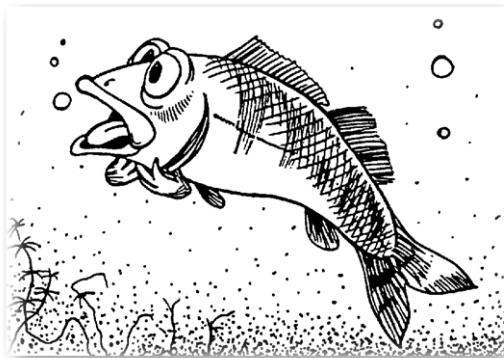


## Dissolved Oxygen (D.O.)

Have you ever seen a fish or a small insect swimming in a lake or aquarium? They need oxygen to live just like we do! Unlike humans, the oxygen they breathe is dissolved in water. To breathe underwater, fish and other aquatic organisms use gills instead of lungs. These gills breathe the oxygen dissolved in the water. As you know, a fish out of the water will die because it can no longer breathe.

### Why is D.O. important to the health of fish and insects in the water?

Imagine living in a place with polluted air. As the air quality becomes worse, the health of the people who live there becomes worse. The same is true in water. Clean, healthy water has plenty of dissolved oxygen. When water quality decreases, dissolved oxygen levels drop and it becomes impossible for many animals to survive. Some fish such as salmon and trout require lots of dissolved oxygen. Others such as carp can live in water with low oxygen levels.



### What causes D.O. levels in water to drop?



The main reason is the presence of organic waste. Organic waste comes from something living or that was once living. It comes from raw sewage in cities; runoff from rain and melting snow from farms and animal feedlots; and natural sources like decaying aquatic plants and animals, and fallen leaves in water.

Microscopic organisms, called decomposers, break down the organic waste and use oxygen in the process. Two common types of decomposers are bacteria and protozoa. More waste means more decomposers and more oxygen being used.

### Sources of D.O?

*Much of the dissolved oxygen in water comes from the atmosphere. In areas with waves, or where water tumbles over rocks, falling water traps oxygen and mixes it into the water. D.O. also comes from photosynthesis, the process by which plants use sunlight to make food and give off oxygen.*

*It is important to know that warmer water holds less oxygen than cold water. Also, the time of year and many other factors affect the amount of D.O. in water. What do you think happens when trees are removed from the river bank and the water warms up?*

