

## Water Quality Parameters

**Dissolved Oxygen** is a useful measure of the biological health of a stream and is important for the survival of fish and other macroinvertebrates such as mussels. The Illinois EPA has set a minimum standard of 5 mg/L for dissolved oxygen in streams and rivers.

**Turbidity** is a measure of the degree to which light can penetrate water. It is related to the amount of total suspended solids that are present. Algae depend on light for growth, so turbidity is an important factor for determining the extent of algal growth possible. The US EPA recommends a maximum turbidity of 6.4 NTU to ensure stream health.

**Total Suspended Solids** is a measure of the amount of particulate matter that is carried by a moving stream. It can be affected by storm flows, dredging activities, construction projects and the degree of erosion from the surrounding landscape.

**Fecal Coliform** is a type of bacteria that reside in the intestines of animals. The presence of fecal coliform in water does not necessarily mean there is fecal matter present in the water. Its presence in a water body, while not necessarily harmful on its own, may indicate the presence of other disease-causing organisms that also reside in animal intestines. There are many sources fecal coliform including wildlife, domestic animals and livestock, wastewater, and drainage from septic systems. The standard for allowable levels of fecal coliform varies depending on the intended use of a particular reach of stream.

**Nitrogen (N)** is an important nutrient for both plant and algal growth. Nitrogen can exist in a variety of forms, but is most easily used by photosynthetic organisms in one of two forms: ammonium-N and nitrate-N (see below). The sum of ammonium-N and nitrate-N is a close approximation of total N, although it also can be found in organic/particulate forms. Standards for N in Illinois streams are currently being discussed.

**Ammonium-N** is a measure of the amount of nitrogen from ammonium that is present in water. It is the preferred form of N for plants and algae. At high concentrations, high pH, and high temperatures ammonium can be toxic to fish because of free ammonia that forms. Therefore, permissible levels vary depending on the temperature and pH of the water.

**Nitrate-N** is a measure of the amount of nitrogen from nitrate that is present in water. In order to protect human health, the EPA mandates that drinking water contain less than 10 mg/L nitrate-N. It is up to individual watersheds to determine the maximum amount of allowable nitrate in surface streams required to ensure the biological health of the stream.

**Phosphorus (P)** is also an important nutrient for plant and algal growth. Phosphorus can exist in many forms in water, both particulate and dissolved.

**Total Phosphorus** is as the name suggests- a measure of the total amount of phosphorus. The Illinois EPA has set a maximum limit of 0.05 mg/L for total phosphorus in reservoirs. Standards for streams and rivers are currently being developed.

**Dissolved reactive phosphorus** is a measure of the amount of biologically available P in a water body. The amount of dissolved reactive phosphorus can affect the potential for algal growth.

**Sestonic algae** is algae that is suspended in the water column. The quantity of sestonic algae in a stream is estimated by measuring the amount of **chlorophyll-*a* (chl-*a*)** that is present. Algae can also grow on the stream bottom, but this form is more difficult to measure.