

# Dissolved Oxygen Map

## Oak Creek Watershed



- Meets Warm Water Quality Standards at least 85% of the time.
- ▲ Meets Warm Water Quality Standards between 50% and 85% of the time.
- Meets Warm Water Quality Standards less than 50% of the time.



# Dissolved Oxygen

Many factors influence the amount of dissolved oxygen in water including sunlight, water temperature, the presence of aquatic plants, turbulence of the water, and the amount and type of sediments, to name a few.

Just like humans, fish and other aquatic organisms need oxygen to live. When fish and aquatic organisms breathe, water moves past their gills, and oxygen in the form of microscopic bubbles (dissolved oxygen or DO) is transferred from the water to their bloodstream. Without enough oxygen in the water, desirable species of fish and other aquatic life cannot survive. The amount of dissolved oxygen in water is one of the most important water quality indicators.

In recent years, the very lower portion of Oak Creek has provided fishing opportunities for trout and salmon as they move up river in spring and fall. In order to sustain or improve fish populations, fish must have plenty of dissolved oxygen, as do the other aquatic organisms that make up the stream (or river's food chain and ecosystem).

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The summer season presents special environmental conditions that greatly influence the amount of dissolved oxygen in the water. Because warm water holds less oxygen than cold water, as summer progresses, less oxygen is available for fish and other animals than at summer's onset.



*The Oak Creek mill pond and falls found in the City of South Milwaukee.*

Additionally, as people begin to fertilize their lawns, "fertilized" stormwater runoff enters our waterways where it can encourage algae to grow to nuisance levels (blooms) that can further deplete dissolved oxygen. Algae are microscopic aquatic plants that add dissolved oxygen to the water during daylight hours by a process called photosynthesis. However, this process is reversed at night when this same algae consumes dissolved oxygen during respiration. Because fish, plants and other aquatic organisms need oxygen 24-hours a day, the day-to-night fluctuations of dissolved oxygen can be significant, even at times reaching the point where there is no available oxygen! Dissolved oxygen concentrations are generally reported in units of milligrams per liter of water (mg/L).

Wisconsin Warm Water Quality Standards require a minimum of 5 mg/L of dissolved oxygen in rivers and streams classified to support full fish and aquatic life.

## Dissolved Oxygen Stats

Dissolved Oxygen levels in the mainstem of Oak Creek fluctuate by location, but generally meets the state standard for dissolved oxygen more than 50% of the time. Data is lacking for the two main tributaries to Oak Creek: the North Branch and Mitchell Field Ditch. However, existing data indicate that dissolved oxygen standards are met more than 50% of the time. However, there still is a need for dissolved oxygen improvement throughout the Oak Creek Watershed based upon available information.