

Licking County Soil and Water  
Conservation District

# Stream Team: Introduction



## **Introduction and Purpose**

Approximately 97% of the water on Earth is salt water and there is approximately 3% fresh water on Earth. Since much of the fresh water is unavailable as glaciers, ice, water vapor, etc., there is effectively less than 1% of Earth water to fulfill the needs of life on Earth as we know it. Most of the human body is made up of water, with cells consisting of 65-90% water by weight. Without water there would be no survival. These simple facts seem to be common knowledge. So if water is so important, why is this valuable resource often taken for granted?

As Licking County Soil and Water Conservation District (SWCD) strives to enhance and protect our natural resources, especially water, we would like to take the first step in gaining community involvement and ownership. As this goal is accomplished, the community will gain a better understanding and respect for water, water quality, and why it is important to become stewards of the land. Our community will also become more aware that they live in a watershed and the things individuals do everyday affects the water everyone uses.

In Ohio, the lack of comprehensive and accurate water quality information is a major issue when one wants to look at the various impacts a community has on the environment. Locally gathered assessment information can be used to educate watershed residents and government officials about the realities of water quality in their community.

The water quality sampling or trend monitoring is an important component because it allows watershed residents the opportunity to analyze “their” water and obtain a better understanding of the quality of the water resources of “their” watershed. Monitoring not only provides the opportunities to document current water resource conditions, but can serve as benchmark to gauge changes over time. Should conditions change with the stream quality, the prior collected information documents what conditions were like in the past.

The information contained in this manual is based on the sampling or trend monitoring method. To get an accurate representation of a stream’s water quality, active monitoring needs to be performed on a regular basis over a period of years. Sampling or trend monitoring provides a broad view of the stream allowing the seasonal variations to be sorted out from long-term changes. Please consider the long-term commitment involved in this type of monitoring.

Licking SWCD would like to thank the Ohio Farm Bureau Agricultural Watershed Awareness and Resource Evaluation (AWARE) Program and the Miami Conservancy District for their assistance and guidance.

### **Have Questions? Need more supplies? Please do not hesitate to contact us:**

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## **Safety Considerations**

One of the most critical considerations for a water quality monitoring program is the safety of its volunteers. All volunteers should be trained in safety procedures and should carry with them a set of safety instructions and the phone number of a person to contact in case of an emergency. Safety

precautions can never be overemphasized!

The following are some basic safety rules.

- Always monitor with at least one partner so that if there is an injury, someone can go for help. At the very least, let someone else know where you are, when you intend to return, and what to do if you don't come back at the appointed time.
- Honor private property rights. Never cross a landowner's property without permission.
- Never wade in swift or high water. Do not wade if depth is greater than knee-deep. Do not monitor if the stream is at flood stage. Any stream is dangerous in times of flooding.
- Never drink the water in a stream. Assume it is unsafe to drink and bring your own water from home.
- During monitoring, keep your hands away from eye and mouth areas. After monitoring, thoroughly wash your hands with antibacterial soap. Never eat after monitoring without first washing your hands.
- Beware of polluted streams that are known or are posted to be unsafe for handling or human contact. If the water appears to be severely polluted, **STAY OUT!** As a rule, treat every stream as if it were polluted – wear waders, rubber gloves, and protective eyewear.
- Have a first aid kit on hand. Consider having at least one team member trained in first aid/CPR.
- Develop a safety plan. Find out the location and telephone number of the nearest medical center and write down directions for traveling there. Also complete an emergency medical form that includes emergency contacts, insurance information, and pertinent health information such as allergies, diabetes, epilepsy, etc.
- Listen to weather reports. Never monitor if severe weather is predicted or if a storm occurs.
- Be very careful when walking in the stream. Wear shoes that are in good condition and have traction. Rocky-bottom streams can be very slippery and may contain deep pools. Muddy-bottom streams may also prove dangerous where mud, silt, and sand have accumulated in sinkholes. If you must cross the stream, use a walking stick to steady yourself. Your partner(s) should wait on dry land ready to assist you if you fall. Do not attempt to cross streams that are swift and above the knee in depth. Watch for barbed wire fences or sharp, rusty objects that may pose a particular hazard.
- Do not walk on unstable stream banks. Disturbing these banks and the vegetation growing upon them, can accelerate erosion and lead to a collapse.
- Beware of animals. Watch for irate dogs, farm animals, wildlife, and insects such as ticks, mosquitoes, and hornets. Know what to do if you are bitten or stung.
- Beware of plants. Watch for poison ivy, poison oak, sumac, and other skin-irritating vegetation.

- If you drive, park in a safe location. Be sure your car does not pose a hazard to other drivers and that you are not trespassing. If you are sampling from a bridge, take special precautions. Watch out for passing traffic and never lean over the bridge unless you are firmly anchored.
- If at any time you feel uncomfortable about the condition of the stream or your surroundings, stop monitoring and leave the site at once. Your safety is more important than the data!

### **Why Monitor?**

Monitoring is the collection of data (measured parameters) using consistent methods. The types of monitoring and the reasons for collecting data will vary depending on the individual/groups purpose. Water quality monitoring can evaluate the physical, biological and chemical characteristics of a water body.

The information obtained through the “Stream Team” volunteer watershed monitoring can be used for many purposes:

- Evaluate the physical, biological, and chemical characteristics of a water body
- Educate citizens about their stream and environmental stewardship
- To screen water quality problem sites along a stream
- Determine the severity of a pollution problem and to rank stream sites
- Determine long and short term water quality trends
- Evaluate the effectiveness of pollution control activities

### **Setting your Own Goals**

What do you as an individual want to achieve; what do you want to learn and what are your interests?

Data Collection or Scientific Goals:

- Plan, implement and analyze a scientific investigation
- Develop field skills necessary for water quality testing
- Strengthen observational, analytical and problem-solving skills
- Compile and compare water quality data
- Use and integrate several disciplines (chemistry, biology, geography, math, etc.)

Community Goals:

- Become actively involved in community-supported water quality monitoring program
- Develop an awareness and responsibility to their watershed as an individual and as a community
- Communicate findings and the results of their actions to the community

Environmental Education Goals:

- Become familiar with the river ecosystem
- Learn to recognize water quality problems and their sources
- Understand relationships between land use and water quality
- Make a responsible, action-oriented contribution toward protecting the river and watershed.
- Develop and understanding on how weather, seasons and natural disasters affect water quality

### **What’s your Goal?**

Write your individual goal(s) below:

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## **What is a Watershed and Why Should I Care?**

A watershed is an area of land that drains to a stream, river, or lake. During rainfall events, some rainwater soaks into the ground. The rest of this rainwater runs along the surface of the ground until it collects in a low area (often a river, stream, or lake). Water that runs along the surface of the ground is called runoff. As the runoff travels over the ground's surface, it collects sediment, chemicals, litter and other pollutants, and carries them to our waterways.

Each watershed is unique. Every watershed has its own mix of natural and human-made features. Watersheds are powered by gravity. Hills and ridges form boundaries from which water drains into or away from the watershed. Water drains from higher slopes and collects in the lowest points - rivers, streams, and lakes.

Watersheds can be any size; some are quite large and some are quite small. They can encompass a few acres around a small country stream or all of the states surrounding a large river. Smaller watersheds make up larger watersheds. The Licking River watershed is part of the Muskingum River watershed which is part of the Ohio River watershed.

Everyone lives in a watershed. Everyone's actions impact our water quality. Watersheds provide water for human consumption, industry, agriculture and recreation. Many animals make their home in water. Other wildlife uses our rivers, streams and lakes as their source for drinking water. Do you know the source of your drinking water?

## **Types of Pollution**

Many people think water pollution comes from a chemical spill or a factory dumping directly into the water. This type of pollution is called Point Source Pollution. We can easily trace the source of this type of pollution. Point Source Pollution laws and the associated regulatory/enforcement agencies have done a respectable job of curbing Point Source Pollution and preventing future issues.

One of the major problems facing our waterways is Non-Point Source Pollution. This type of pollution comes from a variety of sources over a wide area, making it harder to detect the direct source or polluter. These pollutants are carried into our waterways by runoff. Non-Point Source Pollutants include sediment, lawn chemicals, litter, oil, household hazardous wastes, and many other items found in and around your home. The best way to combat Non-Point Source Pollution is educating yourself, and your family and friends on simple, cost effective measures we can implement to prevent water pollution.

## **What Can I Do?**

The following are some steps you can take to help keep our water clean.

**Don't Litter** – Litter often makes its way into our rivers, streams, and lakes. It can harm wildlife and increase pest populations. It is also illegal.

**Recycle Used Motor Oil** – Most instant oil change stores will take your used motor oil for recycling. Never pour oil down the drain or on the ground. One quart of oil can contaminate two million gallons of water.

**Use Lawn / Agricultural Chemicals Responsibly** – Always follow chemical directions carefully. Do not apply more chemicals than needed. Pay attention to the weather. Do not apply chemicals when rain

is likely. Consider using natural fertilizers and pest controls.

**Take Chemicals to Household Hazardous Waste Collections** – Your home contains many hazardous wastes including batteries, cleaning solutions, pool chemicals and others. These items can cause water pollution when disposed of improperly. Never pour household hazardous wastes down the drain or throw them in the garbage. Take them to household hazardous waste collection days.

**Clean Up Pet Waste** – If possible dispose of pet wastes in the toilet or garbage. These wastes contain nutrients and pathogens that can contaminate our waterways.

**Don't Dump in Storm Drains** – Storm drains or storm sewers often drain directly into a creek or river without any treatment. Anything poured down these drains becomes part of these waterways.

**Maintain Your Septic System** – Leaking or improperly functioning septic systems can cause water pollution. Having septic systems inspected or pumped every 3 to 5 years can help prevent water pollution. This maintenance can also improve the function of your septic system.

### **Site Selection and Delineation**

When selecting your monitoring site, please keep a few things in mind. Keep safety for the individual(s) conducting the monitoring in mind at all times. As a result, the sampling location must be easily accessible during the time(s) of the year when monitoring takes place. Avoid monitoring sites that are prone to flooding or have steep and/or unstable banks. The monitoring locations should be a fair representation of the system or condition being studied. Once selected, the monitoring locations should be easily identified on a map and in the field to have the ability to repeat the gathering of information at the same location each time monitoring takes place.

To become more familiar with your selected site, sketch a composite or take a picture of the area. Make sure to include unique characteristics of the area such as a large tree, large rock, land feature, or a bend in the stream. This completed sketch/photo will provide you with a visual record of your survey area. Remember you or another volunteer will be coming back to the same spot again and again, so be specific as you can.