Audubon International

Fact Sheet

Exploring Your Watershed

No matter where you live, your daily actions have a significant impact on the quantity and quality of local and national water supplies. Water is needed for drinking, household activities, agriculture, recreation, and industrial uses that support livelihoods— all of which depend upon sufficient, clean water supplies near the point of use. By exploring the watershed where you live, you can increase your awareness of local watershed issues and make a valuable contribution to water quality protection.

Originating as a tiny outlet stream for a northern Minnesota lake, the Mississippi River progresses into a river system that drains all or parts of 31 states before reaching the Gulf of Mexico.

What is a Watershed?

A watershed is the entire area of land that drains into a specific river or river system, from the highest elevations within the watershed to the lowest, contributing stormwater runoff from land and water flowing through streams. Sometimes called a drainage basin, a river's regional watershed includes the many smaller local watersheds of the creeks, feeder streams, lakes, and wetlands that drain into it.

How Do Land-use Practices Affect Water Quality in The Watershed?

Your nearest stream carries water that flowed over its entire surrounding landscape—including roads, parking lots, buildings, construction sites, shopping areas, garbage dumps, and green spaces—and leads eventually into major rivers, lakes, or groundwater. When rainwater and melted snow drain off the land they carry sediments, pollutants, and other dissolved materials in the water.

Because of how water flows, what happens in one area can have a significant positive or negative impact on water quality in other parts of the watershed. For instance, wetlands help to filter and clean surface water of sediments, nutrients, and toxins via a diversity of biological and physical processes. If wetlands are lost or degraded, the watershed's ability to produce clean water can be substantially reduced. Likewise, if streams are disturbed or overwhelmed by increased runoff from roads, logging, or developed areas, their banks can become unstable sources of sediments, thereby impairing water quality downstream.

What are the Primary Threats to Water Quality?

Contrary to popular belief, industrial outlet waste pipes are not the leading cause of water pollution, thanks to increased regulation through the Clean Water Act since 1972. It's the combined impact of many unregulated sources of pollution, or *non-point source pollution,* that contributes most to water quality degradation. The most significant sources of non-point source pollution vary depending on the land use types in a given watershed. Sources including agricultural and urban runoff, parking lots and roads, and storm drains contribute heavily to non-point source watershed contamination. What non-point sources occur in your watershed?

Why is Watershed Protection so Important?

All living things, *including people,* are inextricably linked to the watershed in which they live. Technological advances in water quality protection formed the foundation of public health, and threats to water quality continue today. Watershed protection contributes not only to safe drinking water and irrigation supplies for crops, but also flood management, recreational opportunities, wildlife habitats, and the healthy functioning of river systems. By becoming more aware of your connections to your watershed and doing your part to reduce harmful impacts, you can make a meaningful contribution to water quality protection.

Getting Started

Step 1: Identify Your Watershed.
To define your watershed, identify the nearest major river to where you live. If you live in a coastal area or the Great Lakes region, the nearest major water body may be a bay, or one of the Great Lakes. This is your *regional* watershed. For example, Audubon International headquarters are closest to the Hudson River, and thus are located in the *Hudson River watershed.* Visit this website to find your watershed by zip code: http://cfpub.epa.gov/surf/locate/index.cfm.

However, it is helpful to be even more specific in identifying your local or sub-watershed. What stream or creek is nearest to your property, where water from your land and neighboring properties drains? This nearest stream is your *local* watershed. Again, using our office as an example, a Hudson River tributary stream flows through our property. Thus, we are also in this tributary's watershed.

If a stream or creek does not occur on your property, look downslope for streams nearby where water from your land drains. A good clue may be at the nearest bridge. Consult a map for the names of local streams.

Step 2: Explore Your Watershed.
Using a topographic map of your local area, trace your local stream to its closest outlet point and then follow it to its final destination—the major river or other water body into which it drains. Note smaller feeder streams that enter it along the way. Next, take a walk or drive to explore land uses within your watershed. You may want to start at the source (the highest point) and follow a route that intersects the waterway as it flows downstream. Stop at various points to check out water quality and note land uses and potential pollution sources along the way. Are there areas dominated by farmland, industry, new developments, or urban centers? Do forested or wetland parcels provide natural filtration and wildlife habitat? If possible, observe the water quality at the final outlet point into the major river. How does water quality change as it flows through the watershed?

WATER QUALITY TESTING

Baseline water quality data for representative water bodies and water sources that may be affected by land management practices can be obtained by testing:

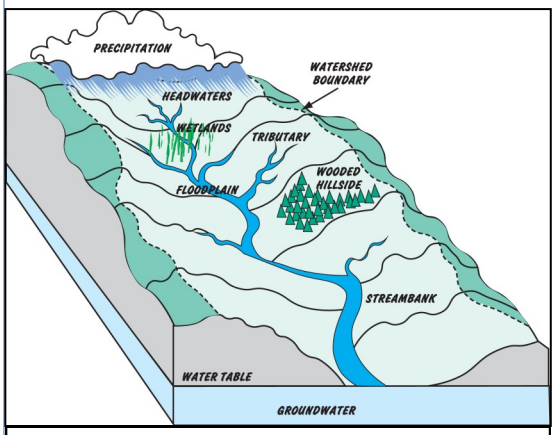
Physical characteristics*- dissolved oxygen, pH, temperature, and specific conductivity.*

Nutrients*- nitrogen (nitrate and ammonia), and total phosphorus.*

Macroinvertebrates*- surveys for aquatic organisms, particularly where water enters and exits the property to determine water quality in streams.*

Baseline tests should be conducted 4 times a year for at least one year.

Re-test water sources should problems occur, or at least one time per year going



Source: Allegheny County Conservation District

You can learn a lot about your local watershed by making a map of it. Your map can be based on an actual topographical map or you can make a schematic map starting at the water source and tracing known points to the stream's endpoint. Even a simple schematic map like the one pictured at left can help you consider how land uses in a watershed may impact water quality. This is an especially good project for teachers or parents to do with kids.

Step 3: Evaluate Your Impact and Take Steps to Reduce Pollution.
What you do on your property can affect water quality both on and off-site. As you begin to plan effective water management strategies, try to answer the following questions: How does water naturally enter your property: rain/snow melt, wetland, springs? What is the lowest point or points where water settles? Where does water leave the property, and where does it go? Could it pick up any contaminants because of your land use practices? Does water quality improve, decline or stay the same as it moves over your land?

If you do have a stream or pond on site, you can test its water quality to get a sense if land uses or management practices are having an impact. To indicate the impact of your property, test both inflow and outflow points. You can also evaluate potential impacts based on visually inspecting for algae overgrowth or turbidity, for example. Use the chart on the following page as a guide for evaluating ways you may be contaminating your local watershed.

By familiarizing yourself with your local watershed and taking steps to protect water quality, you will nurture your connection to this most vital resource. More importantly, you will come to appreciate how critical your efforts to maintain good water quality really are.

Pollution Source	The Problem	What You Can Do
Your Car	Oil, gas, and other fluid leaks from automobiles are all sources of watershed pollution. Auto exhaust also contributes to atmospheric deposition of toxics into waterways.	Regularly check your car for leaks and repair problems promptly. Make a commitment to reduce the amount of driving you do; combine trips, carpool, walk, etc.
Chemical Storage, Use, and Disposal	Products such as gasoline, motor oil, pesticides, and fertilizers *must be* properly stored, used, and disposed of to prevent pollution. Error and carelessness often cause water quality contamination.	**Storage:** Be sure storage containers and storage areas are leak proof. Always store liquid chemicals *below* dry products and on metal or plastic shelves. In case of a spill, the liquid products won't contaminate dry materials. **Use:** If you choose to apply chemicals to your property, select *slow release* or *natural organic* products. These are less likely to wash into waterways. Always read and follow label directions for application rates. **Disposal:** Dispose of chemicals and containers via hazardous waste collection, recycling, or proper disposal.
Trash Disposal	How often do you see garbage on the side of the road and along waterways? Garbage damages the health and safety of water sources and diminishes recreational and aesthetic value. Dumping trash in waterways is against the law.	NEVER litter, regardless of where you are. Properly secure garbage cans and recycling materials for curbside pick up. Consult your local town or waste-hauler for proper hazardous waste disposal.
Parking Areas	Runoff from parking areas has a direct negative impact on water quality, as the pollution coming from cars is carried over the impermeable surface without any filtration.	Inspect parking areas and parking lots for signs of automotive leaks. Plant rain gardens next to parking areas where possible. Allowing water to filter through grassy or forested areas before reaching storm drains or water sources helps to filter pollutants from parking areas.
Auto, Mower, and Small Equipment Maintenance	Spilled motor oil, gasoline, and lubricants can quickly contaminate wells and streams and damage aquatic organisms.	Use a funnel when adding new oil or gasoline. Replace the lid and carefully store containers of petroleum products to avoid accidental spills. Change motor oil or fill gas away from water bodies. Dispose of used petroleum products properly. Most gas stations or oil-change businesses will take your used oil.
Septic Systems	Failing septic systems slowly leach organic wastes. These can cause excessive algae growth in receiving waters due to the nutrients in organic waste. Pathogens, such as bacteria and viruses, may also enter the water and cause disease.	Have your septic system cleaned every three to five years. Do not pour household chemicals down the toilet or drain if you are on septic—they can destroy beneficial bacteria in the septic tank. Also, keep heavy vehicles away from the system—they can crush drainage tiles. If your leach field or septic tank is old or worn out, repair or replace it.
Cleaning Products	Phosphates, chlorine, and other toxic chemicals may harm local water supplies because they are persistent and toxic to human and animal health.	Avoid buying toxic household products. Read labels and purchase phosphate-free and least toxic products that are marked as safe for septic systems. Avoid chlorine bleach. Don't dump hazardous chemicals down the drain.
Erosion	Plowed fields, overgrazed pastures, construction, and logging can cause stream bank erosion. When soil washes into waterways, it clouds the water and degrades aquatic habitats.	Stabilize stream banks and lake shorelines. Re-establish vegetation as soon as possible whenever soil is exposed. Regrade and seed gullies to stabilize soils. Fence livestock and prevent animals from trampling in waterways. Address loss of agricultural soils due to erosion.