

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

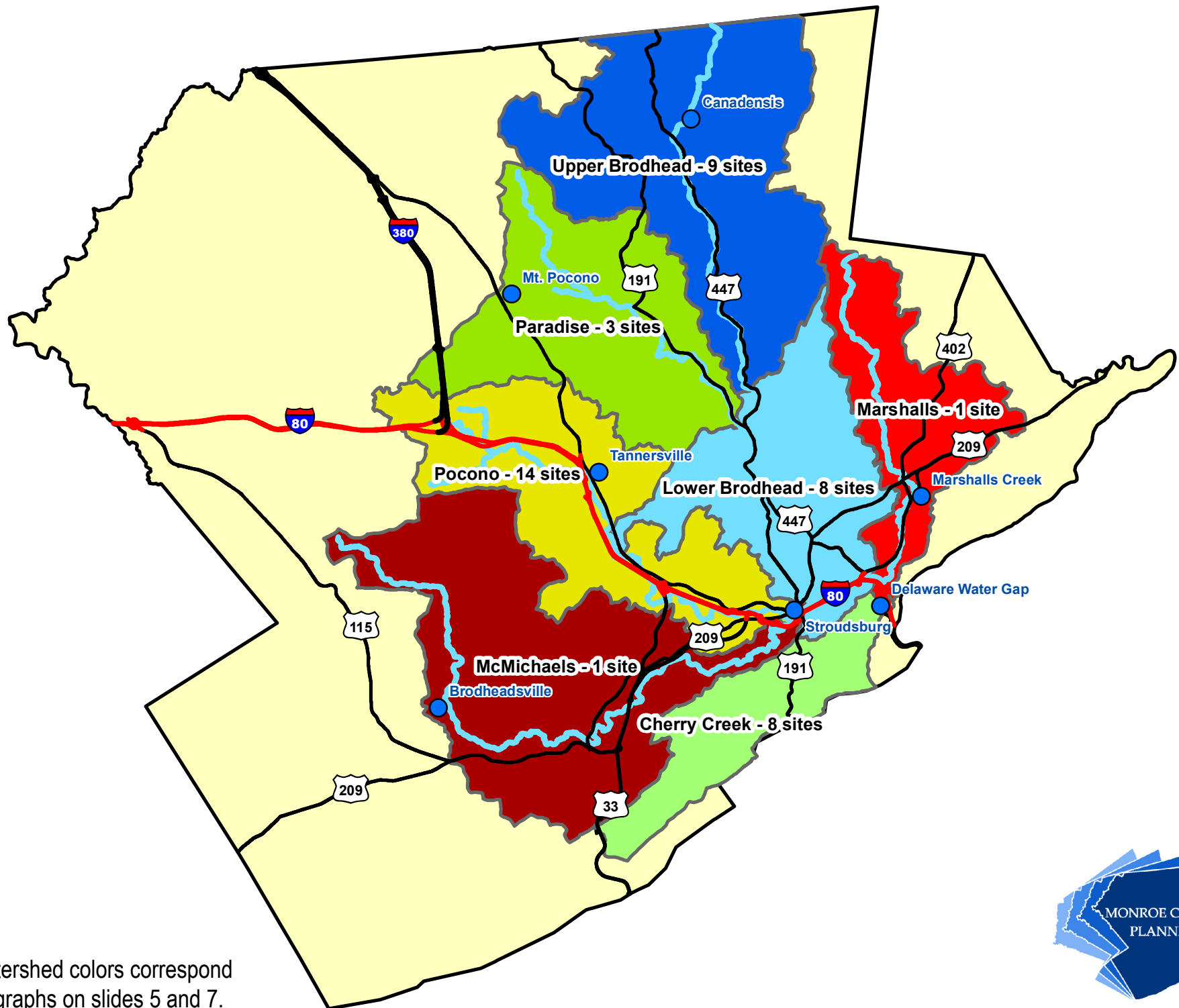
Prepared by David Bressler (Stroud Water Research Center) for Brodhead Watershed Association
Support from John Jackson (Stroud Water Research Center) and Keith Fritschie, NJ Trout Unlimited Volunteer



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.



Sub-watershed colors correspond to data graphs on slides 5 and 7.



Baseflow chloride concentration as a stressor to aquatic life

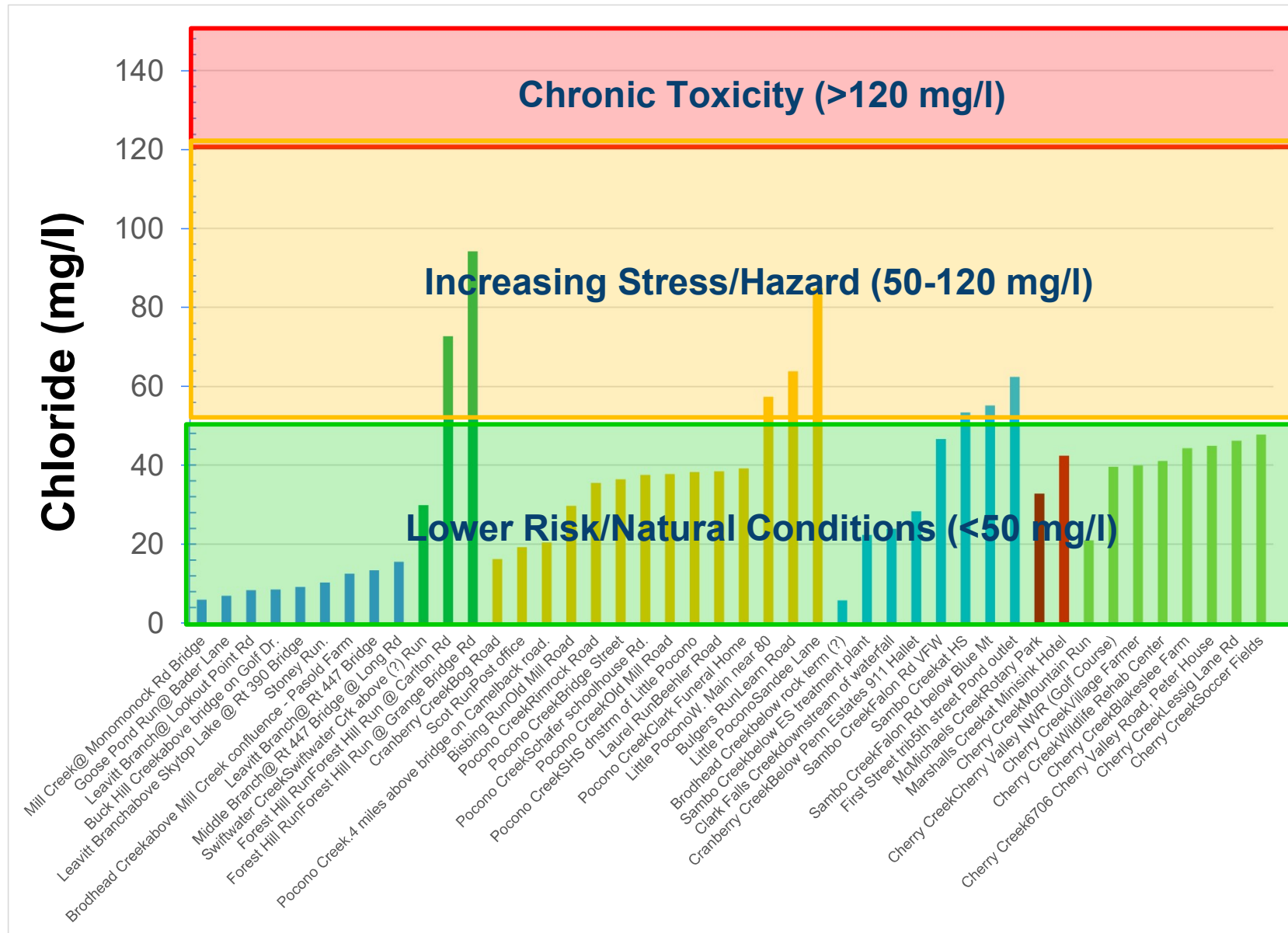
- Red >120 mg/l = Chronic Toxicity
- Yellow = 50-120 mg/l = Increasing Stress/Hazard
- Green <50 mg/l = Lower Risk/Natural Conditions



Version 2.0

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)

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 $>21\text{ C}^{\circ}$ (70 F°) = **Do Not Fish**



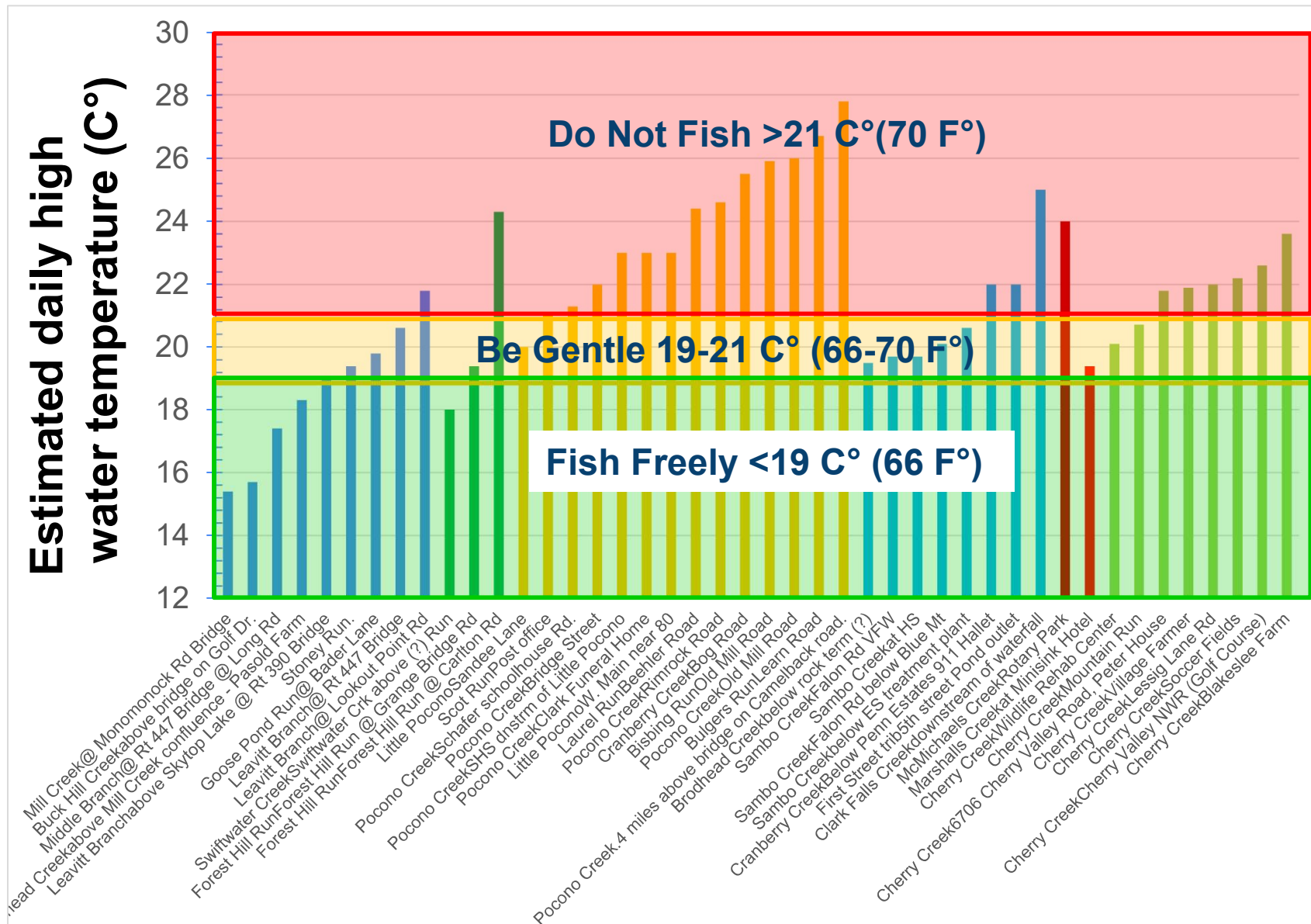
- Yellow $19\text{-}21\text{ C}^{\circ}$ ($66\text{-}70\text{ F}^{\circ}$) = **Be Gentle** (no photos, barbless hooks, fast release)



- Green $<19\text{ C}^{\circ}$ (66 F°) = **Fish Freely**



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.

MANY THANKS TO THE FOLLOWING VOLUNTEERS WHO ASSISTED WITH 2023 SNAPSHOT

Upper Brodhead – Betty Fetherman, Sally Duffy

Paradise – Dean Neely

Pocono – Sonali Sharpe, Kyla Coogan

Lower Brodhead – Wendy Lichty, Rick Croll

McMichael – Wendy Lichty

Marshalls - Wendy Lichty

Cherry – Allison Heinsohn, Leighann Stratakos

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and

David Bressler, Stroud Water Research Center, Data Analysis and graphs

