

Who Needs Dissolved Oxygen?

Organism	Minimum D.O. requirement (mg/L)
Trout	6.5
Smallmouth bass	6.5
Caddisfly larvae	4.0
Mayfly larvae	4.0
Catfish	2.5
Carp	2.0
Mosquito larvae	1.0



Mayfly Nymph



Sculpins

What Affects Dissolved Oxygen?

Temperature

The warmer the water the less oxygen it holds.

For example, at 14°C the solubility of oxygen in pure water (no dissolved salts) is 10.30 mg/L, while at 30°C it is only 7.56 mg/L.

Stream Speed

More oxygen from the air dissolves into shallow, turbulent streams.

It is harder for oxygen to get into deep, slow-moving or stagnant streams.



Fish kills like this happen when the dissolved oxygen concentration gets too low.

Biochemical (Biological) Oxygen Demand, BOD

Organic material (dead algae, leaves, waste from humans, animals, food, and paper mills, etc.) is consumed by bacteria in the water. As the bacteria feed upon the organic material, they use oxygen. If there is sufficient material present, the stream bacteria will use up all of the dissolved oxygen in the water. Then fish and most benthic macroinvertebrates die of suffocation. The amount of oxygen needed to break down the organic material is called BOD.



Students test for dissolved oxygen.

What Can We Do?

- Limit erosion to protect natural stream banks and reduce the amount of sediment that increases stream temperatures.
- Clean up after pets.
- Reduce runoff from impervious surfaces and disturbed areas. Runoff water is generally much warmer than stream water.
- Remove unneeded dams to speed up water and allow greater aeration as well as reducing water temperatures.