44004
TELEPHONE: 440-964-0494 FAX:

NAME: Brett Kaulk E-MAIL:
STREET ADDRESS:
CITY: Key West STATE: FL ZIP:
TELEPHONE: FAX:



SIGN-IN SHEET

Subject: Restoration of the Ashtabula River Area of Concern
County: Ashtabula Date: February 20, 2014

PLEASE PRINT PLEASE PRINT PLEASE PRINT PLEASE PRINT

NAME: Nathan Randolph E-MAIL: nrandolph@trc.org
STREET ADDRESS: 3973 Callender Rd
CITY: Port Creek STATE: OH ZIP: 44089
TELEPHONE: 440-563-9438 FAX:

NAME: Sig Williams E-MAIL:
STREET ADDRESS: 27845 Annetta Dr.
CITY: Glenwillow STATE: OH ZIP: 44139
TELEPHONE: 440-786-0310 FAX:

NAME: Kaden Adair E-MAIL: kadair@trc.org
STREET ADDRESS:
CITY: STATE: ZIP:
TELEPHONE: FAX:

NAME: E-MAIL:
STREET ADDRESS:
CITY: STATE: ZIP:
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CITY: STATE: ZIP:
TELEPHONE: FAX:

NAME: E-MAIL:
STREET ADDRESS:
CITY: STATE: ZIP:
TELEPHONE: FAX:

Attachment 3

Public Notice Posted on Ohio EPA's Lake Erie Programs Webpage

Ohio.gov

State Agencies | Online Services



Lake Erie Programs

The Division of Surface Water participates in many Lake Erie and Great Lakes-related issues and 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 Phosphorus 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.

The Ashtabula River Area of Concern

Ohio EPA and the Ashtabula River Remedial Action Plan (RAP) Advisory Council are providing for public review and comment the removal recommendations for three beneficial use impairments in the Ashtabula River Area of Concern (AOC). Each removal recommendation has been developed in accordance with the US Policy Committee's *Restoring United States Areas of Concern: Delisting Principles and Guidelines* and Ohio's *Delisting Targets for Ohio Areas of Concern* guidance documents. **The public review period ends on March 10, 2014.**

- [News Release](#)
- Removal Recommendations
 - [Restrictions on Fish and Wildlife Consumption](#)
 - [Degradation of Fish and Wildlife Populations](#)
 - [Loss of Fish and Wildlife Habitat](#)

Please send comments on these documents to:

Ted Conlin

Ohio EPA, Division of Surface Water
2110 East Aurora Road
Twinsburg, Ohio 44087

Division of Surface Water

Phone: (614) 644-2001 ~ **Fax:** 644-2745 ~ **Contact**

Mailing Address: P.O. Box 1049, Columbus, OH 43216-1049

Street Address: 50 West Town Street, Suite 700, Columbus, OH 43215

Report a Spill, Release or Environmental Crime (800) 282-9378

John R. Kasich, Gov. | Craig W. Butler, Director | [Privacy Statement](#) | [Site Index](#) | [Contact](#) | [Employee Login](#)



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

5 MAY 2014

REPLY TO THE ATTENTION OF

Mr. Brian Hall
Assistant Chief, Division of Surface Water
Ohio Environmental Protection Agency
50 West Town Street, Suite 700
P.O. Box 1049
Columbus, Ohio 43216-1049

Dear Brian:

Thank you for your April 4, 2014, request to remove the "Degradation of Fish and Wildlife Populations," "Loss of Fish and Wildlife Habitat," and "Restrictions on Fish and Wildlife Consumption" Beneficial Use Impairments (BUIs) from the Ashtabula River Area of Concern (AOC) in Ohio. As you know, EPA's Great Lakes National Program Office is urging states to focus on and accelerate work in Great Lakes AOCs, and we were delighted to receive Ohio EPA's first request to formally remove BUIs from an Ohio AOC.

Based upon a review of your submittal and the supporting data, the U.S. Environmental Protection Agency hereby approves your BUI removal requests 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 these BUIs will benefit not only the people who live and work in the Ashtabula River AOC, but all Ohio and Great Lakes basin residents who share an interest in restoring the Great Lakes.

We look forward to the continuing and improving the productive relationship we have with Ohio EPA as we work together to fully restore all of Ohio's AOCs. If you have any further questions, please contact me at (312) 353-4891, or your staff may contact John Perrecone, at (312) 353-1149.

Sincerely,

A handwritten signature in blue ink, appearing to read "Chris Korleski".

Chris Korleski, Director
Great Lakes National Program Office

cc: Craig Butler, Director, OEPA
Russ Gibson, Ohio EPA-DSW Manager
AmyJo Kici, Ohio EPA-DSW Lake Erie Coordinator
Kurt Princic, Ohio EPA-NEDO District Chief
Ted Conlin, Ohio EPA-NEDO Ashtabula RAP Coordinator
Fred Leitert, Ashtabula River RAP Advisory Council, Co-Chair
Matthew Smith, Ashtabula River RAP Advisory Council, Co-Chair
Stephen Locke, IJC
Wendy Carney, EPA, GLNPO
Amy Mucha, EPA, GLNPO