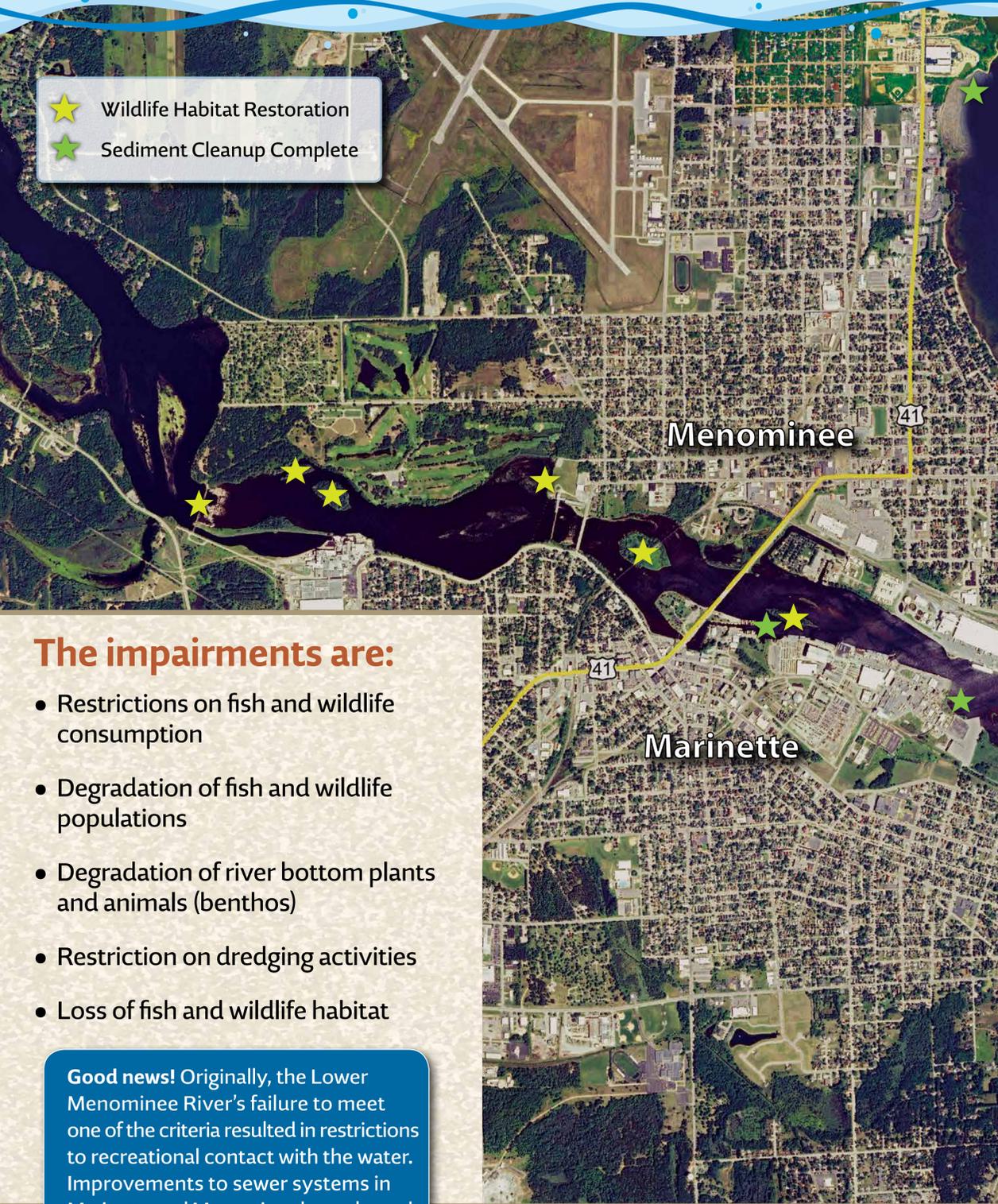


# Lower Menominee River



- ★ Wildlife Habitat Restoration
- ★ Sediment Cleanup Complete

Explore & Restore



The Menominee River suffers from environmental degradation and is labeled an "Area of Concern." There are 14 criteria against which each Area of Concern is measured. The Lower Menominee River Area of Concern fails to meet five of these criteria. A restoration plan has been developed to address those specific criteria and once restoration activities are complete, the Lower Menominee River can be removed from the Area of Concern list.

## The impairments are:

- Restrictions on fish and wildlife consumption
- Degradation of fish and wildlife populations
- Degradation of river bottom plants and animals (benthos)
- Restriction on dredging activities
- Loss of fish and wildlife habitat

**Good news!** Originally, the Lower Menominee River's failure to meet one of the criteria resulted in restrictions to recreational contact with the water. Improvements to sewer systems in Marinette and Menominee have cleaned the water so that this restriction has now been removed.

In 1987, the governments of the United States and Canada identified environmentally degraded locations throughout the Great Lakes Basin labeled "Areas of Concern". These locations are the focus of ongoing cleanup and restoration efforts. The Lower Menominee River is one of these Areas of Concern.



## 43 Areas of Concern have been identified:

- 26 located entirely within the United States
- 12 located wholly within Canada
- 5 are binational waterways shared by both nations
- 4 United States Areas of Concern have been removed from the list

TO LEARN MORE VISIT:  
[fyi.uwex.edu/aocs](http://fyi.uwex.edu/aocs)  
[dnr.wi.gov](http://dnr.wi.gov)

OR

<http://michigan.gov/deq>  
 keyword search "Area of Concern"



Stay informed or offer comments on the restoration effort by contacting:

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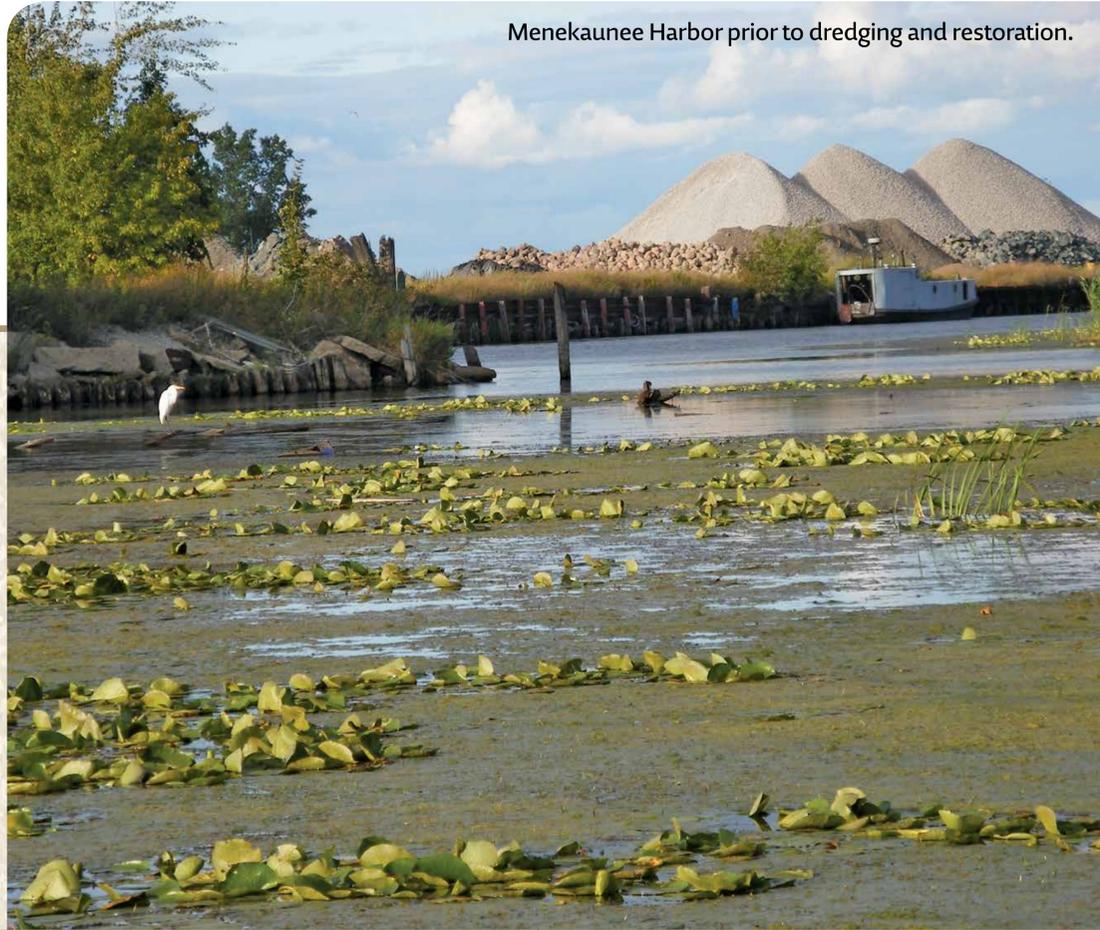


# Dredging

In the era before modern environmental regulations, municipal and industrial waste and pollution were commonly discharged directly to America's waterways. Over the decades, petroleum-based chemicals, heavy metals, and other pollutants collected in the river bottom resulting in contaminated sediments. Years after the pollution sources were controlled, the lingering contaminants continued to negatively affect people and the environment.

The parties found responsible for contamination in the Lower Menominee River worked to clean up the contaminated sediment, making a better river for all! Cleanup was achieved by dredging the contaminated sediments from the river and bay and safely disposing of them in properly designed landfills.

Photo by Ben Uvaas, WDNR



Menekaunee Harbor prior to dredging and restoration.

## Dredging benefits everyone

- Improved water depths for boating and recreation
- Removal of pollutants harmful to people, fish, and wildlife
- Opportunities for new economic development and tourism
- Fish and wildlife habitat restoration opportunities
- Improved quality of life for the community

## Dredging Projects

Backhoes were used to remove contaminated sediment from Menekaunee Harbor.



Photo by Cheryl Bougie, WDNR

Backhoes were used to remove paint sludge from the bottom of Green Bay at the Lloyd Flanders site. A special curtain held by yellow floats contained stirred-up sediment and kept it from being carried into Lake Michigan.



Photos by Steve Zander

At the Ansul site, contaminated sediment was carefully loaded into onsite bins for treatment and disposal after being dredged from the river by crane. The bins were regularly monitored to determine concentrations of contaminants prior to landfill disposal.



Backhoes were used to remove contaminated sediments from the river and unload them for treatment and disposal onshore. Metal sheet piling and absorbent oil booms were used to keep coal tar from moving downstream at the Wisconsin Public Service site.



Photos by Ben Uvaas, WDNR

### Menekaunee Harbor

By 2010, Menekaunee Harbor had filled in with sand and sediments from upstream. Urban and industrial activities had contaminated the sediment with heavy metals and petroleum products.

With the help of Great Lakes Restoration Initiative funding, the Wisconsin Department of Natural Resources and City of Marinette dredged the harbor in 2014 to remove contaminated sediments and to accommodate recreational and commercial fishing boats.

Removing the contaminated sediments will significantly benefit fish and other wildlife.

### Paint Sludge

In 1992, Michigan DNR found Lloyd Flanders Inc. responsible for the cleanup of paint sludge left by a previous owner near their facility in Menominee, Michigan.

The Company paid for the removal of 30 million pounds of hazardous waste and contaminated sediments in 1995.

Lloyd Flanders Inc. continues to patrol the shoreline for washed up balls of paint but very few are now found. The cleanup has been deemed a success!

### Arsenic

From 1957 to 1977, the former Ansul Chemical Company made an arsenic-based herbicide. Inadequate disposal and storage of process wastes led to high levels of arsenic contamination in soil and groundwater at the Ansul property and the adjacent river bottom.

Ansul is now owned by Tyco International. Tyco began dredging arsenic-contaminated sediments from the river in 2012 and continued through November 2013. A Great Lakes Legacy Act Betterment Project was completed in fall of 2014 to remove additional material down to 20 parts per million total arsenic. Working under an agreement from the US EPA, Tyco has spent millions of dollars cleaning up and containing arsenic contamination on their property.

### Coal Tar

The Marinette Manufactured Gas Plant operated from 1910 to 1960 near present day Boom Landing. Coal, through a gasification process, was converted to a gas for power generation. Coal tar, a byproduct of this process, was used in pavement sealant, wood preservative, or dye. Some was disposed of onsite and entered the river through a former slough.

Wisconsin Public Service Corporation completed dredging and removal of contaminated sediment in March 2013.

Photos by Cheryl Bougie, WDNR

# Habitat Restoration

Wisconsin and Michigan state agencies have teamed up with a diverse group of local stakeholders called the Citizens Advisory Committee. Working together, they have developed a plan to preserve and improve habitat in the river. Key pieces of the plan include:

- Providing safe passage around dams for lake sturgeon to increase their population
- Protecting and improving island and shoreline habitat for water birds like herons
- Restoring wetland and aquatic habitat to improve fish spawning success and wildlife populations



## Sturgeon Facts:

- Sturgeon can live to be over 100 years old
- Females begin spawning when they're 24-26 years old and only spawn every 4-6 years
- They can grow to be over seven feet long and 200 pounds

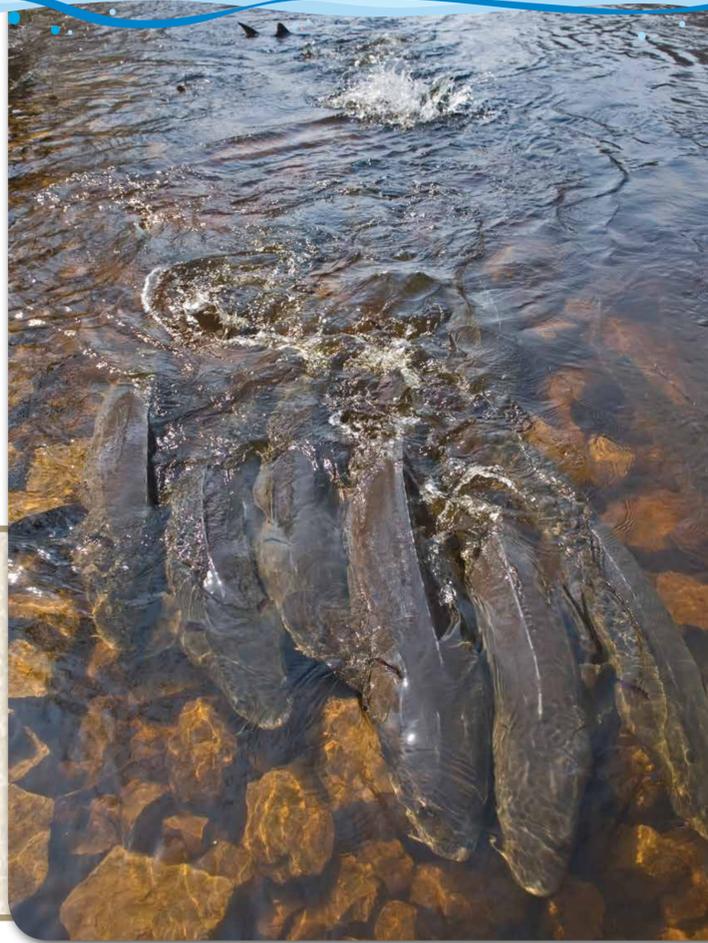


Photo by Bob Rashid



Strawberry Island buckthorn removal crew.

Photo by Derek Strohl, Bureau of Land Management



Photo by Margaret Stearn

Hérons and egrets are large waterbirds that prefer to nest in groups where predators cannot reach them. Islands can be the perfect habitat for them to form nesting colonies. However, non-native plants like phragmites and buckthorn are invading these islands and outcompeting native trees used for nesting. Volunteers are working with environmental agencies and UW-Marquette to remove non-native plants and save the colony.

Photo by Ben Uvaas, WDNR

Quiet backwater areas make good locations for waterfowl nesting platforms.



It is estimated that there were once 2,000,000 adult lake sturgeon in all of Lake Michigan. Overfishing, pollution, and barriers to historic spawning grounds reduced populations to about 3,000. Nearly half of the sturgeon in Lake Michigan come from the Menominee River! Eagle Creek Renewable Energy owns the lowest two Menominee River dams. They are partnering with federal, state, and nonprofit organizations to create means for the sturgeon to move around the dams and reach more habitat. The partnership hopes to grow the Lake Michigan sturgeon population to 20,000.

Providing sturgeon passage around the dams will provide access to historic spawning and rearing habitat resulting in larger populations with a more diverse gene pool.



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Now that contaminated sediments have been removed, environmental agencies and the Citizens Advisory Committee are restoring wetland habitat within the Area of Concern. Wetland and quiet backwater areas are important spawning habitat for a number of fish. These areas are especially important for young fish that need to hide from predators and find enough food to grow.