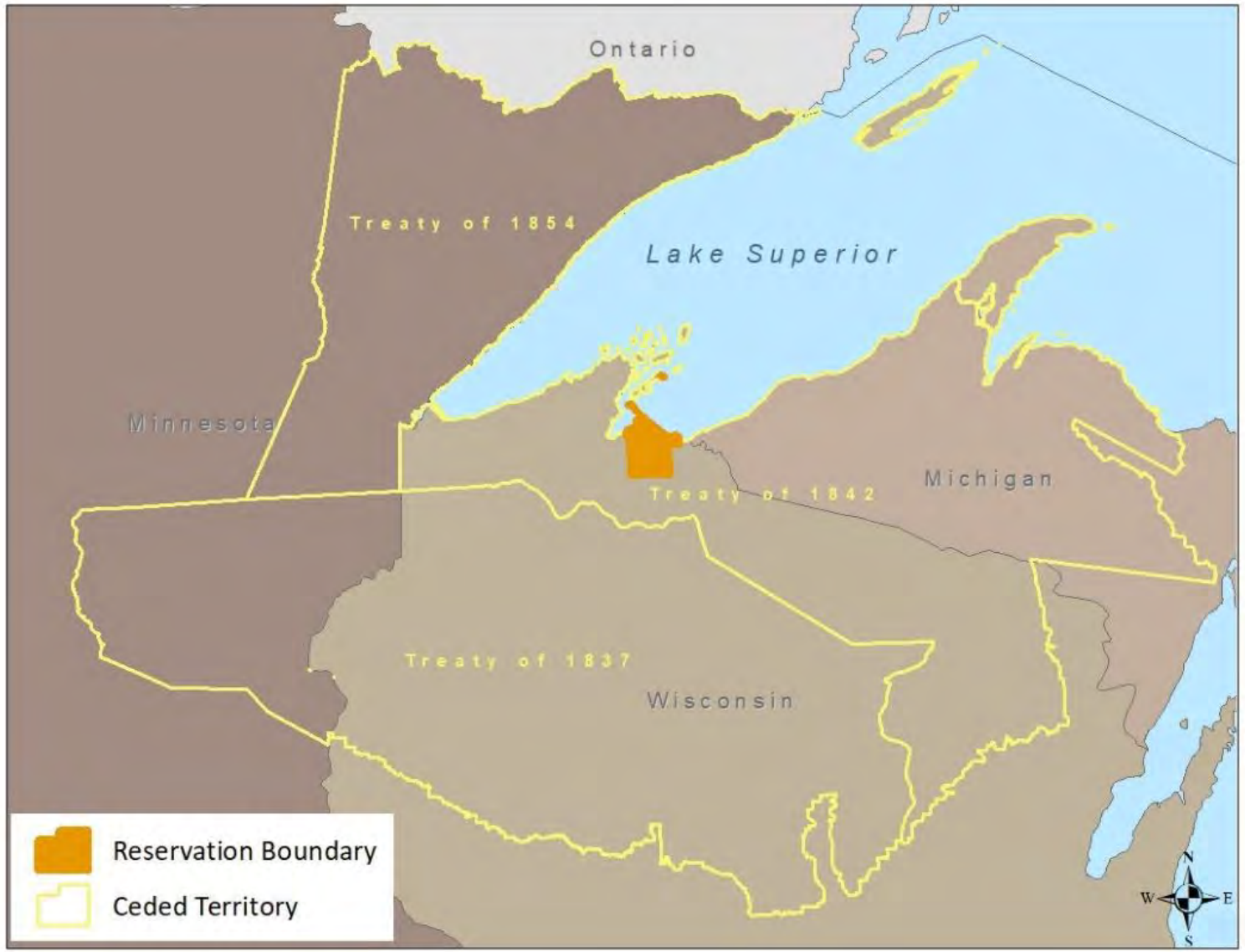
Bad River Band of Lake Superior Tribe of Chippewa Indians

Bad River Reservation & Water Quality Standards

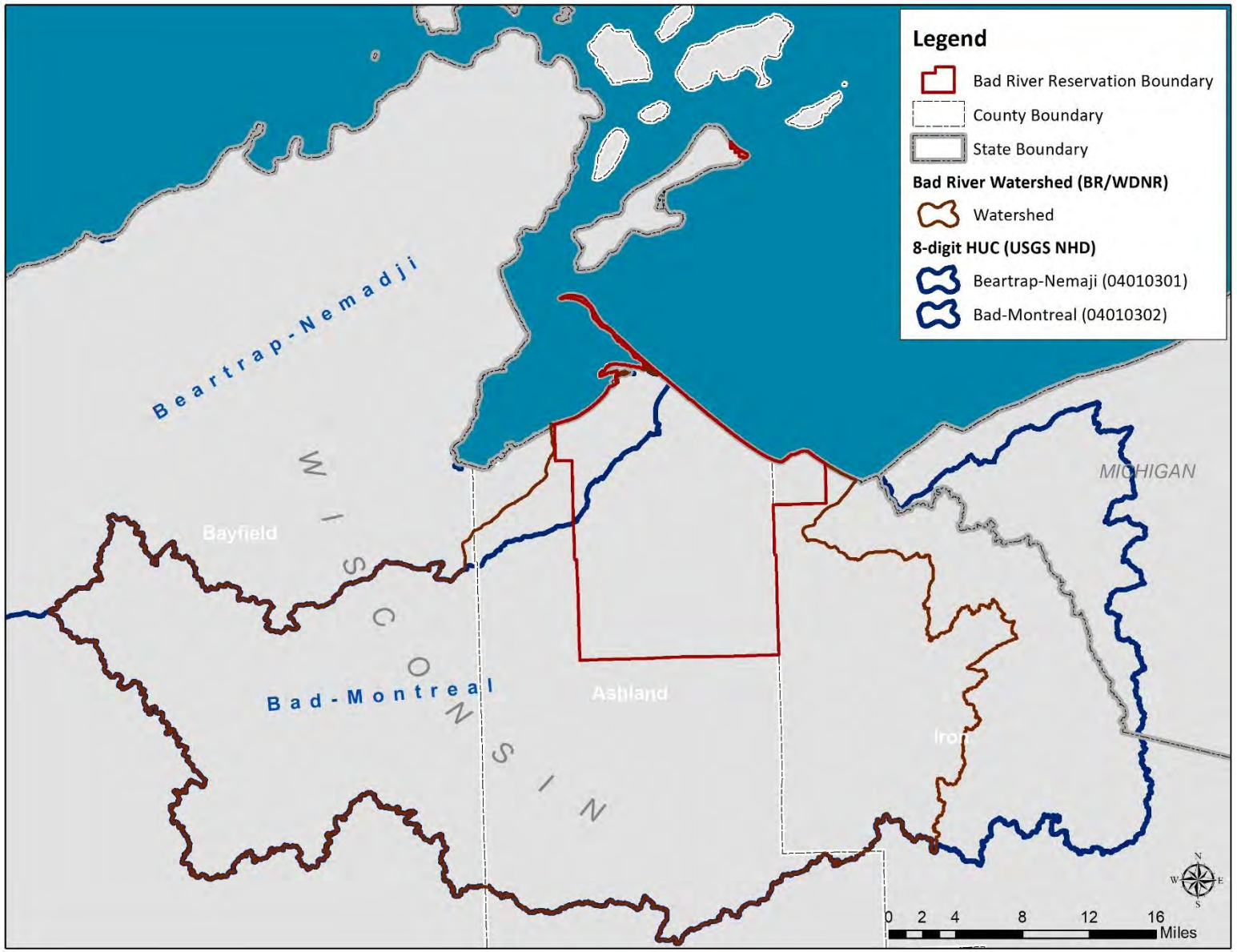
Mashkiiziibii Natural Resources Department Presentation #1 for the Hearing with the US Army Corps of Engineers
May 13, 2025 – St. Paul, MN

Bad River Reservation & Treaty Ceded Territories



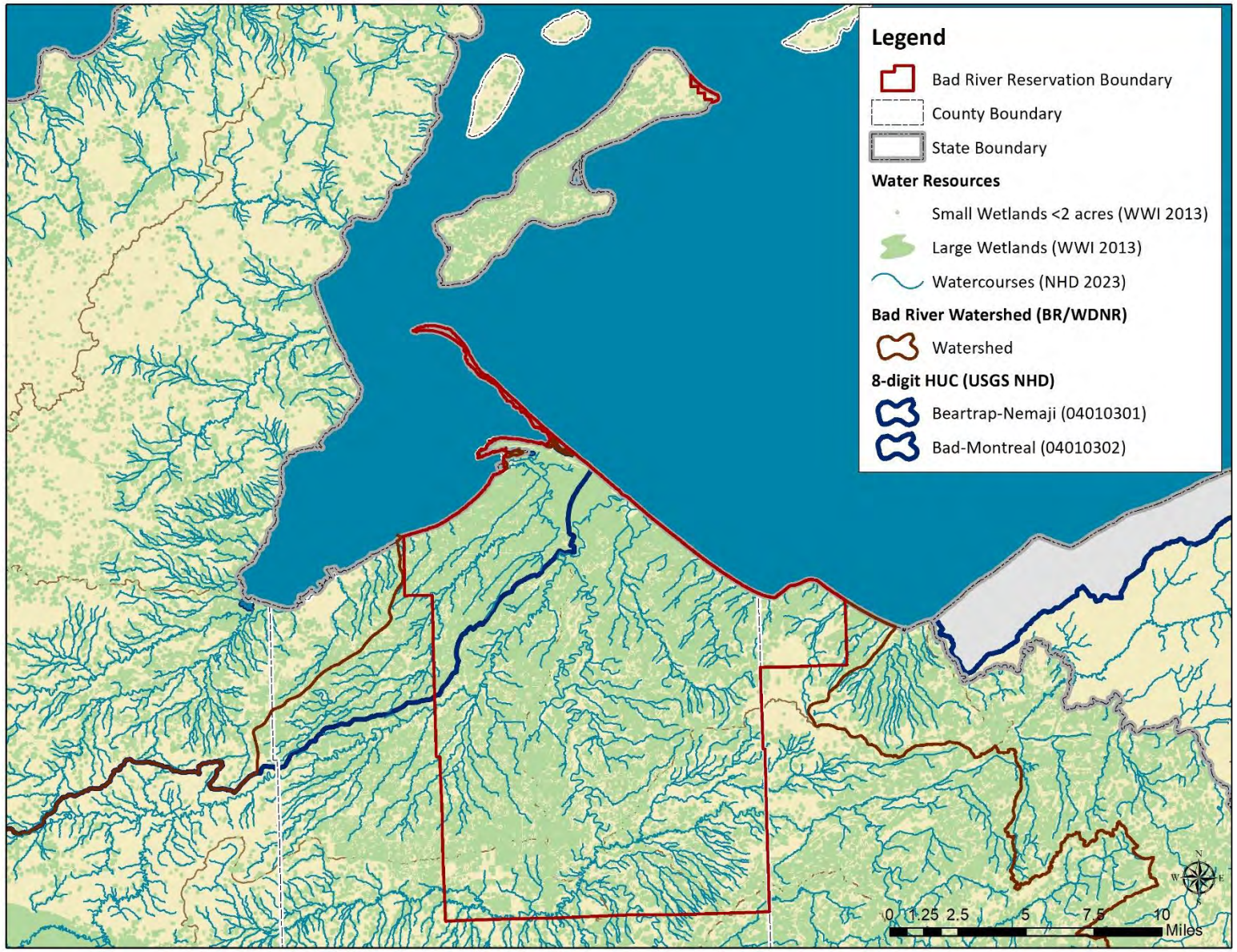
- **The Bad River Reservation was created under the Treaty of 1854, one of three Treaties the Bad River Band of Lake Superior Tribe of Chippewa signed with the United States.**
  - The Tribe retains usufructuary rights to the lands ceded in the 1837 and 1842 Treaties, which includes lands in Michigan, Minnesota, and Wisconsin.
  - The Federal Government has a fiduciary Trust Responsibility to the Tribe under these treaties.
- **The Bad River Reservation is 124,655 acres**
  - 124,459 acres on the mainland
  - 196 acres on Madeline Island

Bad River Reservation & Lake Superior Basin

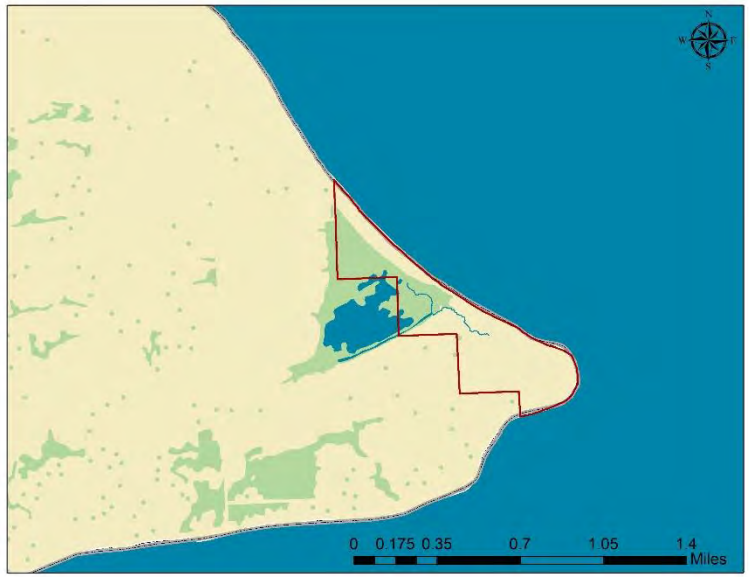


- The entire Reservation falls within the Lake Superior Basin.
- The Reservation mainland occupies a downstream portion of the USGS…
  - Bad River-Montreal Subbasin
    - USGS NHD 8-digit HUC 04010302
  - Beartrap-Nemadji Subbasin
    - USGS NHD 8-digit HUC 04010301
- The Tribe and the State of Wisconsin have recognized the Bad River Watershed as the watershed boundary draining lands upstream of the mainland Reservation
  - includes all the Bad River-Montreal Subbasin (aside from the Montreal HUC10) and the Beartrap Creek Subwatershed (HUC12) from the Beartrap-Nemadji Subbasin
  - Watershed Detail - Lower Bad River (wi.gov)
- The Reservation falls within Ashland and Iron Counties of Wisconsin.

Bad River Reservation & its Water Resources



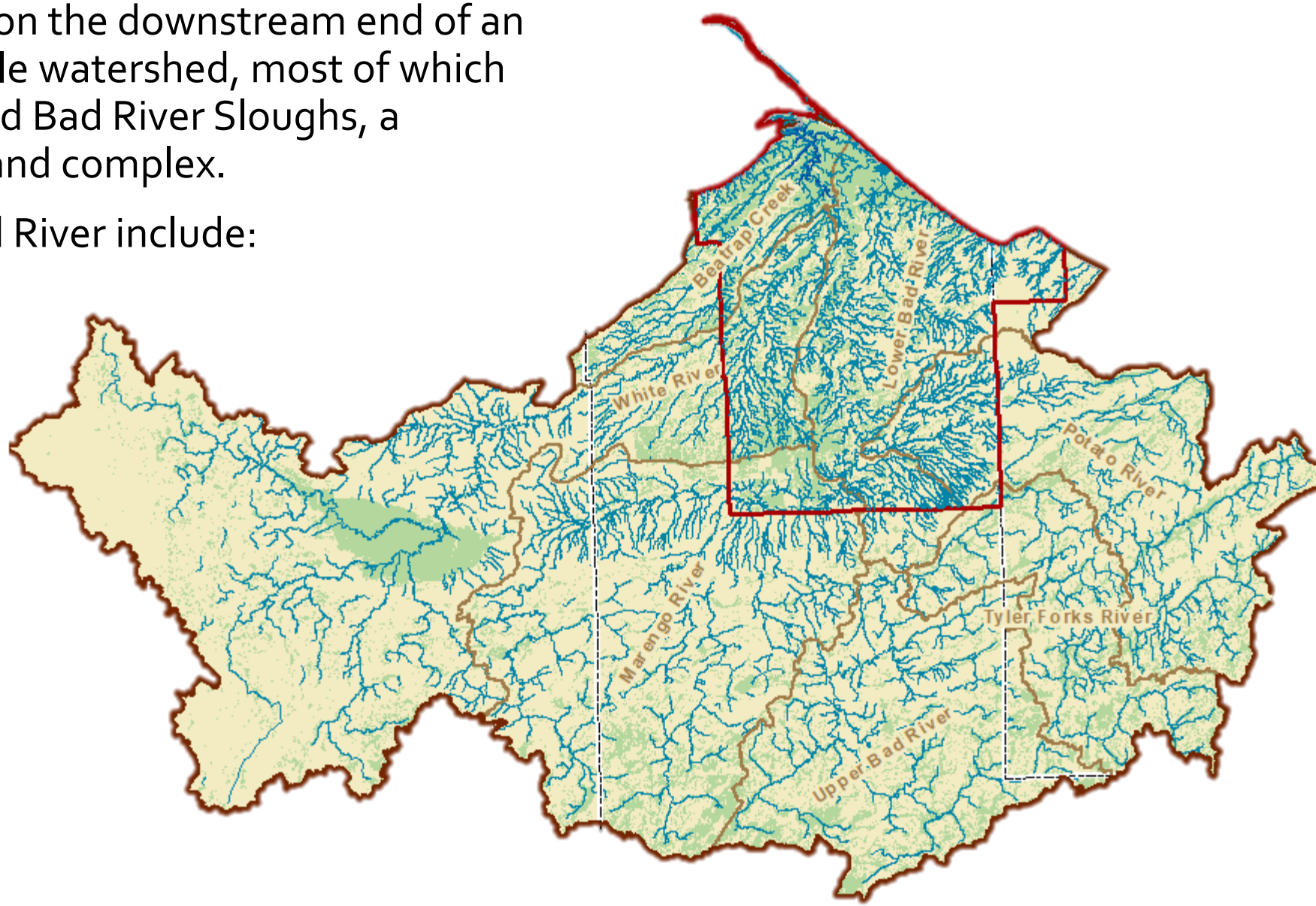
- The Reservation has…
  - 38 miles of Lake Superior shoreline
    - 36 miles of shoreline on the mainland
    - 2 miles of shoreline on Madeline Island
  - 52,554 acres of mapped wetlands[1] (WWI 2013)
    - 52,506 acres on the mainland
    - 48 acres on Madeline Island
  - 545 acres of lakes and ponds
    - 543 acres on the mainland
    - 2 acres on Madeline Island
  - 488 miles of streams



[1]Small wetland acreage is included, calculated by assuming each small wetland point from the WWI equals 1 acre of wetland.

Bad River Reservation Streams & Rivers

- The mainland Reservation sits on the downstream end of an approximately 1,000 square mile watershed, most of which drains through the Kakagon and Bad River Sloughs, a hydrologically connected wetland complex.
- The main tributaries to the Bad River include:
  - White River
  - Marengo River
  - Tyler Forks River
  - Potato River
- The main tributaries to the Kakagon River include:
  - Wood Creek
  - Beartrap Creek
  - Sucker Creek



Kakagon and Bad River Sloughs Coastal Wetland Complex

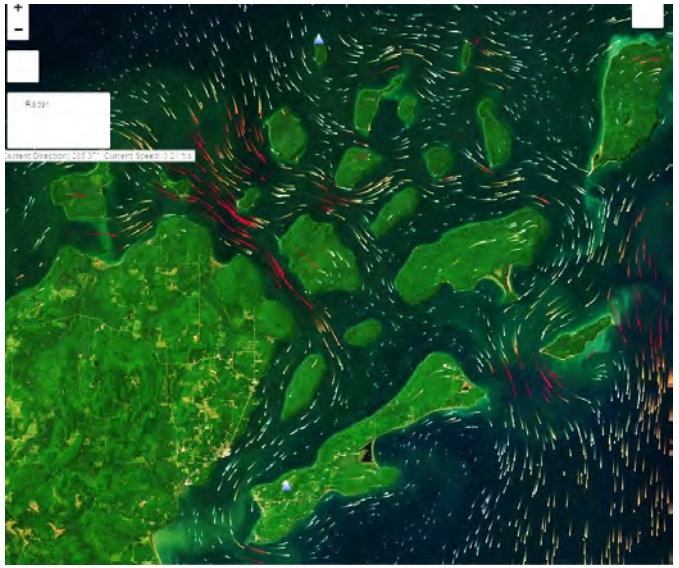
- Wetland of International Importance (Ramsar site)
- World Blue Globe Award Winner
- National Natural Landmark (NPS)
- Important Habitat Area (Lake Superior LAMP)
- Wisconsin Wetland GEM™ (WWA)
- Wisconsin Bird Conservation Initiative Important Bird Area
- Wisconsin Land Legacy Place
- TNC Priority Conservation Area
- Aquatic Resources of National Importance (EPA)
- 13% of Lake Superior's coastal wetlands

Bad River Reservation's Extraordinary Water Resources

- Bad River and White River support self-sustaining populations of lake sturgeon (along with only two other waterways in the Lake Superior basin)
- Cold water streams and springs, such as Tyler Forks River, Potato River, Winks Creek, and Graveyard Creek
  - Graveyard Creek supports coaster brook trout
- Unique lakes, such as oxbow lakes, Honest John Lake, and Bog Lake
- Reservation waters support rare, threatened, and endangered species, including but not limited to: piping plover, gray wolves, wood turtle, yellow rail, Rufa red knot, mayfly species, swamp-pink, Ram's-head lady's-slipper, Hooker's orchid

Bad River Reservation & Lake Superior Hydrological Connections

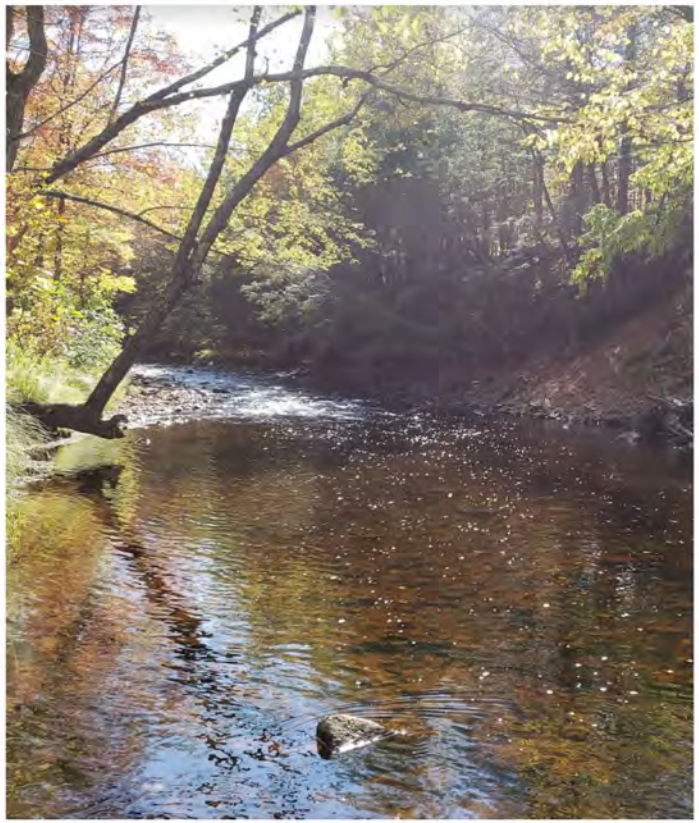
- Due to Lake Superior's seiche, long shore currents, and other currents occurring in the Apostle Islands and Chequamegon Bay, Reservation waters not only flow into the Lake but also have the Lake flow into them.
  - USGS has documents the seiche pushing water upstream from the lake all the way to Beartrap @ US Hwy 2 and past Bad River @ US Hwy 2.
  - The Kakagon and Bad River Sloughs have a daily fluctuation due to seiche.
  - Depending on prevailing currents, water levels, and other seasonal factors, water from streams and rivers along the Bayfield Peninsula have been carried into the Chequamegon Bay and out into the Apostle Islands near Madeline Island



Bad River Band of Lake Superior Tribe of Chippewa Indians

Water Quality Standards

TAS Authority under CWA in 2009



Water Quality Standards

- Bad River Band obtained treatment in a similar manner as states for Clean Water Act Sections 303 and 401 program authority from the U.S. Environmental Protection Agency on June 26, 2009.
- July 6, 2011: Bad River Tribal Council Approves WQS.

Nibi (water) is the lifeblood of our Mother, the Earth. ***Nibi*** is a living, moving part of life that changes with its surrounding environment. ***Nibi*** connects the past and the present with the fate of future generations.


Photo copyright of the Bad River Tribe.


Photo copyright of the Bad River Tribe.
Photo by Mike Plucinski


Photo copyright of the Bad River Tribe.


Photo copyright of the Bad River Tribe.

Cultural, Recreational, and Wild Rice Designated Uses

- **Cultural (C1).** Water-based activities essential to maintaining the Tribe's cultural heritage, including but not limited to ceremony, subsistence fishing, hunting and harvesting. This use includes primary and secondary contact and ingestion.
- **Wild Rice (W1).** Supports or has the potential to support wild rice habitat for sustainable growth and safe consumption.
- **Recreational (R).** Supports primary contact recreation and secondary contact recreation. This includes Tribal activities including water contact such as boating, hunting, fishing and harvesting. This use includes primary and secondary contact and ingestion.

Wetland Designated Uses

- **Wetland (W3).** An area that will be protected and maintained for at least some of the following uses: maintaining biological diversity, preserving wildlife habitat, providing recreational activities, erosion control, groundwater recharge, low flow augmentation, storm water retention, prevention of stream sedimentation, and the propagation of wild rice.


Photo copyright of the Bad River Tribe.


Photo copyright of the Bad River Tribe.


Photo copyright of the Bad River Tribe.

Other Designated Uses

- **Other designated uses: Wildlife (W2), Aquatic Life and Fish (A), Cold Water Fishery (F1), Cool Water Fishery (F2), Commercial (C2), and Navigation (N).**

Narrative Criteria

Photo by MPCA, n.d.; How heat waves fuel toxic algae blooms in Minnesota waters | Friends of the Mississippi River

Photo by NOAA GLERL, 2022; Harmful algae bloom reported on Owasco Lake near country club - syracuse.com

- **E 6 (i). Narrative criteria for aesthetic water quality.**

All waters (including wetlands) within the Reservation shall be free from substances, attributable to wastewater discharges or pollutant sources resulting from other than natural background conditions, that:

a. Settle to form objectionable deposits;

b. Float as debris, scum, oil, or other matter forming nuisances;

c. Produce objectionable color, odor, taste, or turbidity;

d. Cause injury to, are toxic to, or produce adverse physiological responses in humans, animals, or plants;

e. Produce undesirable or nuisance aquatic life;

f. Produce nutrients or other substances that stimulate algal growth producing objectionable algal densities, nuisance aquatic vegetation, dominance of any nuisance species instream, or cause nuisance conditions in any other fashion; or

g. Adversely affect the natural biological community of the waterbody.

Narrative Criteria

- **E 6 (ii) a. Pollutants shall not be present** in concentrations that cause or may contribute to an adverse effect to human, plant, animal or aquatic life, or in quantities that may interfere with the normal propagation, growth and survival of indigenous aquatic biota. For toxic substances lacking published criteria, minimum criteria or values shall be calculated by the Tribe or U.S. EPA consistent with procedures specified at 40 CFR 132 Appendices A, B, C and D.
- **E 6 (ii) c. Water quantity and quality** that may limit the growth and propagation of, or otherwise cause or contribute to an adverse effect to wild rice, wildlife, and other flora and fauna of cultural importance to the Tribe shall be prohibited. This includes, but is not limited to , a requirement that sulfate levels shall not exceed concentrations causing or contributing to any adverse effects in waters, including those with a Wild Rice designated use.
- **E 6 (ii) d. Natural hydrological** conditions supportive of the natural biological community, including all flora and fauna, and physical characteristics naturally present in the waterbody shall be protected to prevent any adverse effects.
- **E 6 (ii) e. Pollutants or human-induced changes** to waters, the sediments of waters, or area hydrology that results in changes to the natural biological communities and wildlife habitat shall be prohibited. The migration of fish and other aquatic biota normally present shall not be hindered. Natural daily and seasonal fluctuations of flow (including naturally occurring seiche), level, stage, dissolved oxygen, pH, and temperature shall be maintained.

Narrative Criteria

- **E 6 (ii) f. Existing mineral quality** shall not be altered by municipal, industrial and in-stream activities or other waste discharges so as to in any way impair the designated uses for a water body

- **E 6 (ii) g. Temperature** – No measurable change (increase or decrease) in temperature from other than natural causes shall be allowed that causes or contributes to an adverse effect to the natural biological community. For those waters designated as a Cold Water Fishery, there shall be no measurable increase in temperature from other than natural causes.
- **E 6 (ii) h. The presence of pollutants** in quantities that result in bioaccumulation in aquatic organisms that may cause or contribute to an adverse effect to consumers of aquatic organisms shall be prohibited.

Numeric Criteria


Photo copyright of the Bad River Tribe.

- **7 (i). Dissolved Oxygen –** Unless otherwise demonstrated through a use attainability analysis or site-specific criterion that aquatic life cannot be supported, a water body capable of supporting aquatic life shall have a daily minimum dissolved oxygen standard of 5 mg/L in all cases except waters designated as a Cold Water Fishery. For those waters designated as a Cold Water Fishery, the dissolved oxygen shall have a daily minimum of 6 mg/L at any time and 8 mg/L when and where early life stages of cold water fish occur. These criteria will not apply to the Kakagon Sloughs, Bad River Sloughs, and wetlands due to their natural conditions.
- **7 (ii). pH –** No change is permitted greater than 0.5 units over a period of 24 hours for other than natural causes. The change, upward or downward, shall not result in an adverse effect on aquatic biota, fish or wildlife.
- **7 (iii). Turbidity** – Shall not exceed 5 NTU over natural background turbidity when the background turbidity is 50 NTU or less, or turbidity shall not increase more than 10 percent when the background turbidity is more than 50 NTU.

Numeric Criteria to Protect Aquatic Life

- H.1. through H.3. contain acute and chronic water quality criteria to protect Aquatic Life and Fish use. Mercury, arsenic, and metals are examples of pollutants with criteria in this section of the Band's WQS.

Chronic Aquatic Life Criteria that are not water characteristic dependent		
Parameter	CMC (µg/L)	Conversion Factor (CF)
Arsenic (III)	147.9[a,b]	1.0000
Mercury (II)	0.9081[a,b]	.8500
Selenium*	5[a,b]	0.9220

a. $CCC=CCC^{tr}$

b. $CCC^{d}=(CCC^{tr})CF$ The CCC^{d} shall be rounded to two significant digits.

CCCtr is the CCC expressed as total recoverable

* EPA is re-evaluating the national selenium criteria, and the proposed criterion is subject to revision before final adoption of this water quality standards document

Acute Aquatic Life Criteria that are not water characteristic dependent.		
Parameter	CMC (µg/L)	Conversion Factor (CF)
Arsenic (III)	339.8[a,b]	1
Mercury (II)	1.694[a,b]	.85
Selenium*	19.34[a,b]	0.922

a. $CMC=CMC^{tr}$

b. $CMC^{d}=(CMC^{tr})CF$ The CMC^{d} shall be rounded to two significant digits.

CMC^{tr} is the CMC expressed as total recoverable

* EPA is re-evaluating the national selenium criteria, and the proposed criterion is subject to revision before final adoption of this water quality standards document

Numeric Criteria to Protect Human Health

- **H.4.** through **H.7.** include numeric criteria derived to protect human health. Mercury is one of the pollutants with numeric criteria in this section of the Band's WQS.
  - **Mercury (Hg): 0.194 ng/L**
  - **Applies to all waters with Cultural and/or Recreational Designated Use(s).**

Photo copyright of the Bad River Tribe.


Photo copyright of the Bad River Tribe.

Numeric Criteria to Protect Wildlife

- **H.8** through **H.9** include numeric criteria to protect wildlife. Mercury is one of the pollutants with numeric criteria in this section.
  - **Mercury (Hg): 1.3 ng/L**
  - **Applies to all waters with Wildlife Designated Use.**

Numeric Criteria to Protect Aquatic Life

- H.10 The acute and chronic Ammonia criteria concentrations are expressed as functions of temperature and pH, such that values differ across sites, and differ over time within a site.
  - Equations are used to calculate the Criterion Maximum Concentration (CMC) and the Criterion Continuous Concentration (CCC) and are variable based on the presence/absence of freshwater mussels and fish early life stages.

Antidegradation

Provides for the maintenance and protection of water quality to ensure that all designated and existing uses are met and maintained for the 7th Generation.

- Applicable to all surface waters of the Reservation.
- Water Resources of the Tribe are integral to its members' health, welfare, and economic security and political integrity of the Tribe itself.
- The Tribe has depended on the natural resources, particularly the water resources, to provide cultural preservation and resources for consumption, subsistence, and sustainable economic development.

Photo copyright of the Bad River Tribe.

Antidegradation

Anishinaabosibiing
Exceptional Resource Waters (ERWs) &
Chi minosibii
Outstanding Resource Waters (ORWs)

Waters viewed as high-quality and culturally important for the ecosystems they support. ORWs are also culturally important due to the fisheries they support.

- New or increased discharges or alterations of the background conditions are allowed…if they meet other requirements.

- No increased loads of BCCs are allowed in ORWs.

Antidegradation

Chi minosingbii

Outstanding Tribal Resource Waters (OTRWs), Tier 3 Waters

Waters viewed as pristine, highly valued waters important to culture, recreation, wild rice, and exceptional ecological significance.

- No new or increased discharges or alterations of the background conditions are allowed.
- However, a short-term, temporary (no more than 6 months, and no more than necessary) lowering of water quality may be allowed…if they meet other requirements.

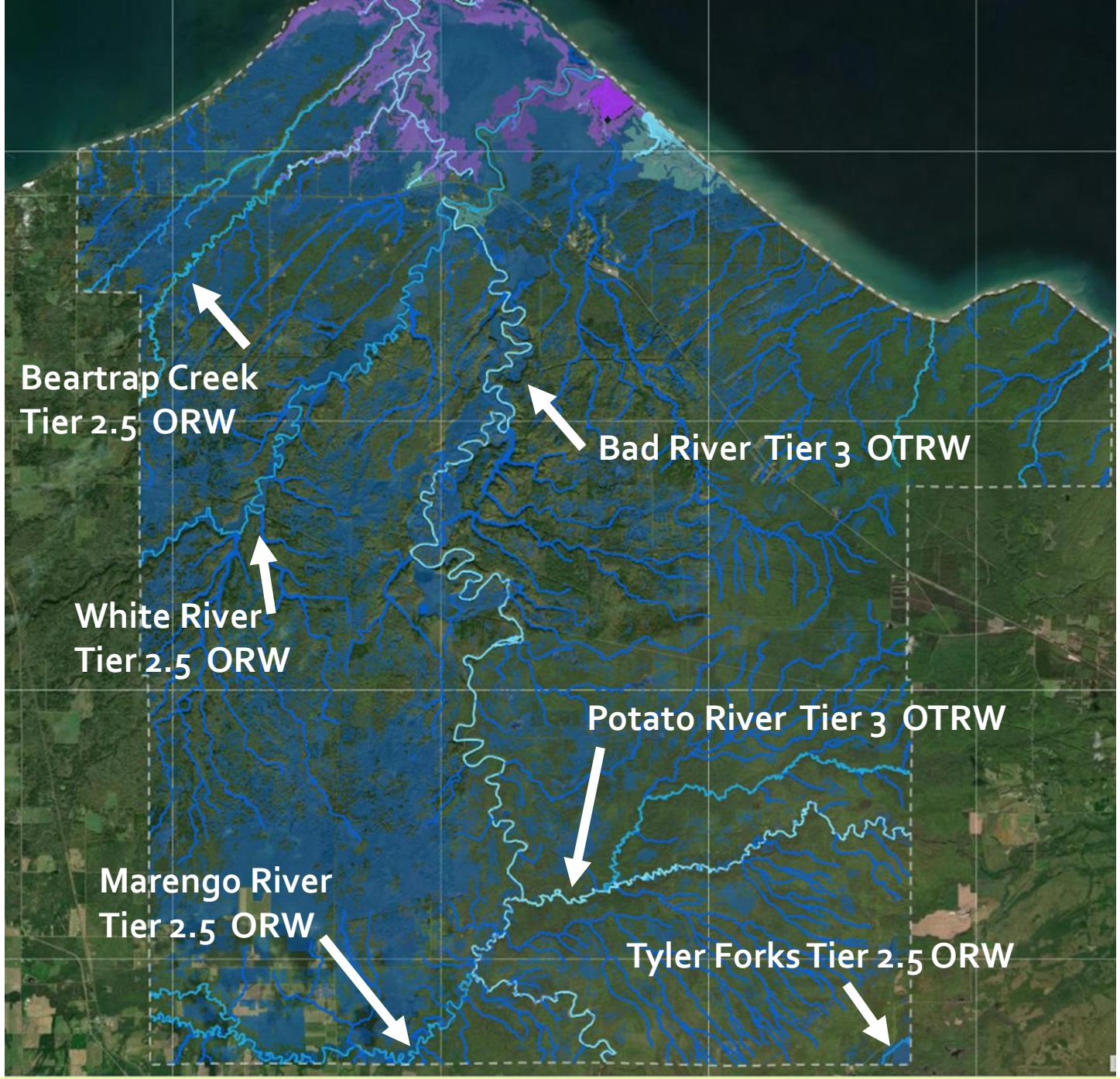
Photo copyright of the Bad River Tribe.

Bad River Water Quality Designations Map

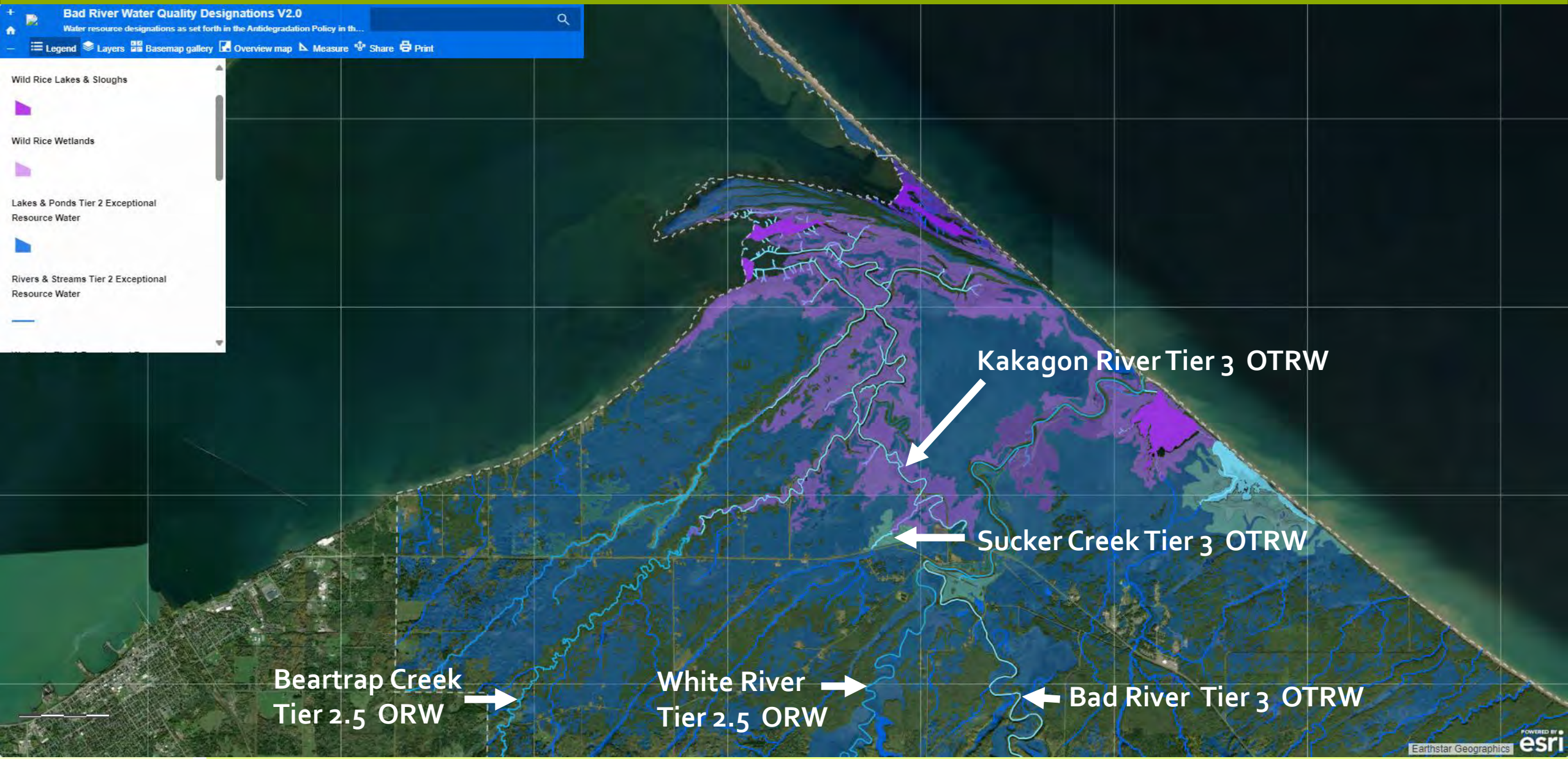
Water Resource Designations as set forth in the Antidegradation Policy in the Bad River Band's Water Quality Standards.

[Bad River Water Quality Designations V2.0]

Bad River Water Quality Designations Map



Bad River Water Quality Designations Map



Miigwech