STATE OF MICHIGAN
DEPARTMENT OF
ENVIRONMENT, GREAT LAKES, AND ENERGY
LANSING

GRETCHEN WHITMER
GOVERNOR

LIESL EICHLER CLARK
DIRECTOR

July 14, 2020

VIA E-MAIL

Mr. Chris Korleski, Director
Great Lakes National Program Office
United States Environmental Protection Agency
Region 5
77 West Jackson Boulevard (G-9J)
Chicago, Illinois 60604-3507

Dear Mr. Korleski:

The Michigan Department of Environment, Great Lakes, and Energy (EGLE) is pleased to recommend, in collaboration with the Wisconsin Department of Natural Resources (WDNR), the formal delisting of the Lower Menominee River Area of Concern (AOC). Attached is the Final Delisting Report that includes the Responsiveness Summary for comments received on the Preliminary Delisting Report. As part of the delisting process, EGLE held a public comment period March 9-April 24, 2020, and hosted a virtual public meeting with the WDNR and the United States Environmental Protection Agency (USEPA) on April 9, 2020. This letter is a follow up to the July 10, 2019, submittal of the Preliminary Delisting Report. EGLE requests that the USEPA proceed with the necessary steps to formally delist the AOC.

This recommendation is the culmination of decades of collaborative efforts among EGLE, the WDNR, the USEPA, other federal agencies, and a dedicated team of local citizens who served on the Citizens Advisory Committee and the Technical Advisory Committee. EGLE values these partnerships and looks forward to working with the USEPA toward similar successes in other Michigan AOCs.

If you would like further information concerning this request for the Lower Menominee River AOC, please contact Ms. Stephanie Swart, Great Lakes Management Unit, Water Resources Division, at 517-284-5046; SwartS@Michigan.gov; or EGLE, P.O. Box 30458, Lansing, Michigan 48909-7958; or you may contact me.

Sincerely,

Liesl Eichler Clark
Director
517-284-6700

Attachment

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Ms. Amy Pelka, USEPA, Region 5
Ms. Leah Medley, USEPA, Region 5
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July 9, 2020

Mr. Chris Korleski, Director
Great Lakes National Program Office
U.S. Environmental Protection Agency, Region 5
77 West Jackson Boulevard
Chicago, IL 60604

Subject: Recommendation to Delist the Lower Menominee River Area of Concern

Dear Director Korleski,

The Wisconsin Department of Natural Resources (WDNR) is pleased to provide, in collaboration with the Michigan Department of Environment, Great Lakes, and Energy (EGLE), the Final Delisting Report for delisting of the Lower Menominee River Area of Concern (AOC) and Responsiveness Summary for comments received. As part of the delisting process, we held a public comment period from March 9-April 24 and hosted a virtual public meeting with EGLE and the United States Environmental Protection Agency (USEPA) on April 9, 2020. This letter is a follow up to the submittal of the Preliminary Delisting Report on July 10, 2019. We respectfully request that the USEPA proceed with the necessary steps to delist the AOC.

The submittal of the Final Delisting Report represents an exciting milestone for Wisconsin, as it is our first (of five) AOCs to be recommended for delisting. We are grateful for the contributions of many partners over the years in cleaning up and restoring the AOC, and particularly wish to recognize the local community partners who participated in the Citizens Advisory Committee and Technical Advisory Committee. We are also grateful for the partnership and support of the State of Michigan as well as the cities of Marinette, WI and Menominee, MI. The collaboration between public and private entities for completing the management actions was also essential for achieving this milestone. The successful outcomes in this AOC are a tribute to the commitment and dedication of all of the partners involved.

We have also greatly appreciated the strong partnership with USEPA and GLRI funding contributions to the AOC and look forward to working with USEPA toward future successes in the other Wisconsin AOCs. If you would like further information concerning this

recommendation for the Lower Menominee River AOC, please contact Steve Galarneau, Office of Great Waters, WDNR, at (608) 444-7257, or at Stephen.Galarneau@wisconsin.gov.

Sincerely,

Preston Cole
Secretary

Cc:
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Trygve Rhude, CAC Co-Chair

Lower Menominee River Area of Concern Final Delisting Report

Office of Great Waters
Wisconsin Department of Natural Resources

and

Water Resources Division
Michigan Department of Environment, Great Lakes, and Energy

June 2020

Acknowledgements

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ACKNOWLEDGEMENTS AND APPRECIATION

Many individuals and organizations have made the restoration of the Lower Menominee River possible. It is not feasible to name each one of them here. However, it is important to recognize that community members who live in the Marinette and Menominee areas were critical to the success of this process. Without the dedication, commitment, and support of Menominee River CAC members past and present, the cities of Marinette, Wisconsin and Menominee, Michigan, University of Wisconsin-Marinette, Menominee Conservation District, concerned citizens, and legislators at the state and federal levels, the Lower Menominee River might have remained an AOC for years to come. Your efforts are deeply appreciated. Thank you.

Similarly, staff members from several local, regional, state, and federal agencies deserve appreciation for their hard work and commitment to achieving the delisting of the Lower Menominee River, including: Bureau of Land Management (BLM), the cities of Marinette and Menominee, Marinette and Menominee County, Michigan Department of Environment, Great Lakes, and Energy (EGLE), Michigan Department of Health and Human Services (MDHHS), Michigan Department of Natural Resources (MDNR), United States Army Corps of Engineers (USACE), United States Environmental Protection Agency (USEPA), United States Fish and Wildlife Service (USFWS), United States Geological Survey (USGS), UW-Green Bay Marinette Campus, Wisconsin Department of Health Services (WDHS), Wisconsin Department of Natural Resources (WDNR), and others. Many thanks.

Finally, thank you to staff of the USEPA's Great Lakes National Program Office, the IJC, the Menominee River CAC, and the WDNR's Office of Great Waters and the EGLE's Water Resources Division for providing valuable input on the development of this Final Delisting Report.

Disclaimer

The Great Lakes Water Quality Agreement is a non-regulatory agreement between the U.S. and Canada, and the criteria developed for beneficial use impairment removal under the Agreement are non-regulatory. This document describes both the non-regulatory and regulatory remedial activities (also known as "management actions") undertaken to delist the Lower Menominee River AOC.

Michigan's Area of Concern Program was transferred from MDNR's Office of the Great Lakes to the Michigan Department of Environment, Great Lakes, and Energy (formerly the Michigan Department of Environmental Quality or MDEQ), Water Resources Division in 2019. Consequently, throughout this document there will be varied references to MDNR, MDEQ, and EGLE.

This document should be cited as follows:

Wisconsin Department of Natural Resources and Michigan Department of Environment, Great Lakes, and Energy. 2020. Lower Menominee River Area of Concern Final Delisting Report.

Cover Photo by Stephanie Swart, looking upriver in the Menominee River

EXECUTIVE SUMMARY

- The Lower Menominee River was originally identified as an AOC in 1985 and formally designated as such under the Great Lakes Water Quality Agreement in 1987, primarily due to legacy sediment contamination from various industrial activities and significant changes in land use. Six of the 14 possible beneficial use impairments were identified in the Lower Menominee River including:

    - *Beach Closings* (Restrictions on Recreational Contact)
    - *Restrictions on Dredging Activities*
    - *Degradation of Benthos*
    - *Restrictions on Fish and Wildlife Consumption*
    - *Loss of Fish and Wildlife Habitat*
    - *Degradation of Fish and Wildlife Populations*

- The cities of Menominee and Marinette made extensive upgrades and improvements to their respective wastewater treatment plants and sewer systems from 1974 to 2008 that addressed sources of bacterial contamination in AOC waters.

- The Michigan Department of Environmental Quality (now EGLE) and Wisconsin Department of Natural Resources jointly established specific beneficial use impairment removal criteria in 2008 to guide planning and work within the Lower Menominee River Area of Concern that would lead to restoration of beneficial uses, and ultimately, delisting the Lower Menominee River as an Area of Concern.

- Guided by a Remedial Action Plan (first drafted in 1990, updated in 1996 and then updated annually from 2011 through 2017), multiple management actions were completed to restore beneficial uses, including four contaminated sediment remediation projects and four habitat restoration and enhancement projects. All management actions were completed in late 2016.

- Between 2011 and 2018, all six beneficial use impairments met their respective removal criteria and were removed, allowing EGLE and WDNR to jointly recommend that the AOC be delisted.

- Delisting the Lower Menominee River does not mean that the area has returned to a pristine historic condition, but rather, that the legacy problems identified in the 1990 RAP impacting the river have been remediated to meet established criteria. Ongoing efforts to advance the Lower Menominee River are still required, though the restoration activities can now focus on an enhanced future state without the profound limitations experienced by Great Lakes Areas of Concern.

1. INTRODUCTION

In the 1980s, routine navigational dredging samples by the U.S. Army Corps of Engineers (USACE) revealed arsenic-contaminated sediment in the turning basin of the Lower Menominee River. A portion of the Lower Menominee River was designated as an Area of Concern (AOC) (Figure 1) and a Remedial Action Plan (RAP) was written by the Wisconsin Department of Natural Resources (WDNR) and Michigan Department of Natural Resources (MDNR) in 1990. Over the next 29 years federal, state, and local governments in cooperation with local advocates, academic researchers, industrial interests, and many other stakeholders have described known impairments, conducted studies, and identified actions needed to further define and remediate the problems. Numerous individuals, agencies, and others have been working over the years to implement those actions, leading to the systematic removal of all six Beneficial Use Impairments (BUIs) identified as impacting the Lower Menominee River.

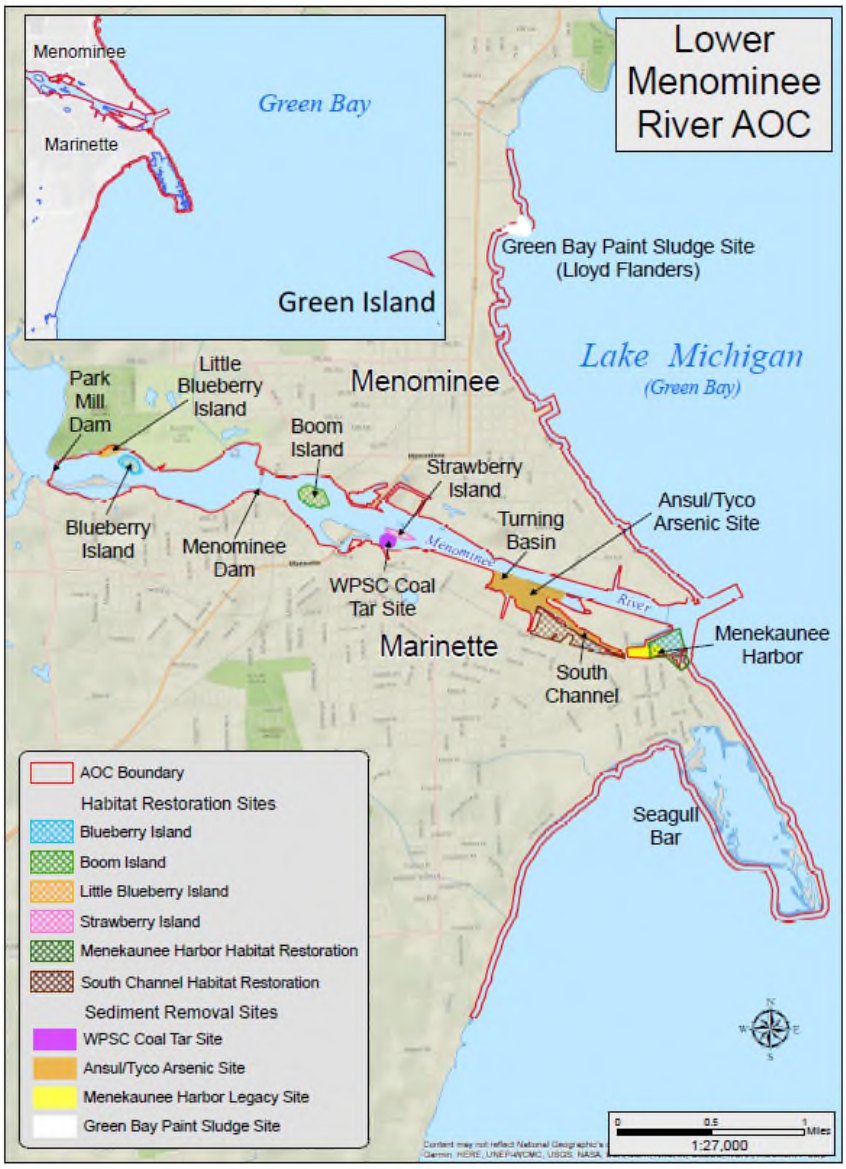

Figure 1. The Lower Menominee River Area of Concern Boundaries and sediment and habitat restoration sites.

As the lead agencies for AOC coordination, the WDNR and MDNR were responsible for developing quantifiable targets to measure progress toward restoring the AOC. Working closely with members of the Lower Menominee River Technical Advisory Committee (TAC) and Citizens Advisory Committee (CAC), U.S. Environmental Protection Agency (USEPA), and several other key partners, the agencies have determined that management actions are sufficiently complete to support delisting of the Lower Menominee River AOC.

This document serves as a final delisting report and provides the rationale to support the delisting decision. All BUIs were removed through a public process in consultation with the TAC, CAC, and USEPA. The focus of this report is summarizing the efforts of all parties to remove the six BUIs for the AOC: *Beach Closings* (Restrictions on Recreational Contact), *Restrictions on Dredging Activities*, *Degradation of Benthos*, *Restrictions on Fish and Wildlife Consumption*, *Degradation of Fish and Wildlife Populations*, and *Loss of Fish and Wildlife Habitat*. References to supporting documentation regarding each BUI have largely been omitted for ease of readability but can be found in the respective BUI Removal Recommendations, linked at the end of each section. Information regarding the State of Wisconsin's and State of Michigan's AOC programs can be found by visiting: https://dnr.wi.gov/topic/greatlakes/aoc.html and https://www.michigan.gov/egle/0,9429,7-135-3313_3677_95060---,00.html.

1.1 Great Lakes Approach to Restoring Beneficial Uses

Two agreements between the United States and Canada form a governing framework for monitoring and improving the Great Lakes. The 1909 Boundary Waters Treaty was signed to provide dispute resolution regarding waters that border the two nations. It also created the International Joint Commission (IJC). The IJC has two primary responsibilities: 1) regulating shared water uses and 2) investigating cross-boundary issues and recommending solutions.

The Great Lakes Water Quality Agreement (GLWQA), originally signed in 1972, expressed the commitment of both countries to restore and enhance water quality. In 1985, in consultation with the States of Michigan and Wisconsin, the Great Lakes Water Quality Board, which advises the IJC, identified the Lower Menominee River as one of 42 AOCs (GLWQB, 1985). In 1987, amendments to the 1978 GLWQA were adopted by the federal governments of the United States and Canada and established guidelines for identifying geographical AOCs based on the presence of conditions that caused or are likely to cause impairment of the area's ability to support aquatic life (Canada and U.S., 2012).

The 1987 Amendments listed 14 BUIs which are caused by a detrimental change in the chemical, physical, or biological integrity of the Great Lakes system (Canada and U.S., 2012) and directed the two countries to identify AOCs that did not meet the objectives of the GLWQA. Shortly thereafter, the two countries adopted the AOC designation in 42 areas identified by the IJC that had at least one BUI that set it apart from other sites with less severe contamination in the region (IJC, 1985). In 1991, Presque Isle Bay in Pennsylvania was the final site added to the list of AOCs. RAPs that identified the BUIs present in each AOC were prepared for all 43 AOCs identified and established the cause and effect of contamination on BUI status, criteria for removing BUIs ("Targets"), and a means for focusing remedial actions.

When AOCs were originally identified, no specific, quantitative criteria for listing or delisting these areas existed, though the IJC issued general listing and delisting guidelines in 1991. The U.S. Policy Committee adopted general guidance on the process for AOC delisting in 2001 (USEPA, 2001). However, these documents did not outline specific restoration endpoints for AOCs as each state has autonomy to develop its own set of restoration criteria that address the individual BUIs.

1.2 Lower Menominee River Area of Concern

The extent of the Lower Menominee River AOC is the lower three miles of the river from the Park Mill Dam (Upper Scott Dam) to the river's mouth in northeast Wisconsin and in the southwest portion of Michigan's Upper Peninsula. The boundary extends approximately three miles north of the river mouth to John Henes Park and approximately three miles south of the river mouth past Seagull Bar along the Bay of Green Bay. The AOC includes Seagull Bar as well as Green Island in the Bay of Green Bay. The AOC includes portions of Marinette County, Wisconsin and Menominee County, Michigan (Figure 1).

The Lower Menominee River was identified as an AOC in 1985 primarily due to arsenic-contaminated sediment found in the turning basin of the river during the USACE navigational dredging sampling in 1980 (WDNR and MDNR, 1990). The Stage 1 RAP Report identified the scope of contamination in the Menominee River and adjacent Green Bay shore (WDNR and MDNR, 1990). The RAP recognized two additional sites in the immediate area that contained legacy sediment contamination requiring remedial action: the Lloyd Flanders paint sludge site along the Green Bay shoreline in Menominee, Michigan and the Wisconsin Public Service Corporation (WPSC) coal tar site in the Menominee River near Boom Landing in Marinette, Wisconsin (WDNR and MDNR, 1990). An additional sediment remediation site, Menekaunee Harbor, was identified as containing heavy metal, petroleum, and PCB contamination primarily considered to have originated from both urban and industrial nonpoint source pollution and was subsequently added to the RAP (WDNR and MDEQ, 2011).

1.3 Lower Menominee River Approach to Restoring Beneficial Uses

The states of Michigan and Wisconsin agreed to jointly remove individual BUIs and delist the AOC. In response to the need to establish specific BUI restoration criteria, the Michigan Department of Environmental Quality ([MDEQ], now EGLE) and the WDNR developed a *Lower Menominee River Area of Concern Beneficial Use Impairment Restoration Targets* (*Targets*) document (2008). This document is based on the *Guidance for Delisting Michigan's Great Lakes Areas of Concern* (*Guidance*) document (2008) and existing rules and criteria in Wisconsin. The purpose of these targets is to guide local citizens, as well as state and federal agency staff, as they plan and work within the Lower Menominee River AOC.

The criteria within the *Targets* document are Wisconsin and Michigan's position on what justifies removal of the BUIs. If the criteria are met, the beneficial uses will be considered restored by both states. In addition to the established state BUI removal criteria, the Menominee River CAC and the TAC developed its own local criteria for two of the BUIs (*Degradation of Fish and Wildlife Populations* and *Loss of Fish and Wildlife Habitat*) to more specifically address issues that are unique to the Menominee River AOC. All the approved local criteria are consistent with the *Targets* document and the scope of the AOC program. While all the criteria have been met to justify removal of each BUI, the Menominee River CAC continues to advocate for additional post-delisting actions it considers necessary to further protect and enhance water quality.

2. ROLES

2.1 Wisconsin Department of Natural Resources

The WDNR Office of Great Waters shares the duties of lead agency for coordination of BUI assessments, establishment of BUI removal targets, development of RAPs, and advancement of management actions at the Lower Menominee River AOC. The WDNR coordinates

communication, sampling, and on the ground restoration between the federal, state and local partners. Once the Lower Menominee River AOC is delisted, the WDNR regulatory programs will remain responsive to environmental concerns and activities on the Wisconsin side of the river, as they do for other sites throughout the State of Wisconsin. As an integrated agency, WDNR is also responsible for managing the state's natural resources including maintaining state natural areas.

2.2 Michigan Department of Environment, Great Lakes, and Energy

EGLE's Water Resources Division shares the duties of lead agency for coordination of BUI assessments, establishment of BUI removal targets, development of RAPs, and advancement of management actions at the Lower Menominee River AOC. Michigan EGLE coordinates communication, sampling, and on the ground restoration between the federal, state and local partners. Once the Lower Menominee River AOC is delisted, the state's regulatory programs will remain responsive to environmental concerns and activities on the Michigan side of the river, as they do for other sites throughout the State of Michigan.

2.3 U.S. Federal Government

The U.S. federal government has primary responsibility for oversight, funding, and implementation of the Great Lakes Restoration Initiative and the Great Lakes Water Quality Agreement with Canada. The USEPA also works with the States of Wisconsin and Michigan and the CAC to identify key needs for the AOC, including management actions necessary for delisting. This includes reviewing and concurring with the states' recommendations, which leads to the removal of the BUIs. Upon removal of all identified BUIs, the U.S. government has the responsibility for removing the designation of an AOC when environmental monitoring confirms that all BUI removal criteria have been met and BUI removal processes have been completed.

2.4 Local Governments

The cities of Menominee, Michigan and Marinette, Wisconsin have led local efforts to restore the Menominee River. For instance, the city of Marinette contributed toward habitat restoration efforts at the Ogden Street Bridge and Menekaunee Harbor, provided local support for sediment remediation efforts, and led waterfront revitalization efforts such as upgrades to the marina.

2.5 Citizens Advisory Committee

Public involvement is a key component of the AOC programs in Wisconsin and Michigan. Each AOC has a CAC, or equivalent group/organization. The Menominee River CAC has a long history of involvement with the AOC program. Several individuals remain involved to this day, having spent nearly 30 years advocating for improved environmental quality in their communities. CAC members are or have been concerned citizens, local business owners, retirees, riparian property owners, recreational users, environmental advocates, and industry representatives. The Menominee River CAC was formed in 1988 to "provide state and federal agencies local stakeholder input into the Area of Concern Program and Remedial Action Planning processes" (LMR CAC, 2018). CAC members helped the agencies identify local issues, develop local targets and goals, provide historical context, and assist in project implementation when possible. The CAC has managed support grants to accomplish goals in the AOC. The CAC plays an important role in facilitating stakeholder participation in the decisions affecting Wisconsin and Michigan's AOC programs and is represented on Michigan's Statewide Public Advisory Council. The Menominee River CAC meets monthly, and they have reviewed all formal documents for the AOC. The CAC voted to support each of the BUI removals, as well as the recommendation to delist.

After almost 30 years of focusing on BUI removals and contamination within the Lower Menominee River AOC, the CAC will continue its involvement with the Lower Menominee River, transitioning into a watershed organization. The Lower Menominee River Watershed Organization will remain in contact with other local environmental groups, the local governments, and state agencies. The most important function of the organization will be to serve as a unifying voice and a steward for the Lower Menominee River.

2.6 Technical Advisory Committee

The TAC was formed in 1988 in an effort to gather local technical experts to assist with the development and implementation of the RAP (WDNR and MDNR, 1990). TAC members provided technical analyses to inform BUI status, recommended goals for management and restoration of the AOC, and reviewed and provided input on project plans, monitoring data, RAP updates, and BUI removal documents. TAC members also provided support for monitoring programs to assess impaired uses leading to BUI removal, and ultimately delisting of the AOC. TAC members have been very supportive of the AOC program, CAC members, and the community by providing tours, presentations, and participating in all AOC events.

2.7 Others

Many other organizations have contributed to the restoration of the Lower Menominee River AOC, including but not limited to: Eagle Creek Renewable Energy (ECRE), Lloyd Flanders, Michigan Department of Health and Human Services (MDHHS), MDNR, Tyco International, University of Wisconsin-Green Bay at Marinette, USACE, USFWS, Wisconsin Department of Health Services, Wisconsin Electric, and Wisconsin Public Service Corporation. Each of these organization has played an important role in advancing the Menominee River to the point of restoration and eventual delisting of the AOC. Additionally, local media outlets have fulfilled their commitments to serve the public interest by keeping area residents informed of developments and opportunities surrounding the AOC.

3. BACKGROUND

This background section provides information on the environmental problems that led to the designation of Lower Menominee River as an AOC. Section 4 describes the actions taken to address the environmental problems.

3.1 Lower Menominee River AOC Sources of Impairment: Contaminated Sediment

The Ansul Fire Protection Company (known during remediation as Tyco Fire Products Limited Partnership and now known as Johnson Controls) generated arsenic salts at their manufacturing site in Marinette adjacent to the turning basin in the river (Figure 1). Arsenic salts were generated as a byproduct of herbicide manufacturing between 1957 and 1977. The waste salts were stored on-site in a bunker area and in uncovered piles. Salts were discharged directly to the river via storm water runoff and wind erosion and indirectly through leaching into surface and ground water which then flowed to the Menominee River along the turning basin.

Since the early 1900s, a manufacturing plant in Menominee, Michigan (now Lloyd Flanders International) has produced high end, woven wicker furniture and metal seating (Figure 1). Operations involved plating of metal parts or spray painting of metal and wicker components. Until the late 1980s, furniture production processes used water shields (curtains) to capture paint mists and overspray which generated large volumes of paint sludge. The painting and plating processes contained heavy metals, including high levels of lead. The overspray-containing bulk paint wastes collected at the bottom of the painting booths and these paint wastes, along with

other manufacturing wastes, were dumped behind the plant on shore or flushed out to Green Bay (WDNR and MDNR, 1990; WDNR, 1996), and much of these wastes remained behind the plant or along the adjacent shoreline (Figure 2).

Figure 2. Paint sludge waste on Green Bay shoreline (S. Zander)

The WPSC site is in Marinette, Wisconsin and operated from 1910 to 1960 using two coal gasification methods: retort and carbureted (Figure 1). Retort gasification involves heating and volatilizing coal in an airtight chamber (retort) at temperatures reaching 2,200°F so the coal will decompose into gas, tar, and generated impurities, including sulfur, carbon dioxide, cyanide, and ammonia. During the carbureted coal gasification method, air and steam is passed over incandescent coal in a brick-filled vessel to form a combustible gas, which is then enriched by injecting a fine oil mist over the bricks, purified, and stored in holders prior to distribution. Coal tars are a byproduct from coal gasification (manufactured gas) and form non-aqueous phase liquid (NAPL) and dense non-aqueous phase liquid (DNAPL). Coal tars contain polyaromatic hydrocarbons (PAHs) and other site-specific processing contaminants including sulfur, heavy metals, and metalloids such as mercury and arsenic.

3.2 Lower Menominee River AOC Sources of Impairment: Land Use Changes and Water Quality Issues

Historic land use changes also caused significant environmental degradation to several areas in the Lower Menominee AOC, including an extensive wetland complex near the mouth of the river destroyed by logging activities in the 1800s, land near the mouth of the river filled for industrial expansion, and shorelines that were hardened to prevent erosion or provide cargo vessel docking facilities (WDNR and MDNR, 1990). Remaining wetlands and other quality habitat were threatened by encroaching invasive plants, and lack of safe passage beyond five hydroelectric dams limited access to historic spawning and nursery habitat in the Menominee River for several Lake Michigan fish species, including lake sturgeon.

Finally, water quality issues stemming primarily from inadequate sewer infrastructure in the cities of Menominee and Marinette caused contamination in the riverine portion of the AOC via elevated bacterial levels during wet weather events.

4. BENEFICIAL USE IMPAIRMENT REVIEW

Early in the AOC program the Lower Menominee River AOC was identified as having six of the 14 possible BUIs, as described previously. Those BUIs were chosen via a thorough examination of environmental conditions and with input from federal, state, and local agencies, CAC members, advocacy organizations, user groups, and community members. All six of the designated BUIs have been removed in the Lower Menominee River AOC through the process outlined in the *Targets* (2008) and agreed upon by the MDNR and WDNR, and akin to the MDNR *Guidance* (2018). The rationale for the removal of each BUI is presented here in abbreviated fashion, excerpted and edited from the respective BUI removal documents and in the order in which they were removed. For additional details including the proper citations for supporting documentation, please consult the final BUI removal documents themselves. During the BUI removal process, the states consulted with the Menominee River CAC; in each case, the CAC supported the removals and their letters of support are included as attachments at the end of this document. Also attached are letters from USEPA's Great Lakes National Program Office, on behalf of the U.S. government as a Party to the GLWQA, indicating that formal BUI removal had been accomplished.

4.1 *Beach Closings* (Restrictions on Recreational Contact), removed March 2011

The 1990 RAP identified elevated bacteria levels in the AOC associated with wet weather events (WDNR and MDNR, 1990). Elevated levels were primarily due to combined sanitary sewer overflows from the cities of Menominee and Marinette. The *Targets* identified the appropriate restoration criteria to be when no waterbodies in the AOC were on the list of non-attaining waters due to contamination with pathogens from combined sewer overflows in the most recent Section 303(d) and 305(b) Integrated Report for both Wisconsin and Michigan (MDEQ and WDNR, 2008).

The TAC reviewed the 2010 Integrated Reports submitted to USEPA for Wisconsin and Michigan and found that no waters within the AOC were in non-attainment due to contamination with pathogens from combined sewer overflows (MDNRE, 2010a; WDNR, 2010b). The cities of Marinette and Menominee performed various upgrades from 1974 to 2008 to their wastewater treatment plants and upgraded combined sewer overflows (MDEQ, 2009a). The TAC determined that these upgrades helped address the original sources of bacterial contamination which were the basis for the impairment, and therefore, supported the removal of this BUI. The complete Removal Recommendation and all supporting data can be found at: https://dnr.wi.gov/topic/GreatLakes/documents/MenomineeRiverRecContact.pdf and https://www.michigan.gov/documents/egle/wrd-aoc-menominee-bui-beaches_665782_7.pdf.

4.2 *Restrictions on Dredging Activities*, removed May 2017

The 1990 RAP recognized dredging restrictions in the AOC as a concern due to high levels of contaminants in sediments (WDNR and MDNR, 1990). The cause of impairment was due to contaminants; namely arsenic, coal tar waste, paint waste, and other heavy metals in the river. Sediment assessments confirmed that PCBs and dioxins are not contributing to this BUI. The criteria for determining that this beneficial use could be considered restored, according to the *Targets* and the Stage 2 RAP, was "when all remedial actions for known contamination sources are complete and are monitored according to approved remediation plans," and, an AOC dredge management plan was also developed (WDNR and MDEQ, 2008; WDNR and MDEQ, 2011).

Remedial actions took place at four different sites across the AOC (Figure 1). The contamination at the Ansul/Tyco site was the result of arsenic waste salts historically generated by the Ansul Chemical Company. In conjunction with a 2009 RCRA Administrative Order on Consent and a 2014 GLRI-GLLA Betterment Action, Tyco International implemented terrestrial, groundwater, and sediment remedies. All dredging of contaminated sediment was completed in 2014, as required by the order on consent and the Legacy Act Betterment Contract (Figure 3). Sediment sampling conducted for monitored natural recovery, as established in the Consent Order, will continue every five years.

Figure 3. Ansul/Tyco Dredging Project 2012 (C. Bougie)

Contamination at the Green Bay Paint Sludge site originated from bulk paint wastes being dumped behind the Lloyd-Flanders plant or flushed out to Green Bay. An Administrative Order required the company to investigate and remediate the paint sludge contamination. Lloyd-Flanders collected and disposed of paint balls along the shoreline and constructed a berm to enclose submerged paint wastes and prevent further migration. Contaminant removal work was complete and meeting remedial goals by 2000.

The WPSC site was a former manufactured gas plant having groundwater and sediment contaminated by coal-tar waste. An Administrative Order on Consent resulted in removal of the sediment from the Menominee River (Figure 4). A reactive core mat was then installed around the stormwater outfall and a carbon-enhanced sand cover placed over areas where bedrock prevented achieving design dredge elevations. Sediment removal work was completed in 2013 and goal assessments were complete and met by 2015.

Figure 4. WPSC Former Manufactured Gas Plant Site Dredging Project 2012 (C. Bougie)

Menekaunee Harbor was contaminated with heavy metals and PAHs which were believed to originate primarily from historical industrial operations and storm water input bordering the harbor. The city of Marinette partnered with the WDNR and USEPA to implement a dredging plan that addressed contaminated sediment while also allowing for navigational improvements to the harbor. Both clean and contaminated sediment was dredged, and clean material was beneficially used to improve fish and waterfowl habitat in the undeveloped portion of the harbor (Figure 5). A sand cover was also placed over areas of low-level residual contamination. Dredging was completed in 2014 and remedial action goals were met while also improving navigation in the harbor.

Figure 5. Menekaunee Harbor Dredging Project 2014 (C. Bougie)

Sediments at two other sites were assessed as part of this BUI: Lower Scott Flowage and Rio Vista Slough. At the Lower Scott Flowage, between the Park Mill and Menominee Dams, the Scott Paper Company historically discharged effluent, coal ash, and other debris (WDNR, 1996). Dams and flowages can act as sediment traps; therefore, sampling and analysis was performed to determine if the flowage was a source area or not. Results indicated that although PAHs and copper were detected, the flowage was not a source of PAHs, metals, polychlorinated biphenyls (PCBs), and dioxin within the AOC (CH2MHill, 2014). The flowage is part of the most upper reach of the Menominee River in the AOC. Sediment sampling and analysis indicated the flowage was not a source of contamination as originally suspected due to historical papermill discharges. At Rio Vista Slough, a backwater area located just north of US41, sediment was sampled to determine if the slough was a source of PCBs found in fish tissues. No PCBs were found during this sampling, and so it was determined not to be a source to the AOC.

A dredge management plan was included as part of the BUI removal package for Restrictions on Dredging and contains an evaluation of potential remaining dredge restriction areas. The TAC reviewed the remedial actions and dredge management plan along with the CAC and determined the criteria had been met and supported removal of the BUI. The complete Removal Recommendation and all supporting data can be found at: https://www.michigan.gov/documents/egle/wrd-aoc-menominee-bui-dredging_665810_7.pdf and https://dnr.wi.gov/topic/GreatLakes/documents/MRDredgingRemoval.pdf

4.3 *Degradation of Benthos*, removed May 2017

Like the *Restrictions on Dredging Activities BUI*, the negative impacts on the benthic community and the resulting *Degradation of Benthos BUI* was tied to contaminated sediment. This impairment indicated that organisms living in or on the river or lake bottom were being negatively affected by the toxic chemicals in the sediment and could potentially affect higher level organisms such as waterfowl or fish. A survey in 1979 found a degraded benthic community below the Ansul

(Tyco) site and most of the benthic invertebrates identified were known pollution-tolerant species. Elevated levels of arsenic, cadmium, and mercury were detected in benthic tissues, but the heavy arsenic pollution was identified as the major culprit to the impairment (Dames and Moore, 1979). The *Targets* stated that the BUI could be removed when remedial actions for known contaminated sediment sources were complete and meeting the remedial action goals and sediment sources are being monitored according to approved plans (WDNR and MDEQ, 2008).

A summary of remedial actions to remove contaminated sediment are in Section 4.2 of this Report. The two additional sites, Lower Scott Flowage and Rio Vista Slough, were also sampled to support removal of the *Degradation of Benthos BUI*. The BUI was removed based on the BUI removal criteria, which included the reasonable expectation that the benthic community would recover and recolonize over time from connected higher quality areas, as habitat suitability improved due to the presence of cleaner sediment. An investigation conducted by USGS in 2014, before sediment remediation was fully complete, determined that dominance by taxa other than oligochaetes and the presence of the clam *Pisidium* sp. indicated that conditions in the AOC were already improving as a result of the in-progress sediment remediation projects (Scudder and Eikenberry et al., 2017). Studies in other AOCs show that post-dredging benthic recovery (defined as being comparable to a non-AOC reference site) can occur in as little as two years after sediment remediation is complete. Other non-AOC studies in riverine systems (Clements et al., 2010; Langford et al., 2009; Niemi et al., 1990; Wallace, 1990; Yount and Niemi, 1990) support the hypothesis that recovery of benthic macroinvertebrates will occur if sources of sediment contamination are removed and a recolonization mechanism exists. The TAC reviewed the remedial actions and, along with the CAC, determined that the criteria had been met and supported the decision to remove the BUI. The complete Removal Recommendation and all supporting documentation can be found at: https://www.michigan.gov/documents/egle/wrd-aoc-menominee-bui-benthos_665795_7.pdf and https://dnr.wi.gov/topic/GreatLakes/documents/MRBenthosRemoval.pdf.

4.4 *Restrictions on Fish and Wildlife Consumption*, removed in June 2018

Various sizes of common carp, walleye, and rock bass collected from 1976 through 1988 in the Menominee River were found to contain elevated levels of mercury and PCBs. These elevated contaminant levels led to fish consumption recommendations by the MDNR and WDNR Fish Contaminant Monitoring Programs and the *Fish and Wildlife Consumption BUI* for the AOC. In 1993, a consumption advisory was added for dioxin in carp in the Menominee River above the first dam based on samples collected upstream from the AOC and in 2001, Wisconsin adopted a statewide consumption advisory for mercury.

In response, the following criteria for determining when this impairment could be removed, according to the *Targets,* included two options:

1. When sources of PCBs, mercury, and dioxins within the AOC have been controlled or eliminated and waters within the Lower Menominee River AOC are no longer listed as impaired due to PCB or dioxin fish consumption advisories in the most recent Impaired Waters 303(d) list for either state;

   OR

2. Fish tissue contaminants causing advisories in the AOC are the same or lower than those in the associated Great Lake or appropriate control site.

The first criterion was partially met through completion of all sediment remediation projects (Ansul/Tyco, Lloyd Flanders, WPSC MGP site, and Menekaunee Harbor as noted in Sections 4.2

and 4.3 of this report), and no significant sources of PCBs, mercury, or dioxins were found in the AOC. However, consumption advisories in the AOC remained in the most recent 303(d) list and were suspected to be due to contaminants outside of the AOC affecting contaminant levels of fish harvested within the AOC boundaries. Thus, the comparison between the AOC and a reference site stipulated in the second criteria was used as a restoration target to meet BUI removal. To make the comparison, fish from the AOC were collected and tested to see how their contaminant levels compared to fish from local and regional reference sites. Fish sample comparisons were made using Kruska-Wallis and Mann-Whitney statistical tests, the nonparametric equivalent of Analysis of Variance, and a t-test, and were considered significant at $p < 0.05$. Specific statistical methods and full results can be found in the staff report which was included as Appendix C in the BUI removal document. Results showed that the levels were generally similar to the reference sites. Based on fish concentrations in the AOC and control sites, the PCBs, mercury, and dioxin in fish tissue were determined to be coming from outside of the AOC. Therefore, it was determined that the removal criteria outlined in the *Targets* had been met. A TAC reviewed the data and, along with the CAC, concluded that the *Targets* had been met and supported the removal of the BUI. The complete Removal Recommendation and all supporting documentation can be found at: https://www.michigan.gov/documents/egle/wrd-aoc-menominee-bui-fish_665811_7.pdf and https://dnr.wi.gov/topic/GreatLakes/documents/LMRFishBUIRemovalFinal.pdf

It should be noted that fish consumption advisories are still currently in place in the Lower Menominee River AOC due to contaminants still present within the Menominee River that primarily originate from the Bay of Green Bay outside of the AOC boundaries, and will remain irrespective of the AOC being delisted. More information on current fish consumption advisories can be found on the WDNR (http://dnr.wi.gov/topic/Fishing/consumption/) and MDHHS website at (www.michigan.gov/eatsafefish)

4.5 *Degradation of Fish and Wildlife Populations and Loss of Fish and Wildlife Habitat*, removed concurrently in February 2019

This section addresses two separate, but related, BUIs: *Degradation of Fish and Wildlife Populations* and *Loss of Fish and Wildlife Habitat*. Loss of historic wetlands and localized toxicity caused by contaminated sediment impacted fish and wildlife habitat and populations in the Lower Menominee River AOC. The 1990 RAP noted that an extensive wetland complex near the mouth of the river was destroyed by logging activities in the 1800s (WDNR and MDNR, 1990). Land near the mouth of the river was filled for industrial expansion and the shorelines hardened. Quality habitat was impacted by invasive plants and fish species had limited access to their historic spawning areas due to passage barriers imposed by five hydroelectric dams. The criteria for determining when these impairments could be removed was established in the *Targets* as being when a local fish and wildlife habitat management and restoration plan had been developed and implemented for the AOC (2008).

A *Fish and Wildlife Population and Habitat Management and Restoration Plan* (*Plan*) was developed for the AOC in 2011 and updated in 2013 (WDNR and MDEQ, 2014). The *Plan* outlines goals, objectives, and activities necessary to remove the BUIs (Table 1) and was developed in conjunction with a TAC and the CAC. When all parties agreed that the activities were complete, the objective was considered accomplished.

Table 1. Goals and Objectives detailed in the *2013 Fish and Wildlife Population and Habitat Management and Restoration Plan* for the Lower Menominee River AOC.

<table>
<tr><th colspan="5">GOALS</th></tr>
<tr><td>Long-term protection is in place for natural areas and wetlands within the AOC, including Seagull Bar and riverine islands.</td><td>Nesting populations of a diverse array of wetland-dependent and riparian-associated birds are consistently present within the AOC.</td><td>The lake sturgeon population is enhanced.</td><td>Diverse and functional native fish and mussel assemblages are present in the AOC that sustain natural recruitment.</td><td>A healthy and diverse native vegetation community has been restored.</td></tr>
<tr><th colspan="5">OBJECTIVES</th></tr>
<tr><td rowspan="4">Long-term protections deemed acceptable by the WDNR, MDEQ, TAC, and CAC have been established for all natural areas where habitat improvement work has taken place and contributes to achieving one or more BUI removal objectives.</td><td rowspan="2">Maintain or enhance habitat conducive to colonial water bird rookery activity on known or prospective rookeries.</td><td rowspan="2">Provide additional spawning and juvenile rearing habitat for lake sturgeon by providing passage upstream of both Menominee and Park Mill Dams (USFWS, 2012).</td><td>There is evidence of recruitment within segments 2-8 for the following fish species: lake sturgeon walleye, yellow perch, muskellunge, smallmouth bass, largemouth bass, and northern pike.</td><td rowspan="4">Invasive, non-native species comprise no more than 33% of the vegetation community in protected natural areas of the AOC.</td></tr>
<tr><td>There is evidence of recruitment in segment 1 for the following fish species: walleye, rock bass, bluegill smallmouth bass, largemouth bass, and northern pike.</td></tr>
<tr><td rowspan="2">Monitor the rookery activity of known or prospective rookeries.</td><td rowspan="2">Provide a means for fish to pass safely downstream of both Menominee and Park Mill Dams (USFWS, 2012).</td><td>There is evidence of recruitment within the AOC for native mussel species.</td></tr>
<tr><td>Monitor for larval lake whitefish to determine necessity of future habitat improvements.</td></tr>
</table>

As part of the *Plan*, existing data was reviewed, and field studies and monitoring were conducted that assisted in the development of activities in the AOC that would result in removal of the impairments. Eleven habitat restoration and protection activities were listed in the *Plan*, most of which were encompassed by four restoration projects: 1) The Lower Menominee Fish Passage and Protection Project, 2) The Lower Menominee Islands Rookery and Habitat Management Project, 3) The South Channel Habitat Restoration Project, and 4) The Menekaunee Harbor Habitat Restoration Project.

Goal 1: Long-term protections are in place for natural areas and wetlands within the AOC, including Seagull Bar and riverine islands.

The first goal and objective was determined by the WDNR, MDNR, TAC and CAC to be met through the habitat restoration and long-term maintenance agreements for the Lower Menominee Islands Rookery and Habitat Management Project, South Channel Habitat Restoration Project, and Menekaunee Harbor Habitat Restoration Project. Seagull Bar is a designated Wisconsin State Natural Area.

Goal 2: Nesting populations of a diverse array of wetland-dependent and riparian-associated birds are consistently present within the AOC.

The second goal was met primarily through the Lower Menominee Islands Rookery and Habitat Management Project. The first objective in the *Plan* was met through re-establishment of rookery habitat on four riverine islands in the AOC (Little Blueberry, Big Blueberry, Strawberry, and Boom) for impaired colonial nesting water-bird populations. Habitat restoration activities included invasive species mapping from which an Invasive Species Control and Management Plan was developed for each of the islands. Several rounds of chemical and mechanical treatment were completed throughout 2015 and 2016, after which small scale restoration plantings were installed in late 2016. A larger-scale planting was completed in the summer and fall of 2017 along with additional chemical treatments and herbivory control. Additional resources were secured in 2018 that supported final chemical treatments, restoration plantings, monitoring, adaptive management, and stakeholder outreach. The vegetation improved each year after restoration and met the vegetation community objective for each of the islands (Figure 6). The WDNR, MDNR, TAC, and CAC concluded that the *Plan's* rookery monitoring objective was met through a WDNR eBird data analysis in 2014 in addition to the rookery monitoring conducted at Strawberry island as part of the Lower Menominee Islands Rookery and Habitat Management Project.

Figure 6. Riverine Island restoration project. Top photos show Little Blueberry Island, before and after mechanical and chemical treatment of buckthorn and bottom photo shows Great Egrets nesting at the Strawberry Island Colonial Waterbird Rookery (Ecology & Environment, Inc.)

Goal 3: The lake sturgeon population is enhanced.

The third goal was accomplished through the installation of a fish elevator that allows upstream fish passage around the Menominee and Park Mill Dams (Figure 7). Fish are lifted over the dam to a sorting station where biologists select only healthy adult sturgeon over 50 inches long to be passed upstream. Once they are above the Menominee Dam, adult sturgeon are loaded into a trailer for transport to an upstream release point above the Park Mill Dam after which they have access to 21 miles of river, 32 acres of spawning, and 1,400 acres of juvenile habitat that was previously inaccessible to them. The new habitat opened as a result of passage includes high quality spawning and rearing acres both above and below the Menominee and Park Mill dams and is in support of the first objective in the *Plan* (Table 2). Adult and juvenile sturgeon can freely move downstream via surface bypasses and fish guidance systems at each of the dams, meeting the second objective in the *Plan*.

Table 2. Sturgeon spawning and rearing habitat in the Menominee River (Daugherty, 2006)

Menominee River and Reach Location	Excellent/Good Spawning Habitat (acres)	Excellent/Good Rearing Habitat (acres)
Downstream of Menominee Dam	26/101	210/47
Downstream of Menominee Dam + Upstream of Park Mill Dam	58/664	1609/0.35
Menominee River to Sturgeon Falls Dam	261/2353	4771/1055

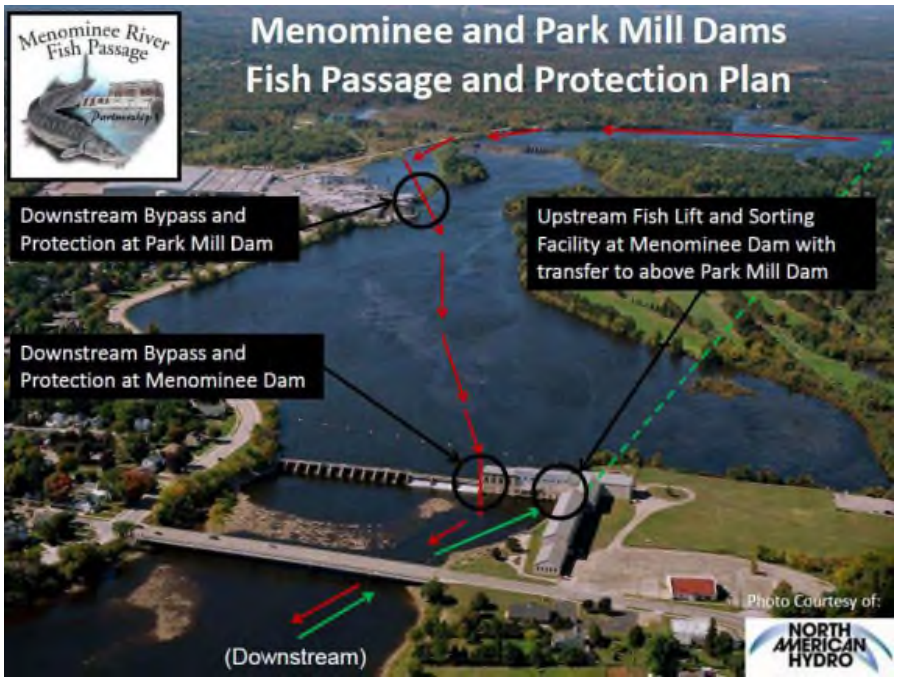

Figure 7. Depiction of the upstream and downstream passage segments for lake sturgeon in the lower Menominee River (Rob Elliott, USFWS).

Lake sturgeon continue to be a priority species for Fisheries Management and the State of Wisconsin has developed a Lake Sturgeon Management Plan to guide long-term restoration efforts statewide. More information can be found on the Wisconsin DNR's website at: https://dnr.wi.gov/topic/fishing/documents/sturgeon/lsturmplan_eversion.pdf. Lake sturgeon are also a focus species for the State of Michigan and the MDNR has developed a Lake Sturgeon

Rehabilitation Strategy to guide long term efforts.
http://www.michigandnr.com/PUBLICATIONS/PDFS/ifr/ifrlibra/Special/Reports/sr62/SR62.pdf

Goal 4: Diverse and functional native fish and mussel assemblages are present in the AOC that sustain natural recruitment.

The fourth goal was determined to be met through a review of existing fisheries data and collection of new fisheries community data, a qualitative mussel community survey, and lake whitefish larva and egg collection.

The qualitative mussel community survey identified 16 species in the study area, with juvenile mussels of five native mussel species identified within the AOC, suggesting some natural recruitment of these species. The TAC and CAC evaluated the 2011 qualitative study in 2015 and concluded that the mussel objective was met.

A project team consisting of experts from MDNR, USFWS, and WDNR evaluated existing fish population studies through a *"Fisheries Data Roundup"* project which allowed the team to develop metrics to assess target species recruitment, and then set recruitment goals based on the evaluation. When existing data was not available, inadequate or not comparable for the selected evaluation, the team recommended the collection of additional fisheries data. Through this effort it was determined that the yellow perch were considered above their recruitment goal in the AOC and it was decided that the yellow perch objective had been met and that lake sturgeon would be addressed through Goal 3 of the *Plan.* The project team also recommended that additional survey data be collected for the other target species listed in the *Plan* for the Lower Menominee River below the Menominee Dam, and these recommended surveys were completed from 2012-2015.

The TAC, CAC, and other fishery experts and technical staff established a consensus-based goal of observing target species above the 25th percentile restoration goal in at least one monitoring season when comparing the 2012-2015 survey results to the data collected in the *"Fisheries Data Roundup"* project before considering the first two objectives listed in the *Plan* to be met. The results of the 2012-2015 fish community surveys determined that all target species were found to meet the 25th percentile restoration in the Lower Menominee River and Lower Scott Flowage, and therefore, met the first two objectives in the *Plan.*

The final objective pertaining to lake whitefish was met through sampling conducted in 2014 and 2015 in which lake whitefish eggs and larvae were collected in the Menominee River. The highest concentrations of larval whitefish were observed near the top of the river column and in downstream backwater areas, indicating that lake whitefish are successfully producing offspring to the drifting larval stage in the lower section of the Menominee River (Houghton, 2016), and thus meeting the final objective in the *Plan*.

Goal 5: A healthy and diverse native vegetation community has been restored.

The final goal was achieved largely through the Lower Menominee Islands Rookery and Habitat Management Project, and the South Channel and Menekaunee Harbor Habitat Restoration Projects. The objective listed under this goal specifies that invasive, non-native species comprise no more than 33% of the vegetation community in protected natural areas in the AOC.

As previously described in Goal 2, several activities were completed to ensure that invasive plants were controlled and replaced with native plant species as part of the Lower Menominee Islands Rookery and Habitat Management project. The third annual monitoring report submitted by *Ecology and Environment, Inc.* shows that the plant community improved over the 2014-2017 project years and met the 33% threshold for invasive, non-native species.

The South Channel Habitat Restoration Project took place following the removal of contaminated sediment (section 4.2), and a total of 110 acres and 1.6 miles of shoreline were restored. Approximately 21.4 acres of wetland and upland were treated for invasive species and received native species plantings, and habitat areas for northern pike, turtles, songbirds, bats, raptors, and waterfowl were installed. The hydrologic connection between the South Channel and Menekaunee Harbor was reestablished through the removal of rip rap and sediment (Figure 8). Monitoring at the restoration site in 2017 indicated that the plant community met the 33% threshold for invasive, non-native species.

Figure 8. Photos taken at the South Channel Habitat Restoration Site under Ogden Street, before (left) and after (right) removal of excess riprap and debris (C. Bougie).

The Menekaunee Harbor Habitat Restoration Project began in 2015 after the removal of contaminated sediment from the harbor (section 4.2). A total of 29.6 acres and 0.6 miles of shoreline habitat were restored (Figure 9), and approximately 24 acres of wetland and upland were treated for invasive species and received native species plantings. Additionally, habitat structures for birds, bats, snakes, and fish were installed. The second annual monitoring report showed that the plant community in the project area is meeting the 33% threshold for invasive, non-native species.

Figure 9. Photos taken at the Menekaunee Harbor Habitat Restoration Site before (left) and after (right) invasive species control and native plantings (C. Bougie).

Conclusions

In support of the *Plan* requirements, long-term protections were established for natural areas and wetlands in the AOC; nesting populations of a diverse array of birds are utilizing habitat in the AOC; the lake sturgeon population was enhanced; fish and mussel populations were present that sustained natural recruitment; and the native vegetation community was restored. The TAC and CAC reviewed all the goals, objectives, and activities in the plan and compared them to the restoration efforts and thereby determined that the restoration criteria in the *Targets* had been met and supported the removal of the BUI. The Removal Recommendation and supporting documentation can be found at: https://www.michigan.gov/documents/egle/wrd-aoc-menominee-bui-populations-habitat_665784_7.pdf and https://dnr.wi.gov/topic/GreatLakes/documents/LMRFishBUIRemovalFinal.pdf.

5. POST-DELISTING RESPONSIBILITIES AND MONITORING

While AOC-based restoration and remediation work is complete and all six BUIs have been removed from the Lower Menominee River AOC, monitoring natural system recovery will continue, particularly as it relates to wildlife. Changes in wildlife habitat should be reflected in the populations and community assemblages, though the time scale at which this will occur may be variable. Ecology & Environment, Inc. developed an *Invasive Species Control and Management Plan* (E & E, 2015), and Wild Rivers Invasive Species Coalition completed ongoing invasive species maintenance on the islands from 2019 - 2020. WDNR owns Strawberry Island, and its Natural Heritage Conservation program has developed a Natural Area Management Plan and has committed to ongoing maintenance of the plantings and restoration work with support and assistance from the WDNR Office of Great Waters. Local and state partners will continue to work with Wild Rivers Invasive Species Coalition and other local groups and volunteers to implement maintenance activities on the islands.

MDNR will continue to sort and move fish above the Menominee and Park Mill Dams as outlined in the *Fish Passage Operation Plan* for the Menominee/Park Mill Hydroelectric FERC Project. Other programs within EGLE, MDNR, and WDNR have oversight on issues within the Menominee River. WDNR's Pollution Discharge Elimination System and EGLE's National Pollution Discharge Elimination System programs have responsibilities for permitting point source discharges to the Menominee River. The MDNR Fisheries Division, WDNR Fisheries Management, and the University of Wisconsin Stevens Point routinely conduct population surveys in the river to determine the health and viability of the fishery. The aquatic invasive species (AIS) programs in both states will implement state AIS management plans and work with the Wild Rivers Invasive Species Coalition and local partners to prevent, monitor, and control AIS. WDNR conducts bioassessments for fish, benthic macroinvertebrates and mussels on the mainstem river on a five-year rotation. EGLE's Water Resources Division conducts basin cycle monitoring in rivers throughout the State of Michigan. The next surveys will take place in 2022, and these efforts will be used to track the overall health of the Lower Menominee River. The EGLE and WDNR Water Resource programs also work with various partners on non-point sources, wetlands, and watershed issues and policy.

The WDNR and EGLE participate in the Lake Michigan Partnership Working Group, which includes updating a Lakewide Action and Management Plan (LAMP) that outlines actions for restoring and protecting the Great Lakes ecosystem. WDNR and EGLE staff will continue to engage local partners in connecting local needs to lakewide planning, implementing relevant LAMP priorities, and identifying of Great Lakes funding and technical resources.

The MDHHS has prepared educational materials for the Menominee River on eating fish safely. These materials include a brochure for eating safe fish in the Menominee River and signage for posting around the river. MDHHS will also continue to work with area stakeholders, including the city of Menominee, Public Health of Delta and Menominee Counties, and fishing associations to provide

local distribution of outreach materials and sustainable Eat Safe Fish educational opportunities. Wisconsin Department of Health Services (WDHS) and WDNR will continue to operate a joint program for issuing consumption fish advice. WDHS works with local public health departments to distribute health advice, develop outreach materials and signage. WDNR publishes consumption advice updates in their "Choose Wisely" booklets and maintains an online query tool where anglers have access to waterbody-specific advisories. Fish consumption information is available electronically at https://dnr.wi.gov/topic/fishing/consumption/.

ECRE owns the Park Mill and Menominee dams and has committed to the long-term maintenance of the dams and passage structures. ECRE also owns the Blueberry Islands and they are protected from development through ECRE's Federal Energy Regulatory Commission license. The city of Marinette owns Boom Island and has changed the island's zoning from 'park' to 'conservancy' for added protection of these natural areas. The city also owns much of the property along the South Channel and Menekaunee Harbor areas and will be partnering with the UW-Green Bay Marinette Campus and other local groups and volunteers to perform monitoring and maintenance activities at the South Channel and Menekaunee Harbor habitat restoration sites. Activities include invasive species control and caring for the nest boxes and platforms.

As part of the Administrative Order on Consent between Tyco and the USEPA, Tyco will provide long-term monitoring and maintenance of the barrier that is containing on-site groundwater. Depending on the results of the year-2023 sediment monitoring cycle, Ansul may be required to address residual arsenic sediments in the turning basin.

As part of the USEPA 2017 Record of Decision for the Marinette MGP site, WPSC will complete excavation and off-site disposal of contaminated soils adjacent to Boom Landing and the wastewater treatment plant zone (located across from Boom Landing). WPSC will also install engineered covers over remaining surficial soil exceeding preliminary remediation goals; conduct in-situ treatment of affected groundwater; and continue to monitor the effectiveness of the existing reactive core mat that transitions from the shore to water.

Lloyd-Flanders has agreed to regularly inspect and maintain site barriers and collect shoreline paint wastes, as required in the Operations and Maintenance Plan with the State of Michigan.

Menekaunee Harbor Restoration Project does not have long-term monitoring requirements as part of the sediment remediation as the contaminated sediments were removed and there are no other legacy sources of contamination.

As is happening in many locations throughout the nation, a significant environmental issue has arisen in the areas surrounding the Menominee River involving perfluoroalkyl and polyfluoroalkyl substances (PFAS). PFAS are a large group of human-made chemicals that have been used in industrial and consumer products since the 1940s. PFAS are widespread in the environment. They are an emerging contaminant of concern, which means that health risks and exposure levels are not well understood and environmental cleanup levels have not been established.

Emerging contaminants of concern such as PFAS are not considered "legacy pollutants" and are not addressed by the AOC program. Within the AOC program, legacy pollutants are those chemical substances for which exposure risks were understood and cleanup levels were established at the time of AOC designation in 1987. PFAS and other emerging contaminants are addressed under different programs at the state and federal level. Wisconsin and Michigan are actively developing strategies for delineating and managing PFAS in the environment, understanding human and ecological health risks associated with exposure to PFAS, and addressing known sites with significant PFAS contamination. These multi-state, multi-agency initiatives will leverage the resources and expertise of various research, human health protection, and environmental remediation programs.

The work accomplished to restore the Lower Menominee River through the AOC program is substantial. Since PFAS is not addressed in the AOC program, neither sampling nor treatment for PFAS has been conducted as a part of the restoration efforts at this site. The delisting process for Menominee River as an AOC does not include potential concerns associated with PFAS contamination (e.g. accumulation of PFAS in fish tissues, transport of PFAS via surface waters, exposure to PFAS from ingestion of water sourced from the Menominee River, or PFAS from ingestion of foam sourced from the Menominee River). As noted in earlier sections, these issues are addressed by other programs and it is currently unknown as the potential of PFAS issues that may exist on the Menominee River.

6. PUBLIC INVOLVEMENT IN THE DELISTING PROCESS

The Lower Menominee River CAC and the WDNR and MDNR have consistently worked to inform the affected communities in the AOC and to seek their input regarding remedial activities and BUI removals. The same holds true during the process of delisting the AOC. The CAC and TAC reviewed and provided feedback on the Preliminary Draft Delisting Report in June 2019, with the CAC formally endorsing the delisting recommendation on August 1, 2019 (Attachment K). USEPA invited tribal representatives from the Hannahville Indian Community, Menominee Indian Tribe of Wisconsin, and Little Traverse Bay Band of Odawa Indians to consult on the Preliminary Draft Delisting Report and the recommendation to delist on October 29, 2019. The Menominee Indian Tribe of Wisconsin accepted the invitation and USEPA held a tribal consultation on December 11, 2019. Comments and feedback from the tribal consultation were addressed to develop the Draft Final Report and a summary of the tribal correspondence and consultation can be found in Attachment L. Concurrent to the Tribal Consultation process, USEPA solicited review and comment from the IJC on October 25, 2019. The IJC submitted written comments and communicated their support of the removal on December 4, 2019. USEPA responded to these comments in a letter dated March 3, 2020, which can be found in Attachment M.

USEPA, WDNR, and EGLE solicited a public review of the Draft Final Report from March 9 – April 24, 2020. Five written comments were received during the 45-day comment period. Comments and feedback from the public review period were used to develop the Final Report, and a responsiveness summary can be found in Attachment N.

On April 9, 2020, EGLE, WDNR, and USEPA held webinar public meeting with the support of the Lower Menominee River CAC to solicit public input on the proposed delisting of the Lower Menominee River AOC. There were 38 attendees, of which less than 15 were not CAC, media, or agency staff. The draft Final Delisting Report was discussed, BUI restorations were reviewed, and the delisting process explained. Attendees were invited to provide comments or ask questions regarding the proposed delisting of the Lower Menominee River AOC. Three comments were received and are addressed in the responsiveness summary found in Attachment N.

7. RECOMMENDATION TO DELIST

7.1 Restoration and Removal of the Beneficial Use Impairments

The Lower Menominee River AOC had six out of a possible 14 BUIs. Over nearly 30 years, the MDNR and WDNR AOC programs invested significant time and resources to address the sources of the impairment while the cities of Menominee and Marinette made significant improvements to wastewater and sewer management. Beginning in 2010 with the passage of the Great Lakes Restoration Initiative, over $44,000,000 public funding was used to remediate toxic pollution and restore natural systems was invested in the Menominee River area. Significant advances were achieved in the Lower Menominee River Area of Concern through years of collaborative efforts among diverse stakeholder groups. The agencies and partners were able to successfully leverage the progress made through regulatory programs to achieve even greater environmental progress and community revitalization. The Great Lakes Restoration Initiative, which began in 2010, added momentum to the early work of the communities and agencies and enabled tremendous progress to be made in a short amount of time. The most severe environmental problems in the AOC have now been addressed and the communities are well-positioned to build on these first restoration steps and continue to work toward their desired future condition for the river and watershed.

7.2 Delisting Recommendation

The transformation of this AOC is a significant success story in the overall restoration and protection of the Great Lakes. The change from a highly contaminated river to one that is a sportfishing destination with successfully reproducing fish and wildlife populations is a result of long-term and substantial commitments from many partners over decades. This progress and positive change have resulted in this recommendation to delist the Lower Menominee River AOC.

All six BUIs have been removed, and environmental conditions in the Lower Menominee River AOC are again comparable to non-AOC locations in the Great Lakes. All sources of impairments have been addressed to the extent possible, and all BUI restoration targets have been met. The WDNR and MDNR, with the concurrence of the Menominee River CAC, recommend delisting the Lower Menominee River AOC.

ACRONYMS AND INITIALISMS

AOC – Area of Concern
BUI – Beneficial Use Impairment
CAC – Citizens Advisory Committee
DNAPL – Dense non-aqueous phase liquid
ECRE – Eagle Creek Renewable Energy
EGLE – Michigan Department of Environment, Great Lakes, and Energy
GLLA – Great Lakes Legacy Act
GLRI – Great Lakes Restoration Initiative
GLWQA – Great Lakes Water Quality Agreement
GLWQB – Great Lakes Water Quality Board
IJC – International Joint Commission
MDEQ – Michigan Department of Environmental Quality
MDHHS – Michigan Department of Health and Human Services
MDNR – Michigan Department of Natural Resources
NAPL – Non-aqueous phase liquid
PAH – Polyaromatic Hydrocarbon
PCB – Polychlorinated Biphenyl
RAP – Remedial Action Plan
TAC – Technical Advisory Committee
USACE – United States Army Corps of Engineers
USEPA – United States Environmental Protection Agency
USFWS – United States Fish and Wildlife Service
UW-Green Bay – University of Wisconsin Green Bay Marinette Campus
WDHS – Wisconsin Department of Health Services
WDNR – Wisconsin Department of Natural Resources
WPSC – Wisconsin Public Service Corporation

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ATTACHMENTS

ATTACHMENT A – Menominee River CAC Letter of Support for Removal of Restrictions on Recreational Contact (*Beach Closings*) *BUI*

ATTACHMENT B – USEPA Letter of Concurrence for Removal of Restrictions on Recreational Contact (*Beach Closings*) *BUI*

ATTACHMENT C – Menominee River CAC Letter of Support for Removal of *Restrictions on Dredging BUI*

ATTACHMENT D – USEPA Letter of Concurrence for Removal of *Restrictions on Dredging BUI*

ATTACHMENT E – Menominee River CAC Letter of Support for Removal of *Degradation of Benthos BUI*

ATTACHMENT F – USEPA Letter of Concurrence for Removal of *Degradation of Benthos BUI*

ATTACHMENT G – Menominee River CAC Letter of Support for Removal of *Restrictions on Fish and Wildlife Consumption BU*I

ATTACHMENT H – USEPA Letter of Concurrence for Removal of *Restrictions on Fish and Wildlife Consumption BUI*

ATTACHMENT I – Menominee River CAC Letter of Support for Removal of *Degradation of Fish and Wildlife Populations* and *Loss of Fish and Wildlife Habitat BUIs*

ATTACHMENT J – USEPA Letter of Concurrence for Removal of *Degradation of Fish and Wildlife Populations* and *Loss of Fish and Wildlife Habitat BUIs*

ATTACHMENT K – Menominee River CAC Letter Requesting Delisting of the Lower Menominee River Area of Concern

ATTACHMENT L – Tribal Correspondence and Consultation Summary

ATTACHMENT M – International Joint Commission Correspondence

ATTACHMENT N – Responsiveness Summary to Public Comments

Attachment A

Lower Menominee River Remedial Action Plan Citizens Advisory Committee

The Lower Menominee River: A Great Lakes Area of Concern

November 3, 2010

Mr. Gary Gulezian, Director
Great Lakes National Program Office
US EPA, Region 5
77 West Jackson Blvd.
Chicago, IL 60604

Subject: ***Restrictions on Recreational Contact*** Beneficial Use Impairment Delisting for the Lower Menominee River Area of Concern

Dear Mr. Gulezian,

The members of the Citizens Advisory Committee for the Remedial Action Plan in the Lower Menominee River Area of Concern are writing to express our support for removing "Restrictions on Recreational Contact" from the list of Beneficial Use Impairments (BUIs) for the Lower Menominee River Area of Concern.

The Restrictions on Recreational Contact BUI is a variation of the "Beach Closings" BUI that is identified in Annex 2 of the 1987 amendments to the Great Lakes Water Quality Agreement. The Remedial Action Plan (RAP) Advisory Committee selected this due to the specific issues causing impairment in the Lower Menominee. Impairments resulted not from the closings of designated swimming areas; rather, the impairments were caused by elevated bacterial levels associated with wet weather events in the riverine portion of the AOC, and by elevated bacterial levels detected inside the Menominee Marina.

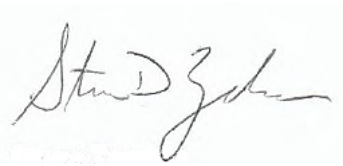
We support delisting at this time because the original sources of the impairment have been addressed. The delisting document summarizes the activities which have been conducted by the cities of Marinette, Wisconsin and Menominee, Michigan to address the combined sewer overflows. The Menominee Marina issue had been addressed by 1996. The 1996 RAP states that "Elevated levels of fecal coliform bacteria have been previously detected inside the Menominee Marina. Subsequent monitoring has indicated that the bacteria levels have been reduced to an acceptable level" (pg 58).

The CAC voted to modify the delisting target at its August 25, 2010 meeting to clarify that delisting can occur once historical causes of impairments have been addressed. We recognize that in the future, should beach closings occur within the AOC, local, state and federal programs (such as the Wisconsin Beach Program) exist to address those issues.

Our group is primarily concerned with implementing remedial actions and achieving the targets set for delisting the Beneficial Use Impairments (BUIs) that have been identified for this Area of Concern. The delisting of the Restrictions on Recreational Contact impairment is an important milestone for us and recognizes the successful sewer separation programs carried out by the cities of Marinette and Menominee.

Much work is yet needed to remove the remaining BUIs in the Lower Menominee AOC, but we fully support and take encouragement from the removal of the Restrictions on Recreational Contact impairment.

Respectfully Submitted,



Steve Zander
CAC Co-Chair

Mark Erickson
CAC Co-Chair

On behalf of the Active Members of the Citizens Advisory Committee:

Cc: Sharon Baker, MDEQ
Stephen Galarneau, WDNR
Rick Stoll, WDNR
Brian Miller, City of Marinette
George Krah, City of Menominee

Attachment B

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

MAR 3 2011

REPLY TO THE ATTENTION OF

Ms. Patricia Birkholz, Director
Office of the Great Lakes
Michigan Department of Natural Resources and Environment
Constitution Hall
525 West Allegan Street
PO Box 30473
Lansing, Michigan 48909-7973

Dear Ms. Birkholz:

This letter is the U.S. Environmental Protection Agency's (EPA) official response to your letter of January 26, 2011, requesting the delisting of the Restrictions on Recreational Contact Beneficial Use Impairment (BUI) in the Lower Menominee River Area of Concern (AOC). Since this AOC is on the border between Michigan and Wisconsin, this is a joint request from the Michigan Department of Natural Resources and Environment (MDNRE) and the Wisconsin Department of Natural Resources (WDNR). As your request points out and the supplied data support, the following restoration criteria for the Recreational Contact BUI in the Lower Menominee River AOC has been met:

- No waterbodies within the AOC are included on the list of non-attaining waters due to contamination with pathogens from combined sewer overflows in the most recent Clean Water Act Water Quality and Pollution Control in either states: Section 303(d) and 305(b) Integrated Report, which are submitted to the EPA every two years.

Your supporting documentation states that existing MDNRE monitoring records indicate that the Recreational Contact BUI criteria for water quality have been met and that the Michigan portion of the Lower Menominee River AOC is not listed as impaired for pathogens in the 2008 or 2010 Integrated Reports.

Based upon EPA's review of your request and the supporting data, and upon our shared desire to show progress as we move all of the Great Lakes AOCs toward restoration of all BUIs and formal delisting, EPA approves your request for the delisting of the Recreational Contact BUI in the Lower Menominee River AOC. EPA will notify the International Joint Commission (IJC) of this significant positive change in the environmental health of this AOC.

We congratulate all of the parties involved in this Federal/State local partnership. This has been instrumental in achieving this important environmental improvement which will benefit the citizens of the Lower Menominee River AOC, the States of Michigan and Wisconsin, and of the Great Lakes Basin. We look forward to the continuation of this important and productive relationship with the MDNRE and the local coordinating committees as we work together to

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fully restore all of Michigan's AOCs.

If I or my staff can be of further service to you, please do not hesitate to contact us.

Sincerely,

Gary V. Gulezian
Director

cc:
Stephen Galameau, WDNR
Diana Klemens, MDNRE
Richard Hobria, MDNRE
Sharon Baker, MDNRE
Ben Uvass, WDNR
Kendra Axness, WDNR
Dr. Saad Jasim, Director, Great Lakes Regional Office, IJC
John Perrecone, RAP Coordinator, USEPA-GLNPO
USEPA-Office of International Activities

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

MAR 8 2011

REPLY TO THE ATTENTION OF

Stephen G. Galarneau, Director
Office of the Great Lakes
Wisconsin Department of Natural Resources
101 S. Webster Street
P.O. Box 7921
Madison, Wisconsin 53707-7921

Dear Mr. Galarneau:

This letter is the U.S. Environmental Protection Agency's (EPA) official response to your letter of January 27, 2011, requesting the delisting of the Restrictions on Recreational Contact Beneficial Use Impairment (BUI) in the Lower Menominee River Area of Concern (AOC). Since this AOC is on the border between Wisconsin and Michigan, this is a joint request from the Wisconsin Department of Natural Resources (WDNR) and the Michigan Department of Natural Resources and Environment (MDNRE). As your request points out and the supplied data supports, the following restoration criteria for the Recreational Contact BUI in the Lower Menominee River AOC have been met:

- No waterbodies within the AOC are included on the list of non-attaining waters due to contamination with pathogens from combined sewer overflows in the most recent Clean Water Act Water Quality and Pollution Control in either states: Section 303(d) and 305(b) Integrated Report, which are submitted to the EPA every two years.

Your supporting documentation states that existing WDNR monitoring records indicate that the Recreational Contact BUI criteria for water quality have been met and that the Wisconsin portion of the Lower Menominee River AOC is not listed as impaired for pathogens in the 2008 or 2010 Integrated Reports.

Based upon EPA's review of your request and the supporting data, and upon our shared desire to show progress as we move all of the Great Lakes AOCs toward restoration of all BUIs and formal delisting, EPA approves your request for the delisting of the Recreational Contact BUI in the Lower Menominee River AOC. EPA will notify the International Joint Commission (IJC) of this significant positive change in the environmental health of this AOC.

We congratulate all of the parties involved in this Federal/State/local partnership. This has been instrumental in achieving this important environmental improvement

which will benefit the citizens of the Lower Menominee River AOC, the States of Wisconsin and Michigan, and of the Great Lakes Basin. We look forward to the continuation of this important and productive relationship with the WDNR and the local coordinating committees as we work together to fully restore all of Wisconsin's AOCs.

If I or my staff can be of further service to you, please do not hesitate to contact us.

Sincerely,

Gary V. Gulezian
Director

cc:
Patricia Birkholtz, MDNRE
Sharon Baker, MDNRE
Ben Uvass, WDNR
Kendra Axness, WDNR
Dr. Saad Jasim, Director, Great Lakes Regional Office, IJC
John Perrecone, RAP Coordinator, USEPA-GLNPO
USEPA-Office of International Activities

Attachment C

Lower Menominee River Remedial Action Plan Citizens Advisory Committee

The Lower Menominee River: A Great Lakes Area of Concern

October 20, 2016

Laurel Last
Lower Menominee River AOC Coordinator
Wisconsin Department of Natural Resources
2984 Shawano Ave
Green Bay, WI 54313

Sharon Baker
Lower Menominee River AOC Coordinator
Constitution Hall 6FS
525 West Allegan
PO Box 30473
Lansing, MI 48909

Subject: Support for Lower Menominee River AOC Restrictions on Dredging BUI removal

Dear Ms. Last and Ms. Baker:

The Lower Menominee River Area of Concern (AOC) Citizens Advisory Committee (CAC) supports the efforts of the Wisconsin Department of Natural Resources (WDNR) and the Michigan Department of Environmental Quality (MDEQ) to remove the Restrictions on Dredging Beneficial Use Impairment (BUI) from the Lower Menominee River AOC.

The Lower Menominee River AOC community has partnered with local, state, and federal agencies, businesses, and volunteers over the years to clean up toxic sediments in the AOC. Sediment remediation projects have been completed at the Green Bay paint sludge site, the Wisconsin Public Service Corp. coal tar site, the Ansul/Tyco arsenic site, and Menekaunee Harbor.

The projects are being monitored according to their approved plans and are meeting their respective goals. In addition, sediment assessments in the Lower Scott Flowage and Rio Vista Slough show that no remediation is needed at those sites. A Dredge Management Plan has been developed and is currently under review. Therefore, the sediment contamination that was causing the dredging restrictions in the AOC has been addressed and restoration targets for this impairment have been met. We concur that the Restrictions on Dredging impairment has been adequately addressed and we are prepared to celebrate the removal of this BUI.

We appreciate all that the WDNR, MDEQ, EPA, and other partners have done to help achieve this goal.

Respectfully Submitted,

Keith West
CAC Wisconsin Co-Chair
keith.west@uwc.edu

Mark Erickson
CAC Michigan Co-Chair
merickson@lloydflanders.com

Attachment D

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

REPLY TO THE ATTENTION OF:

Jon W. Allan, Director
Office of the Great Lakes
Michigan Department of Environmental Quality
525 West Allegan Street
P.O. Box 30473
Lansing, Michigan 48909-7973

Dear Mr. Allan:

Thank you for your November 9, 2016, request to remove the "Restrictions on Dredging Activities" Beneficial Use Impairment (BUI) at the Lower Menominee River Area of Concern (AOC) located within the cities of Marinette, WI and Menominee, MI. 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 (EPA) hereby approves your request to remove this BUI from the Lower Menominee River AOC. EPA will notify the International Joint Commission (IJC) 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 Lower Menominee River AOC, but all residents of Wisconsin, 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 delist this AOC in the years to come. If you have any further questions, please contact me at (312) 886-9296, or your staff can contact John Perrecone at (312) 353-1149.

Sincerely,

Tinka G. Hyde

Tinka G. Hyde, Director
Great Lakes National Program Office

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cc: Kendra Axness, WDNR
Laurel Last, WDNR
Rick Hobrla, MDEQ
Stephanie Swart, MDEQ
Raj Bejankiwar, IJC
John Perrecone, EPA, GLNPO
Wendy Carney, EPA, GLNPO
Keith West, LMR Citizens Advisory Committee, WI
Mark Erickson, LMR Citizens Advisory Committee, MI

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

REPLY TO THE ATTENTION OF:

Stephen Galarneau, Director
Office of the Great Lakes and Sediment Management Unit
Wisconsin Department of Natural Resources
101 S. Webster Street
P.O. Box 7921
Madison, WI 53707-7921

Dear Mr. Galarneau:

Thank you for your November 18, 2016, request to remove the "Restrictions on Dredging Activities" Beneficial Use Impairment (BUI) at the Lower Menominee River Area of Concern (AOC) located within the cities of Marinette, WI and Menominee, MI. 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 (EPA) hereby approves your request to remove this BUI from the Lower Menominee River AOC. EPA will notify the International Joint Commission (IJC) 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 Lower Menominee River AOC, but all residents of Wisconsin, 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 delist this AOC in the years to come. If you have any further questions, please contact me at (312) 886-9296, or your staff can contact John Perrecone at (312) 353-1149.

Sincerely,

Tinka G. Hyde, Director
Great Lakes National Program Office

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cc: Kendra Axness, WDNR
Laurel Last, WDNR
Rick Hobrla, MDEQ
Stephanie Swart, MDEQ
Raj Bejankiwar, IJC
John Perrecone, EPA, GLNPO
Wendy Carney, EPA, GLNPO
Keith West, LMR Citizens Advisory Committee, WI
Mark Erickson, LMR Citizens Advisory Committee, MI

Attachment E

Lower Menominee River Remedial Action Plan Citizens Advisory Committee

The Lower Menominee River: A Great Lakes Area of Concern

October 20, 2016

Laurel Last
Lower Menominee River AOC Coordinator
Wisconsin Department of Natural Resources
2984 Shawano Ave
Green Bay, WI 54313

Sharon Baker
Lower Menominee River AOC Coordinator
Constitution Hall 6FS
525 West Allegan
PO Box 30473
Lansing, MI 48909

Subject: Support for Lower Menominee River AOC Degradation of Benthos BUI removal

Dear Ms. Last and Ms. Baker:

The Lower Menominee River Area of Concern (AOC) Citizens Advisory Committee (CAC) supports the efforts of the Wisconsin Department of Natural Resources (WDNR) and the Michigan Department of Environmental Quality (MDEQ) to remove the Degradation of Benthos Beneficial Use Impairment (BUI) from the Lower Menominee River AOC.

The Lower Menominee River AOC community has partnered with local, state, and federal agencies, businesses, and volunteers over the years to clean up toxic sediments in the AOC. Sediment remediation projects have been completed at the Green Bay paint sludge site, the Wisconsin Public Service Corp. coal tar site, the Ansul/Tyco arsenic site, and Menekaunee Harbor.

The projects are being monitored according to their approved plans and are meeting their respective goals. In addition, sediment assessments in the Lower Scott Flowage and Rio Vista Slough show that no remediation is needed at those sites. Therefore, the sediment contamination that was degrading the benthos in the AOC has been addressed and restoration targets for this impairment have been met. We concur that the Degradation of Benthos impairment has been adequately addressed and we are prepared to celebrate the removal of this BUI.

We appreciate all that the WDNR, MDEQ, EPA, and other partners have done to help achieve this goal.

Respectfully Submitted,

Keith West
CAC Wisconsin Co-Chair
keith.west@uwc.edu

Mark Erickson
CAC Michigan Co-Chair
merickson@lloydflanders.com

Attachment F

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

REPLY TO THE ATTENTION OF:

Jon W. Allan, Director
Office of the Great Lakes
Michigan Department of Environmental Quality
525 West Allegan Street
P.O. Box 30473
Lansing, Michigan 48909-7973

Dear Mr. Allan:

Thank you for your November 16, 2016, request to remove the "Degradation of Benthos" Beneficial Use Impairment (BUI) at the Lower Menominee River Area of Concern (AOC) located within the cities of Marinette, WI and Menominee, MI. 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 (EPA) hereby approves your request to remove this BUI from the Lower Menominee River AOC. EPA will notify the International Joint Commission (IJC) 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 Lower Menominee River AOC, but all residents of Wisconsin, 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 delist this AOC in the years to come. If you have any further questions, please contact me at (312) 886-9296, or your staff can contact John Perrecone at (312) 353-1149.

Sincerely,

Tinka G. Hyde

Tinka G. Hyde, Director
Great Lakes National Program Office

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cc: Kendra Axness, WDNR
Laurel Last, WDNR
Rick Hobrla, MDEQ
Stephanie Swart, MDEQ
Raj Bejankiwar, IJC
John Perrecone, EPA, GLNPO
Wendy Carney, EPA, GLNPO
Keith West, LMR Citizens Advisory Committee, WI
Mark Erickson, LMR Citizens Advisory Committee, MI

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

REPLY TO THE ATTENTION OF:

Stephen Galarneau, Director
Office of the Great Lakes and Sediment Management Unit
Wisconsin Department of Natural Resources
101 S. Webster Street
P.O. Box 7921
Madison, WI 53707-7921

Dear Mr. Galarneau:

Thank you for your November 18, 2016, request to remove the "Degradation of Benthos" Beneficial Use Impairment (BUI) at the Lower Menominee River Area of Concern (AOC) located within the cities of Marinette, WI and Menominee, MI. 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 (EPA) hereby approves your request to remove this BUI from the Lower Menominee River AOC. EPA will notify the International Joint Commission (IJC) 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 Lower Menominee River AOC, but all residents of Wisconsin, 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 delist this AOC in the years to come. If you have any further questions, please contact me at (312) 886-9296, or your staff can contact John Perrecone at (312) 353-1149.

Sincerely,

Tinka G. Hyde

Tinka G. Hyde, Director
Great Lakes National Program Office

cc: Kendra Axness, WDNR

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Laurel Last, WDNR
Rick Hobrla, MDEQ
Stephanie Swart, MDEQ
Raj Bejankiwar, IJC
John Perrecone, EPA, GLNPO
Wendy Carney, EPA, GLNPO
Keith West, LMR Citizens Advisory Committee, WI
Mark Erickson, LMR Citizens Advisory Committee, MI

Attachment G

Lower Menominee River Area of Concern Citizens Advisory Committee

The Lower Menominee River: A Great Lakes Area of Concern

July 24, 2017

Laurel Last
Lower Menominee River AOC Coordinator
Wisconsin Department of Natural Resources
2984 Shawano Avenue
Green Bay, Wisconsin 54313

Stephanie Swart
Lower Menominee River AOC Coordinator
Michigan Department of Environmental Quality
Constitution Hall 6FS
525 West Allegan Street
PO Box 30473
Lansing, Michigan 48909

Subject: Support for the Lower Menominee River AOC Fish Consumption BUI Removal

Dear Ms. Last and Ms. Swart:

The Lower Menominee River Area of Concern (AOC) Citizens Advisory Committee (CAC) supports the efforts of the Wisconsin Department of Natural Resources (WDNR) and the Michigan Department of Environmental Quality (MDEQ) to remove the Fish Consumption Beneficial Use Impairment (BUI) from the Lower Menominee River AOC.

Over the years, the CAC has partnered with local, state, and federal agencies, businesses, and volunteers to clean up toxic sediments and other contamination issues in the AOC. It has also worked closely with various stakeholders to educate the public on the hazards of mercury and other pollutants that persist in regional waters, as well as the steps to be taken for safer fish consumption.

Signage that details the best practices for safe fish consumption within the AOC has been posted at boat launches and other prominent locations. Recently completed projects in the AOC to remove extremely large volumes of contaminated sediments are expected to reduce the introduction of such contaminants into the food webs occupied by most game and commercial fish.

The CAC believes that these actions along with the dedication of the WDNR, the MDEQ, the USEPA and other partners to continuing to improve the quality of fish stocks within the Lake Michigan basin clearly merits the removal of this Fish Consumption BUI.

Thank you for your time and consideration.

Respectfully Submitted,

Keith West
CAC Wisconsin Co-Chair
keith.west@uwc.edu

Mark Erickson
CAC Michigan Co-Chair
merickson@lloydflanders.com

Cc: Stephanie Swart, MDEQ
Laurel Last, WDNR

Attachment H

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

REPLY TO THE ATTENTION OF:

JUN 20 2018

Jon W. Allan, Director
Office of the Great Lakes
Michigan Department of Environmental Quality
525 West Allegan Street
P.O. Box 30473
Lansing, Michigan 48909-7973

Dear Mr. Allan:

Thank you for your May 29, 2018, request to remove the "Restrictions on Fish and Wildlife Consumption" Beneficial Use Impairment (BUI) at the Lower Menominee River Area of Concern (AOC) located within the cities of Marinette, WI and Menominee, MI. 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 (EPA) hereby approves your request to remove this BUI from the Lower Menominee River AOC. EPA will notify the International Joint Commission (IJC) 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 Lower Menominee River AOC, but all residents of Wisconsin, 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 Lower Menominee River Citizens Advisory Committee as we work together to delist this AOC in the years to come. If you have any further questions, please contact me at (312) 886-9296, or your staff can contact John Perrecone at (312) 353-1149.

Sincerely,

Chris Korleski, Director
Great Lakes National Program Office

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cc: Rick Hobrla, MDNR
Stephanie Swart, MDNR
Vic Pappas, WDNR
Cheryl Bougie, WDNR
Raj Bejankiwar, IJC
John Perrecone, EPA, GLNPO
Leah Medley, EPA, GLNPO
Keith West, LMR Citizens Advisory Committee, WI
Trygve Rhude, LMR Citizens Advisory Committee, MI

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

REPLY TO THE ATTENTION OF:

JUN 20 2018

Stephen Galarneau, Director
Office of Great Waters – *Great Lakes and Mississippi River*
Wisconsin Department of Natural Resources
101 S. Webster Street
P.O. Box 7921
Madison, WI 53707-7921

Dear Mr. Galarneau:

Thank you for your May 31, 2018, request to remove the "Restrictions on Fish and Wildlife Consumption" Beneficial Use Impairment (BUI) at the Lower Menominee River Area of Concern (AOC) located within the cities of Marinette, WI and Menominee, MI. 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 (EPA) hereby approves your request to remove this BUI from the Lower Menominee River AOC. EPA will notify the International Joint Commission (IJC) 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 Lower Menominee River AOC, but all residents of Wisconsin, 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 Lower Menominee River Citizens Advisory Committee as we work together to delist this AOC in the years to come. If you have any further questions, please contact me at (312) 886-9296, or your staff can contact John Perrecone at (312) 353-1149.

Sincerely,

Chris Korleski, Director
Great Lakes National Program Office

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cc: Vic Pappas, WDNR
Cheryl Bougie, WDNR
Rick Hobrla, MDNR
Stephanie Swart, MDNR
Raj Bejankiwar, IJC
John Perrecone, EPA, GLNPO
Leah Medley, EPA, GLNPO
Keith West, LMR Citizens Advisory Committee, WI
Trygve Rhude, LMR Citizens Advisory Committee, MI

Attachment I

Lower Menominee River Area of Concern Citizens Advisory Committee

The Lower Menominee River: A Great Lakes Area of Concern

June 08, 2018

Cheryl Bougie
Sediment & WQ Monitoring Coordinator
Wisconsin Department of Natural Resources
2984 Shawano Avenue
Green Bay, Wisconsin 54313

Stephanie Swart
Lower Menominee River AOC Coordinator
Michigan Department of Natural Resources
525 West Allegan Street
PO Box 30473
Lansing, Michigan 48909

Subject: Support for the Lower Menominee River AOC ***Degradation of Fish and Wildlife Populations BUI*** and ***Loss of Fish and Wildlife Habitat BUI*** Removal

Dear Ms. Bougie and Ms. Swart:

The Lower Menominee River Area of Concern (AOC) Citizens Advisory Committee (CAC) supports the efforts of the Wisconsin Department of Natural Resources (WDNR) and the Michigan Department of Natural Resources (MDNR) to remove ***Degradation of Fish and Wildlife Populations*** and ***Loss of Fish and Wildlife Habitat*** Impairments (BUIs) from the Lower Menominee River AOC.

Over the years, the CAC has partnered with local, state, and federal agencies, businesses, and volunteers to clean up toxic sediments and other contamination issues in the AOC. It has also worked closely with various stakeholders to educate the public on the decline of local fish and wildlife habitats and the critical need for such habitat as part of a healthy aquatic environment.

Signage that details the efforts taken within the AOC to revive fish and wildlife habitat has been posted at prominent locations such as Menekaunee Harbor and near the Sixth Street boat launch. Recently completed projects in the AOC to remove extremely large volumes of contaminated sediments are expected to reduce the introduction of such contaminants into the food webs occupied by most game and commercial fish and enhance the region as a breeding ground and healthy habitat for numerous species.

The CAC believes that these actions along with the dedication of the WDNR, the MDNR, the USEPA and other partners to continuing to improve the quality of fish and wildlife habitat within the Lake Michigan basin clearly merits the removal of this ***Degradation of Fish and Wildlife Populations*** and ***Loss of Fish and Wildlife Habitat*** BUIs.

Thank you for your time and consideration.
Respectfully Submitted,

Keith West
CAC Co-Chair
keith.west@uwc.edu

Trygve Rhude
CAC Co-Chair
rhude@new.rr.com

Attachment J

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

REPLY TO THE ATTENTION OF:

G-9J

Jon W. Allan, Director
Office of the Great Lakes
Michigan Department of Natural Resources
525 W Allegan St.
P.O. Box 30028
Lansing, MI 48909-7528

FEB 07 2019

Dear Mr. ~~Allan~~: Jon

Thank you for your December 3, 2018 request to remove the "Degradation of Fish and Wildlife Populations" and "Loss of Fish and Wildlife Habitat" Beneficial Use Impairments (BUIs) at the Lower Menominee River Area of Concern (AOC) located within the cities of Menominee, MI and Marinette, WI. As you know, we share your desire to restore all the Great Lakes AOCs and to formally delist them.

Based upon a review of your submittal and the supporting data, the U.S. Environmental Protection Agency (EPA) approves your request to remove these BUIs from the Lower Menominee River AOC. EPA will notify the International Joint Commission (IJC) of this significant positive environmental change at this AOC.

We congratulate you and your staff as well as the many federal, state and local partners who have been instrumental in achieving this environmental improvement. Removal of these BUIs will benefit not only the people who live and work in the Lower Menominee River AOC, but all residents of Michigan, Wisconsin, and the Great Lakes Basin as well.

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

Sincerely,

Chris Korleski, Director
Great Lakes National Program Office

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cc: Richard Hobrla, MDNR
Stephanie Swart, MDNR
Steve Galarneau, WDNR
Kendra Axness, WDNR
Brie Kupsky, WDNR
Cheryl Bougie, WDNR
Raj Bejankiwar, IJC

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

REPLY TO THE ATTENTION OF:
G-9J

Stephen Galarneau, Director
Office of Great Waters – *Great Lakes and Mississippi River*
Wisconsin Department of Natural Resources
101 S. Webster Street
P.O. Box 7921
Madison, WI 53707-7921

FEB 07 2019

Dear Mr. Galarneau: Steve –

Thank you for your December 3, 2018 request to remove the "Degradation of Fish and Wildlife Populations" and "Loss of Fish and Wildlife Habitat" Beneficial Use Impairments (BUIs) at the Lower Menominee River Area of Concern (AOC) located within the cities of Marinette, WI and Menominee, MI. As you know, we share your desire to restore all the Great Lakes AOCs and to formally delist them.

Based upon a review of your submittal and the supporting data, the U.S. Environmental Protection Agency (EPA) approves your request to remove these BUIs from the Lower Menominee River AOC. EPA will notify the International Joint Commission (IJC) of this significant positive environmental change at this AOC.

We congratulate you and your staff as well as the many federal, state and local partners who have been instrumental in achieving this environmental improvement. Removal of these BUIs will benefit not only the people who live and work in the Lower Menominee River AOC, but all residents of Wisconsin, 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 Michigan Department of Natural Resources as we work together to delist this AOC in the year to come. If you have any further questions, please contact me at (312) 353-8320 or your staff can contact Leah Medley at (312) 886-1307.

Sincerely,

Chris Korleski, Director
Great Lakes National Program Office

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cc: Cheryl Bougie, WDNR
Brie Kupsky, WDNR
Kendra Axness, WDNR
Richard Hobrla, MDNR
Stephanie Swart, MDNR
Raj Bejankiwar, IJC

Lower Menominee River Area of Concern Citizens Advisory Committee

The Lower Menominee River: A Great Lakes Area of Concern

June 7, 2019

Ms. Brie Kupsky, Area of Concern Coordinator
Office of Great Waters
Wisconsin Department of Natural Resources
2984 Shawano Avenue
Green Bay, Wisconsin 54313

Ms. Stephanie Swart, Lake and Area of Concern Coordinator
Water Resources Division
Michigan Environment, Great Lakes, and Energy
525 West Allegan
Lansing, Michigan 48909

Subject: Lower Menominee River Delisting Report

Dear Ms. Kupsky and Ms. Swart,

As representatives of the Citizens Advisory Committee (CAC) for the Lower Menominee River Area of Concern (AOC), we are writing to endorse the Lower Menominee River Delisting Report as an accurate and thorough depiction of the remediation accomplishments within the Lower Menominee River Area of Concern. Most notably, the document provides relevant details about the removal of the six Beneficial Use Impairments (BUIs) identified within the AOC. Meeting the goals and objectives for removal of each BUI has long been recognized as the most critical steps toward delisting the AOC.

The CAC is composed of local concerned citizens, industry leaders, along with local, state, and federal governmental representatives, who represent a balanced viewpoint of the greater Marinette, Wisconsin and Menominee, Michigan communities. The CAC is tasked with providing state and federal agencies the local current and historical perspectives related to AOC and beneficial use impairment (BUI) issues. Additional information on the Lower Menominee River AOC is available at: http://dnr.wi.gov/topic/greatlakes/menominee.html.

The delisting document rightly credits a large number of stakeholders who have contributed to the monumental task of BUI removal and delisting. Some have participated during the time that the focus was placed on issues immediately related to their personal, economic, or social interests. Others maintained their commitment over several years of the planning, implementation and monitoring processes. Some can count their participation in decades. Reaching this point of being able to declare BUI removal complete and realistically contemplate delisting the AOC has only become possible due to the dedication of these various actors.

The delisting report is a brief testament to the contributions of federal and state agencies, municipal officials, business and industrial leaders, and other concerned individuals to the remediation of the lower reaches of the Menominee River and adjacent lakeshore. The accomplishments documented in the report should be proudly celebrated by the citizens of Marinette and Menominee and the surrounding region as well as by the growing number of people who travel long distances to enjoy our incredible waters. For these reasons we encourage you to accept the Lower Menominee River Delisting Report and allow its story to serve as a model for similar efforts around the Great Lakes.

Thank you for your commitment to removing the Lower Menominee River from the Great Lakes AOC list!

Sincerely,

Keith D. West, co-Chair westk@uwgb.edu	Trygve Rhude, co-Chair rhude@new.rr.com

Cc: Donna Beuchler, Secretary, Menominee CAC

Attachment L

Tribal Consultation Summary

The United States Environmental Protection Agency, Great Lakes National Program Office (GLNPO) met with representatives of the Menominee Indian Tribe of Wisconsin via conference call on December 11, 2019. Tribal representatives had several questions, many of which were addressed during that call. In addition, an email was developed to respond to questions not fully addressed on January 8, 2020. GLNPO responded to the Tribe's concerns and provided staff contacts for ongoing consideration and involvement in the delisting process. The email from GLNPO Director Chris Korleski to Menominee Indian Tribe of Wisconsin Chairman Douglas Cox is provided below.

The Honorable Douglas Cox, Chairman
The Menominee Indian Tribe of Wisconsin
P.O. Box 910
Keshena, Wisconsin 54135

Dear Doug:

Thank you and your team for participating in the December 11, 2019 consultation (via conference call) between the Menominee Indian Tribe of Wisconsin (Tribe) and U.S. EPA's Great Lakes National Program Office (GLNPO) to discuss the proposed delisting of the Lower Menominee River Area of Concern (AOC). I felt the consultation call was effective, as we were able to address many of your questions and comments during the call. However, there were some questions and comments we were unable to immediately respond to, and it is the intent of this communication to address those remaining issues, as follows:

1. **With respect to arsenic, were remedial goals identified and met?**

   The remedial goals for arsenic in the Lower Menominee River AOC derive from a Resource Conservation and Recovery Act (RCRA) 2009 ***Administrative Order on Consent*** (Order) between US EPA and Tyco addressing the Lower Menominee River Ansul Site (site), which required Tyco to dredge sediment with arsenic concentrations greater than 50 parts per million (ppm). The Order also allowed Tyco to utilize "monitored natural recovery" at the site to demonstrate required sediment arsenic concentrations of less than 20 ppm within 10 years (i.e., by 2023). If this could not be demonstrated, Tyco would submit a plan for meeting a sediment arsenic limit of 20 ppm at the site.

   After sediment dredging pursuant to the Order was completed, subsequent modeling efforts indicated that Tyco would likely not meet the 20 ppm requirement through the monitored natural recovery approach by 2023. As a result, Tyco entered into a "Betterment Agreement" with both the Wisconsin Department of Natural Resources (WDNR) and GLNPO under the Great Lakes Legacy Act (GLLA), committing to remediate sediments with arsenic levels between 20 and 50 ppm. This effort was completed by 2015. Subsequent confirmation sampling conducted in 2018 found that the sediment arsenic concentration goal of less than 20 ppm was met at all dredge management units containing soft sediment or semi-consolidated material. However, in some dredge management units containing hard glacial till, arsenic was detected at levels above 20 ppm. (Excavation of glacial till was not required under the Order as till cannot be feasibly excavated via dredging.)

The confirmation sampling completed in 2018 pursuant to the Order determined that the remedial action goals for arsenic in “dredgeable” sediments at the AOC had been met, and a recommendation for removing the ***Restrictions on Dredging Activities*** Beneficial Use Impairment (BUI) was approved by EPA in 2016. The BUI removal recommendation document detailed how the GLLA remedial action targets for dredged sediment were met at the AOC. However, it should be emphasized that the removal of the ***Restrictions on Dredging Activities*** BUI does not preclude or replace the goals in the RCRA Order which require Tyco to continue monitoring the natural recovery process to ensure that any residual sediments, including sediments in the glacial till areas, meet the 20 ppm goal by 2023. The next five-year interval sampling will be used to confirm that natural recovery is taking place and that all locations meet the 20 ppm goal; otherwise Tyco will need to submit a plan for additional remedial action at the site in 2023.

2. **Within the boundary that extends north of the river along the bay, was action taken throughout the boundary and on Green Island?**

   While not consistently shown on maps of the AOC, the AOC does include Green Island, not because of issues relating to legacy contamination, but because of its habitat value for colonial waterbirds and its biological link to Seagull Bar State Natural Area. The original goal of including Green Island in the AOC was to provide a possible vehicle for protecting the Island’s habitat. However, the agencies and CAC ultimately concluded that, due to the excessive cost that would be associated with purchasing Green Island from a private landowner, long term protection of the Island habitat was not feasible under the AOC program.

   The AOC boundary does not include the portion of Green Bay extending out to the Island. Therefore, the Bay was not evaluated for contamination under the AOC program unless there was clear evidence of pre-existing contamination, such as that found in the Bay immediately offshore of the Lloyd Flanders paint sludge site. Conversely, sediment in the navigation channel in the riverine reaches and adjacent bay shoreline was characterized in detail because a primary goal was to achieve the removal of the ***Restrictions on Dredging Activities*** BUI.

3. **Is any more work planned to be completed along the upland at Menekaunee Harbor?**

   Monitoring and maintenance of the habitat project at the harbor will continue through the end of 2020. There is always opportunity for more habitat improvement work to be undertaken by the states, the local community, or other entities using non-GLRI resources, but the habitat restoration work necessary to remove the ***Loss of Fish and Wildlife Habitat*** and ***Degradation of Fish and Wildlife Populations*** BUIs has been completed.

4. **Was the wild rice seeding funded through GLRI funds?**

   The wild rice seeding in Menekaunee Harbor was funded with GLRI money, including Focus Area 1 funds (i.e., funds directed toward restoring AOCs). Since 2016, the University of Wisconsin/Green Bay and Ducks Unlimited have also coordinated wild rice seeding in several areas along the west shore of Green Bay, including Seagull Bar. Much of the funding for that work came through a ***Sustain Our Great Lakes*** (SOGL) grant.

5. **The Background Section of the delisting document describes all the contaminated sediment and other environmental problems in the AOC, but it isn't immediately clear to the reader what actions were taken address to these problems.**

   The document will be edited so that the Background Section will make clear that the following Section (the Beneficial Use Impairment Summary) will describe the actions taken to address the environmental problems identified.

6. **The Tyco remediation project is described in the report. Will there be mention of any current or future contamination such as PFAS?**

   As we discussed in some detail during the consultation call, delisting does not mean that an AOC has been returned to pristine condition or that future efforts will not be necessary to maintain or improve the environmental conditions in the AOC. Indeed, I emphasized that the sustained awareness and watchfulness of state, tribal, and local interests, in combination with the application of today's modern environmental regulatory regime, will be essential in ensuring that remediated areas stay environmentally healthy.

   I note the following statement that can be found in the Executive Summary on page two of the draft delisting document:

   > ***Delisting the Lower Menominee River does not mean that the area has returned to a pristine historic condition, but rather, that the legacy problems identified in the 1990 RAP impacting the river have been remediated to meet established criteria. Ongoing efforts to advance the Lower Menominee River are still required, though the restoration activities can now focus on an enhanced future state without the profound limitations experienced by Great Lakes Areas of Concern.***

   Similarly, on page 23 in Section 7.1 the draft document states:

   > ***The most severe environmental problems in the AOC have now been addressed and the communities are well-positioned to build on these first restoration steps and continue to work toward their desired future condition for the river and watershed.***

   While there is no question that new environmental challenges (such as PFAS) will continue to arise across the Great Lakes basin, the purpose of the AOC program is not to anticipate and address any all such challenges; rather, the primary purpose is to finally address certain types of "legacy" environmental impairments that were identified decades ago. That said, we will certainly discuss with Wisconsin and Michigan your question as to whether the final delisting document could identify PFAS as a continuing contaminant of concern.

7. **Please keep the Tribe updated on the delisting process.**

   We will ensure that the Tribe is invited to future CAC meetings and informed if and when the public comment period and public meeting dates are determined.

I hope this information was responsive to your remaining questions and comments. If not, please contact me or have your staff contact Ms. Leah Medley of my staff at 312-886-1307 for any additional follow-up that we can provide. I enjoyed the efficiency and candor of the recent consultation call, and I always find it extremely helpful to be reminded of how important these issues are to the Tribes, as well as the unique perspective the Tribes bring to our consideration

of these matters. Also, I very much appreciate your personal participation and your carefully considered questions and comments.

If the call and the follow-up information provided here have addressed the issues you raised, we will consider the consultation on the Lower Menominee River AOC delisting to be concluded, but will certainly consider the Tribe's perspectives as we and our state partners determine how to proceed with the draft delisting document.

Sincerely,

Chris

Chris Korleski, Director
Great Lakes National Program Office

Attachment M

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

MAR 03 2020

Camille Mageau, Secretary
Canadian Section
International Joint Commission
234 Laurier Avenue West, 22nd Floor
Ottawa ON K1P 6K6 CANADA

Charles Lawson, Secretary
U.S. Section
International Joint Commission
1717 H Street NW, Suite 801
Washington, DC 20006

RE: Draft Delisting Report for Lower Menominee Area of Concern

Dear Camille and Chuck:

Thank you for your December 4, 2019 letter reflecting the Commission's review of the Preliminary Draft Delisting Report (Report) for the Lower Menominee River Area of Concern (AOC). I appreciate your review of the Report and your concurrence on the removal of the six Beneficial Use Impairments (BUIs) and moving forward with the delisting of the AOC.

The Great Lakes National Program Office (GLNPO), Wisconsin Department of Natural Resources (WDNR), and Michigan Department of Environment, Great Lakes, and Energy (EGLE) have reviewed your comments and plan to incorporate them into the Draft Final Delisting Report, which we expect will be posted for public comment from March 9 – April 24, 2020.

We provide the following responses to your comments, as follows:

General Comment: It may be relevant to include in the report an update of what has been done after BUI removal, including plans to monitor BUI status post-delisting.

GLNPO and its partners monitor pertinent environmental conditions in order to remove BUIs in accordance with the AOC-specific predefined BUI removal criteria. Once the BUI is removed, the removal is considered final. Applicable state programs can continue monitoring as appropriate, but the results of that monitoring do not affect the BUI removal or the AOC delisting. Any decline in an AOC's environmental integrity following a BUI removal would not, under most circumstances, be considered a "legacy" issue of the sort targeted by the AOC program. Consequently, it would be up to state and local groups to continue to monitor and, if appropriate, address the decline using available regulatory or other tools. It is for these reasons that a discussion of such monitoring or results is not included in the delisting report. However, the states and local communities have committed to ongoing monitoring and maintenance as

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appropriate and as described in Section 5 of the report, "Post-Delisting Responsibilities and Monitoring."

General Comment: The report should mention Tribal consultations.

Tribal consultation was initiated concurrently with the request for IJC comments and has concluded. A summary of the tribal correspondence and consultation is provided here and will be included in the Draft Final Delisting Report.

GLNPO met with representatives of the Menominee Indian Tribe of Wisconsin via conference call on December 11, 2019. Tribal representatives had several questions, many of which were addressed during that call. In addition, an email was developed to respond to questions not fully addressed. These issues included arsenic remediation, the AOC boundary, further monitoring and maintenance work, wild rice seeding, organizational edits to the delisting document, PFAS contamination, and the continued involvement of the Tribe in future activities. GLNPO responded to the Tribe's concerns and provided staff contacts for ongoing consideration of Tribal concerns and involvement as the delisting process continues.

Specific Comments

Section 4.1: Beach Closings: The report should discuss the most recent Integrated Reports and disclose if those reports still show the *Beach Closings* BUI as not impaired.

As you are aware from reading the BUI removal, the BUI was removed after extensive upgrades to local wastewater treatment infrastructure through 2008. In the latest Integrated Reports (2016 and 2018), the portion of the Menominee River within the AOC has either not been assessed for total or partial body contact recreation (MI) or has not been listed as impaired for total or partial body contact restriction (WI).

As noted above, once a BUI is removed, the state health department and the state water quality agency are responsible for monitoring and reporting applicable water quality for the biannual Integrated Report.

Section 4.3: Degradation of Benthos: The report should describe results of recent monitoring work to confirm the expectation of benthic community recovery over time.

The *Degradation of Benthos* BUI removal target for this AOC, as defined by local and state officials, did not require confirmation of benthos community recovery; rather, the criteria for removal of the BUI was that remedial actions for known contaminated sediment sources were completed and meeting remedial action goals. As such, a post-dredging assessment of the benthos in the AOC did not occur. The *Degradation of Benthos* BUI removal criteria were met, as reflected in the State's recommendation that the BUI be removed and EPA's approval. However, to address your comment, the following description and associated references will be added to the Draft Final Delisting Report.

"Target sediment contamination levels for each remediation project were based on sediment toxicity to benthic-dwelling species. As detailed in the *Restrictions on Dredging* BUI Removal package, post-dredging sampling confirmed that remedial action goals were achieved. An investigation conducted by USGS in 2014, before sediment remediation was fully complete, found that dominance by taxa other than oligochaetes and the common presence of the clam Pisidium indicate that conditions in the AOC were already improving as a result of the in-progress sediment remediation projects. Studies in other AOCs show that benthic recovery (defined as being comparable to a non-AOC reference site) post-dredging can occur in as little as two years after sediment remediation is complete. Other non-AOC studies in riverine systems support the hypothesis that recovery of benthic macroinvertebrates will occur if sources of sediment contamination are removed and recolonization mechanisms exist."

Section 4.4: Restrictions of Fish and Wildlife Consumption: The report should describe what type of statistical analysis was used to compare these results and reach the conclusion that fish consumption advisories in the AOC were similar to reference sites.

The following explanation of the statistical analyses used to reach the conclusion that the Restrictions on Fish and Wildlife Consumption BUI criteria had been met will be added to the Draft Final Delisting Report.

"Fish sample comparisons were made using Kruska-Wallis and Mann-Whitney statistical tests, the nonparametric equivalent of Analysis of Variance, and a t-test and were considered significant at $p < 0.05$. Specific statistical methods and full results can be found in the staff report which was included as Appendix C in the Removal Recommendation for the *Restrictions on Fish and Wildlife Consumption* BUI document."

Thank you for your attention to this matter. Should you have any further questions, please contact Leah Medley at (312) 886-1307 or by email at medley.leah@epa.gov. We are excited about the restoration of the Lower Menominee River AOC and look forward to its potential delisting.

Sincerely,

Christopher Korleski, Director
Great Lakes National Program Office

CC: Raj Bejankiwar, IJC Staff
Michael Goffin, Environment and Climate Change Canada
Sandra Kok, Environment and Climate Change Canada

Attachment N

Responsiveness Summary

Lower Menominee River Area of Concern Final Delisting Report

The Lower Menominee River Area of Concern (AOC) draft Final Delisting Report was placed on public notice from March 9 through April 24, 2020. The Michigan Department of Environment, Great Lakes, and Energy (EGLE), Wisconsin Department of Natural Resources (WDNR), and U.S. Environmental Protection Agency (USEPA) held a public meeting via webinar on April 9, 2020. Below is a summary of comments received during the public notice period and at the public meeting regarding the draft Final Delisting Report and the anticipated removal of the Lower Menominee River from the list of AOCs. In preparing this summary, actual comment language may have been abbreviated, paraphrased, and/or edited for clarity. Some similar or related comments have been grouped together for convenience. The responses follow the bulleted comments. EGLE, WDNR, and USEPA appreciate the time of those who responded during the public comment period.

1. **Comments** –
    - How will delisting impact the plans and permitting for a sulfide mine, known as the Back 40 Mine, currently seeking to open within proximity to the river?
    - Have the agencies regarded the historical lessons learned from the sulfide mine located in Ladysmith, Wisconsin, on tribal lands on the Lac du Flambeau reservation?
    - Does the delisting of the Lower Menominee River make it easier or harder for Aquila Resources to open, from a regulatory standpoint?

    Response – The delisting process for an AOC is based on the development and implementation of a Remedial Action Plan (RAP). The RAP is directed at issues within the specific AOC boundary. For the Menominee River AOC this boundary is reserved to the lower three miles of the river from the Park Mill Dam (Upper Scott Dam) to the river's mouth in northeast Wisconsin and in the southwest portion of Michigan's Upper Peninsula. The boundary extends along the shoreline approximately three miles north of the river mouth to John Henes Park and approximately three miles south of the river mouth past Seagull Bar along the Bay of Green Bay. The AOC includes Seagull Bar as well as Green Island in Green Bay.

    The delisting of the Menominee River AOC does not impact whether the proposed Aquila Resources mine will open. Aquila Resources is expected to obtain the necessary permits and meet the required standards and regulations. EGLE and WDNR recognize that there is a potential for the Aquila Resources Back 40 Mine to impact the Menominee River, but the permits, as issued, will protect designated uses if compliance is maintained. Possible future impacts from a new site are not considered part of the documented historical impairments to the AOC. Permits obtained or yet to be obtained by Aquila Resources were/are subject to review by the necessary EGLE programs and any violations of those permits would be assessed by those programs. Applicable water quality and resource permits can be viewed using this link: https://www.michigan.gov/egle/0,9429,7-135-3313_3687-10813--,00.html. For more information on the Part 632 Non-ferrous Metallic Mining permit contact the EGLE Oil, Gas, and Minerals Division. https://www.michigan.gov/egle/0,9429,7-135-3311_18442-359902--,00.html

The Final Delisting Report is focused on the limited area of the AOC and is not intended to address future impacts or conditions, rather, the Report documents the over 30 years of work to address historical impairments.

2. **Comments** –
    - Isn't it the case that leaching or seepage of the sulfide by-products is only a matter of time and won't they flow into Lake Michigan and impact the water quality?
    - Baseline water quality monitoring of the conditions in the Menominee River are necessary to determine if mining activities will negatively impact the river.
    - Water sampling of the harbor where it flows into upper Green Bay should be carried out for at least two years before delisting.

    Response – Water quality monitoring has taken place in the Menominee River near the location of the proposed mine. EGLE collected samples in 2012 and 2017 in the river and the information is available through the USEPA Water Quality Portal (https://www.epa.gov/waterdata/water-quality-data-wqx) or by Freedom of Information Act (FOIA) request. EGLE also sampled near the mouth of the Menominee River for a suite of parameters from 2000 to 2013 and those data can also be viewed on the USEPA Water Quality Portal or by FOIA request. Additionally, the National Pollutant Discharge Elimination System (NPDES) permit requires downstream water quality monitoring after construction per the Part 632 permit special condition K.

    WDNR performs water quality monitoring within the Menominee River near McAllister, Wisconsin as part of the Long Term Trend Rivers Project. General parameters such as pH, phosphorus, nitrogen, and ammonia have been collected in monthly water quality samples over several years, and the results can be viewed at this website: https://wisconsindnr.shinyapps.io/riverwq/. Through this program, WDNR has also been evaluating copper, cadmium, and mercury levels quarterly in the Menominee River since 2016 and the data can be accessed via the WDNR Surface Water Integrated Monitoring System (SWIMS, https://dnr.wisconsin.gov/topic/SurfaceWater/SWIMS) database. Additionally, the Menominee River is one of several rivers evaluated through the Large Rivers Monitoring Program that was initiated in 2017 which collects more in-depth information on fish, freshwater mussels, and macroinvertebrates at several sites on the river on a five year cycle. The river was first evaluated through this program in 2017 and the data can also be accessed via the SWIMS database, and the Menominee River is scheduled to be re-evaluated in 2022.

    If the NPDES permit issued to the mine is complied with, designated uses will be maintained. As noted above, the purpose of the Lower Menominee River Final Delisting Report is to document actions that addressed historical contamination. It is outside of the purview of the AOC Program to address potential future sources of contamination.

3. **Comment** – Could the State of Wisconsin monitor for potential pollution by the company [Fincantieri Marinette Marine] and incorporate it into the report?

    Response – The WDNR is conducting paired water chemistry and fish tissue sampling on the Menominee River within the AOC, with proposed locations in the Upper Scott Flowage, Scott Flowage below Upper Scott Flowage, and Below Scott Flowage (downstream of Bridge Street). More information on those sampling efforts can be found in this document (https://dnr.wi.gov/topic/Contaminants/documents/jci/2019WQMonitoringStrategy.pdf).

Additionally, the results of three rounds of surface water quality sampling in the Menominee River can be found on the following webpage.
https://dnr.wi.gov/topic/Contaminants/WaterQuality.html

Chemical spills are governed under Wis. Stat. Ch. 292 (https://docs.legis.wisconsin.gov/statutes/statutes/292/II/11). State law requires that individuals or entities that possess or control a hazardous substance, or that cause the discharge of a hazardous substance to the environment, to notify the WDNR immediately about the discharge. The individual or entity is required by state to also immediately contain the release and conduct any necessary cleanup.

4. **Comment** – The delisting report mentions that $18 million was spent for remediation. Were there further expenditures? We have heard $41 million and $200 million as figures for the cleanup.

   Response – The number provided in the draft Final Delisting Report was based on available figures when the report was drafted last year. Since that time, we have determined that just over $44 million in public funds have been spent and the total cost of restoration for the Lower Menominee River AOC was over $180 million. The Final Delisting Report has been amended to reflect these updated numbers.

5. **Comment** – Please include a breakdown of costs of the different parts of the clean up as well as the total cost for both states in your delisting report.

   Response – All actions that addressed environmental issues in the Lower Menominee River for which cost-breakdowns are available are included in the Remedial Action Plan Updates as an Appendix. The most recent cost-breakdown can be found in the 2017 Remedial Action Plan Update in Appendix C entitled Lower Menominee River AOC Tracking Matrix.
   https://dnr.wi.gov/topic/greatlakes/menominee.html

6. **Comment** – Will the Covid-19 pandemic slow the delisting process down?

   Response – The delisting process, after the Final Delisting Report has been submitted to USEPA, can be conducted via electronic methods. There is a possibility that the pandemic may impact the U.S. State Department's response to the delisting request, but we cannot anticipate that at this time.

7. **Comment** – Where was wild rice seeded in the Menominee River?

   Response – Wild rice was seeded at Menekaunee Harbor as part of that AOC restoration project, and local partners such as University of Wisconsin-Green Bay and Ducks Unlimited have been leading a project with several other state, federal, and local partners to re-establish wild rice beds at Seagull Bar, Oconto River, Peshtigo River, and other locations in the lower bay of Green Bay for the last few years. Here is a video from 2018 that explains a little more about that effort:
   https://news.uwgb.edu/log-news/news/11/09/video-restoring-wild-rice-to-the-wetlands/

Prepared by Stephanie Swart, EGLE and Brie Kupsky, WDNR June 8, 2020