

**Lake and River Water-Temperature Measurements in the Mississippi Watershed:
"A Doors Open to Nature, Ontario Nature 75th Anniversary Project, organized by the Mississippi Valley Field Naturalists"**

Join us for a ½ day or for the weekend! The goal of the project is to collect surface and near-surface water-temperatures during the holiday weekend, August 5, 6, and 7, 2006. This should be the time of near-maximum, surface water-temperature. The data will provide information on one important aspect of habitat variability. So if you are out on the rivers or lakes on the long weekend your participation is welcomed.

Questions? Contact MVFN Project Coordinator, Cliff Bennett at 613-256-5013

GUIDELINES FOR PARTICIPANTS IN THE MVFN WATER-TEMPERATURE PROJECT:

Participants can sample between 10:00 am and 4:00 pm any time over the three day holiday weekend, August 5th, 6th and 7th, 2006. A lot can be accomplished even in a 2 hour period. All you need is a boat, a good thermometer, a simple sampling device and a copy of the project's water-temperature reporting form to record your readings. **Under no circumstances should you sample during unfavorable water conditions when you and your crew may be at risk!**

You may wish to contact your local cottage, lake or fishing Association in advance for suggested areas to focus on. They may know where you can fill in gaps to give a more complete picture of a particular area. Alternatively, just choose your favorite lake, bay or river section and take measurements. If you are sampling along the river, we recommend sampling in the deepest part of the river and sample every 300 metres or so, as you move along. If you are sampling randomly on a lake or along the river, aim to cover at least 3 km unless of course the area you are sampling in does not span that distance.

Suggested method for taking the water-temperature measurements?

Tips: Keep your thermometer in the shade at all times, or in a water bottle full of lake water that is replenished frequently to minimize the time needed to obtain the readings. While reading temperature of water samples, avoid warming the sample with your hands or by the sun. Read the temperature measurements to the nearest ½ degree C.

NOTE: Use a good thermometer with marks for each °C, which can be read to the nearest ½ °C . There are various ways to check the accuracy of your thermometer. Compare with another thermometer or use the following "single point" ice-water calibration method to calibrate the thermometer:

- Fill a wide-mouthed container (e.g. a 2-4 L thermos or empty 1 gallon container with top cone cut off) to ½ way with ice and to the top with cold tap water. Put on the lid or otherwise seal the top, wrap it in a towel, and place it on a wooden cutting board or other insulating surface.
- Stir occasionally, moving the ice from the top to the bottom.
- When about 50% of the ice is melted (may take several hours) the resulting melt water should be close to 0 degrees C. Add crushed ice or small ice cubes and stir to further cool the ice-water mix.
- After about 15 minutes, gently stir the ice water with the thermometer. The mixture will eventually come to an equilibrium temperature. If your thermometer is accurate it should stabilize close to 0 degrees Celsius.

(i) Surface water temperature readings: Immerse and fill an empty water bottle or coffee cup with water collected no deeper than 5 cm from the surface. Immediately insert the thermometer and stir. Allow about 10-20 seconds for the thermometer to equilibrate, and then record the temperature.

(ii) 1 metre deep temperature readings: To sample water at a 1 M depth, you will need to use a narrow-mouthed plastic bottle attached to a stick to collect the water. **Important** –for optimum results, use a bottle with a narrow 7/8 inch diameter mouth such as a disposable 500 mL plastic water bottle. Attach the bottle to a 1.5 -2 metre long sturdy wooden stick (drill hole in wood and thread wire or plastic cable through the hole and around the bottle). Measure up the stick from the mouth of the bottle and place a mark at 1 metre. Using both hands, quickly plunge the stick with bottle into the lake to the one metre mark and hold steady for about ten seconds until the bubbling stops (bottle is full). Slowly bring it to the surface. Immediately insert the thermometer and stir. Allow 10-20 seconds for the thermometer to equilibrate, and then record the temperature. (Using this method, only about 1/10th of the water collected should be water that entered before the bottle reached the desired depth). Alternatively, if you have access to a “temperature cable” device, you can directly measure the temperature at the 1 M depth.



Fill in measurements and other information on the reporting form provided and submit to the MVFN project coordinator

Use the reporting form attached or made available by your local lake or cottage association. It can also be printed out from the MVFN website at www.mvfn.ca. Spaces are provided for your name etc. to properly identify the data, location of measurements and the readings themselves. Accurate positioning information, e.g. co-ordinates as read from a map or obtained using GPS, may help us re-locate interesting sites such as cold ground-water inflow or deep water upwelling for future study. It is recommended that you use a new form if you are sampling on a 2nd or 3rd day or you move to in a different lake or section of lake or river.

Submit completed forms to Project coordinator Cliff Bennett by regular mail to: 1772 Clayton Road, RR#1, Almonte, ON KOA 1A0; by fax: 613-256-6625 or by e-mail: bennett@magma.ca.

Project conclusions and follow-ups to the public:

MVFN will provide the raw data to Mississippi Valley Conservation for retention and will compile a watershed-wide report with an overview of the results. We expect to notify all participants by early next summer when this report is available. This will either be by e-mail (if you provide us with your e-mail address) or through local associations or the media.