**pH**

**WHAT IS pH?**

Levels of pH determine which types of organisms can survive because certain enzymes in living organisms have an optimum pH at which they are able to function. pH is the negative log-base 10 of the hydrogen ion concentration:

pH = - log10 [H+] The pH scale measures acidity on a scale of 0 to 14, 1-6 being acidic, 7 being neutral, and 8-14 being basic. In areas of acid rain, water will receive acidic inputs in rain, snow, and ground water seepage.

**HOW TO FIND pH IN WATER:**

Obtain litmus paper (we got ours from our teacher) and simply place it in the water. Take you paper out and use the key on the side of the roll to determine the pH level in your water sample. Generally, water has a pH of 7 because it is neutral so don't be surprised if you water has a pH of 7 most of the time.

**HEALTH EFFECTS:**

Low pH levels may corrode pipes in water plants. The pipes may be costly to replace and the corrosion may release metal ions such as copper, lead, zinc, and cadmium into the treated drinking water (EPA, 1986). Furthermore, ingestion of heavy metals is very detrimental to humans.

**INDUSTRIAL EFFECTS:**

Near-neutral pH values are preferred but industries may tolerate a wide pH range. Extreme pH values are also detrimental. Low pH water may erode system pipes. Not only will the pipes be costly to replace, but the corrosion may also release metal ions such as copper, lead, zinc, and cadmium into the water (EPA, 1986).

**ENVIRONMENTAL EFFECTS:**

A reduction in pH, making it more acidic, may allow the release of toxic metals that would normally be extracted from the water system. Aluminum concentrations of 0.1 - 0.3 mg/l will generally increase the chances of mortality, alter growth, and inhibit egg production of fish.

A pH decrease of approximately 1.4 units of pH can disturb the aquatic system. Some animals are sensitive to acidy (low pH levels), especially during reproductive periods. The fertilization stage is affected by acid due to the disintegration of sperm.

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