



MONITORING NEWS & Notes



The Missouri Water Quality Monitoring Newsletter

2008 Winter Edition

Volunteer Water Quality Monitoring Program to See Changes in 2009

The Volunteer Water Quality Monitoring Program has set the following major goals for 2009:

- Increase an individual monitor's confidence in their own abilities.
- Increased volunteer retention.
- Increased data submissions.
- Decreased costs of trainings.
- Increased number of Level 2 monitors.

In order to meet these new goals, the program has updated the workshops, training notebooks and scheduling of workshops.

The Introductory Notebook will contain 10 chapters: Welcome, Site Selection, Stream Discharge, Biological Monitoring, Safety and Trespass, Watershed View, Zebra Mussels, Urban Runoff and Siltation, Introduction to Water Chemistry and Appendix. The field portion of the workshop will include kick netting, identification of macroinvertebrates and measuring stream discharge.

The Level I Notebook will include Welcome, Water chemistry, Visual Survey, Safety, Gravel Mining, Biological Monitoring, Law and Advocacy and Appendix. The field portion of the Level I Workshop will include learning to use the chemical kits and taking a visual survey of the monitoring site.

The Level 2 Workshop will have the same training agenda, but plans are under development for more special projects for the Level 2 monitors. If you are interested in working on a special 36-month project in your watershed, please let us know.

The program will also change how we schedule the Introductory and Level I workshops. On even numbered years, the program will hold more Introductory workshops and fewer Level I Workshops. While in odd years, beginning in 2009, we will hold more Level I workshops.

Why the changes? Because we want to spend more time with individual Stream Teams mentoring and assisting in various capacities. Due to the large number of volunteers that attend the workshops each year, the staff runs short of time to spend with individuals. The new direction of the program will open the way to meet these new goals.

Shortly, you will be receiving a notice of when and where we will be in your region of the state holding stream side monitoring review sessions and demonstrations. We look forward to seeing you at these events. If you have any questions about these changes, feel free to contact one of us.

Suzy Higgins - Department of Natural Resources
573-526-1002 or Susan.Higgins@dnr.mo.gov

Amy Jungclaus - Department of Conservation
573-522-4115 x 3166 or Amy.Jungclaus@mdc.mo.gov

Kat Lackman - Department of Conservation
573-522-4115 x 3157 or Kat.Lackman@mdc.mo.gov

Wayne Maresch - Department of Natural Resources
660-438-2805 or Wayne.Maresch@dnr.mo.gov

Chris Riggert - Department of Conservation
573-522-4115 x 3167 or Chris.Riggert@mdc.mo.gov

Priscilla Stotts - Department of Natural Resources
573-526-3406 or Priscilla.Stotts@dnr.mo.gov

Preventing the Spread of Aquatic Nuisance Species

The Volunteer Water Quality Monitoring Program has set the following major goals for 2009:

- Increase an individual monitor's confidence in their own abilities.
- Increased volunteer retention.
- Increased data submissions.
- Decreased costs of trainings.
- Increased number of Level 2 monitors.

In order to meet these new goals, the program has updated the workshops, training notebooks and scheduling of workshops.

The Introductory Notebook will contain 10 chapters: Welcome, Site Selection, Stream Discharge, Biological Monitoring, Safety and Trespass, Watershed View, Zebra Mussels, Urban Runoff and Siltation, Introduction to Water Chemistry and Appendix. The field portion of the workshop will include kick netting, identification of macroinvertebrates and measuring stream discharge.

The Level I Notebook will include Welcome, Water chemistry, Visual Survey, Safety, Gravel Mining, Biological Monitoring, Law and Advocacy and Appendix. The field portion of the Level I Workshop will include learning to use the chemical kits and taking a visual survey of the monitoring site.

The Level 2 Workshop will have the same training agenda, but plans are under development for more special projects for the Level 2 monitors. If you are interested in working on a special 36-month project in your watershed, please let us know.

The program will also change how we schedule the Introductory and Level I workshops. On even numbered years, the program will hold more Introductory workshops and fewer Level I Workshops. While in odd years, beginning in 2009, we will hold more Level I workshops.

Why the changes? Because we want to spend more time with individual Stream Teams mentoring and assisting in various capacities. Due to the large number of volunteers that attend the workshops each year, the staff runs short of time to spend with individuals. The new direction of the program will open the way to meet these new goals.

Shortly, you will be receiving a notice of when and where we will be in your region of the state holding stream side monitoring review sessions and demonstrations. We look forward to seeing you at these events. If you have any questions about these changes, feel free to contact one of us.

Aquatic Nuisance Species Currently Impacting Missouri Rivers and Streams

Zebra mussel
Asian clam
Grass Carp
Common carp

Bighead carp
Silver carp
White perch

Aquatic Nuisance Species with the Potential to Spread to Missouri

Water hyacinth
Hydrilla
Eurasian milfoil
New Zealand mudsnail
Rusty crayfish
Quagga mussel
Northern snakehead

Black carp
Ruffe
Round goby
Didymo
Whirling disease
Viral Hemorrhagic
Septicemia

Suzy Higgins - Department of Natural Resources
573-526-1002 or Susan.Higgins@dnr.mo.gov

Amy Jungclaus - Department of Conservation
573-522-4115 x 3166 or Amy.Jungclaus@mdc.mo.gov

Kat Lackman - Department of Conservation
573-522-4115 x 3157 or Kat.Lackman@mdc.mo.gov

Wayne Maresch - Department of Natural Resources 660-438-2805
or Wayne.Maresch@dnr.mo.gov

Chris Riggert - Department of Conservation
573-522-4115 x 3167 or Chris.Riggert@mdc.mo.gov

Priscilla Stotts - Department of Natural Resources
573-526-3406 or Priscilla.Stotts@dnr.mo.gov

Table 1 - Equipment that should be treated to avoid spread of Aquatic Nuisance Species.

Biological Monitoring Equipment

- Nets (3' x 3' kick net or long-handled D-frame net)
- Sorting pan/ice cube trays
- Forceps
- Squirt bottle
- Protective footwear

Stream Discharge Equipment

- Float – wiffle golf ball
- Tape measure
- Rope

Chemical Monitoring Equipment

- All sample bottles and glassware used in chemical kits
- Thermometer
- Turbidity Tube

Sediment Monitoring Equipment

- Cubitainer
- DSS Sampler
- Milk Jugs
- Funnel

Table 2. Methods for treating equipment to avoid spread of Aquatic Nuisance Species

Technique	Duration	Concentration	Solution (per gallon)	Comments
Short Term				
Vinegar	20 min	100%	1 gallon of vinegar, no water	Safety glasses and gloves should be worn. Vinegar and bleach are corrosive to metal and toxic to fish.
Chlorine	10 min	200 ppm	5 oz or 15 ml of bleach and 1 gallon of water	Before reuse rinse with water but don't let the solution runoff directly to the stream.
Long Term				
Air Drying	3 - 5 days	N/A	N/A	Equipment must dry completely
Freezing < 32° F	24 hrs	N/A	N/A	Must be below freezing for duration of contact time.
Salt Bath	24 hrs	1%	1/8 cup and 1 gallon of water	Equipment must be completely submerged.

World Water Monitoring Days 2008 - BIG SUCCESS!

by Priscilla Stotts

Thank you to all of the volunteers who monitored a favorite adopted stream or joined up with other area teams and monitored with a group for World Monitoring Day. We hope that you all had a great time. Many of you told me that it is the only thing that you do that counts globally. It is hard to find something that is so much fun, so much work and worth so much.

Thanks to the high school students, little kids and older kids for planning the events, cooking hot dogs and turning the events into a stream side celebration of hope and good will. Thank you to the 130 Teams that monitored in the 40 counties listed below. We are excited by your commitment to making a difference. Someday hopefully there will be 114 counties on the list and we will have 100 pounds of data to process.



Barton	Carroll	Crawford	Jackson	Mc Donald	Ozark	Shannon
Boone	Cass	Dent	Jasper	Miller	Phelps	St. Charles
Caldwell	Cedar	Douglas	Jefferson	Newton	Polk	St. Louis
Callaway	Christian	Franklin	Laclede	Newton	Pulaski	St.Louis
Camden	Clay	Greene	Lincoln	Nodaway	Ralls	Stone
Cape Girardeau	Cole	Harrison	Macon	Osage	Saline	Warren

Climate Change in Missouri Streams CSI Project

Global warming and other global climate changes, such as the amount and seasonal timing of precipitation, may have important effects on aquatic resources. These effects could include increasing daily maximum water temperatures, which is not a problem in winter, but is a potentially serious problem in summer, and reducing precipitation. Reduced precipitation reduces groundwater levels and dry weather base flows in streams. Since base flows come from groundwater and are cooler than surface waters during the summer, declining base flows mean less and warmer water in streams.

The Volunteer Monitoring Program would like to recruit several volunteers to make frequent, accurate temperature measurements of streams. This data, when combined with data now being collected by the Department of Natural Resources, the U.S. Geological Survey and other agencies may help detect trends in water temperatures in Missouri streams and locate areas where water temperatures may become a problem.

For more information or to participate, contact Wayne Maresch at 660-438-2805 or wayne.maresch@dnr.mo.gov.

Tips for Submitting Data

by Mary Clark, new Site Specialist for Volunteer Water Quality Monitoring Program

Volunteer Water Quality Monitoring Program workshops always stress making sure that we can find your site. Volunteers are often told the first test in the Level 3 Audit is whether or not we can find your site based on the description you provide on your data sheets.

Finding your site is also the first challenge to entering your data in the database. We have to be able to verify your site before we can enter the data. Location information can make a difference between useful data and useless data. If we can't verify where the data comes from, we can't use it. Here are a few tips for describing your site:

1. A clear description of the distance from a road or a bridge is very helpful. For example, 100 feet upstream of the Hwy. 60 bridge is a good description.
2. Adding if it is upstream, "US", or downstream, "DS", of a bridge or other landmark is essential.
3. Use a name that can be identified at the site and on the map. A local name is not likely to be on the map. For example, "100 feet from Joe's Bar." "Joe's Bar" will not be on the map.
4. Do not use a landmark such as 'big oak tree' that will be gone in the future. If a street name changes, note that on your data sheet description. Trailheads can be very hard to identify on most maps. If you have a map of a Conservation Area or park trail system, it can be very helpful if you submit it with your data.
5. Don't rely solely on GPS positions; send in a written description, too. GPS can be useful, but many times they are off considerably. The device needs to equilibrate to the site for a half hour or more if you have used it in a different area previously.
6. Giving the Township and Range is not very helpful without the section and the quarter of, the quarter of, the quarter section to pin it down.

Macroinvertebrate Data Sheet: Please don't forget to write the habitat type on each net set. That information is important for the evaluation of the critter count.



How did they know?

Monitoring Tips

When adding macroinvertebrates to your reference collection, take several empty vials and hand sanitizer to the stream with you. When you find a specimen, add a little sanitizer to the vial, then the bug and then more sterilizer. Remember to label your vial with the date and location making the collection a reference and history of the site.

Bart McMaster (Stream Team 3682) suggests using closet poles for net handles.

Water thermometer strings: Wayne Smith (Stream Team 1010) has Stream Team students attach a four foot long string. This creates a loop of about two feet that will fit over most boulders. The water is usually swift where they are monitoring. The string holds the thermometer safely and close to where the macroinvertebrates will be collected after the chemical testing.

Steve C. Penick (Stream Team 1581) and Suzy Higgins (Stream 3492) use an alligator clip attached to the water thermometer string. It is great for clipping the string to a branch. Be sure to let your water thermometer string dry out between monitoring trips.

Duane Ackerman (Stream Team 3682) had the critter cards laminated and spiral bound. They hold up well at the stream.

Thanks for all of the tips. If you have ideas that other monitors could use, please send your monitoring tips to Priscilla Stotts at Priscilla.stotts@dnr.mo.gov.

C.L.A.M. Update

Citizens

Learning About
Macroinvertebrates

The Watersnipe Fly - Family Athericidae

by Susan Higgins



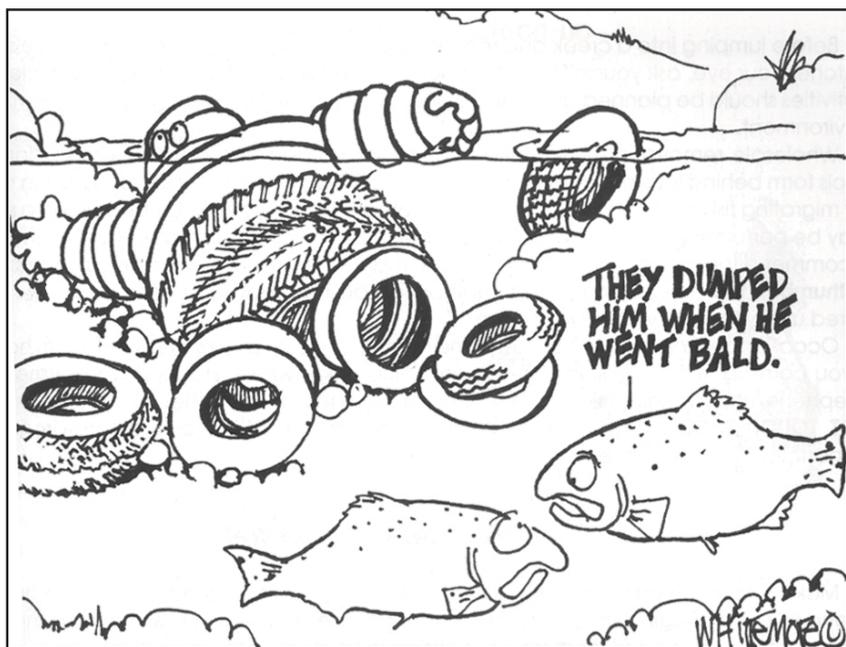
Have you ever found a watersnipe fly in your monitoring net? If you have, count yourself among the lucky few. Although they are found all over in North America except Texas and Florida, they are rarely found in the central region of the U.S. In fact, in 2006 through 2007, watersnipe flies were reported in just a few areas of Missouri, mostly in Camden, St. Charles and Ozark counties.

If you have never seen one of these critters, imagine the Michelin Tire Man as an insect. Watersnipe flies are 10 to 18 mm, (or about 1 inch,) long, have eight pronounced segments throughout the abdomen and two horn-like tail protrusions at the end. They have stubby prolegs on the bottom of each segment. Although they look soft, squishy and innocuous, they are actually predators and have little snake-like fangs.

The watersnipe fly larva is somewhat sensitive and thrives in swift, well-oxygenated streams and rivers. They are usually found under stones in shallow riffles, but sometimes they are located among aquatic vegetation, especially moss, or on woody snags. Their favorite meal is made up of midge larvae and mayflies, but they will prey on any soft bodied aquatic invertebrates.

The adult females have a unique way of reproducing. They deposit their eggs in a mass on twigs or under bridges overhanging streams. The females secrete a sticky substance to glue the eggs to the

chosen substrate, but in the process the female also becomes stuck and eventually dies there only to become her hatchlings' first meal. Often many watersnipe fly females are attracted to the same spot to deposit their eggs and they can form a clump of dead bodies and egg masses about the size of a fist. Once the larvae hatch out, they eat their first meal and then drop into the water where they spend about a year. In the spring, they go through complete metamorphosis and become adults.



303(d) List Status

by Rich Burdge, Water Protection Program, Missouri Department of Natural Resources
Stream Team 2916

A lot of people have heard about Missouri's 303(d) List and may even know a water body they are concerned with that is on the list. However, sometimes there is a little confusion about what exactly the list is, how it is created and what it means for a water body to be placed on the list.

The 303(d) List is a list of streams and lakes in Missouri known to be impaired by a pollutant but do not currently have sufficient measures in place to control that pollutant. Missouri, like all states, is required to produce this list every other year. Creating the list is a very complex and public process, and the department is constantly learning and trying to streamline the process for the next cycle.

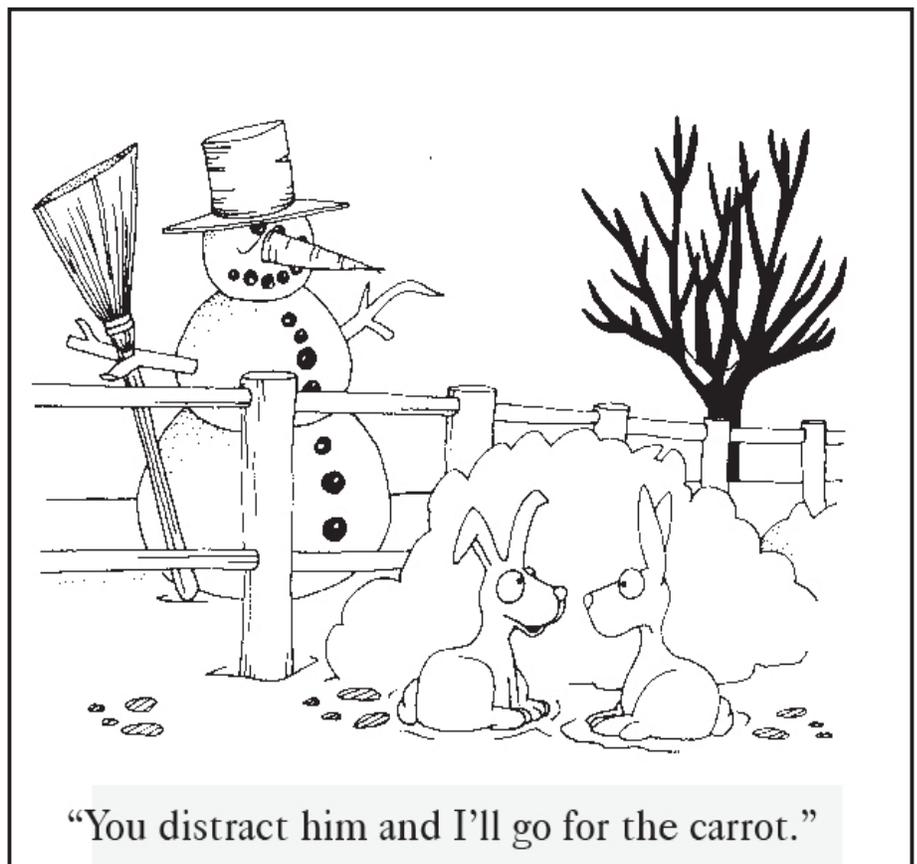
Right now the proposed 2008 303(d) List is on public notice until Jan. 16. The proposed list is available at www.dnr.mo.gov/env/wpp/waterquality/303d/2008/proposed-2008-303d-list-pn.htm.

Missouri's Clean Water Commission must approve the list before it can be sent to the Environmental Protection Agency. The Commission will hear comments regarding the list at their Jan. 7 meeting in Jefferson City. Then the department presents the list to the commission for its approval at their meeting on March 4 in Hannibal. The commission could approve that list. However, if the commission decides to add any waters to the list, another 30-day public notice will be required.

Once EPA receives the commission's list, they review it, along with the data and methods used to create it. EPA can add or delete waters as it deems appropriate. After EPA submits the list to the public one more time for comments and makes any final modifications, that becomes the final list and the one we have to go by, not the one our commission approved.

So once a stream or lake is on the list, then what? The impairment of every water on the list is required to be addressed in some way. The most common approach to doing this in Missouri is called a Total Maximum Daily Load, or TMDL. A TMDL is a calculation of how much of a pollutant can be allowed to enter a water from various sources. Another option is called a Permit in Lieu of TMDL, or PIL. This is often used when the only source of the pollutant is a permitted point source, but the current permit was not stringent enough to adequately protect water quality. Other management options to address 303(d) waters are geared toward incentive based programs.

To learn more about the 303(d) listing process and the waters on the list, feel free to visit department's 303(d) Web site at www.dnr.mo.gov/env/wpp/waterquality/303d.htm. We always welcome informed friends of streams to participate in the public process that develops our listing methodology and 303(d) List.





Missouri Department of Natural Resources
 Monitoring News and Notes
 Priscilla Stotts, Editor
 P.O. Box 176
 Jefferson City, MO 65102

PRESORTED STD
 U.S. POSTAGE PAID
 Jefferson City, MO 65102
 Permit No. 440

Monitoring News and Notes is available on the departments' Web site at www.dnr.mo.gov/pubs/newsletr.htm.

Sponsors
 Conservation Federation of Missouri
 Missouri Department of Conservation
 Missouri Department of Natural Resources

This is YOUR Newsletter
 Please send monitoring tips and nominations for Stream Teams You Should Know to *Monitoring News and Notes*.
 Send e-mail to priscilla.stotts@dnr.mo.gov or write to:
 Missouri Department of Natural Resources
 Water Protection Program
 Attn: Priscilla Stotts, Editor
 P.O. Box 176, Jefferson City, MO 65102-0176

Monitoring News & Notes

Please fill out and return the following for new subscription or address correction:

Name: _____

Address: _____

City/State/zip: _____

New Subscription
 Address Correction