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| |  |  | | --- | --- | | [Wilkes University Environmental Education, Training Monitoring](http://www.wilkes.edu/) | **Wilkes University Center for Environmental Quality  Environmental Engineering and   Earth Sciences** | |

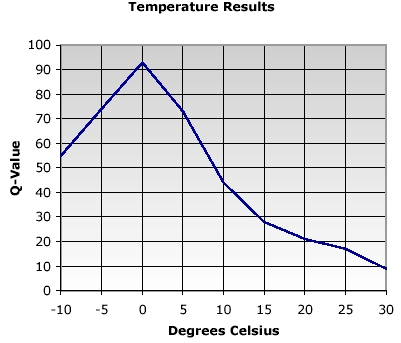


**Why Temperature Is Important**

Temperature is a critical water quality and environmental parameter because it governs the kinds and types of aquatic life, regulates the maximum dissolved oxygen concentration of the water, and influences the rate of chemical and biological reactions. The organisms within the ecosystem have preferred temperature regimes that change as a function of season, organism age or life stage, and other environmental factors. With respect to chemical and biological reactions, the higher the water temperature the higher the rate of chemical and metabolic reactions.  
  
Seasonal variations in stream temperature may be caused by changing air temperature, solar angle, meteorological events, and a number of physical aspects related to the stream and watershed. These physical features include stream origin, velocity, vegetation types and coverage, stream configuration, land-use, and percentage of impervious area. For example, a narrow, deep well-shaded shoreline reduces the impact of warming by the sun; whereas, a wide shallow stream would be more impacted by solar heating.

In a warm water streams, the temperatures should not exceed 89 degrees Fahrenheit). Cold water streams should not exceed 68 degrees (Fahrenheit). Often summer heat can cause fish kills in ponds because high temperatures reduce available oxygen in the water.

**Temperature (Water Quality Index Calculator)  
Based On Temperature Change from a Reference Site**



Source of Image: <http://www.nsf.org/consumer/just_for_kids/wqi.asp>  
Great Site !

1. At the control site place the thermometer about 0.5 inches from the bottom or a few inches below the water surface.  Keep the thermometer in the water until a constant reading is attained (approximately two minutes).  These try to collect temperature in a portion of the stream that is shaded.
2. Record your measurement in Celsius. (To convert from Fahrenheit to Celsius, subtract 32 and multiply by 5/9.)
3. Repeat the test temperature at your test site. Subtract the upstream temperature from the reference site from the temperature downstream and record the result as temperature change (C).  Try to collect temperature data under similar conditions and using the same thermometer-  thermometer should be readable to 0.1 C.
4. Input the Temperature Change in to the Javascript Calculator or interpret from the graph.

Top of Form

Temperature change:  (C)

Water quality index: 

Bottom of Form

Source of Java Calculator: <http://www.fivecreeks.org/monitor/tc.html>

[Return to Water Quality Index Page](http://www.water-research.net/watrqualindex/index.htm)

For More information about the Environmental Quality Center, please contact:

[Attn: Mr. Brian Oram, Professional Geologist (PG)](http://staffweb.wilkes.edu/brian.oram/index.htm)  
Laboratory Director  
[Wilkes University](http://www.wilkes.edu)  
[Environmental Engineering](http://www.wilkes.edu/pages/490.asp) and [Earth Science](http://www.wilkes.edu/pages/492.asp) Department  
PO Box 111  
84 West South Street  
Wilkes-Barre, PA 18766

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