

Enhancing the Capacity of Extension Volunteer Water Quality Monitoring Efforts



CSREES Volunteer Water Quality Monitoring National Facilitation Project

Elizabeth Herron¹
Linda Green¹, Kristine Stepenuck²,
Art Gold¹, and Robin Shepard²

¹ University of Rhode Island

² University of Wisconsin



Presentation Outline

- Brief Project Overview
- Why Volunteer Monitoring...
- And Why CSREES
- Facilitation Project Goals & Activities
- Future Directions
- Questions / Discussion

Volunteer Water Quality Monitoring National Facilitation Project

- Originally funded in 2000
- One of four initial facilitation grants
- Addresses Watershed Management National Theme issues
- Renewed in 2004
- Work with other CSREES national facilitation, integrated and regional projects, as well as local programs

Volunteer Water Quality Monitoring Programs

Engage stakeholders throughout the watershed management process

- Educate volunteers and the public
- Collect valuable water quality data
 - Long term trends
 - Pre- and post- watershed restoration efforts
 - Locally relevant water resources
 - Assess regional differences
- Empower communities to use the data as the basis for decision-making

Volunteer Monitoring Fosters WQ Protection and Restoration

- Galvanizes local action
- Heightens awareness of water resources issues
- Creates an immediate sense of the link between the water and the watershed
- Highlights human health connections
- Support drinking water protection

Local people motivated by local knowledge!

Agency Questions (probabilistic)

- ✓ What is the **condition** of the nation's surface, ground, estuarine, and coastal waters?
- ✓ Where, how and why are water quality conditions **changing over time**?
- ✓ Are water quality **goals and standards being met**?
- ✓ **Where** are water quality problems?
- ✓ What is the **cause**?
- ✓ Are **programs** to address problems **working effectively**?

Community and Individual Concerns (focused monitoring)

- I want to find out **what's in my water**.
- I think there's **something wrong with my lake**? It was crystal clear 5-10-20 years ago!
- **Is it safe for my dog** to drink from the stream?
- **Is it safe for my kids/grandkids** to go in the water?
- Are **the BMPs we've installed** working?

Volunteer Monitoring Is **NOT**

- Targeting individual landowners as water pollution culprits
- Carrying out personal agendas

A well designed volunteer monitoring program **WILL** develop WQ trend data that can be passed onto other Extension efforts

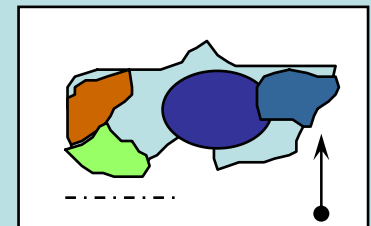
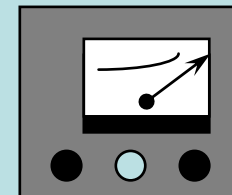
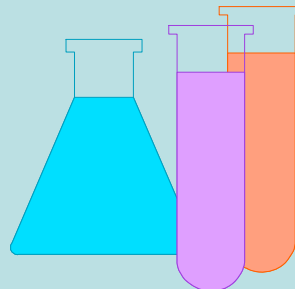
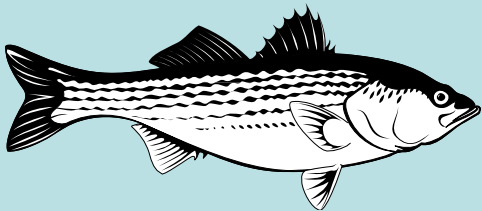
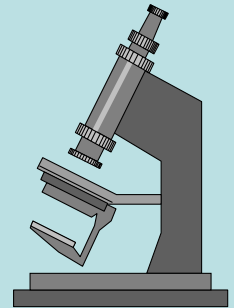
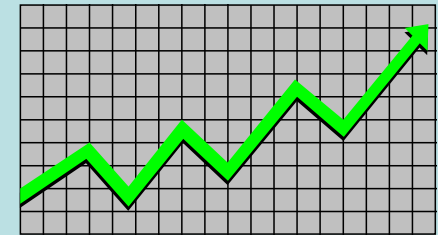
University Participation Provides

- Leadership by scientists
- Quality information trusted by communities
 - Non-regulatory
 - Access to advanced laboratory methods
 - Selection and adaptation of appropriate methods to address questions
- Creates linkages to other Extension programs which encourages action

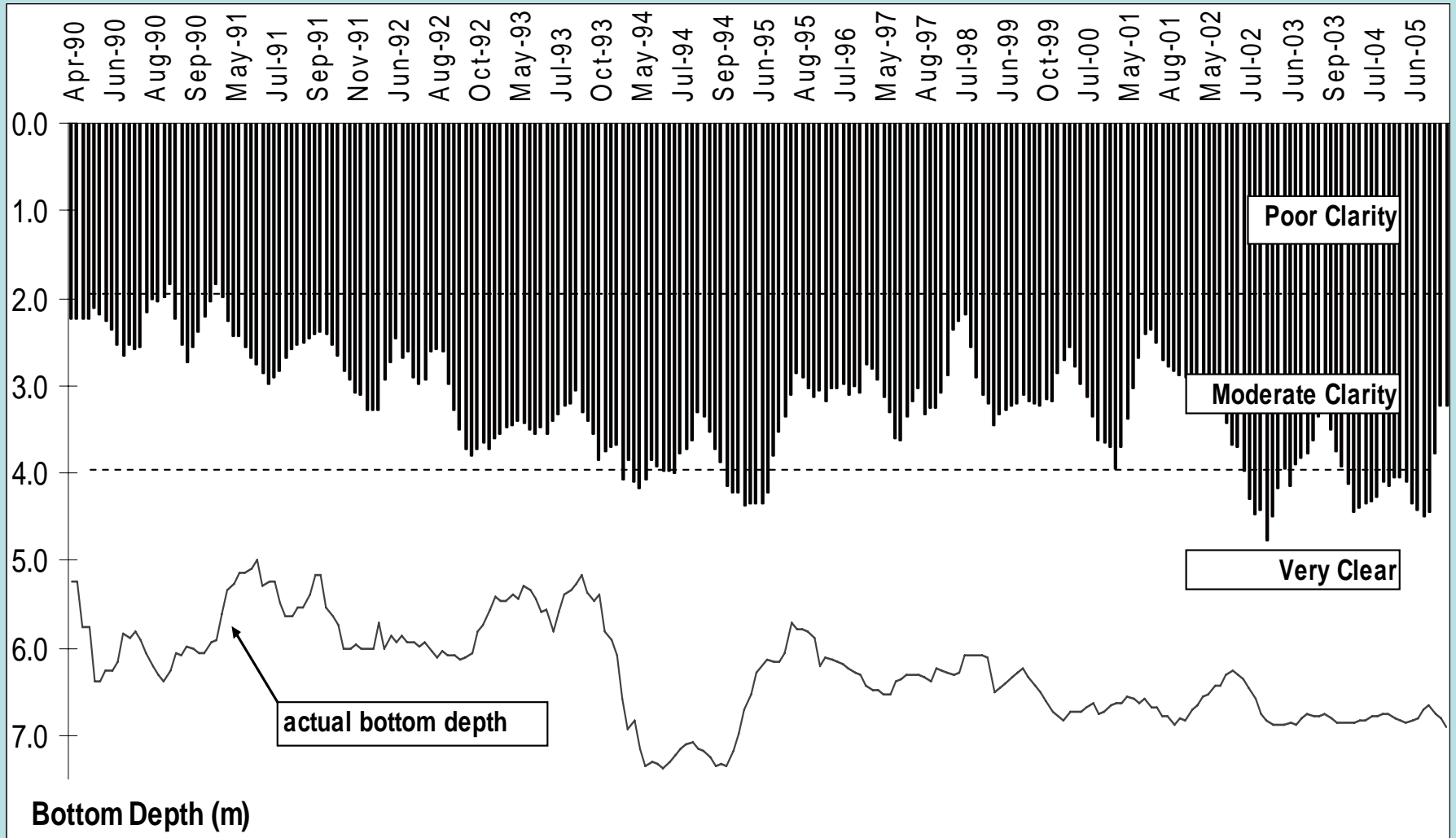
Participation in Research

UNH Lakes Lay Monitoring Program

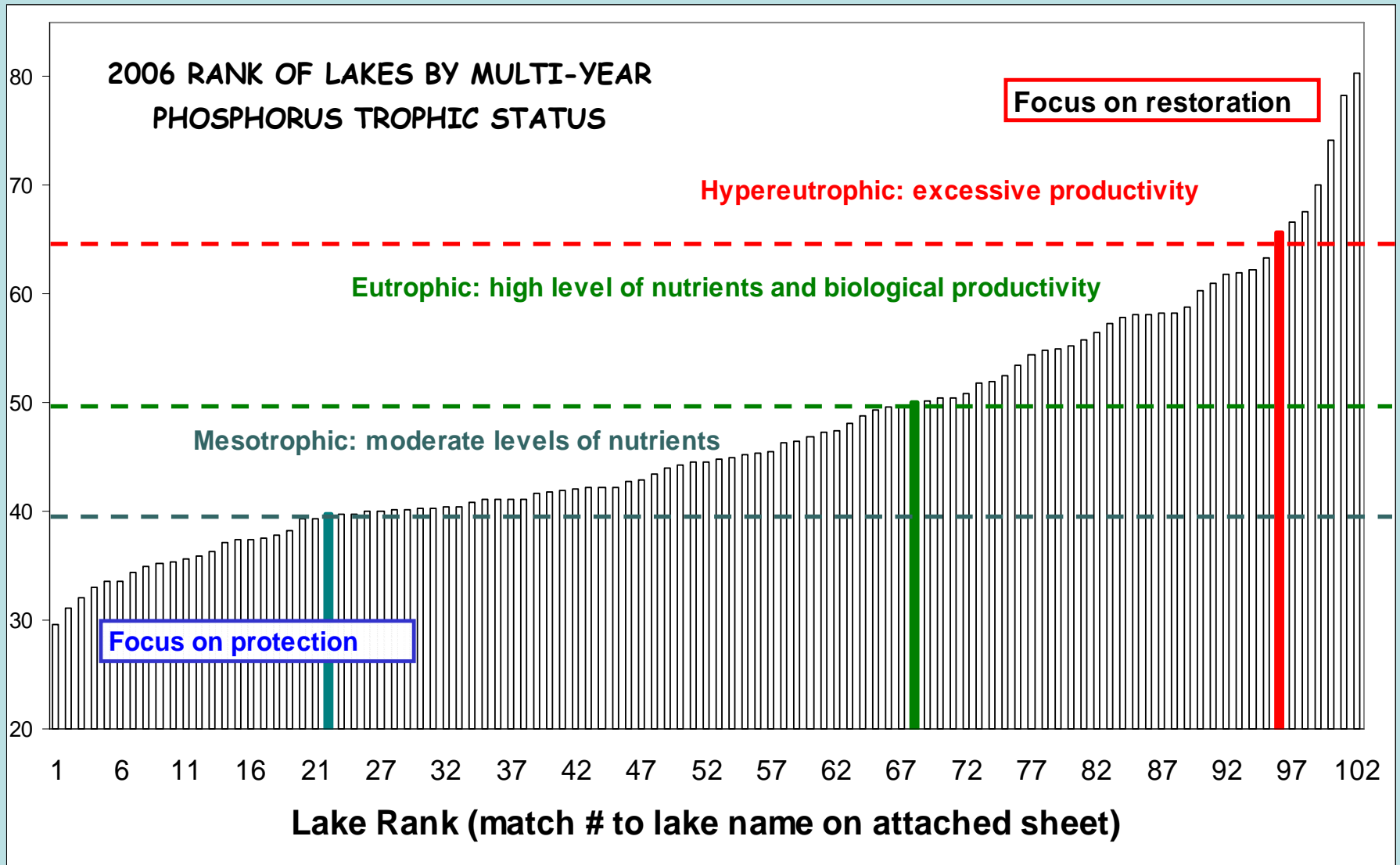
- Determinants and Indicators of Water Quality:
 - Land Use/WQ Relationships/Watershed Assessment
 - Influence of Weather Events
 - Biological Assessments / Trophic Indicators
 - Blue Green "Algae" Toxins / Picoplankton
 - Recreational Impacts
- Long-term Trend Analysis
- Remote Sensing Applications
- Non-native Species (Milfoil, Zebra Mussel, Rock Bass)
- Species Condition / Habitat Change



Volunteers Provide Intensive, Long Term Data



And Extensive Datasets



Who Monitors?

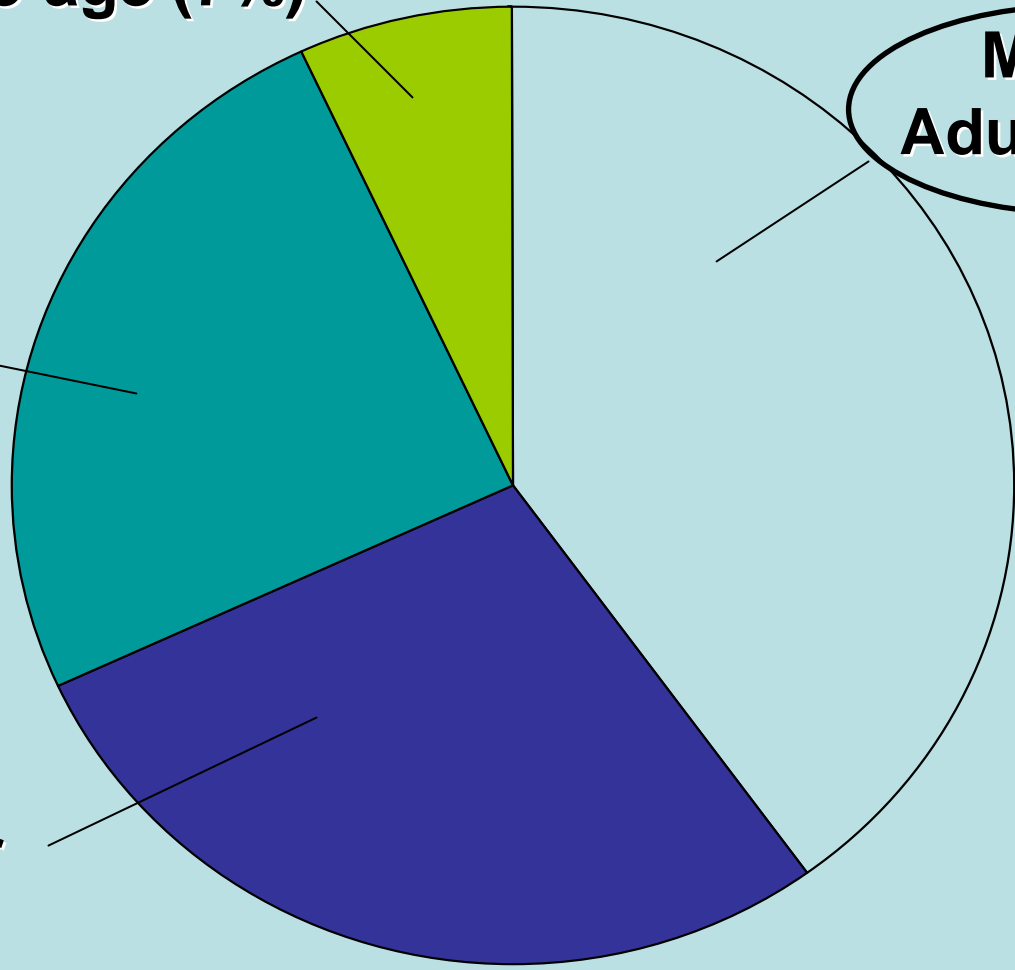
College-age (7%)

Mid-life Adults (40%)

Seniors (25%)

Youth under 18 (28%)

Community leaders and decision-makers



Farmers as Volunteer Monitors

Working to assure a healthy farm economy and a healthy environment.

Core Farms

Special Projects Environmental Training

News and Events:

- Testimony about NR243 presented to WDNR by Dennis Frame and Fred Madison [View Here](#)
- What is the monetary value of livestock manure? [Calculate it here.](#)
- View Real-Time Data from Discovery Farms [View Here](#)

Feed Management documents used at Manitowoc Feed Management Training Day

- [Feed Management guidelines \(88 KB PDF\)](#)
- [592 Feed Management Outline \(52 KB PDF\)](#)
- [Feeding Practices Survey for Development of 592 Plan \(73 KB\)](#)

[View All News Here](#)

- WI - Discovery Farms, farmers use kits to assess BMPs
- OR - Lane County Extension coordinated well monitoring program (including farmers) that revealed poorly designed septic systems as the major source of nitrate contamination - not farms as originally accused

Southern Willamette Valley Groundwater Management Area

Volunteer Well Monitoring

HELP OSU SCIENTISTS GATHER INFORMATION ABOUT GROUNDWATER IN THE SOUTHERN WILLAMETTE VALLEY

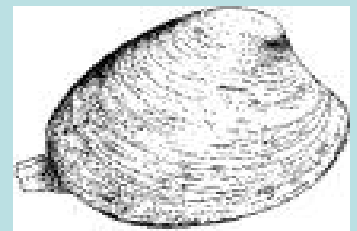
- Work with your neighbors to learn more about your groundwater resource.
- Be trained to collect water samples at your well and a few other nearby wells.
- Perform simple nitrate tests and record the data monthly.

The OSU Extension Service Well Water Program is starting a groundwater monitoring program to Learn more about well water nitrate in the Southern Willamette Valley. This is a unique opportunity for homeowners with wells to participate in a groundwater study while learning more about their own drinking water. We are recruiting volunteers—individuals or teams—who can commit to a few hours once a month for at least one year. Training is provided and all expenses are covered. We will customize our support services to meet your needs.

Families, youth groups, service organizations, classroom teachers and individual residents are all encouraged to consider this opportunity for hands-on learning and community involvement.

Select Success Stories

- VT - 20 year volunteer generated dataset documented WQ improvements from the installation of concrete manure holding pits and barn roof gutters to manage stormwater.
- ME - 100,000 acres of clam flats opened for harvest over a 12 year period by volunteers collecting samples and conducting shoreline surveys



Facilitation Project Goals

- In 2000 ... build a comprehensive support system for CSREES volunteer water quality monitoring efforts.
 - Expand & strengthen the capacity of existing Extension volunteer monitoring programs
 - Support development of new groups
- In 2004... enhance integration of volunteer monitoring into research, education, and extension activities, especially in rural and agriculture watersheds.



Objectives - 2000

- Identify current Extension volunteer monitoring programs
- Develop multi-media training materials
- Offer training programs
- Develop & establish internet and web-based tools
- Increase collaboration & cooperation



Objectives - 2004

- Enhance networking, communication and assessment - within and outside CSREES
- Enhance knowledge-base by involving research community in factsheets, trainings
- Enhance stakeholder involvement
 - Vol mon workshop at CSREES conferences
 - Coordinating national vol mon conference
- Strengthen regional programs capacity to incorporate volunteer monitoring to address their priorities

Locate & ID current Extension Volunteer Monitoring Programs

Current Extension Programs

- Total of 45 programs known to date
 - 41 CE-sponsored
 - 4 CE-affiliated
- Began as early as 1978 and as recently as 2006*
- Monitoring a variety of habitats, including rivers, streams, lakes, ponds, wells, wetlands, & estuaries

Connect Extension Volunteer Monitoring Programs to this Project and each other

- Widely used interactive web-site
www.usawaterquality.org/volunteer/
(praised by EPA for contents, linked from them)
 - annotated section of papers researching and/or incorporating volunteer monitoring
 - summary of list serv discussions topically arranged
- electronic list serve-
CSREESvolmon-list@uwex.edu
 - Expanded to included workshop and conference participants

http://www.uwex.edu/ces/csreesvolmon/

Google

Go

Bookmarks

283 blocked

Check

AutoLink

AutoFill

Send to

Volunteer Water Quality Monitoring National Facilitatio...

Page

This Volunteer Water Quality Monitoring National Facilitation Project is designed to build a comprehensive support system for Extension volunteer water quality monitoring efforts across the country. The goal is to expand and strengthen the capacity of existing Extension volunteer monitoring programs and support development of new groups.

Volunteer Monitoring National Facilitation Project

- Project Description (382 K pdf file)
- Outreach Materials and Activities
- Nationwide Inquiry
- Online Databases
- Extension Volunteer Monitoring Programs**
- Related Research and Educational Efforts**

Researching Volunteer Monitoring Using Volunteer Monitoring Data in Research

Select Archives of Volunteer Monitoring Listserv Discussions

Training Modules

Other National Facilitation Projects ➔

- NEMO
- Increasing Tribal Involvement in the Water Quality Network
- Additional Facilitation Projects



Guide for Growing Programs

- Getting Started (914 K pdf)
- Why 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) **NEW!**
- Planning Your Program's Data Management System (6 M pdf) **NEW!**
- Outreach Tools
- Locating Support and Funding

Special Topics

- Current Highlight: [Utah Lake Watch](#)
- Highlighted Program Archives
- Job Postings

"Guide for Growing Programs"

- Expanded factsheet format
- Hardcopy and electronic formats
- Lots 'o links regularly updated

- Getting Started- about *The Guide*
- Why Volunteer Water Quality Monitoring Makes Sense
- Designing Your Monitoring Strategy-?'s & Resources to Guide You
 - Matrix of Monitoring Activities
- Effective Training Techniques
 - Additional Resources - equipment and supplies
 - Direct Links to On-line manuals
- **Building Credibility: QA/QC for Volunteer Monitoring Programs**
- Sharing Information Through Internet Exchanges
- Volunteer Management and Support Tools
- Planning Your Program's Data Management System

* www.usawaterquality.org/volunteer

Training Workshops

thru CSREES regional/state and other venues

- Based on "*The Guide for Growing*"
- Train the trainer approach - building local capacity
- Examples:
 - CSREES National Conferences
 - FL (WQ Mon Council)
 - Pacific Northwest Region
 - New Jersey (DEP)
 - CEM in Appalachia
 - Arizona Extension
 - Southern Region
 - ANREP Conferences
 - NWQMC Conferences



Internet and Web-based Tools

- Developed online database was tested with the WI Water Action Volunteers
- Discovered that "one-size-fits-all" database won't work
- Developed a guide module building from program experiences
- On website:
 - Information on database development and ongoing management
 - Direct links to 22 volunteer monitoring program on-line databases



Networking to Increase Collaboration and Cooperation

- National facilitation projects
 - Network of Projects Addressing Land Use on Water Quality (NEMO)
 - Water Outreach Education (BEPs)
 - Increasing Tribal Involvement in the Water Quality Network
- Working to ensure that volunteer monitoring is fully integrated into their efforts and that we building from their efforts

Networking Outside CSREES

- US EPA Webcast (*Getting Started in Vol Mon*)
 - Fully subscribed
 - Available through USEPA website
- National Lakes Assessment
 - Encouraging volunteer participation in the process
- Archiving US EPA Vol-mon electronic list serve exchanges
- *The Volunteer Monitor* newsletter
 - CSREES projects and programs highlighted in this national newsletter

Strengthening CSREES Role in Volunteer Monitoring Nationally

Hosted a national volunteer monitoring
conference held in conjunction with '06
NWQMC National Monitoring Conference

MONITORING NETWORKS:

CONNECTING FOR CLEAN WATER,
May 7 - 11, 2006, San Jose' CA





CSREES Participation



- Co-chaired conference
- Coordinated 3 workshops and multiple sessions
- Regional programs supported travel expenses for program coordinators
- Volunteer monitoring presentations fully integrated into conference tracts
- More than 100 volunteer monitoring program coordinators in attendance



Future Directions

- Data to action - helping the volunteers make better use of their data
- Human dimension - making water quality data more comprehensible to the public (i.e. "trout friendly" rather than $DO = 7 \text{ mg/L}$)
- Expanded integration of volunteer WQ data into land use planning and management through NEMO - (how to we make that data available)

By linking with Extension, Volunteer Water Quality Monitoring Programs:

- Educate the public on water quality and watershed issues
- Encourage citizens to adopt "watershed-friendly" behaviors
- Bring university science to the community and the community to the university
- Gain valuable water quality data

How can we help you??

