CONDUCTIVITY

What is conductivity?

Conductivity is a measure of how well water conducts electricity, and saltier water typically has a higher conductivity than freshwater. This depends on the presence of dissolved ions, or tiny, charged particles that come from salts and minerals. The more ions in the water, the better it conducts electricity. These ions can come from natural sources, like rocks breaking down over time, or from human activities.

How do we measure it?

Conductivity is measured in microsiemens per centimeter (µS/cm) using either an individual conductivity probe or a conductivity sensor on a multiparameter probe. In tidal areas, conductivity can be measured throughout the water column along with temperature, dissolved oxygen, and salinity.

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

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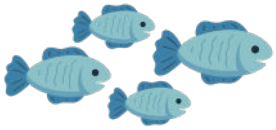
Why do we care?

Pollution

High conductivity in non-tidal streams can be caused by pollution from road salts, mining activities, and wastewater treatment plants.

Aquatic Life

High conductivity can stress organisms, impacting reproduction and growth. Increases in conductivity also make water more acidic, which hurts aquatic plants and fishes.



Stream Health

Measuring conductivity, along with other parameters, helps us know if a water body is able to support a vibrant ecosystem.

How is my water?

Conductivity changes depending on the water's salinity and has different thresholds based on geologic features. Consistently high values that are not related to local geology can indicate poor conditions—such as an influx of road salt—and stressful aquatic environments. In a stream with little bedrock erosion, a very good conductivity reading is typically less than 50 µS/cm. A concerningly high conductivity reading would be greater than 500 µS/cm. In tidal water, conductivity does not have discrete thresholds.

PLEASE NOTE:

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