The West Virginia Save Our Streams Program

Developing a Tiered Approach to Volunteer Monitoring

Timothy Craddock, Citizen's Monitoring Coordinator

WHAT IS THE WV SAVE OUR STREAMS PROGRAM?


Old Field Fork

WV Save Our Streams is a volunteer stream monitoring program designed to teach its participants various techniques for making an assessment of their wadeable streams and rivers.

WV Save Our Streams provides hands-on training in the **biological**, **physical** and **chemical** survey methods commonly used for rocky-bottom stream monitoring and assessment.

Certification of the volunteer monitor's and **stream adoption** is an important component of the program.

HISTORY

The Save Our Streams (SOS) program had its beginnings in 1969, through a Maryland Chapter of the Izaak Walton League of America (IWLA). The IWLA was the first to initiate this type of volunteer stream monitoring program, and through avenues such as the Virginia Environmental Endowment Grant program, helped to start SOS programs all across the United States. West Virginia's Save Our Streams program began initially in 1989 coordinator for two years by the Water Resources Section of the WV Division of Natural Resources.

The program began again in 1994 by way of a grant from Section 319 of the Clean Water Act, and has now found a permanent home with WV Department of Environmental Protection's (WV DEP) Division of Water Resources. Volunteer stream monitors are encouraged to use the IWLA to purchase additional supplies and equipment to help support IWLA's Save Our Streams program.

INITIAL GOALS AND OBJECTIVES

Like many volunteer monitoring programs across the country, a major goal of the WV Save Our Streams Program is to encourage the use of volunteer data.

The idea is to gain credibility by providing a program that is not only accepted by the volunteers but will also be a mechanism for the collection of stream information that will be accepted and used by federal and state water quality agencies.

THE STAKEHOLDER PROCESS

A series of stakeholder (roundtable style) meetings were held over an eight month period in order collect ideas from all interested participants. The stakeholders provided guidance for future program development. There was overwhelming agreement regarding the development of the program from both the volunteer and professional communities…

- To develop a program that would provide enhanced training opportunities but would still be understood by those with little experience using stream monitoring and assessment techniques.
- A secondary goal is to develop field methods (possibly incorporating lab methods in the future) that would provide credible and reliable stream information.

THE FIRST MEETING

IWLA – Mountaineer Chapter House

THE STAKEHOLDERS

1. West Virginia Save Our Streams
2. WV DEP Watershed Assessment Section
3. WV DEP Nonpoint Source Program
4. WV DEP Division of Mining and Reclamation
5. WV Conservation Agency
6. WV Department of Natural Resources
7. Office of Surface Mining
8. Salem International University
9. Marshall University
10. Southern WV Community College
11. Shepherd University
12. Izaak Walton League of American
13. Blue Heron Environmental Network
14. Kelly's Creek Community Association
15. Heizer-Manila Watershed Organization
16. Jefferson County Watershed Coalition
17. Guardians of the West Fork
18. Cacapon Institute

PROGRAM STRUCTURE – THE WORKSHOPS

Tier One - Beginning Stream Monitoring Workshop

Introduces the concepts of chemical, physical and biological stream monitoring and provides basic equipment, manuals and other resource materials. The workshops are approximately 4-6 hours in length with both in-class and hands-on demonstrations along a stream.

Tier Two - Intermediate Stream Monitoring Workshop

Expands upon the concepts by using more thorough techniques, thus beginning to quantify the information collected. Basic equipment, manuals and other resources are provided. The workshops last a full day, with both in-class and hands-on demonstrations along a stream.

PROGRAM STRUCTURE – THE WORKSHOPS

Tier 3 - Advanced Stream Monitoring Workshop

The training is very similar to a professional type of stream assessment called, rapid bioassessment protocols (RBP's). Enhanced equipment, manuals and additional resources are provided. The advanced workshop is a two-day commitment. The first day is mostly in-class with some hands-on streamside demonstrations in the afternoon. The second day is spent entirely on a stream. By the end of the second day the group will have completed an advanced assessment of the entire stream reach.

THE VOLUNTEER STREAM CONDITION INDEX

WV Save Our Steams "Stream Condition Index"					
Invertebrate Groups	**Total #**		**# Of Kinds**	Tolerance	HBI Value
Stoneflies	1		1	2	2
Mayflies	34		2	3	102
Most Caddisflies				3	0
Fishflies & Hellgrammites	2		1	5	10
Water Penny	3		1	4	12
Riffle Beetles				4	0
Watersnipe				4	0
Craneflies	6		1	5	30
Common Netspinner	40		1	5	200
Dragonflies				5	0
Damselflies				7	0
Alderflies				6	0
Other Beetle Larva				5	0
Mussels				5	0
Clams	2		1	6	12
Gilled Snails				5	0
Crayfish	3		1	6	18
Scuds "Sideswimmer"	34		1	5	170
Aquatic Sowbugs	101		1	7	707
Pouch Snails				8	0
Blackfly Larva	3		1	8	24
Midge Larva	9		1	8	72
Other Fly Larva				8	0
Flatworms				8	0
Leeches				10	0
Aquatic Worms	10		1	10	100
Total # of Macroinvertebrates		**248**	Total HBI		**1459**
Total # of Kinds		**14**			

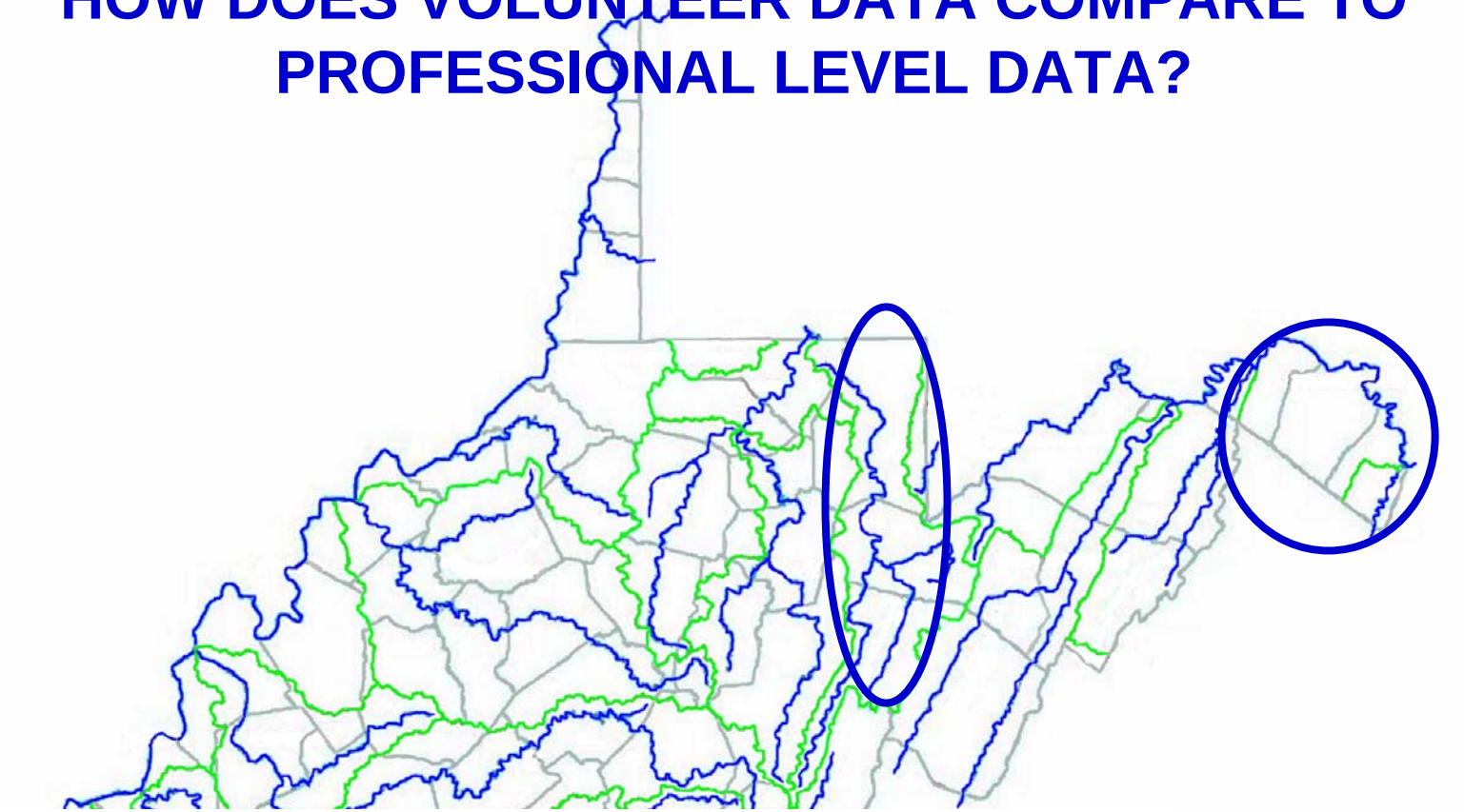
Metrics	**Score**	**Points**
% Dominance	40.7	65.9
% EPT	30.2	35.6
EPT Richness	4	33.3
% Tolerant	8.9	95.9
Hilsenhoff Biotic Index (HBI)	5.9	63.3
Taxa Richness	14	70.0

Reference Formulas

= 100 × [(100 – Value) ÷ 90]
= 100 × (Value ÷ 85)
= 100 × (Value ÷ 12)
= 100 × [(100 – Value) ÷ 95]
= 100 × [(10 – Value) ÷ 6.5]
= 100 × (Value ÷ 20)

Biological Integrity					
Stream Condition Index	**60.7**	Excellent > 90	Good 90 - 70	Marginal 69.9 - 50	Poor < 50

HOW DOES VOLUNTEER DATA COMPARE TO PROFESSIONAL LEVEL DATA?



LET'S TAKE A LOOK AT SOME OF THE COMPARISONS.

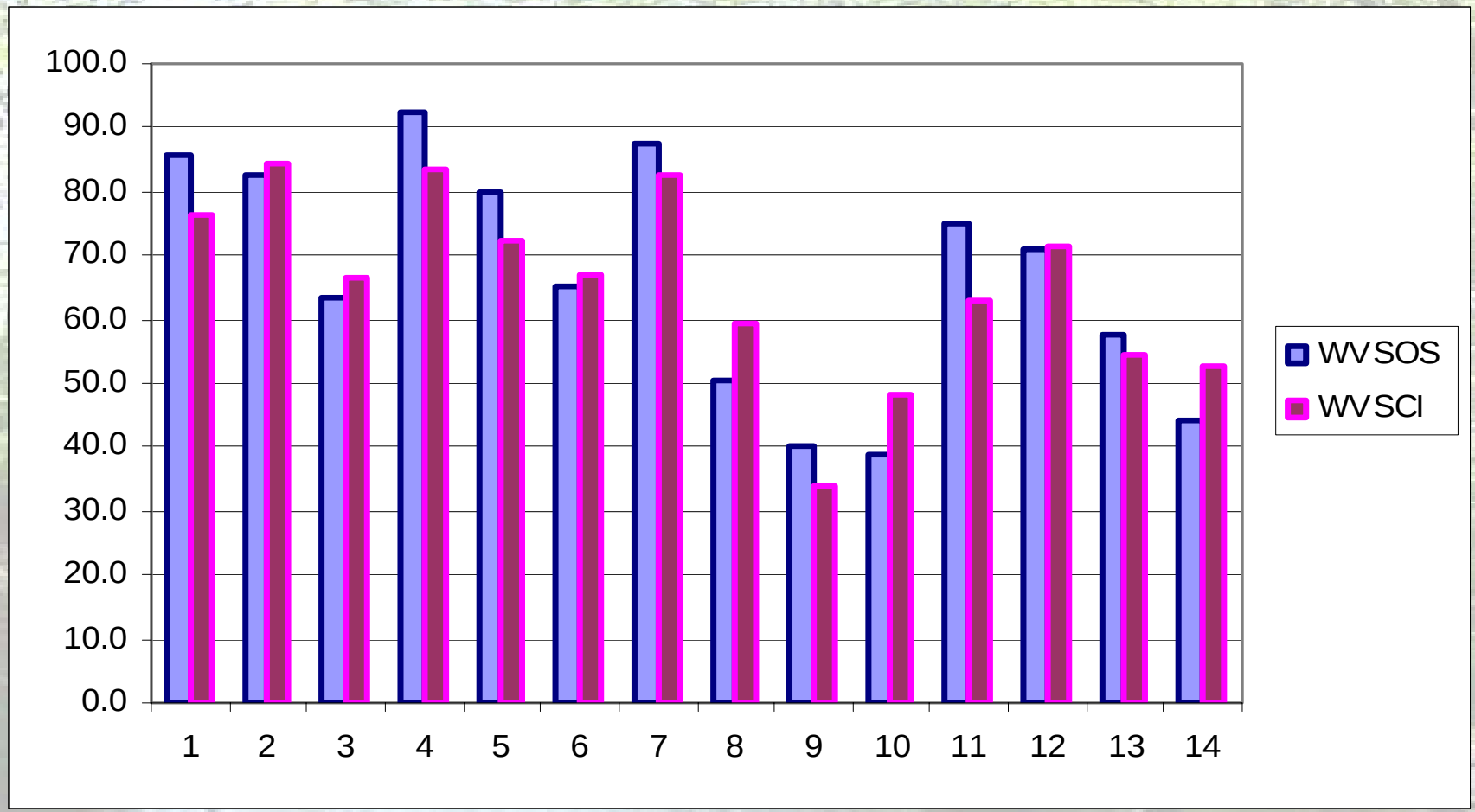
161 Stream sites were compared within most of West Virginia's major hydrologic basins.

Major rivers
County lines
Major river basins

Potomac Direct and Shenandoah Drainage Basins

Stream	Watershed	WVSOS	WVSCI	Correlation
Middle Fork/Indian Creek	Potomac Direct Drain	85.9	76.4	
Back Creek	Potomac Direct Drain	82.7	84.2	
Tilis Branch	Potomac Direct Drain	63.6	66.6	
Indian Run	Potomac Direct Drain	92.5	83.7	
Middle Fork/Sleepy Creek	Potomac Direct Drain	79.8	72.5	
Meadow Branch	Potomac Direct Drain	65.3	67.1	
Little Burch Creek	Potomac Direct Drain	87.7	82.5	0.898
Hog Run	Shenandoah	50.6	59.2	
North Fork/Bullskin Run	Shenandoah	40.1	34.0	
Bullskin Run	Shenandoah	39.0	48.0	
Flowing Springs Run	Shenandoah	74.8	63.0	
Shenandoah River	Shenandoah	70.8	71.3	
Evitt's Run	Shenandoah	57.8	54.3	
Evitt's Run	Shenandoah	44.2	52.6	0.820

Potomac Direct and Shenandoah Drainage Basins

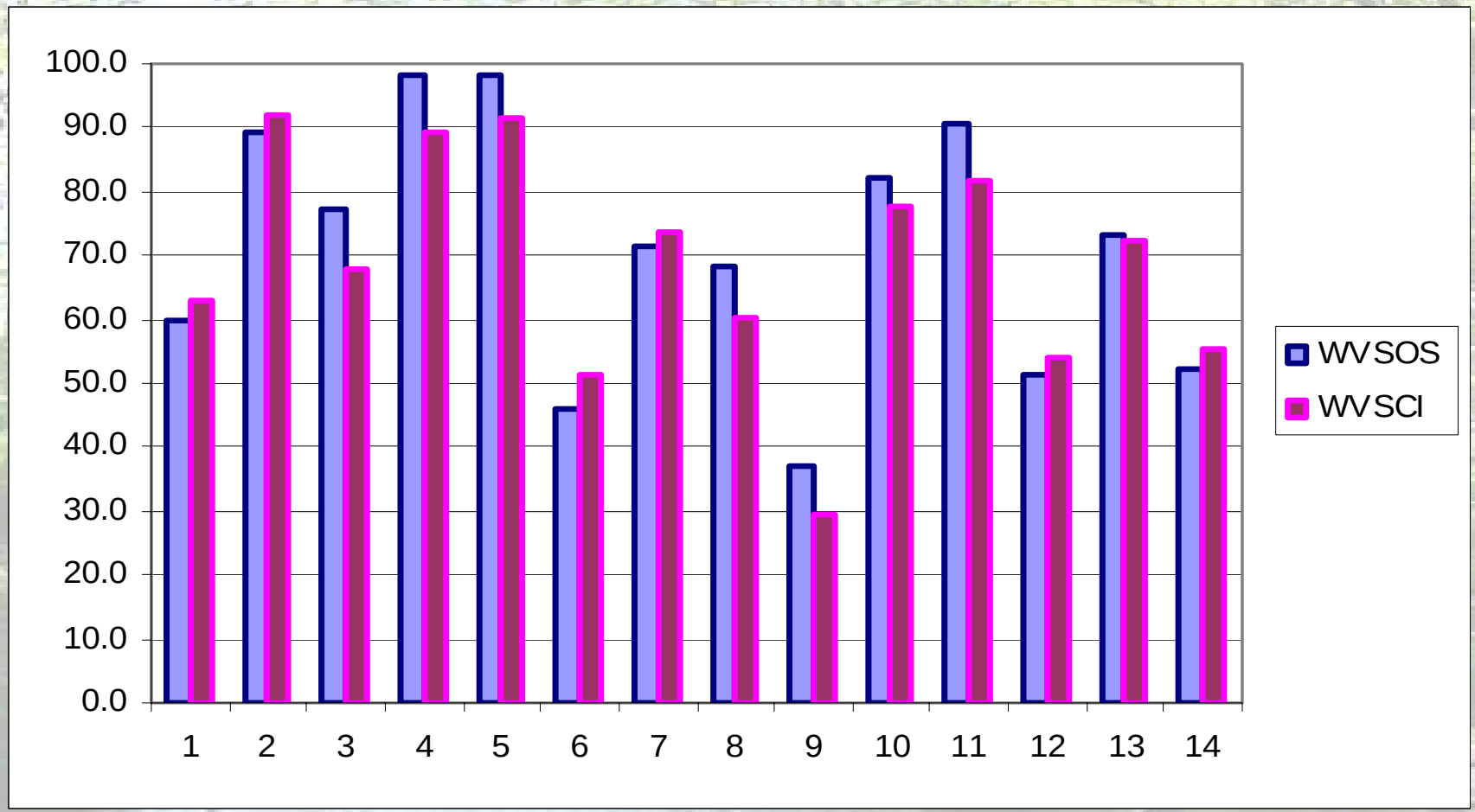


Correlation – 0.86

Cheat and Youghiogheny Drainage Basins

Stream	Watershed	WVSOS	WVSCI	Correlation
Yodkim Run	Cheat River	59.8	63.0	
Hyle Run	Cheat River	89.1	91.9	
Little Sandy Creek	Cheat River	77.4	68.0	
Wolf Run/Shavers Fork	Cheat River	98.3	89.5	
Roaring Run	Cheat River	98.3	91.6	
UNT/Buffalo Run	Cheat River	46.0	51.3	
Roaring Creek	Cheat River	71.4	73.6	0.959
Little Laurel Run	Youghiogeny	68.3	60.3	
Pine Swamp	Youghiogeny	36.9	29.5	
Tanklin Run	Youghiogeny	82.3	77.6	
South Branch	Youghiogeny	90.6	81.6	
Wardwell Run	Youghiogeny	51.2	54.0	
North Branch	Youghiogeny	73.1	72.2	
Snowy Creek	Youghiogeny	52.3	55.5	0.963

Cheat and Youghiogheny Drainage Basins



Correlation – 0.96

Comments and Suggestions

Send your comments to:

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