Cedarville High School
Water Quality Project Summaries (1994-2004)

1. Monitoring of water quality in Pearson creek and Scotties creek.

Yearly monitoring of Pearson creek and Scotties creek has been completed annually every May since 1994 as a part of the water quality unit in the high school science curriculum. This project has been invaluable as a teaching tool, but has also provided baseline water quality for area surface water for the past ten years. Test parameters have included the following parameters:

- Dissolved oxygen
- Biological oxygen demand
- Fecal coliform
- pH
- Temperature variation
- Total phosphate
- Nitrates
- Turbidity
- Total dissolved solids
- Flow volume
- Sequential comparison index (macro-invertebrates)

This project has given valuable insight into the water quality of our area. Scotties creek is a creek that is more remote, and has had a minimal amount of human influence when compared to Pearson creek, which receives effluent from the sewage treatment facility in the spring and fall. The increase in nutrient levels, particularly phosphates, has been an ongoing concern in Pearson creek, which empties into Cedarville Bay. Biological contamination has also been a concern, and Cedarville High School has coordinated with Lake Superior State University to investigate total coliform levels along with E-coli. Cedarville High School currently has ten years worth of data, allowing the visualization of long term data trends.

2. Index of Biotic Integrity (IBI) using macro-invertebrates

The IBI survey was first completed in the fall of 2000. This study was initiated by Michigan State, and Ferris State University graduate programs for the Les Cheneaux area. Cedarville High School then coordinated with the two Universities to begin yearly monitoring for high school Biology classes. Cedarville Biology classes have conducted yearly monitoring of Prentiss Bay, and would like to continue this project in the future.

This survey involves the capture and identification of aquatic invertebrates within the bulrush, cattail, and wet meadow zones of the marsh. Once invertebrates have been identified, the marsh can be scored on its overall health based on the percent abundance of key groups of invertebrates within each sample. Below are results for the fall of 2000 through the fall of 2003:

Year	Score	Score Key
2000	39	8-14: Degraded
2001	38	14-28: Moderately Degraded
2002	38	28-42: Mildly Impacted
2003	32	42-48: Reference Conditions

These results have placed Prentiss Bay in the "mildly impacted" category for all four years of the study, but the score has been declining during that time. Cedarville High School would like to continue monitoring in Prentiss Bay to gain further insight into the health of this marsh.

3. Monitoring of Macro-invertebrates in Mackinac Creek.

Beginning in March of 2001, we began an invertebrate monitoring program in Mackinac creek. This study concerns benthic invertebrates, and is an expanded version of the method that we use in our general water quality monitoring of Pearson and Scotties creeks.

4. Perch Skein Survey in Flower Bay.

Every spring since 1999, Cedarville's science classes have completed perch skein surveys in Flower Bay. This project was originally set up by the US Geological Survey, and involved several marshes in the Les Cheneaux area. Cedarville High has taken responsibility to conduct surveys at Flower Bay each spring, and would like to continue to do so in the future. Through prior grants, Cedarville High has had the opportunity to integrate this project with the use of GPS units. This has made for a quality learning experience for students, as well as a great tool in the investigation of perch spawning activity in Flower Bay.

These projects have provided a multitude of learning opportunities for students in the Les Cheneaux area, as well as serving as a source of data and information that can be used in the decisions that will affect our areas resources and development. The Les Cheneaux Watershed Project has been an instrumental resource in the carrying out of the projects described above. Hopefully, CHS and the Watershed Project will be able

to work together in the future to expand the educational opportunities for our area residents, while promoting and carrying out the conservation of our areas natural resources.