Water Quality Lecture

Turbidity: When we measure turbidity, we're measuring how much dirt (pollutant), or suspended material is in the water. Turbidity is measured in units – called Nephelometric Turbidity Units or NTUs. A good tip when we're measuring NTU's is we're looking at how cloudy or dirty the water is. Too much turbidity is bad as these suspended solids prevent sunlight from reaching aquatic plants. Maintaining our river banks is one activity to help decrease turbidity or that cloudiness in our waterways.

Dissolved Oxygen: When we sample for this, we're measuring how much oxygen is available in the water. Dissolved Oxygen is what makes aquatic life possible. Changes in the concentration of oxygen may affect water-logged species, like many microinvertebrates. If they don't have enough oxygen they can die and this disrupts the food chain. Many fish have a certain range of dissolved oxygen they need in order to survive. (Cold water fish: 6.5 Mg/L)

Nutrients: Nutrients encourage algae and weed growth in waterways. Too much algae in the water will use up the oxygen, which is bad for aquatic organisms. There are two kinds of nutrients we're concerned with. One is **Phosphates** – often found in soap. The other is **Nitrates** – often found in animal waste and fertilizer. We measure nutrients in milligrams per liter or Mg/L.

Temperature: We measure this in degrees and it tells us how cold or warm the water is. Water temperature also greatly affects microinvertebrates, fish, and other aquatic species. Salmon, for example, like cold water. The temperature of the water actually changes their metabolism, speeding it up or slowing it down depending on the surrounding temperature. If the temperature changes too drastically, they won't function well. It will decrease their ability to reproduce and survive. What affects temperature? Removal of vegetation that provides shade along riverbanks, if our streams become too shallow, a balance of aquatic plants absorbs more heat, industries like power plants discharge warm water.

pH: This measures how acidic or basic the water is. pH is measured on a scale of 0-14. Acidic values (think lemons) are from 0-7, with 0 being the most acidic. Basic (think drain cleaners) are from 7-14. A neutral pH is 7 (think distilled water). A 7 or 8 is optimal for most fish. Water with an extremely high or low pH is deadly to aquatic life. An example of a pollutant that affects pH is industrial waste.