

Oxygen Content Factors in Water Gardens

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understanding basic pond **AERATION**

Hot air. Stagnant water. Algae clinging to pond structures and creeping across the surface. What keeps this from being a description of your pond, instead of the foulest of swamps?

Oxygen (O₂)

Oxygen is vital to pond inhabitants. Fish, plants, and even the good bacteria that break down organic waste use oxygen. Therefore, it is crucial that the oxygen level in pond water is maintained at an optimum level. Sometimes nature needs your help, through [aeration](#) and other good pond management practices, to make this possible.

How water and oxygen mix

The key to maintaining sufficient dissolved oxygen content in your pond is to understand the basic relationship between water and oxygen. Oxygen is introduced into pond water through two primary ways:

- **Surface exchange** - Encourage proper gas exchange by keeping an area of open water. This open area should be free of vegetation or ice so surface water is exposed to fresh air.
- **Mixing** - Water turbulence of any kind, regardless of how it's generated, significantly increases gas exchange. The fastest, easiest way to raise the oxygen level in your pond is with an [aerator](#), [fountain](#), or [waterfall](#).

Three key factors that affect pond oxygen levels:

- **Temperature** - Warm water loses its capacity to hold onto oxygen, particularly at temperatures above 85 degrees Fahrenheit. Warm water combined with poor water circulation can create pockets of oxygen-depleted water harmful to pond inhabitants.
- **Biological load** - Simply put, more pond inhabitants mean greater demand for oxygen. Without proper aeration, heavily stocked ponds can deplete the existing oxygen supply.
- **Water clarity** - Dark, murky or turbid water can limit the ability of plants to photosynthesize and generate oxygen. Maintain clear water for healthy plant growth.

Test, don't guess

All too often, pond keepers disregard this vital water parameter until they witness oxygen-deprived fish, gasping at the surface. Regular testing for [dissolved oxygen content](#) in your pond is highly recommended, especially during periods of warm weather.

It is not difficult to provide all the O₂ your fish will ever need (see our article, [How to Maintain Proper Pond Oxygen Content](#) for recommended steps), and to keep your pond healthy, clean and beautiful.