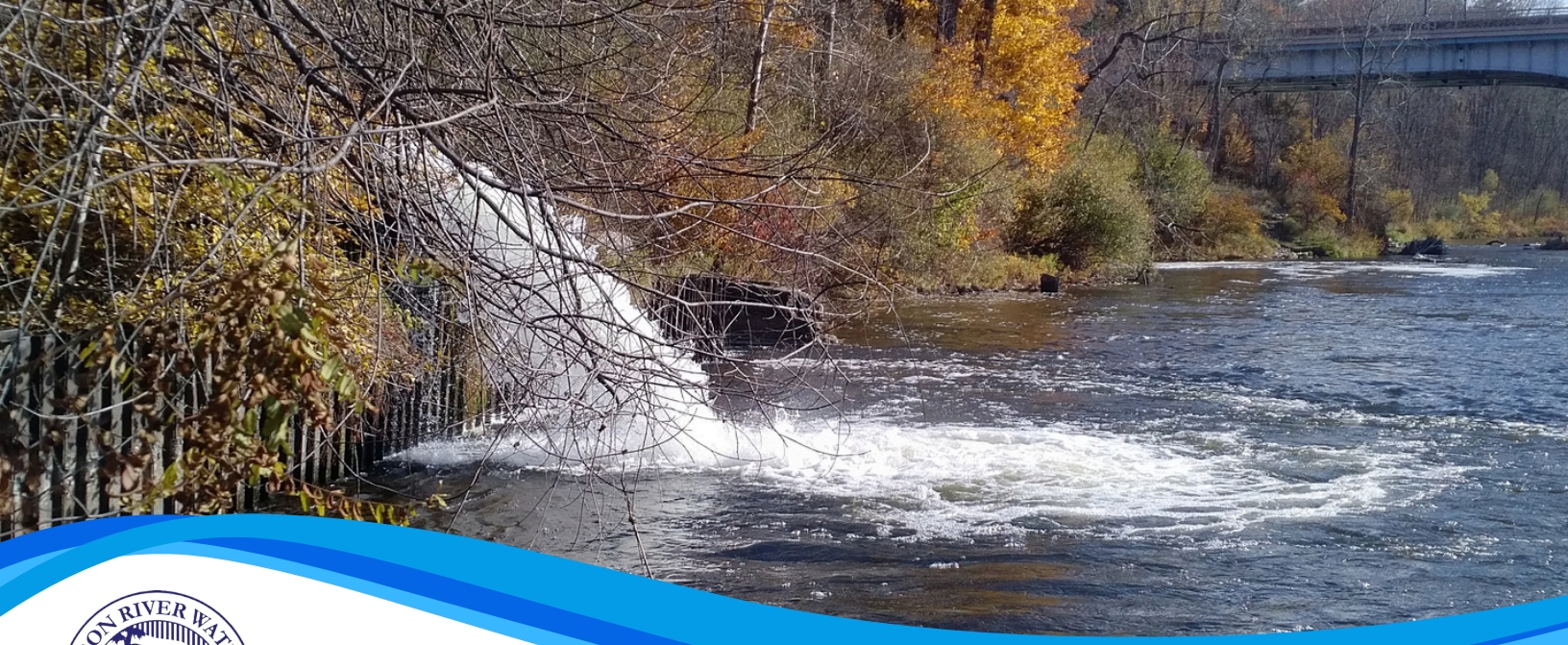


The Restoration of Penoyer Creek

Historic past, derelict present, promising future

Penoyer Creek is an iconic feature of the landscape and history of the Newaygo area. Originating in the outflows of Pickerel and Emerald Lakes, the stream flows approximately 5.25 miles before plunging into the Muskegon River under M-37 just north of the City of Newaygo. Penoyer Creek is a regionally rare and unique stream, with one of the steepest gradients in the watershed, upper reaches supporting diverse warmwater-coolwater fisheries, and numerous groundwater inputs in the lower sections which supports a healthy coldwater fishery and resident brook trout population.

Its no doubt this natural wonder was recognized when Augustus Penoyer and company constructed the sawmill in the Muskegon River Watershed at its mouth in 1837. Since, around nine impounding structures have been constructed on Penoyer Creek to power mills, logging operations, manufacturing, and energy production. Three impoundments remain; the Wisner Impoundment (formerly Rowe Manufacturing), Rowe Dam #1, and furthest upstream, Rowe Dam #2. However, 188 years of impoundment, habitat modifi-cation, and industrial use has heavily impacted and fragmented the natural wonder of Penoyer Creek. The structures are in poor condition, high priority for removal due to the public safety risk and high environmental impacts the impose. In 2019, a high water event forced an emergency drawdown of Rowe Dam #2, introducing sediment downstream and degrading habitat and conditions. The stream helped to build Newaygo, now it is in vital need of restoration, of our help.

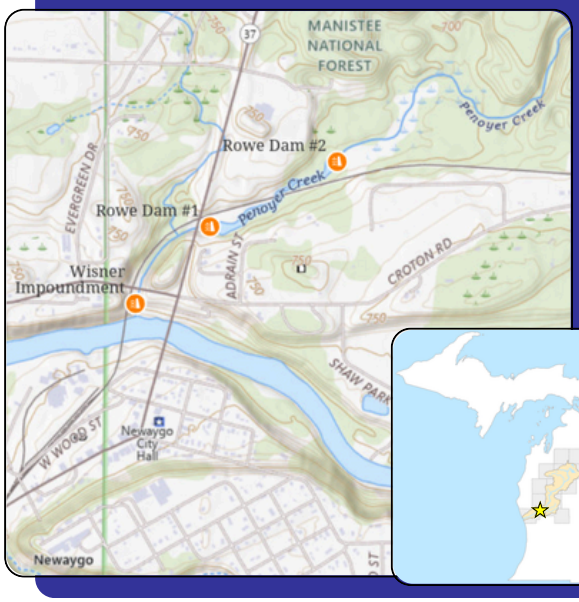
The Muskegon River Watershed Assembly, Consumers Energy, and partners have recognized the need to restore this iconic waterway, and are working towards the removal of these three impoundments and re-establishment of a natural, free flowing Penoyer Creek so that this natural wonder may be enjoyed for generations to come.

PROJECT IMPACTS:

- Conservation and Restoration of over 1.32 miles of continuous stream habitat.
- Reconnection of Penoyer Creek to 47 miles of the Muskegon River and the Great Lakes.
- Reduction of summer stream temperature by up to 4 °F.
- Recreational benefit and opportunity for the local community.
- Reduction/elimination of environmental and safety risks imposed by three dam structures.

PROJECT GOALS:

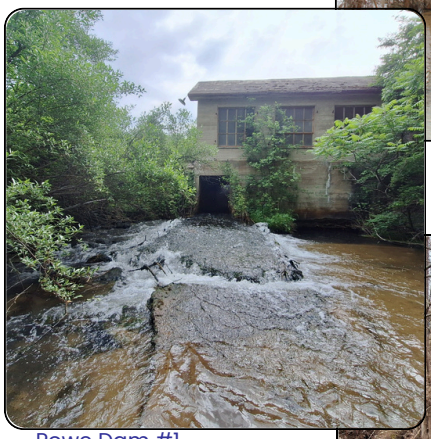
- Complete removal of a series of three over-100-year-old impoundments.
- Re-establishment of a natural stream channel and floodplain.
- Restoration of habitat, connectivity, and natural stream function for a healthy, free-flowing Penoyer Creek.



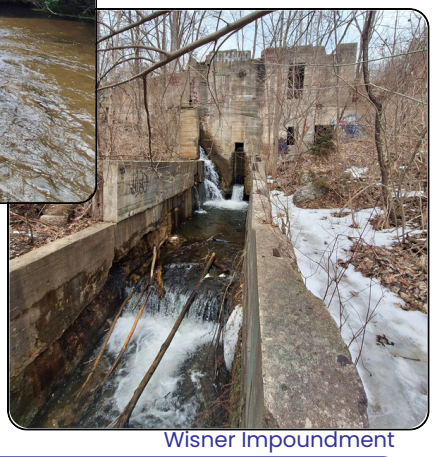
Removing a series of three impoundments such as those on Penoyer Creek is no easy task. The naturally high stream gradient and years of sediment build up present technical challenges to restoration. MRWA and its partners are implementing best practices—guided by ecology, geology, and engineering—to efficiently and successfully restore Penoyer Creek to a natural state, minimizing potential disturbance.

- **Sediment Management:** Phased drawdowns and sediment management strategies will reduce downstream impacts and protect water quality. Sediment may be used on-site in the restoration or removed.
- **Site Sensitivity:** In-stream work will be scheduled to avoid critical fish spawning and migration periods. Construction access and staging areas will be limited. Sensitive habitats will be protected and improved.
- **Natural Restoration Design:** Restored stream sections will follow natural, stable channel forms and flow regimes. Native vegetation will be planted to stabilize banks, support biodiversity and ecosystem resiliency.
- **Monitoring & Evaluation:** pre-and-post construction biological monitoring and long-term evaluation will guide adaptive management to ensure restoration success.

Rowe Dam #2



Rowe Dam #1



Wisner Impoundment

ESTIMATED PROJECT COSTS

Wisner Impoundment	~$2,000,000
Rowe Dam #1	~$1,500,000
Rowe Dam #2	~$2,500,000
TOTAL	**~$6,000,000**

Robert A. Wisner & Carol Blair Family

Consumers Energy

EGLE

ENCOMPASS Socio-ecological Consulting

Before 2025
- Planning
- Pre-development
- Early Fund Raising

2025
- Rowe Dam #1 Surveying, Engineering & Design
- Fund Raising
- Rowe Dam #2 Surveying, Engineering & Design

2026
- **Rowe Dam #2 Removal**
- **Rowe Dam #1 Removal**
- Wisner Impoundment Surveying, Engineering & Design
- Permitting

2027
- Complete Fund-raising
- **Wisner Impoundment Daylighting**

Future
- Monitoring & Evaluation

A healthy, functional, free-flowing Penoyer Creek is restored

A Healthy, Functional, Free Flowing Penoyer Creek

What would a restored Penoyer Creek look like? It can be difficult to imagine. Generations of impoundment and sediment build-up changes the landscape. But evidence of how a stream has moved for nearly 10,000 years before humans altered it's flow is buried beneath the sediment. Just as each stream is different, each dam removal is different. Survey and analysis of the geology, hydrology, ecology, and history of each dam removal site guides our restoration, and ensure our success in returning a stream to a natural state.

Looking across the Muskegon River, lower Brooks Creek (pictured left) serves as an excellent reference for what a naturally restored Penoyer Creek may resemble. A high gradient stream nestled in a narrow valley, with many groundwater inputs and shaded canopy. Riffles and pools, boulders and woody structure create complex habitat, the cold water holding healthy brook trout, an excellent angling opportunity for human or heron alike. Downstream, the Chinook, Coho, and Steelhead stage at its mouth in Fall and Spring, taking advantage of the cold-water as they make their push upstream. Penoyer Creek can be a peaceful place, a place for community, for good memories, a place where time can pass slow and natural wonder can flow freely.

For more information or to make a donation of support today, contact the Muskegon River Watershed Assembly.

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