EBTJV Steering Committee Meeting Agenda
June 18, 2024 1-3pm ET

Participants:

Lori Maloney, EBTJV Coordinator
Jacob Rash, EBTJV Chairman; NCWRC
Lee Simard, EBTJV Vice Chairman; VFWD
Ross Shramko NJFW
Leon Brotherton, Georgia DNR
Kory Whittum, Maine DIFW
Nat Gillespie, USDA FS
John Magee, NH F&G
Will Duncan FWS
Brad Fink VA DWR
Matt Lawrence - Maryland DNR
Jerrod Parker, Maine DIFW
Steve Perry
Greg Kozlowski, NY DEC
Fred Henson, NYS DEC
Douglas Austen, AFS, NFHP Board Buddy
Bryan Moore, TU, Board Buddy
Justin Herne, USDA FS
Than Hitt, USGS – EESC (EBTJV SDC)
Matt Fairchild, USDA
Jaime Masterson, USFWS
Jason Coombs, USFWS

The following notes summarize the business conducted during the meeting held on **June 18, 2024**

This Zoom meeting was called to order by Chair Jacob Rash at ~1:00 p.m. ET.

Steering Committee Roll Call (intros) & Establishment of Quorum (**Jake Rash**)

- The first order of business was for the Chair to establish a quorum (≥10 SC members), which was achieved as 13 Steering Committee members participated in the meeting.
- All attendees introduced themselves. In addition to current EBTJV Steering Committee members, there were several guests present.
- At the end of the introductions, Lori Maloney introduced Douglas Austen, and explained his attendance in context of the Board Buddy system.

Meet NFHP 'Board Buddies'

- In December, the National Fish Habitat Partnership board initiated a 'board buddy' system to allow board members and FHPs to get to know each other better.
- Five NFHP board members expressed an interest in being a board buddy of EBTJV, including: **Steve Perry**, EBTJV Steering Committee member, and NFHP Board member, and past EBTJV Coordinator; **Mike Leonard**: Vice President of Government Affairs, American Sportfishing Association (articles), and **Doug Austen**, Executive Director, American Fisheries Society (link). Doug Austen, Steve Perry, and Bryan Moore (bio here.) were in attendance. Anne Kinsinger (USGS; Anne's bio) and Bryan Moore had attended/were introduced at the March 2024 SC meeting.

Presentation on Pigpen Branch restoration, South Carolina (Hailey Goyette, SCDNR)

Hailey's presentation and final report are available on our website here: https://easternbrooktrout.org/news-events/news-inbox/pigpen-branch-sc-restoration

Hailey Goyette: Eastern Brook Trout Restoration in Pig Pen Branch and Lick Log Creek, Oconee County, South Carolina

The objective of this project was to restore a reproducing Eastern Brook Trout *Salvelinus fontinalis* population in Pig Pen Branch and Lick Log Creek. Eastern Brook Trout are listed as a species of Moderate Priority in the South Carolina's State Wildlife Action Plan (South Carolina Department of Natural Resources 2015), but has been elevated to High Priority in the 2024 revision, which is in progress. The project also sought to produce secondary benefits toward developing status information and guide future management of other State Wildlife Action Plan (SWAP) species within the immediate project area and downstream, such as the Chauga Crayfish *Cambarus chauganensis*.

Presentation on recent USGS-EESC research and upcoming work (Than Hitt, USGS)

Than's presentation was provided via email to the SC on 7/19/24.

Than Hitt: Brook Trout Research Updates June 18, 2024
(Please note: Than is taking a new position with the West Virginia Rivers Coalition. As of Aug 15 folks can find him here: nhitt@wvrivers.org)
Than gave an update of recent papers, and an overview of some ongoing work, and requested feedback.

- Childress et al. 2024: EBT population trends in the Shenandoah National Park
    - regionally important Brook Trout water
    - Looked at BKT population surveys over 4 decades
    - Figure showing divergent trends in population change according to geology
    - substantial declines over 40 yrs in many places (70%of streams) but did see population increases in acid-sensitive watersheds
    - differences not due to landuse/impervious surface/ag etc.
    - warming water in places where we see declines.
    - see significant trends despite bkt populations being inherently variable
    - atmosphere affects the stream in warming and also through reductions in acid deposition (clean air act).
- Drought and dewatering, and spatial population structure; Staunton R., Paine Run VA
    - Briggs et al. 2022 - Bedrock depth and flow

      Hitt, et al. 2024. episodic dewatering on brook trout

    - BKT have evolved strategies to deal with dewatering, but the rate of dewatering is increasing.
    - looked at a periodically dewatered stream and estimated where groundwater is going to be important to thermal refugia, connectivity, and buffering for atmospheric effects
    - depth to bedrock, typically 2 m in this area.
    - Dewatering did not reduce bkt abundance but did fragment the population
- Ongoing work and collaboration with MDNR in three regions: Gunpowder, Savage, Catoctin. Many destination fisheries.
    - modeling change over time
    - adult declines: losing more populations than gaining
    - problem is not in recruitment to adults, but about adult survival (presumably in warm conditions)
    - no relationship with landuse change or nonnative trout
    - warming rate of atmosphere predicts trends in adult brook trout density (warming relates to population loss of brook trout). Different places in MD warming at different rates - Daymet data. Change was not the same across watersheds, with Gunpowder and Allegheny/Savage warming differently than the Bue Ridge. Once you hit a tipping point in warming rate (0.023C/yr), see declines over time.
    - models explain relatively little in overall variation in trends (17-18%), so there are other factors pushing trends around. Among env. variables explored in their study, the only one that came out as important was atmospheric warming rate.
    - Question about the existence of water temperature data - although we think these sites are on the edge, we don't have data across the board.
    - Question about extrapolation to other geographies: Than could provide R code at some point, but need 5 yrs of data and could plug in other data for analysis. Perhaps we have other areas that are data rich enough to run it. Than is also interested in the EBTJV status update and how the catchment and patch level data might correspond to within-patch variation that his work is estimating.
- Feedback requested: science is only relevant if managers can use it.

NFHP/FY25 allocations update (Steve Perry)

- Steve Perry gave an update from NFHP on FY25 funding.
- Steve has been active in the NFHP Board's Project Review Team. There are checks and balances on how the 20 FHP and project lists are reviewed.
- 14 scored Tier 1 funding including EBTJV. It is unknown right now how much funding will be allocated, but there are usually about $100K difference between the first and second tier.
- Because of the excellent package put forth by the EBTJV for FY25, it received the highest score of all FHPs, and the review team recommended that EBTJV get an additional amount in its award.

Congressional Designation Update (Lori Maloney)

EBTJV submitted a first draft in December, and in April we were given feedback by NFHP reviewers. We submitted the revisions in May. If there are any additional comments, we have a window to provide small changes. Please let Lori know. The document is a good review of EBTJV's history, and the May version is here: https://easternbrooktrout.org/groups/steering-committee/conference-call-notes/2024-steering-committee-meeting-files/june-18-2024-sc-meeting-files/congressional-designation/view
Steve participated on the review teams. The vast majority of FHPs did not need major changes. 17 or 18 of the FHP applications are good to go. When the board submits this to Congress it will contain highlights, not details on each FHP. Steve feels comfortable with EBTJV's application and thinks it is well done.

Lee Simard took over for Jacob Rash, who had to leave at 2:30.

Science and Data Committee update (Lori Maloney)

- Status of state catchment updates – Lori mentioned that some states were still working on their data.
- Recommendation of Executive Team is to complete updates by October 1 2024.
- Please do not add this year's data until after that timestamp of Oct 1 so that we can have a clean timestamp.
- If you have a partner that needs data please reach out (eg. Maine Audubon had a request that we filled).
- Fred Henson: NY has a new biologist working under Fred, but they will be able to make Oct 1 deadline.
- Has this delay affected any agencies?
- No attendees offered a comment during meeting. Please reach out if needed.

Member updates

- Open time for project or initiative updates from any SC member
- Fred Henson: NY has some severe issues with lack of access to rotenone has been an impediment to restoration of brook trout in the Adirondacks. Has anyone looked at antimycin in ponds? If Rotenone can be produced again, consider advocating for it.

  Maine RSVPs due by July 30. There is no virtual option planned. (Edit: SC members may access a zoom link; email Lori).

Meeting adjourned at 2:40 pm.

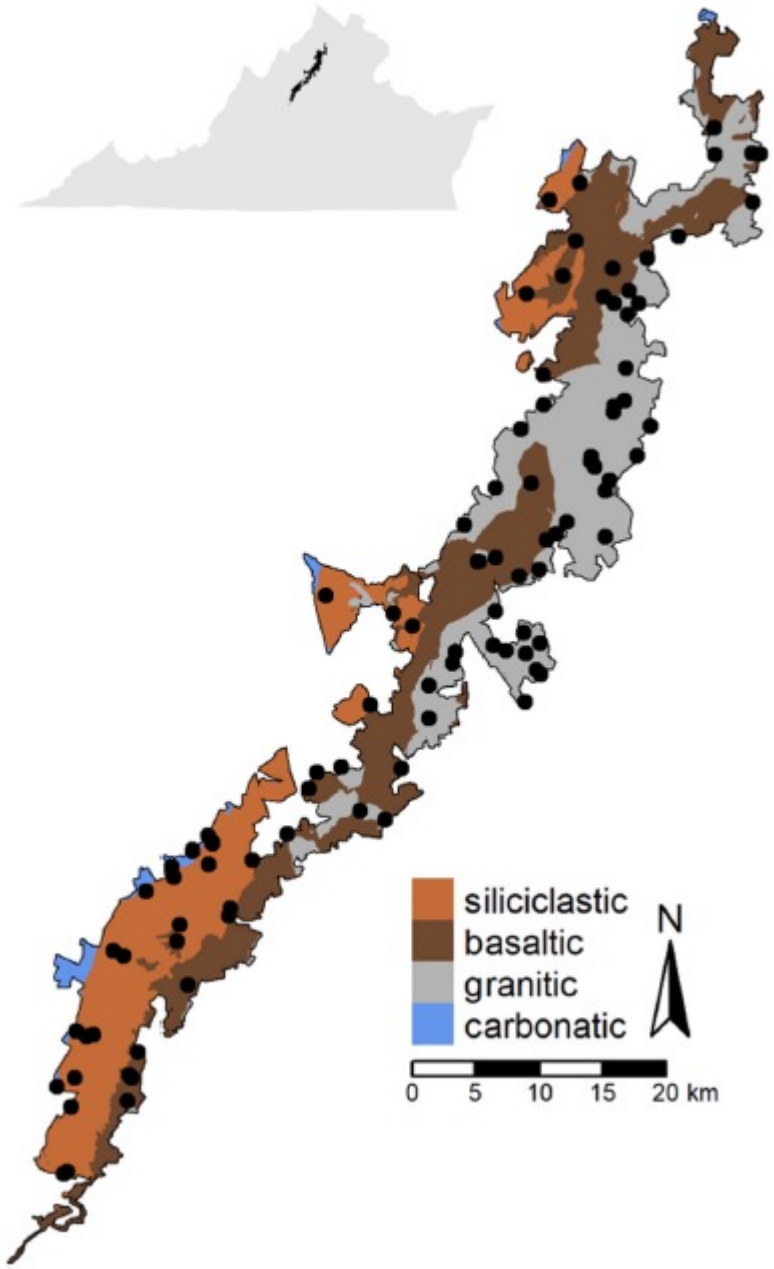
Brook trout research updates: 18 June 2024

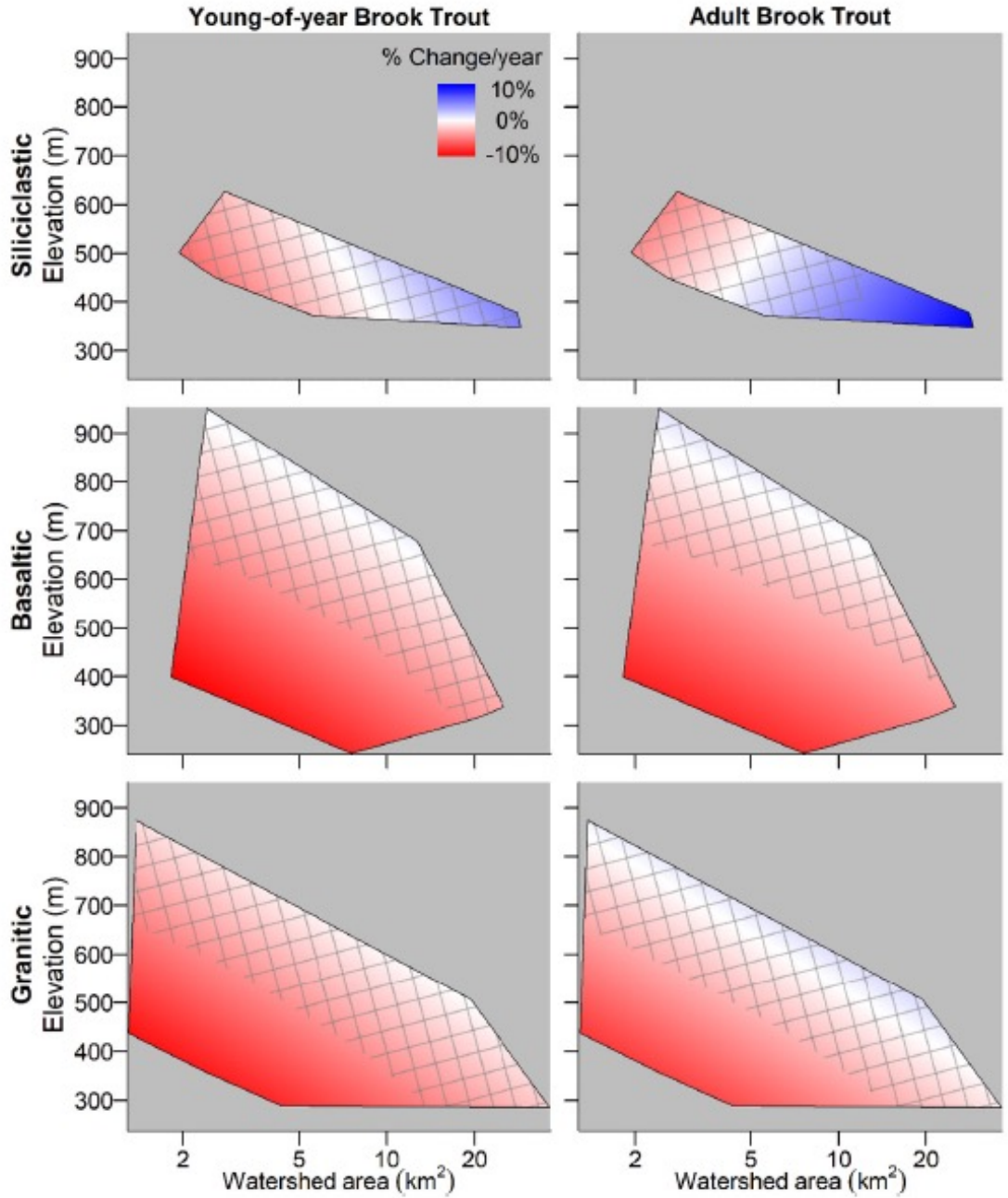
Nathaniel “Than” Hitt
USGS Eastern Ecological Science Center
nhitt@usgs.gov

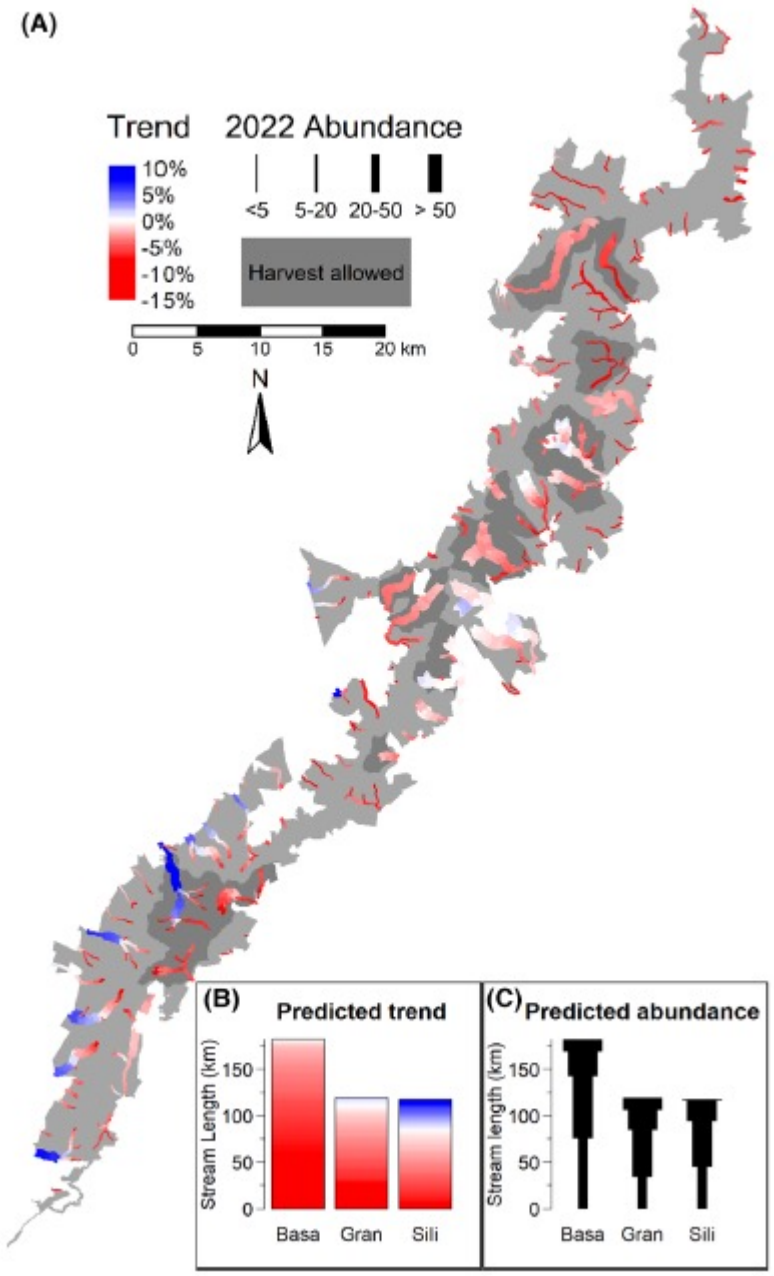
1. Population trends in Shenandoah National Park

2. Dewatering + spatial population structure

3. Preliminary results: population trends in Maryland


siliciclastic
basaltic
granitic
carbonatic
N
0 5 10 15 20 km

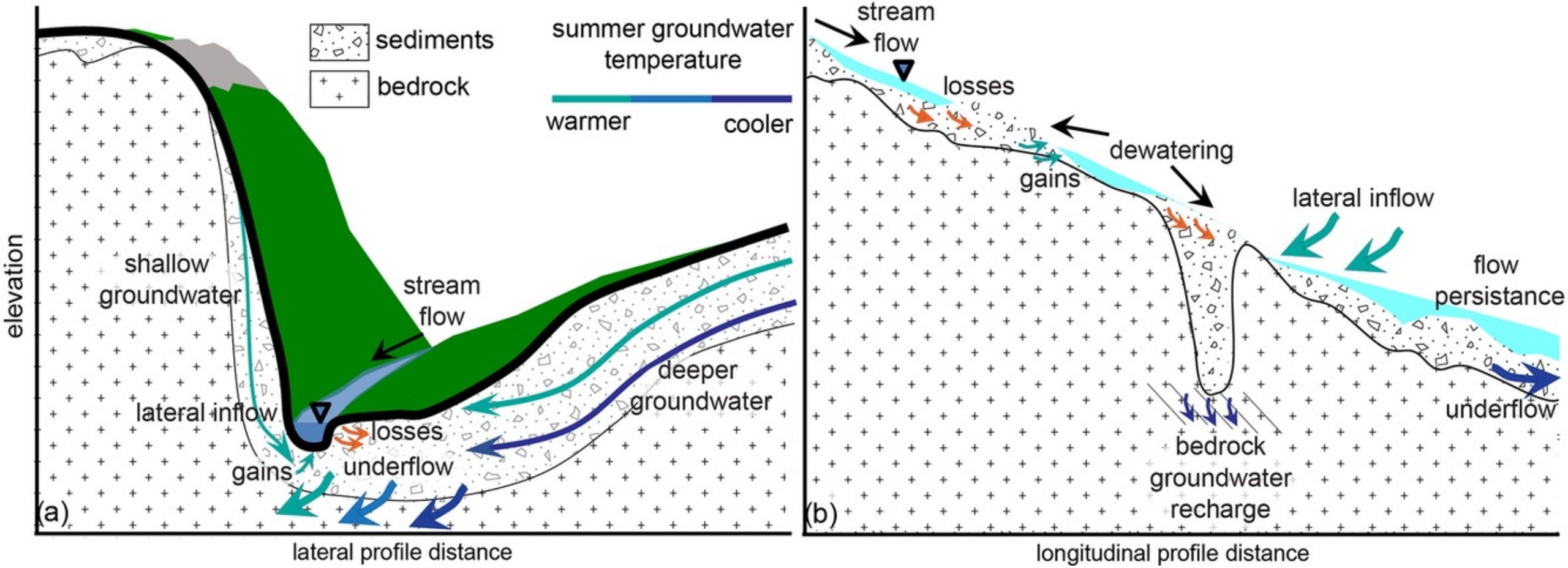

Young-of-year Brook Trout
Adult Brook Trout
% Change/year
10%
0%
-10%
Siliciclastic
Basaltic
Granitic
Elevation (m)
900
800
700
600
500
400
300
2
5
10
20
Watershed area (km²)

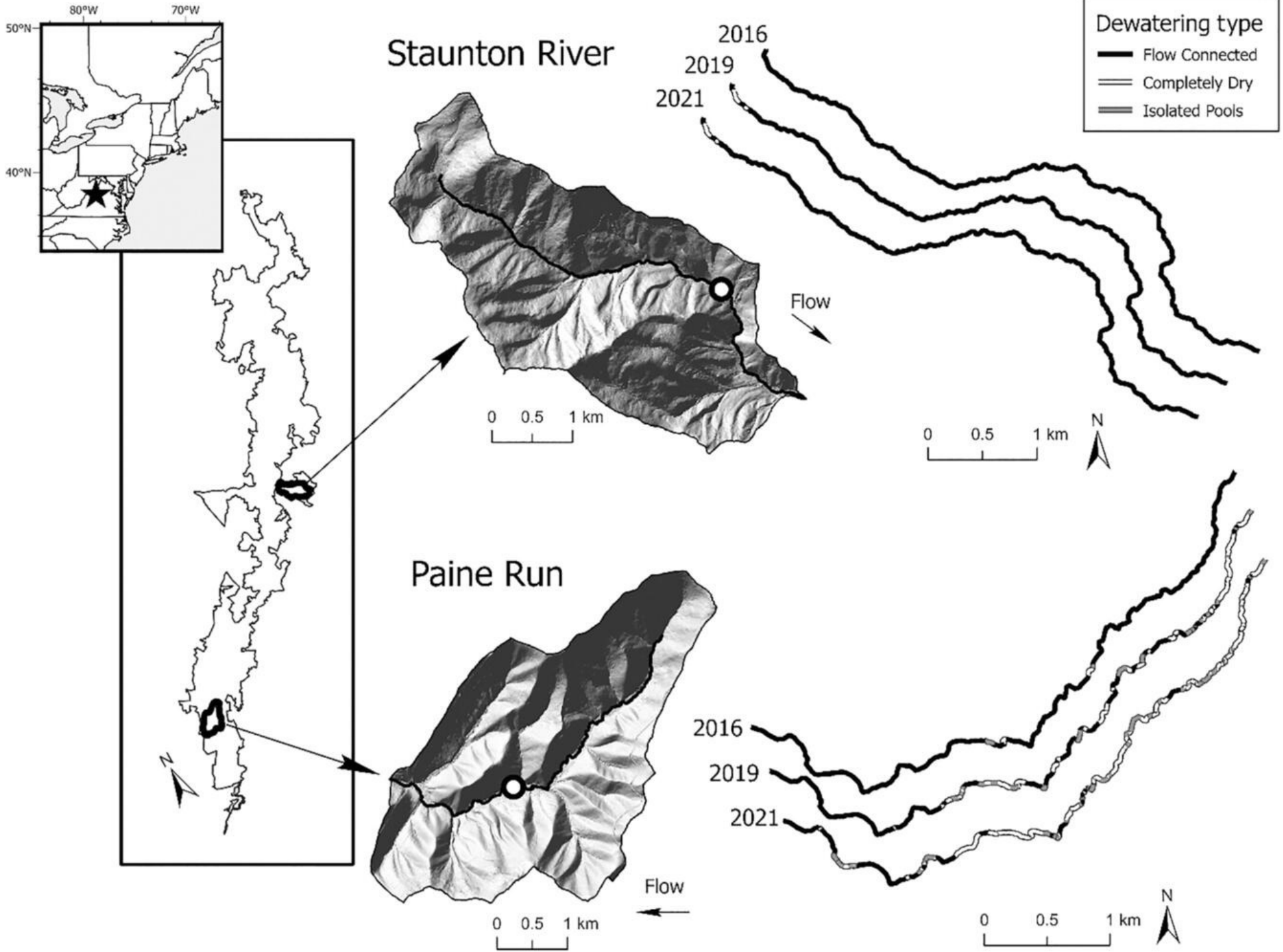


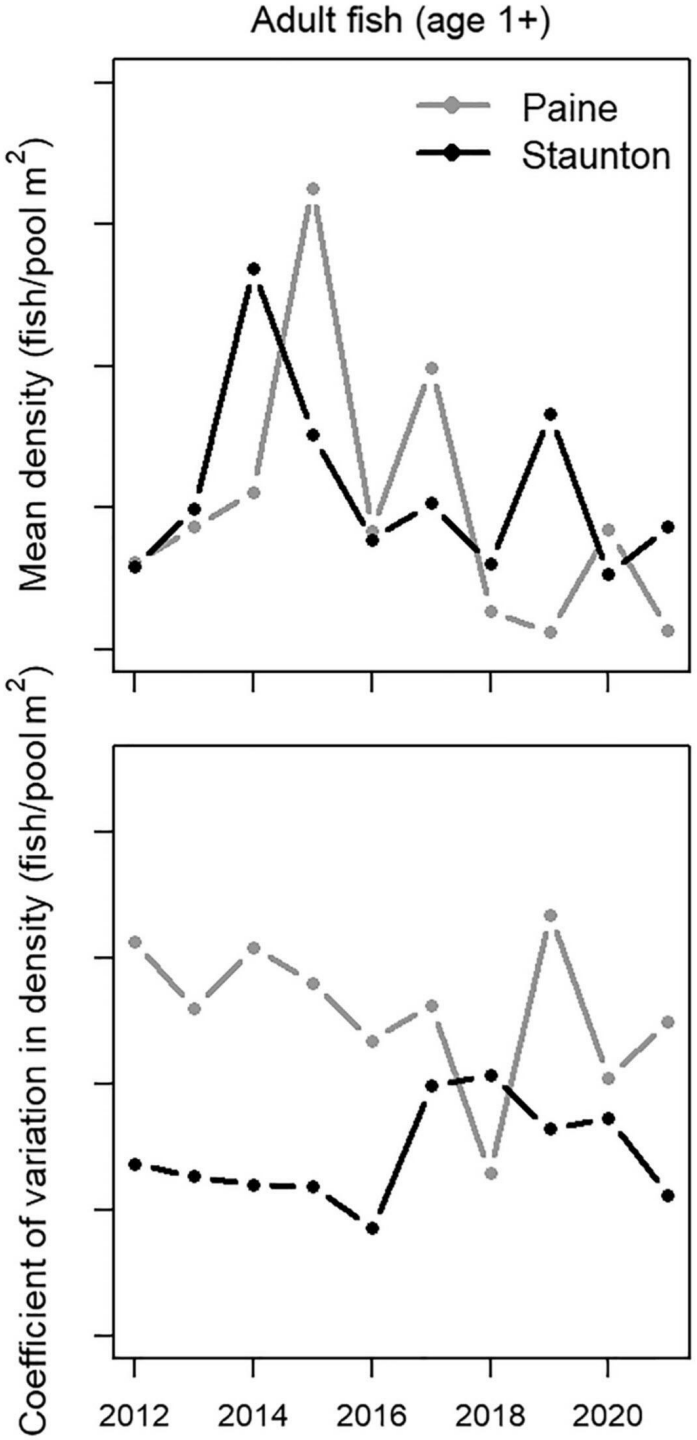
Estimated Brook Trout abundance declined by 50% or more in approximately 70% of streams across the park over the study period.

However, increasing abundance observed in acid-sensitive watersheds.

Childress, E.S., D.E. Demarest, J.E.B. Wofford, N.P. Hitt, and B.H. Letcher. 2024. Strong variation in brook trout trends across geology, elevation, and stream size in Shenandoah National Park. *Transactions of the American Fisheries Society* 153:250-263.


sediments
bedrock
summer groundwater temperature
warmer
cooler
elevation
shallow groundwater
stream flow
lateral inflow
losses
gains
underflow
deeper groundwater
(a)
lateral profile distance
stream flow
losses
dewatering
gains
lateral inflow
flow persistance
underflow
bedrock groundwater recharge
(b)
longitudinal profile distance


80°W
70°W
50°N
40°N
Staunton River
2016
2019
2021
Dewatering type
Flow Connected
Completely Dry
Isolated Pools
Flow
0 0.5 1 km
0 0.5 1 km
N
Paine Run
2016
2019
2021
Flow
0 0.5 1 km
0 0.5 1 km
N

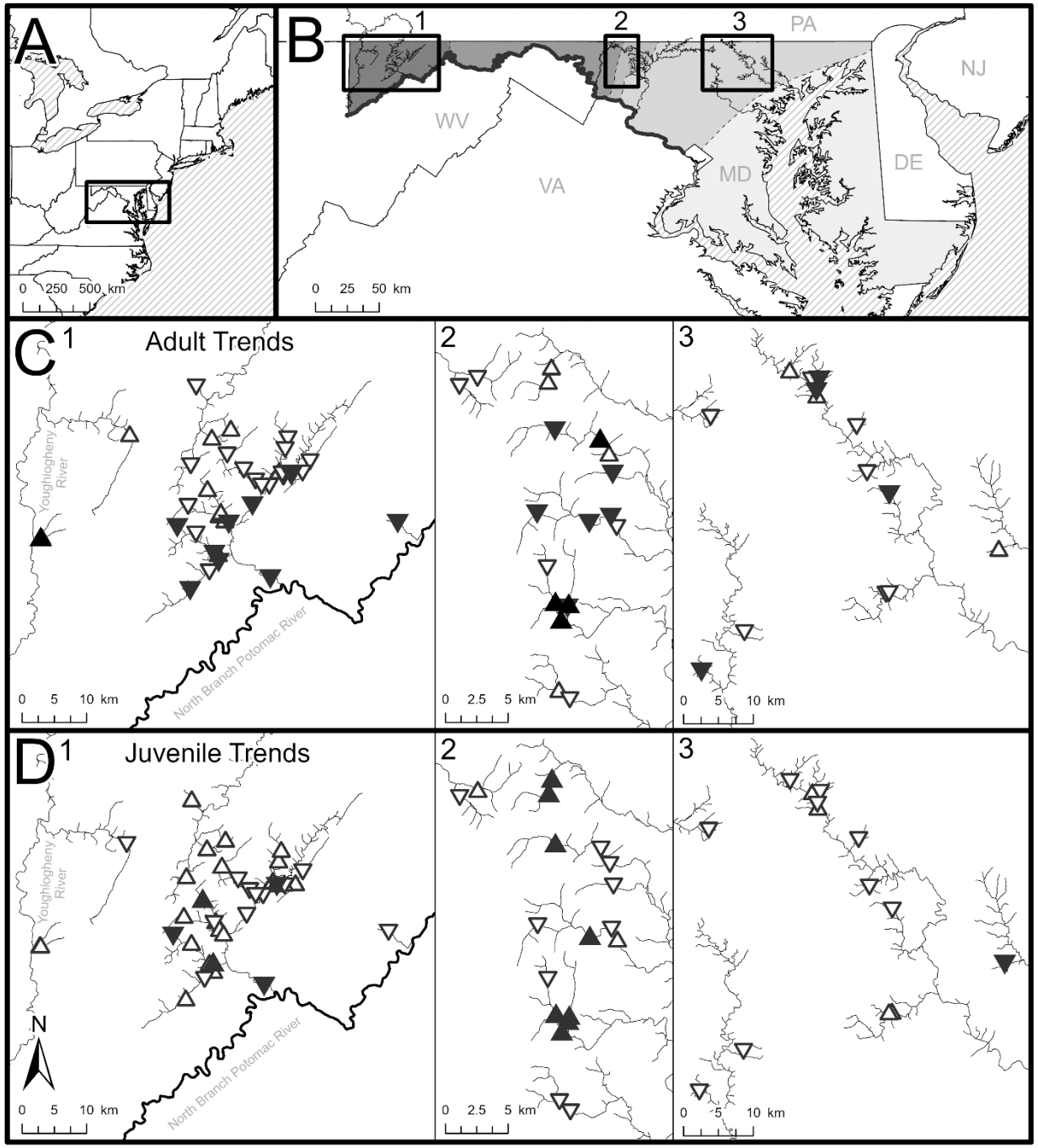


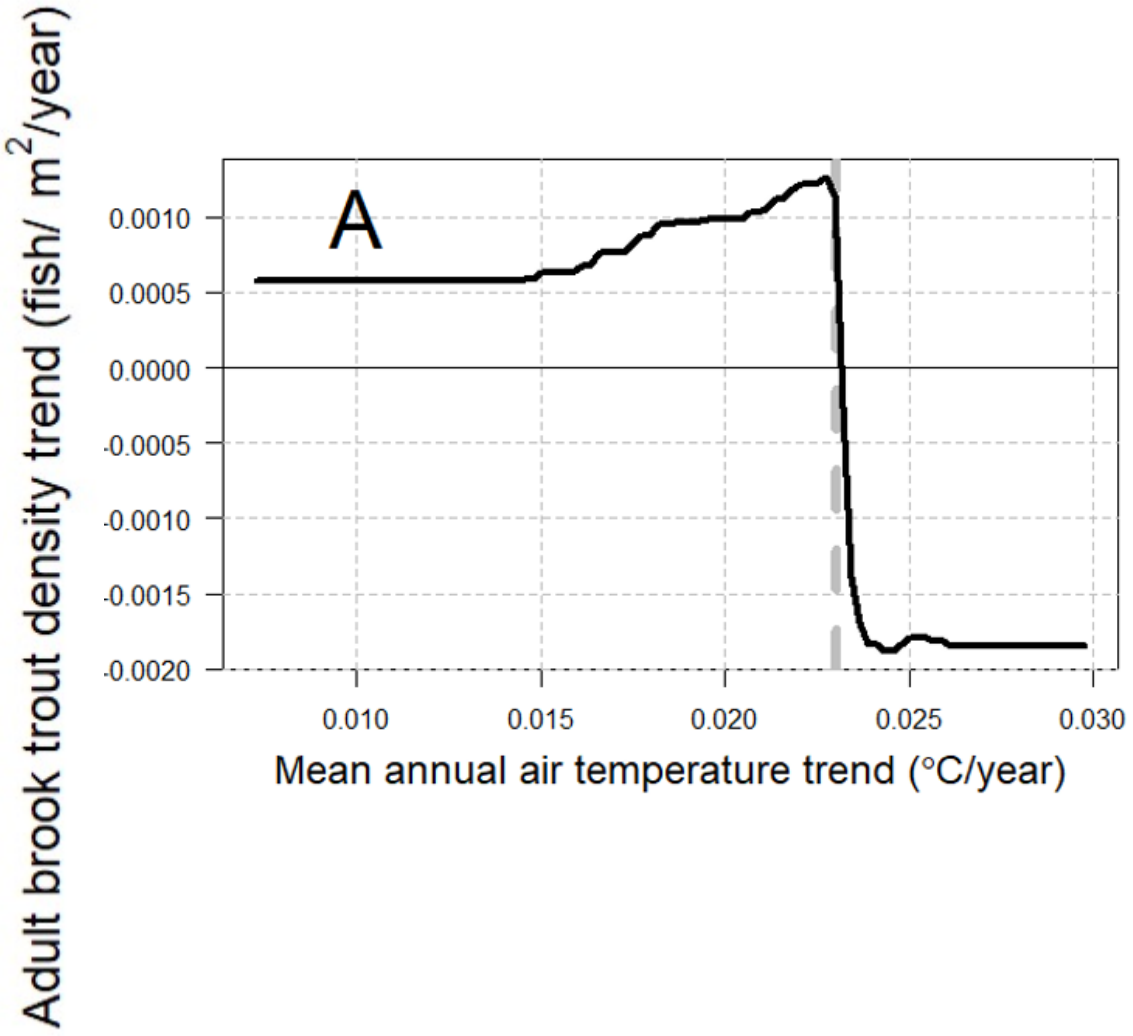
Dewatering did not reduce total brook trout abundance but did fragment the population into fewer areas which increases competition pressures and risks for local extirpation.

Downstream river gages could not explain the observed patterns of stream dewatering or pool occupancy.

Briggs, M. A., Goodling, P., Johnson, Z. C., Rogers, K. M., Hitt, N. P., Fair, J. B., and Snyder, C. D.: Bedrock depth influences spatial patterns of summer baseflow, temperature and flow disconnection for mountainous headwater streams, Hydrol. Earth Syst. Sci., 26, 3989–4011, https://doi.org/10.5194/hess-26-3989-2022, 2022.

Hitt, N.P., K.M. Rogers, K.G. Kessler, M.A. Briggs, J.H. Fair, and C.A. Dolloff. 2024. Effects of episodic dewatering on brook trout spatial population structure. Freshwater Biology, DOI:10.1111/fwb.14287.





Preliminary results