

# Dredged material management after the dredging restrictions BUI has been removed from AOCs

## Case studies (current / former AOCs):

Fox and/or Menominee Rivers, WI  
Ashtabula and/or Black Rivers, OH  
Buffalo River, NY

Moderator: Karen Keil, USACE ERDC

Panelists:

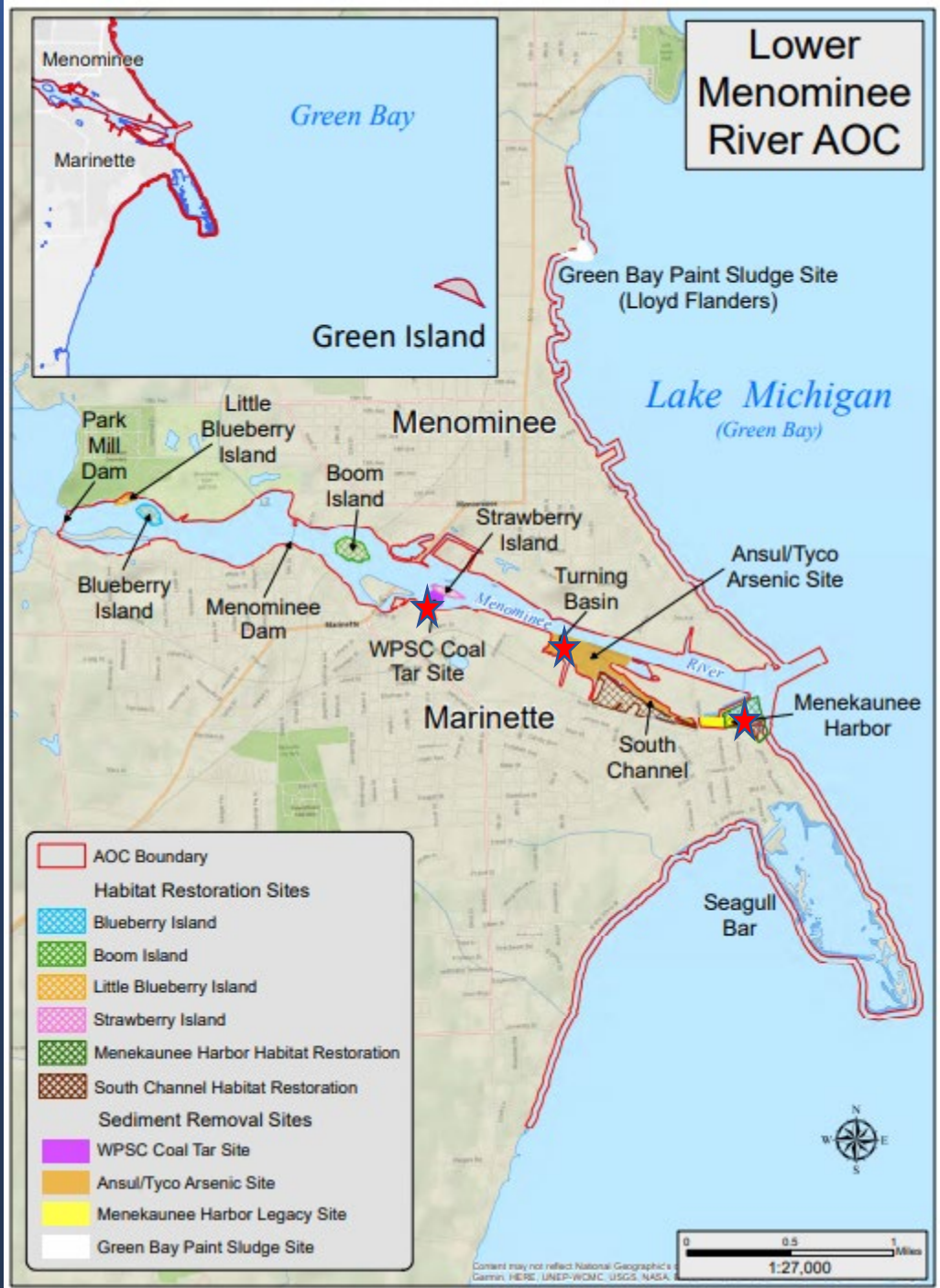
Jim Killian, WDNR

Vanessa Steigerwald Dick, Ohio EPA

David Clarke, NYSDEC

# Wisconsin's Great Lakes Areas of Concern





### WPS MGP site

- 2012-2013
- 14,500 cu yds; < 23 ppm tPAH
- 23,000 tons to landfill

### Ansul arsenic site

- 2012-2014
- 300,000 cu yds; < 20ppm As
- Sand cover over hot till in turning basin

### Menekaunee harbor restoration

- 2014-2015
- 46,000 cu yds; metals and PAHs
- 16,000 cu yds clean material BU for habitat

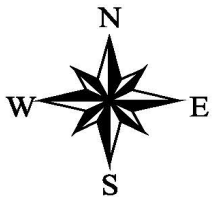
## *Menominee River AOC: Restrictions on Dredging BUI Removal Criteria:*

1. All remediation actions for known contaminated sediment sources are completed and monitored according to the approved remediation plans and the remedial action goals have been achieved; and
2. An AOC dredge management plan is developed by the communities and agencies that includes an evaluation of:
  - Restrictions that must remain in place to protect human health and the environment
  - Restrictions that must remain in place due to RCRA requirements that are based upon state and federal law
  - Priority areas for navigational use
  - Priority areas for utility dredging, e.g., utility crossings
  - Identify costs and funding option for removing dredging restrictions in priority areas

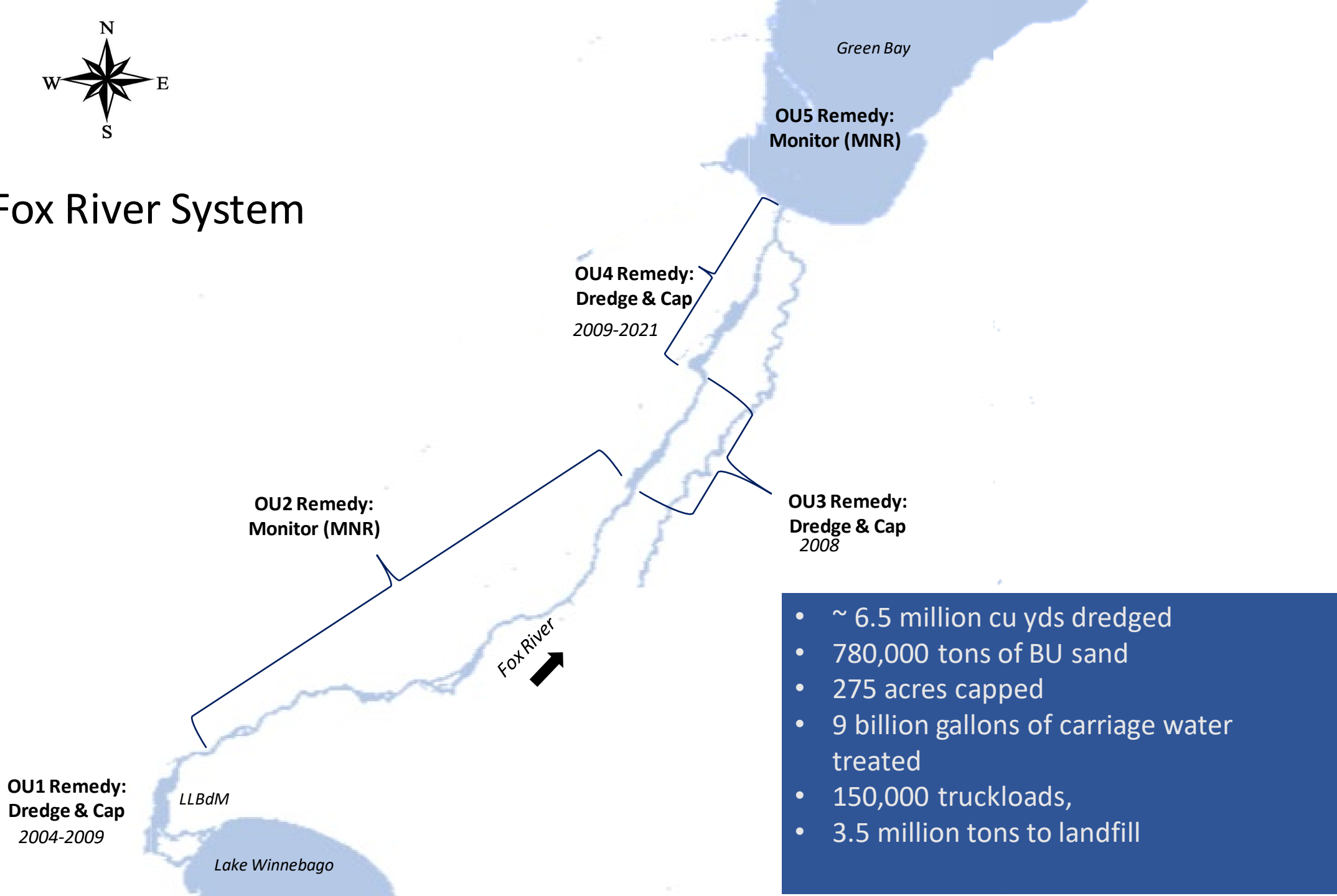
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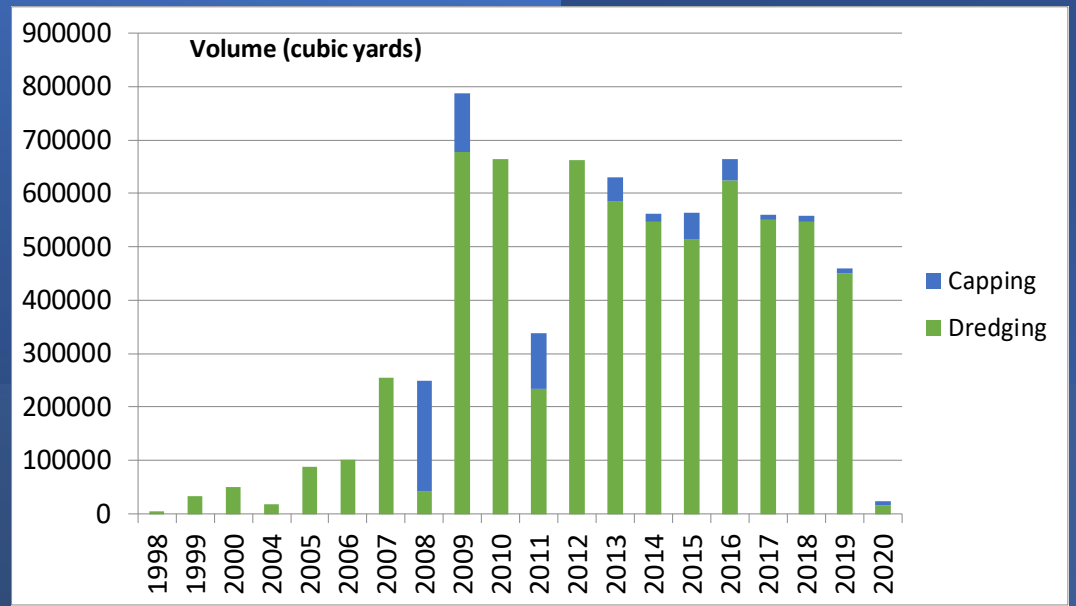
## *Outcome of Evaluation for Potential Dredge Restrictions:*

- the target for the Restrictions on Dredging Activities BUI removal has been met.
- Future dredging requests will be evaluated under their respective agencies and programs.



# Lower Fox River System





*Goal:* Remediate all sediment > 1 ppm PCB

*Objectives:*

1. Achieve surface water quality criteria river and bay (0.003 ng/L for humans; 0.012 ng/L for wildlife)
2. Protect humans who consume fish from PCBs
3. Protect ecological receptors (wildlife)
4. Reduce PCB transport to Green Bay & Lake Michigan
5. Minimize movement of PCBs during remediation work

## *Lower Fox River AOC: Restrictions on Dredging:*

The Restrictions on Dredging Activities impairment may be delisted when:

- ✓ All remediation actions for known contaminated sediment sources are completed and monitored according to the approved remediation plans
- ✓ Remedial action goals have been achieved, and
- ✓ Institutional controls have been implemented

\* Now defaults to existing regulatory authorities for all Dredging Activities in Waters of the State, relevant federal regulations, and additional institutional controls.

Dredging, placement of structures, or streambed modifications regulated under Chapter 30 of the WI State Statutes.

- Waterways Permit
  - Admin. Code 347 (sediment sampling for WQ impacts and material management)
    - Admin. Code 345 (dredging in navigable waterways)
    - Admin. Code 105 (surface water criteria)
    - Admin. Code 140 (groundwater)
    - Admin. Code 500 (waste disposal)
    - Statute 283 (wastewater discharge)

Federal Regs further serve as Institutional Controls (disturbing the caps).

S. 404(b)(1)

S. 401 and 307 CWA



# Dredged Material Management After Removal of the Restriction on Navigational Dredging Activities Beneficial Use Impairment in Ohio's Ashtabula River and Black River

## Areas of Concern Program in Ohio

- There were four AOCs (Ashtabula, Black, Cuyahoga, Maumee).
- ALL had BUI for Restrictions on Navigational Dredging Activities.
- Review of BUI Removal Criteria in 2019-20.
- Previous Criteria focused on Open Lake Disposal. Ohio prohibited the practice of open lake disposal (effective July 1, 2020).
- Restrictions on Navigational Dredging Activities BUI update coordinated with OLEC, Ohio EPA, USACE, U.S. EPA.

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# Ohio Restrictions on Navigational Dredging Activities

## BUI Restoration Target Criteria

*Updated in 2020*

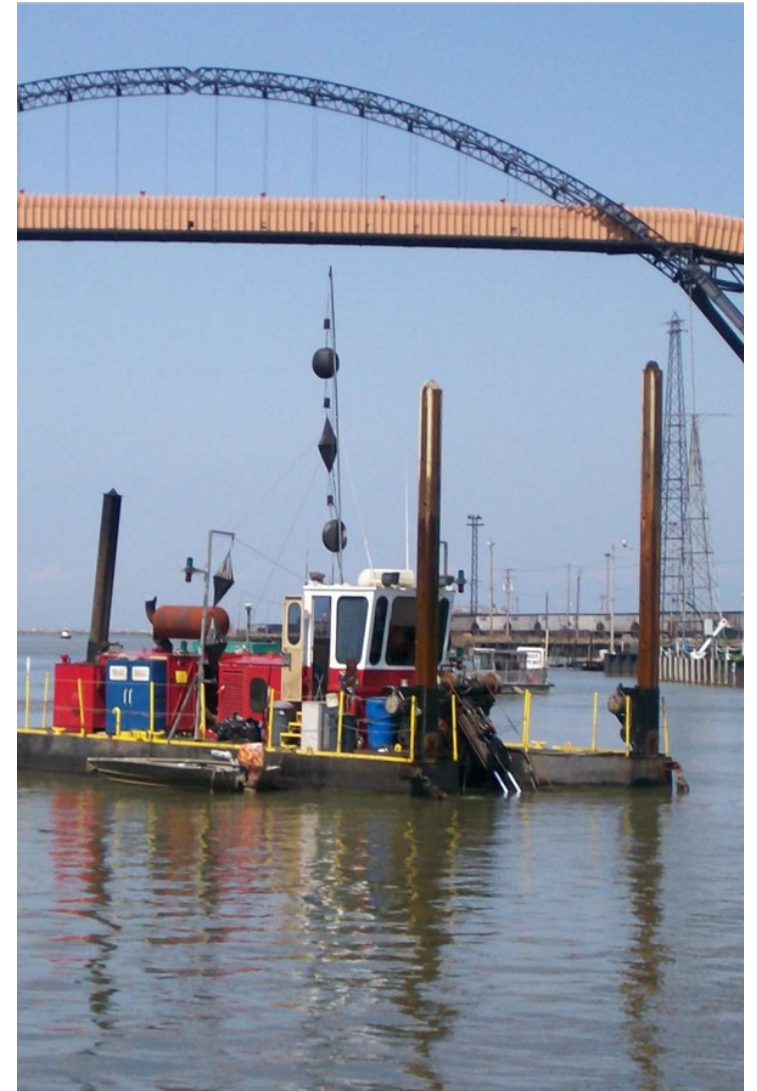
### State of Ohio Restoration Target

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

1. Ohio developed beneficial use rules authorizing the upland beneficial use of Lake Erie dredge sediment (effective March 31, 2019). The rules address individual and general beneficial use permit requirements including the establishment of screening levels, restrictions, or standards.
  - To evaluate this BUI, Ohio will compare dredged sediment data to a number of standards and screening levels, including 1) the residential and/or industrial soil U.S. EPA Regional Screening Levels (RSLs) and 2) information regarding ambient background conditions for the upland beneficial use of dredged sediment.
  - Material would be found suitable for upland beneficial use of the dredged sediment based on the two above evaluation methods, then the restoration target for this BUI will be met.
2. Material would be permissible for aquatic beneficial use for dredge sediment based on the 401 certification process, then the restoration target for this BUI has been met.

# Ashtabula River AOC 2020 Removal of Restrictions on Navigational Dredging Activities BUI

- All dredged sediment from the Ashtabula Harbor Federal Navigation Channel has the potential to be beneficially used upland based on the evaluation of the sediment data to the U.S. EPA residential soil regional screening levels, information regarding ambient background conditions, and ecological screening levels.
- Most of the dredged sediment may be able to be used for aquatic beneficial uses such as in-water habitat restoration projects in accordance with the 401 water quality certification process.



# Ashtabula River AOC – Delisted 2021



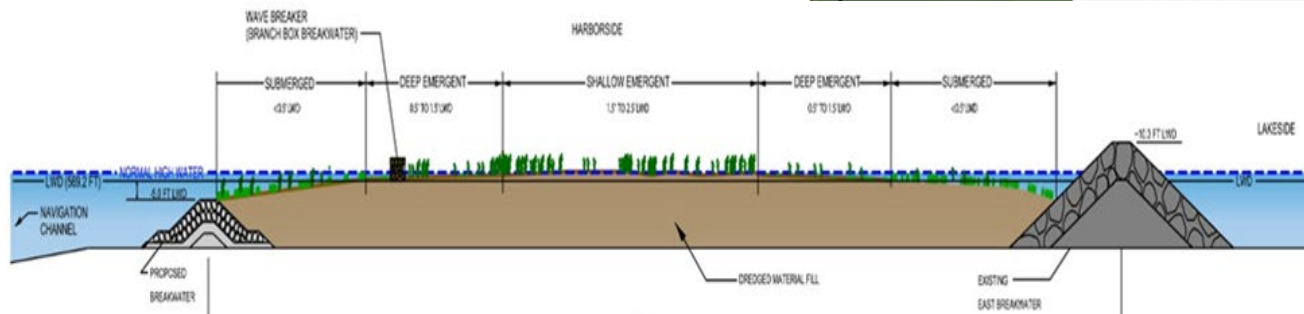
- 30 years of efforts for remediation and restoration in the lower 2.32 miles of the Ashtabula River
- Last BUI to be removed was Restriction on Navigational Dredging in September 2020
- Ashtabula AOC was Delisted in August 2021
- First AOC in Ohio to be delisted

# Ashtabula Harbor Section 204

## Beneficial Use of Dredge Material

Great Lakes &  
Ohio River Division

- Beneficial Use to establish 16.5 acres of submerged aquatic habitat
- Design includes anchored logs and log tangles to increase density and diversity of aquatic species
- 80,000 CY of sediment recently placed, with the project able to accept multiple dredge cycles



**BUILDING STRONG®**

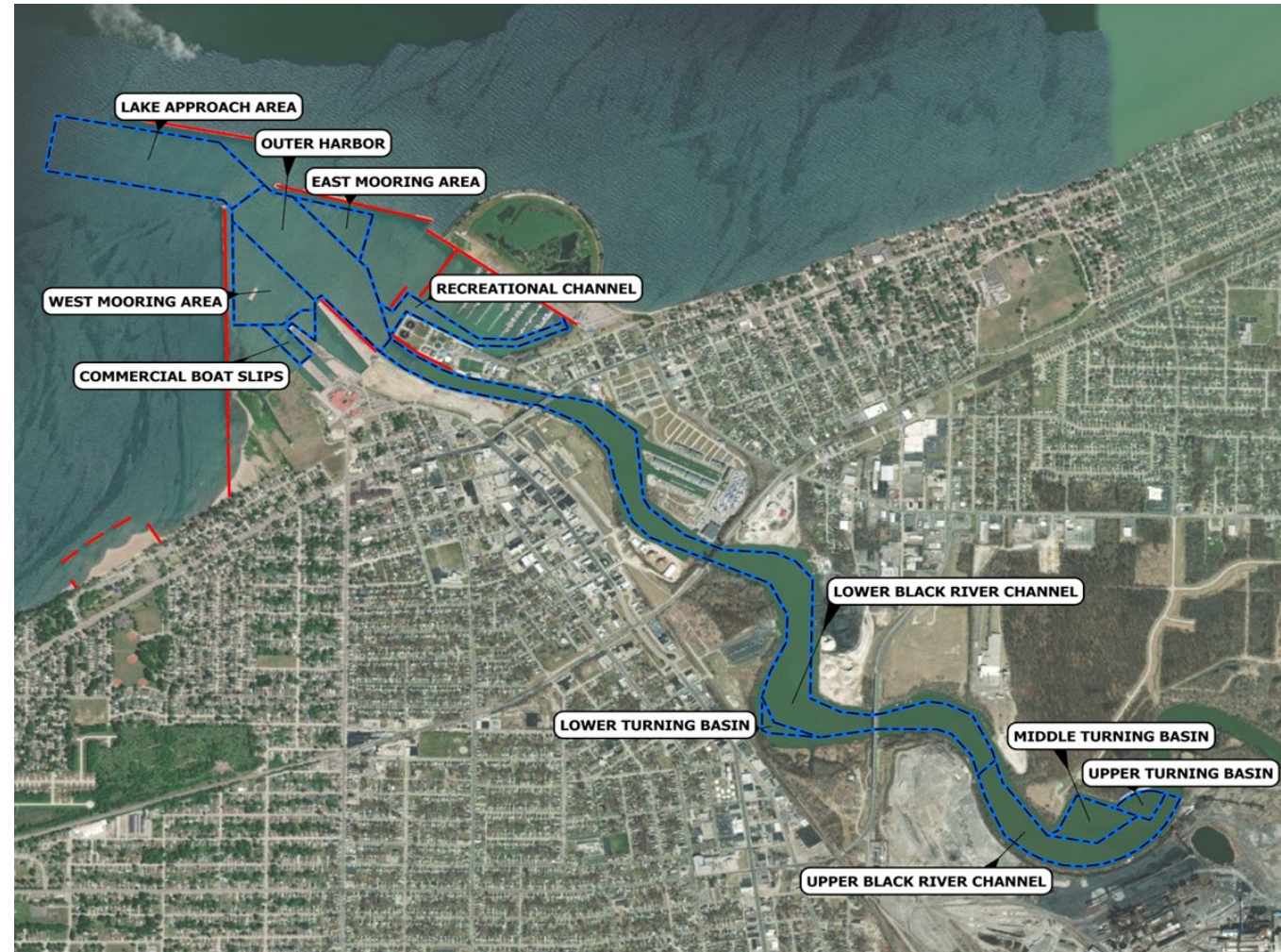


US Army Corps  
of Engineers

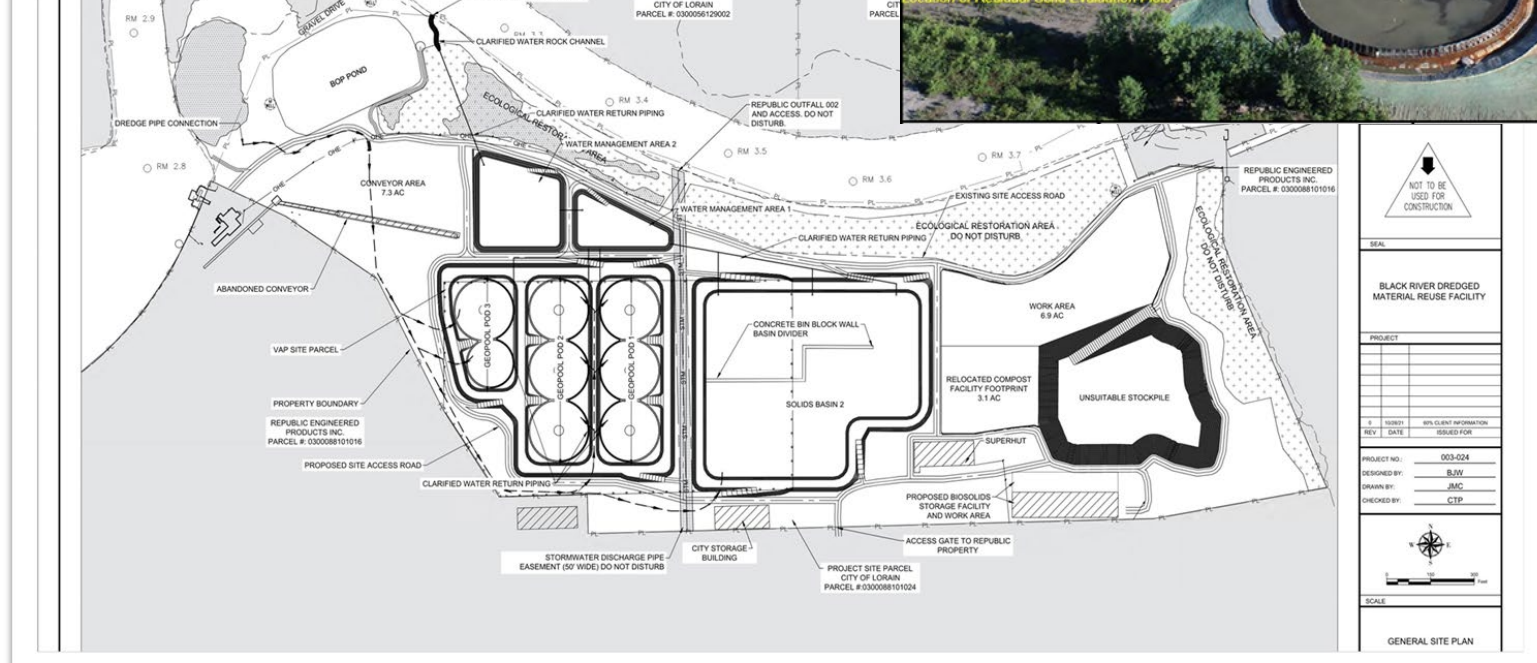


# Black River AOC 2022 Removal of Restrictions on Navigational Dredging Activities BUI

- All dredged sediment from the Lorain Harbor Federal Navigation Channel has the potential to be beneficially used upland based on the evaluation of the sediment data to the U.S. EPA residential soil regional screening levels, information regarding ambient background conditions, and ecological screening levels.
- Most of the dredged sediment may be able to be used for aquatic beneficial uses such as in-water habitat restoration projects in accordance with the 401 water quality certification process.



# Black River Dredged Material Reuse Facility GeoPool Pilot Study on Dredge Dewatering Completed



SOURCE:  
Aerial Drone Photography (2020).  
Taken by C. Wendt, Property of Coldwater Consulting, LLC

|   |            |
|---|------------|
|   |            |
| SEAL  |            |
| BLACK RIVER DREDGED MATERIAL REUSE FACILITY |            |
| PROJECT                                     |            |
| REV   | DATE       |
| ISSUED FOR                                  | ISSUED FOR |
| PROJECT NO.                                 | 003-024    |
| DESIGNED BY:                                | BJW        |
| DRAWN BY:                                   | JMC        |
| CHECKED BY:                                 | CTP        |
|   |            |
| SCALE                                       |            |
| GENERAL SITE PLAN                           |            |





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# Buffalo River Area of Concern

## Restrictions on Dredging Activities BUI

September 15, 2022



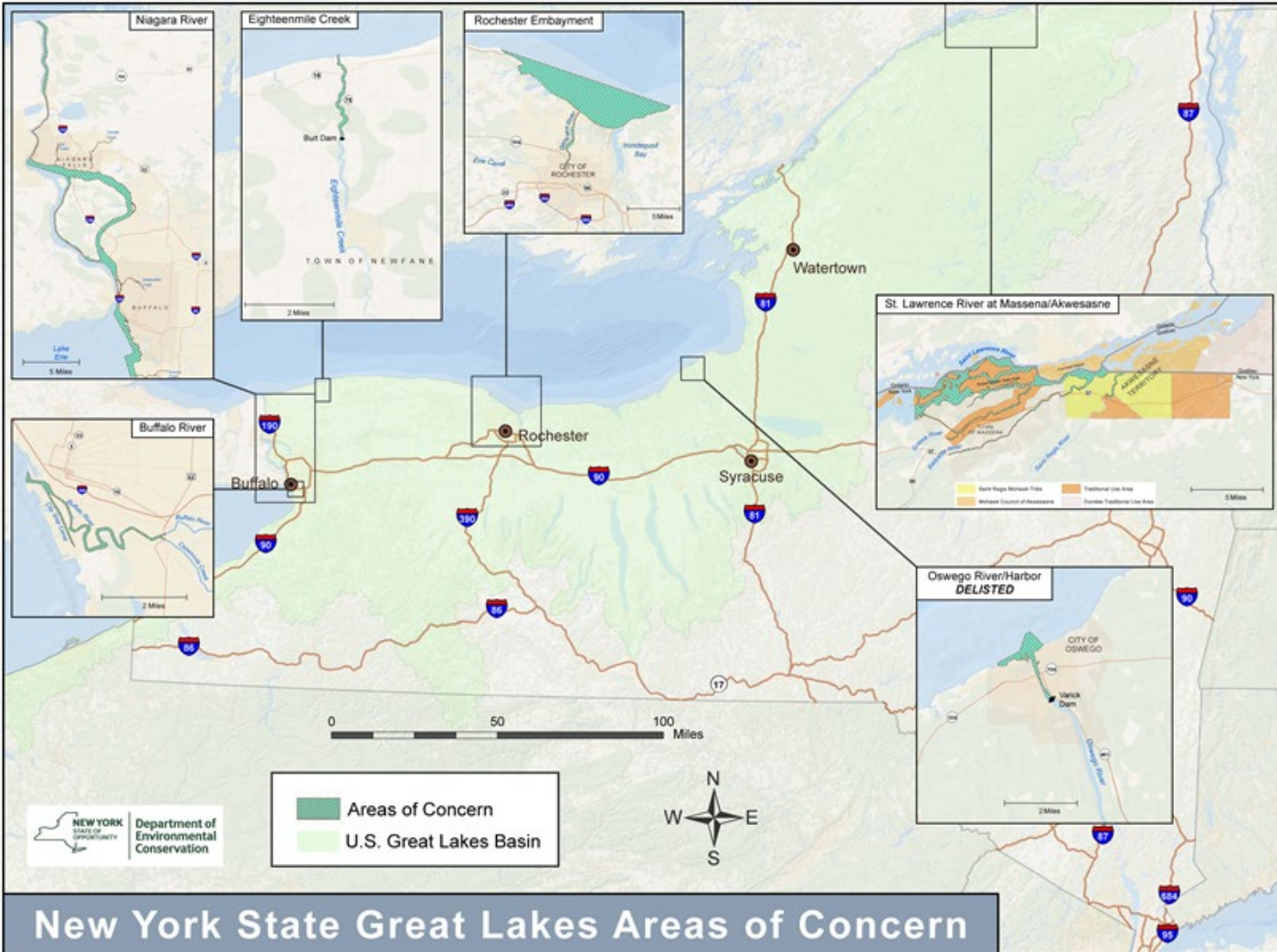
# Buffalo River AOC Background

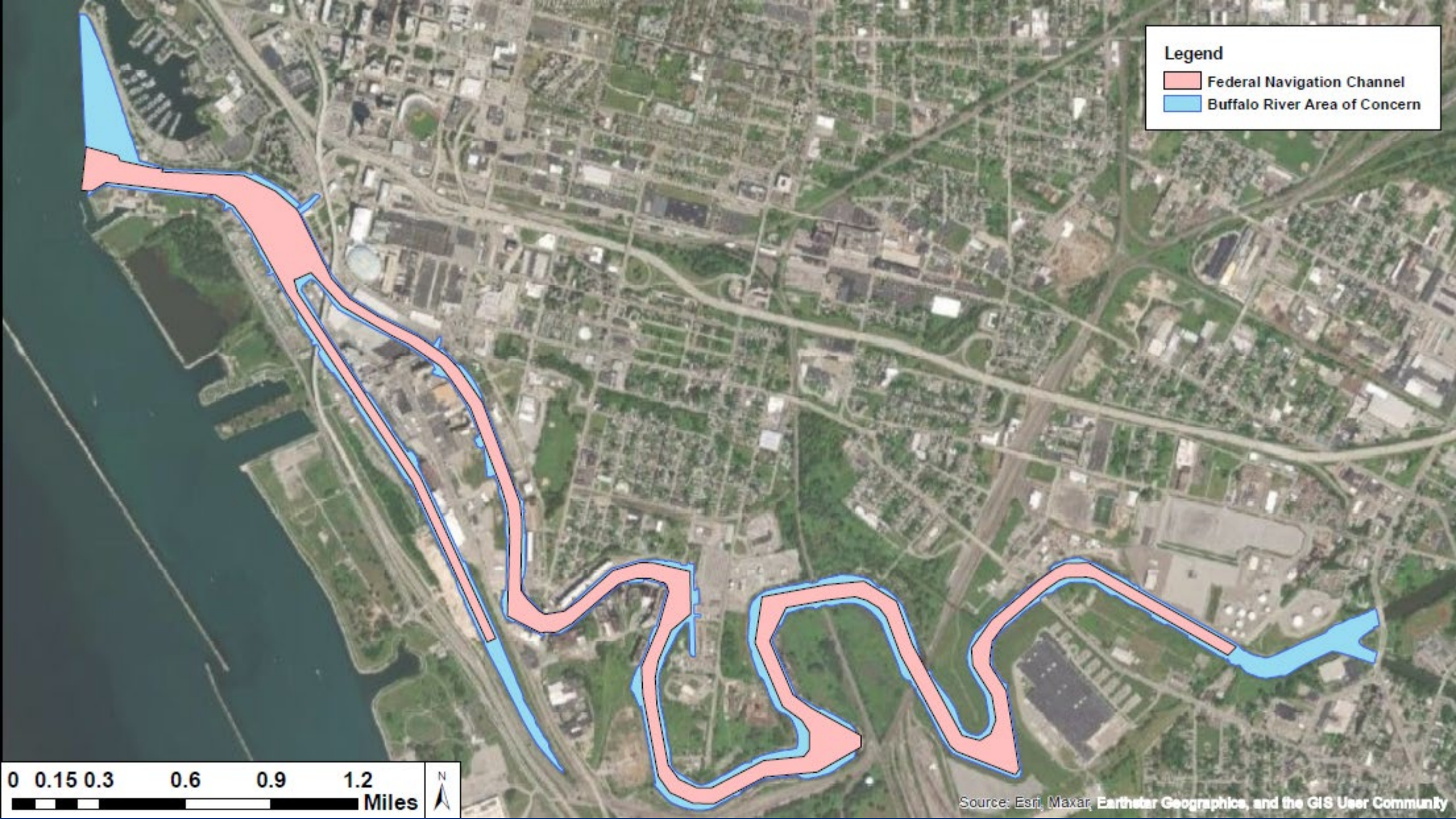
**Six in NYS:**

- Buffalo River
- Niagara River
- Eighteenmile Creek
- Rochester Embayment (Lower Genesee River)
- St. Lawrence River at Massena/Akwesasne
- (Oswego River – delisted 2006)**

**Buffalo River – 9 BUIs originally Impaired, including *Restrictions on Dredging Activities***

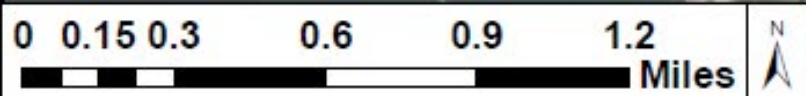
**3<sup>rd</sup> BUI to be removed**





**Legend**

- Federal Navigation Channel
- Buffalo River Area of Concern



Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

# Rationale for *Restrictions on Dredging Activities* BUI

- Stage I & II RAP identified cause for impairment to be presence of multiple contaminants at concentrations exceeding open lake disposal criteria
- Primary contaminants of concern (COCs) include arsenic, barium, copper, iron, lead manganese, zinc, and cyanide (PAHs, PCBs, and mercury were later added)



# Removal Criteria for *Restrictions on Dredging Activities* BUI

Sediment dredged from the federal navigation channel does not require special dredged material management measures or use of a USACE confined disposal facility due to chemical contamination.<sup>1</sup>

<sup>1</sup>As has always been the case, dredging activities outside of the federal navigation channel will be required to follow the current or future NYSDEC/U.S. Army Corps of Engineers/U.S. Environmental Protection Agency permitting processes and meet the associated standards.



# Buffalo River Remediation

2011 – 2015

Phase 1 Navigational Dredging

- 550,000 cy removed

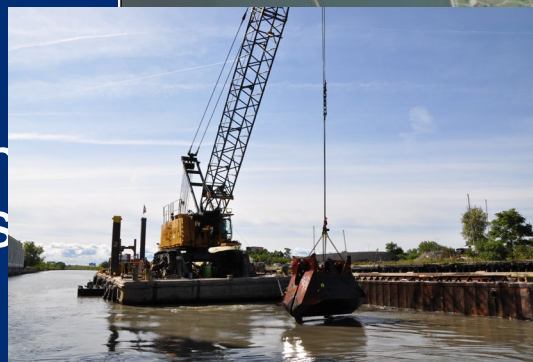
Phase 2 Environmental Dredging

- 453,000 cy removed

Total of 1,003,000 cy sediments dredged from Buffalo River.

2017 – 2020

Year 2 and 5 Verification Monitoring conducted after remedial activities completed.



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# Beneficial Reuse Projects

Completed

Buffalo River – Section 204 at Unity Island

- ✓ Completed construction 2020, creating five acres of emergent and submerged aquatic habitat

Proposed

Buffalo Outer Harbor Slip 3 : Section 204

- Approx. 285,000 cy dredge material, create 6.7 acres coastal wetland habitat



# Case for BUI Removal – additional reuse options

2018 – Aquatic beneficial reuse analysis conducted by USACE. Sediments met CWA Section 404(b)(1) Guidelines for open-water placement criteria/aquatic beneficial reuse.

2022 – Upland beneficial reuse analysis conducted by USACE. Reviewed in accordance with NYSDEC's 6 NYCRR Part 360

**BUI removal anticipated in September 2022!**



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# Questions?

# Thank You

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# Restrictions on dredging BUI removal criteria

Back up slides

| State    | AOC                 | Restrictions on Dredging Activities BUI Removal Criteria  | BUI Removal Date |
|----------|---------------------|---|------------------|
| Illinois | Waukegan Harbor     | <p>Dredged material within the AOC is of suitable quality for “open water” disposal, unrestricted upland use, or beach nourishment.</p> <p>OR, where dredged material quality does not meet the above criterion:<br/> A comparison of sediment contaminant data from the commercial or recreational navigation channel in the AOC indicates that contaminant levels are not statistically different from other comparable, non-AOC commercial or recreational navigation channels (ECT 2008).</p>   | 2014             |
| Indiana  | Grand Calumet River | <p>Contaminants within the sediments of the Indiana Harbor Ship Canal Federal Navigation Channel do not exceed applicable standards, criteria, or guidelines. As such, there would be no restrictions on dredging or disposal activities;</p> <p>OR</p> <p>When contamination levels within the sediments of the Indiana Harbor Ship Canal Federal Navigation Channel are comparable to sediment contamination levels in comparable non-AOC federal navigation channels such that Indiana Harbor Ship Canal Federal Navigation Channel sediment disposal restrictions are consistent with comparable non-AOC Federal navigation channel sediment disposal restrictions.</p> | N/A              |

| State    | AOC                 | Restrictions on Dredging Activities BUI Removal Criteria  | BUI Removal Date |
|----------|---------------------|---|------------------|
| Michigan | Clinton River       | <p>(State criteria) During the most recent routine dredging in the U.S. Army Corps of Engineers (COE) designated navigational channel, use of a confined disposal facility or TSCA-level landfill for dredge spoils was not required due to chemical contamination.</p> | N/A              |
| Michigan | Detroit River       |   | N/A              |
| Michigan | Kalamazoo River     |   | N/A              |
| Michigan | Manistique River    |   | 2021             |
| Michigan | River Raisin        |   | N/A              |
| Michigan | Rouge River         |   | N/A              |
| Michigan | Saginaw River & Bay |   | N/A              |
| Michigan | St. Marys River     |   | 2018             |

| State    | AOC             | Restrictions on Dredging Activities BUI Removal Criteria   | BUI Removal Date |
|----------|-----------------|--|------------------|
| Michigan | White Lake      | <p>There have been no restrictions on routine commercial or recreational navigational channel dredging by the COE, based on the most recent dredging cycle, such that special handling or use of a confined disposal facility is required for dredge spoils due to chemical contamination.</p> <p>OR, in cases where dredging restrictions exist:</p> <p>A comparison of sediment contaminant data from the commercial or recreational navigation channel in the AOC indicates that contaminant levels are not statistically different from other comparable, non-AOC commercial or recreational navigation channels.</p>  | 2011             |
| Michigan | Muskogon Lake   | <p>There have been no restrictions on routine commercial or recreational navigational channel dredging by USACE, based on the most recent dredging cycle, such that special handling or use of a confined disposal facility is required for dredge spoils due to chemical contamination.</p> <p>OR, in cases where dredging restrictions exist:</p> <p>A comparison of sediment contaminant data from the commercial or recreational navigation channel in the AOC indicates that contaminant levels are not statistically different from other comparable, non-AOC commercial or recreational navigation channels.</p>  | 2011             |
| Michigan | St. Clair River | <p>There have been no restrictions on routine commercial or recreational navigational channel dredging by the USACE, based on the most recent dredging cycle, such that special handling or use of a confined disposal facility (CDF) is required for dredge spoils due to chemical contamination.</p> <p>OR, in cases where dredging restrictions exist:</p> <p>A comparison of sediment contaminant data from the commercial or recreational navigation channel (at the time of proposed dredging) in the AOC indicates that contaminant levels are not statistically different from other comparable, non-AOC commercial or recreational navigation channels.</p> | 2011             |

| State            | AOC                 | Restrictions on Dredging Activities BUI Removal Criteria  | BUI Removal Date |
|------------------|---------------------|---|------------------|
| New York         | Buffalo River       | <p>Sediment dredged from the federal navigation channel does not require special dredged material management measures or use of a USACE confined disposal facility due to chemical contamination.<sup>1</sup></p> <p>(1 As has always been the case, dredging activities outside of the federal navigation channel will be required to follow the current or future NYSDEC/U.S. Army Corps of Engineers/U.S. Environmental Protection Agency permitting processes and meet the associated standards.)</p>   | 2022             |
| New York         | Eighteenmile Creek  | <p>When contaminants in AOC sediments (located within the actual or potential dredging area identified for the improvement of ship navigation) do not exceed standards, criteria, or guidelines such that there are restrictions on dredging or disposal activities.</p>  | 2021             |
| New York/Ontario | Niagara River       | <p>Within the federal navigation channel, sediment in areas that may need dredging would not require spatial dredged material management measures or use of a confined disposal facility due to chemical contamination. Sites outside of the federal navigation channel will be required to follow the current or future NYSDEC/Corps of Engineers/U.S. Environmental Protection Agency permitting processes and meet the associated standards.</p>   | N/A              |
| New York         | Rochester Embayment | <ol style="list-style-type: none"> <li>1. Due to conditions created by overflow dredging, it will be prohibited in the Genesee River.</li> </ol> <p style="text-align: center;">AND</p> <ol style="list-style-type: none"> <li>2. Sediments from routine commercial and recreational navigation channel areas historically dredged by the ACOE will meet standards for Open Lake Disposal.</li> </ol> <p style="text-align: center;">AND</p> <ol style="list-style-type: none"> <li>3. Sites outside of the historically dredged channel will be required to follow the current or future NYSDEC/ACOE/U.S. Environmental Protection Agency (EPA) permitting processes and meet the associated standards.</li> </ol> | 2019             |

| State | AOC             | Restrictions on Dredging Activities BUI Removal Criteria  | BUI Removal Date |
|-------|-----------------|---|------------------|
| Ohio  | Ashtabula River | There are no restrictions on navigational dredging or disposal activities due to contaminants in sediment, such that there are suitable options available for reuse or disposal of the material.  | 2020             |
| Ohio  | Black River     |   | 2021             |
| Ohio  | Cuyahoga River  | Ohio developed beneficial use rules authorizing the upland beneficial use of Lake Erie dredge sediment. (effective March 31, 2019) The rules address individual and general beneficial use permit requirements including the establishment of screening levels, restrictions, or standards. | N/A              |
| Ohio  | Maumee          | Material would be permissible for aquatic beneficial use for dredge sediment based on the 401 certification process, then the restoration target for this BUI has been met.   | N/A              |

| State        | AOC              | Restrictions on Dredging Activities BUI Removal Criteria  | BUI Removal Date |
|--------------|------------------|---|------------------|
| Pennsylvania | Presque Isle Bay | <p>Since all dredged material regardless of contamination must be placed in a CDF or upland disposal site. The target considers permitting practices by evaluating discharges from a CDF. Concentrations of chemicals of potential concern (COPCs) in the CDF's mixing zone to be below Pennsylvania Water Quality Standards at the 15-minute compliance point for acute criteria and the 12-hour compliance point for chronic criteria.</p> <p style="text-align: center;">AND</p> <p>The concentrations of COPCs (metals, PAHs, and PCBs) are below the levels that are associated with acute or chronic toxicity in sediment-dwelling organisms; The survival and growth of freshwater amphipods, <i>H. azjeca</i> and midges, <i>C. dilutus</i>, exposed to sediment samples from Presque Isle Bay should be greater than or equal to the normal range of survival rates observed for appropriately selected control or reference sediment samples.</p> <p>At least 90% of the sediment samples from Presque Isle Bay have the conditions necessary to support healthy benthic invertebrate communities, as indicated by: mean PEC-Q 1&lt;1.0; SEM-AVS&lt;0.0; SEM-AVS/f0c &lt;3,000; ESB-TUs &lt;1.0; toxicity to the freshwater amphipod <i>Hyaella azjeca</i> or the midge <i>Chironomus dilutus</i> for the survival or growth endpoints:</p> | 2007             |

| State     | AOC                       | Restrictions on Dredging Activities BUI Removal Criteria  | BUI Removal Date |
|-----------|---------------------------|---|------------------|
| Wisconsin | Fox River/Lower Green Bay | All remediation actions for known contaminated sediment sources are completed and monitored according to the approved remediation plans, the remedial action goals have been achieved, and institutional controls have been implemented.  | 2021             |
| Wisconsin | Milwaukee Estuary         | <p>Contaminated sediment hot spots within and upstream from the AOC have been identified.</p> <p>AND</p> <p>Implementation actions to remediate contaminated sites have been completed. As a source control measure and for AOC remediation, known contaminated sites must be addressed before removal is possible.</p> <p>AND</p> <p>There are no restrictions on routine navigational dredging done by the U.S. Army Corps of Engineers and/or private dredging companies due to contamination originating from controllable sources within the AOC. ****UPDATING CRITERIA</p>  | N/A              |
| Wisconsin | Sheboygan River           | <p>All remediation actions for contaminated sediments are completed and monitored according to the approved remediation plans; AND</p> <p>A dredging alternatives plan is developed that includes an evaluation of the following:</p> <ol style="list-style-type: none"> <li>1) Restrictions that must remain in place to protect human health and the environment</li> <li>2) Restrictions that must remain in place due to Superfund or RCRA requirements that are based upon state and federal law</li> <li>3) Priority areas for navigational use</li> <li>4) Priority areas where dredging is needed for other purposes (i.e. utilities)</li> <li>5) Costs associated with removing dredging restrictions in priority areas</li> <li>6) Funding available to address removing dredging restrictions in priority areas</li> </ol> | 2015             |



| State                   | AOC                         | Restrictions on Dredging Activities BUI Removal Criteria   | BUI Removal Date |
|-------------------------|-----------------------------|--|------------------|
| Wisconsin/<br>Michigan  | Lower<br>Menominee<br>River | <p>All remediation actions for known contaminated sediment sources are completed and monitored according to the approved remediation plans and the remedial action goals have been achieved; AND</p> <p>An AOC dredge management plan is developed by the communities and agencies that includes an evaluation of:</p> <ol style="list-style-type: none"> <li>1) Restrictions that must remain in place to protect human health and the environment</li> <li>2) Restrictions that must remain in place due to RCRA requirements that are based upon state and federal law</li> <li>3) Priority areas for navigational use</li> <li>4) Priority areas for utility dredging, e.g., utility crossing</li> <li>5) Identify costs and funding option for removing dredging restrictions in priority areas</li> </ol> <p>Priority areas for navigational use include the Federal Navigation Channel, commercial and industrial docks, marinas, boat launches, and private docks. Priority areas for utility dredging and crossing include all potential future areas, and specifically those in the sediment remedial areas.</p> | 2017             |
| Wisconsin/<br>Minnesota | St. Louis<br>River          | <p>Removal of the Restrictions on Dredging BUI will be justified when SAAs designated as red are remediated to their respective State’s cleanup criteria. Normal navigational dredge material testing, permitting, and certification processes are not considered restrictions. Note: Any dredging activity, whether proposed within or outside these routine navigational corridors, requires State regulatory permits as regulated by each State resource agency.</p>  | N/A              |