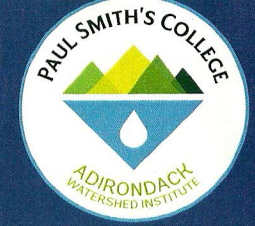
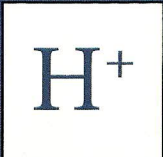


# WATER QUALITY INTERPRETATION

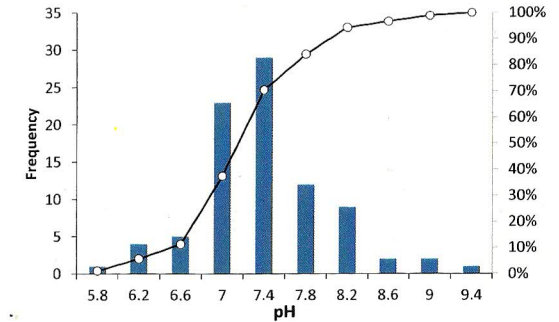


a quick reference guide provided by the Paul Smith's College Adirondack Watershed Institute

## pH



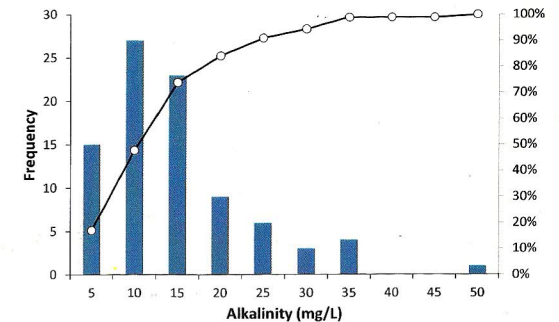
pH is a surrogate measure of the concentration of hydrogen ions in water. Hydrogen ions are very active, and their interaction with other molecules determines the solubility and biological activity of gasses, nutrients, and heavy metals. The pH unit exists on a logarithmic scale from 0-14, with 7 being neutral. pH values less than 7 indicate increasing acidity, whereas pH values greater than 7 indicate increasingly alkaline conditions. Some lakes in the Adirondacks are naturally acidic, while many others have been acidified by acid deposition. The average pH of a lake is a general way to assess acidity. Values between 6.5 and 7.5 are considered neutral, 5.0 to 6.5 are acidic, and less than 5.0 are considered critically impaired.



## Alkalinity



Alkalinity, or acid neutralizing ability, is the capacity of a water body to neutralize acids and thereby resist changes in pH. The amount of alkalinity plays a major role in whether or not acidic deposition will negatively influence a lake. Alkalinity is a function of the amount of carbonate in the water. Most Adirondack lakes exist on slowly weathering granitic bedrock that has a slow rate of calcium carbonate generation, and therefore lower acid neutralizing ability. The opposite is true for lakes that exist on bedrock derived from ancient ocean deposits, such as limestone. Soil depth also plays a role in acid neutralizing capacity, with deep soils offering more buffering ability. Lakes with less than 2 mg/L of alkalinity are extremely sensitive to acid deposition, while lakes containing alkalinity in the range of 10-25 mg/L have low sensitivity to acidification.



## Road Salt



Wide spread use of road salt over the last several decades has significantly increased the concentration of sodium and chloride in the environment. Adirondack roads receive over 200,000 tons of road deicers each year, with an annual average of 36 tons of salt applied to each lane mile of state roads. Adirondack Lakes have naturally low concentrations of chloride, with typical values near 0.3 mg/L. Lakes with salted roads their watershed have been found to contain up to 250 times more chloride than unpaved lakes. We consider lakes with less than 1.0 mg/L of chloride to have insignificant road salt influence, and lakes with greater than 20 mg/L to have a high amount of road salt influence.

