

World Water Monitoring and your Catchment.

World Water Monitoring Day™ (WWMD) is an international education and outreach program that builds public awareness and involvement in protecting water resources around the world by engaging citizens to conduct basic monitoring of their local water bodies.

An easy-to-use test kit enables everyone from children to adults to sample local water bodies for a core set of water quality parameters including temperature, acidity (pH), clarity (turbidity) and dissolved oxygen (DO). Results are shared with participating communities around the globe through the WWMD Web site.

World Water Monitoring Day is officially celebrated on **September 18**. The Water Environment Federation (WEF) and the International Water Association (IWA) plan to expand participation to one million people in 100 countries by 2012.

Your Task.

Investigate your catchment and see what is happening and check on water quality. Take your findings and enter them into the World Water monitoring Website.

1. How is the land around your area being used?

How land is used near and around a stream or lake can have a great impact on its condition.

In cities, towns and suburbs, houses, large buildings, parking lots and streets do not allow rain water to soak in. Instead, rain flows off these hard (or impervious) surfaces carrying pollutants such as oil, grease, bacteria, and litter directly into waterbodies. Farms, pastures, lawns and parks may send pesticides, herbicides, bacteria, nutrients, and eroded soil into waters when it rains.

Forested or natural areas next to streams and lakes protect them from pollutants washed over the land, and provide cooling, overhanging vegetation that serves as habitat and food for wildlife and aquatic animals.

2. What is the source of your waterbody—where has it come from and where is it going?

To understand your waterbody, it helps to know some facts about it. If it is a stream or river, where does it first start? Does it pass through cities, parks, forests, farms, factories, suburbs, or mined areas before it gets to you? Where does it go? Does it empty into a larger river, lake, or bay downstream from you?



If it is a lake, what streams, rivers, or springs feed into it? Is it a natural lake or was it constructed? How big is it? How many people live around or near it? Is it used for swimming, boating, and fishing, or are these activities not allowed?

When you find the answers to these questions, you will also learn about sources of pollution that may be having an impact on your waterbody.

3. Is there plant life growing alongside the waterbody (e.g., trees, shrubs, grasses)?



Trees, bushes and tall grasses growing alongside a waterbody can provide shade and habitat for fish and wildlife. They also serve as an important buffer – a protective area that absorbs pollutants such as fertilizers and pesticides and excess water that runs off the land when it rains. Waterbodies are healthier if they have lots of different kinds of trees, bushes and grasses overhanging and growing along their banks or shores.

Lawns next to the waterbody indicate that the natural buffer area has been altered. Lawns provide little or no habitat or shading for fish and wildlife, and allow pesticides, fertilizers, and grass clippings to run directly into the waterbody.

4. What is the weather like? What was it like the day before?



Recent weather conditions help us better understand the water quality measurements we take. For example, if it recently stormed or is raining now, water may be warmer and more turbid (cloudier) than usual because of the effects of storm water runoff (e.g., rain washing across hotter pavement, carrying soils and other pollutants from streets, farms, construction sites, and yards).

5. How does the water look? Is there trash in it? Is it oily or foamy?



Water appearance can indicate pollution. The more attention you pay to the appearance of your waterbody, the more likely you are to notice a change that indicates a problem. For example, look for:

Foam - Could be natural or the result of detergents and other pollutants;



Turbidity/Cloudiness - Could be natural or the result of too much soil or other material washed into the waterbody;

Oil - Marked by multicolored reflections in the water;

Colors - Could indicate acid drainage from mining (if orange) or the presence of too many nutrients causing an algae bloom (if green);

Trash - Does not belong in a waterbody!

Water odor can also indicate pollution. You should not smell rotten eggs, chlorine, or fishy smells coming from your waterbody. These indicate possible problems such as sewage runoff or leaks.

6. Do you see insects in or near the waterbody (hint: try turning over a few rocks)? If so, does it look like there are several different types?



Insects and other small organisms such as clams, mussels, snails, worms, and crayfish live in healthy streams and lakes. These tiny organisms are known as macroinvertebrates. They live under rocks and pebbles and in the mud on the stream bottom or lake bed, or attached to underwater plants, sticks and logs. Some macroinvertebrates can't live in polluted water, and others are very tolerant of pollution. Finding many different kinds of macroinvertebrates in a stream or lake is generally a clue that the waterbody is healthy



Try turning over a few rocks in the bubbly, flowing area of a stream (the riffle) or the nearshore bottom of a lake, and check them closely for small organisms. You can also check a handful of submerged leaves or sticks that have been underwater for a long time. If you can look at them through a magnifying glass or microscope, you will be able to see legs, wings, gills, tails, and many other features that can help you identify the organisms you found.

7. Is there other wildlife present (e.g. fish, frogs, birds)?



Wildlife such as fish, frogs, turtles, and birds need clean water, shelter, food, and places to breed and raise their young. Healthy waters support many different wild animal species; others may not support wildlife because of pollution and/or lack of healthy, diverse habitat in and next to the water.

Look for different kinds of fish in the quiet sections of your waterbody; watch and listen for water birds such as ducks, geese, and heron; keep an eye out for turtles basking on logs and rocks; listen for frogs; and look for prints that may indicate animals such as deer and fox are coming to your waterbody to drink and find shelter. If your waterbody has healthy, natural, forested areas along its edges, chances are good that wildlife is nearby.



8. Is the stream deep or shallow, wide or narrow?

Streams can be naturally deep or shallow, wide or narrow. Generally they have deep pools, where water movement is slow, and shallow runs, glides, and riffles where water moves quickly. These different speeds and depths offer habitat to different kinds of fish, macroinvertebrates, and wildlife.

Streams may become wide and shallow when too much water runs off paved surfaces into the stream when it rains. This rushing storm water carves into stream banks and stream bottoms, widens the path of the stream, and causes the banks to erode and collapse.

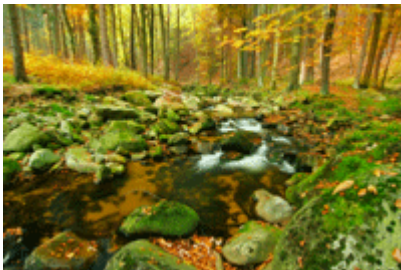
9. Is the streambank eroding (does it look like it's crumbling)?



Stream banks erode or crumble when there aren't enough plants and trees along the stream's edge to hold dirt (sediment) in place. When it rains and a great deal of storm water runs into the stream, the speed of the rushing water may also cut into the banks and cause erosion.

When stream banks erode, sediment enters the stream, where it can smother the habitat of insects and other stream creatures that live on the stream bed. Eroded stream banks also do not support the overhanging plants that cool the stream and provide habitat and food for wildlife and stream creatures. Look for areas of bare soil and collapsed trees along the edges of the stream.

10. Are there lots of rocks and logs in the stream?



Rocks and logs provide good habitat for fish and macroinvertebrates. In recent years, many streams have been modified, straightened and/or directed into concrete channels, usually to control them during floods or for irrigation purposes. Sometimes, engineers try to stop erosion by stabilizing stream banks with large stones, concrete or steel retaining walls, logs, and other artificial coverings. Look for these along your stream. Streams with artificial banks are less likely to have good habitat for fish and macroinvertebrates than streams with naturally forested stream banks.

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