

WATER QUALITY STANDARDS – TEMPERATURE FACT SHEET

Water temperature plays a critical role in the health of aquatic ecosystems. Fisheries biologists have long recognized that the distribution and abundance of fish communities found in streams depend on water temperature. For example, brook trout prefer colder waters while redbreast sunfish and smallmouth bass prefer warmer waters. In order to support healthy aquatic communities in Connecticut's waters, the Water Quality Standards include standards to address water temperature. The purpose of this page is to bring together all the current information on standards, data, studies, and examples for managing the impacts from thermal discharges from other states.

Why Stream Temperature is Important

Fish do not internally regulate their body temperature. Instead, it is controlled by the temperature of their surrounding environment. Temperature can directly affect fish by influencing their growth, health and reproduction. Since fish are very sensitive to temperature, temperature is one of several factors which are important in establishing acceptable habitat. When thermal discharges alter water temperature outside of the range that is tolerated by fish species, this effectively reduces the amount of habitat available to that species. Temperature changes can also alter water quality. For example, as water temperature increases, oxygen content decreases. These secondary water quality changes associated with water temperature also affect fish.

Stream Temperature Standards

The [Connecticut Water Quality Standards](#) include provisions that address water temperature, focused on maintaining conditions that closely approximate natural conditions. These standards focus on allowable temperature increases above natural conditions provided that healthy aquatic communities are supported.

Connecticut Water Quality Standards: Temperature Criteria Excerpted from 22a-426-9 Table 1	
Surface Water Classification	Surface Water Criteria for Allowable Temperature Increase
Class AA, Class A and Class B	There shall be no changes from natural conditions that would impair any existing or designated uses assigned to this Class and in no case exceed 85° F, or in any case raise the temperature of surface water more than 4° F.
Class SA and Class SB	There shall be no changes from natural conditions that would impair any existing or designated uses assigned to this Class and, in no case exceed 83° F, or in any case raise the temperature of the receiving water more than 4° F. During the period including July, August and September, the temperature of the receiving water shall not be raised more than 1.5° F unless it can be shown that spawning and growth of indigenous organism will not be significantly affected. The allowable temperature increase resulting from discharges in the estuarine segments of the Housatonic, Connecticut and Thames Rivers shall be consistent with the criteria for the non-tidal segments.

Available Information on Water Temperature:

Stream Temperature Data, Models and Tools for Connecticut and New England

- [Volunteer Stream Temperature Monitoring \(V-STeM\) Network](#) (CTDEEP)

This web page provides information on Connecticut's Volunteer Monitoring network for stream temperature monitoring. The page also provides a link to the Spatial Hydro-Ecological Decision Systems (SHEDS) Stream Temperature Database. Water temperature data are uploaded to this database and are available through an interactive map which also allows for data download. Note: This database does not work with the Internet Explorer web browser.

Studies on Water Temperature in Connecticut and New England

- [Summer Thermal Thresholds of Fish Community Transitions in Connecticut Streams](#)
- [Stream Temperature Data and Modeling Meeting Presentations May 2014](#) (EPA, USFWS, North Atlantic Landscape Conservation Cooperative, USGS)

Examples: Implementation of Temperature Standards in New England

- [Moon Brook Temperature TMDL](#) (Vermont Department of Environmental Conservation)
- [Mussey Brook Temperature TMDL](#) (Vermont Department of Environmental Conservation)

Water Quality Standards & Temperature Guidance from EPA

- [EPA: Quality Criteria for Water 1986](#)
- [EPA Water Quality Standards Handbook Chapter 3: Water Quality Criteria, Section 10 Temperature Water Quality Criteria](#)
- [EPA Region 10 Guidance for Pacific Northwest State and Tribal Temperature Water Quality Standards](#)
- [Northwest Water Quality Temperature Guidance for Salmon, Steelhead and Bull Trout](#) (EPA Region 10)
- [Temperature Criteria for Freshwater Fish: Protocol and Procedures](#) (EPA-600-3-77-061, May 1977)