



## Clean Michigan Initiative Nonpoint Source Grant



Conservation Resource Alliance

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## Betsie River Watershed Restoration Project - Phase I

September 1, 2001 through September 30, 2005

The Betsie River is a State Designated Natural River and drains into Lake Michigan. Sediment is the primary pollutant of concern in the watershed. Major erosion problems with streambanks and road/stream crossings are degrading water quality and instream habitat on the Betsie and important coldwater tributaries, Dair Creek and the Little Betsie. Through this project a total of 13 streambanks (2,325 lineal feet) were stabilized, 3 road/stream crossings were restructured, and a drainage tile/creek restoration site was completed in order to prevent excessive sedimentation into the Betsie River. This project helped the Betsie River Watershed Restoration Committee to restore all major streambank erosion sites on the mainstem, and initiate some of the first road/stream crossing repairs in the watershed.



Grant Amount: \$ 474,000

Match Funds: \$ 173,000

Total Amount: \$ 647,000



### Best Management Practices:

- fieldstone placement
- access roads
- log terracing
- tree and shrub plantings
- drainage tile installation
- creek channel restoration
- pavement
- diversion outlets
- culvert installation for fish passage & improved hydrology
- road/stream crossings
- streambank stabilization



### Annual Load Reductions:

- 205 tons of Sediment

### Partners involved:

- Conservation Resource Alliance
- Benzie County Road Commission
- Pine River Area and Adams Chapters of Trout Unlimited
- Grand Traverse Bay Bands of Ottawa and Chippewa Indians
- Betsie River Watershed Restoration Committee
- MDNR Fisheries Division & Forest, Minerals, Fire Division
- Michigan Department of Environmental Quality





**Streambank Site #146 Before:** This severely eroding streambank was dumping tons of sand into the Betsie River every year. The steep, sandy conditions prevented the bank from revegetating on its own.



**Site #146 After 3 Years:** Over 200 cu. yds. of fieldstone were placed along the toe of the bank, log terraces were installed along the upper slope, seedlings were planted, and woody debris was placed in the stream in front of the rock for fish cover.



**Site #B-18 Before:** Both road crossing sites, #B-18 and #B-17, had 5' diameter culverts on a 20' wide stream, the Little Betsie. The sites were even on the same road. Pool formation, scouring and embankment erosion were major problems.



**Site #B-17 After:** CRA worked with Benzie County Road Commission to replace the 5' diameter culverts with 16' wide bottomless, aluminum arches. The roadbed was paved and diversion outlets installed. Fieldstone and revegetation was incorporated. Now we have a natural stream bottom and the large, unnatural pools at the outlets are filling in and narrowing up.