

# Supporting Volunteer Monitoring Efforts Across the Country

## CSREES Volunteer Water Quality Monitoring National Facilitation Project

2008 Alliance of Natural Resource Outreach and Service Professionals  
Conference, New Braunfels, Texas

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Art Gold<sup>1</sup> and Robin Shepard<sup>2</sup>



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# Why work with volunteers in water quality monitoring?

- Source of credible data
- More comprehensive data
  - Greater monitoring frequency
  - Larger # of sites monitored
- Local knowledge
- Enhances local stewardship
- Gain support for your efforts
- Cost effective (not cost free)



# Main Uses of Volunteer Data

- Water Quality or Watershed Education
- Problem Identification
- Local Decisions

*(The Volunteer Monitor, US EPA, Spring 1994)*

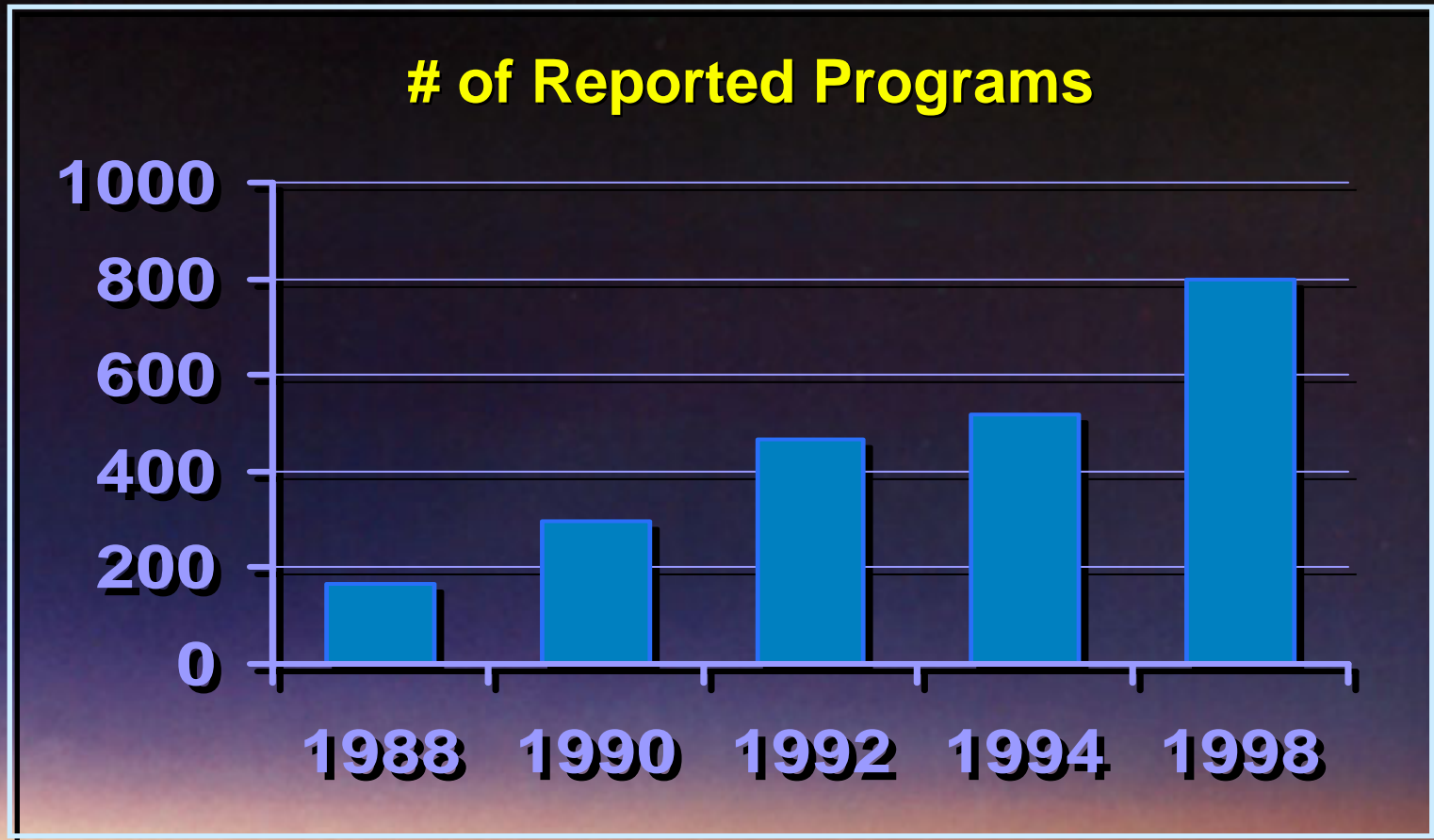


# What Is Volunteer Monitoring?

- Unpaid people who willingly monitor various environments.
- People who watch over the health of their watersheds because they care.



# A 1998 Snapshot of Volunteer Monitoring



# Current Estimates: 800-1200 Programs

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# The Role of Volunteer Monitors

- Community Educators & Stewards

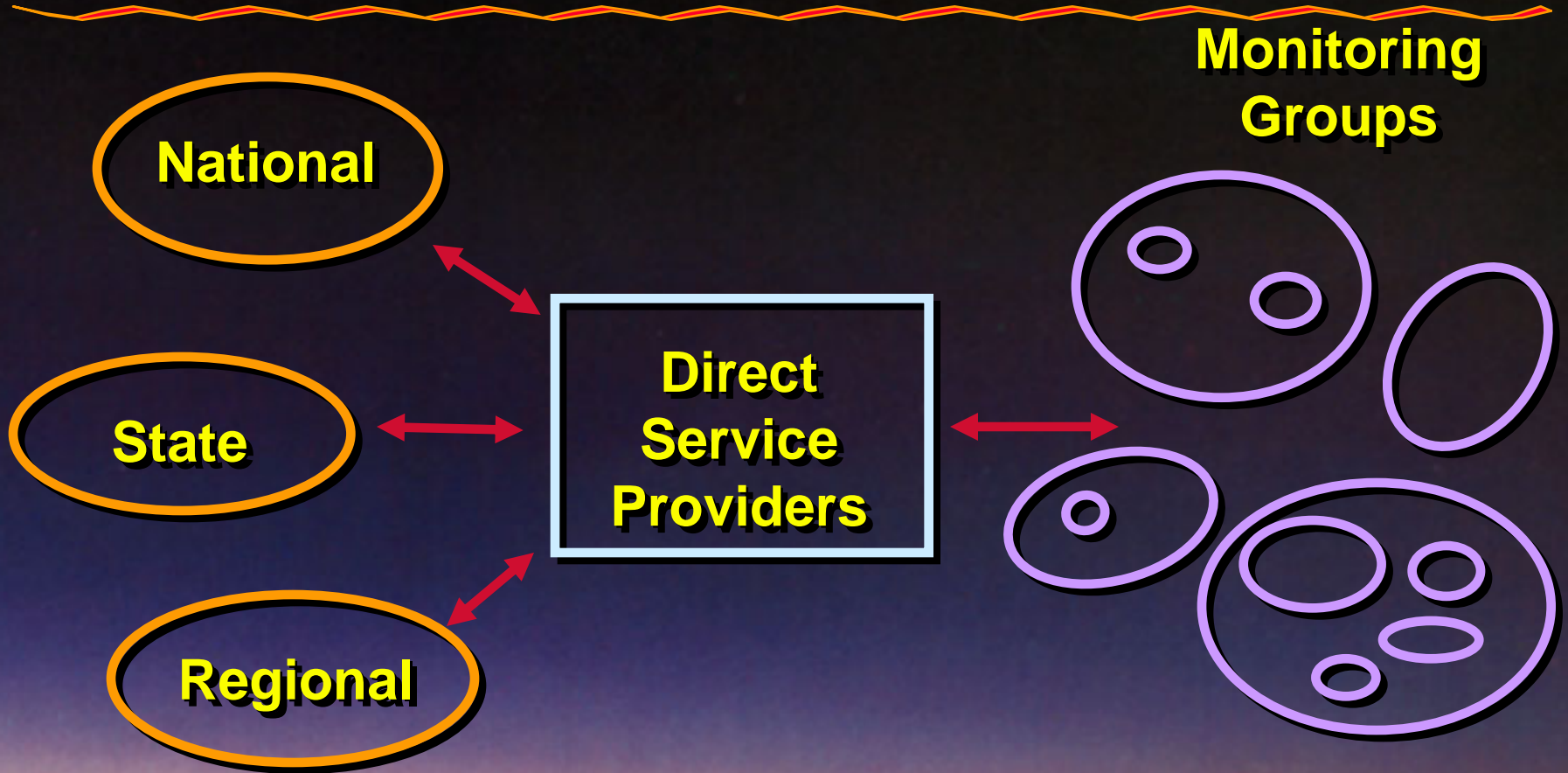


- Citizen Scientists



Photos from (NC) Watershed Watch

# The Volunteer Monitoring “System”



# Strong Nationwide Support



U.S. Environmental Protection Agency



NATIONAL WATER QUALITY MONITORING COUNCIL

*Working Together for Clean Water*



*Applying knowledge to improve water quality*

**Volunteer Water  
Quality Monitoring**

**National Facilitation Project**

*A Partnership of USDA CSREES  
& Land Grant Colleges and Universities*



# Goals



Build a comprehensive support system for CSREES volunteer water quality monitoring efforts.



Enhance integration of volunteer monitoring into research, education, and extension activities.



# Objectives

- Identify current Extension programs
- Link Extension programs to each other
- Develop training materials
- Offer training programs
- Develop Internet and Web-based tools
- Increase collaboration and cooperation

# Identify & Connect Extension Volunteer Monitoring Programs



**visibility,**

**vitality,**

**viability**

# Facilitation Project Tools

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- List Serv
- Website
- *Guide for Growing...* factsheet modules
- Workshops
  - State
  - Regional
  - National

**Connect Extension  
Volunteer Monitoring Programs  
to this Project and each other**

# CSREESvolmon@lists@uwex.edu

- All known Extension VM coordinators
- All Extension Regional & State WQ Coordinators
- All other National Facilitation Projects' staff
- Anyone who has attended a workshop
  - (this means you!)
- Anyone who'd like to be on it!
- Interesting exchanges archived (with permission, of course)

## Selected Archives of Volunteer Monitoring Listserv Discussions

### Initiatives

**Project Description** (382 K pdf file)  
**Outreach Materials and Activities**  
**Nationwide Inquiry**  
**Online Databases**  
**Training Modules**

### Extension Volunteer Monitoring Programs

A tremendous amount of valuable information is shared through EPA and CSREES sponsored volunteer monitoring listservs (as well as others). We created this archive of select interactions from these listservs to help ensure that the knowledge shared through them can reach as wide an audience as possible. Use the topic list below to access these exchanges.

[Age of Volunteer Lake Monitoring Programs](#)

[Ammonia Monitoring](#)

Currently has >70 topics

Preserves the spontaneity of exchanges,  
provides quotes for factsheets,  
Cleans out your email box!!!

**Monitoring**  
**Makes Sense** (582 K pdf)

**Designing Your Monitoring Strategy** (1.6 M pdf)

**Monitoring Matrix** (80 K pdf)

**Effective Training** (986 K pdf)

**Monitoring Equipment Suppliers** (437 KB pdf)

**Direct Links to Monitoring Programs' Manuals (online)**

**Building Credibility** (1.5 M pdf)

**Sharing Information Through Internet Exchanges** (1 M pdf)

**Volunteer Management** (7 M pdf)

**Planning Your Program's Data**

[Cutting Costs and Services without Reducing Support](#)

[Data Presentation Suggestions for Visual/Habitat Surveys](#)

[Data Sharing Policies](#)

[Data Storage, Retrieval, and Management](#)

[Documenting Site Location](#)

[DPI and Digital Photos](#)

[Educational Invasives Funding](#)



## Selected Archives from EPA Volunteer Monitor Listserv - New Program Advice

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**Training Modules**

### Extension Volunteer Monitoring Programs

### Related Research and Educational Efforts

**Researching Volunteer Monitoring**  
**Using Volunteer Monitoring Data in  
Research**

**EPA Volunteer Monitor Listserv**  
**Select Archives**

### Guide for Growing Programs

**Getting Started** (914 K pdf file)  
**Why Monitoring  
Makes Sense** (582K pdf file)  
**Designing Your  
Monitoring Strategy** (1.6 M pdf file)  
**Monitoring Matrix** (80 K pdf file)  
**Effective Training** (986 K pdf)  
**Monitoring  
Equipment Suppliers** (437KB pdf file)  
**Direct Links to Monitoring  
Programs' Manuals (online)**  
**Building Credibility** (1.5 M pdf file)  
**Volunteer Management**

### Advice on Creating a New Program

On Feb 10, 2004, at 11:28 AM, Steven Wittmer wrote:

Greetings Everyone,

The municipality I work for is looking at facilitating the creation of a new volunteer water quality monitoring program. If you have any advice on how to make a program cost-effective and how to get started, please let me know. I would also like to know if you have any other resources for monitoring.

What I'd like to know is if you are running successful programs and if you would like to share your experiences.

One question I have is if you have any only two volunteer monitoring programs.

A little background information is that the state's major rivers form the northeast border and that is open to the sea. It is currently a rapidly growing area and is still growing and undergoing rapid development.

Any information folks wish to share is appreciated.

Thanks!

Steve

Received from:

South Carolina

Iowa

Ohio (Secchi Dip-In)

Rhode Island

EASI (Env. Action for Senior  
Involv.)

Virginia



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[www.usawaterquality.org/volunteer](http://www.usawaterquality.org/volunteer)

### Highlighted Program Archives

Job postings

### Related Research and Educational Efforts

- Researching Volunteer Monitoring
- Select Archives of Volunteer Monitoring Listserv Discussions
- Publications

### Training Modules

### Other National Facilitation Projects >>

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[16th National Nonpoint Source Monitoring Workshop](#)

Columbus, OH

### Sharing Information Through Internet Exchanges (1 M pdf)

- Volunteer Management (7 M pdf)
- Planning Your Program's Data Management System (6 M pdf)
- Tips and Tools for Effective Presentations (95 K pdf)
- Outreach Tools
- Locating Support and Funding

### Of Special Interest

- Secchi Dip-In
- Volunteer *E. Coli* Monitoring Project
- Volunteer Monitor Newsletter
- World Water Monitoring Day



# Who, What, Why

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- [Outreach Materials and Activities](#)
- [Nationwide Inquiry](#)
- [Online Databases](#)
- [Extension Volunteer Monitoring Programs](#)
- [Program Listings](#)
- [Breaking News](#)
- [Current Highlight: Georgia \*\*NEW!\*\* Adopt-A-Wetland](#)
- [Highlighted Program Archives](#)
- [Job postings](#)

## Related Research and Educational Efforts

- [Researching Volunteer Monitoring](#)
- [Select Archives of Volunteer Monitoring Listserv Discussions](#)
- [Publications](#)

## Training Modules

## Other National Facilitation Projects ➔

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Adopt-A-Wetland**

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**Other National  
Facilitation Projects** →

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**Contact information  
for each known  
Extension Volunteer  
Monitoring Program  
in the U.S. and its  
territories**

### Guide for Growing Programs

**Planning Your Program's Data  
Management System** (6 M pdf)

**Tips and Tools for  
Effective Presentations** (95 K pdf)

**Outreach Tools**

**Locating Support and Funding**

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**Volunteer *E. Coli* Monitoring Project**

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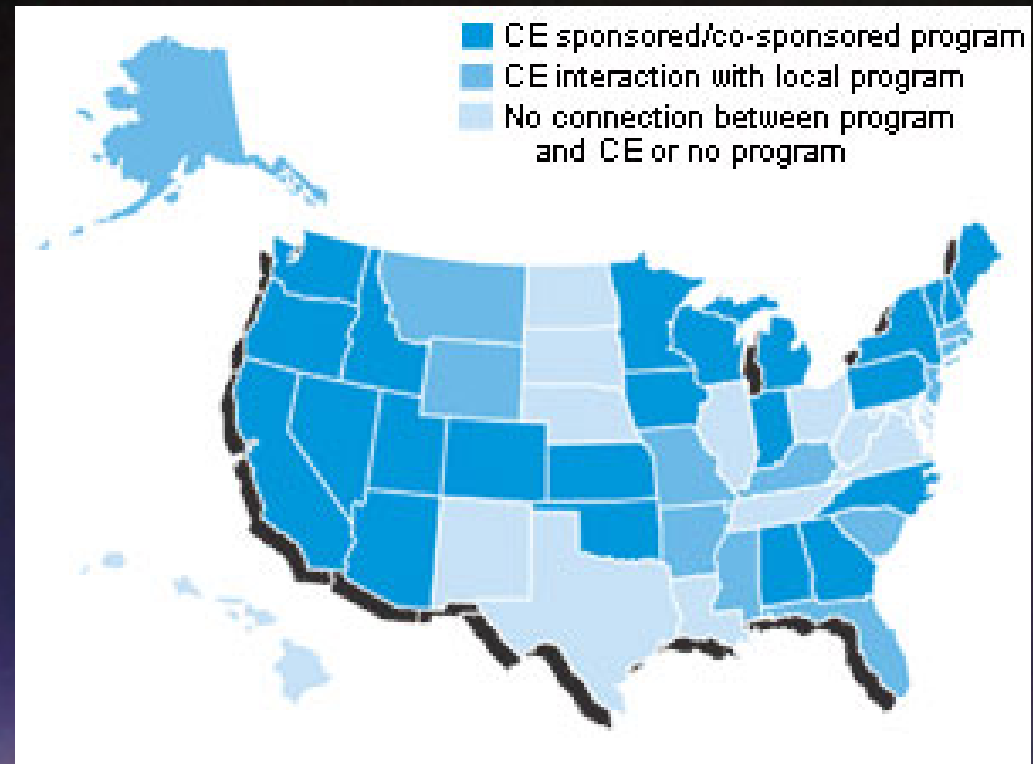
[16th National Nonpoint Source Monitoring Workshop](#)

Columbus, OH



# Who's Out There?

- ~ 50 programs associated with Extension
- Began as early as 1978 and as recently as 2007





This Volunteer Water Quality Monitoring comprehensive support system for Extension programs is available throughout the country. The goal is to expand and enhance existing monitoring programs.

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Breaking News

Current Highlight: [Georgia](#) **NEW!**  
[Adopt-A-Wetland](#)

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Job postings

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Researching Volunteer Monitoring

Select Archives of Volunteer  
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Publications

### Training Modules

**Other National  
Facilitation Projects** →

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## Results of Inquiry to Current Extension Programs on:

- Program Beginnings
- Training Techniques
- QA Measures
- Volunteer Support Tools
- Outreach Tools
- Program Funding

Locating Support and Funding

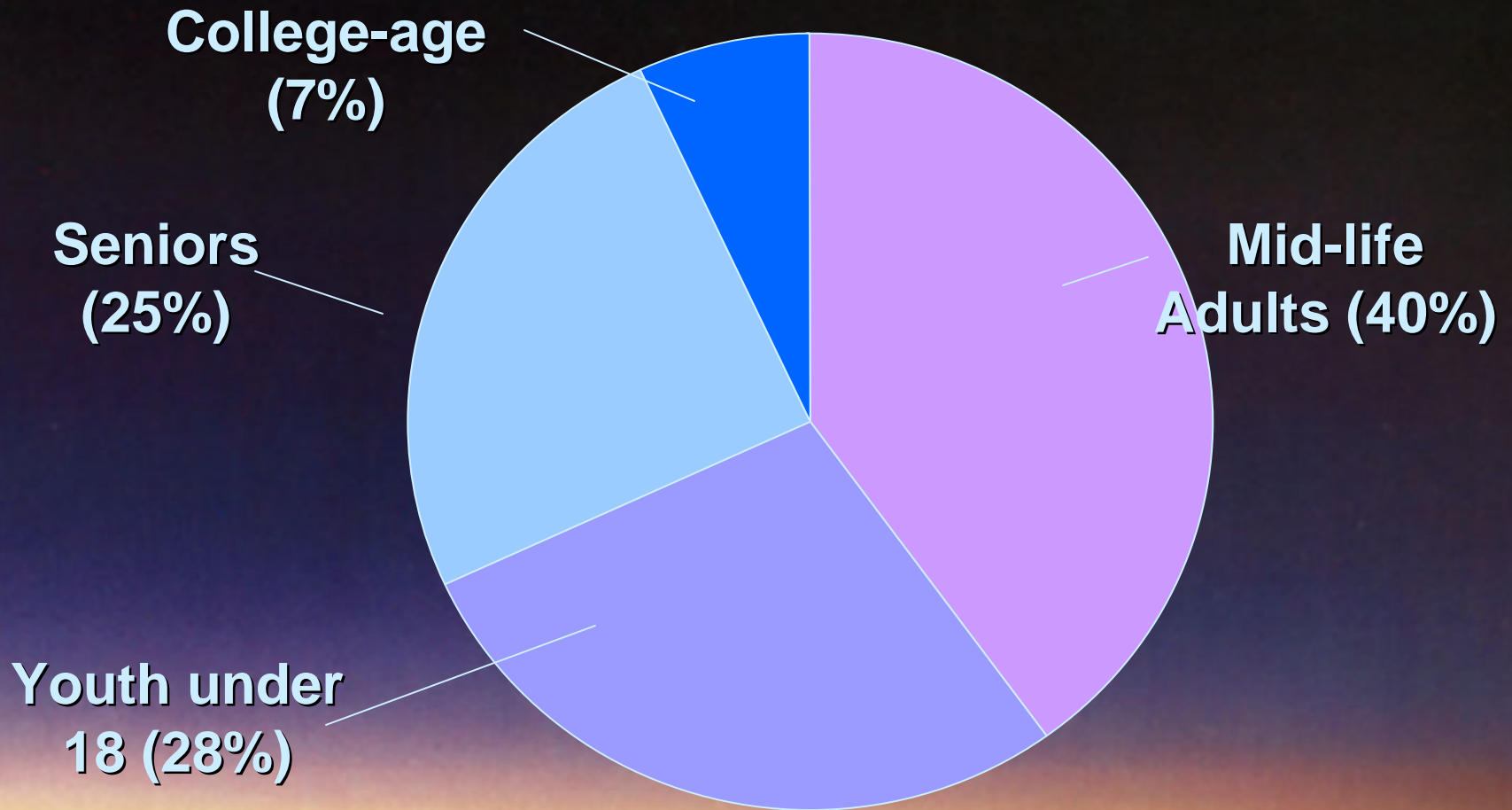
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# Who Are Our Volunteers?



# Program Inquiry Results – Outreach Tools

**Table 1: Written sampling protocols/methodology availability.**

State	Program	Methods developed	Available for purchase	Available for free	Available on website*
AL	Alabama Water Watch	✓	✓	✓	Some
CO	North Fork Volunteer Monitoring Project	✓		✓	
IN	Hoosier Riverwatch	✓	✓	✓	✓
IA	IOWATER	✓		✓	
KS	Private well monitoring				
ME	Maine Shore Stewards	✓	✓	✓	
MI	Lake Superior Lake Watch	✓		✓	
MN	Volunteer Stream Monitoring Partnership	✓		✓	
MN	St. Louis River- River Watch				
NV, CA	Tahoe-Truckee Snapshot				
NH	NH Lake Lay Monitoring Program	✓		✓	
NH	Great Bay Coast Watch	✓	✓		
NY	Community Fly Fisher	✓		✓	
NC	Watershed Watch				
OK	Illinois Basin/Spring Creek Blue Thumb	✓		✓	
RI	URI Watershed Watch	✓	✓	✓	✓
WA	WSU Beach Watchers	✓		✓	
WA, ID, OR	Pacific Northwest Water Quality Monitoring Program	✓		✓	
WI	Adopt-a-Lake	✓	✓	✓	
WI	Water Action Volunteers	✓	✓**	✓	✓
VT	Watershed Alliance	✓		✓	

[www.usawaterquality.org/volunteer](http://www.usawaterquality.org/volunteer)



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Outreach Materials and Activities

Nationwide Inquiries

Online Databases

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Program Listings

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Highlighted Program Archives

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### Guide for Growing Programs

Getting Started (914 K pdf)

## Online Databases:

- Info on online database developed & tested at University of Wisconsin
- Info on what to think about before setting up a database
- Direct links to 22 programs with on-line databases



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## Annotated Bibliography:

- Studies comparing volunteer monitoring efforts to those professionals
- Pertinent *Volunteer Monitor* articles
- Select Vol Mon listservs discussion archives

### Of Special Interest

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Volunteer *E. Coli* Monitoring Project  
*Volunteer Monitor* Newsletter  
World Water Monitoring Day

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**Program Listings**  
**Programs' Achievements**  
**Current Highlighted Program**  
**Highlighted Program Archives**  
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**Designing Your  
Monitoring Strategy** (1.6 M pdf)  
**Monitoring Matrix** (80 K pdf)  
**Effective Training** (988 K pdf)

Universities across the nation are involved in educational programs and research that consider and involve volunteer water quality monitoring.

Information on this page will provide you with a general overview of such activities, and whenever possible will provide you with links or contact information for those most intimately involved with these projects so that you can learn more about them.



We'll be adding to the information provided on this page as we learn about programs and research, so please let us know if you know of or are involved with research or educational efforts related to volunteer water quality monitoring.

Thanks to those who have sent us references to use on this page!

**NEW!** The *Volunteer Monitor* newsletter recently referenced our website as a location to find lists of volunteer monitoring-related studies. Choose from the following three lists developed by Ellie Ely:

[Volunteer-Collected Data in Published Research Papers](#)

[Volunteer Monitoring Validation Studies Published in Science Journals](#)

[Additional Examples of Publications Referencing Volunteer Data](#)

Alternatively, for access to these and additional research projects related to volunteer monitoring, sorted by topic area, click on one of the links below:

[Aquatic Organism Identification](#)



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### Guide for Growing Programs

**Getting Started** (914 K pdf)  
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**-Expanded factsheet format**  
**-Hardcopy and electronic formats**  
**-Lots 'o links (active and regularly updated in the electronic format)**

trix (80 K pdf)  
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**Planning your Program's Data Management System** (6 M pdf)  
**Tips and Tools for Effective Presentations** (95 K pdf)  
**Outreach Tools**  
**Locating Support and Funding**

### Training Modules

**Other National Facilitation Projects** →

### Of Special Interest

**Secchi Dip-In**  
**Volunteer E. Coli Monitoring Project**  
**Volunteer Monitor Newsletter**  
**World Water Monitoring Day**



# “Guide for Growing Programs”

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- Why Volunteer Water Quality Monitoring Makes Sense
- Designing Your Monitoring Strategy
- Effective Training
- Building Credibility: QA/QC for Volunteer Monitoring Programs
- Sharing Info thru Internet Exchanges
- Volunteer Management
- Data Management Systems
- Tips & Tools for Effective Presentations (*under construction*)
- Outreach tools (*coming soon!*)
- Finding support and funding for local efforts (*coming soon*)



December 2004  
Factsheet VI  
(Updated July 2008)



## Building Credibility: Quality Assurance and Quality Control for Volunteer Monitoring Programs

University of Rhode Island

University of Wisconsin

*Elizabeth Herron, Linda Green, Kris Stepenuck and Kelly Addy*

The ultimate goal of most volunteer monitoring programs is to ensure that well-trained volunteers collect high quality data and that the data are used. Despite decades of demonstrating that volunteers can and do collect representative data, government agencies, scientists and often the general public are sometimes reluctant to use data not collected by "experts". Therefore volunteer water quality monitoring programs must work especially hard to build and maintain credibility - some have even said, "twice as hard for half the recognition." This factsheet provides an overview of quality assurance and quality control issues and provides examples of methods used by Cooperative Extension and other volunteer monitoring programs to substantiate the credibility of their data.

Water quality monitoring data are typically gathered to support decision-making, whether it is for encouraging waterfront residents to convert lawns into vegetated buffers, for enacting local ordinances to strengthen wetlands protection or storm water management, or for regulatory action. In order to be useful, monitoring data must provide relevant information - if the concern is potential bacterial contamination, measuring turbidity or dissolved oxygen won't help much. And the data must be credible, which usually means that it is documented and defensible. Data of unknown quality are essentially useless, and useless data can potentially corrupt the decision-making process. Therefore incorporating a Quality System into your monitoring program is necessary for generating useful data.

### Quality System Components: Assurance, Control and Assessment

Generating reliable data requires adherence to an overall quality policy or system. But what exactly makes up that system? The Quality System can most easily be thought of in terms of what you need to do *Before, During and After* your monitoring effort. (Table 1 shows the elements that combine to form a Quality System. Quality assurance and quality control are developed by the Quality System. Quality assurance is a cooperative process and focuses on how you intend for the data to be used. This system should be incorporated into every aspect of your monitoring program - the bedrock upon which your program is based.



Table 1. Data Quality System



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[Adopt-A-Wetland](#)

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•All outreach materials to date,  
•Including fact sheets, posters,  
and ppt presentations

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Land Grant Colleges' and Universities'

# Volunteer Water Quality Monitoring National Facilitation Project

A Partnership of USDA CSREES & the Land Grant System



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# Training Workshops thru CSREES regional/state and other venues

- Based on “*The Guide for Growing*”
- Recently:
  - EPA Watershed Academy Webcast – Oct. '06
  - '07 Southern Region conference
  - '07 NE Got Data? Workshop
  - '07 First Nations Land Grant Conf
  - '08 USDA-CSREES Reno conference
  - '08 NWQMC conference

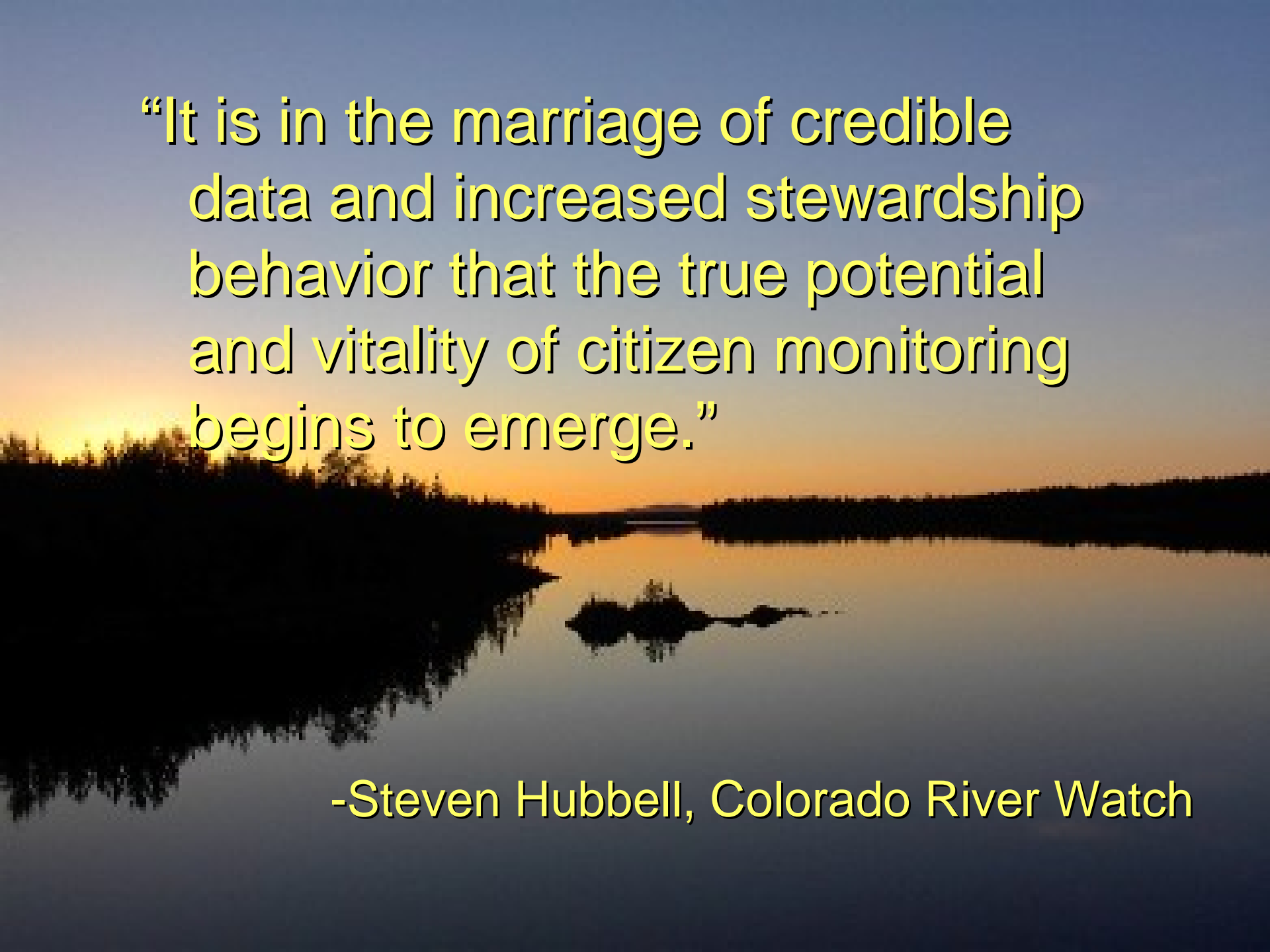


*Booking Now for 2009*  
*Please contact us if you are interested!*

# Volunteer Monitoring Makes A Difference



- Identifies & solves problems locally
- Involves people in real science
- Raises awareness
- Provides info on places where no one else is looking
- Creates an informed constituency

A serene sunset scene over a wide river. The sky transitions from a deep blue at the top to a bright orange and yellow near the horizon where the sun is setting. The water is calm, reflecting the colors of the sky and the dark silhouettes of trees and a small boat in the distance. The overall mood is peaceful and contemplative.

“It is in the marriage of credible data and increased stewardship behavior that the true potential and vitality of citizen monitoring begins to emerge.”

-Steven Hubbell, Colorado River Watch



Art Gold

Robin Shepard

Linda Green

Elizabeth Herron

Kris Stepenuck

Thanks!

