

Evaluating Monitoring Program Performance

This section will show you how to:

- ◆ Determine if your monitoring program's goals and objectives were met.
- ◆ Decide how to proceed in the future.
- ◆ Stay engaged in the ongoing monitoring program.

Take stock and plan for the future

This Guide has emphasized how important it is to continually evaluate and review how your program is performing against the goals and objectives that were set early in your program. Once your program is finished- or at the very least, on an annual basis- you should evaluate the performance of your overall monitoring program. Doing so could be the most important step in the design and review process. That's because

evaluation procedures can resolve whether the information you developed was sufficiently precise and scientifically usable. If there is anything you could be doing better to gain more credibility and useful data, you will often uncover it in the evaluation process.

Having good field notes will make the process of evaluation go more smoothly. If you have an ongoing record of activities and changes you made during the program, it will help you remember what occurred during the monitoring effort. Keep in mind, too, that it may take a few years of monitoring before it is possible to fully analyze and interpret your data, so take that into consideration as you routinely evaluate your program.

You generally review and evaluate in order to measure the effectiveness of the monitoring actions and programs you implemented, and to provide essential information that can be used to redirect and refocus your design plan.



To evaluate your program, follow these basic guidelines:

- ◆ Determine if your monitoring program's goals and objectives were met.
- ◆ Identify successes/what worked in your monitoring program.
- ◆ Identify any monitoring problems associated with your project in the areas of:
 - ◆ Collecting and analyzing samples.
 - ◆ Storing, interpreting and disseminating data.
 - ◆ Reporting the information to data users and the public.
 - ◆ Identifying gaps and inefficiencies.
- ◆ Evaluate the costs of the monitoring program relative to other costs, such as clean-up and lost environment.
- ◆ Provide feedback.

Determining if goals and objectives were met

Evaluating your actual results against original goals and objectives (from *Sections 2 and 4*) will help determine if the program should be modified by adding, deleting or expanding monitoring components.

Suppose, for example, that your goal was to collect at least 24 water samples per site monthly to measure *E. coli*, dissolved oxygen, total phosphorus, temperature and pH. Upon evaluation, you realize you were able to collect an average of 18 samples. You may decide the samples collected were actually good enough to answer your initial question, or you may realize that you need more volunteers or need to use the volunteers you have more often.

An evaluation may also reveal that in order to meet your goal, you need to add an alternative sampling strategy. It may become obvious, for example, that you should also be sampling for

nitrates. Based upon this, you may decide to add the procedure, or determine that it is beyond the scope of your particular project. Whatever you decide, you will then use this information to update your monitoring design plan before you proceed to the next level.

Identify successes

You are going to have some successes, regardless of the data goals you set. Even if you missed a particular goal, what you did accomplish may meet a lesser goal. For example, you may have set out to establish baseline data for your watershed, but you were not able to collect enough information to meet your goals. You did, however, raise community awareness and promote community education. Celebrate that success as you redesign your project for the next phase.



Typical Problems Identified in Monitoring Program Evaluation:

- ◆ Monitoring program did not clearly define monitoring objectives and apply appropriate design tools.
- ◆ Monitoring group did not check with potential data users to determine types of data to collect.
- ◆ There was a lack of communication and coordination among the people in the program.
- ◆ Monitoring group needed to adopt standardized sampling and QA/QC procedures to ensure data comparability.
- ◆ The results of the monitoring program were not presented in a form that was useful to interested stakeholders. It is essential to link data management strategies and data analysis methods to the objectives of the monitoring effort. It is also necessary to devise a plan for effectively communicating results to the identified audience.

Identify problems

Problems may have been identified as the monitoring program was in progress or you may uncover new ones that show up on final evaluation. At this stage, you can make note of the problems and determine how to incorporate changes in your updated design plan to avoid these problems next time. You may find you need to enhance your original goal or that your purpose has changed based on the information you have.

Evaluate costs

Costs in monitoring programs vary widely, from expenses involved in purchasing equipment to costs associated with actually carrying out the program (meetings, transportation, food, volunteer hours spent). In order to protect this considerable investment, evaluate your sampling strategies to be sure you have selected the most effective monitoring components and variables and that you have optimized your overall monitoring effort.

Addison County River Watch Collaborative Unites Seven Partners

In 1997, the Addison County River Watch Collaborative (ACRWC) was formed “to unite stream monitoring efforts by citizens in the Addison County region.” The Collaborative today consists of the Otter Creek Audubon Society, Otter Creek Natural Resource Conservation District, Middlebury River Watershed Partnership, New Haven River Anglers Association, the Watershed Center, Lewis Creek Association and the Weybridge Conservation Commission.

Successes of the ACRWC include partnering with the VTDEC to receive analytical services from the LaRosa Laboratory for water quality monitoring of sixty sites throughout Addison County and the Otter Creek Basin. Samples were analyzed for *E. coli*, phosphorus, nitrogen and temperature. Through their monitoring, ACRWC was able to identify repeated high levels of *E. coli* and phosphorus as the two greatest water-related problems in the county. The monitoring also identified a segment of the Middlebury River that consistently exceeded the state standards for *E. coli* and subsequently was placed on the State’s 303(d) Impaired Surface Waters List.

The ACRWC plans to continue water quality monitoring and pursue its vision “for Addison County citizens, businesses and governments to incorporate water resource issues in decision-making processes and work together through a coordinated partnership to improve water quality and support the natural ecological functions of surface waters.”

Provide feedback

Use the results of your evaluation to identify current and future needs and activities of your group and data users.

Develop partnerships and connections

Since environmental sampling can be costly and resources will often be limited, it makes sense to leverage your resources as much as possible.

Other organizations with similar goals and objectives may have developed procedures or training materials that can streamline your particular project. Databases may already include information that you can use to build on. The city or town where you live no doubt has resources that you can use. You may find that organizing regional conferences will be a big help in providing information and motivation for your volunteers.

Here are a few ways you will benefit from making connections:

- ◆ Receive funding or learn about funding sources.
- ◆ Obtain technical assistance.
- ◆ Receive on-site supervision of volunteer projects.
- ◆ Get help from speakers, field trips and telephone or email support.
- ◆ Obtain materials, videos, curricula, posters, public education flyers and displays.
- ◆ Receive loans or gift equipment from interested parties.
- ◆ Obtain maps and data on water quality, native species, soil types, wetlands, etc.
- ◆ Track the status and progress of other programs in situations similar to yours.
- ◆ Learn how you can improve your own programs by learning about other current and emerging programs.
- ◆ Learn about programs that are working well.

Robert Arnold Lake Protection Award

In 1998, the Vermont Lay Monitoring Program celebrated 20 years of citizen lake monitoring by holding a party to honor volunteers involved in lake and watershed protection work. At this event, the Vermont Water Quality Division initiated a lake protection award on behalf of the late Lake Seymour Lay Monitor, Robert Arnold, who for more than a decade had shown outstanding leadership in protecting Lake Seymour.

The following are recipients of the Bob Arnold Lake Protection Award. All of these individuals are recognized and thanked for their all-around devotion to the health and protection of their respective lakes.

1998 Tom Benoure
Fairfield Pond, Fairfield, VT

1999 James Leamy
Lake Bomoseen, Castleton/Sudbury, VT

2000 Richard Allen
Lake Morey, Fairlee, VT

2001 Jackie Sprague
Harvey's Lake, Barnard, VT

2003 Jamie Longtin
Sunset Lake, Orwell/Benson, VT



- ◆ Put your own program in a framework or context of water monitoring as a whole.
- ◆ Learn how to present to elected officials and the public your findings and the progress you have made.

Most agencies and organizations are eager for the help that volunteers provide. Ask these questions to evaluate whether an agency/organization fits into your monitoring goals:

- ◆ Are its goals compatible with your goals and objectives?
- ◆ What do you hope to get from the agency?
- ◆ When do project activities take place?
- ◆ Does the organization provide training?
- ◆ How does the organization use volunteers in its projects?
- ◆ Will the agency help with transportation, liability issues and/or supervision?
- ◆ Will support staff be available to help you in person or by phone/email? Are they responsive and reachable?

Throughout this Guide, we have referenced guidance manuals and organizations both in Vermont and nationwide that provide excellent resources for volunteer surface water monitors. Take advantage of them so you can leverage the resources you have in the most effective way possible.

Stay motivated and engaged

You and others on your team may have joined the monitoring effort for any number of reasons:

- ◆ To have an impact.
- ◆ To be part of a team.
- ◆ To meet people and make friends.
- ◆ To learn about a local stream, river, lake or wetland.
- ◆ To gain experience.

Vermont Volunteer Monitoring Groups Gain National Recognition

EPA recognizes two volunteer organizations in Vermont with Environmental Merit Awards. The merit awards, given out since 1970, honor individuals and groups who have shown particular ingenuity and commitment in their efforts to preserve the region's environment.

"These individuals, organizations and businesses deserve our thanks for their extraordinary contributions in protecting the environment," said Robert W. Varney, regional administrator for EPA's New England Office. "They have shown us that anyone can make a big difference, whether at work, at home, or in their neighborhood."



Town of Leicester, Vermont and Lake Dunmore/Fern Lake Association (LDFLA), Eurasian Watermilfoil Control

The Town of Leicester, VT and the LDFLA have demonstrated that it is possible to control Eurasian watermilfoil in an environmentally friendly way. Eurasian watermilfoil is a non-native aquatic plant that invades lakes, ponds and slow-moving rivers by forming dense beds that degrade fish habitat and overall lake ecology. Traditional methods of control include herbicides, biological controls, mechanical harvesters and bottom barriers, all of which have adverse effects. The Town of Leicester and the LDFLA program utilizes a small team of well-trained divers to monitor aquatic plants and hand-pull Eurasian watermilfoil continuously throughout the summer. The success of this program in controlling the watermilfoil population on both a small and large lake demonstrates its effectiveness and its value as a model for the rest of the region. To that end, the project has produced extensive documentation and hopes to share it with other lake organizations in New England.

Lake Parker Association, West Glover

The Lake Parker Association assessed conditions in the lake's watershed and strengthened community support to correct numerous nonpoint sources in the watershed and avoid problems in the future. The association completed a three-year watershed survey, a process that involved scores of volunteers walking sections of the shoreline and watershed to document pollution problems. Those results have paved the way for future restoration work. Some of the work is already underway, including the stabilization of a major road erosion problem in Glover that was handled by the town road crew and a group of volunteers. The Lake Parker Association's work is a model for outstanding local participation.



- ◆ To build a resume.
- ◆ To have fun.
- ◆ To use/gain a skill.

Joining the team took effort on someone's part and following through to implement the program took commitment on everyone's part. The challenge is to stay interested in your monitoring project. The suggestions listed below, "improve feedback," "add new challenges," and "create rewards," are the results from a study done by the *Florida LAKEWATCH* in 1998. These ideas may help you understand how to keep yourself and your team motivated. Encourage your group to review these suggestions.

Improve feedback

- ◆ Hold more meetings, at least one general meeting per year, so everyone has a sense of connection to a group and to offer opportunities to deal with questions and concerns.
- ◆ Speed up turnaround time between data collection and feedback.
- ◆ Improve data report format.
- ◆ Produce a variety of types of feedback (videos, brochures, in-person presentations).
- ◆ Produce a newsletter at least twice a year.
- ◆ Hire regional coordinators to maintain closer touch with volunteers.



Add new challenges

- ◆ Take training in monitoring additional parameters, such as bacteria levels, bird populations or aquatic plants.
- ◆ Perform training, if you are an experienced volunteer.
- ◆ Get everyone involved in fundraising and recruiting.

Create rewards

Probably the best reward volunteer monitors can receive is to see their data being used. This is often accomplished when you present your data in a public venue. By doing this, you will feel more like a necessary part of your organization. Last, but not least, say "thank you" over and over again. Some ways organizations have said "thank you" include:

- ◆ Holding a picnic, barbecue or party.
- ◆ Taking volunteer leaders out to lunch.
- ◆ Holding a banquet that is a fundraiser and awards ceremony.
- ◆ Writing personal letters expressing your appreciation for everyone's contribution.
- ◆ Profiling volunteers in a newsletter.
- ◆ Presenting appreciation awards- certificates, pins, caps, mugs, etc.
- ◆ Giving scholarships.
- ◆ Sending regular memos keeping everyone up-to-date on activities and the status of your project.
- ◆ Planting a tree honoring your project.

Now that you have finished reading *Section 8*, return to the Worksheet on pages 5-8 to answer the corresponding questions.