

## Water Quality Parameter Fact Sheet

### Total Suspended Solids (TSS)

Total Suspended Solids is a direct measurement of the concentration of suspended particles in water. Other pollutants (nutrients, pesticides, bacteria and metals) may adsorb to the particulate matter. TSS concentrations vary with physical factors such as soil type, land use, and stream flows.

### Total Phosphorus (TP)

Phosphorus is a key nutrient in the growth of plants. Therefore, the amount present in water greatly affects the amount of algae and other aquatic plants. Sources of phosphorus included fertilizers, animal waste, septic systems, plant decomposition, and sediment. Only a portion of TP is readily available for alga growth, however, TP indicates the total amount of phosphorus contained in the various forms of phosphorus.

### Orthophosphorus (OP)

Soluble reactive phosphorus is made up of the dissolved, inorganic phosphorus in the water and is usually measured as orthophosphorus. It is the only phosphorus compound readily available for use by plants.

### Total Kjeldahl Nitrogen (TKN)

TKN provides a measure of the ammonia-free and organic nitrogen in the water. The total amount of nitrogen in water is the sum of TKN and nitrate + nitrite nitrogen concentrations. To find the amount of organic nitrogen in the water, subtract TKN from the ammonia nitrogen concentration. TKN amounts are dependant of biological activity and the sources of pollution.

### Ammonia nitrogen (NH<sub>3</sub>-N)

NH<sub>3</sub>-N is an inorganic form of nitrogen, which is found in fertilizer, septic system discharge, animal waste and bacterial breakdown of organic matter. NH<sub>3</sub>-N becomes a concern if there are high levels of un-ionized ammonia, which can be toxic. Unionized ammonia is a function NH<sub>3</sub>-N concentration, pH and temperature. Also the conversion of NH<sub>3</sub>-N to nitrite nitrogen uses large amounts of oxygen which can kill organism due to low oxygen levels.

### Nitrite + Nitrate Nitrogen (NO<sub>2</sub>-NO<sub>3</sub>)

NO<sub>2</sub>-NO<sub>3</sub> is inorganic forms of nitrogen. The primary concern for high nitrate levels is found in drinking water that can result in methomoglobinemia (blue baby syndrome). Nitrite concentrations are generally not a major concern so lab analysis combines nitrate and nitrite levels.

### E. coli

Escherichia coli, a subgroup of fecal coliform bacteria, is present in the intestinal tracts and feces of warm-blooded animals. Like fecal, it is also used as an indicator of the potential presence of pathogens. There are many different strains of E. coli that are classified into more than 170 subgroups. Although most strains of E. coli are harmless and live in the intestines of healthy humans and animals, some strains produce a powerful toxin and can cause severe illness.

### Turbidity

Turbidity is the measure of cloudiness in water. Soil erosion, waste discharge, bottom feeders that stir up sediment, algae growth, and urban runoff are some examples that cause turbid water. Turbid waters become warmer as suspended particles absorb heat from the sun causing oxygen levels to decrease. Photosynthesis decreases with less light, resulting in even lower oxygen levels.

### Total Suspended Volatile Solids

Total suspended solids (TSS) is a physical water-quality parameter that quantifies all of the suspended solids in a sample. These solids include suspended solids which consist of organic and inorganic solids. The total suspended volatile solids (TSVS) analysis measure only the volatile solids which are organic solids.