

## Fact Sheet

**Project Name:** Water quality and macroinvertebrate diversity in streams entering and leaving Michigan lakes.

**Organization:** Michigan Lake and Stream Associations (MLSA)

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**Project Duration:** March 2007 to July 2009

**Project Location:** Isabella County, Newago County, Montcalm County

**Grant Request:** \$11,502      **Local Match:** \$8754      **Project Total:** \$20256

### Project Partners:

1. Central Michigan University:
2. Coldwater Lake Association
3. Hess Lake Association
4. Lake Isabella Property Owners Association
5. Muskellunge Lake Association

### Products Completed:

1. Project Manager hired to train and educate Stream Leaders and other volunteers.
2. Four training sessions conducted at the start of the project (fall 2007).
3. Equipment purchased using MLSA funding.
4. Nine trained Stream Leaders.
5. Habitat assessment for 16 stream locations.
6. Macroinvertebrate assessment for 16 stream sites during 2 spring and 2 fall sampling events.
7. Water quality measurements (temperature, oxygen, pH, conductivity, total phosphorus, suspended sediment) for 16 stream sites during 2 spring and 2 fall sampling events.
8. Database with volunteer information, macroinvertebrate data, habitat data, and water quality data.
9. All data listed on MiCorps web site.
10. Four newsletters (one for each lake association) summarizing data collected during 2 spring and 2 fall sampling events.
11. Article about stream monitoring project in *Riparian* magazine.
12. Presentations at Michigan Lake and Stream Associations annual meeting in 2007 and 2008.

## Project Summary

MLSA initiated a stream monitoring program to evaluate the water quality of streams entering and leaving association lakes. The primary goal of the proposed program is to protect and improve the water quality of streams in the State of Michigan. Water quality of inlet and outlet streams is important to lake associations because lake health depends on the quality and quantity of water entering the lake and downstream health depends on the quality and quantity of water exiting the lake. All data were collected by volunteers and have become part of a state-wide data base managed by the MLSA and The Michigan Clean Water Corps (MiCorps).

Four lake associations participated in the stream monitoring program from fall 2007 to spring 2009. Local volunteers gathered samples from two upstream sites and two downstream sites. Volunteers made habitat assessments at each site and collected water and macroinvertebrate samples. Macroinvertebrates were identified, enumerated, and used to calculate a water quality score. Total phosphorus and total suspended sediment were analyzed in the Michigan Water Research Center laboratory at Central Michigan University.

Knowledge of macroinvertebrates, total phosphorus, and total suspended solids values allowed lake associations to identify inlet and outlet streams that had good and poor water quality. Poor water quality at some inlet sites suggested a negative impact on water quality from upstream sources. Frequent monitoring of these upstream sites will be necessary.



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- 1) Carlos collecting invertebrates on the Coldwater River, Isabella Co.
- 2) Sorting invertebrates on the Coldwater River
- 3) Marge recording habitat data on the Chippewa River, Isabella Co.