https://stroudcenter.org/

https://www.facebook.com/BCTCWA/

Stream Temperature - Why Should You Care

https://www.berntownship.org/newsite/

berkscd.com

A Problem Across The World

- Stream temperatures are vital indicators of the health and well-being of aquatic ecosystems. As responsible stewards of our environment, it is crucial for citizens as well as municipal governing bodies to understand the significance of monitoring stream temperatures and its impact on the environment.
- The U.S. Geological Survey maintains thousands of stream gauges across the United States. This indicator shows how average water temperatures throughout the year changed between 1960 and 2014 at 129 stream gauges located across the Chesapeake Bay region.
- From 1960 through 2014, water temperature increased at 79 percent of the stream sites measured in the Chesapeake Bay region. More than half of these increases were statistically significant. Only 5 percent of stations had a significant temperature decrease over the same period. Stream Temperature (epa.gov)

Why is Rising Stream Temperature a problem?

- Monitoring stream temperatures helps identify critical points that are crucial for aquatic life. The following are key temperature ranges and their effects on aquatic ecosystems:

- Optimal Range: Healthy streams typically have temperatures ranging between 40°F - 75°F, supporting diverse aquatic life, including fish, insects, and plants.

- Upper Temperature Threshold: As temperatures rise beyond 75°F, various negative impacts occur, such as reduced dissolved oxygen levels, increased stress on fish, and potential disruption of aquatic life reproductive cycles.

- Lower Temperature Threshold: Extremely low temperatures, below 40°F, can cause cold-water stress, reducing the metabolic rates of aquatic organisms and affecting their growth and reproduction.

Add Source?

What Causes Stream Temperature to Rise?

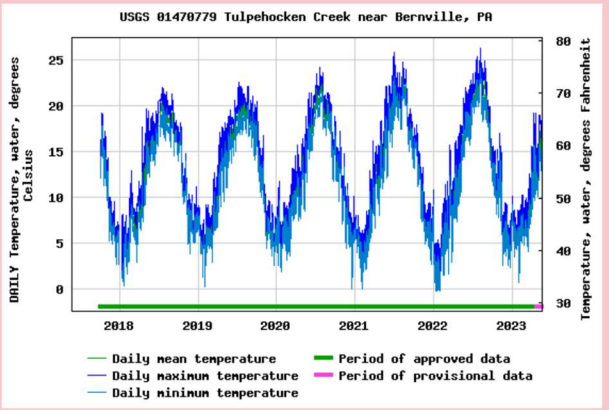
- Rising air temperature has a significant impact on stream temperature. Also, amount and proximity of developed impermeable surfaces near bodies of water have a significant influence on stream temperatures.

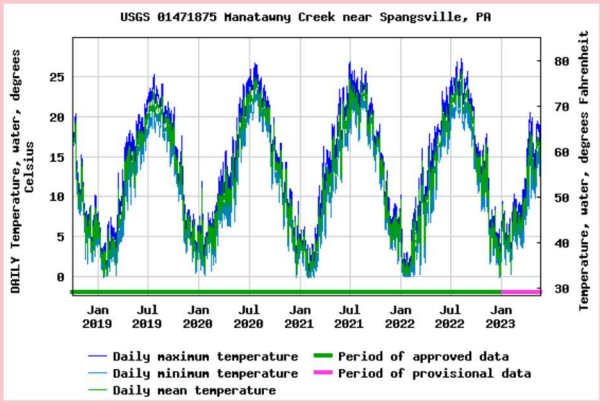
- Increased Runoff: Impermeable surfaces, like concrete and asphalt, prevent water from infiltrating the ground. This results in higher surface runoff, which carries pollutants, sediment, and excess heat into nearby streams.

- Reduced Shade and Vegetation: Development often leads to the removal of trees and vegetation along stream banks, reducing shade and increasing water temperature due to the lack of natural cooling mechanisms.

Other Potential Causes:
- Impoundments or dams
- Discharge of heated effluents
- Channel alteration
- Removal of water from surface or groundwater Add Source?

Stream Temperature is rising in the Tulpehocken Creek Watershed





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What Can You Do To Help?

Homeowners and Residents

• Educate yourself

• Get outdoors and observe the streams in your neighborhood.

• Reduce runoff from stormwater by installing rain gardens and rain barrels on your property.

• Go on line to USGS website where you can see real time data monitoring larger streams https://dashboard.waterdata.usgs.gov/app/nwd/en/?aoi=usgs-01471510

• Go on line to find real time data on smaller local streams at https://monitormywatershed.org/sites/MSPL2S/

• Attend local municipal meetings and find out what development is planned for your township.

• Check your municipality's website for links to their ordinances and see if they have a Riparian Buffer ordinance. https://ecode360.com/BE1247

• Speak up. Educate Others.

Considerations for Municipal and Private Property Owners

To mitigate the impacts of impermeable surfaces and preserve stream temperatures, the following strategies should be considered:

• Green Infrastructure: Implementing green infrastructure practices, such as permeable pavements, green roofs, and rain gardens, helps manage stormwater runoff and reduce the impact of impermeable surfaces.

• Riparian Buffer Zones: Maintaining or creating vegetative buffers along stream banks helps provide shade, stabilize the banks, and filter pollutants before they enter the water.

• Land Use Planning: Encourage sustainable land use practices that prioritize preserving natural vegetation, minimizing impervious surfaces, and incorporating stormwater management techniques

Conclusions

• Awareness of, observing and monitoring stream temperatures is the first step toward mitigating the impacts of contributors to stream temperature rising.

• Controlling the causes of stream temperature increases is essential for maintaining healthy aquatic ecosystems.

• By understanding the critical points, recognizing the negative effects of development, and implementing effective strategies, citizens along with municipal governing bodies can play a crucial role in safeguarding our water resources for future generations.

Sources for Assistance and Additional Information

Model Ordinances
Grants
Watershed Association
Master Watershed Steward
Penn State Extension
DEP
EPA