

SALINITY

What is salinity?

Salinity is a measure of the saltiness of a body of water. Salty water contains significant amounts of dissolved salts—the most common being sodium chloride (NaCl), this is also called the concentration. The concentration is the amount of salt (by weight) in water, measured as parts per thousand (ppt).

How is salinity measured?

Salinity is measured in the field using a hand-held device called a refractometer. Many water quality probes (such as the YSI probe in the middle picture) are also used to measure salinity.

What can salinity tell us about the Bay?

Salinity allows us to predict which types of organisms may occur in a certain section of the Bay. Oysters, for example, can only survive at salinity levels higher than 10 ppt. Largemouth bass, on the other hand, prefer completely fresh water (0 ppt).

Salinity varies throughout the Bay, ranging from very high levels (30 ppt) at the mouth by Virginia, to brackish (15ppt) in the mid-Bay, and completely fresh water (0 ppt) in the upper reaches of the tributaries.

Salinity affects dissolved oxygen in the water and the combination of water temperature and salinity is used to determine whether there is layering in the water column. Layering (or stratification) of temperature and salinity means there is no mixing between the oxygen-rich surface waters and the oxygen-deprived bottom waters.



Top and Bottom: A refractometer is one way of measuring the salinity level of a water sample (Chesapeake Bay Program, Virginia Sea Grant). Middle: A probe can also be used for salinity readings (P. Bergstrom).