Earth Gauge™ - World Water Monitoring Day

Environmental Information for Broadcast Meteorologists

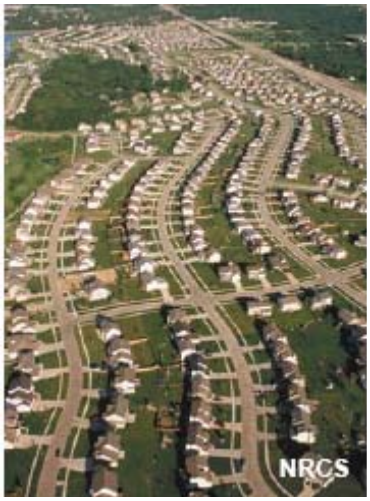
On Tuesday, September 18th, citizens around the world join in **World Water Monitoring Day**, a yearly event coordinated by the Water Environment Federation (WEF). For World Water Monitoring Day, volunteer monitoring groups, agencies, students, and the general public test four key indicators of water quality: temperature, pH, dissolved oxygen, and turbidity. The results of the testing are recorded in a database to provide baseline information for future events.

World Water Monitoring Day is a great opportunity to talk to your viewers about how wet weather events and other types of weather can impact water quality. Below, find some basic information about the four water quality indicators used for World Water Monitoring Day and how weather events can affect those indicators.

Indicator: Temperature

What does it tell you?

Temperature tells you how warm or cold the water is. High water temperatures can make it hard for some aquatic wildlife, insects and plant species to survive.



Weather Connections

Parking lots, driveways, roofs, and other paved surfaces in urban areas absorb heat from the sun, and when it rains, water running off of these surfaces can be up to six degrees warmer than runoff from natural areas. This warm rainwater can enter streams and rivers directly or through storm drains, and cause water temperature to rise.

What can I do?

Plant a tree! Not only do trees provide shade that helps moderate temperatures in urban areas, but their leaves and roots also absorb rainwater.

Indicator: pH

What does it tell you?

Testing water for pH measures the alkalinity or acidity of water (an example of an alkaline substance (base) is ammonia; an example of an acidic substance (acid) is vinegar). PH is measured on a scale of one to 14, one being the most acidic, and 14 being the most basic. High or low pH levels can make it hard for plants and wildlife to survive - most aquatic animals, including fish, snails, mussels, cannot survive in extremely acidic or basic water.

Weather Connections

Acid rain and snow can increase the acidity of water. Emissions from cars, trucks, power plants, and other sources release chemicals into the air. When these chemicals are absorbed by moisture, they fall to the earth as acid rain or snow.

What can I do?

An easy way to reduce your energy consumption is to use public transportation or carpool whenever possible. Combine trips, and if your destination is close by, consider walking or biking.

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Indicator: Turbidity

What does it tell you?

Measuring turbidity tells you how clear the water is. When soil or other organic particles are suspended in the water, it can become brown and murky, which blocks sunlight. Soil particles suspended in water also absorb heat, which can cause water temperature to rise, and particles can become lodged in fish gills, smother fish eggs, and hinder plant growth.

Weather Connections

One way soil ends up in water is through erosion. Wind and rain can carry soil away from yards, stream banks, and other areas, depositing them in storm drains or right into local waters.

What can I do?

Easy ways to prevent wind and rain erosion around your home are to seed any bare patches in your lawn, and cover any exposed soils around trees or shrubs with mulch. If you live near a stream or river, try not to mow all the way to the water - leaving some natural vegetation in place will help to keep stream banks from eroding away.

Indicator: Dissolved Oxygen

What does it tell you?

Dissolved oxygen tests determine how much oxygen is available in the water. Aquatic animals depend on dissolved oxygen for survival. Warm water holds less oxygen than cold water, and water with ample oxygen will support a wide variety of aquatic animals.

Weather Connections

Dissolved oxygen levels in water can drop when organic waste is deposited in the water – organic waste can include sewage, decaying leaves or plants, grass clippings from lawns, pet waste, and fertilizers, among other things. Wind and rain can transport these wastes to local water bodies. For example, when it rains, grass clippings, leaves, pet waste, and fertilizer can be carried from your yard into a storm drain, which is a direct pathway to the nearest body of water.

What can I do?

Don't leave yard waste in the street or sweep it into storm drains. Instead, use clippings as mulch, or start a compost pile. When using fertilizers or other chemicals in your yard, be sure to follow the directions, only use the recommended amounts, and clean up any spills.

Learn more about World Water Monitoring Day at www.worldwatermonitoringday.org

Sources

1. America's Clean Water Foundation. 2005 (Beta Version) World Water Monitoring Day Extended Lesson Guide. Available from www.worldwatermonitoringday.org

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3. The Ocean Conservancy. 2003. "Storm Drains and Water Pollution." Available from: www.oceanconservancy.org/site/DocServer/fsStormDrains.pdf?docID=212.

4. US EPA. 2003. "After the Storm: A Citizen's Guide to Understanding Stormwater." Available from: www.epa.gov/npdes/pubs/after_the_storm.pdf