

**Citizen Based Stream Monitoring Program Level 2 Contact:**

**For all program, logistics, equipment repair and misc. questions, contact:**

Carolyn Lipke

carolyn.lipke@wisconsin.gov

**WDNR:**

101 S. Webster St. WT/3

Madison, WI 53703

(608) 266-5285

## **Project Background**

Wisconsin Department of Natural Resources' (WDNR) Biologists monitor streams on a regular basis for a variety of parameters including dissolved oxygen, air and water temperature, pH, and transparency. Your participation in the Citizen-based Stream Monitoring program's Level 2 monitoring will provide valuable data to the DNR to supplement monitoring being conducted by WDNR staff at other monitoring sites or in other streams.

### **What is the importance of Level 2 stream monitoring?**

Water quality and habitat assessment are high priority activities that the WDNR undertakes to document and monitor the status and trends of water resources of the state. Accomplishing this objective is an enormous task because of the magnitude of the state's water resources, limited number of staff number and financial resources. Citizen monitors can assist this effort by providing not only valuable data about waters of Wisconsin, but also provide an essential role in helping to protect Wisconsin's natural resources as advocates for streams.

Volunteers use WDNR methods and WDNR equipment to monitor streams around the state. Level 2 stream monitoring began in 2006, and ever since then has provided one significant way for citizens to take an active role in collecting water quality data in partnership with the WDNR. If you carefully follow the methods and quality assurance procedures, your data are considered to be high quality. In fact, as a Level 2 citizen monitor, you are asked to enter your data directly to the WDNR's database.

During 2009, Level 2 citizen monitors collected data at 178 monitoring sites throughout Wisconsin. Since the program's inception in 2006, citizens have monitored at 384 sites in the Level 2 program.

## **Volunteer Monitor Responsibilities**

Volunteers who are new participants of the program must:

- Attend a scheduled training session, which will have both field and classroom components.
- Collect dissolved oxygen, air and water temperature, pH and transparency at least monthly from May – September.
- Adhere to a predetermined monitoring schedule.
- Record data results in the WDNR database following each monitoring visit.

## **Volunteer Qualifications**

- Must have one season of monitoring experience (e.g. with Water Action Volunteers).
- No science background is needed, training will be provided to those who are interested and able to meet the defined responsibilities.
- Ability to walk along river banks and enter the water to access a monitoring site.
- Enjoyment of the outdoors.

## **Sampling Plan**

- WDNR liaisons will recommend sites that could be useful to have monitored based on needs to acquire status or trends information, or other types of monitoring that is priority.
- We ask that you monitor at least from May through September. Early morning monitoring is best to assess minimum dissolved oxygen levels at a site.
- We request that you choose primary (P) and secondary (S) sampling dates in advance and note on your data sheets on which of those dates you monitored. Predetermining sampling dates minimizes the chance that monitoring only occurs on lovely, sunny days. We are aiming to have you collect information on days with any type of weather with the following exceptions:
  - The only reasons we ask you not to sample on a primary date is due to safety concerns about being at the stream site (e.g., tornado, lightning, dangerously high flows), or a true family emergency (a *Hex* hatch doesn't count!).

- The goal is to monitor at the same time each month, preferably 30 days apart from the last monitoring visit.
- Please enter your data by the end of each month.
- The Program Coordinator is responsible for answering questions you have about entering data into the database. WDNR staff liaisons should direct questions they are unable to answer to the Program Coordinator.
- All data must be entered into the database by October 1, each monitoring season.
- All citizens must turn in their equipment at the end of each season. (Some equipment is available for further use once data has been downloaded and equipment has been received any necessary maintenance. Please inquire with the Program Coordinator.)

### **Creating a Monitoring Team**

Monitoring in “teams” can make tasks easier and more enjoyable. Some things citizen monitors will want to keep in mind when forming a “team” of people to complete monitoring:

- Not everyone on a team needs to register with SWIMS. One person can be in charge of data entry.
- The larger your team, the more sites you can monitor. Please remember to be realistic about the time commitment.
- Having several people on your team helps ensure that you are able to stick to your scheduled monitoring dates.
- Monitoring with a team can easily turn into a social event. Experienced volunteers have found all sorts of ways to couple monitoring with fishing, brewing beer, paddling, or other such fun.

### **Choosing Monitoring Sites**

You are free to choose stream sites you or your group wishes to monitor. While this situation places no requirements on the location of your monitoring, we ask that you consider any requests made by WDNR biologists, county staff, or other agency staff persons. Sites should be

monitored for 3-5 years minimum, as the goal of the Level 2 Program is to collect status and trends data, and thus an extended period of monitoring is required.

Data collected at all locations are important. There are two ways to look at selecting monitoring sites. First, your data may very well be more useful to the WDNR and/or other agencies when taking into account the recommendations of natural resource managers. Second, your monitoring might be more valuable to you if you or your group has a good idea how you would like to use the data.

Where agency staff persons might choose to place you depends on both short-term and long-term monitoring goals. Sometimes, long-term (8-10 years) data collecting at set locations will be most useful to the ongoing work, and in other cases, changing your monitoring locations to complement short-term (1-3 years) studies may be most useful to ongoing work.

For every new monitoring station, you will be asked to provide the geographic information necessary to allow the Data Manager to create a new monitoring station ID in the SWIMS database. To request a monitoring station after the training session, please use the following online form: <http://dnr.wi.gov/org/water/fhp/storet/requestnew.asp>

### **Scheduling Monitoring Events**

WDNR methods dictate that status and trends monitoring are completed at consistent intervals. This type of monitoring places an emphasis on consistency, rather than monitoring only when it's convenient for the volunteer. Therefore, we ask that you monitor on a regular, predetermined schedule. Guidelines for scheduling monitoring events include:

- Monitor at least once monthly from May through September.
- Space monitoring dates apart by roughly 30 days. For instance, plan to monitor on the second Tuesday of each month or on the 22<sup>nd</sup> of each month.
- Schedule a Primary (P on the data sheet) date and a Safety (S on the data sheet) date for each month. Monitor on your Safety date only if either an electrical storm or flooding keep you from monitoring on your Primary date. Safety dates are also predetermined dates and are typically scheduled a couple of days or one full week after your Primary

date. If you are unable to monitor on your Primary or Safety date, then monitor when possible and record Other (O) on your data sheet.

### **Data Summary Reports**

The WDNR makes data reports available to all Level 2 citizen monitors. You can obtain station and/or regional data summary reports or continuous temperature graphs for a site from the SWIMS database by following directions posted at:

<http://watermonitoring.uwex.edu/level2/swims.html>

### **Quality Assurance / Quality Control Requirements:**

#### **Your Role in Ensuring Quality Data**

The data are only as good as the care we all take in collecting and recording the data. We cannot stress enough just how important it is to take the proper steps in monitoring and entering data into the database. What do you need to do to help out with Quality Assurance and Quality Control?

#### **1. Instrument Calibration**

Each month you monitor, please follow the instructions for calibrating the meters, step by step. This includes completely filling out the Calibration Logs each time you calibrate the meters. Good record keeping assures us that the meters are well maintained and functioning properly.

#### **2. How to Address Abnormal Results**

If a measurement is outside the expected range, please repeat the measurement. If it's still outside the expected range, please recalibrate and repeat the measurement. If you are finding an abnormally low or high value, then call the program coordinator or your local DNR biologist as soon as possible.

#### **3. Side-by-Side Sampling**

Each year, the program coordinator visits with many citizen monitors in the field. During this visit, the program coordinator will sample for DO and pH using his or her own meter,

side-by-side with the volunteer. We do this to check that citizen monitors are properly calibrating meters and following methods. The program coordinator keeps yearly records on the results of the side-by-side sampling.

#### **4. Entering your Data**

Follow the instructions for entering data into the database, and pay close attention to the numbers you are entering and the placement of those decimal points. It's that simple.

#### **5. Review your Data**

Check to make sure that you entered the data correctly. To do so, take a look at the instructions for entering data into the database, and follow how to view your entered data.

## YSI Model 550a Dissolved Oxygen Meter Calibration

**Calibrate the meter before you go to the field and leave it on until done for the day.**

**Do not let sponge inside the probe chamber dry out! Keep sponge moist by re-wetting at least weekly.** If the sensor becomes damaged, you will need to replace it and wait 12 hours before calibrating and using the monitor.

1. Turn on the meter and allow 15 minutes of warm up time before calibration.
2. Verify the good condition of the sensor.
  - a. Check that the sponge inside the probe chamber is still moist.
  - b. Shake or blow off excess water on the sensor.
  - c. Check for holes or tears in the membrane.
  - d. Check for air bubbles beneath the membrane.
  - e. Replace the solution and membrane if air bubbles or damage exist.
  - f. If you need to replace the membrane, ensure that membrane housing has been filled with KCL fluid for at least 12 hours before calibrating and first use.
3. Insert the sensor into the probe chamber.
4. Record *date, time*, name of *analyst* calibrating the monitor, and the *altitude* (ft) where calibrating.
5. Record the number of minutes of *warm up time*.
6. Record the *stabilized probe temperature* (°C).
7. Press the MODE button to change from % saturation to (mg/L).
8. Record the *stabilized pre-calibration D.O.* (mg/L).
9. Press and release both the UP ARROW and DOWN ARROW keys at the same time to enter the calibration menu. The meter will say CAL on the screen in large letters and CAL in small letters in the lower left corner. The small CAL letters will stay on the screen until the calibration process is done.
10. Press ENTER on the meter. This will show a value for altitude (x100) in feet.
11. Adjust the altitude with the up and down arrow buttons for the elevation where the calibration is taking place and press ENTER. The % saturation value is now showing on the meter display.
12. Allow the % saturation value to stabilize.
13. Press ENTER. The salinity of the water samples is now on the screen.



14. Press ENTER again to accept 0 (the salinity of fresh water). The calibrated % saturation value is now on the screen and the small CAL is no longer visible in the lower left corner.
15. Press the MODE key to switch to (mg/L). (This key is used to toggle between mg/L and % saturation.)
16. Record the *post-calibration D.O.* (mg/L).
17. Look up the calibration chart D.O. value (mg/L) from the table included with your meter. Find the probe temperature and altitude and record the corresponding D.O. (mg/L) value as the *calibration chart D.O.* on the calibration log. If the difference between the *post-calibration D.O.* and the *calibration chart D.O.* is greater than 0.3 (mg/L), re-calibrate the meter before using in the field.

**Leave meter on until last reading of the day is completed.**

18. Press the green button to turn the meter off at the end of the day.

Dissoved Oxygen Saturation (mg/L) Based on Elevation or Ambient Barometric Pressue (Station Pressue)

Temp.	Elevation Feet Above Sea Level / Equivalent Un-corrected <sup>1</sup> Barometric Pressue mm Hg																						
	2000	1900	1800	1700	1600	1500	1400	1300	1200	1100	1000	900	800	700	600	500	400	300	200	100	0*	-200	
C	F	706.5	709.1	711.8	714.5	717.1	719.8	722.5	725.1	727.8	730.5	733.1	735.8	738.5	741.1	743.8	746.5	749.1	751.8	754.5	757.1	760	765.1
0	32.0	13.6	13.6	13.7	13.7	13.8	13.8	13.9	14.0	14.0	14.1	14.1	14.2	14.2	14.3	14.3	14.4	14.4	14.5	14.5	14.6	14.6	14.7
1	33.8	13.2	13.3	13.3	13.4	13.5	13.5	13.6	13.6	13.7	13.7	13.8	13.8	13.9	13.9	14.0	14.0	14.1	14.1	14.2	14.2	14.3	14.3
2	35.6	12.9	12.9	13.0	13.0	13.1	13.1	13.2	13.2	13.3	13.3	13.4	13.4	13.5	13.5	13.6	13.6	13.7	13.7	13.8	13.8	13.9	13.9
3	37.4	12.5	12.6	12.7	12.7	12.8	12.8	12.9	12.9	13.0	13.0	13.1	13.1	13.2	13.2	13.3	13.3	13.4	13.4	13.5	13.5	13.6	13.6
4	39.2	12.2	12.3	12.3	12.4	12.4	12.5	12.5	12.6	12.6	12.7	12.7	12.8	12.8	12.9	12.9	13.0	13.0	13.1	13.1	13.2	13.2	13.2
5	41.0	11.9	11.9	12.0	12.0	12.1	12.2	12.2	12.3	12.3	12.4	12.4	12.5	12.5	12.6	12.6	12.7	12.7	12.8	12.8	12.9	12.9	12.9
6	42.8	11.6	11.6	11.7	11.7	11.8	11.8	11.9	11.9	12.0	12.0	12.1	12.1	12.2	12.2	12.3	12.3	12.4	12.4	12.5	12.5	12.6	12.6
7	44.6	11.3	11.3	11.4	11.4	11.5	11.5	11.6	11.6	11.7	11.7	11.8	11.8	11.9	11.9	12.0	12.0	12.1	12.1	12.2	12.2	12.3	12.3
8	46.4	11.0	11.0	11.1	11.1	11.2	11.2	11.3	11.3	11.4	11.4	11.5	11.5	11.6	11.6	11.7	11.7	11.8	11.8	11.9	11.9	12.0	12.0
9	48.2	10.7	10.8	10.8	10.9	10.9	11.0	11.0	11.1	11.1	11.2	11.2	11.3	11.3	11.4	11.4	11.5	11.5	11.6	11.7	11.7	11.8	11.8
10	50.0	10.5	10.5	10.6	10.7	10.7	10.8	10.8	10.8	10.9	10.9	11.0	11.0	11.1	11.1	11.2	11.2	11.3	11.3	11.4	11.4	11.5	11.5
11	51.8	10.3	10.3	10.4	10.4	10.4	10.5	10.5	10.6	10.6	10.6	10.7	10.7	10.8	10.8	10.8	10.9	10.9	10.9	11.0	11.0	11.1	11.1
12	53.6	10.0	10.1	10.1	10.2	10.2	10.3	10.3	10.3	10.4	10.4	10.4	10.5	10.5	10.5	10.6	10.6	10.7	10.7	10.7	10.8	10.8	10.8
13	55.4	9.8	9.8	9.9	9.9	9.9	10.0	10.0	10.1	10.1	10.2	10.2	10.2	10.3	10.3	10.3	10.4	10.4	10.5	10.5	10.5	10.6	10.6
14	57.2	9.6	9.6	9.7	9.7	9.8	9.8	9.8	9.9	9.9	9.9	10.0	10.0	10.0	10.1	10.1	10.2	10.2	10.2	10.3	10.3	10.3	10.4
15	59.0	9.4	9.4	9.5	9.5	9.6	9.6	9.6	9.7	9.7	9.7	9.8	9.8	9.8	9.9	9.9	9.9	10.0	10.0	10.0	10.0	10.0	10.2
16	60.8	9.2	9.2	9.3	9.3	9.4	9.4	9.4	9.5	9.5	9.5	9.6	9.6	9.6	9.7	9.7	9.7	9.8	9.8	9.8	9.8	9.8	9.9
17	62.6	9.0	9.0	9.1	9.1	9.2	9.2	9.2	9.3	9.3	9.3	9.4	9.4	9.4	9.5	9.5	9.5	9.6	9.6	9.6	9.6	9.6	9.7
18	64.4	8.8	8.8	8.9	8.9	9.0	9.0	9.0	9.1	9.1	9.1	9.2	9.2	9.2	9.3	9.3	9.3	9.4	9.4	9.4	9.4	9.4	9.5
19	66.2	8.6	8.7	8.7	8.8	8.8	8.8	8.9	8.9	8.9	8.9	9.0	9.0	9.0	9.1	9.1	9.1	9.2	9.2	9.2	9.2	9.2	9.3
20	68.0	8.5	8.5	8.5	8.6	8.6	8.6	8.7	8.7	8.7	8.8	8.8	8.8	8.9	8.9	8.9	9.0	9.0	9.0	9.0	9.1	9.1	9.2

**Dissovled Oxygen Saturation (mg/L) Based on Elevation or Ambient Barometric Pressure (Station Pressure)**

Temp.	Elevation Feet Above Sea Level / Equivalent Un-corrected <sup>1</sup> Barometric Pressure mm Hg																							
	2000	1900	1800	1700	1600	1500	1400	1300	1200	1100	1000	900	800	700	600	500	400	300	200	100	0*	-200		
C	F	Eiv:	706.5	709.1	711.8	714.5	717.1	719.8	722.5	725.1	727.8	730.5	733.1	735.8	738.5	741.1	743.8	746.5	749.1	751.8	754.5	757.1	760	765.1
20	68.0	8.5	8.5	8.5	8.5	8.6	8.6	8.6	8.6	8.7	8.7	8.7	8.8	8.8	8.8	8.9	8.9	8.9	9.0	9.0	9.0	9.1	9.09	9.2
21	69.8	8.3	8.3	8.3	8.4	8.4	8.4	8.5	8.5	8.5	8.6	8.6	8.6	8.7	8.7	8.7	8.7	8.8	8.8	8.8	8.9	8.9	8.91	9.0
22	71.6	8.1	8.2	8.2	8.2	8.3	8.3	8.3	8.4	8.4	8.4	8.4	8.5	8.5	8.5	8.6	8.6	8.6	8.6	8.6	8.7	8.7	8.74	8.8
23	73.4	8.0	8.0	8.0	8.1	8.1	8.1	8.2	8.2	8.2	8.2	8.3	8.3	8.3	8.4	8.4	8.4	8.5	8.5	8.5	8.5	8.5	8.58	8.6
24	75.2	7.8	7.9	7.9	7.9	8.0	8.0	8.0	8.1	8.1	8.1	8.1	8.2	8.2	8.2	8.2	8.3	8.3	8.3	8.3	8.4	8.4	8.42	8.5
25	77.0	7.7	7.7	7.7	7.8	7.8	7.8	7.9	7.9	7.9	7.9	8.0	8.0	8.0	8.1	8.1	8.1	8.1	8.1	8.1	8.2	8.2	8.26	8.3
26	78.8	7.5	7.6	7.6	7.7	7.7	7.7	7.8	7.8	7.8	7.8	7.9	7.9	7.9	7.9	7.9	8.0	8.0	8.0	8.0	8.1	8.1	8.11	8.2
27	80.6	7.4	7.4	7.5	7.5	7.5	7.6	7.6	7.6	7.7	7.7	7.7	7.7	7.7	7.8	7.8	7.8	7.9	7.9	7.9	7.9	7.9	7.97	8.0
28	82.4	7.3	7.3	7.3	7.4	7.4	7.4	7.5	7.5	7.5	7.5	7.6	7.6	7.6	7.6	7.7	7.7	7.7	7.7	7.7	7.8	7.8	7.83	7.9
29	84.2	7.1	7.2	7.2	7.2	7.3	7.3	7.3	7.4	7.4	7.4	7.4	7.5	7.5	7.5	7.5	7.6	7.6	7.6	7.6	7.7	7.7	7.69	7.7
30	86.0	7.0	7.1	7.1	7.1	7.2	7.2	7.2	7.2	7.3	7.3	7.3	7.3	7.4	7.4	7.4	7.5	7.5	7.5	7.5	7.5	7.5	7.56	7.6
31	87.8	6.9	6.9	7.0	7.0	7.0	7.1	7.1	7.1	7.1	7.1	7.2	7.2	7.2	7.2	7.2	7.3	7.3	7.3	7.3	7.4	7.4	7.43	7.5
32	89.6	6.8	6.8	6.8	6.9	6.9	6.9	7.0	7.0	7.0	7.0	7.1	7.1	7.1	7.1	7.1	7.2	7.2	7.2	7.2	7.3	7.3	7.30	7.4
33	91.4	6.7	6.7	6.7	6.8	6.8	6.8	6.9	6.9	6.9	6.9	7.0	7.0	7.0	7.0	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.18	7.2
34	93.2	6.6	6.6	6.6	6.7	6.7	6.7	6.8	6.8	6.8	6.8	6.8	6.9	6.9	6.9	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.06	7.1
35	95.0	6.5	6.5	6.5	6.6	6.6	6.6	6.6	6.7	6.7	6.7	6.7	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.9	6.9	6.95	7.0

\* Dissolved oxygen saturation at 760 mm Hg derived from the tables of Benson & Kuause (1980), from C.M. Mortimer 1981. The oxygen content of air-saturated fresh waters over ranges of temperature and atmospheric pressure of limnological interest. Mitt. Int. Ver. Limnol. No. 22. Stuttgart, Germany

<sup>1</sup> Dissolved oxygen saturation values based on elevation due not account for true station pressure. For more accurate dissolved oxygen saturation values use un-corrected pressure measurements. Uncorrected barometric pressure values = National Weather Service Barometric Pressure in mm Hg x (Equivalent elevation pressure / 760)

Source: J. Sullivan, WDNR-La Crosse, March 2006

## **YSI Model 550a Dissolved Oxygen Meter Measurement**

### **To Measure Dissolved Oxygen in the Stream:**

1. Enter the stream, approaching the site you will monitor from downstream.
2. Insert the probe into the water to be measured.
3. Continuously stir or move the probe through the water (especially when monitoring in very still water).
4. Allow the temperature and dissolved oxygen readings to stabilize (about 2-3 minutes).
5. Observe and record temperature and dissolved oxygen values on the monitoring data sheet.
6. Press MODE and observe and record the % saturation on the monitoring data sheet.
7. If possible, rinse the probe with clean water after each use, and replace in the probe chamber.
8. Be sure to always keep the probe sponge moist.

## Oakton Acorn pH Meter Calibration Procedure

1. Connect pH and temperature probes to the meter and ensure the pH probe connector snaps into place.
2. Turn the meter on.
3. Determine which two buffer solutions you will use to calibrate the meter.
  - a. Use buffer solutions pH 4 and pH 7, if you expect samples to have a pH below 7.
  - b. Use buffer solutions pH 7 and pH 10, if you expect samples to have a pH above 7.

*Note: Surface waters are likely to be above pH 7 unless there is an unusually significant area of wetlands in the watershed.*
4. Record the *date, time, person* doing calibration, and the *pH 7 buffer* standard value on the log sheet.
5. Remove electrode from container with storage solution.
6. Rinse electrode with distilled water and shake excess water off electrode.
7. Press CAL button on the meter to start the calibration process.
8. Place electrode and temperature sensor into the lower pH buffer solution and submerge the glass bulb completely.
9. Wait for reading to stabilize and record the *Stabilized pH* on the calibration log sheet.
10. Press the ENTER key once and record the *Calibrated pH* value.
11. Check that the *Calibrated Value* is within 0.2 of the pH buffer standard. If the value is more than 0.2 higher or lower than its pH buffer value, recalibrate the meter. Record new results on the next line of the Calibration Log.
12. Remove electrode from pH 7 buffer solution, rinse with distilled water and shake off excess water.
13. Repeat steps 7 through 12 for the other pH buffer solution.
14. Replace pH probe in storage solution, turn meter off, and head out to the field.

## **Oakton Acorn pH Meter Sampling Procedure**

1. Wade into stream mid-width.
2. Face upstream and dip plastic sample bottle into stream with the mouth facing downward.
3. Submerge the bottle 12 inches or halfway between the surface and stream bottom.
4. Fill bottle by turning bottle (while underwater) so that its mouth faces up.
5. Rinse and dump water from sample bottle downstream.
6. Repeat steps 2-4.
7. Transport sample bottle back to shore or vehicle.
8. Connect any electrodes to pH meter and turn meter on.
9. Remove electrode from container with storage solution.
10. Rinse electrode with distilled water and shake off excess water.
11. Place pH and temperature probes into sample bottle and gently stir the probes.
12. Wait 2-3 minutes for pH reading to stabilize.
13. Record the pH reading on the log sheet. Do not record the temperature reading from the pH meter since it is not the actual stream temperature.
14. Rinse electrode with distilled water and shake off excess water.
15. Place electrode back in container with storage solution.
16. Disconnect electrodes and turn the meter off to store.

## **Transparency Monitoring Procedure**

### **Sample Collection**

Collect the sample away from the stream bank in the main flow (well-mixed) area. Be careful not to disturb the stream bottom when you collect the water sample. If you get sediment from bottom disturbances, dump out the sample and try again. For the observer, consistency is the key. If you initially wear your eyeglasses when you take the reading, then always wear your eyeglasses to take this measurement. Never wear sunglasses when you take this reading.

### **In Stream**

- Walk into the water downstream from the sampling location. Be careful not to stir up the bottom sediment upstream of your sampling location.
- Face upstream (into the current) in the middle of the stream or in a well-mixed area off-shore.
- Collect your water sample by plunging your bucket or tube 8-12 inches beneath the surface or halfway down from the surface. Scoop away from your body and into the current.
- Return to shore with the sample.

### **From Shore**

- To collect a sample while standing on the shore, use a bucket or sample bottle attached to a pole so that you can reach off-shore. Scoop from below the surface in the upstream direction. Be careful not to stir up the sediment upstream of your sample.

### **Reading the Transparency Tube**

1. Remove large objects from the water sample. (Filter through nylon stocking if necessary.)
2. If the sample has settled, use a stirring stick to stir the sample, or pour the sample into a clean bucket and back into the transparency tube to suspend all materials.
3. Stand out of direct sunlight. If you cannot get to a shady place, use your body to cast a shadow on the tube (Figure 1).
4. If you are wearing sunglasses, remove them. Then look for the target (black and white) disc on the bottom of tube. If disc is visible, record the length of the tube (e.g., 120 cm) on the data sheet.
5. If target disc is not visible, have your partner let water out a little at a time using the valve at the bottom until disc is just visible (Figure 2). Have them stop letting water out immediately when you can just see the contrast between black and white on the disc.

6. Read the level of water in the tube using the measuring tape on the side of the tube.
7. Record the measurement on your data sheet in cm.
8. Dump contents of tube on ground.
9. Collect a new sample then repeat steps 1 through 8.
10. Record the second measurement in cm on your data sheet.
11. Add both readings, divide by 2, and record this average on your data sheet. Note – Record three numbers on the data sheet - the two separate Transparency Tube readings and the average value.

Figure 1: Transparency tube shaded by observer.



Figure 2: Slowly releasing water until the disk is just visible.

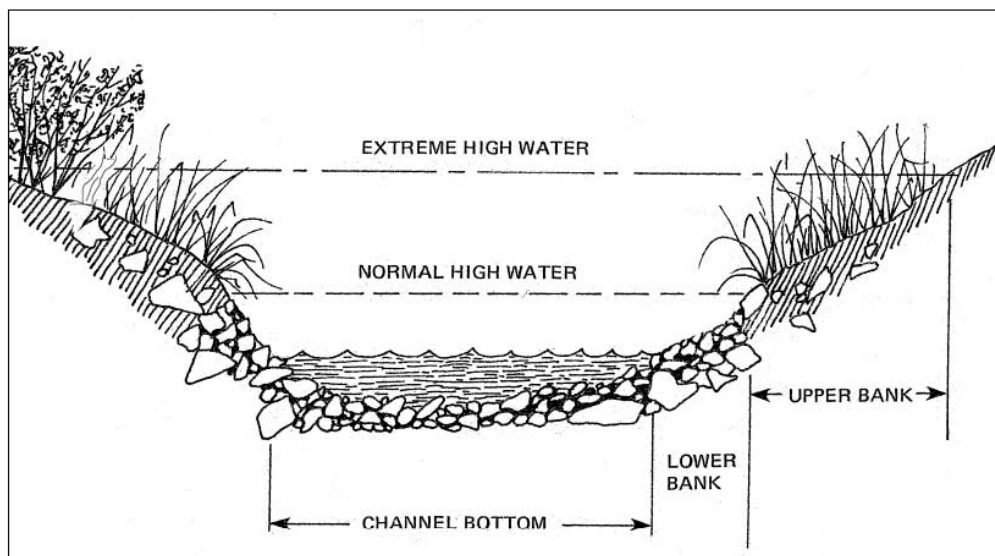




## Tips for assessing if water level is high, normal or low

This is something that you will feel more comfortable with assessing the more you visit your stream site. Some things to look for when you first visit your site to help you make the assessment are:

- Look to see if terrestrial vegetation along banks is submerged. The terrestrial vegetation will end at the normal high water mark (Figure 1).
- Look for water stains on rocks or bridge abutments. Water will stain rocks if it flows over or by them for an extended period of time. If you see stains above the level of water in the stream during your visit, the level is likely low.



*This diagram shows a cross section of a typical streambank, demarcating the upper and lower banks.*

## **Guidelines and Standard Procedures for Continuous Temperature Monitoring**

**Wisconsin DNR**

**April 2010** (Version 2 – revised for CBSM manual)

Temperature has an important influence on pH, density, specific conductance, the rate of chemical reactions, and solubility of constituents in water. Also, the biological activity and species composition of a waterbody is largely determined by water temperature. Many specific reasons illustrate how this data is used in management decisions:

- ☑ Document baseline water temperatures.
- ☑ Aid in development of statewide thermal standards and limits.
- ☑ Determine a stream's temperature category - cold, cool, or warm water.
- ☑ Aid in determination of a stream's biological potential.
- ☑ Allow for more precise calculation of ammonia limits for permitted discharges.
- ☑ Aid in documenting and determining the effects of thermal discharges on aquatic biota.
- ☑ Aid in location of groundwater influence to streams.
- ☑ Document lake or impoundment summer temperature stratification.
- ☑ Document point source and nonpoint source storm-water effects on streams.
- ☑ Document thermal impacts of structural dams and beaver dams to cold water streams.
- ☑ Distinguish brown trout streams from potential native brook trout streams.
- ☑ Determine if winter temperatures are conducive to successful development of trout eggs.
- ☑ Document changes in stream temperatures after installation of agricultural and urban best management practices.
- ☑ Aid in development of cool water Index of Biotic Integrity for Wisconsin.
- ☑ Aid in development of a model using landscape factors to predict stream temperatures.

Collecting continuous water temperature data in streams monitored with baseline wadable stream protocols is strongly recommended. Collecting continuous water temperature data on all sizes and types of streams – small, medium, and large; warm, cool and cold; and across the range of stream classifications - is also recommended.

## EQUIPMENT

Individual thermistors, software, and other accessories are needed to monitor water temperature continuously. Purchase of equipment to deploy the thermistors into streams and rivers is also necessary. See the Deployment Methods section of this document for some examples of how WDNR staff have deployed thermistors. WDNR staff have been using various models of continuous water temperature thermistors from Onset Computer Corporation for many years. The equipment can be purchased directly from Onset or through Ben Meadows or Forestry Supply Co. Other companies have different versions of temperature thermistors.

## ACCURACY CHECK OF THERMISTORS

Accuracy Check of Thermistor – once per year in lab as described in the manufacturers documentation. The thermistors cannot be calibrated as can some meters. However a check of the accuracy at 0 deg C and approximately 25 deg C (the target range of data expected in the field) should be done before deploying all thermistors.

Field Check of Thermistor – at deployment, download, and removal from stream. Record: the water temperature of the stream with a field thermometer at deployment, any download occasions, and when the thermistor is eventually removed from the stream. Record the time and temperature in conjunction with the thermistor location and serial number in a logbook. Remember that the individuals watch and the thermistor internal clock set by the computer clock at the time of launch may be different. Use this data to compare to the thermistor data once it is downloaded onto the computer to determine if the field thermometer and the thermistor are within an acceptable level of accuracy for purposes of meeting the established monitoring objectives (e.g. +/- 1 deg C). If thermistor is off by more than the specified accuracy or an acceptable accuracy, remove the thermistor from the stream and determine the reason for error.

Certified Thermometer – A certified thermometer is a glass and mercury thermometer that has a document stating the difference between it and a National Bureau of Standards

(NBS) thermometer. Your thermometer is measured against a NBS thermometer and is then returned with a certificate stating the difference between your thermometer and the NBS thermometer. The cost for this service is approximately \$150.

Field Thermometer – once per year. The field thermometer should be checked against the certified thermometer (which usually stays in the lab) or against the thermistor at the time they are checked for accuracy. Results should be recorded in a logbook for that particular field thermometer.

## RECORDING INTERVAL

A 1 hour interval between temperature readings is adequate for acquiring baseline data. This interval will allow determination of whether a stream should be considered cold, cool, or warm as well as the extremes the waterbody experiences. Analysis of seven Wisconsin streams indicated no significant difference between collecting data at 30 minute vs. 60 intervals (Mitro, 2004).

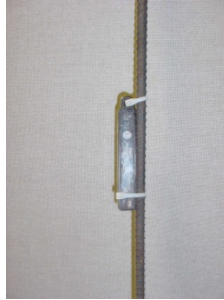
A 15 to 30 minute interval may be necessary for small, flashy streams in order to catch any short term temperature changes.

A 15 minute or less interval may be best if a stream has an immediate connection to urban stormwater. **CAUTION**: Do not acquire data at intervals less than the thermistor's response time.

## DEPLOYMENT METHODS



In slotted PVC tube



Connected to re-bar with zip-ties. The re-bar is pounded into stream bottom angled with the flow.



Connected to railroad tie plate protected by PVC tube



In PVC tube attached to brick



Hobo in capsule attached to fence post or re-bar and pounded into stream bottom



Connected to angle iron welded to re-bar and pounded into stream bottom angled with the flow

Take an accurate GPS reading of where the thermistor is deployed is important for two reasons: 1) to find the thermistor at a later date to download the data or retrieve the thermistor; 2) to record the location of the data collection point for the database.

If the thermistors are deployed in-stream with no fence post or re-bar extending above the surface of the stream, it is suggested that a marker (metal fence post, electrical fence post, a tree or large rock with marker paint, etc) be placed on the streambank as reference to where the thermistor is located in the stream.

Note that some thermistors are deployed on the stream bottom, while others are suspended off the bottom. The stream type and size may determine which deployment

method is most likely to keep the thermistor submerged and free of sediment during the deployment period.

A tag identifying the equipment as owned by the DNR with a name and phone number can be attached to the deployment equipment.

## DEPLOYMENT PERIOD

- Baseline monitoring - June 1 to August 31 (minimum)
- Movement of smallmouth bass – April 1 to November 1
- Trout reproduction potential – mid-September through March
- Point sources (data for ammonia limits) – 12 months, or April through October
- Impoundment influence to streams – 12 months
- Reference stream- indefinitely

For consistency purposes, summer and winter are defined as:

Summer = June, July, August

Winter = December, January, February

## SITE SELECTION

For baseline monitoring, choose a site within one of the stations where fish and habitat data are taken. If more than one station on a stream is surveyed, choose only one station for temperature data or more if thermistors are available and a significant change in average temperature is expected. Special studies other than baseline monitoring may determine very specific placement of thermistors (near redds for trout reproduction, point source thermal discharge, etc)

**Streams** – Attempt to place the thermistor in an area that will be submerged, well-mixed, and free of sedimentation during the period of deployment. The latter is an important consideration when monitoring in low-gradient streams, or alluvial high and moderate gradient streams with aggrading or shifting substrates (e.g. sand). A riffle or run is

preferred to a pool. Seek shade so as to minimize any radiant heat from the sun. A deep run or riffle in the sun would be acceptable.

**Rivers** –It is recommended to securely anchor the thermistor to a fixed structure such as a bridge abutment. The depth and flow of rivers may severely restrict placement of thermistors. Consider how those restrictions may affect the data.

## **FIELD OPERATION**

Check the thermistor and download data routinely if they are deployed year round. The data interval and storage capacity of a thermistor may also dictate how frequently data must be downloaded. Check and download thermistors before anticipated high water events which will prevent the loss of data if the thermistor becomes irretrievable.

Many options exist to download data from the thermistors. Downloading may entail removal of the thermistor from the waterbody and transport back to the office computer. Transport of a laptop streamside to download thermistors is also an option. The optic shuttle allows downloading in the field with immediate re-deployment of the thermistor. The shuttle is then brought back to the office to transfer data to the office computer. Download to a PDA is also possible with appropriate hardware and software. Since the thermistors may accumulate a film on them while deployed in-stream, an old toothbrush or soft cloth is handy for cleaning them in order to successfully download the data.

## **TEMPERATURE RANGES**

Temperature ranges for cold, cool and warm water streams as per John Lyons, WDNR research scientist:

Cold = maximum summer daily mean temperature <22 C (<72 F)

Cool = maximum summer daily mean temperature 22 to 25 C (72 to 77 F)

Warm = maximum summer daily mean temperature >25 C (>77 F)

## **Entering Citizen-based Stream Monitoring Data into SWIMS**

(SWIMS) is the acronym for the Wisconsin Department of Natural Resources (WDNR) Surface Water Integrated Monitoring System database. This database is available to biologists across the state of Wisconsin and is an integral part of how the Citizen-based Stream Monitoring (CBSM) data are communicated to those individuals working on various water quality issues on rivers and streams in Wisconsin.

All CBSM volunteers are encouraged to view and explore the data available in SWIMS and learn more about the meaning of the data they are observing and recording.

After each stream monitoring event, someone (only one person, please) must enter your team's data in SWIMS. These instructions explain the process.

Any CBSM Volunteer who wishes to enter, edit, or view data must take the following steps, each of which is described in detail on the following pages:

- (1) Obtain a Wisconsin User ID (WAMS).
- (2) Email the following information to the CBSM program staff. (Note: These first two steps only have to be done once to get your account setup in SWIMS.)
  - **CBSM Volunteer name**
  - **Organization name**
  - **WAMS username**
  - **List of monitoring sites**
- (3) Apply to have new sites registered in SWIMS (if needed).
- (4) Wait for CBSM program staff to be in touch with you that you are set to enter data in SWIMS (or send a gentle email reminder or call them if it's been more than two weeks since you sent in your information).



## Data Registration and Entry Procedures Table of Contents and Quick Guide to SWIMS Data Entry

I.	How to Get a WAMS User ID and Password.....	3
II.	Registering new sites .....	7
	Using the Surface Water Data Viewer.....	7
III.	Entering Data in SWIMS .....	11

### SWIMS Quick Guide:

<a href="#">Step 1:</a>	<a href="#">Login to SWIMS</a> .....	34
<a href="#">Step 2:</a>	<a href="#">Click the SUBMIT DATA tab.</a> .....	34
<a href="#">Step 3:</a>	<a href="#">Click the Add New link.</a> .....	35
<a href="#">Step 4:</a>	<a href="#">Select your monitoring site from the Project dropdown list.</a> .....	35
<a href="#">Step 5:</a>	<a href="#">Select or create your group of Data Collectors.</a> .....	36
<a href="#">Step 6:</a>	<a href="#">[If necessary] Create a new data collector group:</a> .....	36
<a href="#">Step 7:</a>	<a href="#">Confirm that the monitoring Station is same as Project.</a> .....	37
<a href="#">Step 8:</a>	<a href="#">Click the Select Date button or type in the Start Date.</a> .....	38
<a href="#">Step 9:</a>	<a href="#">Enter the Time that you started your data collection work.</a> .....	38
<a href="#">Step 10:</a>	<a href="#">Select the Citizen-Based Stream Monitoring Pilot Project form.</a> .....	16
<a href="#">Step 11:</a>	<a href="#">[SKIP] Do not enter the Latitude and Longitude.</a> .....	39
<a href="#">Step 12:</a>	<a href="#">[OPTIONAL] Enter the End Date and Time.</a> .....	17
<a href="#">Step 13:</a>	<a href="#">Enter weather and stream side Comments.</a> .....	40
<a href="#">Step 14:</a>	<a href="#">Click Next to go to the field work data entry screen.</a> .....	40
<a href="#">Step 15:</a>	<a href="#">Enter your monitoring data in the Result column.</a> .....	18
<a href="#">Step 16:</a>	<a href="#">Save your monitoring result data.</a> .....	18
	a. <a href="#">Click Save and Return to List to enter data for other sites.</a> .....	18
	b. <a href="#">Click Save and Enter Another Date to enter other data for same site.</a> .....	19
<a href="#">Step 17:</a>	<a href="#">View, edit, or Add Monitoring Data.</a> .....	19
	a. <a href="#">Click on the pencil  to edit previously entered monitoring data.</a> .....	19
	b. <a href="#">Click the magnifying glass  to view previously entered data.</a> .....	19
	c. <a href="#">Click Find Data or the Add Monitoring Data link to enter data to repeat steps for data for other monitoring sites.</a> .....	19
IV.	Editing data in SWIMS .....	20

## I. How to Get a WAMS User ID and Password

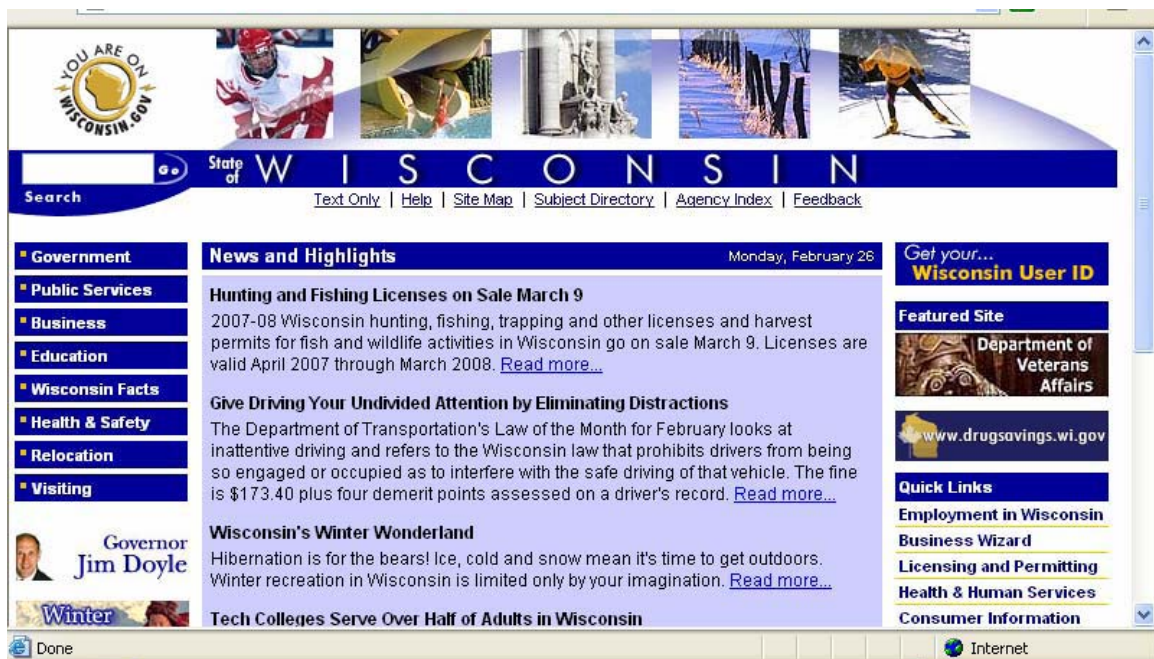
Volunteers need a User ID and Password to enter and edit data using the SWIMS database on an internet-connected computer. The State of Wisconsin established the Wisconsin Web Access Management Systems (WAMS) to allow access by authorized individuals to State forms and databases available through the internet. The simple self-registration procedure creates a personal Wisconsin Login Account ID that allows you access to SWIMS. If you already have a WAMS ID, you can use this ID to access the SWIMS database. If you do not already have a WAMS ID, follow the directions below.

**NOTE: Your [web browser](#) should be Microsoft Internet Explorer version 5.5 or higher. For more information on the purpose of WAMS, their web site and account management tips see Appendix A.**

### 1. Access Wisconsin.gov

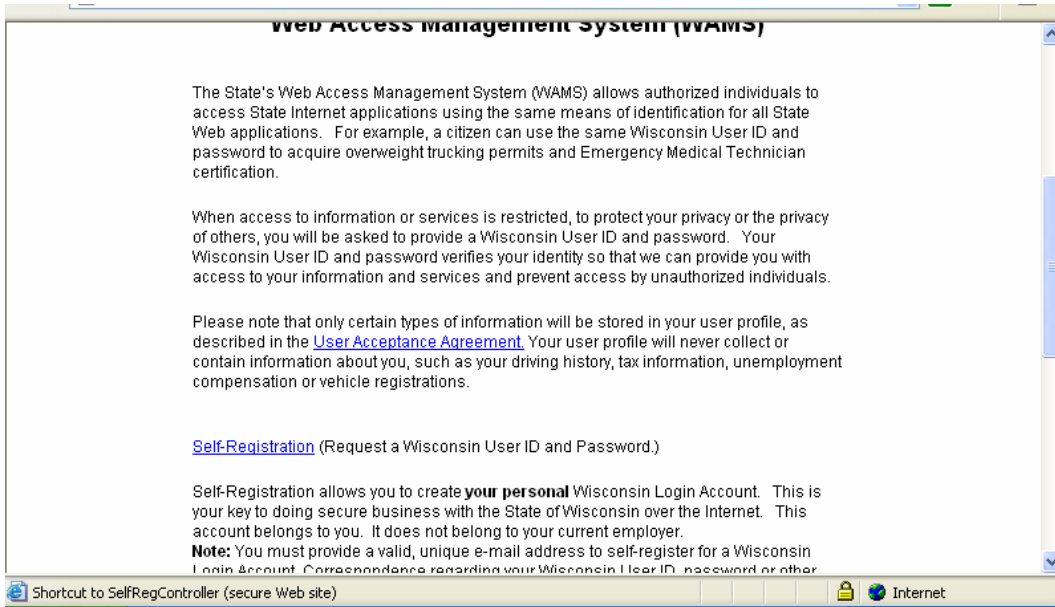
Click open your [Microsoft Internet Explorer browser](#) and type in the URL:

<http://www.wisconsin.gov/>. Click on the  link.



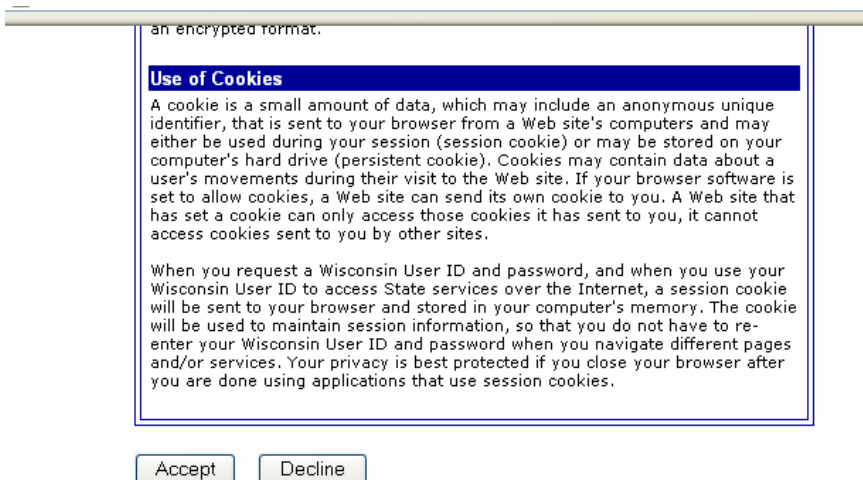
## 2. Access WAMS

Click the "OK" button in the Security Alert box. The next screen is the WAMS "**Wisconsin User ID**" Screen. Use the vertical scroll bar on the right-hand of the screen to move down the page if necessary. Click on the "**Self-Registration (Request a Wisconsin User ID and Password)**" link.



## 3. Accept User Acceptance Agreement

The next screen is the WAMS "**Self-Registration**" screen. The screen explains the WAMS registration process. Scroll down and read the State of Wisconsin Web Access Management System User Acceptance Agreement. Click on the "**Accept**" button at the bottom of the page to move to the next screen.



#### 4. Complete the Profile Information

Fill in your name and email in the **“Profile Information”**.

NOTE: Only fields with a Red \* next them are required. There is a bug entering postal addresses. We leaving the address blank. Addresses volunteers are kept separately in the SWIMS database system. We will your address in the SWIMS database have already given it to us.

The screenshot shows a web browser window titled "Self-Registration". Below the title is a legend: "\* Indicates Required Field". The main form is titled "Profile Information" and contains the following fields: "First Name" (text box with "Joe" and a red asterisk), "Middle Initial" (text box), "Last Name" (text box with "Smith" and a red asterisk), "Suffix" (dropdown menu with "e.g., JR, SR, I, II, III"), "E-Mail" (text box with "jsmith@hotmail.com" and a red asterisk, with a note "e.g., username@host.domain"), and "Phone #" (three text boxes). Below these is a note: "If you provide address information it must be complete and correct. A United States Postal Service data base is used to verify each address." Underneath is a section titled "Home Residence Address" with three text boxes for "Street", "Unit Number", and "City". A "Submit" button is at the bottom right.

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#### 5. Create your User Id and Password

Enter the requested information **“Account Information”** including a User ID and [Password](#) (both which you and personal e-mail address. Appendix A for tips on Passwords.

NOTE: You can click on the printer icon on your tool bar to out a copy of this screen if you to retain a record of your User and Password for future reference. Be sure to record User ID and Password, and this information in a handy but secure location.)

Click on the **“Submit”** button.

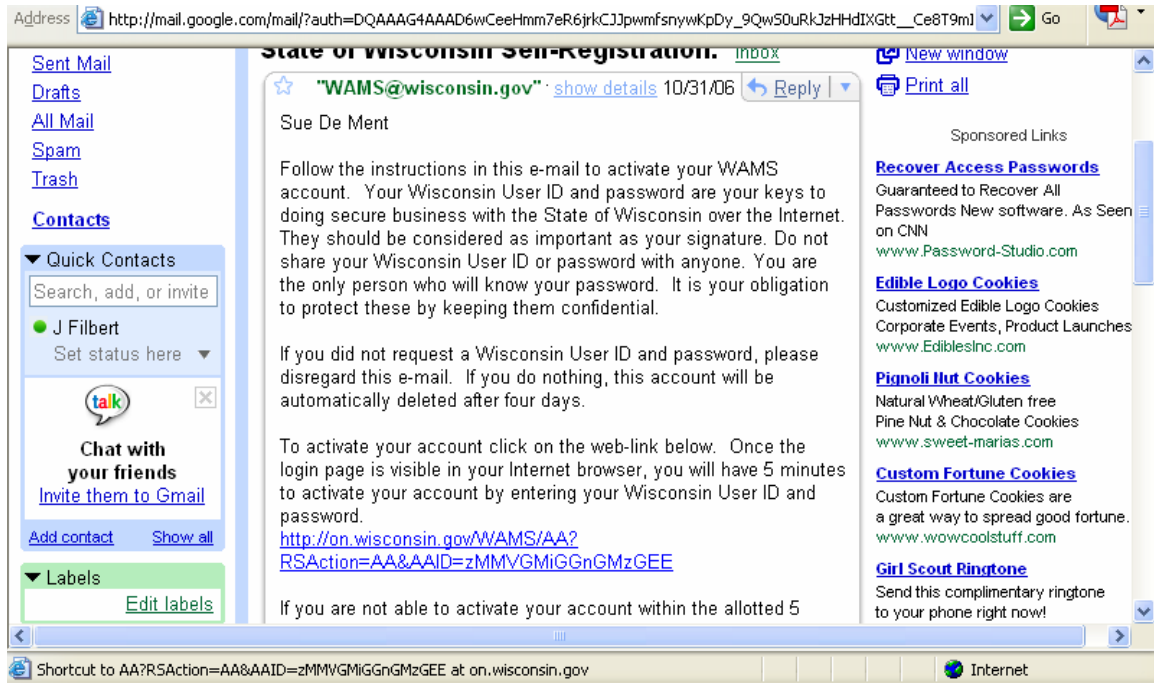
The screenshot shows two stacked forms. The top form is titled "Account Information" and contains a paragraph of instructions: "Your User ID must be between 5-20 characters and CAN be a combination of letters and numbers. Your Password must be between 7-20 characters and MUST contain a combination of letters and either numbers or special characters (except the @ sign). User IDs and Passwords are case sensitive." Below this are three text boxes for "User ID", "Password", and "Re-enter Password", each with a red asterisk. The bottom form is titled "Account Recovery" and contains the instruction: "Compose a question and answer for account recovery purposes. [Click here for Guidelines.](#)" Below this are two text boxes for "Secret Question" and "Answer to Secret Question", each with a red asterisk. A "Submit" button is at the bottom.

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## 6. Open Your Personal E-mail Account and Log In

Now open your personal e-mail account. Check your mailbox for a message from “Wisconsin.gov” thanking you for registering with the State of Wisconsin Web Access Management System.

Open the email and click on the link in the e-mail. You must complete this final step within four days of receiving the message, or you will need to repeat the registration process.



## 7. Log-in to WAMS with Your New User ID and Password

When you click on the Web link in the e-mail message from “Wisconsin.gov”, it will take you back to the WAMS web site. You will see the WAMS Account Activation - Final Step screen. Log in your User ID and Password again in the Account Activation Screen, and click on the "**Login**" button. You will receive your final e-mail message that your self-registration is complete. Now you have completed the WAMS registration process and you can exit the WAMS web site.

## 8. E-mail your User ID to CBSM Program Staff

The last step is to **e-mail your WAMS User ID to Kris Stepenuck** ([kfstepenuck@wisc.edu](mailto:kfstepenuck@wisc.edu)) or the **Level 2 Program Coordinator**. In the e-mail, tell us what kind of monitoring you are doing and where (e.g., Stream Monitoring on Black Earth Creek). Within a couple of business days, we will enter your user ID into the SWIMS database and send you an e-mail back letting you know that you are all set up to enter data.

## II. Registering new sites

- a. If you have new monitoring sites that need to be registered in SWIMS, please complete the following online form: <http://dnr.wi.gov/org/water/fhp/storet/requestnew.asp>

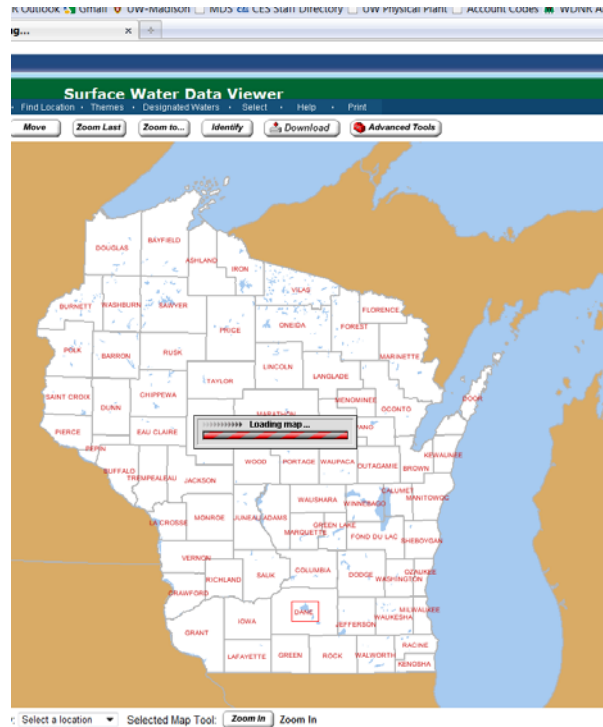
The screenshot shows a web form titled "Request a New Monitoring Station ID". The form contains the following fields and options:

- WBIC:** A text input field with a dropdown arrow. To the right, there is a checkbox labeled "WBIC doesn't exist. To request a WBIC, email [Ann Schachte](mailto:Ann.Schachte)".
- Waterbody Name:** A text input field.
- County:** A dropdown menu.
- Site Name:** A text input field.
- Latitude (DD, MM, SS.S):** Three text input fields for degrees, minutes, and seconds. A link "Convert Lat/Long" is to the right.
- Longitude (DD, MM, SS.S):** Three text input fields for degrees, minutes, and seconds.
- Lat/Long Method:** A dropdown menu.
- Lat/Long Datum:** A dropdown menu with the selected option "DNR WebView & SWIS use 1991 Adjustment NAD83".
- Person Requesting:** A text input field.
- Your Email:** A text input field.
- Station Type:** A dropdown menu.
- Comments:** A text area with a red instruction: "Please mention what the station is for (i.e. Baseline Monitoring- Wadeable, Citizen Monitoring)".

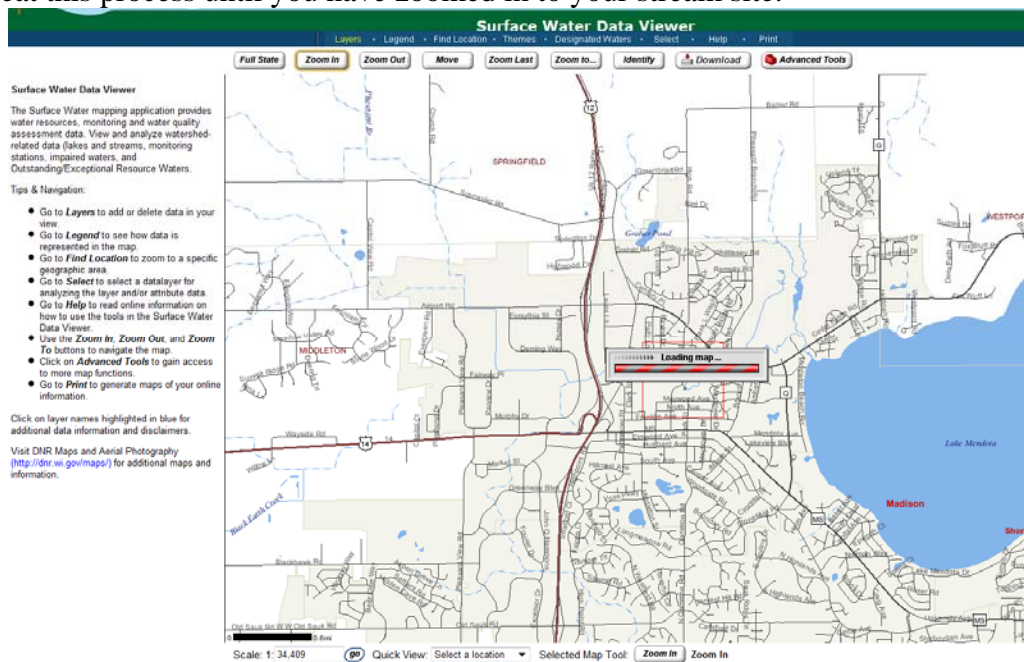
- b. You can use a handheld GPS unit or an online program such as DNR Webview (also known as the Surface Water Data Viewer) or Google Earth to obtain lat/long information.
- c. **Using the Surface Water Data Viewer to Determine Site Coordinates**  
To use the Surface Water Data Viewer to determine the latitude and longitude for your site follow these steps.
1. Go to: <http://dnrmaps.wisconsin.gov/imf/imf.jsp?site=SurfaceWaterViewer>

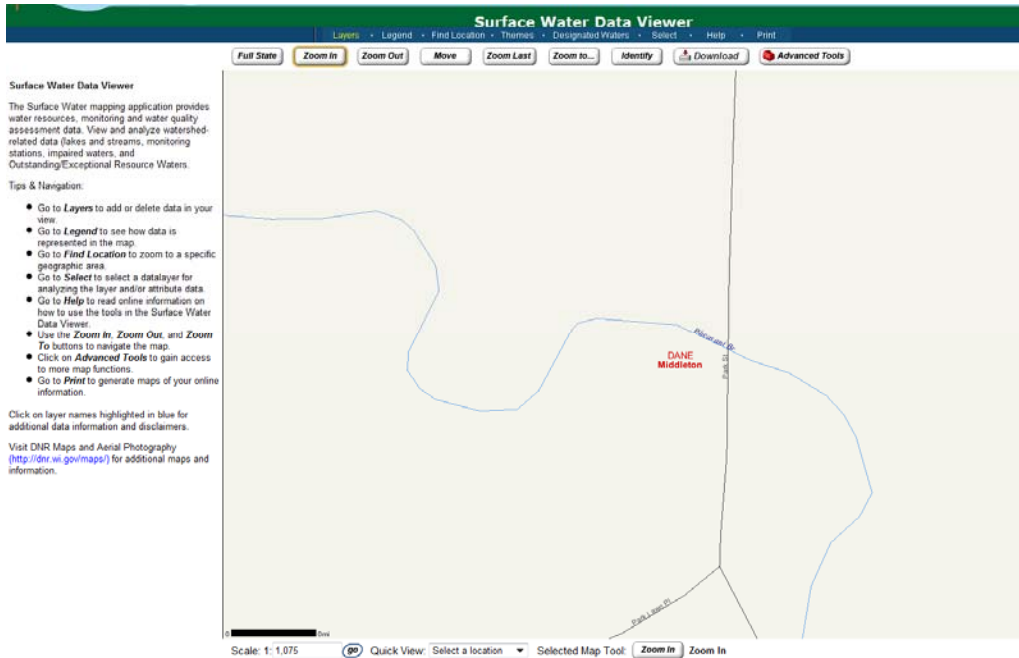


- Use your mouse to zoom in to the location where you monitor by holding down the mouse button and dragging the mouse to form a box around the area of interest.

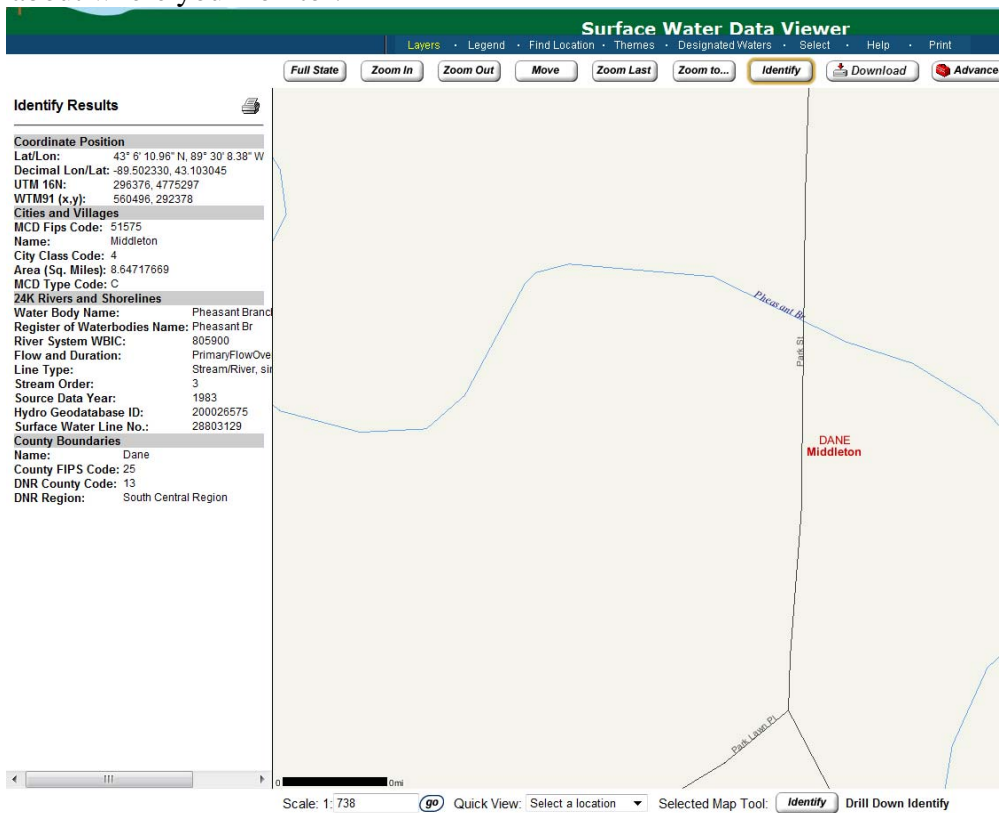


- Repeat this process until you have zoomed in to your stream site.





4. Click on the Identify button at the top of the screen, and then click on your stream site about where you monitor.



5. The latitude and longitude will show on the top left side of the screen.
6. Copy these numbers into the “Request a New Monitoring Station ID” form.

d. If you use the Surface Water Data Viewer to obtain your GPS coordinates, choose “DNR Webview” from the dropdown menu for “Lat/Long Method”.



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## Request a New Monitoring Station ID

**WBIC:**    WBIC doesn't exist. To request a WBIC, email [Ann.Schachte](mailto:Ann.Schachte)

**Waterbody Name:**

**County:**

**Site Name:**

**Latitude (DD, MM, SS.S):**

**Longitude (DD, MM, SS.S):**

**Lat/Long Method:**

**Lat/Long Datum:**

**Person Requesting:**

**Your Email:**


**Station Type:**

**Comments** Please mention what the station is for (i.e. **Baseline Monitoring-Wadeable, Citizen Monitoring, etc.**);

River/Stream station requests will go to Lisa Helm ([lisa.helm@dnr.state.wi.us](mailto:lisa.helm@dnr.state.wi.us)), and Lake requests will go to Jennifer Filbert ([jennifer.filbert@dnr.state.wi.us](mailto:jennifer.filbert@dnr.state.wi.us)).

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Last Revised: The Official Internet Site for the Wisconsin Department of Natural Resources



dnr.wis.gov

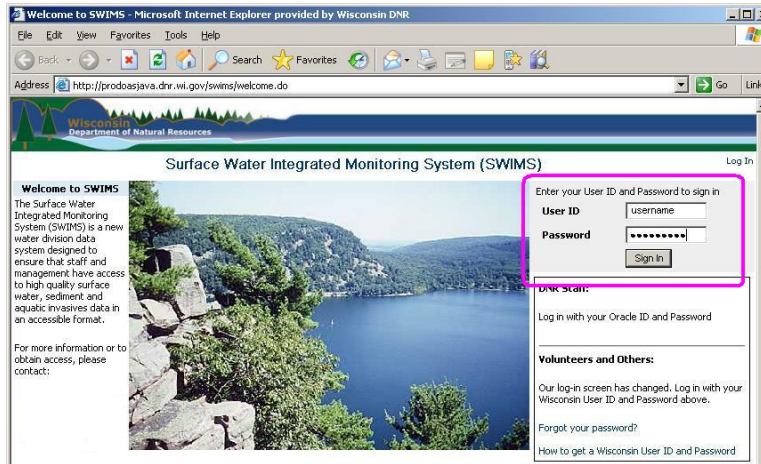
101 S. Webster Street PO Box 7921 Madison, Wisconsin 53707-7921 608.266.2621  
[Legal Notices](#) | [Privacy Notice](#) | [Acceptable Use Policy](#) | [Site Requirements](#)  
[Employment](#) | [Feedback](#) | [RSS](#) | [Site Map](#)

- e. If you did not use the Surface Water Data Viewer to obtain your latitude and longitude coordinates, choose the appropriate method from the dropdown menu for “**Lat/Long Method**”.
- f. Complete the remainder of the “**Request a New Monitoring Station ID**” form and click the “**Submit Request**” button.
- g. A WDNR staff person will respond to your request as soon as possible. It may be a week or two before you receive word that your station is registered. If you do not hear back after two weeks, you might consider sending a gentle email reminder or calling CBSM staff to check on your request. Please understand WDNR is generally understaffed so people get to requests as soon as possible, but also sometimes tasks get lost in the “to do” pile.

## II. Entering Data in SWIMS

**10.1:** Login to SWIMS at: <http://prodoasjava.dnr.wi.gov/swims/submitData.do>

Open Internet Explorer and navigate to <http://prodoasjava.dnr.wi.gov/swims/submitData.do>, then type your WAMS User ID and Password and click **Sign In**.



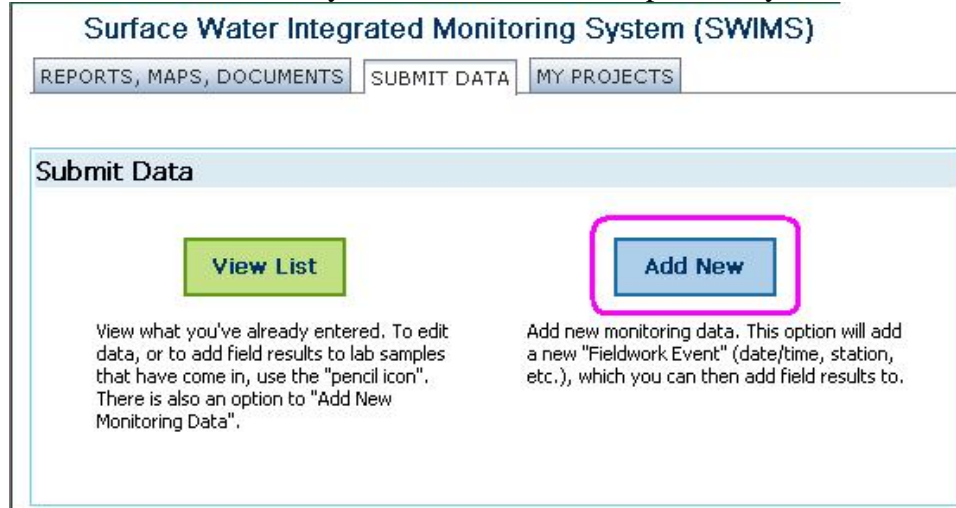
**10.2:** Click the **SUBMIT DATA** tab.

The location of this link is circled on this screen shot.



**10.3:** Click the **Add New** link.

Use the **View List** link if you wish to view or edit previously entered data.



**10.4:** Select your monitoring site from the **Project** dropdown list.

Note: Selecting the project automatically selects the monitoring station.

If your monitoring location is not listed in the drop down Project list, please do not enter your data at this time and instead contact your project leader or the CBSM data manager to get your SWIMS account assigned to the correct station(s).

**10.5:** *Select or create your group of Data Collectors.*


The screenshot shows the 'Surface Water Integrated Monitoring System (SWIMS)' interface. At the top, there are navigation tabs: 'REPORTS, MAPS, DOCUMENTS', 'SUBMIT DATA', and 'MY PROJECTS'. Below these is a breadcrumb trail: 'Home -> Enter Monitoring Data'. A red note states: 'Fields denoted with an asterisk (\*) are REQUIRED.' The form fields are as follows:

- Project \***: Token Creek - Portage Rd (Former Dam site)
- Data Collectors \***: A dropdown menu is open, showing a list of names: 'U Petersen, L Hess, E Meils and D Deppeler' (highlighted in blue), 'Jim Leverance and Mike Sorge', 'KELLY M FORMAN, DANIELLE R SANTRY, MICHAEL J SORGE', 'MICHAEL J SORGE, JEAN M UNMUTH', 'MICHAEL J SORGE, Pete Jopke', 'MICHAEL SORGE', 'RYAN M BOLEY, DANIELLE R SANTRY, MICHAEL J SORGE, JEAN M UNMUTH', 'U Petersen, D Deppeler, L Hess', and 'U Petersen, L Hess, E Meils and D Deppeler'.
- Station \***: MICHAEL J SORGE, JEAN M UNMUTH
- Start Date \***: MICHAEL J SORGE, Pete Jopke
- Time**: MICHAEL SORGE
- Form \***: U Petersen, D Deppeler, L Hess
- Optional Fields**:
  - Ursula Petersen
  - Ursula Petersen, Elizabeth Meils, Lynne Hess
- End Date**: Select Date

If the correct list of data collectors is not in the list, create a new group.

**10.6:** *[If necessary] Create a new data collector group:*

This step is only necessary once for each group of collectors. After the group has been created, it will be available via the dropdown box.

- a. Click the  binoculars icon (to the right of the Data Collectors field).

The close-up shows the 'Data Collectors \*' dropdown menu with the text 'Mother Goose, Daffy Duck, Bugs Bunny' and a binoculars icon to its right, which is circled in red.

- b. Click the **Show All People** button.  
c. Click the first letter of the last name for the collector.  
d. Click the **Add** button to add the person to the group.  
e. Click the **Submit** button to complete the creation of the new group and return to the data entry form.

**10.7:** *Confirm that the monitoring Station is same as Project.*

**Caution: If there is more than one station listed or the correct station is not listed, please do not enter your data at this time. ALSO, DO NOT USE THE BINOCULARS TO SELECT A STATION THAT DOES NOT MATCH THE PROJECT FIELD.**

Report missing or incorrect station information to the CBSM Data Manager and wait until the correct project and station information are available before entering your monitoring data.

Click the **Show Map** button to confirm the location of your monitoring site. Notify the data manager if the location is incorrect.

Surface Water Integrated Monitoring System (SWIMS) Help | Log Off

REPORTS, MAPS, DOCUMENTS SUBMIT DATA MY PROJECTS

Home -> Enter Monitoring Data  
Fields denoted with an asterisk (\*) are REQUIRED.

Project \* Token Creek - Portage Rd Selected Project: **Token Creek - Portage Rd**

Data Collectors \* U Petersen, L Hess, E Meils and D Deppeler Selected Collectors: **Deb Deppeler, Lynne Hess**

Station \* 133427, TOKEN CREEK MILLPOND - AT PORTAGE RD. DAM Selected Station: **TOKEN CREEK MILLPOND - A**

Show Map

Start Date \* Select Date

Time

Form \*

**10.8:** Click the **Select Date** button or type in the **Start Date**.

Enter the date that you collected your data. Use two digits for all month and day numbers and use four digits for the year. For example: 05/08/2008 is the correct way to type the date, May 8, 2008.

Surface Water Integrated Monitoring System (SWIMS) Help | Log Off

REPORTS, MAPS, DOCUMENTS SUBMIT DATA MY PROJECTS

Home -> Enter Monitoring Data  
Fields denoted with an asterisk (\*) are REQUIRED.

Project \* Token Creek - Portage Rd Selected Project: Token Creek - Portage Rd

Data Collectors \* U Petersen, L Hess, E Meils and D Deppeler Selected Collectors: Deb Deppeler, Lynne Hess

Station \* 133427, TOKEN CREEK MILLPOND - AT PORTAGE RD. DAM Selected Station: TOKEN CREEK MILLPOND - A

Show Map

Start Date \* 05/22/2008 Select Date

Time

Form \*

**10.9:** Enter the **Time** that you started your data collection work.

We require the start time information for all monitoring data. Be sure to enter **AM** or **PM**, also. Note: 12 noon is 12:00 PM.

Surface Water Integrated Monitoring System (SWIMS) Help | Log Off

REPORTS, MAPS, DOCUMENTS SUBMIT DATA MY PROJECTS

Home -> Enter Monitoring Data  
Fields denoted with an asterisk (\*) are REQUIRED.

Project \* Token Creek - Portage Rd Selected Project: Token Creek - Portage Rd

Data Collectors \* U Petersen, L Hess, E Meils and D Deppeler Selected Collectors: Deb Deppeler, Lynne Hess

Station \* 133427, TOKEN CREEK MILLPOND - AT PORTAGE RD. DAM Selected Station: TOKEN CREEK MILLPOND - A

Show Map

Start Date \* 05/22/2008 Select Date

Time 5:10 PM

Form \*



**10.10:** *Select the Citizen-based Stream Monitoring Pilot Project form.*

The Citizen-based Stream Monitoring Pilot Project form should already be selected. If it is not, select it from the drop down list. If it is not available, you will need to contact the CBSM Data Manager to correct this before you will be able to enter your monitoring data.

Surface Water Integrated Monitoring System (SWIMS) Help | Log Off

REPORTS, MAPS, DOCUMENTS | SUBMIT DATA | MY PROJECTS

Home -> Enter Monitoring Data  
Fields denoted with an asterisk (\*) are REQUIRED.

Project \* Token Creek - Portage Rd Selected Project: Token Creek - Portage Rd

Data Collectors \* U Petersen, L Hess, E Meils and D Deppeler Selected Collectors: Deb Deppeler, Lynne Hess

Station \* 133427, TOKEN CREEK MILLPOND - AT PORTAGE RD. DAM Selected Station: TOKEH CREEK MILLPOND - A

Start Date \* 05/22/2008 Select Date

Time 5:10 PM

Form \* Citizen-Based Stream Monitoring Pilot Project

**10.11:** *[SKIP] Do not enter the Latitude and Longitude.*

Optional Fields

I want to enter latitude and longitude on the next page (optional)

The location of your monitoring site is already established in SWIMS. If you wish to check the location of your monitoring site, click the [Show Map](#) button as described in [Step 6](#).

If you do click this check box , you will get the following form which allows you to enter additional comments about the location of this monitoring event.

You Are Entering Data For: Project: Token Creek - Portage Rd  
Start Date Time: 05/22/2008 05:10 PM  
Station: 133427 - TOKEN CREEK MILLPOND

Form: VOL\_RIVER

Additional Comments about Sample

Sample Location Desc

Latitude

Longitude

Lat/Long Method: Global positioning system (GPS). Receiver grade and/or differential correction procedures unknown.

Save and Return to List | Next

**10.12:** *[OPTIONAL] Enter the **End Date and Time**.*

This is the date and time that you completed your monitoring work. The same restrictions as listed for the start date and time apply when entering date and time information for the end date and time.

The screenshot shows a form titled "Optional Fields". At the top, there is a checkbox labeled "I want to enter latitude and longitude on the next page (optional)". Below this, there is an "End Date" field with a "Select Date" button to its right. Underneath the date field is a "Time" field consisting of two dropdown menus. Below the time field is a large text area labeled "Comments". At the bottom left of the form is a "Next" button. Below the comments text area, there is a small text prompt: "Fill in the weather here, lake or streamside observations, wildlife spotted, names of additional helpers etc..."

**10.13:** *Enter weather and stream side **Comments**.*

Please, record any information that might help characterize your data. For instance, include information on weather conditions over the past 48 hours (e.g. rainfall and the amount) or any activity occurring upstream that may be affecting water quality. Also include any observations you made regarding current weather, wildlife at the site, upcoming storms, etc.

**10.14:** *Click **Next** to go to the field work data entry screen.*



**10.15:** *Enter your monitoring data in the **Result** column.*

Enter the values recorded for each measured parameter. The water temperature should be the temperature that was recorded from the DO meter. The recorded Weather, Water Level, and Water Clarity should be selected from the drop down list for each of those parameters.

Surface Water Integrated Monitoring System (SWIMS) Help | Log Off

REPORTS, MAPS, DOCUMENTS | SUBMIT DATA | MY PROJECTS

Home -> Fieldwork Event and Result Form  
 Fields denoted with an asterisk (\*) are REQUIRED.  
 Fieldwork event data can be corrected later after submitting parameter results below.

You Are Entering Data For: **Project:** Token Creek - Portage Rd Save and Edit Header  
**Start Date Time:** 05/22/2008 05:10 PM  
**Station:** 133427 - TOKEN CREEK MILLPOND - AT PORTAGE RD. DAM

Citizen-Based Stream Monitoring Pilot Project

Parameter	Result	Units	Method
Primary/Safety/Other date?	<input type="text"/>		CBSM_PP_FIELD_METHODS
H2O Temp Degrees C (from D.O. meter)	<input type="text"/>	DEGREES C	CBSM_PP_FIELD_METHODS
Dissolved Oxygen (mg/L)	<input type="text"/>	MG/L	CBSM_PP_FIELD_METHODS
% Saturation	<input type="text"/>	%	CBSM_PP_FIELD_METHODS
pH	<input type="text"/>	SU	CBSM_PP_FIELD_METHODS
Transparency Rep. 1 (cm)	<input type="text"/>	CM	CBSM_PP_FIELD_METHODS
Transparency Rep. 2 (cm)	<input type="text"/>	CM	CBSM_PP_FIELD_METHODS
Weather	<input type="text"/>		CBSM_PP_FIELD_METHODS
Water Level	<input type="text"/>		CBSM_PP_FIELD_METHODS
Water Clarity	<input type="text"/>		CBSM_PP_FIELD_METHODS

Save and Enter Another Date | Save and Return to List

**10.16:** *Save your monitoring result data.*

- a. *Click **Save and Return to List** to enter data for other sites.*

Click **Save and Return to List**. You will see a list of all data you have entered for your sites.

- b. **Click Save and Enter another Date to enter other data for same site.**

If you have data for several dates at the same monitoring site, then you can click **Save and Return to List** to continue entering data for the same site.

**WARNING: DO NOT CHOOSE Save and Enter another Date to enter data for a different site on the same date.**

Surface Water Integrated Monitoring System (SWIMS) Help | Log Off

REPORTS, MAPS, DOCUMENTS | SUBMIT DATA | MY PROJECTS

Home -> Fieldwork Event and Result Form  
Fields denoted with an asterisk (\*) are REQUIRED.  
 Fieldwork event data can be corrected later after submitting parameter results below.

You Are Entering Data For: **Project:** Token Creek - Portage Rd  
**Start Date Time:** 05/22/2008 05:10 PM Save and Edit Header  
**Station:** 133427 - TOKEN CREEK MILLPOND - AT PORTAGE RD. DAM

**Citizen-Based Stream Monitoring Pilot Project**

Parameter	Result	Units	Method
Primary/Safety/Other date?	<input type="text"/>		CBSM_PP_FIELD_METHODS
H2O Temp Degrees C (from D.O. meter)	<input type="text"/>	DEGREES C	CBSM_PP_FIELD_METHODS
Dissolved Oxygen (mg/L)	<input type="text"/>	MG/L	CBSM_PP_FIELD_METHODS
% Saturation	<input type="text"/>	%	CBSM_PP_FIELD_METHODS
pH	<input type="text"/>	SU	CBSM_PP_FIELD_METHODS
Transparency Rep. 1 (cm)	<input type="text"/>	CM	CBSM_PP_FIELD_METHODS
Transparency Rep. 2 (cm)	<input type="text"/>	CM	CBSM_PP_FIELD_METHODS
Weather	<input type="text"/>		CBSM_PP_FIELD_METHODS
Water Level	<input type="text"/>		CBSM_PP_FIELD_METHODS
Water Clarity	<input type="text"/>		CBSM_PP_FIELD_METHODS

**10.17: View, edit, or Add Monitoring Data.**





- a. **Click on the pencil  to edit previously entered monitoring data.**


Surface Water Integrated Monitoring System (SWIMS) Help | Log Off

REPORTS, MAPS, DOCUMENTS | SUBMIT DATA | MY PROJECTS

Monitoring Data you recently entered, updated, or helped collect:


Previous 1-10 of 16 Next Start Date Desc Add Monitoring Data

	Fieldwork Start	Project	Data Collectors	Status	Station ID	Station Name
	05/22/2008 05:10 PM <small>edit data record</small>	Token Creek - Portage Rd	U Petersen, D Deppeler, L Hess	COMPLETE	133427	TOKEN CREEK MILLPOND - AT PORTAGE RD. DAM
	09/20/2007 05:20 PM <small>view data</small>	Token Creek - Portage Rd	U Petersen, D Deppeler, L Hess	COMPLETE	133427	TOKEN CREEK MILLPOND - AT PORTAGE RD. DAM
	08/16/2007 05:10 PM	Token Creek - Portage Rd	Deb Deppeler, Lynne Hess	COMPLETE	133427	TOKEN CREEK MILLPOND - AT PORTAGE RD. DAM
	07/19/2007 05:15 PM	Token Creek - Portage Rd	Deb Deppeler, Lynne Hess, Ursula Petersen	COMPLETE	133427	TOKEN CREEK MILLPOND - AT

- b. **Click the magnifying glass  to view previously entered data.**
- c. **Click Find Data or the Add Monitoring Data link to enter data to repeat steps for data for other monitoring sites.**

### III. Editing Data in SWIMS

You can edit data you've entered during the current season. Here's how:

1. Login to SWIMS at: <http://prodoasjava.dnr.wi.gov/swims/submitData.do>
2. Click the **Submit Data** tab.
3. Click **View List**.
4. Click the pencil  for the date you want to edit.
5. You can edit comments, etc. on the first page, then click **Next**.
6. You can edit results on this screen.
7. Click **Save and Return to List** to save your changes.