Michigan Dams & Dam Removal

Lake Street Dam Engineering Alternatives Open House

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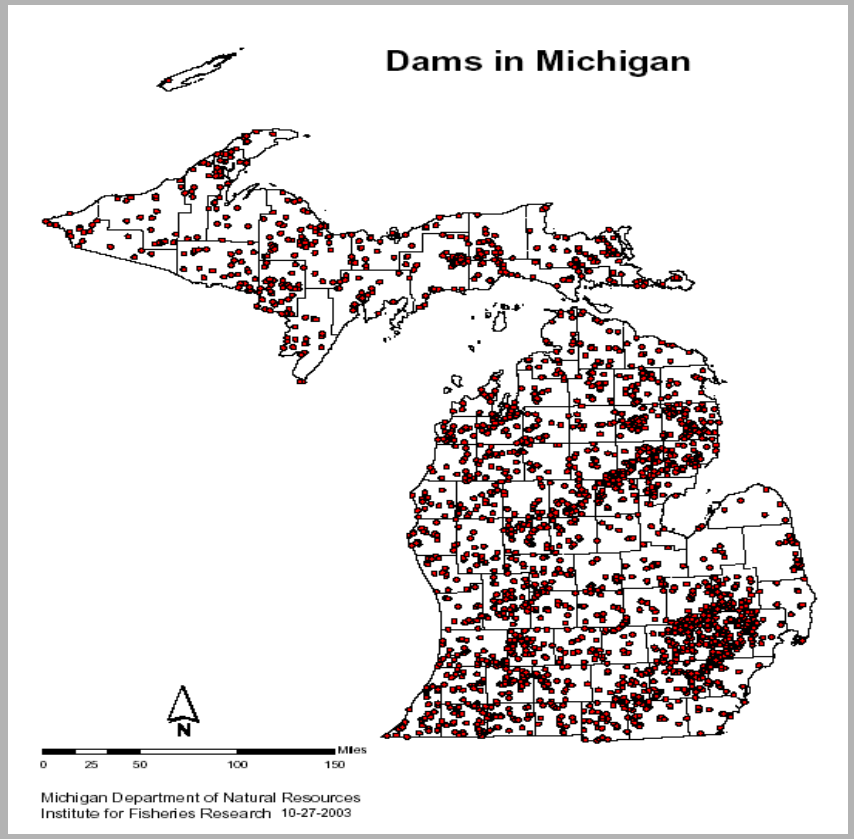
Dams – How Many?

- U.S. - >2.5 million “large” dams
- Michigan – >3,500 (depicted are the larger ones only)

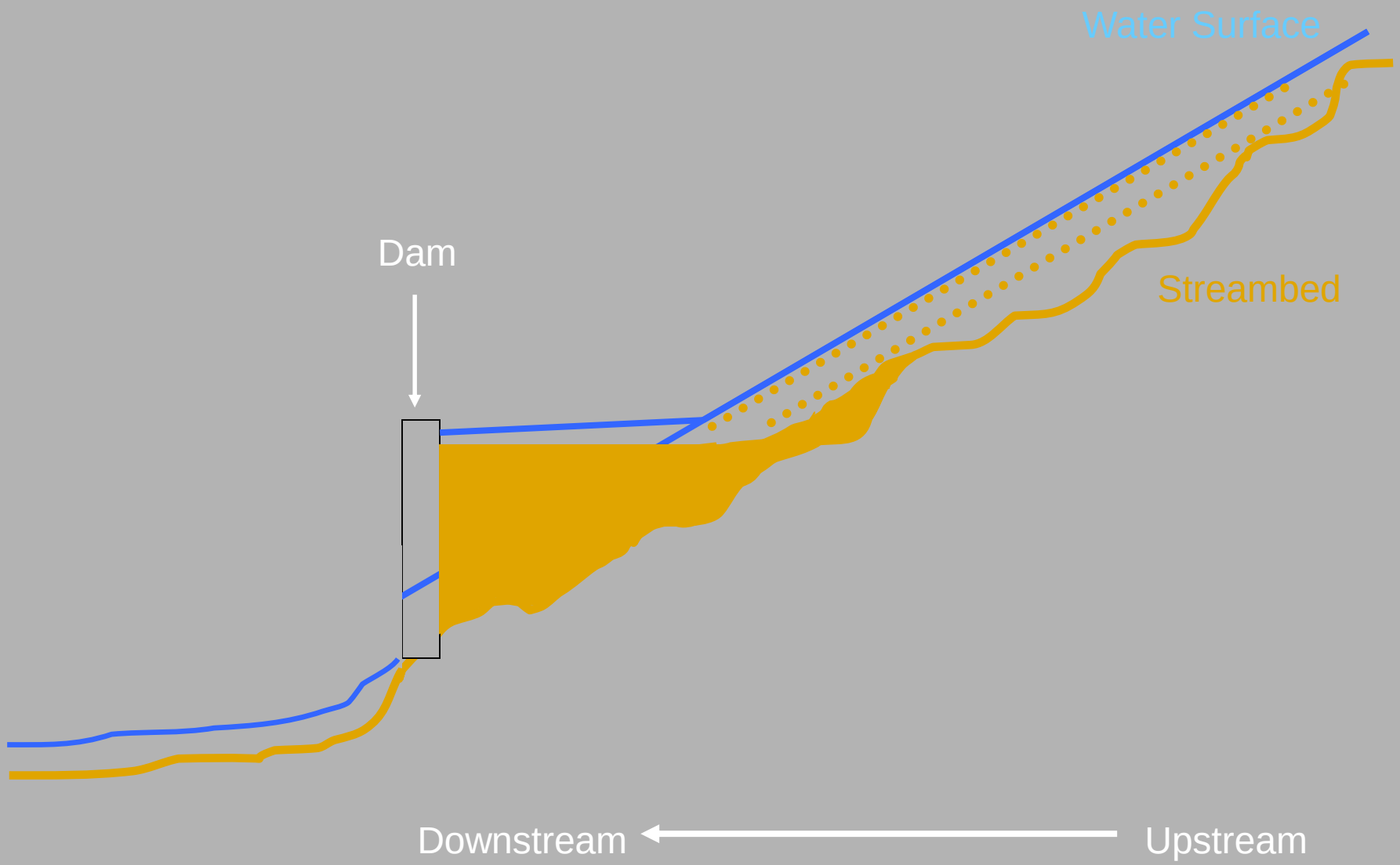


Dams – cost/benefits

- Dams were built for many reasons, for benefits to past generations.
- Dams also had costs/impacts.
- Dams fundamentally impact river systems, alter & fragment river habitats; changing rivers and blocking aquatic life from accessing all available habitats needed.
- Through time, many benefits have been lost, or are no longer desired needed. Removing them can now remove impacts and create new benefits that are now more desirable.
- Doing nothing, presents liability and risk, and ongoing costs, and unrealized benefits/value.

Dams – what happens

Before Dam With Dam

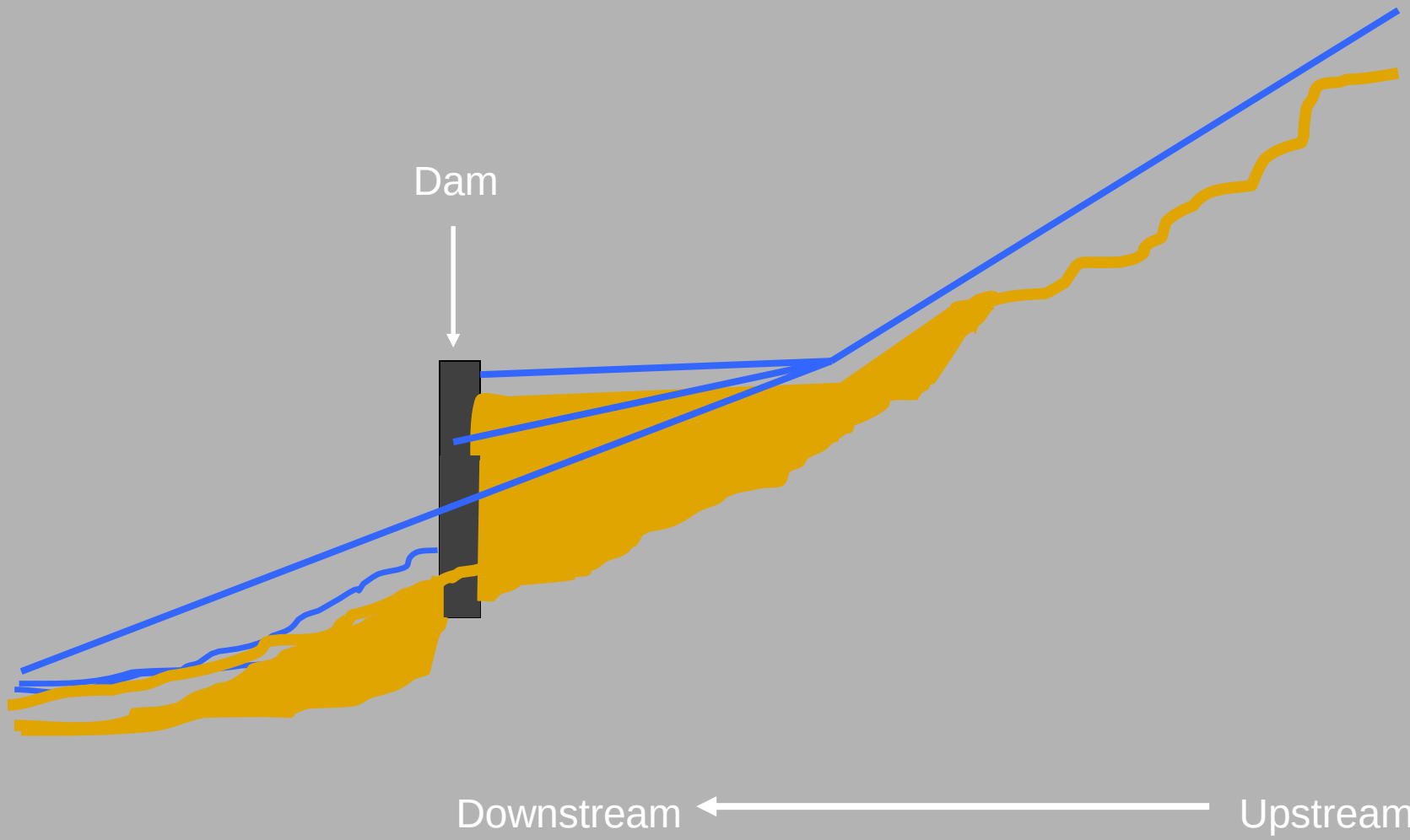


What Dam Removal Does

During Dam Removal

With Dam

After Dam



Dam Removal – what does it do?

- Reverses these impacts

- Removes temperature impact
- Restores connectivity
- Restores habitat

What Dam Removal Does to Fish

1) Allows fish to move around – accessing all habitats
   -needed for life stages, survival, feeding, reproduction
2) Restores high gradient river habitat
   - more diverse conditions, more gravel for spawning, more gravel for insects = food, better water temps

Pine River – Manistee Co.
Pre- Dam Removal

Downstream Only

- Common carp
- Largemouth bass
- Troutperch
- Rock bass
- Pumpkinseed
- Emerald shiner
- Blackside darter
- Logperch
- Chestnut lamprey
- Walleye
- Central mudminnow
- Silver redhorse sucker
- Shorthead redhorse sucker
- Golden shiner
- Yellow bullhead
- Johnny darter
- Northern pike
- Yellow perch

n = 18

Up & Downstream

- Common shiner
- American brook lamprey
- Longnose dace
- Creek chub
- Bluegill
- Mottled sculpin
- Slimy sculpin
- White sucker
- Brown trout
- Rainbow trout
- Black bullhead
- Brook trout
- Spottail shiner
- Smallmouth bass

n = 14

Upstream Only

- Brook stickleback
- Blacknose dace
- Banded killifish

n = 3

Pine River – Manistee Co.
Post- Dam Removal

Downstream Only

- Common carp
- Largemouth bass
- Troutperch
- Rock bass
- Pumpkinseed
- Emerald shiner
- Blackside darter
- Logperch
- Chestnut lamprey
- Walleye
- Central mudminnow
- Silver redhorse sucker
- Shorthead redhorse sucker
- Golden shiner
- Yellow bullhead
- Johnny darter
- Northern pike
- Yellow perch

n = 1

2003
2004
2006
2004
2004
2006
2004
2003
2006
2003
2004
2004
2006
2004
2004
2000
2001

Up & Downstream

- Common shiner
- American brook lamprey
- Longnose dace
- Creek chub
- Bluegill
- Mottled sculpin
- Slimy sculpin
- White sucker
- Brown trout
- Rainbow trout
- Black bullhead
- Brook trout
- Spottail shiner
- Smallmouth bass

n = 32

2006

Upstream Only

- Brook stickleback
- Blacknose dace
- Banded killifish

n = 2

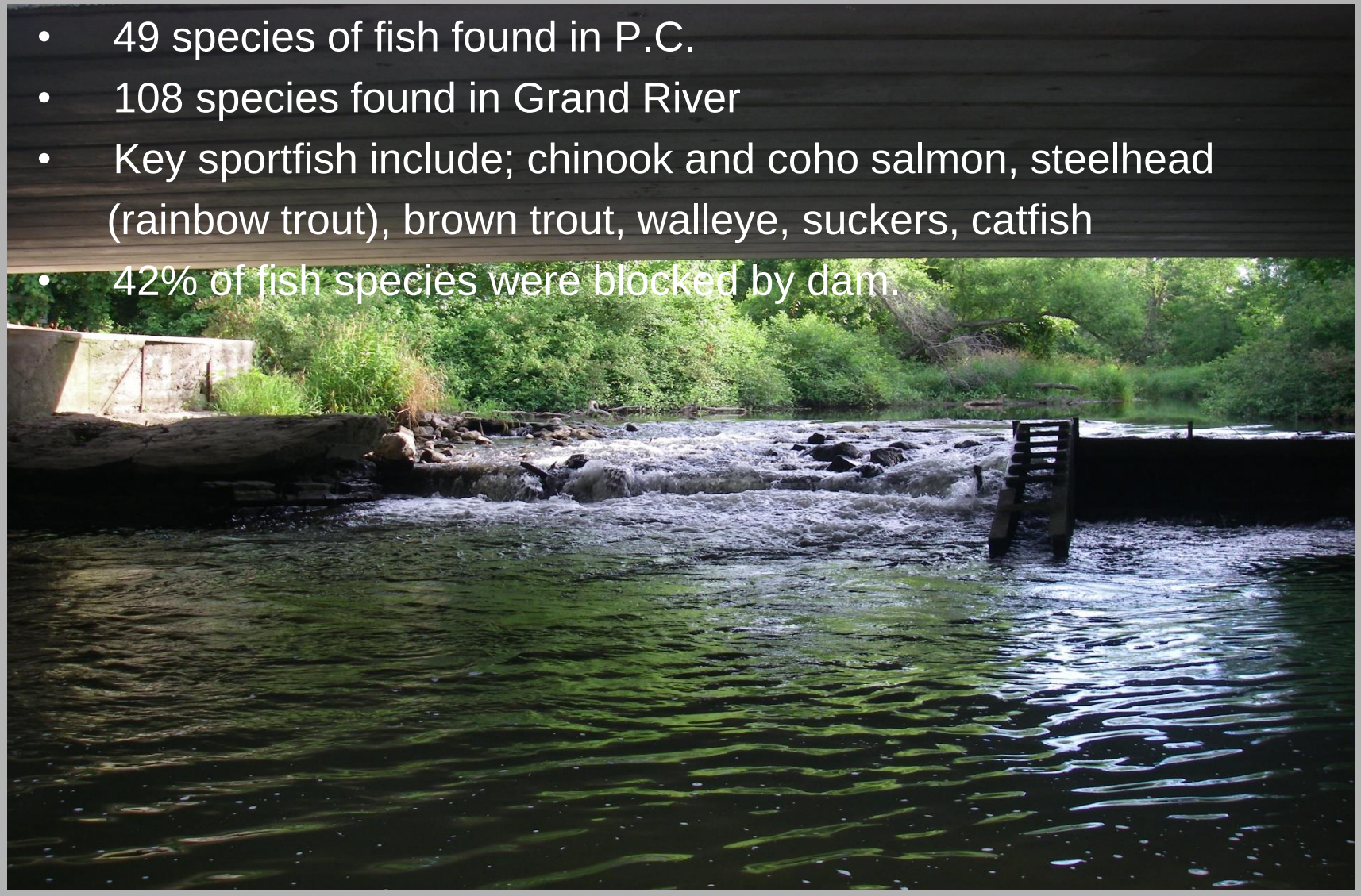
TroutTrends in MI

Summary

- Removal or modification of this dam
  - Can help remove longterm liability and risks
  - Can help restore and improve fish communities to all of the Bear River, both sport fish and non-game fish.
  - Could help improve fish in Little Traverse Bay
- Engineering and alternatives assessments will help identify constraints, opportunities, and solutions to maximize many benefits.
- Fishing –
  - Proven options exist to ensure good or better fishing opportunities at the current site, while;
  - Improving fishing in the bay and the entire Bear River

Prairie Creek Dam Removal, Ionia
a useful example

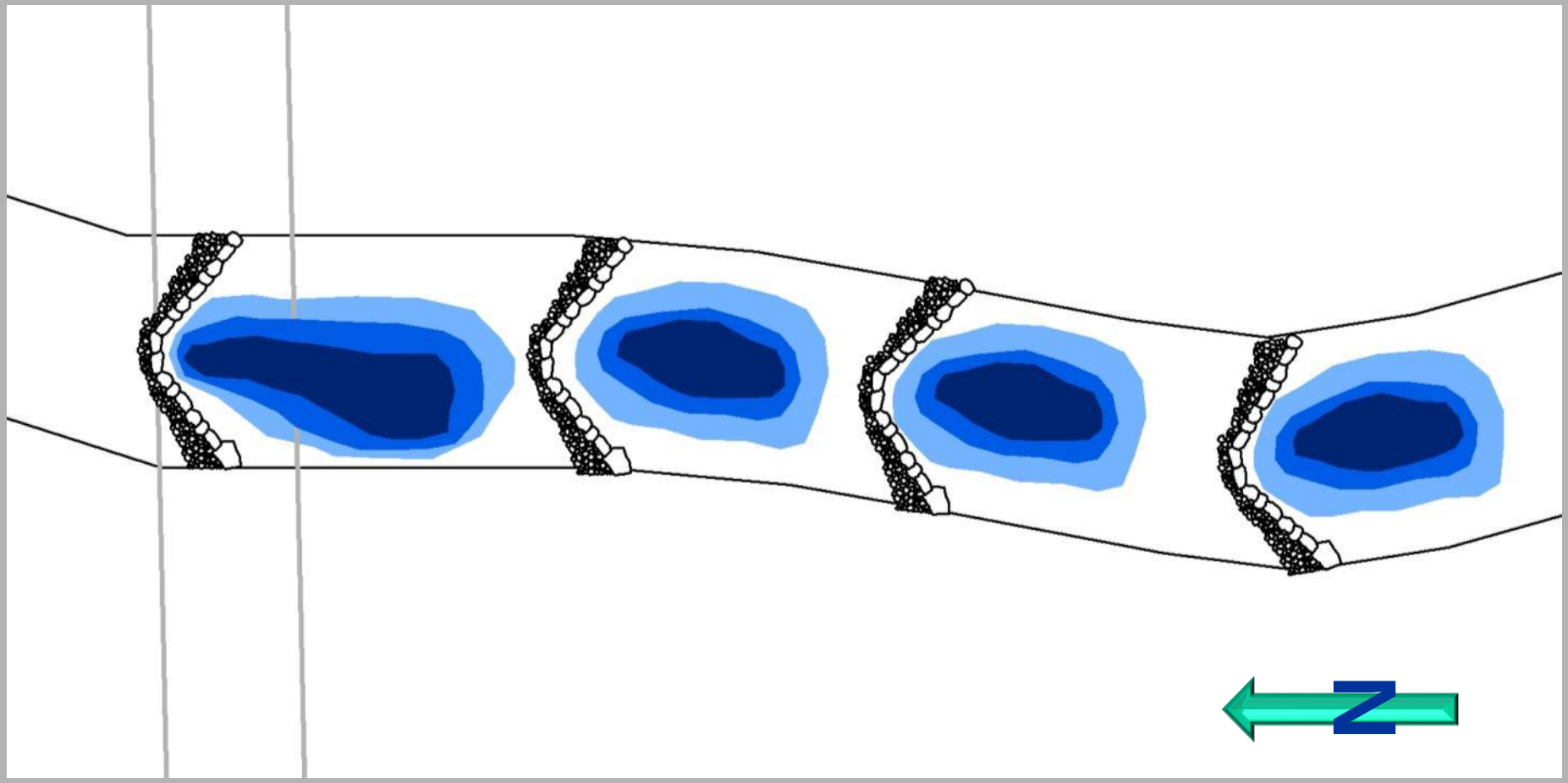
- 49 species of fish found in P.C.
- 108 species found in Grand River
- Key sportfish include; chinook and coho salmon, steelhead (rainbow trout), brown trout, walleye, suckers, catfish
- 42% of fish species were blocked by dam.



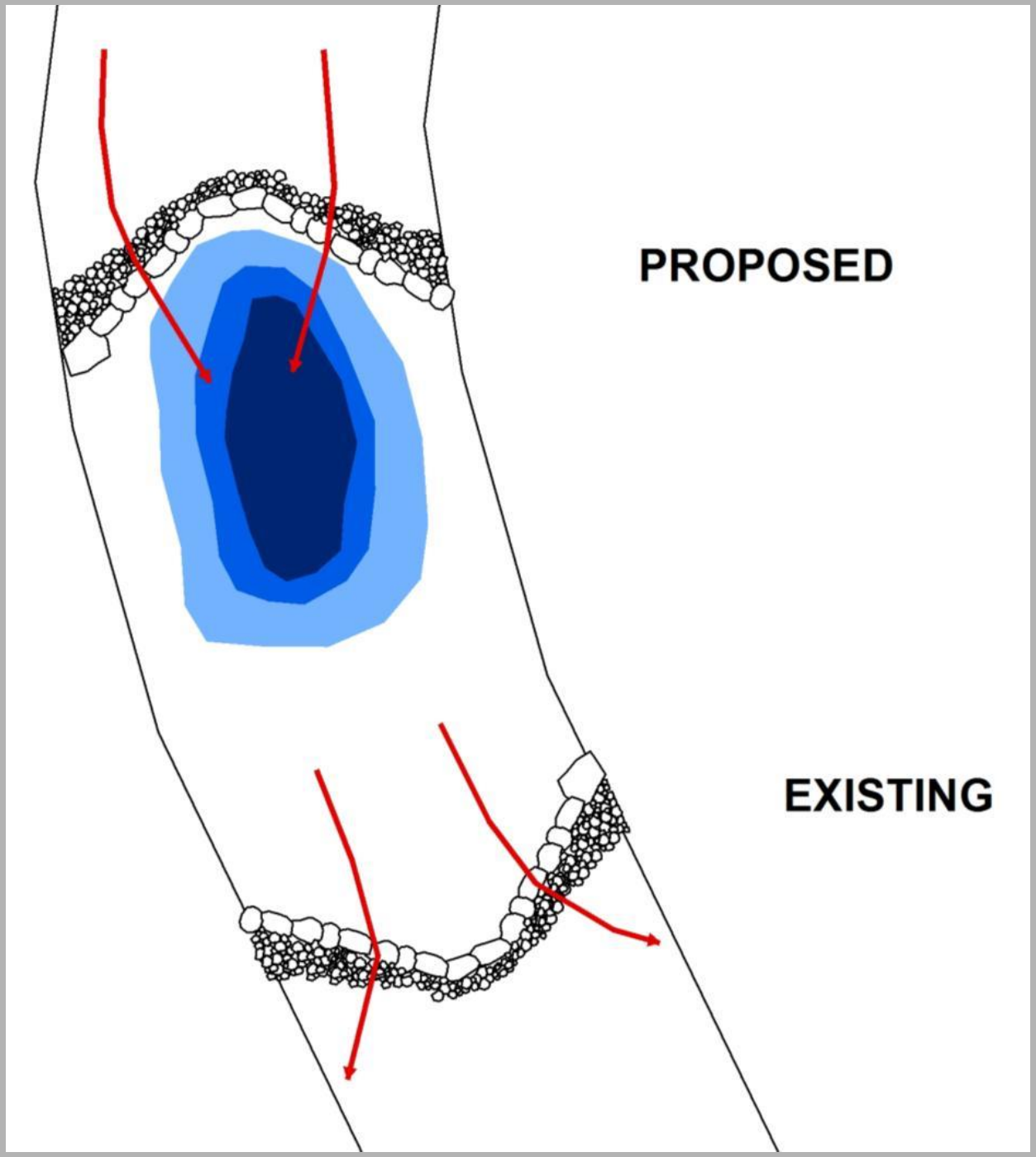
Prairie Creek – Grand River Sport Fisheries

Prairie Creek lesser known Fishes

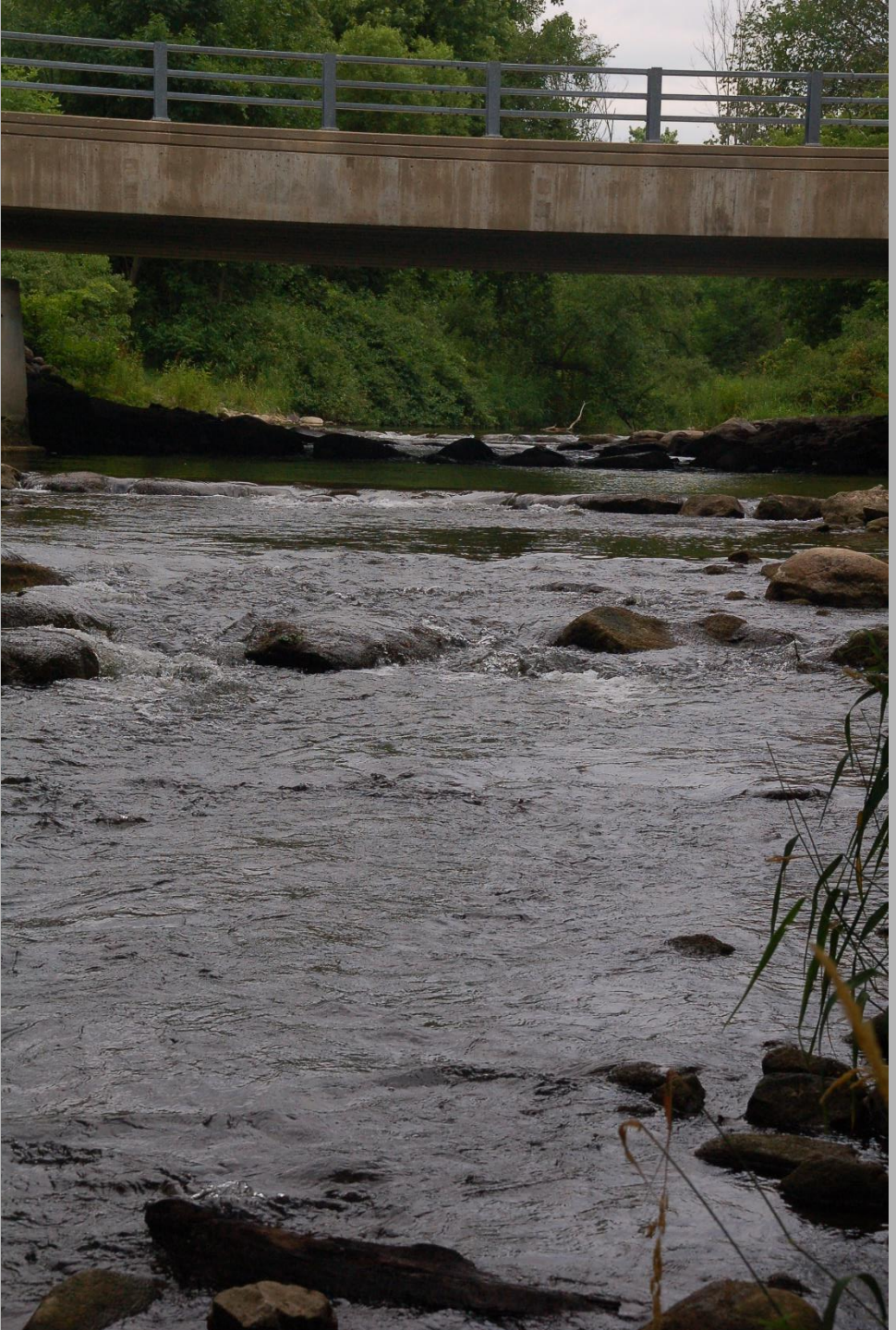
AN ALTERNATIVE



Couldn’t simply remove dam due to site constraints.
Used series of grade controls, crossvanes, to step the river down


PROPOSED
EXISTING


Bedford
Brick Head!



Project

- Prevented sediment mobilization
- Ensured safety of infrastructure
- Has remained stable
- Allowed all species fish passage past the site
- Provided a series of deep pools for fishing, rather than one below the dam (spread out angler crowding) and ensured good fishing spots
- Some public initially opposed, no opposition by time of alternatives and permits
- No complaints about the project for years since.