

# TEMPERATURE



## What is temperature?

Temperature measures how much heat is present in water or air. It naturally changes throughout the day and across seasons. Water temperature affects other indicators, like dissolved oxygen, and plays a role in determining which plants and animals can survive in the water. States use temperature, and other indicators, to classify streams as coldwater or warmwater to protect species and ecosystems.

## How do we measure it?

Air and water temperature (measured in degrees Celsius) can be collected using an armored glass thermometer, a digital thermometer, or a multiparameter probe. A single reading at the surface is often enough for streams and smaller waterways. In tidal areas, water temperature can vary with depth, so measuring at the surface and deeper in the water is helpful.

Equipment	Cost	Monitoring Time
Armored glass thermometer	\$	3 mins per site
Digital thermometer	\$	3 mins per site
Multiparameter probe	\$\$\$	10–20 mins per site

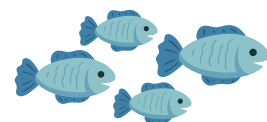


Photo by the Alliance for the Chesapeake Bay.

## Why do we care?

### Aquatic Life

Different species have different temperature needs, and coldwater species are highly sensitive to small increases in water temperature. Coldwater streams are essential for supporting recreational fishing species.



### Changing Climate

Temperature is a key indicator of climate change. Tracking water temperature over time helps us understand how ecosystems are shifting.



### Ecosystem Health

In the Bay, layers can form when warmer, fresher water sits on top of colder, denser, saltier water. These layers prevent mixing, which can lead to low dissolved oxygen and negatively affect ecosystem health.



## How is my water?

In tidal waters and the Bay, temperature thresholds vary depending on the species and habitat; for example, high temperatures can be harmful for seagrass (Eelgrass,  $> 28^{\circ}\text{C}$ ) or low temperatures can be harmful for fish (Spotted Seatrout,  $< 3^{\circ}\text{C}$ ). In non-tidal areas, the Mid-Atlantic Tributary Assessment Protocol (MTAC) provides thresholds for stream temperatures. Warmwater streams should be  $< 32^{\circ}\text{C}$  ( $90^{\circ}\text{F}$ ). Coldwater streams should be  $< 20^{\circ}\text{C}$  ( $68^{\circ}\text{F}$ ). State and local thresholds vary.

### PLEASE NOTE:

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