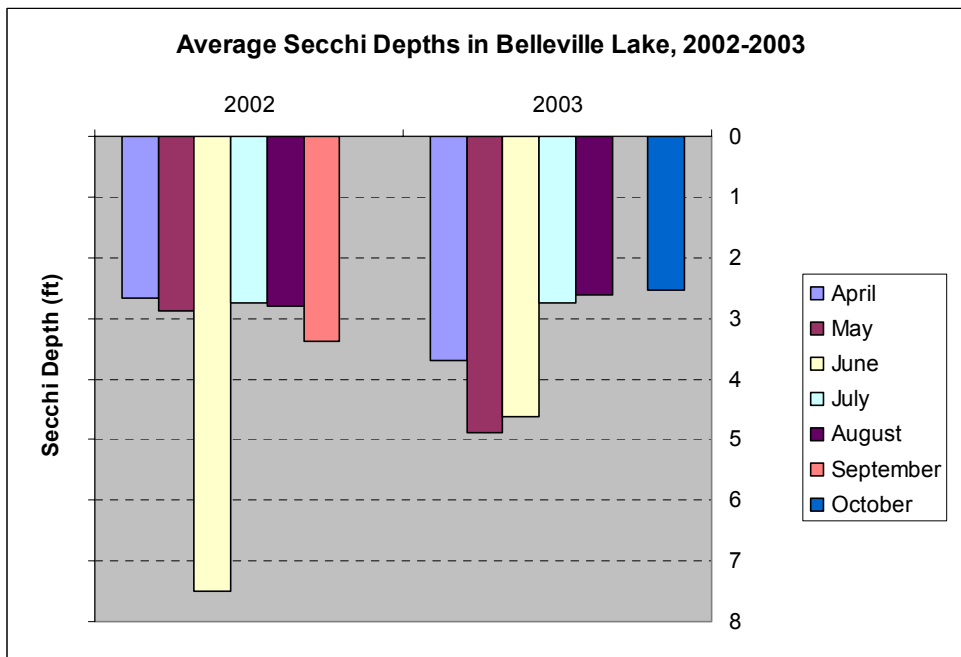


Water Quality Parameters

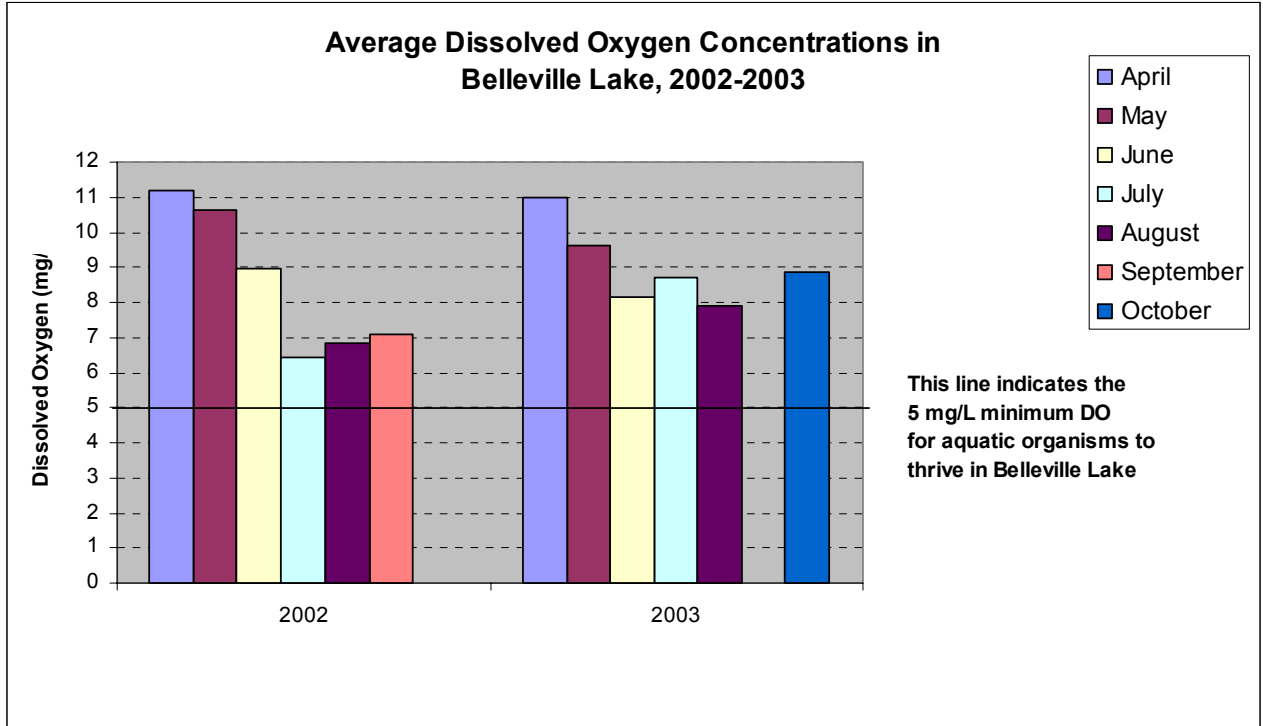
1. Secchi Disk

A Secchi Disk is an 8 inch diameter metal disk painted in alternate black and white quadrants, used to measure the water transparency. Secchi Disk works as a measurement by seeing how deep a person can see the disk through the water. The unit of the measurement is in feet. This is a good measure of water quality since transparency can be affected by the color of the water, algae, and suspended sediments. Transparency decreases as color, suspended sediments, or algal abundance increases. Therefore, the deeper a Secchi Disk can be seen, the better the quality of the water.



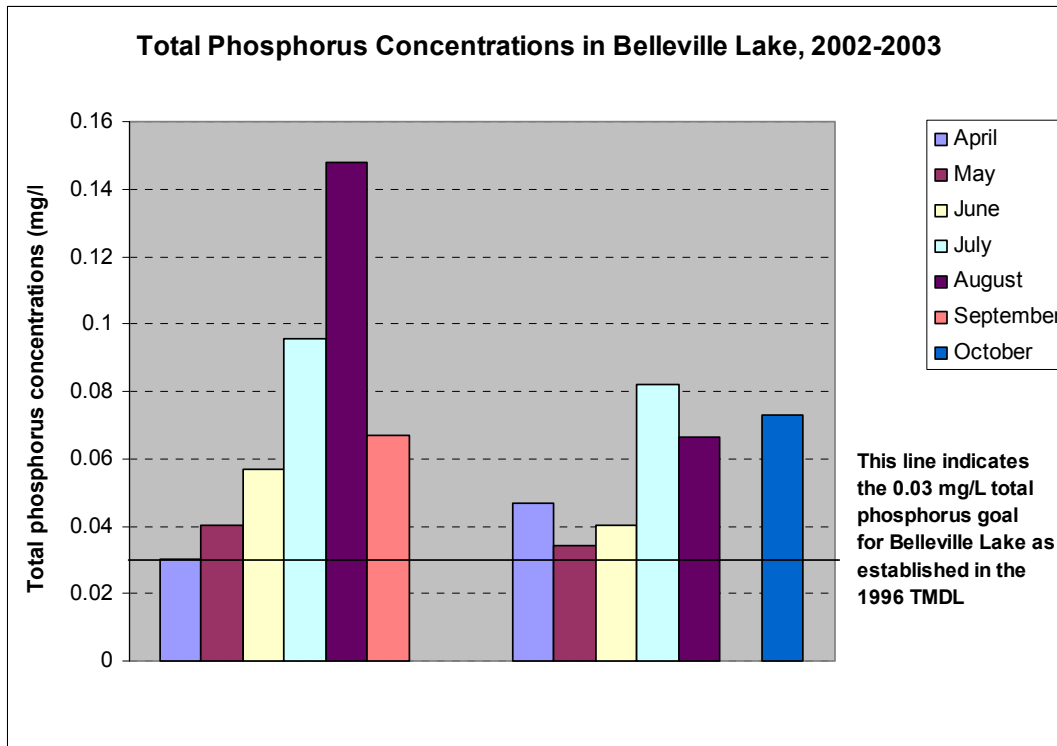
2. Dissolved Oxygen

Dissolved oxygen (DO) analysis measures the amount of gaseous oxygen (O₂) dissolved in water. Adequate dissolved oxygen is necessary for good water quality. Oxygen is a necessary element to all forms of life. Natural lake and stream purification processes require adequate oxygen levels in order to provide for aerobic life forms. As dissolved oxygen levels in water drop below 5.0 mg/L, aquatic life is put under stress. The lower the concentration is, the greater the stress. Oxygen levels that remain below 1-2 mg/L for a few hours can result in large fish kills.



3. Total Phosphorus Concentration

Phosphorus is one of the key elements necessary for growth of plants and animals. Rainfall can cause varying amounts of phosphates to wash from soils, lawns and landscape into nearby waterways. Phosphate will stimulate the growth of plankton and aquatic plants which provide food for fish. This increased growth may cause an increase in the fish population and improve the overall water quality. However, if an excess of phosphate enters the waterway, algae and aquatic plants will grow uncontrollably, choke up the waterway and use up large amounts of oxygen in respirations. This condition is known as eutrophication. The rapid growth of aquatic vegetation can cause the death of aquatic life because of the decrease in dissolved oxygen levels.



4. Nitrite (NO₂) and Nitrate (NO₃) Concentrations

Nitrogen is one of the most abundant elements. About 80% of the air we breathe is nitrogen (N₂). It is found in the cells of all living things and is a major component of proteins. However, this form of nitrogen is useless for aquatic plant growth. Only blue-green algae, the primary algae of algal blooms, are able to use N₂ and convert it into forms that plants can take up and use for growth: ammonia (NH₃) and nitrate (NO₃). Because these forms of nitrogen can be taken up by plants, their high concentrations also cause eutrophication. As explained in the total phosphorus section, eutrophication can cause the death of aquatic life because of the decrease in dissolved oxygen level. However, unlike phosphorus, nitrogen rarely limits plant growth, so plants are not as sensitive to increases of ammonia and nitrate.

Fertilizer from residential lawns, illegal sanitary sewer connections, inadequately treated wastewater from sewage treatment plants, and poorly functioning septic tanks are among the main sources of nitrate.

Nitrite/nitrate levels below 0.59 mg/l seem to have no effect on warm water fish.

