

# How healthy is your lake?

Whether fed by rivers, streams or underground springs, lakes collect everything rain washes down from the surrounding **watershed**. Today, these fragile **ecosystems** are feeling the effects of runoff from asphalt, automobiles, septic wastes, fertilizers, household cleaners and other **pollutants**.

In its natural state, a lake can support many different kinds of plants and animals. Insects, **crustaceans** and fish hide among tangled plants in a tree-lined shore. Insects and fish **spawn** in rocky shores or gravel beds close to shore. And cold, clear, clean water provides the healthiest environment for wildlife and people.

Is your lake healthy? Here's an easy way to find out. Learn about the importance of oxygen, algae, fish, bottom life and sediment in making a safe, comfortable home for aquatic life. Then give your lake a check-up. Your teacher can help you decide if your lake is healthy.

## Vocabulary words

**Aquatic:** Plants and animals that live in water are aquatic.

**Crustaceans:** Aquatic animals that have a hard outer shell and jointed limbs; for example, a crayfish.

**Ecosystem:** The community of plants and animals that share a common environment.

**Photosynthesis:** The process where plants make food from light and nutrients.

**Pollutant:** A waste material that contaminates the water, air or soil, making it harmful for living things.

**Spawn:** To lay eggs.

**Watershed:** The land area that sends rain and snowmelt to a river or lake.

## Making Water Quality Analysis Easy for You



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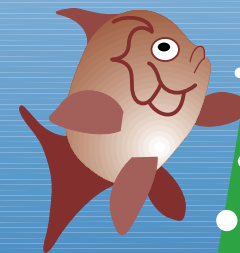
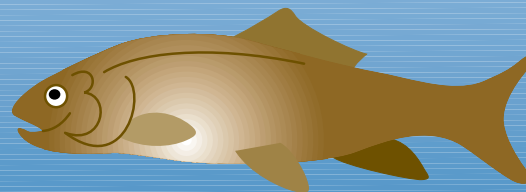
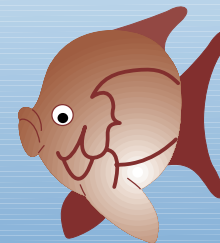
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## Fish

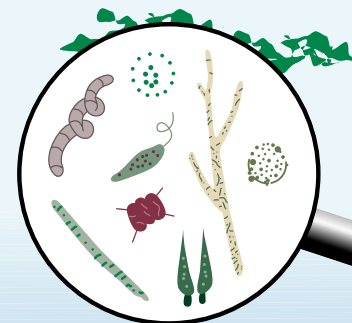
Some fish, like trout, are very sensitive to changes in water quality. If the lake doesn't have enough dissolved oxygen, or if the water is too warm, trout will die. Other fish, such as carp and catfish, flourish in warmer temperatures and can tolerate lower dissolved oxygen. If your lake has many trout, then it is probably very healthy.



## Bottom life

Many insects live on the bottom of a lake and can be seen with the unaided eye. These bottom dwellers are a food source for fish, crustaceans and other insects. They are sensitive to dissolved oxygen levels and water temperature patterns.

Using a net, collect some organisms from the bottom of your lake. What did you find? Finding a variety of insect larvae, nymphs and beetles indicates a healthy lake.



## Algae

Algae are microscopic, one-celled or multi-celled plants that live in water but do not have stems, leaves or roots. Too much algae can actually harm the lake ecosystem. That's because these microscopic plants consume oxygen at night, taking it away from fish, insects and crustaceans. Slippery, slimy algae can also be a nuisance if you like to swim in the lake.

## Oxygen

Oxygen dissolved in water is essential because **aquatic** plants and animals need dissolved oxygen to live. Cold water can hold more oxygen than warm water because gases are more easily dissolved in cold water.

Most oxygen dissolved in water comes from the atmosphere. Oxygen enters the water more readily when mixing occurs, as in waves on the lake's surface. Algae and plants that live in the water produce oxygen during daylight hours through **photosynthesis**.

## Sediment

A lake's bottom can be composed of rock, gravel, sand or silt. Rock and gravel provide feeding and spawning places for fish and insects, while sandy or silty areas provide poor habitat and low dissolved oxygen levels. Particles of silt and clay settle on the lake bottom, smothering fish eggs and insects that live there.

Sediment can be suspended in the water. This makes the lake look cloudy. Cloudy or turbid water clogs fish gills and prevents eggs from developing properly. Healthy lakes are clear and not noticeably green or tan in color.

