SALINITY

What is salinity?

Salinity measures how much salt is dissolved in water. In an estuary like the Chesapeake Bay, salinity forms a natural gradient: waters near the mouth of the Bay are as salty as the ocean (around 35 parts per thousand or ppt), and the water becomes less salty as you move upstream, eventually reaching freshwater (close to 0 ppt). At a site, salinity can change based on factors like flow, depth, and tides.

How do we measure it?

Salinity is measured in parts per thousand (ppt) using different tools. One method is a handheld device called a refractometer, which uses light to measure salt concentrations. Salinity can also be estimated using a water quality probe that measures conductivity, since salty water conducts electricity more easily. In tidal areas, salinity can change with depth, so taking readings at the surface and deeper in the water is helpful.

Equipment	Cost	Monitoring Time
Refractometer	$	3 mins per site
Individual probe	$$	10 mins per site
Multiparameter probe	$$$	10–20 mins per site

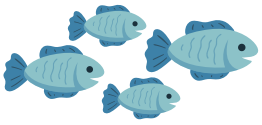
How is my water?

Salinity naturally varies dependent on location. For example, freshwater streams should be < 0.5 ppt, while brackish waters in tidal rivers range from 0.5–18 ppt. Near the mouth of the Bay, salinity is 18–35 ppt. Sudden changes from usual readings could reflect natural events or human-related impacts.

Why do we care?

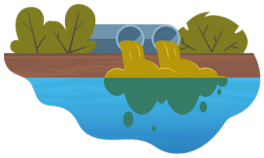
Aquatic Life

Many aquatic plants and animals are adapted for specific salinity measures, and changes in those conditions can harm the species that live there.

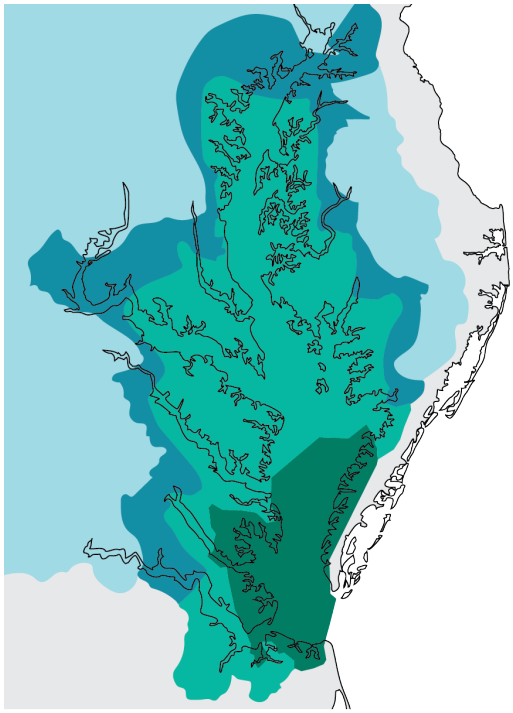


Pollution

An influx of salt into a freshwater stream can indicate pollution sources, such as road salt or mining activities.



Salinity Regimes



Freshwater (<0.5 ppt)

Slightly Salty (0.5–5 ppt)

Moderately Salty (5–18 ppt)

Very Salty (18–35 ppt)

PLEASE NOTE:

This fact sheet provides general information about salinity, but water monitoring in specific locations may require more detailed methods and considerations.