

## **Automated Stream Data Notes: July 2010- Dec 2010 (Jan 10, 2010)**

Six stream sites have water quality sensors and five of the six have flow. Miller is missing flow. The summer produced some repair expenses related to both end of life and adverse weather events. This was year nine for some of the equipment in the streams.

### **Amity Creek:**

The sonde has suffered, albeit not as severely as last year, from occasional burials by sediment as well as fouling from fine particles. It has been raised slightly to promote better flushing of the sensors which has improved the fouling somewhat. This heavy sediment load is consistent with the stream's federal/state listing as being Impaired ([www.lakesuperiorstreams.org/weber/](http://www.lakesuperiorstreams.org/weber/)) for turbidity due to excess sediment loading.

### **Chester Creek:**

This sonde is fully functional.

### **Tischer Creek:**

This site had an intermittent cable malfunction that was difficult to diagnose. After the cable was replaced it has been completely functional. It was removed in early December.

### **Kingsbury Creek:**

This site suffered a setback with the sonde holder being dislodged and sent downstream during a storm that dumped nearly four inches of rain in seven hours. This cable also needed replacement resulting in a weeks loss of data. It has since been fully functional though somewhat erratic in connection reliability.

### **Miller Creek (@ Lake Superior College):**

This site is functioning except for the depth/flow sensor. The sensors were removed in Oct 2010 to prevent damage from ice. The communication and sunlight issues appear to be resolved. Maintenance and operation of the unit has been the responsibility of Lake Superior College (owners of the equipment) and the college has included this in an employee's duties as of this spring though it was only sporadically maintained in the latter part of the summer.

### **Poplar River:**

Poplar River data collection was terminated 10/7/08 due to a lack of funding. In concert with a different study of North Shore streams that did not include the Poplar River, NRRI-UMD staff were able to collect and freeze water from the original site on a number of dates in 2009, and perform a limited number of field measurements.

### **Duluth Inlet Ship Canal:**

A Hydrolab MS5 sonde was fitted alongside the USGS velocity sensing equipment on the harbor breakwall. A full set of velocity, flow, temperature, specific conductivity, turbidity, and dissolved oxygen data, at 5-15 minute intervals and in near real-time (about an hour delay) will be posted in the near future. This effort has been funded by a grant from the U. of Minnesota's Institute on the Environment to the Large Lakes Observatory at UM-Duluth as part of a Global Great Lakes ([www.globalgreatlakes.org](http://www.globalgreatlakes.org)) project. We are grateful to USGS's collaboration which has provided us with the use of their data logger and modem as well as direct access to their real-time velocity data. This site has been fully functional with weekly cleaning and calibration required due to zebra mussel infestation. It was removed in early December to prevent ice damage.