

Training Volunteer Water Quality Monitors Effectively

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Effective training of volunteer water quality monitors is critical for volunteer competency and satisfaction, and therefore essential for program success. This factsheet reviews some basic elements of successful training and provides some tips for improving your training strategy. Links to websites with more in-depth information are included throughout this document. We suggest that you also review the materials and links to Extension-associated volunteer water quality monitoring programs found at our website (<http://www.usawaterquality.org/volunteer>) for additional resources.

Training Is a Process that Flows Throughout the Program

Typically, we think of training as that time spent in a classroom or out in the field demonstrating particular methods to new volunteers. However, in order to be truly effective, it is crucial to integrate training into your entire program. Each interaction with volunteers can be viewed as an opportunity to reinforce program elements, whether they are newsletters with tips and reminders, water festivals, or celebrations of program successes. The National Service Resource Center website (<http://nationalserviceresources.org/>) is an excellent resource for strengthening your program. This website covers the wide range of volunteer program training needs and in particular extensive publications that can help to better integrate volunteer training into your overall program.



“Comprehensive orientation and training programs give volunteers a sense of belonging and of status. It shows that your organization values them enough to make an investment in them, and helps to reinforce their commitment to your program.” Seven Steps To Achieve Effective Volunteer Support, August 13, 1997; *Canadian FundRaiser*



Components of a Successful Training Program

- Orientation (classroom)
- Monitoring skills (classroom & field)
- Field visits by staff (field)
- Quality Assurance / Quality Control testing (lab or field)
- Annual refresher / re-certification
- Advanced training for experienced volunteers (optional)

This is the fifth in a series of factsheet modules which comprise the **Guide to Growing CSREES Volunteer Monitoring Programs**, part of the *National Facilitation of Cooperative State Research Education Extension Service (C.S.R.E.E.S.) Volunteer Monitoring Efforts* project. Funded through the U.S.D.A. C.S.R.E.E.S., the purpose of this four-year project is to build a comprehensive support system for Extension volunteer water quality monitoring efforts nationally. The goal is to expand and strengthen the capacity of existing Extension volunteer monitoring programs and support development of new groups. Please see <http://www.usawaterquality.org/volunteer/> for more information.

Getting Started: Group or One-on-One Training?

Group Training

Typically, training of volunteer water quality monitors falls into two broad formats – either one-on-one training or as a larger group. Each format has its benefits as well as its associated drawbacks. Sometimes a combination of approaches can be used to best address your program needs.

Training volunteers in groups saves time and money since sessions can be minimized and centrally located to facilitate travel for both trainers and volunteers. Group trainings are especially well suited for orientation sessions. By their nature, a group training session addresses a broad range of issues, which can help volunteers to better understand the reasons for, extent and value of their participation. This strategy helps put the whole experience into context and can stimulate new ideas. These sessions also provide an opportunity for volunteers to meet others with similar interests. This opportunity creates a sense of being part of a program and reassures volunteers that any challenges they face in learning something new are not uncommon. Group sessions also allow new recruits to learn from each other.

In addition, because some individuals may decide that they are not interested or able to participate in a volunteer monitoring program following orientation, group trainings represent less of a drain on resources per recruited volunteer than one-on-one trainings. However, typically in a group-training environment, unique problems or characteristics of individual waterbodies or monitoring sites cannot be fully addressed. That situation can frustrate some volunteers who may feel that their specific questions have not been answered adequately, so follow-up is crucial.

One-on-one Training

One-on-one training is more time consuming and expensive than group training. It is frequently used for field training. When field visits to individual monitoring sites are incorporated into one-on-one training, monitoring procedures can be learned under the actual conditions the volunteer will encounter. This arrangement can help instill greater confidence, as the volunteer directly relates the training experience with his or her actual monitoring environment. One-on-one training can also permit program coordinators to address unique situations, allowing customized approaches to monitoring where necessary.

By combining these two formats, your training strategy can effectively meet your specific program needs. For example, the URI Watershed Watch program orientation session uses the group training approach focusing on broad water quality and programmatic issues. Field training sessions rely on a mixture of approaches, with group training employed for demonstration of monitoring procedures, followed by small group and one-on-one training for specific procedures. Multiple field sessions are held at a limited number of centralized sites. URI Watershed Watch has found that this combined format approach meets the needs of large numbers of volunteers, while conserving limited program resources.



Creating a Good Training Environment

Volunteer monitoring training programs strive to educate, motivate, and teach skills, while fostering a sense of loyalty, belonging and a positive relationship between the program coordinator and his or her volunteers. The following are valuable practices to incorporate throughout your training efforts, and were adapted from the National Service Resource Center website (<http://nationalserviceresources.org/>).



1. Create an atmosphere that values volunteers, both as individuals and for the work they do.

- Treat volunteers as you would an honored guest.
- Greet volunteers individually as they arrive and have name tags and training materials ready.
- Provide many opportunities for volunteers to contribute their own experience/expertise; and honor all points of view.
- Pay attention to volunteers' physical and emotional well being throughout the training.
- Create as attractive a physical environment as possible.
- Provide refreshments.
- Thank volunteers for their participation in the training.

2. Create community and build personal connections – among volunteers, between volunteers and the volunteer coordinator, or between volunteers and staff who are trainers and presenters.

- Include an icebreaker, such as having volunteers introduce themselves and indicate why they are interested in monitoring, in the opening of the training to give people a chance to learn something about each other.
- Create a set of training guidelines with the group to establish mutual respect. For example, indicate whether you would prefer that questions be held until after the presentation, or have will respond to raised hands throughout the presentation to address questions as they arise.
- If applicable, have participants work in multiple small groups throughout the training.

3. Create opportunities for personal exploration, expression, and growth.

- Use an icebreaker and other activities that provide opportunities for volunteers to explore and express their own values.
- Use case studies as opportunities for volunteers to explore local conditions or diverse environments.
- Use small groups as opportunities for quieter people to express themselves.
- Begin and end each training with an opportunity to provide feedback.

4. Provide necessary information, skills, and skills practice.

- Present and discuss information and skills, incorporating visuals such as slides, PowerPoint presentations, and demonstrations.
- Use case studies with data from the program.
- Use small groups to have participants discuss what works well, then report results to the whole group.
- Allow each group member to practice skills until they are comfortable.
- Provide handouts and other resource materials.

First Impressions Count!

For many potential volunteers, their first exposure to you and perhaps to water quality monitoring in general, will be your program orientation session. Therefore it is critical that this orientation be a positive experience for them! It is the first opportunity for volunteers to see the program in action, set realistic expectations, form partnerships with other volunteers and program staff, and begin building a strong sense of 'team'.

Ten Tips for Successful Orientation Training

(adapted from http://www.nationalservicerresources.org/resources/online_pubs/training/trainingbriefs_2.php)

1. **Plan.** The better organized you are, the better the orientation will be – even if you make lots of changes during the session. The more you systematically consider possible situations and needs, methods and potential problems, the more confident and flexible you will be.
2. **Make your orientation outcome-based.** Instead of designing your orientation based on topics to include, decide what outcomes you want to accomplish. Then pick topics and methods that will generate these outcomes. Often, one activity can contribute to several outcomes.
3. **Make your orientation training truly interactive and experiential.** In addition to leaving plenty of time for questions and answers, use hand-on activities and group discussions as much as possible. The more volunteers actively participate, the more information they will retain.
4. **Carefully choose and thoroughly prepare your presenters.** Select presenters for their training skills, not just their content knowledge. Be sure they know what you expect. Review their materials and methods before the training. For experts who aren't trainers, use them as "resources" and facilitate the session yourself.
5. **Emphasize teamwork and overall program goals.** The strength of most monitoring programs lies in the long-term and multiple site nature of the data (i.e. the whole is greater than the sum of the parts). Use icebreakers and community projects to build team spirit and mutual trust.
6. **Model the service ethic.** Bring in current volunteers to serve as role models and to build on individual eagerness to serve. Talk about volunteer service directly and honestly. Communicate realistic expectations.
7. **Draw on participants as resources.** Assess participants' skills as well as their training needs. Have volunteers complete 'volunteer profile' forms so that you can learn about their interests and abilities. Give them opportunities to teach each other when appropriate. Have them co-train in areas where they have special expertise.
8. **Link training with the monitoring assignment.** The more the orientation relates to the actual monitoring assignment, the more volunteers will find it interesting and useful.
9. **Check, assess, and evaluate.** Throughout the session, ask volunteers for feedback and make immediate refinements. Assess specific activities and the overall session as a basis for next year's changes. Follow up to see if skills learned are retained and used. Use varied evaluation techniques.
10. **Make orientation training the first step in ongoing learning.** Link it to in-service sessions, site-based training, and other knowledge and skill development opportunities.

Generic Orientation Session Outline



- Introductions of presenters and participants
- Program purpose, goals and objectives
- Basic ecosystem ecology
- Data use – how and by whom
- Role of volunteers (provide ‘job’ description)
- Role of program coordinators / staff
- Condition of the waters being monitored
- Parameters monitored to assess the condition
- Procedures used to measure those parameters (demonstrate if possible)
- How the results are reported to volunteers and other data users
- Questions and answers, session feedback (include written evaluation)

Selected Educational Resources for Improved Training Programs

Creating Training That Motivates

The National Service Resource Center website found at http://www.nationalserviceresources.org/links/pages/391.htm?search_term=training%20that%20motivates&m=all) provides links to key training topics such as:

- Strategies to Motivate Your Learners
- Examples of Motivating Training for Volunteers
- Volunteer Orientation Instructor Pack

This website includes downloadable PowerPoint presentations and training evaluation tools that you can customize to your program .



Learning Styles, and Other Tips for Teaching

The “Teaching Tips Index” from the Honolulu Community College is an excellent resource. This website contains extensive links to web pages focusing on the full spectrum of teaching and training skills, research and assessments. (<http://www.hcc.hawaii.edu/intranet/committees/FacDevCom/guidebk/teachtip/teachtip.htm#learn>).

Selected Educational Resources for Improved Training Programs - Extension-Associated Sources:

The Journal of Extension (JOE) is the peer-reviewed journal of the U.S. Cooperative Extension System. This electronic journal seeks to expand and update the research and knowledge base for Extension professionals and other adult educators to improve their effectiveness. JOE is entirely web-based and is available at www.joe.org.

The Water Outreach Education National Facilitation project, also known as the Best Education Practices (BEPs) project helps natural resource management and outreach professionals choose appropriate education techniques and resources for their water management programs. The project website (<http://www.uwex.edu/erc/waterbeps/>) contains information on:

1. Study of Provider Needs
2. Model Education Techniques
3. Synthesis of Significant Research
4. Literature Search for Audience-specific BEPs

University of Wisconsin-Extension Program Development and Evaluation Unit's website provides resources to aid in the planning, implementation and evaluation of high quality educational and outreach programs. The index page, located at <http://www.uwex.edu/ces/pdande/index.html>, provides access to a wide range of resources for evaluation, planning, situational analysis, priority setting, teaching and learning, self-leadership and diversity in educational programs.

Class IX: Learning Styles of Adults, University of North Carolina and University of West Virginia Extension (<http://www.cals.ncsu.edu/agexed/aee521/class09/class9.html>)

Educational Methods for Extension Programs, University of Florida Extension (<http://edis.ifas.ufl.edu/pdf/FY/FY39900.pdf>)

Principles of Effective Extension Educational Programs, University of Florida Extension (<http://edis.ifas.ufl.edu/WC042>)

"Effective Teaching Strategies for Diverse Audiences", PowerPoint presentation, Carolyn M. Perkins, Health Coordinator, Cooperative Extension Program, Prairie View A&M University, Texas (http://srdc.msstate.edu/resources/healthpres/perkins_diversity.ppt)

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Volunteer Handbook / Monitoring Procedures Manual

Providing volunteers with relevant written materials that they can review at their leisure is important for maintaining interest, increasing competence and for building support of volunteer efforts. These materials should address two aspects of volunteer monitoring activities – volunteer information and monitoring procedures – which can either be provided as separate booklets, or combined into one.



Volunteer Handbook

The purpose of this component is to provide the logistics of volunteering with your program. It should include any legal requirements and other general information of your program, such as:

- Program contact information/ Listing of volunteer opportunities / Current programs
- Welcome message from the program director
- Definition of terms or acronyms
- Introduction that includes both a local and national history
- Sample forms:
 - Insurance/ accident and liability waiver
 - Volunteer registration form
- Explanation of organizational structure (chart or diagram)
- Listing of advisory council or board members
- Account of financial structure or funding sources
- Volunteer participation policies and procedures
- Volunteer rights and responsibilities
- Volunteer training requirements – orientation, field training, in-service/recertification training
- Recognition – events, newsletter, others
- Information for volunteers with disabilities – inclusion and accessibility



This important information can easily be included as a section in a monitoring manual. However, as it may need to be updated frequently to address annual changes it may be worth creating it as a stand-alone handbook. Using three-ring binders for holding the handbook can make annual updates simpler.

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Monitoring Procedures Manual

Monitoring procedures manuals will necessarily vary with program goals and requirements, as well as monitoring methods. Remember when writing a monitoring manual that your volunteers will repeatedly turn to it with questions while they are in the field doing their monitoring or later when questions arise as a result of their monitoring efforts. The more complete it is, the better.



Some elements to consider including in your monitoring manual are:

- Basic program information – contacts etc. (or include in Volunteer Handbook)
- Program Goals
- Safety First!
- Water Quality Measurements (Parameters)
- Monitoring Site Selection
- Water Quality Monitoring Supplies
- Water Quality Monitoring Checklist
- Program Field Data Sheet
- Current Monitoring Schedule
- Handling & Transporting Water Samples (chain of custody forms)
- How to Monitor
- Field data collection
- Laboratory analysis (including kits)
- A Glossary of Terms
- Supplemental Information



You should review and revise your monitoring procedures manual regularly to ensure that it reflects even minor changes made in monitoring procedures or to address frequently encountered questions or problems. Again, the use of a three ring binder can facilitate regular updates.

An extensive list of monitoring procedures manuals developed by Extension and other programs available via the Internet can be found in *Factsheet IV Designing Your Monitoring Strategy* (<http://www.usawaterquality.org/volunteer/Outreach/designingyourstrategy.pdf>)

Getting Wet - Field Training

Getting volunteers out onto (or into) the water is important for developing the confidence needed for successful volunteer water quality monitors. Many volunteers may have never seen a Secchi disk, D-net or other common monitoring equipment. Some people may be intimidated by the 'science' behind these devices. By allowing them to practice with, and use the monitoring equipment in the environments they will be monitoring we can demystify some of the technical nature of water quality monitoring and help volunteers better understand how to monitor their local waters successfully.

Generic Field Session Outline

- Introduction of trainers and participants
- Briefly review what water quality parameters do and do not tell us about the resource
- Review safety considerations
- Review the monitoring procedures the volunteers will be using
- Demonstrate the procedures
- Volunteers practice the procedures until they are comfortable with them, and trainers are satisfied with their competency
- Summarize monitoring steps (again)
- Answer final questions and concerns
- Volunteers take home their equipment to start monitoring immediately

Field Training Preparation

Field training is critical for developing the skills and confidence that volunteers will need to be successful. Thus, the importance of good preparation cannot be over-emphasized. Well before your field training itself, and after the training site has been carefully evaluated and selected, a comprehensive written checklist should be developed and used for each session. Be sure to include equipment and supplies for volunteer safety and comfort (i.e. first-aid kit, a supply of towels and sweatshirts in case someone falls in the water, etc.) in addition to monitoring equipment and supplies. Inspect all your equipment and supplies in advance, replacing batteries, reagents or other supplies as needed. Then bring extra equipment and parts to ensure that you have equipment that will work. Additional copies of monitoring procedures manuals and any other written material given to volunteers previously should be included to ensure that they are at hand for the training.

The Water Action Volunteers website (<http://clean-water.uwex.edu/wav/monitoring/resources/plantraining.htm>) contains a section dedicated to helping local coordinators plan and set-up training sessions. A checklist to use when planning an event, as well as sample letters to send to participants, news releases, and other materials are included.



Field Training Site Considerations

Identifying appropriate locations for field training requires consideration of a number of factors. Advance visits to potential training sites by program staff are necessary in order to eliminate surprises and improve the field training experience for both volunteers and staff alike. Training site factors to consider include:



- **Accessibility:** Training locations need to be easily found by volunteers, with simple directions or signage provided. If the site is within a park that charges admission, arrangements should be made to provide complimentary access. Adequate parking should be available with signs to the specific training site provided if not readily visible from all parking areas. Access to the water needs to be easy, safe and appropriate to your training needs and the size of your group. Find out if others will have concurrent use of the site, which might interfere with your training.
- **Safety:** Safety needs to be on your mind constantly! Things to be cautious of include steep slopes or unstable banks, poison ivy and other noxious plants, proximity to traffic, and depth or swiftness of water. Remember also that conditions may change. A site that was perfectly safe during your advance visit may no longer be because of rainfall or recent growth of poison ivy or even nearby construction. It is a good idea to have a back-up site available. Arriving early to clean up litter, especially broken glass, may improve safety considerably.
- **Site size:** Your field site needs to be large enough to accommodate the number of volunteers, but not too large. Too large, and volunteers may wander off, or be easily distracted. Too small, the site will get crowded, and volunteers may not be able to see well or feel comfortable actively participating. If you will be splitting into smaller groups to practice various skills, will the site accommodate multiple smaller groups without interfering with each other?
- **Aquatic Features:** Keeping your training goals in mind, does the site provide enough diversity? Do streams include the riffles, runs and pools needed to adequately demonstrate the monitoring techniques planned? Are lakes deep enough for volunteers to practice using your deep sampler, without taking too long to reach that spot? Or is the site shallow enough to perform all planned activities safely and successfully?
- **Ecological Vulnerability:** Is the site a critical or rare habitat? Will volunteers trampling around it disturb critters or damage the site? For example, while conducting a macroinvertebrate training recently Kris Stepenuck learned that avoiding salmon spawning grounds is a critical element of site selection in the Pacific Northwest.
- **Permission:** Is it a public site or private property? Can you get (written) permission to use the site? Even on public lands, it is always a good idea to coordinate with the agency responsible for managing the property. There may be special circumstances that may change your assessment of the site, or you may need agency permission to use the site. Consider this an opportunity to enlist the involvement of that agency in your program's efforts.

Field Training Site Considerations (continued)

- **Distance:** How far away is the site? Will more time be used getting to the site than actually training? This factor is an especially important consideration if you will be moving right from a classroom training session into the field component. Will your volunteers be frustrated by the amount of time it takes to move from one site to the next? Will you need to car pool or provide transportation?
- **Season or timing:** Some of these features may need to be evaluated in relation to the time of year, or even date and time that your training will be occurring. For example, will training activities interfere with the passage of spawning fish or the predators (including anglers) that prey upon them? It is never a good idea to schedule a training session during opening day of fishing season! Also, waters that may be safe during dry or warm weather may pose hazards during wet or cold seasons. Rain events before or on the date of training can also cause problems and may require that you have alternatives planned. Sites that have plenty of parking on weekdays may not have any spaces available on weekends or during special events. Roads or waterways may experience unsafe traffic conditions during specific events (for example opening day of trout season). Hunting season may represent another consideration when selecting a training site.
- **Shelter from inclement weather, cold or the sun:** Providing access to an indoor or sheltered location where volunteers can get in from an unexpected rain storm, cold temperatures or hot sun can improve the volunteers' comfort and quality of training. Its harder to learn when you are uncomfortable.

Additional Training Tips

- Schedule training sessions carefully
 - Be cognizant of religious holidays and school vacations
 - Consider offering several sessions, including weekdays for retirees and early evenings for working folks
 - Be aware that volunteers that cannot fit any of your training sessions into their schedules, may not be able to find time to monitor – regardless of their enthusiasm.
- Avoid 'learning overload'
 - Break topics into manageable chunks
 - Repeat information through multiple sessions, and repeat it again
- Make use of 'experts'
 - Provides new perspective
 - Gives a change in style and voice
- Provide on-site assistance
 - Builds confidence
 - Assures technical proficiency
- Once monitoring begins, review and conduct quality control procedures on data as soon as possible to provide feedback and provide re-training as needed.



What Makes An Effective Training

Geoff Dates - River Network

1) A Clear Agenda

Enables participants to know what they will be doing during the workshop and how what they are doing at the moment relates to the whole.

- a. Workshop goals
- b. Agenda items with times

2) A Safe Forum

Put people at ease and make them feel comfortable actively participating.

- a. Icebreaker
- b. Room layout that suits the activities
- c. Effectively facilitated group dynamics
- d. Professional yet relaxed tone
- e. Information presented in manageable chunks

3) A Mix of Activities for Different Learning Styles

People learn in different ways: passive listening, verbalizing, and actively doing.

- a. Lecture
- b. Discussion
- c. Brainstorming
- d. Hands-on

4) Small and Large Group Activities

Group dynamics, participation, and effectiveness vary greatly with size. Tailor the size to the activity.

- a. Small group work for discussion and hands on activities
- b. Large groups for sharing or brainstorming

5) Evaluation

Was the workshop effective? What could be improved? This feedback is essential for trainers!

- a. Verbal
- b. Written



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