### Summer water temperature and chloride snapshot data for 44 sites in the Brodhead Watershed

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## Temperature and Chloride Snapshot August 9-10, 2023

- Volunteers collected data at 44 sites throughout the watershed on August 9 and 10, 2023
- Temperature and Conductivity measurements were recorded.
- Temperature was taken mid-afternoon on a warm sunny day to approximate daily high water temperature
- Chloride values were generated by converting snapshot conductivity readings to chloride using conductivity-chloride rating curve from historic BWA data.
- Effects of chloride and temperature on stream health are shown.



Baseflow chloride concentration as a stressor to aquatic life

- Red >120 mg/l = Chronic Toxicity
- Yellow = 50-120 mg/l = **Increasing Stress/Hazard**
- Green <50 mg/l = Lower</li> **Risk/Natural Conditions**

120 mg/l chronic toxicity threshold (Canadian Council of Ministers of the Environment, 2011); 50 mg/l hazard/stressor threshold (Maryland Biological Stressor Identification Process 2009; OH EPA/Miltner 2021); 30 mg/l upper limit of regional natural range (Griffith 2014; historic data, Stroud Water Research Center)



Version 2.0









#### Chloride values in relation to toxicity levels



Synoptic sampling (i.e., "snapshot") conducted August 9-10, 2023; Chloride numbers generated by converting snapshot conductivity readings using conductivity-chloride rating curve from historic BWA data.

Temperature/Trout Fishing Guidelines Yes/Be Gentle/No

- Red >21 C°(70 F°) = Do Not
  Fish
- Yellow 19-21 C° (66-70 F°) =
  Be Gentle (no photos, barbless hooks, fast release)





Green <19 C° (66 F°) = Fish</li>
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USGS SHEDS Brook trout model, NV DEP 2017, Chadwick et al. 2015, Kratzer 2013, Wehrly et al 2007; personal communication Keith Fritschie (VA DEC); PA DEP Ch 93 Water Quality Standards



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# Snapshot temperature data in relation to trout fishing recommendations



Synoptic sampling (i.e., "snapshot") conducted August 9-10, 2023; Low flow water temperature measured mid-afternoon on average or above average temperature summer day.

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