

What is the WV Save Our Streams Program? WV Save Our Streams is a volunteer monitoring program that trains citizen scientists, how to monitor and become watchdogs over their local wadeable streams and rivers. The program uses a bioassessment approach, which involves the collection and assessment of the [benthic macro-invertebrates](#) as well as an evaluation of the physical and chemical conditions. The biological integrity is assessed by calculating a variety of [metrics](#), which are used to assign a score and rating to a monitoring station. The biological, physical, chemical data collected provides the volunteer with enough information to make a general assessment of their station. By monitoring additional stations, volunteers' can make an overall assessment of the health of their [watershed](#).







What does the program provide? Volunteers gain the knowledge and tools necessary to begin their own monitoring program. The [coordinator](#) provides the training, basic equipment, reference manuals and the survey forms necessary to complete the survey. The survey stations are usually chosen by the volunteer monitoring group, but the coordinator may be able to make recommendations. To get involved, a monitoring workshop should be scheduled. During the workshop, participants are introduced to the basic concepts of stream-monitoring. Also, monitoring procedures are demonstrated through hands-on training at a streamside location and usually a survey is completed. After the workshop, participants are encouraged to become certified monitors pursuant to **22-11-13** of the WV Code by completing a [certification test](#). Volunteer monitors must register their stations with the program and agree to the terms and conditions of a [memorandum of understanding](#). A wide variety of [bioassessment equipment](#) is necessary in order to perform a survey. The program can't provide all the equipment, but it can provide enough of the basic's to begin monitoring. Additional supplies may be provided at the discretion of the coordinator. [Click here](#) to learn more about the equipment available to certified volunteer monitors.



















The coordinator recommends monitoring the physical and biological conditions at your stations at least once (twice is preferred) between early spring and late fall. Water chemistry can be collected more frequently, if necessary. You can learn more about your stream without monitoring by incorporating activities such as; regular [stream walks](#) or [windshield surveys](#), stream cleanups and restoration projects (e.g. riparian plantings, streambank stabilization etc.). Providing education outreach programs, as well as information about your monitoring efforts to your local community is also an excellent activity. All completed survey data sheets (originals or clear copies) are mailed to the coordinator for a quality assurance review. After reviewing the information, the coordinator returns the data sheets to the monitoring group to maintain for their own records. The information submitted becomes part of the [volunteer assessment database](#), which is used for program reports, public information and outreach, and for assisting other [sections of WVDEP](#) with the overall characterization of our state's streams and rivers.

How do I contact the program? If you would like additional information download the [information sheet](#) or contact the coordinator by writing to the WV Department of Environmental Protection in care of the WV Save Our Streams Program at, 601 57th Street, SE, Charleston WV 25304; call (304) 926-0499 Ext. 1040, or send E-mail to the [coordinator](#). [Click here](#) to receive notices of program updates and activities. **Note:** Download times may be long if you do not have a high-speed Internet connection.






The mission of the West Virginia Save Our Streams Program is to promote the preservation and restoration of our state's waters by providing a better understanding of their ecological integrity.

Program Manuals, Survey Forms and Additional Resources

Descriptions	File types
Volunteer Monitoring Manual	htm/pdf
Level-One Stream Survey Module Describes procedures for level one surveys	 
Advanced Stream Survey Module Describes procedures for level two and level three surveys	 
Survey Data Sheet (Level 1) Column two is a slightly simpler version	 

Descriptions	File types
Survey Data Sheet (Level 2)	
Survey Data Sheet (Level 3) <small>Requires full family-level identification</small>	
Certified Volunteer Monitors Memorandum of Understanding (MOU)	
Volunteer Monitor's Certification Test <small>For level-one volunteer monitoring groups</small>	
Advanced Certification Test <small>For level-two and level-three volunteer monitoring groups</small>	
Re-Certification Test(s) and Procedures	htm/pdf
Field Guide to Aquatic Invertebrates <small>An expanded field guide that illustrates many common families</small>	
Two-Page Macroinvertebrate Guide <small>Illustrations courtesy of the Cacapon Institute and artist Jennifer Gillies</small>	
Introduction to Using the Dichotomous Key	
Advanced Macroinvertebrate Collection Procedures	
Survey Summary Data Sheet <small>Column two is a summary for level-1 or level-2 surveys</small>	 
Guidelines for Preparing a Stream Study Design	htm/pdf
Level 1 Stream Score Calculations <small>Does not require a count; must have basic knowledge of macroinvertebrate families</small>	
Level 2 Stream Score Calculations <small>Requires a count; must have a good familiarity with macroinvertebrate families</small>	
Level 3 Stream Score Calculations <small>Requires a count; must have a thorough knowledge of macroinvertebrate families</small>	
Pebble Count Calculations <small>Provides information regarding streambed composition based on counts or estimates</small>	
West Virginia's Watersheds <small>Simple maps introducing our state's watersheds</small>	
Pebble Count Collection Procedures	
Velocity Head Rod Method <small>A simple procedure for measuring stream velocity</small>	

Program Updates, News and Reports

Descriptions	File types
Workshop Registration <small>Register on-line for upcoming workshops and learn more about volunteer monitoring</small>	htm/pdf
Scheduling A Monitoring Workshop <small>Information about scheduling a stream-monitoring workshop</small>	htm/pdf
Stream Monitoring Workshop Agenda <small>Provides an example of a level-one workshop agenda</small>	htm/pdf
The Stream Study Guide <small>Recommended resources to review prior to attending monitoring workshops</small>	htm/pdf
Macroinvertebrate Video <small>DEP's environmental update show about benthic macroinvertebrates</small>	htm/mwv
Monitoring Workshop Schedule <small>Periodically updated</small>	htm/pdf
WV Save Our Streams Water Chemistry Field Kit <small>More about Bioassessment Equipment</small>	
WV Save Our Streams Slide Show <small>Overview of the program's monitoring procedures</small>	ppt
Rectangular Kick-Net Video <small>Demonstration of the rectangular kick-net</small>	htm/mwv
West Virginia Maps <small>Create your own map or explore those available from other resources</small>	htm/gis
The Spring Run Monitoring Study	htm/pdf
Geomorphic Assessment of Upper Glade Run	
The Potomac Stream Samplers Program Report	
Hands-on Experiments to Test for Acid Mine Drainage <small>A wide variety of experiments about AMD</small>	
The wonderful variety of volunteer monitors <small>A photo-collage of volunteers</small>	

Other Useful Documents and Internet Links

Guide to Aquatic Invertebrates <small>A wide variety of information about benthic macroinvertebrates, our stream's story tellers</small>
Downstream effects of mountaintop coal mining on benthic macroinvertebrate communities <small>2008 US EPA study</small>
Macro Match Cards <small>Cards and information is provided so that you can create your own matching games</small>

Laboratory Procedures for Macroinvertebrate-ID	Describes sub-sampling protocols and prices from a variety of contractors
What is Nonpoint Source Pollution	A brochure from WVDEP's PIO Office
Introduction to Wetlands Slide Show	Provides an introduction to wetland habitats
Guide to Wetland and Riparian Flora	Provides a wide selection of regional wetland and riparian flora
Salamanders of West Virginia	From the WVDNR and Marshall University's Herpetology Dept.
Fishes of West Virginia	WVDNR's fish brochure/checklist with embedded hyper-links
Family Level Identification of Macroinvertebrates found in the Mid-Atlantic Region	
Guide to Aquatic Invertebrates of the Upper Midwest	
Izaak Walton League of America's Save Our Streams Program	
US EPA: Rapid Bioassessment Protocols for Wadeable Streams and Rivers	
US EPA: Volunteer Monitor's Guide to Quality Assurance Project Plans (QAPP's)	
Volunteer Water Quality Monitoring (National Facilitation Project)	

The Volunteer Monitoring Manual

West Virginia Save Our Streams has adopted the US Environmental Protection Agency's (EPA) Volunteer Stream Monitoring: A Methods Manual to provide introductory information regarding various concepts in stream ecology and to help volunteers better understand the many facets of monitoring wadeable streams, rivers and wetlands. Certain sections have been deleted from the WV Save Our Streams version of the manual. To review the original manual go to EPA's [Volunteer Monitoring: a Methods Manual](#) web page, or click the links below to download the [portable document files](#) (PDF) from the WV Save Our Streams version. Limited printed copies are available upon request; contact the [program coordinator](#) for details.

Refer to the program's [stream survey modules](#) for descriptions of the tasks necessary to complete a survey according the program's standard operating procedures (SOPs).

Chapter 1 - [Introduction](#)

- 1.1. [Manual Organization](#)

Chapter 2 - [The Stream Study](#)

- 2.1. [Basic Concepts](#)
- 2.2. [Designing a Stream Study](#)
- 2.3. [Safety Considerations](#)
- 2.4. [Basic Equipment](#)

Chapter 3 - [Watershed Survey](#)

- 3.1. [Conducting a Watershed Survey](#)
- 3.2. [The Visual Assessment](#)

Chapter 4 - [Macroinvertebrates and Habitat](#)

- 4.1. [Stream Habitat Walk](#)
- 4.2. [Streamside Bioassessment](#)
- 4.3. [Intensive Stream Bioassessment](#)

Chapter 5 - [Water Quality](#)

- 5.1. [Stream Flow](#)
- 5.2. [Dissolved Oxygen](#)
- 5.3. [Temperature](#)
- 5.4. [pH](#)
- 5.5. [Turbidity](#)
- 5.6. [Phosphorous](#)
- 5.7. [Nitrates](#)
- 5.8. [Total Solids](#)
- 5.9. [Conductivity](#)
- 5.10. [Alkalinity](#)
- 5.11. [Bacteria](#)

Chapter 6 - [Managing and Presenting Data](#)

- 6.1. [Managing the Data](#)
- 6.2. [Presenting Data](#)
- 6.3. [Producing Reports](#)

Appendices

- A. [Glossary](#)
- B. [Scientific Supply Companies](#)
- C. [Calculating Latitude and Longitude](#)

[Click-here](#) to download the complete manual ^(37 MB)

Volunteer manual website: <http://www.wvdep.org/dwvm/volmonitoring>



If you plan to enter your data into the VAD, please submit a paper copy of your completed survey to the address below so that an appropriate quality assurance review can be completed. You may submit the full-survey or use the summary data sheets available on the program's [web page](#). If you choose to submit your original(s), always keep a copy for your records. If you have questions, Email the [coordinator](#). **If you are a new user, you must register a volunteer account prior to entering survey data.**

What would you like to do?

1. [View stream assessment reports](#) (registration is not necessary to view reports)
2. [Register a new user account](#)
3. [Log in to an existing user account](#)
4. [Administrator Log In](#)

West Virginia Dept. of Environmental Protection
West Virginia Save Our Streams Program
601 57th Street, SE
Charleston, WV 25304

Office: (304) 926-0499 Ext. 1040
Mobile: (304) 389-7630
Email: timothy.d.craddock@wv.gov

VAD website: <http://www.wvdep.org/dwwm/wvsos/vad/index.htm>