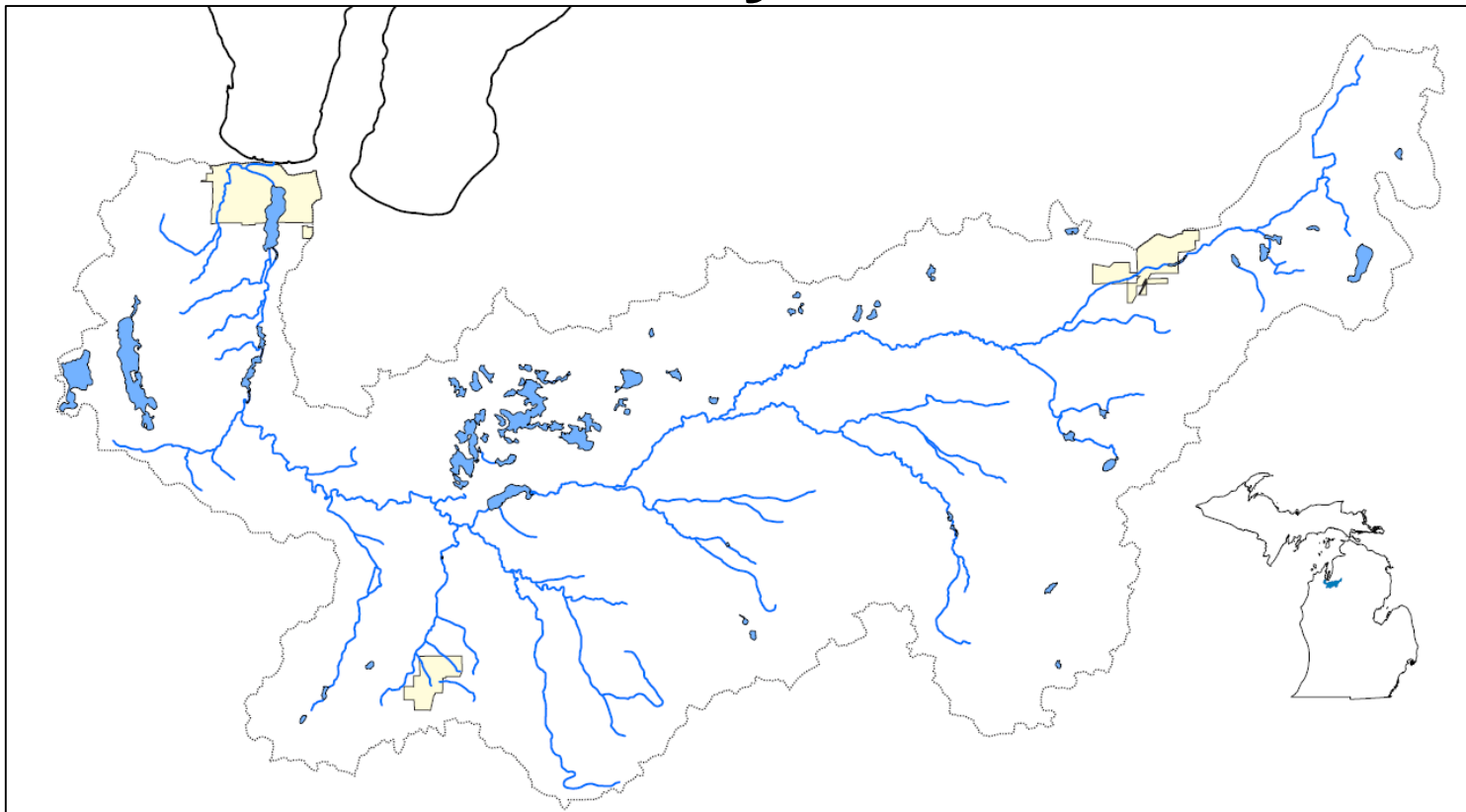




Boardman “Ottaway” River Overview



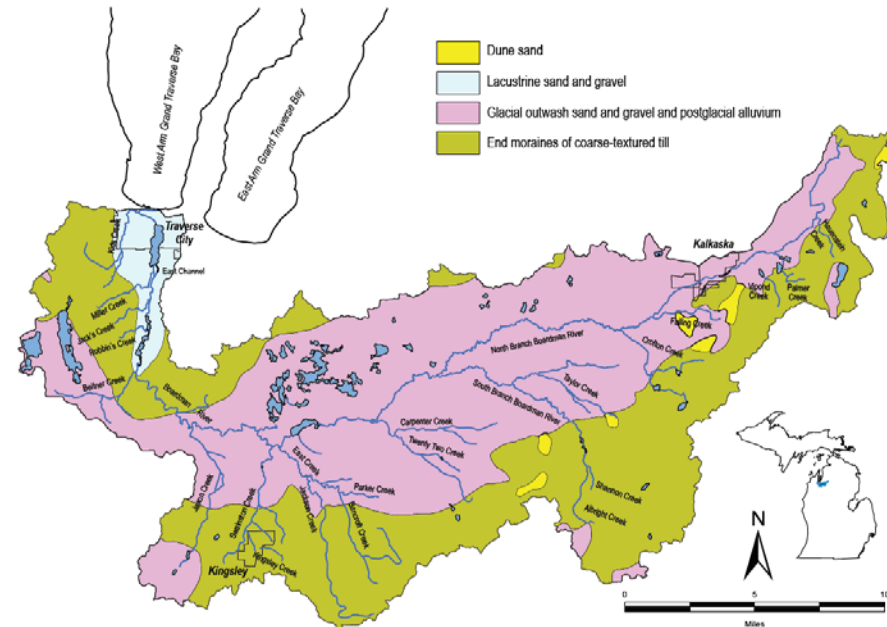
Gary E. Whelan
NFHP Board SDC Science
and Data Committee Co-Chair
NFHP Board Meeting
October 2019





Boardman River Watershed

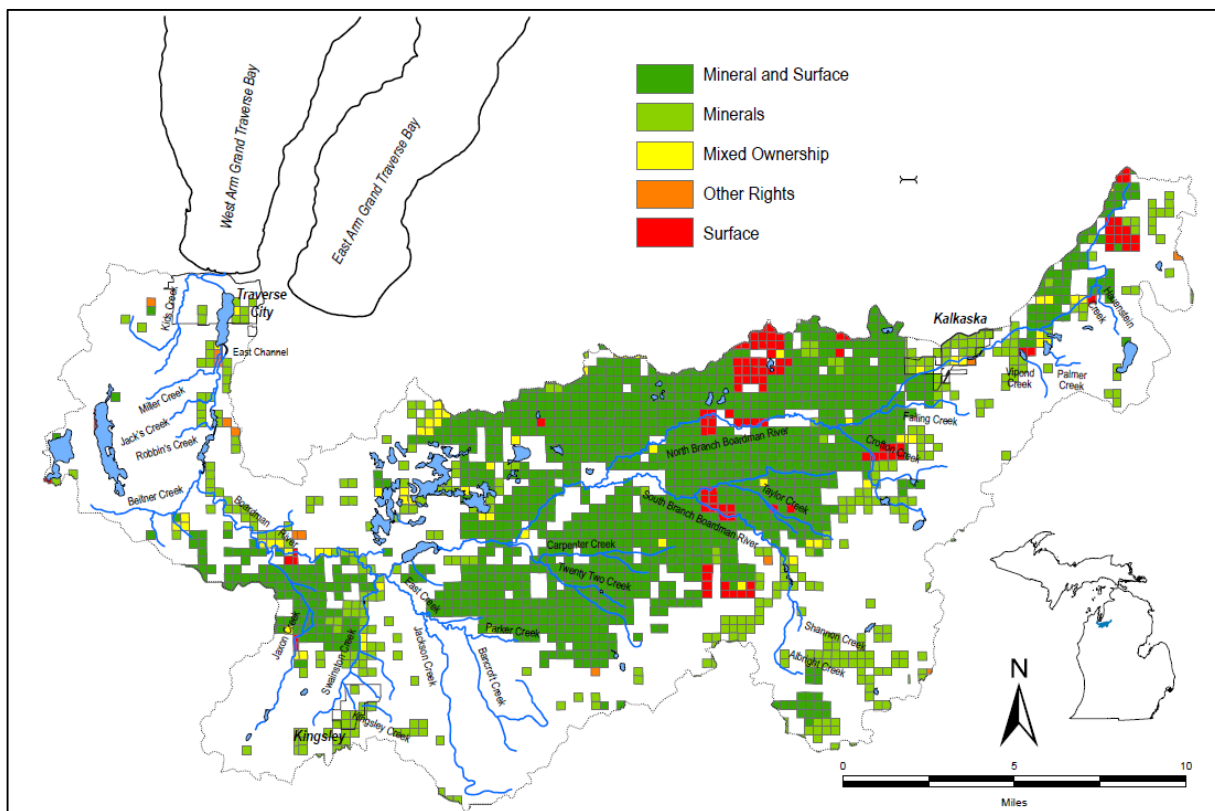
- Watershed area is 287 sq. miles
 - 179 linear miles of perennial streams
 - 97 natural lakes
- Unique geology
 - Glacial outwash deposits to 500 feet deep
 - 93% of the basin is glacial till and end moraines
 - Sand and smaller rock
 - Poor agriculture geology





Boardman River Watershed

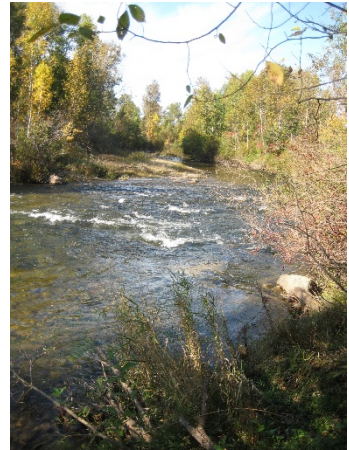
- Ownership
 - 25% public
 - 75% private
- Landcover
 - 55% forest
 - 17% agriculture
 - 17% water
 - 8% urban
 - 3% wetlands
 - Down from 17%





Boardman River Hydrology and Gradient

- Average rainfall – 33 inches
- Average snowfall – 95 inches
- **Remarkably stable flows**
 - 5% exceedance flows are about 1.6X median flow
 - 95% exceedance flows are about 0.8X median flow
 - Flow yield – 0.8 cfs/sq mile
 - Average annual discharge – 111 cfs
- **Low gradient**, except locations of historic impoundments
 - Total elevation change is 513 feet (10.26 feet/mile)
 - Upper main segment (31.4 miles) – 10.25 feet/mile
 - Middle main segment (12.2 miles) – 12.2 feet/mile
 - Lower main segment (6.4 miles) – 5.8 feet/mile





Boardman River History

- Long habitation by Native Americans – 4000 years
 - Known use of Boardman Lake for Walleye and N. Pike
 - Important seasonal encampment
- Traverse City settled in 1847 and sawmill established

“The Boardman River was a vast pinery with virgin Norway and White pine, hemlock and cedar; with hardwoods of maple, beech, elm, oak, ash, and birch along its sandy ridges. The Boardman flowed clear and pure.” (Melkild 1982a).
- Entire basin logged by 1886
 - Logs driven down the river
 - 1,000,000s of board feet





Boardman River History

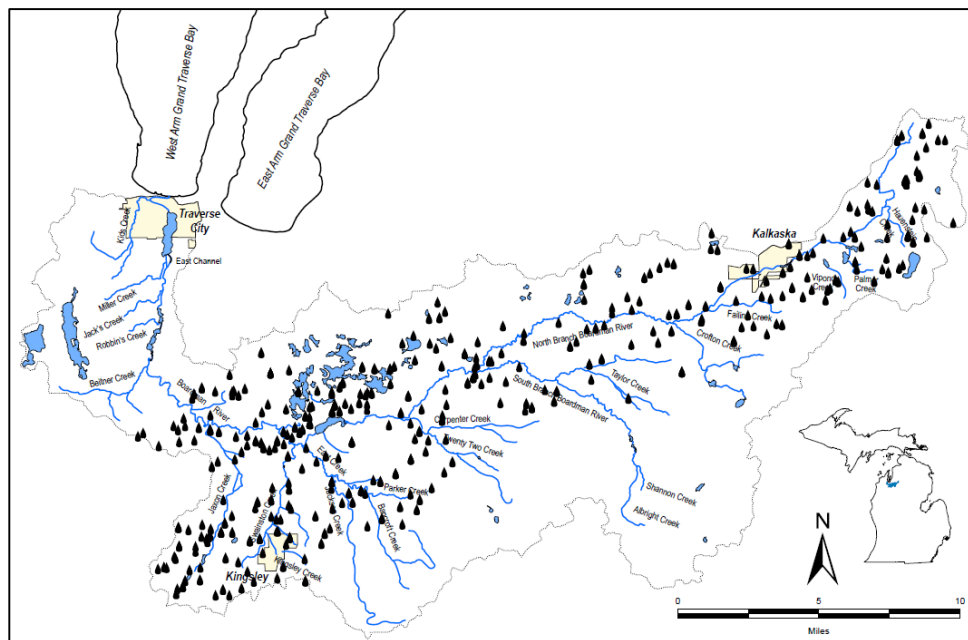
- Historic fish community
 - Adfluvial runs from the Great Lakes
 - Streams
 - Arctic Grayling (1880s)
 - Northern Pike
 - Walleye
 - Smallmouth Bass
- Current fish community – 59 species (at least 9 non-native)
 - Adfluvial runs – Pacific salmon
 - Brook, Rainbow and Brown Trout





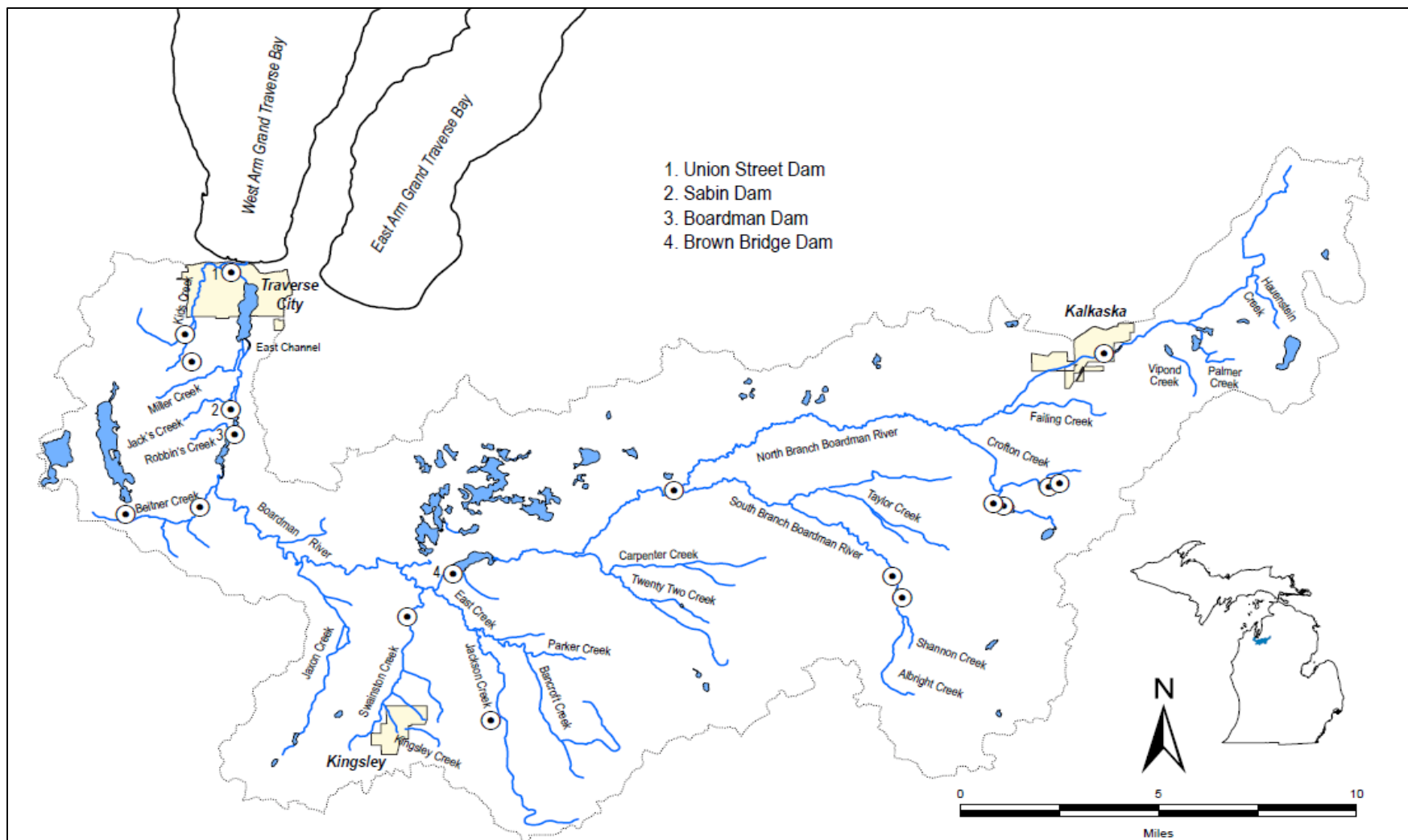
Boardman River History

- Oil and Gas Development
- Hydropower and mechanical power dam construction
 - Union Street Dam 1867
 - Sabin Dam 1906
 - Boardman Dam 1894/1930
 - Brown Bridge Dam 1921
 - 20 dams in the system





Boardman River Dams





Thank You!

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Visit www.fishhabitat.org
for more information

