
Module 1 Learn, Plan, and Act

Introduction

Did you ever stop to wonder how we get our information on the condition of our nation's streams, lakes, estuaries, and coastal waters? On whether these waters are safe enough to swim in, fish from, or use for drinking or irrigation purposes? **Learning** about our community's water resources through assessing and monitoring provides basic information for **planning** and decision making. Protecting our water resource is everyone's responsibility and takes **action**.

In this module participants will examine the learn, plan, and act process for: *Community water assessment, monitoring, and protection*.



What is Water Quality Assessment?

Water quality assessment is a process of gathering information to learn about a community's water resources. The information should tell residents exactly where their water supply comes from and what conditions and/or practices may pose threats to its quality. This information can then be used to develop a plan or strategy to protect the community's water supply.

For example, a drinking water source assessment process includes:

1. **Learn** about and identify the drinking water source.
2. Identify drinking water quality issues or sources of potential contamination that may be of concern.
3. Assessing how susceptible the drinking water source is to the identified issues or contamination source.
4. Make informed decisions based upon collected data, as an individual and/or community; develop a **Plan** of Action.
5. **Act** on the plan and implement it for the benefit of your community.

The same **Learn, Plan, Act** approach can be completed to assess many other water resources in your community such as:

- ▶ Recreation water assessment (swimming, wind-surfing, etc.)
- ▶ Wildlife or fisheries water assessment (fishing, shellfish, birds, etc.)
- ▶ Irrigation water assessment (sprinkler, drip, furrow, quality, and quantity)
- ▶ Municipal water quality assessment (industrial, waste treatment, domestic use, etc.)

Ideally, the assessment process brings together water experts, with locally-elected officials, the business community, agricultural producers, educators, and citizens. When a variety of people are actively involved in the assessment process, the community is better educated about their water resource and has knowledge to protect it.



What is Water Quality Monitoring?

Across the country, private citizens are learning about water quality issues and helping protect our nation's water resources by becoming volunteer monitors. Volunteers are analyzing water samples for dissolved oxygen, nutrients, pH, temperature, and a host of other water constituents; evaluating the health of stream habitats and aquatic biological communities; taking inventory of streamside conditions and land uses that may affect water quality; cataloging and collecting beach debris, and restoring degraded habitats. Monitoring is part of the **Learn, Plan, and Act** process.

- ▶ There are many ways to monitor water conditions. To monitor the constituents in water, sediments, and fish tissue — such as levels of dissolved oxygen, suspended sediments, nutrients, metals, oils, and pesticides — monitors perform chemical measurements. Physical measurements of general conditions such as temperature, flow, water color, and the condition of stream banks and lake shores are also important. Biological measurements of the abundance and variety of aquatic plant, insect, and animal life are also widely used to monitor water conditions.
- ▶ Monitoring can be conducted at regular sites on a continuous basis (“fixed station” monitoring); at selected sites on an as needed basis or to answer specific questions (intensive surveys); on a temporary or seasonal basis (for example, during the summer at bathing beaches); or on an emergency basis (such as after a spill). Increasingly, monitoring efforts are aimed at determining the condition of entire watersheds — the area drained by rivers, lakes, and estuaries. This is

because we have come to realize the impact of land-based activities on the waters that drain the land, and the interconnectedness of all types of waterbodies, including those beneath the ground.

Tribal, state and local agencies, private businesses, and even corporations may use volunteer data to screen for water quality concerns, establish trends in waters that would otherwise be unmonitored, and make planning decisions. Volunteers benefit from learning more about their local water resources, identifying what conditions or activities might be contributing to pollution concerns, and working with clubs, commodity groups, nonprofit organizations, environmental groups, and state or local governments to address water resource issues.



What is Water Quality Protection?

Ideally all water should be “swimmable, fishable, and drinkable.” It takes time, resources, and people to reach this goal. Water quality protection is an entirely voluntary process where communities and citizens work to make it happen. Once sound, science-based information is gathered and understood, a community is better prepared to take action to protect their water resource. Competing demands for water have reached critical levels in watersheds nationwide. Multipurpose management of our water resources needs to be improved in order for protection to take place. Recognizing these competing demands can increase our understanding of the multiple aspects of resource protection.

Water demands include:

1. ground water quality and quantity,
2. drinking water supplies,
3. stream flow,
4. fish and wildlife habitat,
5. transportation,
6. recreation,
7. hydropower,
8. industrial interests, and
9. irrigation water.

Community based management strategies and management tools can be developed from an integrated, system-based perspective that considers all pertinent uses of the resource. All activities impacting or potentially impacting both water quality and quantity (surface and ground water) should be considered in a protection effort.

Water quality protection can take on many forms: drinking water protection, well water protection, source water protection, etc. Consider the following protection concepts:

- ▶ Source water protection allows a community to focus its management efforts, avoid excessive management and regulations in areas that do not contribute ground water or surface water to public water supplies, and avoid spending time and funds on protecting noncritical areas where source water contamination is low.

- ▶ Just as watershed protection is a method of prioritizing activities within a state or region, source water protection is a method of prioritizing activities in a given watershed.
- ▶ Source water (drinking water) protection is a primary beneficial use that must be protected in any successful watershed management plan.
- ▶ Watersheds typically encompass a much larger area of land than actually drains to the drinking water supply. Within a watershed there may be different types of source water protection needed, each with its own prioritization needs.
- ▶ Watershed protection requires an integrated and holistic approach to program management. Source water protection contains many of the same elements as watershed protection but focuses on a much smaller area or sub-watersheds that contribute to water supplies.
- ▶ Successful source water protection requires the integration of traditional ground water and surface water protection efforts with programs like: emergency response; hazardous materials handling and storage; land use planning; and pollution prevention.
- ▶ Depending on the area, source water protection may involve wellhead protection, the protection of surface water reservoirs, or the protection of rivers and streams. In reality, most source water protection areas will be a combination of at least two of these protection activities.



Water quality protection involves two key components — both are equally important:

- 1. Contaminant source management** involves a community adopting a variety of strategies, programs, and laws to make sure that contaminants do not reach or impact water sources. The goal is to protect and prevent contamination to accommodate the desired water uses in each community.
- 2. Contingency planning** is community-based alternative action plans for water emergencies (flood events, contamination, water system failures, drought, etc.).

Successful source water protection programs can be viewed as a progression of five main steps:

Delineation: Where is the water for the community coming from?

Water source inventory: What activities in this identified recharge area have the potential to contaminate a water resource?

Source management: Who will be impacted by a change in water management and what types of programs are needed to best manage the sources of contamination?

Projected future activities: What are the projected future activities in the recharge area that have the potential to contaminate or impact water?

Public ownership/involvement of the issue: Create public ownership by involving all stakeholders in a process of **learning**, **planning**, and **acting** on the water issues and concerns.



Importance of Public Involvement and Team Building

Public involvement is critical to water resource assessment, monitoring, and protection, and the reason is simple. Everyone in the community needs water, uses water, and impacts water. No one is exempt from water management — we do it in our households and workplaces every day. How we choose to manage and interact with water, individually and as a community, is vital to maintaining and improving its quality. Building teams within communities is an excellent way to enhance learning and find new ways to solve problems.

For more information about “Teams” or “Team Building”:

- ▶ Contact your local county extension office and ask for this type of community development information.
- ▶ Search the web for “Team Building” information.
- ▶ Call the Groundwater Foundation at 1-800-858-4844 to request a free copy of “Let’s Make a Difference: Mobilizing for Community Action.” This booklet is designed to help individuals who wish to initiate community action efforts for ground water, drinking water, and other water quality issues.

All members of the community have something to contribute to the water quality assessment, monitoring, and protection process. Throughout this short-course we will recognize how groups and individuals can contribute their knowledge, expertise, and time to one or more of these processes. Be thinking about how your community, your watershed, your Conservation District, school, or 4-H/youth group could get involved. The last part of the short-course will focus on existing groups, tools, and organizations that provide assistance to grassroots community groups who want to become involved.

Great Water Quality Resources for More Information

- ▶ **What is water quality monitoring?** Water Quality Fact Sheet. For more information on watershed-based activities see the environmental programs homepage under Office of Wetlands, Oceans, and Watersheds (<http://www.epa.gov/owow/monitoring/monintr.html>).
- ▶ **What is volunteer monitoring?** Water Quality Fact Sheet. For more information on volunteer monitoring (<http://www.epa.gov/owow/monitoring/volunteer/epavm.html>).
- ▶ **Ground water, source water protection, and the watershed approach.** By Paul Jehn, Technical Director and Mike Paque, Executive Director of The Ground Water Protection Council, Oklahoma City, OK (<http://www.epa.gov/owowwtr1/watershed/Proceed/jehn.htm>).



Discussion Points

- ❖ Discuss and give examples of a recent community project where people first learned, then planned and acted on an issue of concern.
- ❖ Several government and private agencies have set goals to improve water quality in the next decade in our state and community. List five of the most important reasons why it needs to be improved in your community.
- ❖ Where are you now? What has your community done in the past to protect its source drinking water, provide for irrigation, or improve the fishing?
- ❖ Do some public water systems, fish and game departments, irrigation districts, or municipal water systems have water information available? If so, how is this information being used?
- ❖ Which is most important to do first: water protection; water assessment; or water monitoring? Why?



Major Points to Remember

- ❖ If you remember anything from this short-course, you should remember the difference between water quality assessment and water quality protection. For the community or citizen, the key difference is that assessment may be required by law and protection is entirely voluntary (communities and citizens work to make it happen).

- ❖ Assessment is the process undertaken by communities to learn about water and water quality. Once sound, science-based information is gathered and understood, a community is better prepared to take action to protect their water resource.
- ❖ Water monitoring measures the quality of a stream, lake, or pond over time. It can be done by individuals, businesses, organizations, government agencies, or volunteers and may be part of an assessment process.
- ❖ Citizens are critical when it comes to water resource protection. When local citizen groups or individual communities help develop and support policies and programs to protect water, decision makers are more likely to implement those policies and programs.



► *Journal and Evaluation*

In your journal, write in your own words, the meaning of the following four terms: water quality, water assessment, water monitoring, and water protection.

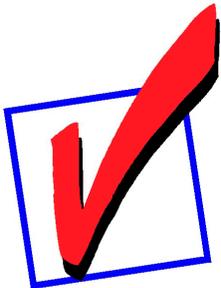


► *Short-course Presenters*

Part One is a basic introduction to water quality and monitoring. It is important to recognize that different communities, states, and tribes will be at different stages of the assessment process. Every state will have prepared their own assessment programs and protocols, of which public participation is a requirement. Individual communities may be in the early stages of identifying their water resources. Others may have worked on such issues as drinking water protection, groundwater protection, or wastewater treatment. Nevertheless, the requirements of the *1996 Safe Drinking Water Act Amendments* and the *1972 Clean Water Act* will impact how communities, tribes, and

states communicate with the public and involve the public in the water quality monitoring and assessment. It would be good to gain a sense of the impacts of this and other federal legislation on the target communities before implementing the short-course.

In the Learn, Plan, and Act section the primary issues of water quality are addressed for your community. This is an opportunity to model managed change. There are better ways to do it than “fighting it out.” Ask the question, “What kind of community do we want?” There are legitimate water quality concerns and facts associated with them. In your short-course provide real information and check prejudices against the truth. It is best to identify common interests where communities can move forward. Encourage participants to fix problems, not blame, in the water quality issues that are addressed.



► *Tips for Short-course Presenters*

- ❖ A supporting activity for this module is to have a local speaker who is in the process, or has completed a monitoring or an assessment, explain how it is being done in your area. Encourage them to bring examples of their results, reports, poster displays, or pictures. Clue them in on the Learn-Plan-Act process and ask them to show how it was used in your community. Alternately have them address the discussion points presented in this module.