The Boardman
Ottaway River Reborn

Introductions:
Conservation Resource Alliance

- Mission:

  Coordinating the sensible stewardship of the land and water throughout Northwest Michigan.
- Non-profit 501c3 organization
- Staff size ranges between 10-12
- In operation for 56 years, started as a Resource Conservation & Development Council
- Memberships, donations & grants from federal, tribal, state, local, private sources
- Serves 15 counties in Northwest Michigan
- Primary Focus:
  - River Care Program
  - Wild Roots Program

Conservation
Resource Alliance

CRA's Workplan 2022-2024

Expertly caring for rivers & their tributaries throughout Northwest Michigan

RIVER CARE™

www.rivercare.org

2022-2024 Workplan Map

Carp Lake River Watershed
Prioritize Next Improvements or Restoration Needs

Maple River Watershed
1. Van Creek & Bike Trail - Trail/Stream Crossing Improvement
2. E Branch Maple River & Douglas Lake Rd -Road/ Stream Crossing Improvement
3. E Branch Maple River & Robinson Rd - COMPLETED Road/Stream Crossing Improvement
4. Lake Kathleen - Post Dam Removal and Monitoring

Jordan River Watershed
5. Jordan River & Jordan River Rd - East and West Rd Road/Stream Crossing Improvement
6. Deer Creek & Fuller Rd - Road/Stream Crossing Improvement

Boyne River Watershed
Prioritize Next Improvements or Restoration Needs

Boardman Watershed
7. N Branch Boardman River & Broomhead Rd COMPLETED Road /Stream Crossing Improvement

Prioritize Next Improvements or Restoration Needs

Mitchell Creek Watershed
8. Mitchell Creek & GTRLC Property Instream Habitat Improvements

Platte River Watershed
Prioritize Next Improvements or Restoration Needs

Crystal River Watershed
9, 10 & 11. Crystal River & County Rd 675 Road/Stream Crossing Improvement
12. Tucker Lake Outlet Channel & County Rd 675 Road/Stream Crossing Improvement

Betsie River Watershed
13. Betsie River & Haze Rd - Stream Crossing Improvement
Prioritize Next Improvements or Restoration Needs

Manistee River Watershed
14. Buttermilk Creek & N 39 Road/Stream Crossing Improvement COMPLETED
15. Buttermilk Creek & N 37 Road/Stream Crossing Improvement COMPLETED
16. Trib. of N. Branch Manistee & Grass Lake Road/Stream Crossing Improvement
17. Fletcher Creek & 4 Rd Road/Stream Crossing Improvement COMPLETED
18. Fife Lake Creek & County Line Road/Stream Crossing Improvement
19. Adams Creek & 14 Rd Road/Stream Crossing Improvement

Bear Creek Watershed
Prioritize Next Improvements or Restoration Needs

Pine River Watershed
Prioritize Next Improvements or Restoration Needs

Little Manistee Watershed
Prioritize Next LMWCC Improvements or Restoration Needs

Big Sable Watershed
Prioritize Next Improvements or Restoration Needs

Pere Marquette Watershed
20. PM Railroad - Streambank Stabilization & Floodplain Restoration
21. Scottville Riverside Park - Streambank Stabilization COMPLETED

Stony Creek Watershed
22. Stony Creek Marshville Dam Removal

Baldwin River Watershed
23. Baldwin River Dam Removal, Sea Lamprey Barrier, & River Restoration Project
24. N Cole Creek & E 24th St - Road/Stream Crossing Improvement

Conservation Resource Alliance

Contact us at 231-946-6817 or visit **www.rivercare.org** for more information

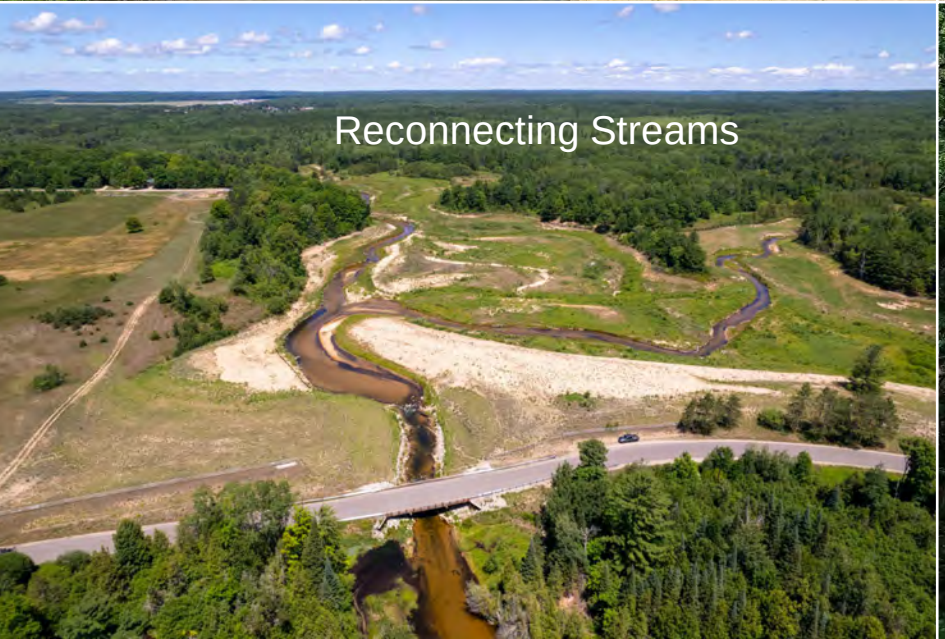
WILD ROOTS™

"Rewilding Michigan" - A Reforestation Program on public & private lands

www.rivercare.org/wildroots/

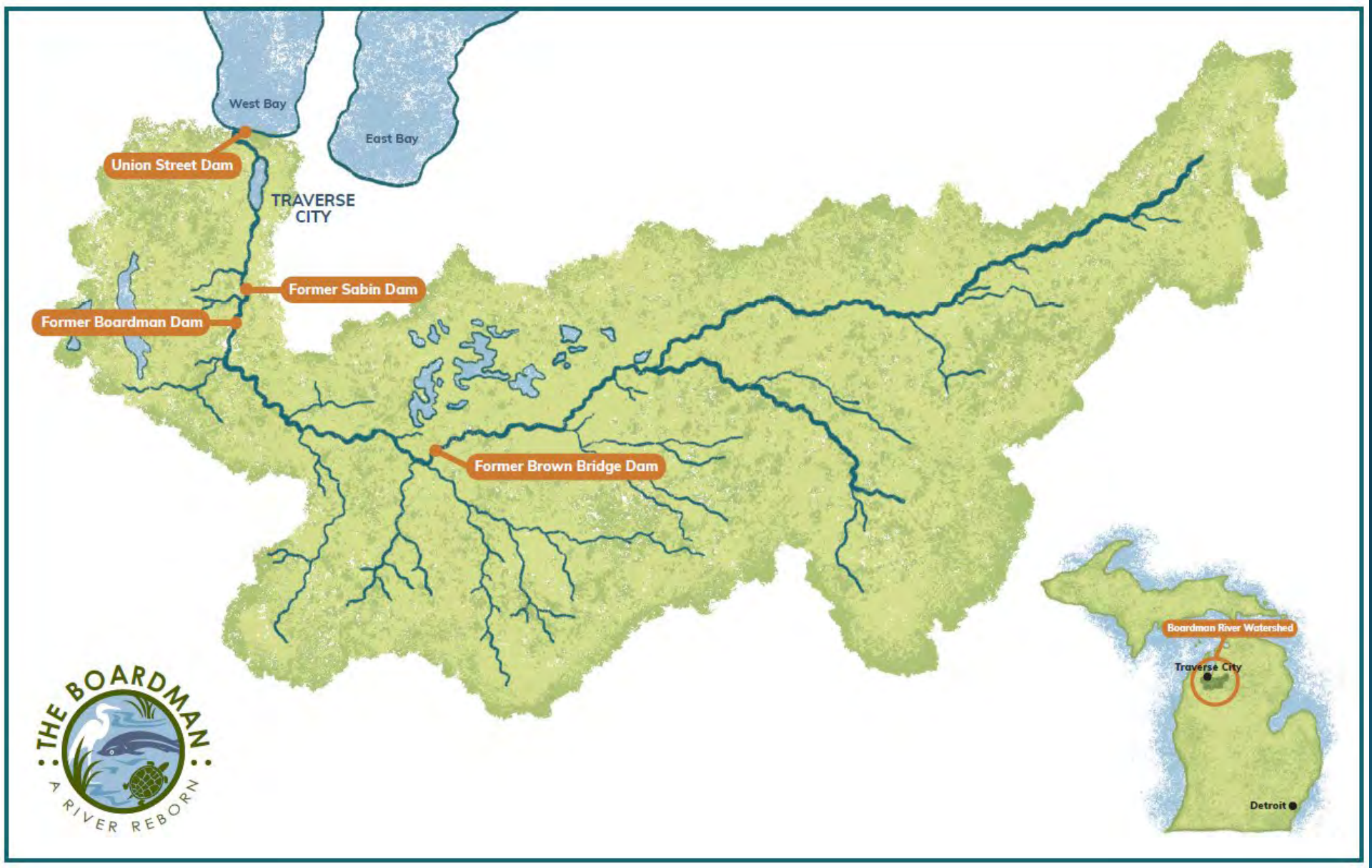
Conservation Resource Alliance

River Restoration & Reforestation



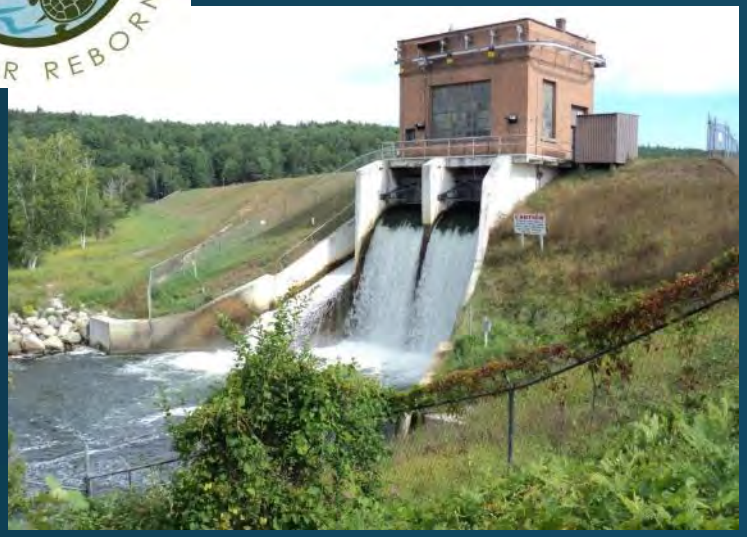
Boardman River Watershed

State Designated Natural River & Blue Ribbon Trout Stream



Boardman River Dams

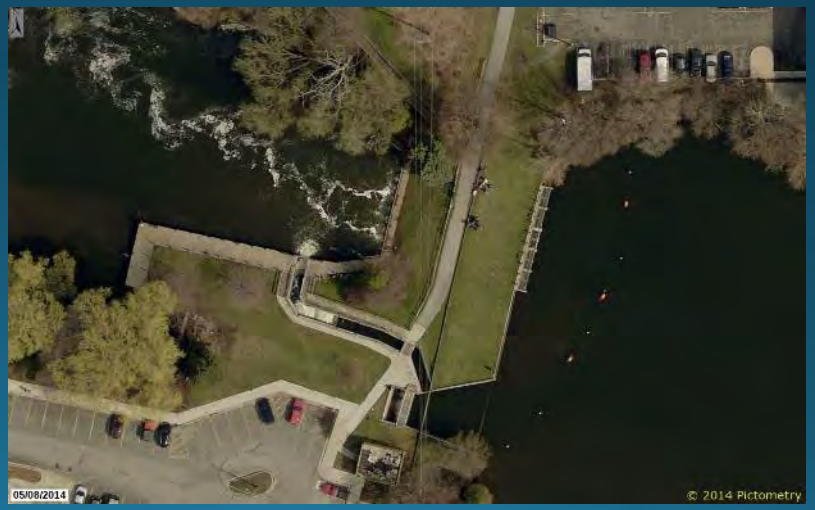
3 removals & 1 modification



#1 Brown Bridge, river mile 18.5

#2 Boardman & Cass Rd Bridge, river mile 6.1

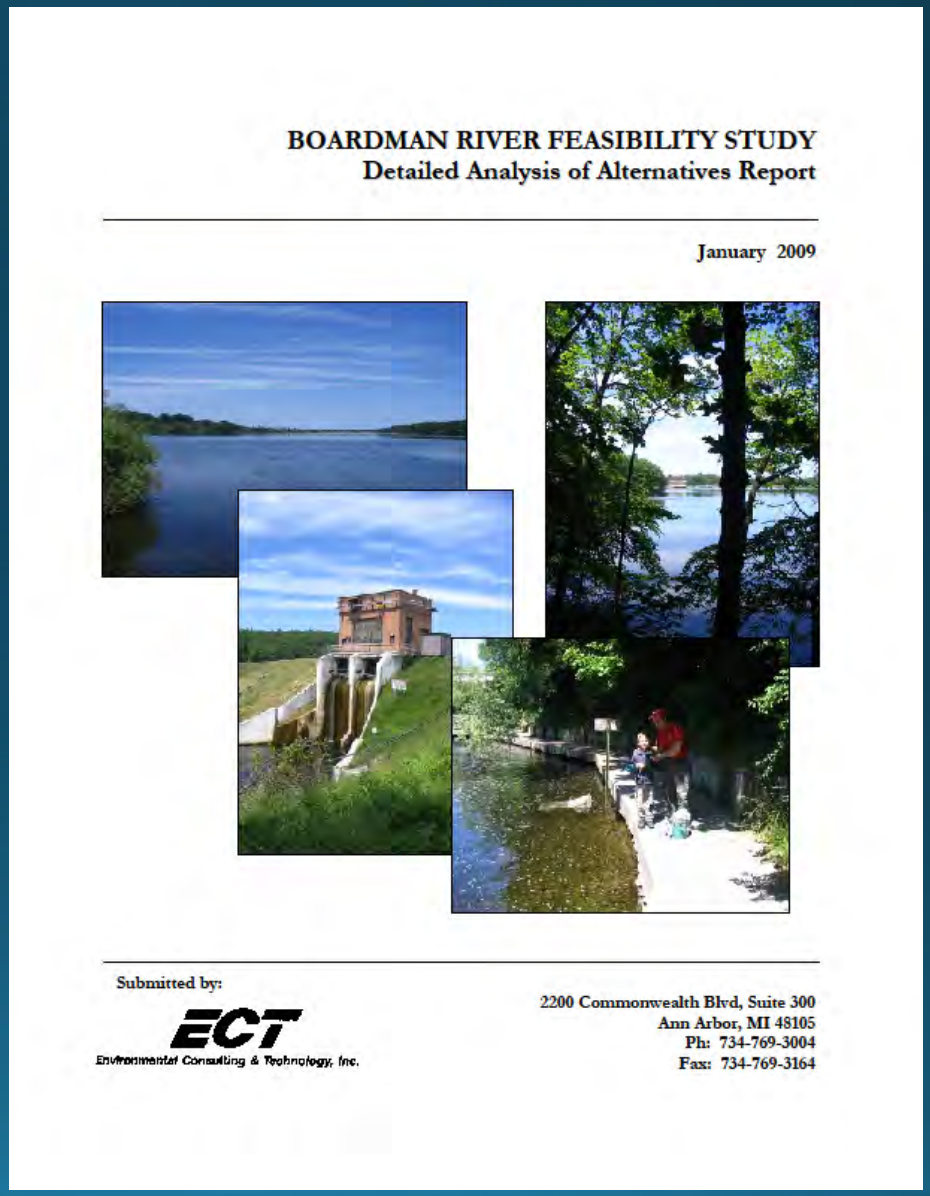
#3 Sabin, river mile 5.3



#4 Union Street, river mile 1.5

Determining the Fate of the Dams

- Traverse City Light & Power relinquished their lease in 2005
- City of TC & Grand Traverse County each owned 2 dams
- Settlement Agreement signed May 2005
- Locally-led Boardman River Dams Committee, created in 2005
- $1.1M in funding + $780k in-kind services
- Feasibility & Preliminary Engineering Studies (13) incl. 81 possible options
- Public process included monthly community meetings, started 2005
- Public opinion polls
- Decision finalized in 2009 to remove 3 dams & modify Union Street Dam



Project Team

Implementation Team (IT)

- Grand Traverse Band
- City of Traverse City
- Grand Traverse County
- Michigan DEQ
- Michigan DNR
- Michigan Hydro Relicensing Coalition
- Traverse City Light & Power
- U.S. Fish & Wildlife Service

Ex-Officio IT & Partners*

- Conservation Resource Alliance (*Project Manager to the IT*)
- Grand Traverse Conservation District
- Grand Traverse County Road Commission
- US Army Corps of Engineers
- Natural Resources Conservation Service
- Watershed Center, Grand Traverse Bay
- Garfield Township
- TC Rotary Charities

**Various other partner groups, contractors, individuals were involved in related project activities*.

The Team is Essential to Success

Primary Benefits

Environmental:

- Restore 5.1 miles of coldwater stream
- Reconnect 160 miles of high-quality river & tributaries
- Return natural water temperatures
- A stable stream w/floodplain better handles climate impacts
- Remove threats of impounded excess sediment from washing downstream
- Natural movement of aquatic life, instream wood & substrates

Community:

- Remove decommissioned, unsafe dams
- Promote ecological ethic, provide outdoor recreation opportunities

Economic:

- Eliminate costly repair, maintenance & dredging expenses
- Support local tourism & businesses
- Provide jobs in engineering, construction, tourism, NGO sectors

Project Cost over the15-year effort, blended grants from 30 sources:

Feasibility Study/Planning	$3,000,000
Brown Bridge Dam Removal	$4,400,000
Boardman Dam Removal	$10,500,000
Robbins Bridge (Cass Road)	$3,310,000
Sabin Dam Removal	$6,000,000
Total Construction/Engineering	$27,210,000
Non-Construction Tasks*	$300-350K per year

*Project management, grant and contract administration, monitoring, invasive plant species control, tree/shrub planting, communications and outreach

Funders – Overall Project*

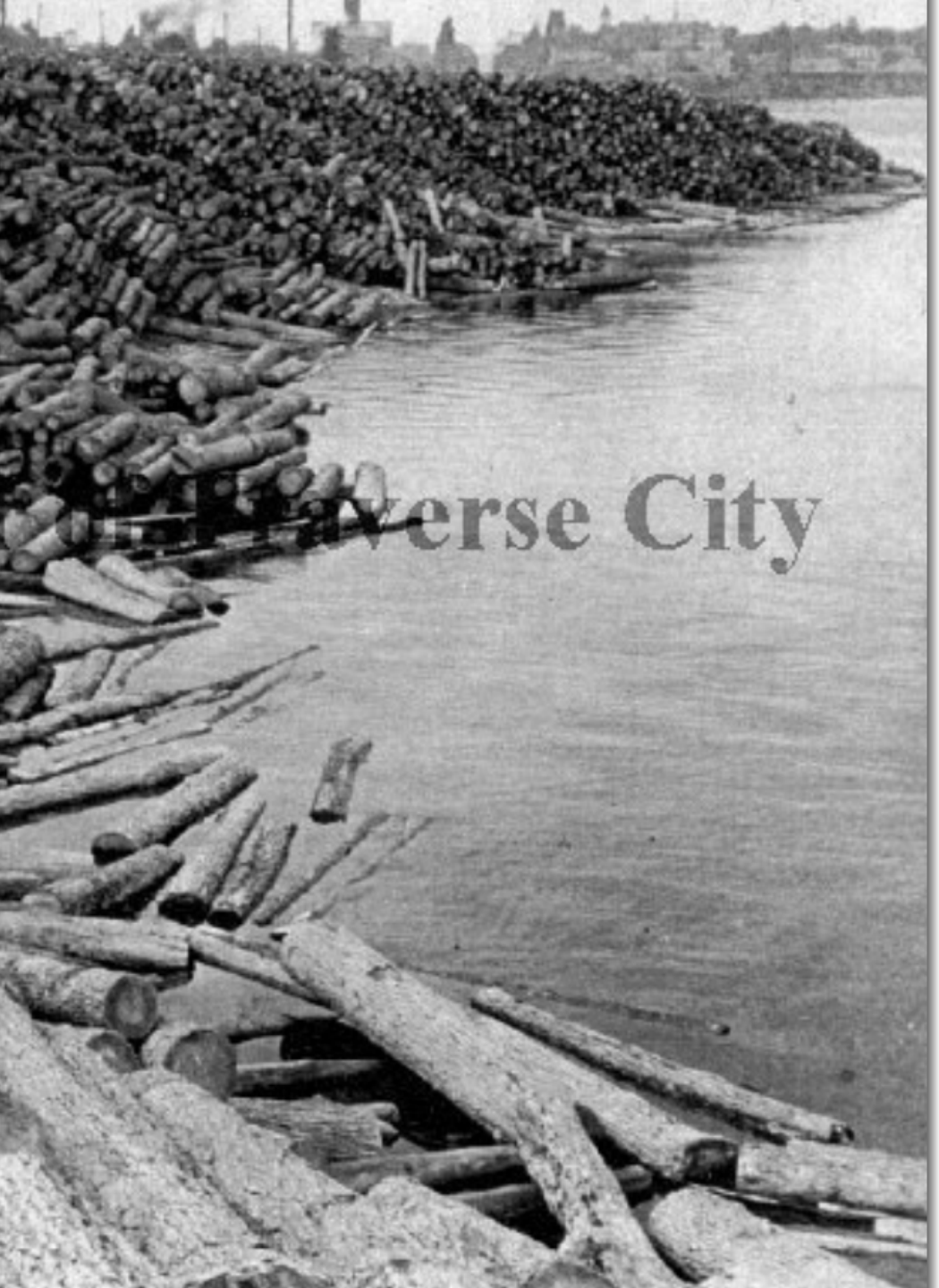
- Bureau of Indian Affairs
- Great Lakes Fishery Trust
- National Fish & Wildlife Foundation
- U.S. Fish & Wildlife Service
- U.S. Environmental Protection Agency
- U.S. Army Corps of Engineers
- MDNR, EGLE & MDOT
- Grand Traverse Band of Chippewa & Ottawa Indians
- Natural Resources Conservation Service
- USDA Forest Service
- Frey Foundation
- Oleson Foundation
- Brookby Foundation
- Traverse City Rotary
- City of Traverse City
- Grand Traverse County
- GT Road Commission
- Conservation Alliance
- DTE Energy Foundation
- Trout Unlimited
- Patagonia
- Grand Traverse Brownfield Redevelopment Authority

**Addl. funders involved in related activities in the Boardman watershed may not be listed.*

Originally named the Odawa Nawdouway Ziibi (Ottaway River) by the Ojibwa & Odawa People

A river changed…

Early accounts tell of the river running clear and swift from Boardman Lake to the west Grand Traverse Bay ("Bay") through a pine forest so park-like and open that one could "ride through it in all directions on horseback at a rapid pace" (Leach, 1883)



The logging era changed the land & water of Michigan as can be seen in this photo of Boardman Lake.

"These (log) jams date back in buried centuries. As evidence, we find deep-worn trails around them, where Indians have dragged their canoes… Cutting to the heart of a cedar 20 inches in diameter, growing over the center of the river. I counted 160 years of growth."

– History of Manistee County, 1869 the River Improvement Company explored the Manistee River for floating logs.

Brown Bridge Dam built in 1921.

Earthen embankment was 1,650’ long & 46’ high.

Dam #1 Former Brown Bridge Pond – 191 acres

During removal – September 2012

River returned, 2.9 miles – October 2019

Before

During

After

Many aspects…

Sediment Management is a Key Component of Dam Removal

- 1.4M cubic yards of sediment accumulated
- 277,000 cubic yards of sediment managed to recreate river 45’ wide, floodplain bench 30’ wide

THE BOARDMAN
A RIVER REBORN

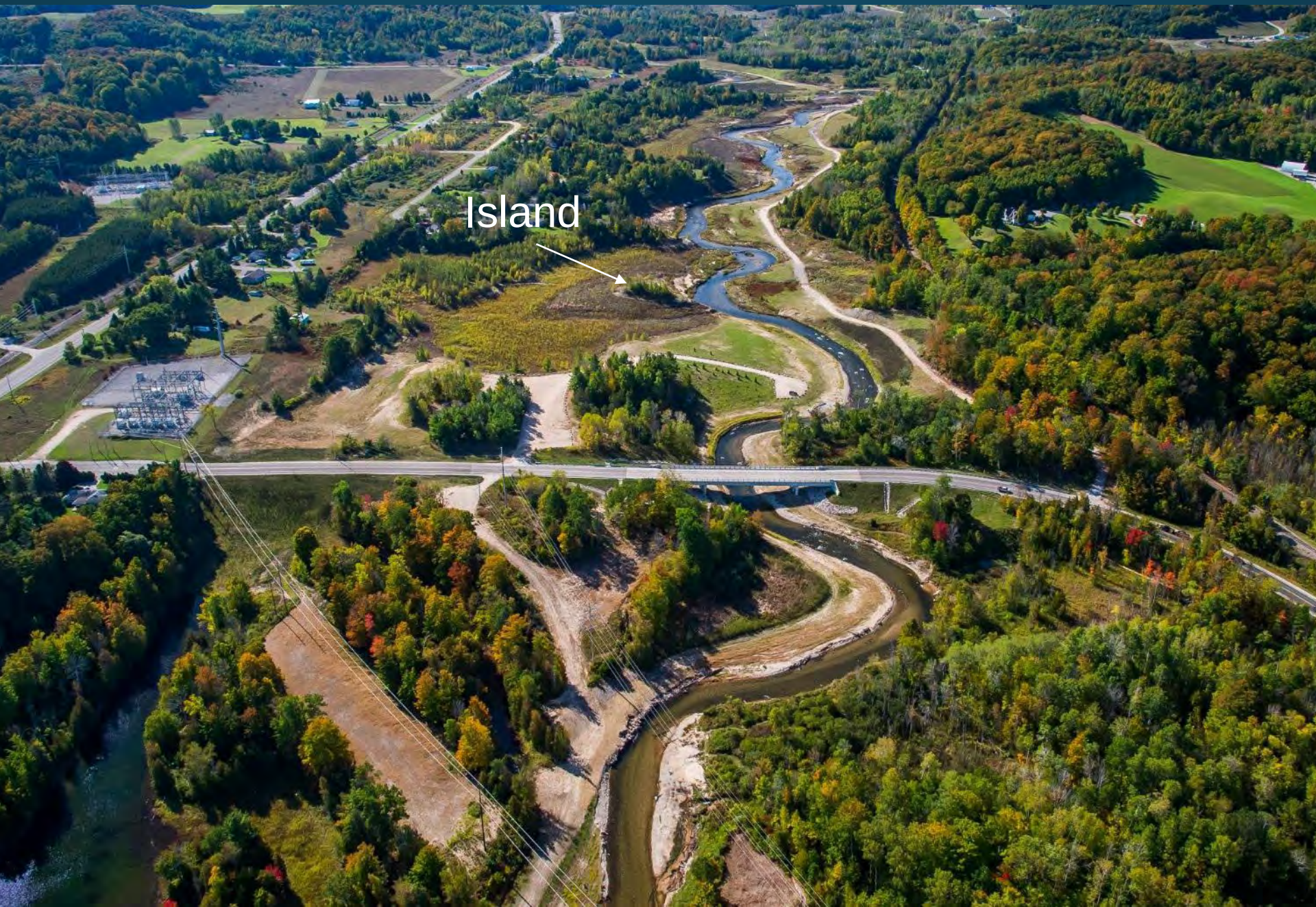
Turn the camera around…

Recreating the river – moving it out of the tree stumps & into relic channel

Dam #2 Boardman Dam & Pond – October 2012

Boardman Dam Removal – July 2017

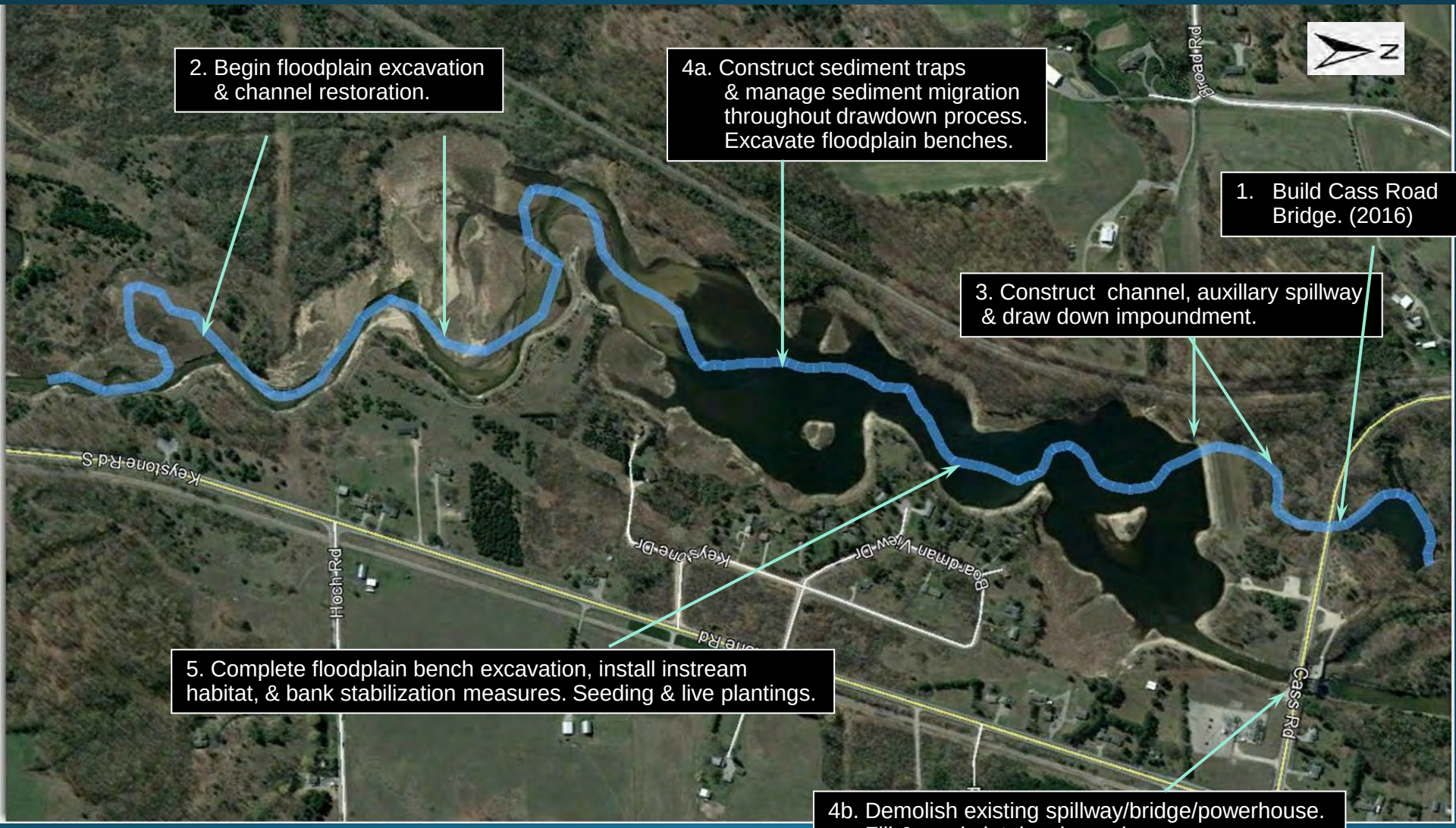
River Returned, 1.8 miles - October 2019



Finding the relic channel…

- Bathymetry
- Gravel & stumps
- Depth of refusal (DOR)
- Site surveys
- Modeling
- Sediment sampling

Boardman Dam Removal
Construction Sequence & River Alignment



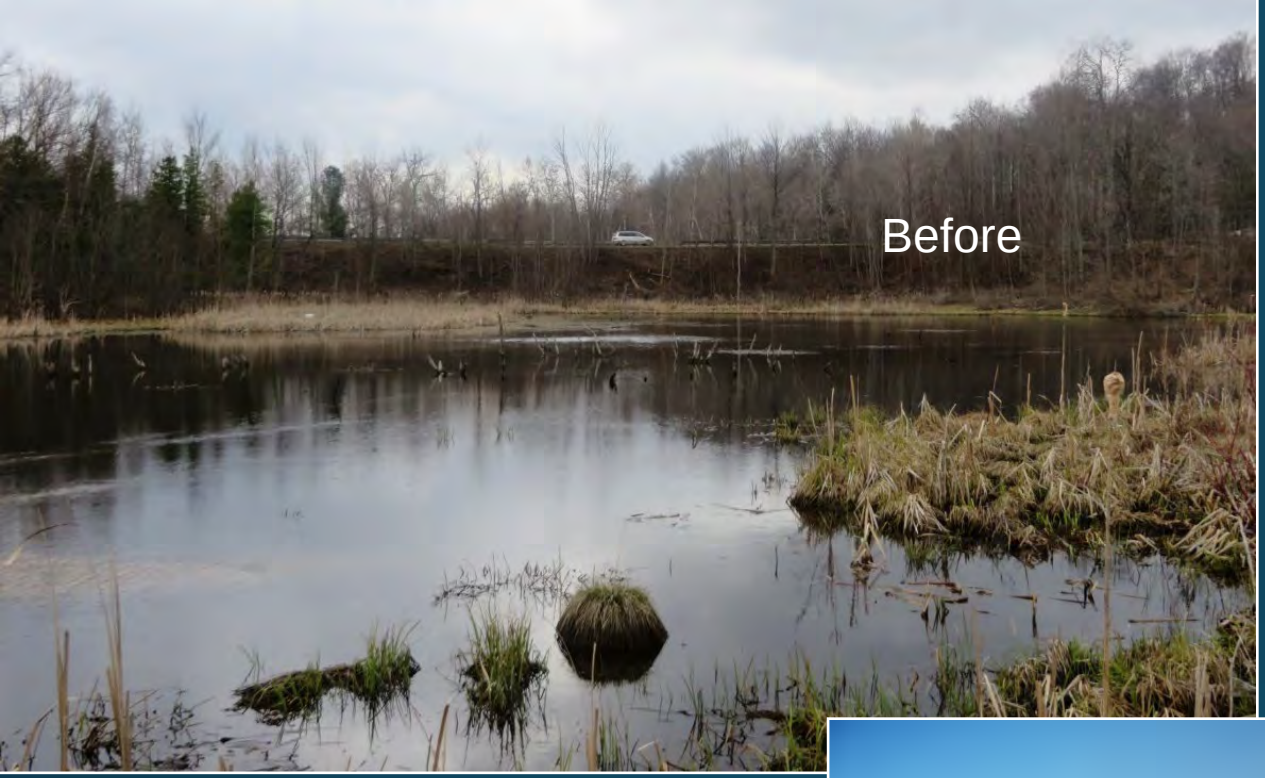
Dam #2 Boardman Dam Powerhouse & Cass Rd Bridge

Single lane “bridge” –

6,500 vehicles/day in 2006

Spalling & deterioration

of safety rails.



First, build the bridge in 2016

Robbins Bridge
$3.31M, 252’ span

During – dewatered by 14 gravity fed siphons & a concrete auxiliary channel.

Siphons comprised of 30” diameter pipes fused together to make 300’ lengths; they drained the pond 21’ down.

The auxiliary channel was heavy duty.

Measured 40’ wide, 70’ long & comprised of drainage stone, mesh geotextile, overlaid with articulated concrete block mats grouted in between to ensure water didn’t undermine the channel.

Before

Engineers estimated that 788,000 cubic yards of sediment had accumulated in the impoundment.

Building the river –
300,000 cubic yards sediment moved but stayed onsite.

Wood is Good –
streambank protection & instream habitat

Fabric encapsulated soil (FES) lifts – They keep the river in place.

Fish Rescue – Preparing to move the river over.


Post restoration - Before
DEERE


During
DEERE
210G


After


Dam #3 Sabin Dam & Pond –
October 2012
Photo provided by John Russel


Sabin drawdown –
August 2018
Photo provided by
Brett Fessell, GTB


River Returned -
October 2019

Sabin Dam Removal In-Action Photos

Relic channel - Gravel abounds in the Ottaway.


Seeps & creeks
stabilized

Reptile hibernaculum utilizing broken concrete.

Before - Historically, the river bottom was dredged 8’ down for over 4,000’ below the powerhouse.

During - Channel construction & bank stabilization

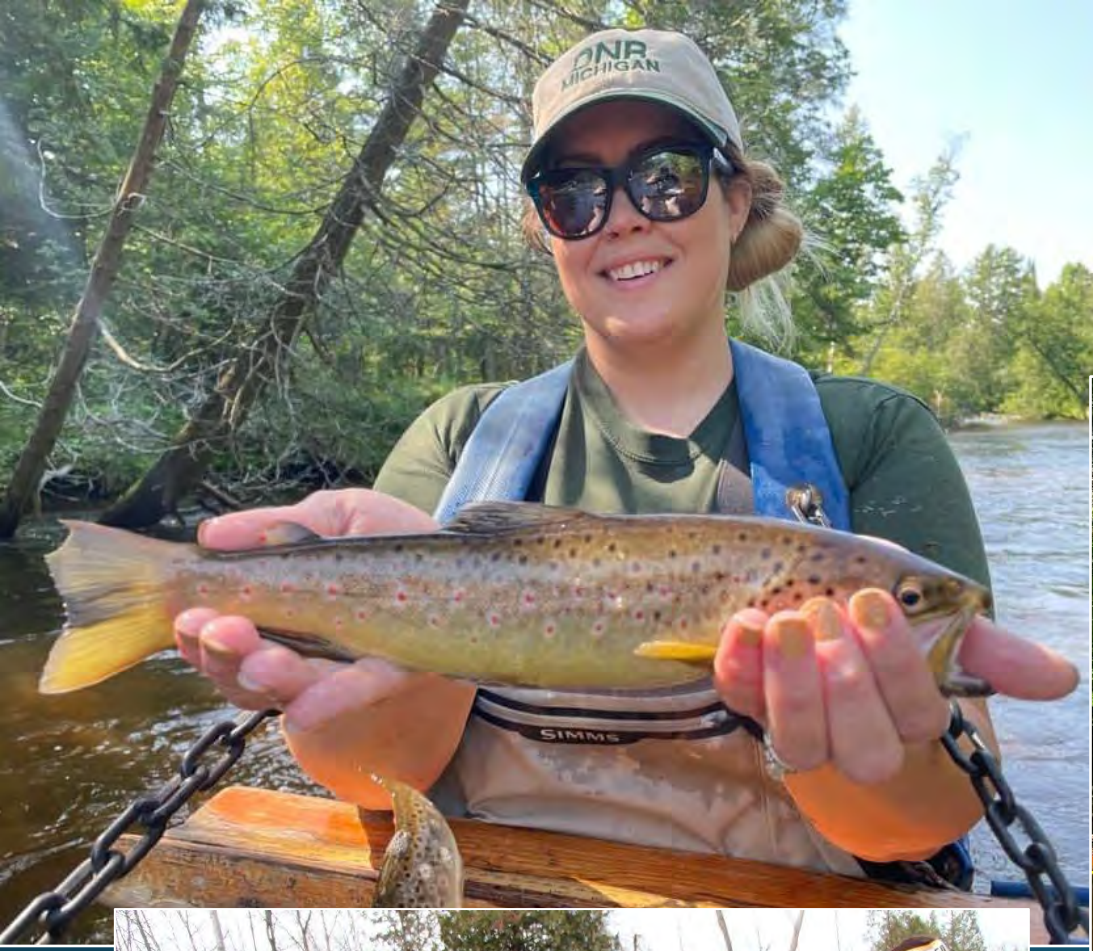
After - Boardman Ottaway River is returned…

Bottomlands Restoration

- Tree & shrub planting
- Invasive plant species control

Monitoring amphibians, reptiles & macroinvertebrates

Fish Surveys



Brown Bridge Quiet Area

Owned By CITY of TRAVERSE CITY MICHIGAN

"Restore, preserve and protect the integrity of the natural environment, including its inhabitants, yet allow managed public use for generations to come."

Managed By Grand Traverse Conservation District

What's next for the Boardman/Ottaway River…

- Ongoing watershed management through the **Boardman/Ottaway River Network** of local partners
- Planning for recreation & monitoring are high priorities
- AuSable Institute initiated macroinvertebrate field course in 2023 & will complete follow-up course for 2024
- Small dam removals & road stream crossing replacements
- Tree & shrub plantings ongoing led by GT Conservation District
- FishPass capstone project with Great Lakes Fishery Commission, June 2024 through 2027 for $23.2M, https://www.glfc.org/fishpass.php


Baldwin River,
Lake County


More reconnections &
restoration in the region…
Ottaway Trib.,
Grand Traverse
County


Stony Creek,
Oceana County


S. Boyne River,
Charlevoix
County


Thank you!
Conservation
Resource Alliance
www.rivercare.org
Presentation Prepared by: Kimberly Balke, Program Director
June 2024

Extra slides if needed…

Dam Events on the Boardman/Ottaway River

LOCALE	EVENT	YEAR
Union St.	Various mills utilize water wheels on the river	1850s
Union St.	Dam constructed	1867
Union St.	Major overhaul to original dam	1885
Boardman Dam (1)	Dam operational 200 yards below modern location	1894
Sabin Dam	Dam operational below Boardman Dam	1906
Keystone Dam	Dam operational above Boardman Dam	1909
Sabin Dam	Original structure enlarged, same location (Fargo Inc)	1914
Keystone Dam	Major repairs for log damage	1919
Brown Bridge Dam	Dam operational in the Upper Boardman River	1922
Union St Dam	Mill destroyed by fire-never rebuilt, dam remains	1926
Sabin Dam	2nd time-enlarged and repaired, (Harza Inc)	1930
Boardman Dam (2)	New Boardman Dam operational, in modern location	1931
Boardman Dam (1)	Dam is dismantled below modern Boardman location	1931
Keystone Dam	Dam fails during major flood, never rebuilt	1961
Boardman Dam (1)	Cass Rd narrowed to 1 lane, substation moves to east	1983
Sabin Dam	Upgraded and repaired (Mead and Hunt Inc)	1986
Boardman Dam	Deemed safety hazard, pond lowered 16’	2007
Brown Bridge Dam	Deemed safety hazard, pond lowered 3’	2008
Brown Bridge Dam	Pond lowered about 6’ in preparation for removal	2011
Sabin Dam	Pond lowered to minimum level with existing control	2011


During - Bridge Under Construction in June 2016, note beaver ponded area in background “downstream.”

After - Robbins Bridge $3.31M, constructed in the “dry” year before dam removal.