



**Clean Michigan Initiative
Nonpoint Source Grant**
1999-0063



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Partnership for the Jewel of the Midwest

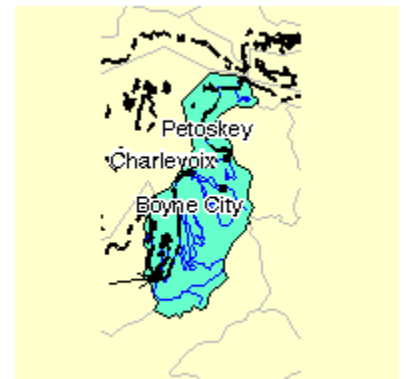
August 15th 2000 - September 30th 2003

The Elk River Chain of Lakes Watershed is a 202,060 acre watershed consisting of deep glacially cut lakes, numerous spring fed lakes and miles of top quality trout streams. The waters and lands contained in the watershed are highly valued recreational lands. Land use in the watershed is 40% forest land, 23% cropland, 14% inland lakes, 5% pasture land, 8% fallow land, and 10% other. This region is experiencing increasing development and is being impacted by construction projects, urban development, and other nonpoint sources of pollution. Accelerated erosion and sedimentation affects rivers and their ecosystems by filling in the deep pools necessary for fish reproduction, as well as reducing aquatic insect habitat. The Rapid River, located within the Elk River Chain of Lakes Watershed, is a pristine cold water fisheries river. Recently it has been threatened by sedimentation, caused by eroding road stream crossings. The goal of this project was to reduce sources of sediment to the Elk River Chain of Lakes Watershed.



Grant Amount: \$ 344,143.20
Match Funds: \$ 119,644.00

Total Amount: \$ 463,787.20



Best Management Practices:

- 1 grade stabilization structure
- 1 sediment basin
- 1 outlet stabilization
- 1 storm water conveyance channel
- 5,800 linear feet streambank stabilization (fascines, tree revetments, forest riparian buffers, rock rip rap, stairs, seed and mulch)
- 1 log jam structure (40 LF)
- 700 linear feet fish lunger structures
- 4 road stream crossings improved (1 culvert replaced, gravel road stabilization)

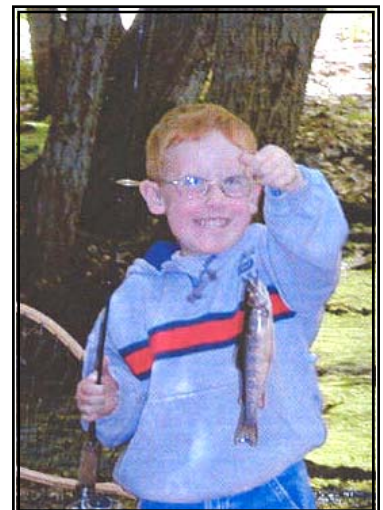


Annual Load Reductions:

- Sediment: 752 tons
- Phosphorous: 202 pounds
- Nitrogen: 220 pounds

Partners involved:

- The Cedar River Watershed Project Steering Committee
- Tip of the Mitt Watershed Council
- Friends of the Cedar River
- Kalkaska Conservation District
- Kalkaska County Road Commission
- Antrim County Road Commission



Partnership for the Jewel of the Midwest Photos



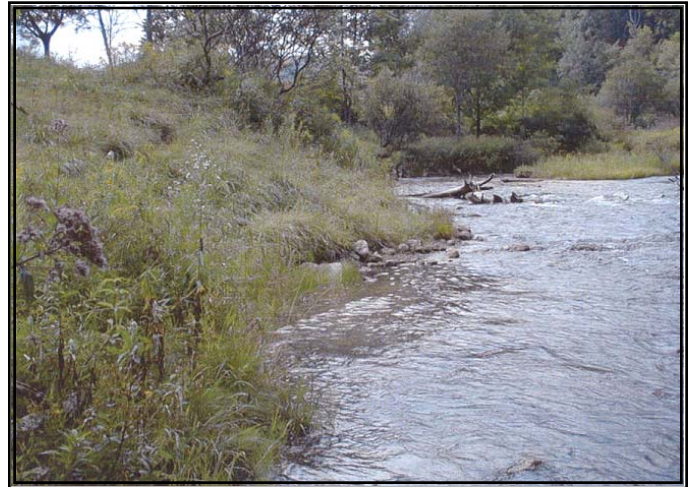
Cedar River "Railroad" Bridge Before:
Deteriorated railroad bridge causing erosion and sedimentation.



Cedar River "Nature" Bridge After:
Here, the old bridge has been removed, allowing for the construction of this new clear span bridge. Rock rip rap and critical area treatment were placed along the river bank.



Stover Dam (Cedar River) Before:
The remains of Stover Dam after it broke during a series of heavy storms. The failure caused extensive damage downriver



Stover Dam (Cedar River) After:
The Stover Dam site after the removal of the dam. Bioengineering erosion techniques were applied to the stream banks, including fascine bundles, which are long bundles of vegetation (most often willow) placed in the ground to sprout new vegetation.