

A photograph of the Dowagiac River during the removal of the Pucker Street Dam. The river flows from the background towards the foreground, where a large concrete dam structure is visible. The water is turbulent and white with foam as it passes over the dam. The riverbanks are lined with dense green trees and vegetation. A concrete wall with a metal fence runs along the left bank. In the background, two people are standing near the riverbank. The sky is overcast.

Dowagiac River Restoration – Pucker Street Dam Removal

Dowagiac River

- Unique Resource for SW Michigan
- Restoration Efforts and Opportunities
- Pucker St Dam Removal – Why and How
- Funding
- Partnerships



St. Joseph River Watershed
Fish Migration Barrier Inventory

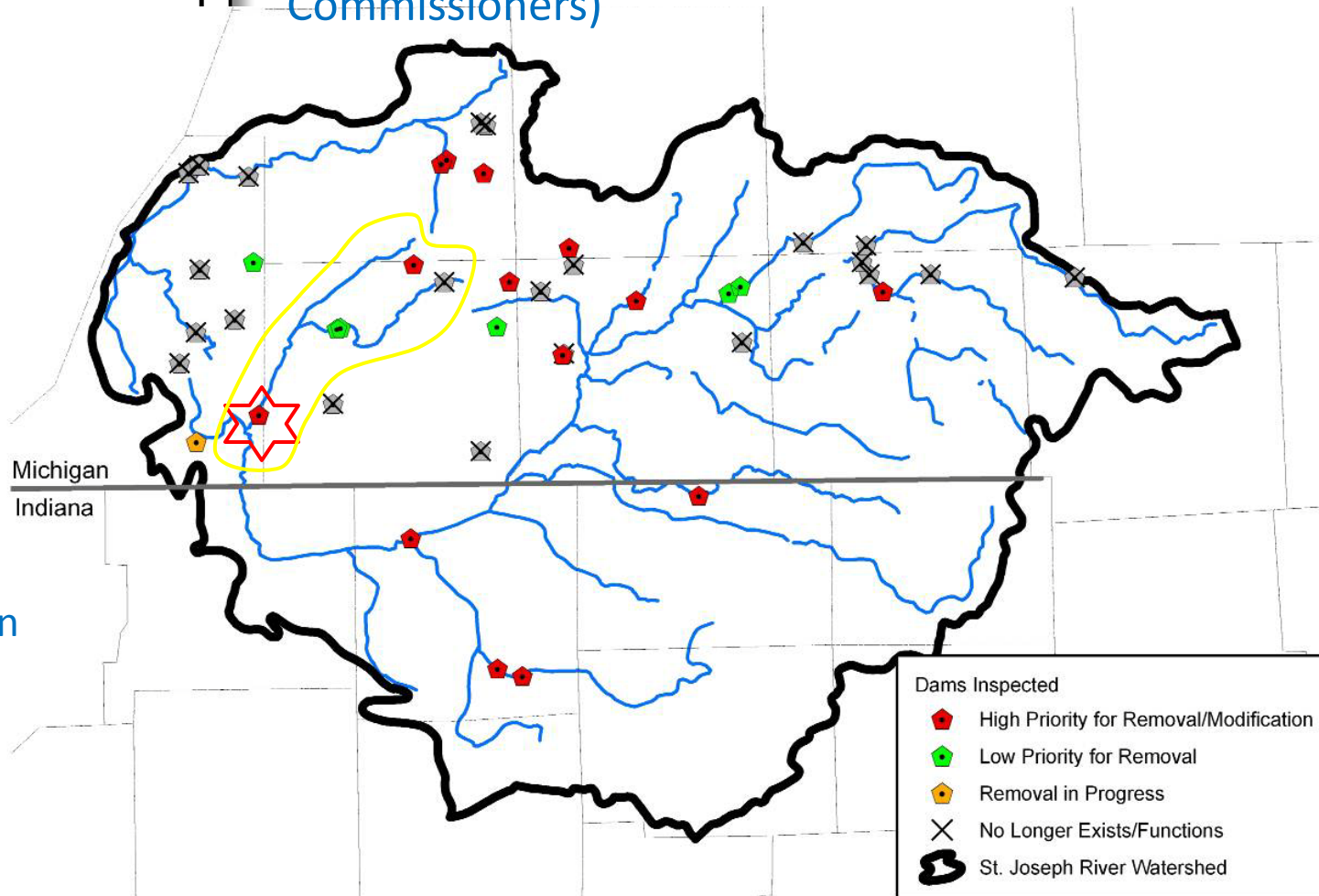
Prepared by:



2011

Unique Resource for SW Michigan Dowagiac River

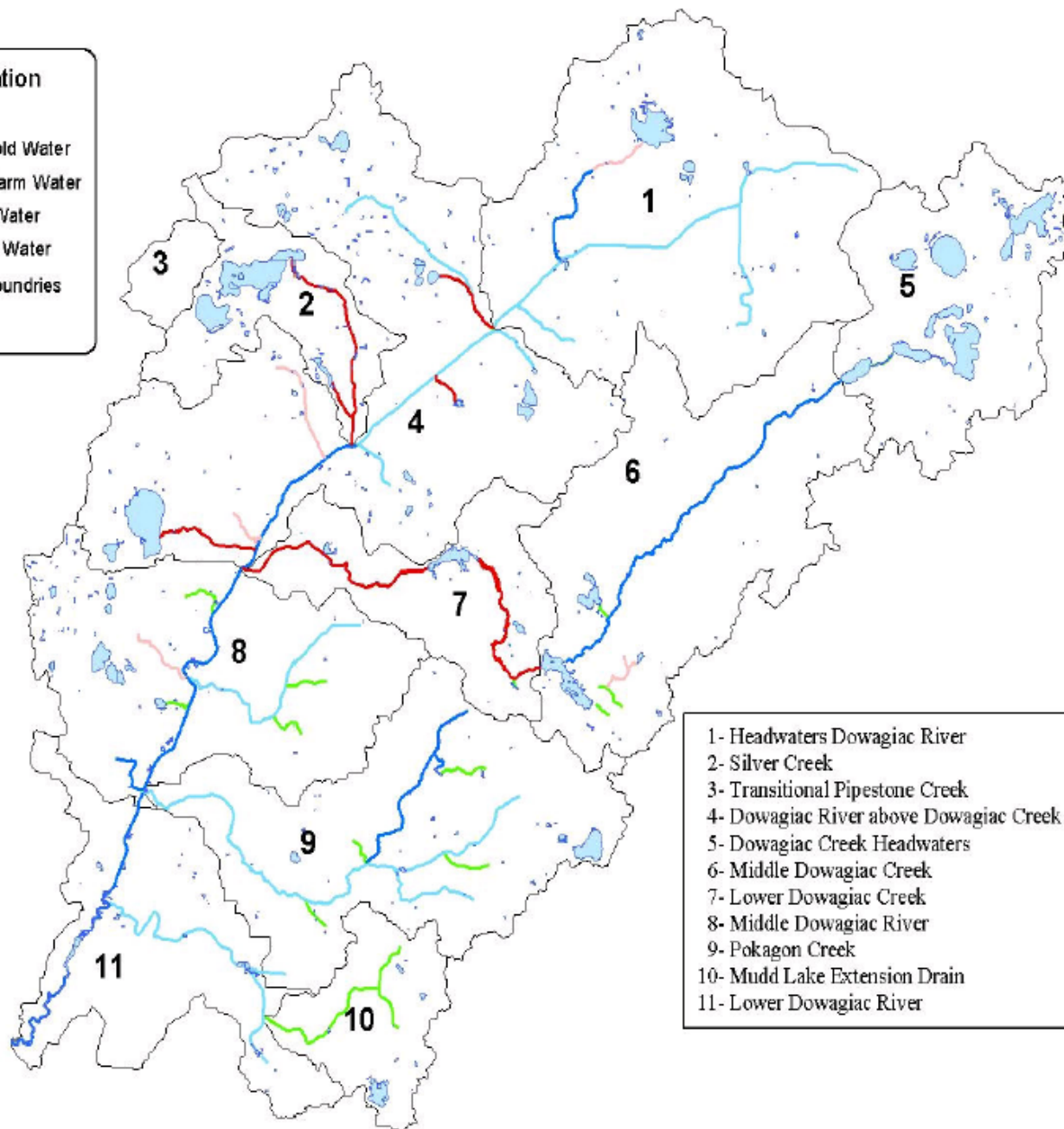
- Good quality cold water trout system
- Extensive river restoration work (MEANDRS, MDNR, Cass County Parks, County Drain Commissioners)



Pucker Street Dam
ranked #1 for removal in
St. Joseph River
Watershed

Fisheries Classification

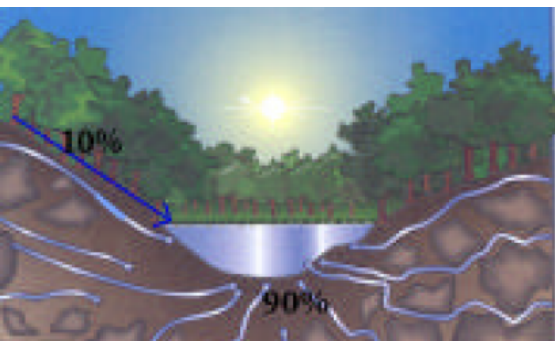
- No Classification
- Second Quality Cold Water
- Second Quality Warm Water
- Top Quality Cold Water
- Top Quality Warm Water
- Sub-Watershed Boundaries
- Lakes



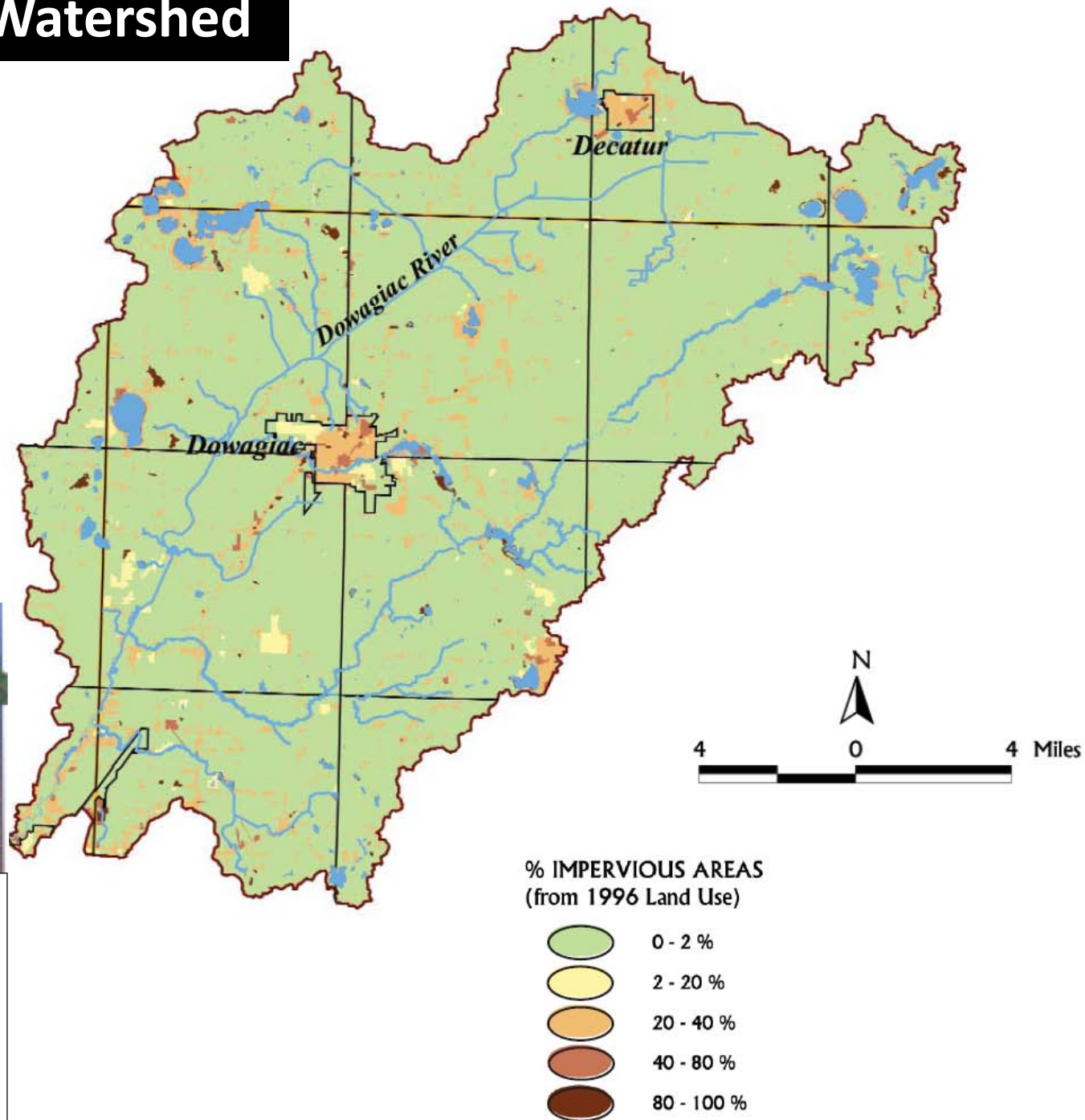
- 1- Headwaters Dowagiac River
- 2- Silver Creek
- 3- Transitional Pipestone Creek
- 4- Dowagiac River above Dowagiac Creek
- 5- Dowagiac Creek Headwaters
- 6- Middle Dowagiac Creek
- 7- Lower Dowagiac Creek
- 8- Middle Dowagiac River
- 9- Pokagon Creek
- 10- Mudd Lake Extension Drain
- 11- Lower Dowagiac River

Sub-Watersheds and Major Tributaries of the Dowagiac River Watershed

Dowagiac River Watershed

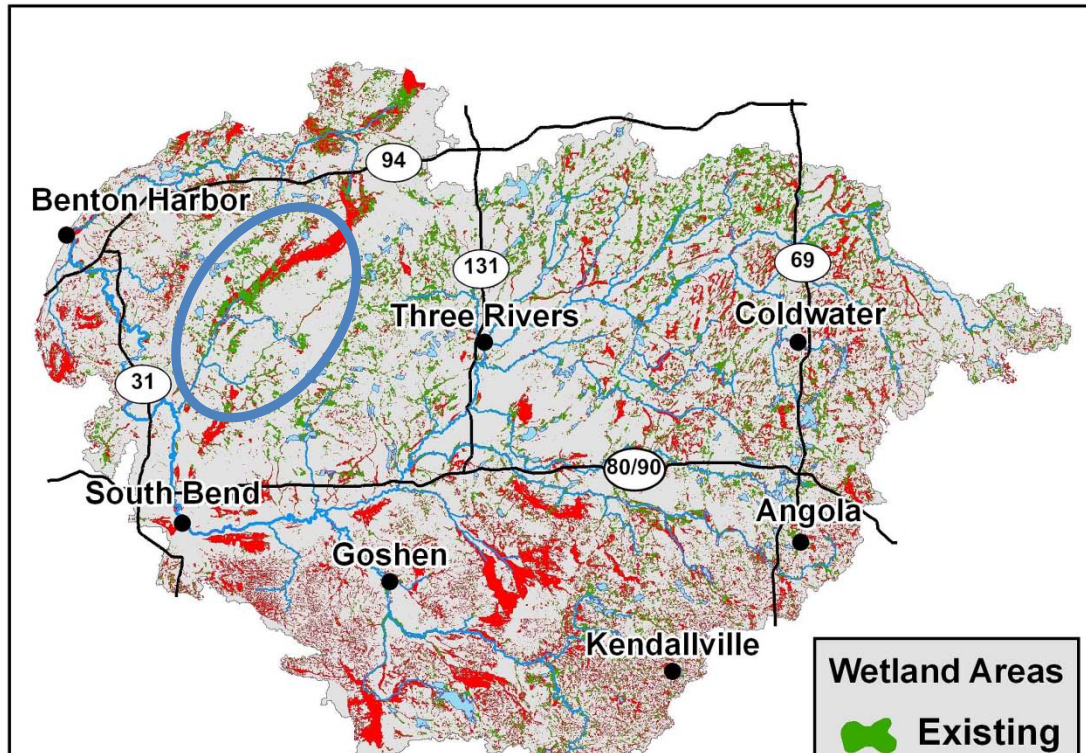


This large groundwater input maintains the cold water temperatures and stable flows in these rivers and streams.



Unique Resource - Quality of Dowagiac River

- Overall good water quality
- Wetlands – only 39% loss
- Great fishing

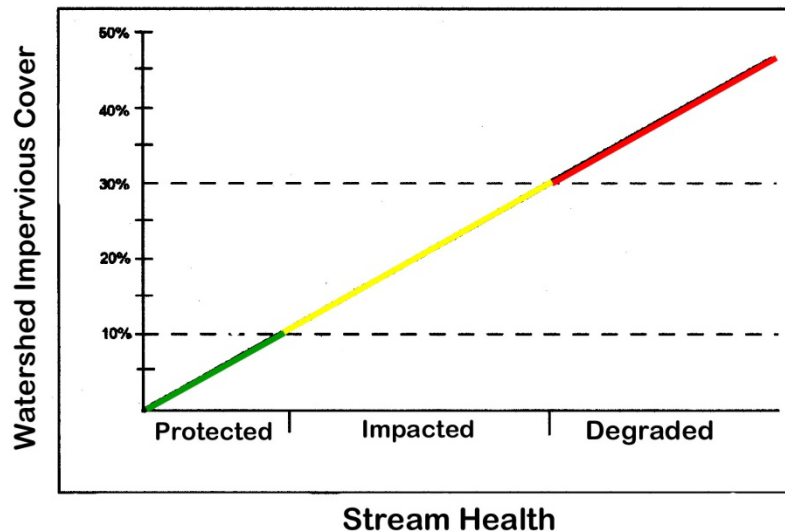


Unique Resource - Quality of Dowagiac River

- **Biggest Current Threats**

- Agriculture
- Urban development
- Polluted Runoff

Relationship of Impervious Cover to Stream Health





Success Story in the Dowagiac - Pokagon Band Development

- Minimized impervious areas
- Maximized infiltration & groundwater recharge



LID Techniques

Narrow/porous roads

No curb and gutter

Porous trail surfaces

Efficient floor plans

Native plants/
grasses

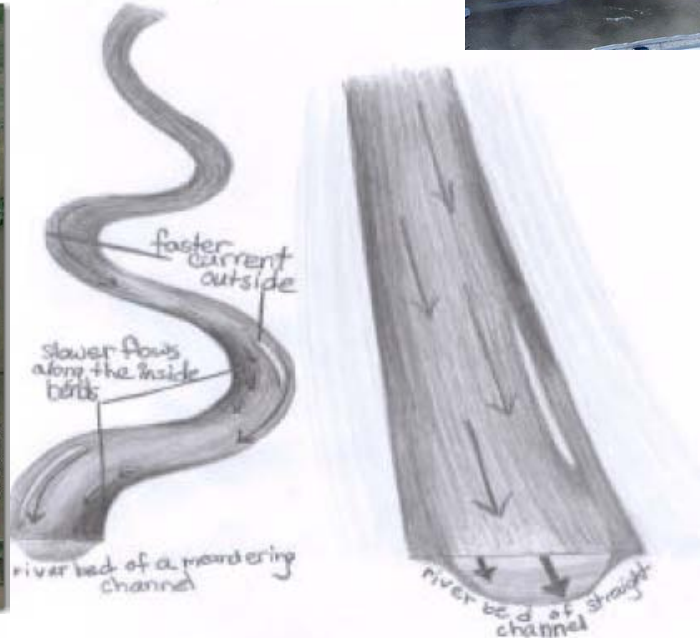
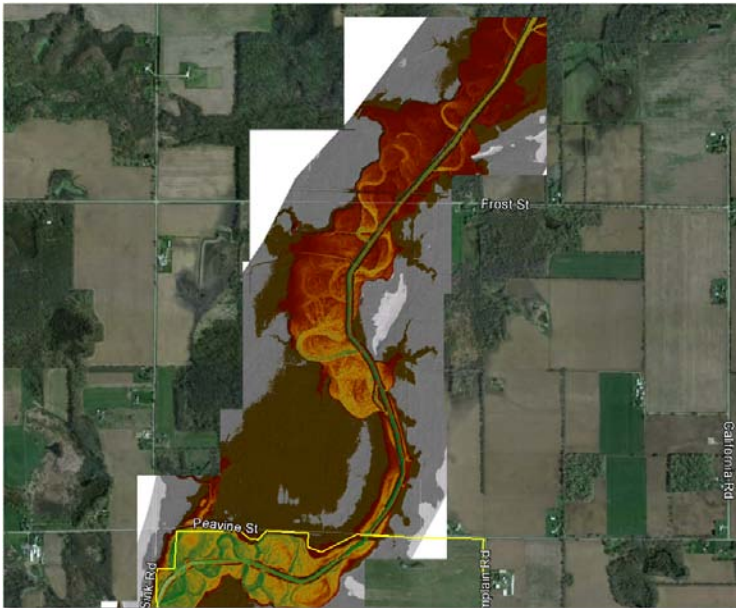
Bioswales/rain
gardens

Preserved open
space



Unique Resource - Quality of Dowagiac River

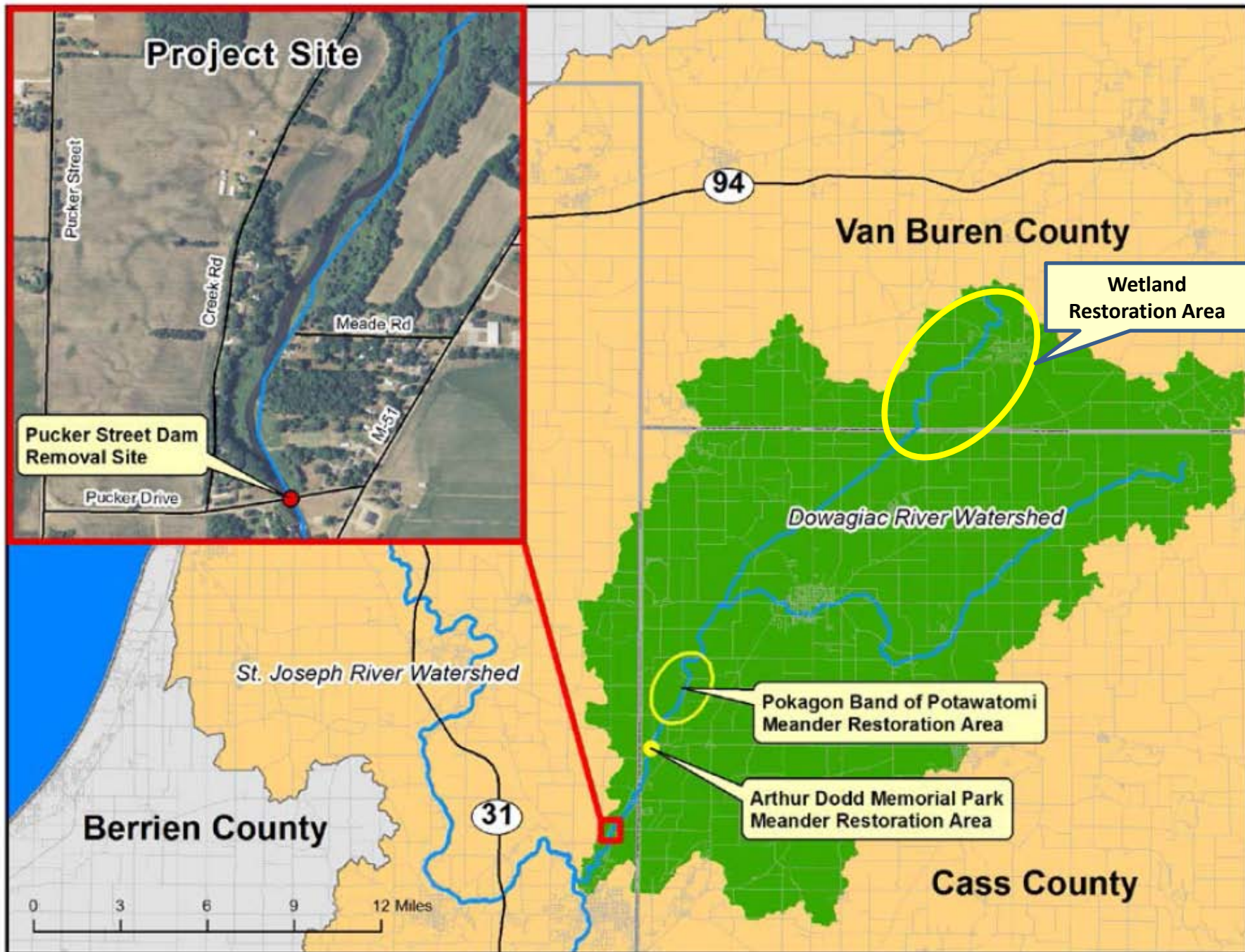
- **Historic Impacts**
 - Channelization & Pucker St Dam



Restoration of Dowagiac River – Meanders Restoration



Dodd Park, Cass County



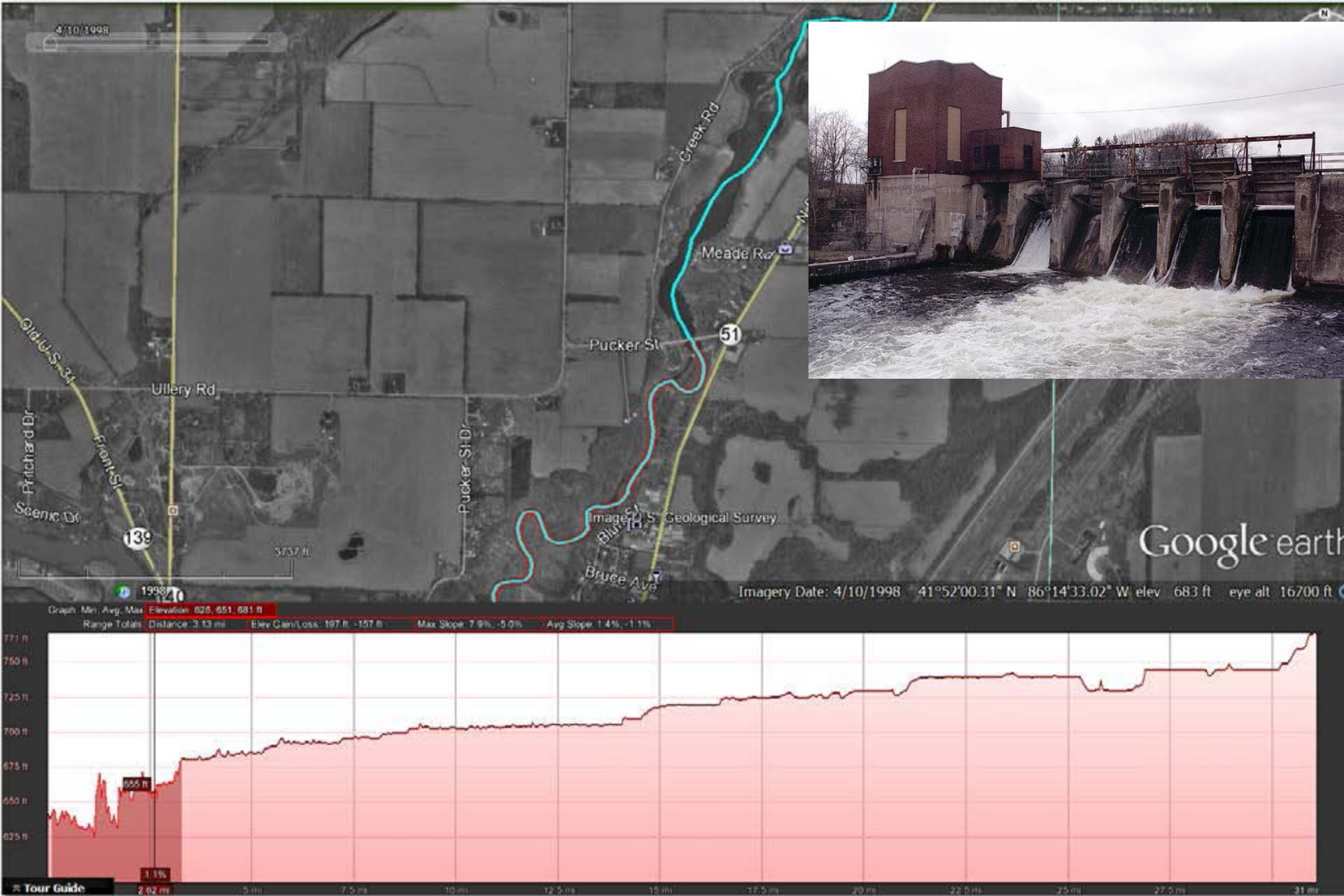


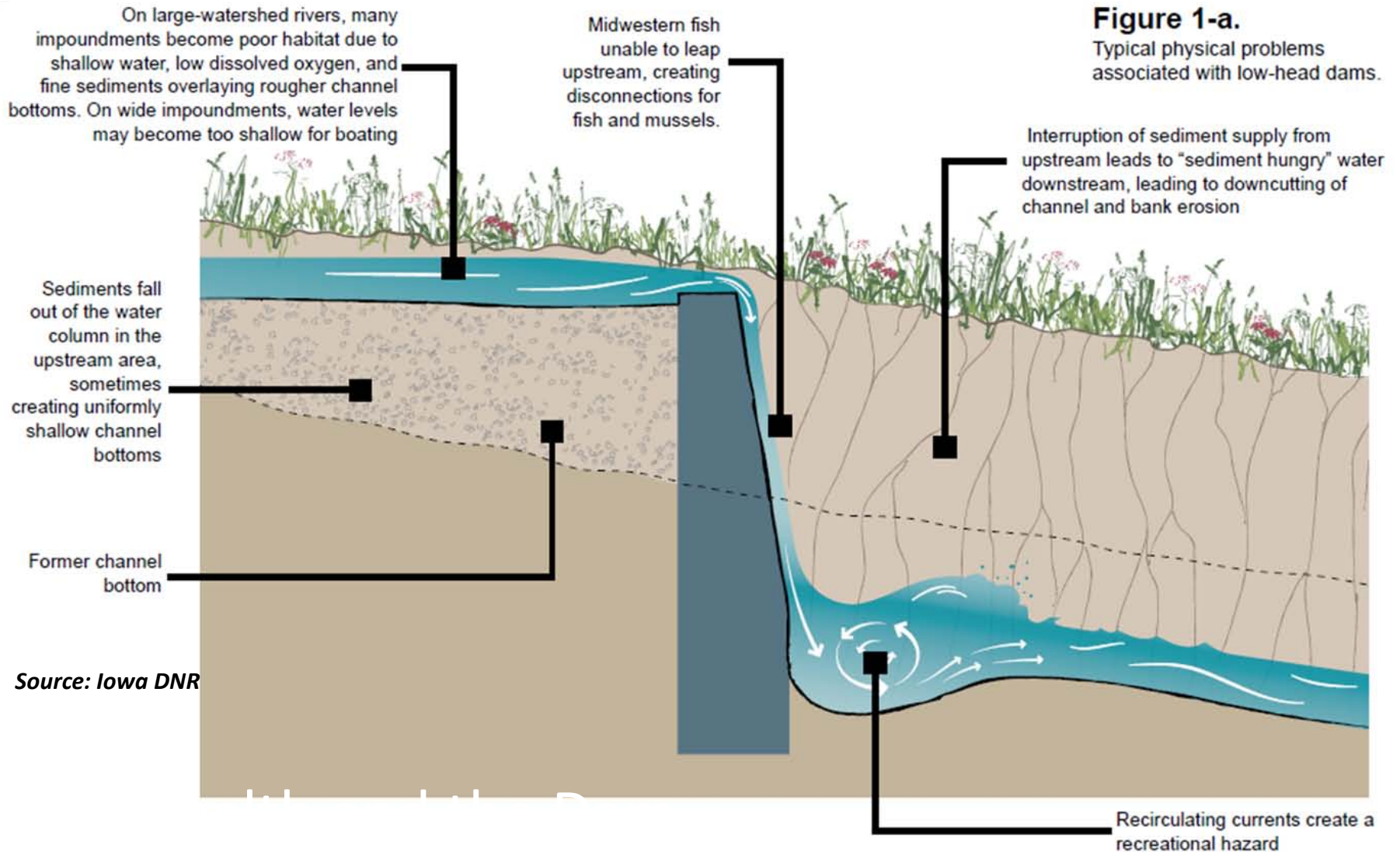
Figure 1: The Pucker Street Dam was built on the high gradient section of the Dowagiac (highlighted) as it flows down into the St Joseph River valley - a unique habitat in southern MI.

Restoration of Dowagiac River – Dam Removal

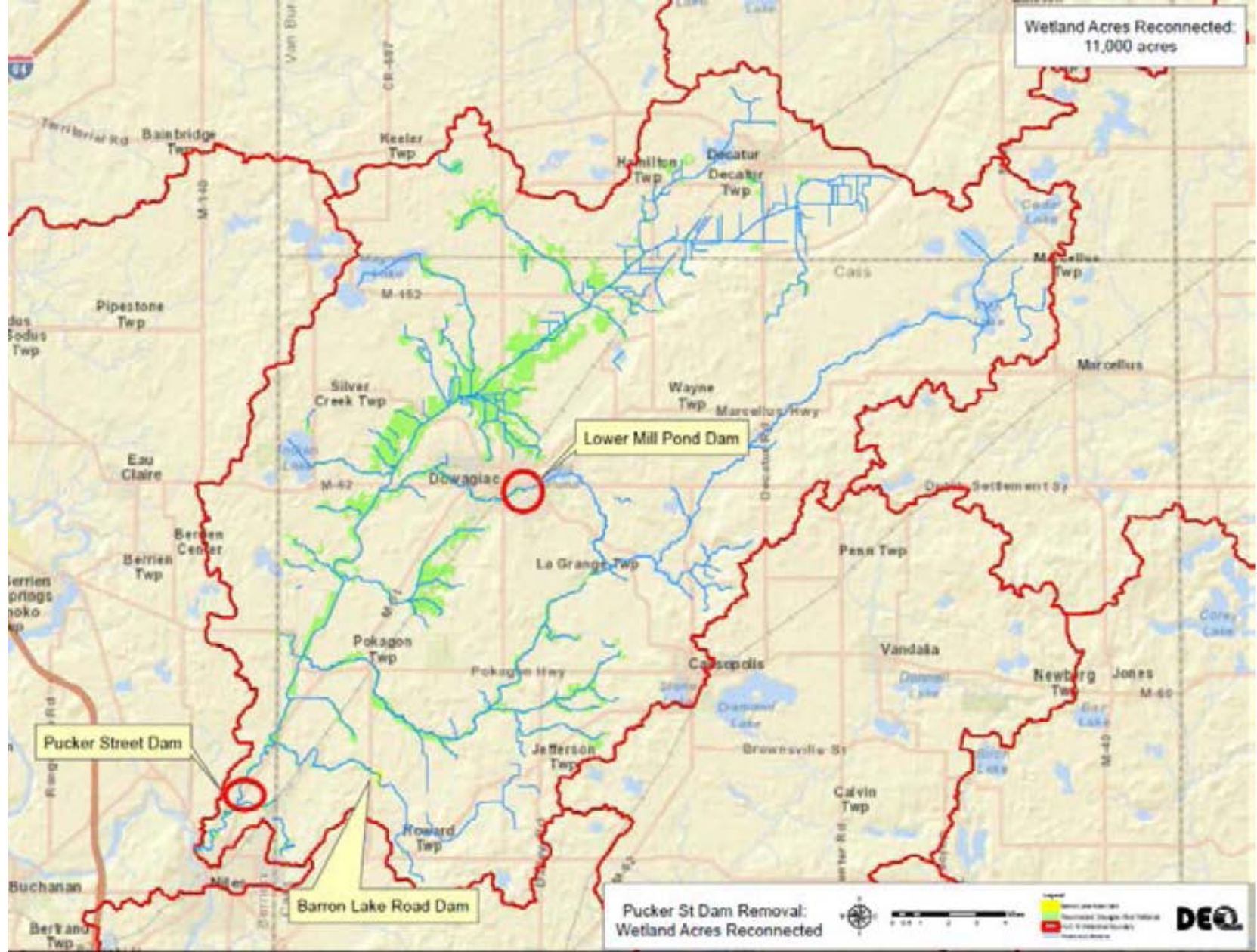


- Removal is usually 60% less than repair
- Continued Liability and Safety Issues
- Restore Connectivity for migrating fish and other organisms
- Improve Water Quality
(dissolved oxygen, sediment transport, etc)
- Recreational Economics:
Fishing - Anglers spend \$38B annually on fishing;
Boating - \$100M on kayaking/canoeing

Impacts of the Dam



Wetland Acres Reconnected:
11,000 acres



Restoration of Dowagiac River – Dam Removal Process

- **Data Collection**

- sediment testing, depth of refusal survey, hazardous material survey, wetland/floodplain delineation, etc

- **Develop concepts (involve public) and Select Final Design**

- Sediment management

- **Apply for permits**

- **Develop bid documents**

- **Dam Removal and River Restoration**

- Dredge sediment, sculpt river channel,
- Demolish dam
- Add structure to river channel
- Plant riparian areas
- Ensure access for fishing and boating

- **Monitor**

Coordinate with Partners



Dowagiac River Restoration

Dam Removal Cost, Funding and Timeline

- Grant awarded: MDNR Aquatic Habitat (\$200,000)
- Grants pending: \$650,000
 - USFWS Fish Passage (\$200,000)
 - Great Lakes Fish Habitat Partnership (\$100,000)
 - Great Lakes Fishery Trust (\$100,000)
 - Sustain our Great Lakes (\$250,000)
- City will apply for:
 - MDNR Dam Management (\$350,000)
 - MI Natural Resources Trust Fund (?)



Partners for Dowagiac River Restoration

- Niles City
- Southwest Michigan Planning Commission
- Interfluve
- Wightman & Associates
- Michigan Department of Natural Resources
- Michigan Department of Environmental Quality
- US Fish & Wildlife
- Cass, Berrien and Van Buren County Drain Commissioners
- Cass/Berrien NRCS
- Berrien Conservation District
- Cass County Parks Department
- Dowagiac River Keepers
- Partnership for Meeting the Ecological and Agricultural Needs of the Dowagiac River System (MEANDRS)
- Friends of the St. Joe River (FotSJR)
- Potawatomi RC&D
- Southwest Michigan Economic Growth Alliance
- Pokagon Band of Potawatomi Indians



- **CONSTRUCTION**
- Structure demolition
- Sediment management
 - Sediment management approach along the active vs. passive scale will impact cost
- Restoration of channel
- Habitat and Bank Stabilization
- Public Access for Fishing/
Boating

