



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

SEP 24 2013

REPLY TO THE ATTENTION OF:

Ms. Lynelle Marolf  
Deputy Director, Office of the Great Lakes  
Michigan Department of Environmental Quality  
Constitution Hall, 6<sup>th</sup> Floor South  
525 West Allegan  
P.O. Box 30473  
Lansing, Michigan 48909-7973

Dear Lynelle:

Thank you for your September 19, 2013 request to remove the "Eutrophication or Undesirable Algae" Beneficial Use Impairment (BUI) from the River Raisin Area of Concern (AOC) in Michigan. As you know, we share your desire to restore all of the Great Lakes AOCs and to formally delist them.

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

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

We look forward to the continuation of this important and productive relationship with your agency and the local coordinating committee as we work together to fully restore all of Michigan'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: Dan Wyant, Director, MDEQ  
Jon W. Allan, MDEQ, Office of Great Lakes  
Rick Hobrla, MDEQ, Office of Great Lakes  
Melanie Foose, MDEQ, Office of Great Lakes  
Stephen Locke, IJC  
Daniel Stefanski, River Raisin Public Advisory Council  
Wendy Carney, EPA, GLNPO  
John Perrecone, EPA, GLNPO



RICK SNYDER  
GOVERNOR

STATE OF MICHIGAN  
OFFICE OF THE GREAT LAKES  
LANSING



JON W. ALLAN  
DIRECTOR

September 19, 2013

Mr. Chris Korleski, Director  
Great Lakes National Program Office  
United States Environmental Protection Agency  
Region 5  
77 West Jackson Boulevard (G-17J)  
Chicago, Illinois 60604-3507

Dear Mr. Korleski:

The purpose of this letter is to request the United States Environmental Protection Agency (USEPA), Great Lakes National Program Office's (GLNPO) concurrence with the removal of the Eutrophication or Undesirable Algae Beneficial Use Impairment (BUI) from the River Raisin Area of Concern (AOC). The Michigan Office of the Great Lakes (OGL), Michigan Department of Environmental Quality (MDEQ) has assessed the status of this BUI in accordance with the state's *Guidance for Delisting Michigan's Great Lakes Areas of Concern*, and recommends that the BUI be removed from the list of impairments in the River Raisin AOC.

Enclosed please find documentation to support this recommendation, including the BUI removal Briefing Paper prepared by the OGL's technical staff. The River Raisin Public Advisory Council provided a letter supporting this recommendation dated August 16, 2013. A copy is enclosed.

Also note that a public comment period was held between August 26, 2013 and September 9, 2013. No comments, either written or verbal, were received during the comment period.

We value our continuing partnership in the AOC Program and look forward to working with the GLNPO, in the removal of BUIs and the delisting of AOCs. If you need further information concerning this request, please contact Ms. Melanie Foose, OGL, at 586-753-3866, or you may contact me.

Sincerely,

Lynelle Marolf, Deputy Director  
Office of the Great Lakes  
517-284-5035

Enclosures

cc/enc: Mr. Dave Cowgill, USEPA  
Mr. John Perrecone, USEPA  
Mr. Scott Cieniawski, USEPA  
Mr. Jon W. Allan, MDEQ  
Mr. Rick Hobrla, MDEQ  
Ms. Melanie Foose, MDEQ

## **Removal Recommendation Eutrophication or Undesirable Algae Beneficial Use Impairment River Raisin Area of Concern**

### **Issue**

The Michigan Department of Environmental Quality (MDEQ), Office of the Great Lakes, Areas of Concern (AOC) program staff recommend the removal of the Eutrophication or Undesirable Algae Beneficial Use Impairment (BUI) for the River Raisin AOC based on the review of relevant documentation pursuant to the process and criteria set forth in the *Guidance for Delisting Michigan's Great Lakes Areas of Concern (Guidance)* (MDEQ, 2008). This recommendation is made with the support of staff from the United States Environmental Protection Agency (USEPA) Great Lakes National Program Office, the MDEQ, and the River Raisin Public Advisory Council (PAC).

### **Background**

The boundary of the River Raisin AOC is defined as the lower 2.6 miles of the river, downstream of Dam No. 6, at the Winchester Bridge in the City of Monroe, and extending one-half mile into Lake Erie following the Federal Navigation Channel and along the nearshore zone of Lake Erie, both north and south, for one mile. The River Raisin was identified as an AOC primarily “because of heavy metals contamination of the sediments and polychlorinated biphenyls contamination of the fish and sediments” (MDNR, 1987).

According to the 1987 River Raisin Remedial Action Plan (RAP), the Eutrophication or Undesirable Algae BUI was listed for the River Raisin as the “water quality of the River Raisin during the 1960s and 1970s was considered generally poor,” and while monitoring data collected in 1976 and 1977 showed “uniformly tolerable” Biochemical Oxygen Demand levels, “turbidity and total phosphorus was consistently high,” indicative of highly eutrophic conditions. Furthermore, the “source of high phosphorus and sediment loadings appeared to be related to runoff from agriculture rather than municipal or industrial discharges” (Southeast Michigan Council of Governments, 1978, as cited in MDNR, 1987). Additionally, low flow in the summer months caused nutrients from upstream sources to accumulate within the AOC, causing the water to assume a “sludge-like character” and undesirable algae growth (Cyr, 2002).

Seven BUIs will remain in the River Raisin AOC: Restrictions on Fish and Wildlife Consumption, Degradation of Fish and Wildlife Populations, Bird or Animal Deformities or Reproduction Problems, Degradation of Benthos, Restrictions on Dredging Activities, Beach Closings, and Loss of Fish and Wildlife Habitat.

## Removal Criteria

According to the *Guidance*, the Eutrophication and Undesirable Algae BUI will be considered restored when:

- No waterbodies within the AOC are included on the list of impaired waters due to nutrients or excessive algal growths in the most recent Clean Water Act, *Water Quality and Pollution Control in Michigan: Section 303(d) and 305(b) Integrated Report (Integrated Report)*, which is submitted to USEPA every two years.

The attached excerpt from the *Guidance* (pages 33-34) includes the rationale for the delisting criteria (Attachment A).

## Analysis

### *Integrated Report:*

The MDEQ staff performed a search of the *Integrated Report*, dated March 2012, to determine if any of the waterbodies within the River Raisin AOC are included.

No waterbodies within the AOC are included in the list of impaired waters either due to nutrients or excessive algal growths; therefore, the criterion outlined in the *Guidance* has been met.

### *River Raisin AOC Habitat Restoration:*

The City of Monroe and the Lower River Raisin saw significant industrial development in the early part of the twentieth century, including the construction of multiple low head dams which contributed to low flow situations in portions of the river. However, in 2012 two low head dams were completely removed and “rock arch rapids” were installed at two additional dams providing continuous flow and fish passage. The lower 3.5 miles of the Lower River Raisin is now free flowing for the first time in nearly a century, significantly decreasing the low flow situations which were a contributing factor to the Eutrophication and Undesirable Algae BUI. Furthermore, construction is set to begin in September 2013 on three additional dams providing continuous flow and fish passage to an additional 19.5 miles of stream. The two phases of the project will result in opening up a total of 23 miles of the Lower River Raisin from Lake Erie to Dundee.

### *Conservation Reserve Enhancement Program (CREP):*

The River Raisin is one of three priority watersheds in the State of Michigan with the intent “to reduce sediment, phosphorus, and nitrogen in the surface water supply” and “improve water quality; enhance habitat for fish and wildlife; and enhance nesting for upland birds, mammals, and waterfowl.” The CREP accomplishes these goals through implementation of conservation practices such as filter strips, wetland restoration projects, field windbreaks to reduce wind erosion, native or introduced grass plantings to reduce erosion, and riparian buffers to provide filtration of pollutants and provide wildlife habitat.

In the River Raisin watershed, 15,557.5 acres is currently enrolled in the CREP resulting in a 65 percent reduction in sediment delivery, a 75 percent reduction in phosphorus delivery, and a 70 percent reduction in nitrogen delivery to surface water (S. Shine, personal communication, July 17, 2013).

Conservation Practice	Acreage Enrolled in the River Raisin Watershed
Establishment of Permanent Introduced Grasses and Legumes	4,374.8
Establishment of Permanent Native Grasses	4,895.4
Establishment of Field Windbreaks	82.4
Shallow Water Areas for Wildlife	44.1
Establishment of Filter Strips	4,686.5
Establishment of Riparian Buffers	181
Wetlands Restored	1,261.3
Sediment Retention and Control Structure	32
Total	15,557.5 acres

*Michigan Agriculture Environmental Assurance Program (MAEAP):*

The mission of the MAEAP is to “develop and implement a proactive environmental assurance program ensuring that farmers are engaging in cost-effective pollution practices and working to comply with state and federal environmental regulations” (MAEAP, 2013). The MAEAP program has a three system approach which examines the differing aspects of each farm and the specific environmental impact associated with each aspect. The three aspects are the livestock system, the farmstead system, and the cropping system. The livestock system has elements to protect water from farm operations and prevent soil erosion; the farmstead system focuses on protection of both surface and groundwater; and the cropping system deals with water use and irrigation, soil conservation, and nutrient management. Within each of the three systems there are educational components, an on-farm risk assessment, risk reduction practices that can be implemented to address issues found during the on-farm assessment, and a third party verification system (MDARD, 2013).

As the focus of this program includes the protection of surface water, the benefits extend from the individual farm to the subwatershed, and to the watershed as a whole, including the areas within the boundary of the AOC.

In the River Raisin watershed, ten farms have been verified since 2007. Farms are verified for a period of three years.

In 2012 the MAEAP verified that farmers were using practices that kept 20,200 tons of sediment, 34,200 pounds of phosphorus, and 76,100 pounds of nitrogen on fields, compared to farms using conventional tillage without nutrient management plans. In the case of sediment, this is due primarily to the use of various forms of no-till, conservation tillage, and cover cropping. For nutrients, the reductions came from reducing erosion and runoff, and from putting in place nutrient management plans. In some cases, properly managing silage leachate gave large nutrient reduction benefits due to its concentrated nature (R. Pigg, personal communication, August 9, 2013).

*Nitrate Total Maximum Daily Load (TMDL):*

In 2005 a nitrate TMDL was developed to address impairments in drinking water caused by excess nitrates for a 16 mile reach of the River Raisin between Deerfield and Blissfield, upstream of the AOC. This TMDL addresses known sources of nitrates, one form of nutrients, including “commercial fertilizers...estimated to account for approximately 59 percent of the total nitrogen load to the River Raisin, the largest contributor of all sources of nitrogen.” Livestock waste is another main source of nitrates accounting for 11 percent of the total nitrogen load to the river (MDEQ, 2005).

The combination of animal manure and fertilizer accounts for 70 percent of the annual nitrogen loads to the River Raisin in this reach. A main target of the TMDL is the reduction of these sources of nitrogen to the surface waters. An overall reduction of 40 percent in river nitrate levels is required by the TMDL; therefore, fertilizer and livestock manure loads must be reduced by 57 percent (MDEQ, 2005). These reductions are being accomplished, in part, by two current Great Lakes Restoration Initiative grants and a Section 319 grant. These three grants have been provided to the Lenawee Conservation District which is working toward reduction of nitrate levels by reducing commercial fertilizer use, increasing the use of advanced Best Management Practices, and reducing nitrates and dissolved phosphorus loadings through the installation of water control structures on tiled cropland.

**Recommendation**

The 1987 River Raisin RAP specifically refers to the phosphorus and sediment inputs from the agricultural areas of the watershed, describing the water quality of the River Raisin as “generally poor due to nutrient enrichment and low dissolved oxygen” (MDNR, 1987). Since the 1980s, the programs described above have been implemented throughout the AOC and within the River Raisin watershed which contribute to the reduction of nutrients and sediment to the surface waters. Dam removals allow the river to flow continuously and programs such as the CREP and the MAEAP result in drastic reductions to nutrient and sediment loadings. In addition, reducing sources of nitrates in order to meet the nitrate TMDL may also help to reduce the risk of eutrophication.

Based on the review of all pertinent data and with the support of the River Raisin PAC, the MDEQ AOC Program staff request approval of the recommendation to remove the Eutrophication or Undesirable Algae BUI in the River Raisin AOC.

This removal recommendation was discussed with the River Raisin PAC at their regular meeting on August 8, 2013. The River Raisin PAC submitted a formal letter of support for removal of the BUI on August 16, 2013, (Attachment C). The proposed action was published in the MDEQ Calendar for public notice. Supporting documents were posted on the MDEQ’s AOC program web page for public review and comment from August 26, 2013 through September 9, 2013. No comments were received during the public comment period.

Prepared by: Melanie Foose, AOC Coordinator  
Great Lakes Management Unit  
Office of the Great Lakes  
Michigan Department of Environmental Quality  
August 22, 2013

## Attachments

- A – Eutrophication or Undesirable Algae, pages 33-34 of the *Guidance*
- B – River Raisin PAC Minutes, August 8, 2013
- C – River Raisin PAC, Letter of Support for the Removal of the Beach Closings BUI, August 16, 2013

## References

- Cyr, T. 2002. The River Raisin Remedial Action Plan Update – Draft.
- Michigan Agriculture Environmental Assurance Program. History of MAEAP. N.p., n.d. Web. 14 August 2013. *(The link provided was broken and has been removed.)*
- MDARD - Michigan Agriculture Environmental Assurance Program (MAEAP). MDARD – Michigan Agriculture Environmental Assurance Program (MAEAP). N.p., n.d. Web. 14 August 2013.  
<https://www.michigan.gov/mdard/environment/maeap/content/michigan-agriculture-environmental-assurance-program-maeap>
- Michigan Department of Environmental Quality. 2005. Total Maximum Daily Load for Nitrate for the River Raisin near Deerfield and Blissfield.  
<https://www.michigan.gov/-/media/Project/Websites/egle/Documents/Programs/WRD/SWAS/TMDL-Other/raisin-nitrate.pdf>.
- Michigan Department of Environmental Quality. 2008. Guidance for Delisting Michigan's Great Lakes Areas of Concern, revised. MI/DEQ/WB-060-001.
- Michigan Department of Environmental Quality. 2012. Water Quality and Pollution Control in Michigan 2010 Sections 303(d), 305(b), and 314 Integrated Report. Water Resources Division, Michigan Department of Environmental Quality, Lansing, Michigan.
- Michigan Department of Natural Resources. 1987. Remedial Action Plan for the River Raisin Area of Concern. Great Lakes and Environmental Assessment Section, Surface Water Quality Division, Michigan Department of Natural Resources, Lansing, Michigan.
- Shine, Stephen, personal communication, July 17, 2013.
- Pigg, Robert, personal communication, August 9, 2013.



## **Attachment A**

### **2008 Guidance for Delisting Michigan's Great Lakes Areas of Concern**

#### ***Eutrophication or Undesirable Algae***

##### **Significance in Michigan's Areas of Concern**

Eight of Michigan's AOCs are listed as impaired due to eutrophication, including: River Raisin, Rouge River, Clinton River, Saginaw River/Bay, St. Marys River, Deer Lake, Muskegon Lake, and White Lake.

##### **Michigan Restoration Criteria and Assessment**

This BUI will be considered restored when:

- no waterbodies within the AOC are included on the list of impaired waters due to nutrients or excessive algal growths in the most recent Clean Water Act, *Water Quality and Pollution Control in Michigan: Section 303(d) and 305(b) Integrated Report* (Integrated Report), which is submitted to U.S. EPA every two years.

In addition, the MDEQ is in the process of developing nutrient criteria for state surface waters which will be adopted into Michigan's WQS. The MDEQ will evaluate restoration of this BUI consistent with the nutrient criteria when the nutrient criteria are approved by the U.S. EPA and adopted into rule.

##### **Rationale**

###### **Practical Application in Michigan**

The MDEQ regulates water pollution under the authority of Part 31 of the NREPA, P.A. 451 of 1994. The AOC restoration criteria are consistent with the state's WQS, and how the State identifies waters for inclusion on the Clean Water Act section 303(d) list, which is submitted to U.S. EPA every two years. If a waterbody exhibits growths of undesirable algae in quantities which interfere with a water body's "designated uses" as identified in rules R323.1060 and R323.1100 of the Michigan WQS (e.g., inhibits swimming due to the physical presence of algal mats and/or associated odor; inhibits the growth and production of warm water fisheries, and/or other indigenous aquatic life and wildlife), the waterbody is included on Michigan's Section 303(d) list.

### 1991 IJC General Delisting Guideline

*When there are no persistent water quality problems (e.g., dissolved oxygen depletion of bottom waters, nuisance algal blooms or accumulation, decreased water clarity, etc.) attributed to cultural eutrophication.*

The IJC general delisting guideline is presented here for reference. The Practical Application in the Michigan subsection above describes application of specific criteria for restoration based on existing Michigan programs and authorities.

### **State of Michigan Programs/Authorities for Evaluating Restoration**

Michigan assesses water bodies throughout the state on a 5-year basin rotation cycle according to the MDEQ's "Strategic Environmental Quality Monitoring Program for Michigan's Surface Waters" (MDEQ, 1997) and "Michigan Water Quality Strategy Update" (MDEQ, 2005). Each year, a set of targeted watersheds are sampled at selected sites for conventional and toxic pollutants, and biological and physical habitat/morphology indicators. The set of watersheds sampled rotates each year, with each major watershed in the state revisited every 5 years (see Appendix 1 for maps of the basin rotations). Two particularly relevant elements of the strategy are expanded and improved water chemistry monitoring and the lake monitoring program. One of the specific objectives of these programs is to determine whether nutrients are present in surface waters at levels capable of stimulating the growth of nuisance aquatic plants/algae/slimes.

Under the water chemistry monitoring program, water samples generally are analyzed for nutrients, conventional parameters (i.e., temperature, conductivity, suspended solids, pH, dissolved oxygen), total mercury, and trace metals (i.e., cadmium, chromium, copper, lead, nickel, zinc). A much smaller number of samples are analyzed for organic contaminants such as PCBs and base neutrals. Other parameters may be included as appropriate at specific locations, including observations of nuisance algae in AOCs with this impairment. Nutrients and conventional parameters may also be monitored at sites where biological data are collected during routine watershed assessments. Data are reviewed each year to determine whether additional parameters should be added, removed, or analyzed at a greater or lesser frequency.

Some local AOC communities also have programs for monitoring water quality and related parameters which may be applicable to this BUI. If an AOC chooses to use local monitoring data for the assessment of BUI restoration, the data can be submitted to the MDEQ for review. If the MDEQ determines that the data appropriately address the restoration criteria and meet quality assurance and control requirements, they may be used to demonstrate restoration success.

## Attachment B

### River Raisin AOC Public Advisory Council Meeting Minutes

The City of Monroe  
Commission on the Environment and Water Quality  
MINUTES  
August 8, 2013 7:00 pm

*The following minutes are not taken verbatim and only reflect an overall representation of the meeting.*

CALL TO ORDER: Dan Stefanski called the meeting to order at 7:00 pm

MEMBERS PRESENT: A roll call of members was taken and a quorum was present.

Barry LaRoy  
Richard Micka  
Jerry McKart  
Ike Owens  
Dan Stefanski  
Brian Egen  
Hal Weakly

MEMBERS EXCUSED

Maureen Pfund  
Bonnie Finzel-Doster

AOC COORDINATOR

Melanie Foose – MDEQ

MEDIA CONSULTANT

Jeanine Bragg, with 20 Creative

PROJECT UP-DATE

1. Stefanski presented a revised DVD highlighting the habitat restoration projects completed for the Raisin AOC.
2. Jeannie Bragg up-dated the Commissioners on our web site status and informed us that the DVD documentation is in final production. She expects both projects to be ready for launch in September.
3. LaRoy discussed the Fish Passage Phase 2 project, stating that the Sea Lamprey matter has been resolved, and MDEQ issued the construction permit. The project start date is scheduled for the end of September with a completion date at the end of 2013.
4. Dick Micka up-dated the Commissioners of the results of the Resilient Monroe survey. The results verified our contention that few residents understand the issues of the AOC, and that we need to better market our restoration efforts, our Living Watershed!

5. LaRoy and Stefanski reviewed with the Commissioners the status of the 2013 GLC PAC Support Grant. Reviewing the plans for our media educational outreach efforts and the plans for a river clean-up in September.

#### AOC COORDINATOR UPDATE

Melanie Foose (MDEQ) reviewed with the Commissioners the (Beach Closing) and the (Eutrophication or Undesirable Algae) Beneficial Use Impairments. She detailed and explained the items contained in the Draft Removal Recommendations for each of the Impairments.

After questions and answers, the Commissioners expressed their support for Removal Recommendations.

After discussion, a motion was made by Brian Egen, and supported by Ike Owens, to send to the MDEQ a letter to accept and fully support the proposed Removal Recommendations for the Beach Closing Beneficial Use Impairment for the River Raisin.

The motion passed by a unanimous vote.

A motion was then made by Brian Egen, and supported by Ike Owens, to send a second letter to the MDEQ to accept and fully support the proposed Removal Recommendations for the Eutrophication or Undesirable Algae Beneficial Use Impairment for the River Raisin.

That motion also passed by a unanimous vote.

With no other business the meeting was adjourned at 8:55 pm.

**Attachment C**

**River Raisin Public Advisory Council  
Letter of Support for the Removal of the Beach Closings BUI**



**The River Raisin Remedial Action Plan  
Public Advisory Council  
And  
The City of Monroe  
Commission on the Environment and Water Quality**

August 16, 2013

Mr. Rick Hobrla  
Michigan Department of Environmental Quality  
Office of the Great Lakes  
535 West Allegan Street  
P.O. Box 30473  
Lansing, MI 48909-7973

Dear Mr. Hobrla,

The River Raisin Public Advisory Council (PAC), operating through the City of Monroe's Commission on the Environment (COTE) has reviewed and discussed the Removal Recommendation for the Eutrophication and Undesirable Algae Beneficial Use Impairment (BUI).

The PAC agrees that the delisting criterion has been met since the Area of Concern is not included on the list of impaired waters due to nutrients or excessive algal growths in the Integrated Report. However, the original reasoning behind impairment of the Eutrophication and Undesirable Algae BUI was due to nutrient input from the agricultural portions of the watershed and tremendous improvements have been made in keeping sediments and nutrients on the fields through the Conservation Reserve Enhancement Program and the Michigan Agriculture Environmental Assurance Program. Further reductions of nitrate inputs to the surface waters have been made due to the existing TMDL for nitrates.

The River Raisin PAC members voted unanimously in support of the removal of the Eutrophication and Undesirable Algae BUI at the COTE meeting held on August 8, 2013.

The River Raisin PAC is pleased to partner with the Michigan Department of Environmental Quality in the removal of the Eutrophication and Undesirable Algae BUI and as we continue to work towards the delisting of the River Raisin as an Area of Concern.

Sincerely,

A handwritten signature in blue ink, which appears to read "Daniel W. Stefanski". The signature is written in a cursive, flowing style.

Chairman, River Raisin Public Advisory Council