Meeting Minutes of the Trout Committee of the Southern Division American Fisheries Society Meeting convened on Tuesday, April 4, 2023 at the Ruritan Club in Bristol, Tennessee.

The 2023 meeting of the Southern Division of the American Fisheries Society Trout Committee was called to order by Sarah Baker at 8:05 a.m. A brief introduction was provided and attendees introduced themselves. Members from Tennessee were thanked for their efforts to organize the meeting and location. A quorum was present with 18 standing members in attendance. The following members and guests were in attendance:

Sarah Baker (chair; GA), Sally Petre (TN), Christy Graham (treasurer; AR), Matt Kulp (GSMNP), Brad Fink (VA), Jim Habera (TN), Brandon Simcox (TN), Jake Rash (NC), Jason Farmer (USFS), Dan Rankin (SC), Steve Reeser (VA), Patrick Ireland (TX), David Thorne (WV), Kayla Boles (KY), Justin Spaulding (TN), Justin Heflin (VA), Tyler Hern (USFWS), Connor Ballard (TN), and Matt Lawrence (chair elect; MD).

Old Business:

Approval of 2022 Minutes:

The 2022 meeting minutes were provided in advance of the meeting by email. Sarah Baker brought the minutes to the floor with a request for edits. With no edits or changes suggested, Matt Kulp motioned to approve the minutes. Dave Thorne seconded and the motion passed. The meeting minutes will be posted on the Trout Committee's website.

Treasurer's Report – Christy Graham:

Treasurer Christy Graham reported the current treasury balance to the committee. The treasury balance at the 2022 Trout Committee Meeting was $6063.33. There was one expenditure of $147.43 for AV equipment at the 2022 meeting. This reduced the treasury balance to $5,912.90. There were no other expenditures. Jim Habera made a motion to accept the treasury report. David Thorne seconded and the motion passed.

Membership List Update:

The current Trout Committee membership list was circulated and members were asked to update their contact information. Jim Habera will update the membership information on the website after the meeting.

Trout Committee Website Update:

Jim Habera provided an update for the Trout Committee website and requested pictures from members that could be posted to the page. Christy Graham commented that the Trout Committee website received compliments at the SDAFS Annual EXCOM Meeting with attendees suggesting that it should be a model for other committee websites.

MicroFish Update:

Jack Van Deventer could not attend, but did submit an update that was provided by Sally Petre. Downloads of MicroFish have been steady in the United States and Canada and the application is now used in 95 countries. This is up from 82 countries last year. The application is most heavily used in Brazil, Iran, and Norway. Jack's role is changing as the community that uses MicroFish is expanding and the demand for training opportunities increases. While he was not able to make this past SDAFS Annual Meeting, a training session will be provided at the SDAFS Annual Meeting in Chattanooga.

Committee members discussed the latest updates and the effectiveness of the application. All members were encouraged to try the Excel version of MicroFish, reach out with questions as needed, attend workshops if possible, and get the word out about the application.

Trout Committee Procedural Document Update:

Sally Petre provided updates for changes made to the Trout Committee Procedural Document at the 2022 annual meeting. The procedures were amended to make them more consistent with the SDAFS procedures. An exception to this was the Trout Committee quorum procedure, which will continue to require 10 voting members to be present. The SDAFS procedures require only five voting members for a quorum. The procedure changes were submitted to Jason Olive and will be reviewed at the next SDAFS business meeting. Approval is expected.

Brook Trout Subcommittee Update:

Jim Habera reported on the Brook Trout Subcommittee's efforts to update the 2005 publication: Managing Southern Appalachian Brook Trout: A Position Statement. The subcommittee is developing a new position statement that will provide the current status of the resource and highlight management successes. To gather information for the updated position statement, a survey was developed and circulated to all agencies that contributed to the 2005 publication. This included Virginia, Tennessee, North Carolina, Great Smoky Mountain National Park, Georgia, and South Carolina. The survey was also sent to West Virginia and Maryland so both states could contribute to the updated position statement. Once all of the surveys have been completed and returned, the Brook Trout Subcommittee will compile the information and plan a strategy to develop the new position statement.

SDAFS Committee Review:

Matt Lawrence provided a brief update about a review of the Trout Committee's recent activities by SDAFS Vice President Anthony Overton. This process was part of a routine effort to highlight and review SDAFS committee accomplishments. The comments were generally positive and the Trout Committee was commended for the website. Increased student participation on the committee was recommended.

Members discussed ideas to improve student involvement with the committee. Students have participated in the past, but usually with attendees from academia. The committee considered a scholarship that would offer an award to a student for travel to the Trout Committee Annual Meeting. The student would present their research at the meeting. The amount of the scholarship was debated as well as ways to generate revenue to cover expenses. David Thorne motioned to further consider a student representative with funding allocated for travel. Matt Kulp seconded and the motion passed.

New Business:

Election of Officers

Sarah Baker opened the discussion and asked for nominations or volunteers to serve as chair from 2024 to 2025. Brad Fink volunteered and no other nominations were presented. Matt Kulp motioned to make Brad Fink the chair from 2024 – 2025. Sally Petre seconded and the motion passed.

2023-2024 Officers

Chair: Matt Lawrence (Maryland)
Chair-elect: Brad Fink (Virginia)
Treasurer: Christy Graham (Arkansas)
Past-chair: Sarah Baker (Georgia)

2024 Meeting Location:

Locations for the 2024 Trout Committee meeting were discussed. The committee considered scheduling the meeting to coincide with the annual SDAFS meeting at Chattanooga in 2024 or Ashville in 2025. The next East Coast Trout meeting was also included in the conversation. Due to scheduling issues, it was determined that the 2025 Trout Committee could be held in Ashville, North Carolina in conjunction with the SDAFS annual meeting. Representatives from Georgia and West Virginia agreed to investigate location options within their states for the 2024 meeting. The committee concluded that early to mid-May was a good time to meet, but the final dates would be determined by the availability of a meeting location.

Distinguished Service Award:

Jim Habera informed the committee that no recipients were selected for the Distinguished Service Award for this year. While some candidates were considered, no individual met all of the award criteria. Jim recommended an additional award to recognize individuals that contribute to trout fisheries management or conservation efforts but may not sit on the Trout Committee or work in fisheries management. The criteria required for consideration and a name for the award are currently in development. The Service Award Subcommittee requested that committee members submit ideas that may assist with establishing the new award.

Workshops and Trainings:

Sarah Baker requested ideas for workshops that could be hosted by the Trout Committee. Brandon Simcox recommended webinars similar to those hosted by the Alligator Gar Committee. Usually four webinars are hosted each year, including three presentations and one meeting for state updates. The committee discussed management and planning of the webinars and how to promote them to expand participation beyond professional circles. Dissemination of webinar information through Dennis Riecke and the AFS list serve was stated as an option. Coordination with the Eastern Brook Trout Joint Venture was also as a possible opportunity. The Joint Venture is already hosting webinars and could use the AFS list serve to expand the audience. Further discussion is needed.

Student Involvement on the Trout Committee:

Options for student involvement on the Trout Committee were revisited. A student representative on the committee was discussed. Ultimately the committee determined that a scholarship to cover travel expenses to the Trout Committee annual meeting was more practical. The student could present their research at the meeting. Steve Reeser motioned to create scholarship with a $750 award that would be used to cover student travel expenses and to present research. The committee discussed the motion and the need for revenue in addition to the East Coast Trout Meeting to cover the new expenses. A fee for attendance was considered and would need further investigation. Steve Reeser amended the motion to a scholarship with a $500 award. Further discussion identified ways of generating interest in the scholarship and what kind of research would be considered for the award. The committee tabled the motion to gather more information about how to raise additional revenue to support the scholarship.

East Coast Trout Meeting:

Sarah Baker asked the committee about planning the next East Coast Trout Meeting. The committee agreed that the issue could be tabled until next year since the meeting will not be held until 2026. In the meantime, the committee could communicate with past meeting planners to gather relevant information for the discussion.

Presentations:

Jim Habera – The South Holston Tailwater Trout Fishery: Background and current fisheries management activities were provided for the South Holston Tailwater. Fisheries dependent and and independent data, current regulations, and management challenges were presented to the committee.

Christy Graham – Arkansas Tailwater Projects and Research: A summary of the management of tailwaters in Arkansas was provided. Bull Shoals and Norfolk Tailwaters creel survey data

were provided, as well as a comparison of past and current survey methods. Spawning habitat usage data in the Greers Ferry Tailwater was also presented.

Connor Ballard – Contributions of Stocked and Wild RBT in Two TN Tailwater Fisheries: Presented research efforts investigating the contribution of rainbow trout stocking in the Norris and Fort Patrick Henry Tailwaters and the presence of wild populations. The study concluded that natural reproduction occurs in the tailwaters and that trout stocking programs should be evaluated periodically to determine efficacy.

Lunch: The committee reconvened after lunch.

Tyler Hern – USFWS National Broodstock Program – Supporting Tailwaters: Information about the USFWS National Broodstock Program was presented to the committee. The main objective of the program is to provide gametes of best fit species and strains for the management needs of USFWS and partners. Both recreational and recovery species are produced, though most hatcheries are working on recovery species.

Matt Lawrence – Fisheries Management Activities in the North Branch Potomac River: Presented background and recent management efforts in the North Branch Potomac River Tailwater. The North Branch has a developing wild trout resource below Westernport, MD that became possible due to water quality improvements in the river.

Patrick Ireland – Overview of the Guadalupe River (Canyon Tailrace) Trout Fishery: The management challenges of the Guadalupe River Trout Fishery were presented. The resource has limited public access for angling but is heavily used for floating. The fishery generates $12-14 million for the local economy, but the floating industry draws substantially more. Management continues to find ways to balance resource usage between stakeholders.

Round Table

The idea of a trout passport that would include licenses for Georgia, Tennessee, North Carolina, and South Carolina was discussed. Committee members recognized the challenges for managing revenue collection and allocation as well as future fee changes through legislative action. The committee agreed that this idea was not possible at this time.

Jim Habera motioned to adjourn the meeting at 3:23 p.m. and re-convene the following day at 8:00 am. David Thorne seconded and the motion passed.

Sarah Baker reconvened the meeting at 8:00 a.m. on April 5, 2023. Committee members provided round table updates (notes provided below).

Jim Habera motioned to adjourn the annual meeting at 11:48 a.m. Sally Petre seconded and the motion passed.

2023 Trout Committee Roundtable Notes

Arkansas
Submitted by Christy Graham (AGFC)

Renovations at the Jim Hinkle Spring River State Fish Hatchery are nearing completion. Metal silos in place since the hatchery opened were replaced with concrete silos. When complete, we expect increased fish production and improved biosecurity within the hatchery.

The AGFC Trout Management Program (TMP) has conducted a number of activities over the last year with regard to stocking, monitoring, and research. The TMP recently completed a year-long creel survey of the Bull Shoals and Norfork Tailwater and started a year-long survey on the Narrows Tailwater. Results from those surveys will be important to determine whether decreased stocking rates of Rainbow Trout from 2015-2021 have had a negative impact on angler catch rates on the fisheries. Close to 3,000 angler interviews were conducted on Bull Shoals and Norfork tailwaters during the survey.

The TMP completed a seasonal tagging study on Dry Run Creek and Norfork Tailwater. The creek runs adjacent to the Norfork National Fish Hatchery (NFNFH) and is well known for being full of trophy trout. Each season, large Rainbow Trout and all Brown and Cutthroat Trout were implanted with PIT tags to monitor growth, survival, and movement in Dry Run Creek and Norfork TW. Even though a large number of fish were tagged in the fisheries, very little movement was observed between Dry Run Creek and Norfork Tailwater.

Since 2018, the TMP has been partnering with the University of Arkansas at Pine Bluff (UAPB) on a Brown Trout spawning study on the Greers Ferry Tailwater. Redd surveys were conducted during the 2019-2020 and 2020-2021 spawning seasons (at two week intervals). Microhabitat characteristics were collected at redd locations throughout the tailwater during the 2019-2020 surveys. Results from redd surveys revealed spawning happens differently each year, but Brown Trout appear to spawn anywhere in the tailwater where microhabitat conditions are right. Microhabitat characteristics closely associated with redd locations on the Greers Ferry Tailwater included median substrate size of 31 mm (range = 2-136 mm), redd depths (mean ± SD) of 340 ± 160 mm, and water velocities of 30 ± 17 cm/s. These characteristics are very similar to those observed in other systems where Brown Trout spawn in the US and abroad. Brown Trout were tagged seasonally from 2019 through 2022. Fish exhibited very little growth and movement during that portion of the study. Seasonal hooking mortality was assessed in July and December 2022. Brown Trout caught via hook-and-line and implanted with transmitters did not exhibit biologically significant differences in seasonal mortality associated with catch-and-release. However, Brown Trout exhibited large-scale movement compared to fish tagged with PIT tags during the early portion of the study. The UAPB study will begin “Phase 2” this year, where additional information on trout population dynamics and movement throughout the tailwater will be collected.

The TMP experimentally stocked Tiger Trout (Brown Trout x Brook Trout) in Bull Shoals TW in 2020 and 2021. Although we have little information on their survival and growth rates to date, anglers are still catching them in the tailwater and have reported fish as large as 27 inches. Tiger Trout are now eligible to be submitted for State Record consideration.

The TMP will also be conducting a 2023 of Arkansas Trout Permit Holders and initiating the revisit of the statewide Trout Management Plan this summer.

Annual SDAFS Trout Committee Spring Meeting Update
April 5th, 2023
Georgia DNR, Wildlife Resources Division, Report submitted by Sarah Baker

Trout Management Plan Update

- **Last plan from 2001**
  - Updated Plan includes six programs: Wild Trout Management, Habitat Conservation and Enhancement, Management of Hatchery Supported Waters, Hatchery Production Program, Public Relations, Disease Monitoring and Biosecurity
  - Finalized by headquarters staff. Not currently publicly available.

Hatchery Production Program

- **Whirling Disease & IHNV**
  Since decontamination in September 2021, Whirling Disease (WHD) and Infectious Hematopoietic Necrosis Virus (IHNV) have not been identified in hatchery-raised Rainbow Trout at the Buford and Summerville State Trout Hatcheries.
- **Hatchery Renovations**
  - Operations are finally back to supporting our 1 million trout stocked annually program goal for the first time since 2020.
- **Brook Trout Stocking**
  - GA program focuses on RBT with about 10% BNT
  - Accepted BKT eggs from Walhalla, State Fish Hatchery, SC, as Brook Trout are popular among anglers.
  - Will not stock on or near native Brook Trout populations.

Delayed Harvest Additions

- Delayed Harvest is very popular with constituents, so we are looking for streams to add DH regulations.

Angler Connections

- Weekly blog post by regional biologists on Georgia DNR Wildlife Resources Division website: https://georgiawildlife.blog/category/fishing/
- Trout Stream Interactive Map updated annually with information on accessibility, generation schedule links, regulations, and angling recommendations. https://gadnrwrd.maps.arcgis.com/apps/webappviewer/index.html?id=af50967627004b178ccd7264124fe5fd
- "Gateway to Fishing" Trailer – to promote community, family fishing programs by partnering with local organizations. Trailers come fully loaded with all necessary fishing equipment.

- Trout Slam – rolling out April 2023 to recruit, retain, and reactivate trout anglers. Catch all three species of trout in Georgia in a year, get recognized with a GA Trout Slam sticker.

Disease Prevention:

- Trout from private sellers continue to be sampled and sent to the Southeast Cooperative Fish Parasite & Disease Laboratory (Auburn University Fish Disease Lab/Coop) to be examined for whirling disease and gill lice.
- Since the outbreak of WHD in state fish hatcheries in August, 2021, wild trout from stocked streams have been collected and sent to Auburn to be assessed for WHD. Negative results have returned so far.

Wild Trout Monitoring:

- Georgia DNR continues its efforts to document and evaluate the populations of wild Brook Trout, Brown Trout, and Rainbow Trout. A single file containing all historical records of sampling efforts is still being developed to help managers utilize these records for future analyses.
- Historically sampled streams are continuing to be revisited and their records updated. Starting a protocol and rotation of sampling these streams, in addition to our annual standardized sampling streams. Identifying potentially extirpated populations.
- Collaborating with UGA to collect eDNA water samples from those streams that appear devoid of Brook Trout. After confirming disappearance, hopeful for translocation efforts to occur. Need genetic results on more streams.
- Identifying natural barriers in order to prioritize Brook Trout restoration projects
- Removal of non-native trout in Brook Trout streams

Toccoa Tailwater Self-Report Creel Survey

- Using a QR code and Survey123 App to collect data from willing anglers at five public access sites along the Toccoa Tailwater. Implemented: October 2022.

Woody Debris Additions to Wild Trout Streams– "Traditional Structures" and Chop-N-Drop

- Stream restoration on Crayfish Creek - Supporting TU's initiative https://crayfishcreek.org/

Great Smoky Mountain National Park (GRSM) 2023 Fisheries Highlights
3 Apr 2023
Submitted by Matt Kulp

Project Updates

1. Antimycin Re-Registration
    a. USGS bought intellectual property rights and is working on re-registration
    b. Draft SOP manual submitted to be appended to the label (Rankin [SC DNR], Dave Hering [CRLA], Kulp [GRSM], Teresa Lewis [USFWS])
    c. Successfully revived strain; now working on large scale production
    d. Goal to submit reregistration packet to EPA in summer 2023; summer 2024 production
    e. USGS helping GRSM on approval of "experimental use" for Moore Springs Br.

2. Moore Springs Branch (NC) Brook Trout Restoration (3.8km) (Twentymile Creek watershed)
    a. Pre-treatment fish population monitoring in 3 sites in 2022 and 2023
    b. Sept 2024 antimycin treatment (NCWRC, NC TU assistance)
    c. Will translocate 600 Brook Trout per year for two years from 3-4 Little TN River watershed source stocks
    d. USGS (WI Lab) likely sending down some Post-docs to provide on "Experimental Use" basis

    ** TOTAL 13 streams and 30.3 miles of Brook Trout water restored to date*

3. Brook Trout Restoration in 6 NC and TN Streams 2023 (10.3 km total)
    a. Range in size from 0.8-3.8 km in length (all 2nd order or larger)
        i. Lower elevation range (1,300-1,700 feet)
    b. Need ~1,300 Brook Trout from several source stocks (target 250 fish/km)
    c. Worked out study design to evaluate 8 different source stocks and ability to persist in higher temp streams (UT PhD candidate)

4. GRSM Assisting SC DNR with Brook Trout Restoration on Pigpen Branch in Sumter National Forest in fall 2023
    a. GRSM assist with antimycin treatment

5. Mingo Creek Restoration – EBCI fall 2023 and 2024
    a. GRSM & NCWRC assist

6. Need for Brook Trout Restoration Pubs

a. 61 articles across range since 1959; most articles on liming in late 1990's
b. Recent articles on Hatchery Propagation (10) and genetic rescue (6)

7. 2022 GRSM Trout Distribution Surveys
    a. Completed trout distribution surveys in Eagle Creek (NC) and Rabbit Creek (TN)
    b. Trout distribution surveys completed in 82% of park to date
        i. Goal to complete 5% in 2023 (Panther Creek, Noland Creek, Hazel Creek)
    a. Interesting Distribution Facts:
        ii. Distribution completed in 2,385 of 2,900 miles (82% surveyed)
            1. *476 miles have trout (20%)*; 1,909 miles contain no trout (80%)
            2. <5% of 1st or 2nd order occupied; >95% 3rd-5th order occupied
                a. Brook occupy 242 miles (51%); 238 stream segments
                b. Brown occupy 103 miles (22%)
                c. Rainbow occupy 361 miles (76%)

8. Trout Population Long-Term Monitoring Results
    a. BKT presence increases above 850m (2,800 feet)
    b. CV's (SD/mean) higher for YOY (0.9) than adults (0.6)
    c. Natural variation of YOY and adult trout generally within 2 sigma (SD) of mean
    d. Biomass and K significantly lower in acidified streams (303d)
    e. GRSM pops appear stable; not seeing declines in pops at any elevation (SHEN?)

9. University of Tennessee (UT) Study on Genetics of Restored Brook Trout Populations (Smith & Fitzpatrick)
    a. Focusing on determining how temperature of source stock streams affects genetics of newly established brook Trout populations over time
    b. Focusing on 6 restored populations and 12 source stocks (some 28 years out)
    c. Assessing assortative mating – Richards et al. (2008) appears to be flawed due to model assumptions
        i. Reanalyzed 2006, 2010, and 2022 data – found equal contributions
        ii. Ran simulations and actual data mimics simulations
        iii. Good news as multiple source stocks are mixing
    d. Installed HOBO's on source streams to monitor source ranges compared to receiving streams
    e. Awarded NFWF grant and UT Tanner grant for work with GRSM

10. University of Tennessee Mercury Pathways Study (2022-2023) – Dr. Gus Engmann
    a. Objectives are: 1) Describe and compare trophic pathways of mercury in three GRSM Streams, 2) Measure environmental and organismal concentrations of

mercury in three Great Smoky Mountains National Park Streams, 3) Evaluate evidence for mechanisms leading to differential mercury contamination of Smallmouth Bass within and between three streams in Great Smoky Mountains National Park, and evaluate taxa as ecological indicators

11. First Round of Aquatic Organism Passage (AOP) Surveys in GRSM
    a. Utilizing Trout Unlimited volunteers to do surveys
    b. Surveying TN and NC streams with fish

For more information on any of these projects, please contact Matt Kulp (865) 436-1254 or Mat_Kulp@nps.gov

Kentucky Trout Meeting Update
Submitted by Kayla Boles

- Currently working on updating the trout management plan
    - A goal of the old plan was to create a trout stream classification system that we base our stockings off of and our new goal is to revise that to make the most efficient use of our trout.
    - We have determined that the tailwaters and impoundments sections of the plan need the most work.
    - One of our big goals for the plan is to incorporate the usage of trail cameras so that we can get a better idea of usage of our trout streams.
- Kentucky is due for it's 10 year Trout Angler Survey, which has been sent through the mail previously.
- Cumberland Tailwater now has Brook, Brown, Rainbow, and Cutthroat trout

Maryland Trout Committee Round Table Notes – 2023 Annual Meeting
Tailwater Lodge, Bristol, TN
Submitted by Matt Lawrence

Brook Trout Genetics
Brook trout fin clips were collected from 23 sites in 9 watersheds from 2020 and 2022. Between 20 and 50 fin clips were collected at each site. Samples were genotyped at 12 microsatellite markers developed in brook trout. Effective population size, number of alleles, observed and expected heterozygosity, and the inbreeding coefficient were all determined. Pairwise differences in allele frequency between populations were also examined. Analysis of genetic diversity within populations revealed variable allelic diversity and low effective population sizes. This was consistent with similar studies and is likely caused by isolation and limited gene flow.

Brook trout monitoring network
An annual monitoring network of brook trout populations has been developed to bridge the gap between comprehensive five year brook trout surveys. 51 stations have been identified as candidates for the network. Stations were selected based on availability of historic data and location. Control and reference streams are included to observe trends across different stressor types. The data will be used to track long-term trends, support management decisions and actions, maximize resource usage, and improve outreach and reporting efforts.

2022 Coldwater Survey Results
The Coldwater Fisheries Program conducted 93 trout surveys and deployed 61 temperature loggers during the 2022 field season. The results included the discovery of 7 previously undocumented brook trout populations. Survey efforts also provided evidence that supported the reclassification of four streams from Use Class I warmwater streams to Use Class III coldwater streams. This will provide additional thermal protection for aquatic resources.

Nonnative trout removal policy
Managers have identified a need for projects that remove non-native trout from sympatric resources. A policy has been developed to set guidelines and limitations for these projects and establish a transparent and defendable process. Proposed projects will have the greatest flexibility in cases where non-native trout are observed in previously allopatric brook trout strongholds. In all other cases, proposed projects will be reviewed with consideration to water quality and habitat, brook trout genetics, evidence of the suppression of brook trout, history of non-native trout occupancy and use, and probability of success.

Brook Trout Translocation Projects
Maryland Fishing and Boating Services has been collecting water quality and habitat data in coldwater streams with no trout occupancy to determine suitability for brook trout translocation. Green Spring Run in Washington County has been identified as a reintroduction candidate and will serve as a pilot project for translocation efforts. The brook trout population

in Rocky Gap Run has selected as the source population because of a high population density, sufficient genetic diversity, and similar habitat features in the two streams. In the spring of 2023, 25 to 30 individuals will be collected from Rocky Gap Run and released to Green Spring Run. Follow up surveys will be conducted in the fall of 2023 to determine success.

Coldwater Fisheries Advisory Committee

Maryland's Sport Fisheries Advisory Commission established the Coldwater Fisheries Advisory Committee in 2022. The committee has been meeting quarterly for over a year and is working on efforts to protect and improve Maryland's coldwater resources. Within the last year, the committee has submitted comments about Maryland Department of the Environment's Triennial Review of Maryland's Water Quality Standards, requested changes to Maryland's existing use determination process, and has recommended improved water quality protection in the North Branch Potomac River.

Habitat Enhancement Projects

Habitat enhancement projects are being pursed in Wolfden Run (North Branch Potomac River watershed) and Moores Run (Georges Creek watershed) in 2023. Wolfden Run supports a brook trout population that is limited to lower stream sections due to the presence of a deteriorating dam and AMD related water quality issues in the headwaters. Projects are being planned to remove the blockage and to use limestone sand treatments to improve water quality. Moores Run supports a small brook trout population that was discovered in 2022. An old impoundment in the headwaters is a source of silt and sediment and is likely elevating stream temperatures. An effort is under way to find partners and funding for a project will remove the impoundment dam, stabilize the sediment, and restore the stream.

Innovative Stormwater Management

Fishing and Boating Services staff met with the Maryland Department of the Environment to discuss innovative stormwater treatment methods and technologies. With increasing development throughout the state, improving stromwater management has become critical. A productive discussion concluded with the determination that improvements to stormwater management methods are limited and building planning and zoning was identified as an opportunity for improvement. Staff are currently identifying interested governmental and non-governmental partners for a work group that will investigate methods for incentivizing and encouraging building practices that limit impacts to aquatic resources.

North Carolina Wildlife Resources Commission
Update to the Southern Division of the American Fisheries Society Trout Committee
2023 Annual Meeting
Tailwater Lodge Bristol, TN
3–5 April 2023
Report submitted by Jake Rash

Socioeconomic Survey

Mountain trout fishing is a popular recreational activity in North Carolina, with a significant impact to North Carolina's economy. Surveys of trout anglers were conducted in 2008 and 2014 to assess public perceptions and economic impact. As nine years have passed since the last iteration, a new study is being conducted to assess trends in participation, economic impacts, angler preferences, motivations, specializations, satisfaction, and issues with access. Updated numbers will allow for an exploration of trends and will inform future management decisions.

Brook Trout Genetics

The NCWRC has been collecting genetic information for the State's Brook Trout in conjunction with trout distribution efforts. In 2016, the U.S. Geological Survey genotyped 7,588 Brook Trout representing 406 collections from across North Carolina at 12 microsatellite loci. Results of this effort found genetic diversity within populations to be low and that little, if any, gene flow occurs among populations. In addition, the majority of populations show limited evidence of introgression by northern origin hatchery strains. Since 2016, additional Brook Trout have been examined, and approximately 500 additional individuals will be processed annually. These results represent a valuable information for management and restoration efforts of Brook Trout in North Carolina. In addition, a phylogenomic study will be initiated to further understand adaptive potential and deep evolutionary lineages among populations, refine estimates of genetic relatedness and diversity, improve understanding of the distribution of adaptive traits across the landscape, and provide unprecedented insight into patterns of local adaption and past connectivity, which will increase the efficacy of brook trout reintroduction and restoration activities in North Carolina. Finally, U.S. Geological Survey and NCWRC researchers have a manuscript on genetic rescue in review. Relevant publications since previous Trout Committee update:

Rash, J. M., D. C. Kazyak, S. L. White, and B. A. Lubinski. 2023. Utilization of genetic data to inform native Brook Trout conservation in North Carolina. Pages 158–163 *in* J. Gregory, editor. Reducing the Gap Between Science and Public Opinion. Proceedings of the Wild Trout XIII Symposium, Bozeman, Montana.

Brook Trout Restoration

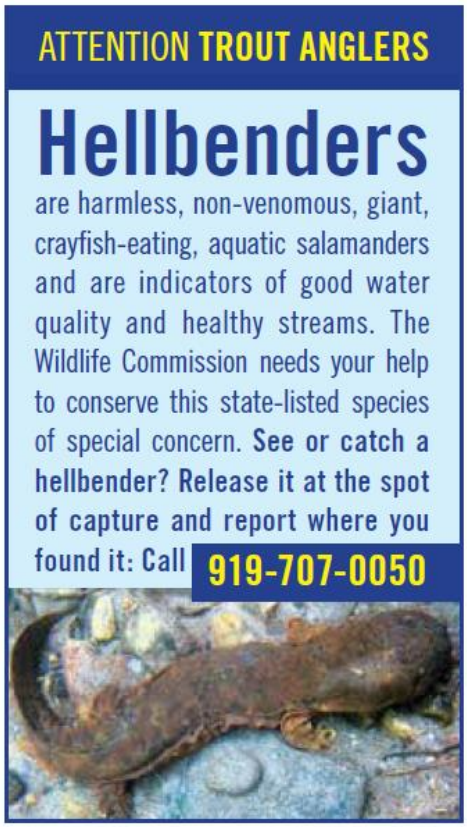
The NCWRC has used recent genetic data to plan Brook Trout restoration activities. We have worked with partners to conduct 17 projects during the last 15 years via the translocation of fish from selected source populations. Additional restorations are planned for 2023. Relevant publications since previous Trout Committee update:

White, S. L., T. C. Johnson, J. M. Rash, B. A. Lubinski, and D. C. Kazyak. 2023. Benefits of genetic data in design of Brook Trout translocation efforts. Pages 179–184 *in* J. Gregory, editor. Reducing the Gap Between Science and Public Opinion. Proceedings of the Wild Trout XIII Symposium, Bozeman, Montana.

White, S. L., T. C. Johnson, J. M. Rash, B. A. Lubinski, and D. C. Kazyak. 2023. Using genetic data to advance stream fish reintroduction science: a case study in Brook Trout. Restoration Ecology 31:e13662.

Trout Conservation Flows Downstream

The NCWRC continues to highlight how trout conservation can have a larger conservation footprint within a watershed. Specifically, an advertisement in the NCWRC's regulation digest continues to encourage trout anglers to help conserve the state-listed Hellbender (see below). In addition, staff developed an article for *Wildlife in North Carolina* magazine to educate trout anglers about the native, non-trout species that they may catch while trout fishing (link).



Trout Health

In 2015, *Myxobolus cerebralis* (*Mc*; the parasite that causes whirling disease) was confirmed in Rainbow Trout collected from Watauga River – the first documentation of the parasite in North Carolina. Subsequent testing of oligochaete hosts and wild trout stocks found the parasite in eight major river basins (Catawba River, French Broad River, Hiwassee River, Little Tennessee, New River, Savannah River, Watauga River, and Yadkin River basins). In addition, gill lice (Copepoda: Lernaeopodidae: *Salmincola*) have been found on Brook Trout and Rainbow Trout populations. Elsewhere within the United States, *S. edwardsii* and *S. californiensis* are known to

parasitize salmonids of the genera of *Salvelinus* and *Oncorhynchus*, respectively. Taxonomic and molecular analyses of copepods confirmed the identification of both species in the State. Although the NCWRC has conducted a multi-year research project with researchers from Auburn University to explore the distribution and life history characteristics of *Mc* and *Salmincola* in North Carolina, the NCWRC continues to sample trout populations across the mountains of North Carolina to aid these investigations (e.g., responding to angler reports, evaluation of potential native Brook Trout propagule sources for population restoration, and addressing a spatial deficiency in testing results). In addition, the NCWRC continues to support testing of private aquaculture facilities to ensure trout supplied for NCWRC-issued stocking permits are free of *Mc* and gill lice.

Didymo

Researchers from Tennessee Tech University collected cells of the microscopic algae in Tuckasegee River while conducting regional surveys in late 2015 – the first time the organism has been documented in North Carolina. In 2018, Tennessee Tech University researchers began a study to determine didymo prevalence in Tuckasegee River and other potential waters throughout the State. Anglers were equipped with sample kits in 2019 to continue assessment of the algae's spatial distribution. Additional information about this community science effort can be found at this (link).

Winter Stockings of Trout in Selected Small Impoundments

In November 2016, the NCWRC stocked selected small impoundments in the mountain region with trout. Community collaborators and the NCWRC have had long-standing partnerships to provide angling opportunities in these waters, which have focused primarily on channel catfish stockings in warmer months. Such stockings have been (and remain) dependent upon the availability of trout beyond the numbers needed to stock traditional stocked-trout resources (e.g., Delayed Harvest Trout Waters and Hatchery Supported Trout Waters). These stockings have been incredibly popular with anglers, and in 2019, they were expanded into the piedmont region of North Carolina. In winter 2022, the program resumed following catastrophic flooding at the Bobby N. Setzer State Fish in 2021.

General Aquatic Nuisance Species

The NCWRC has continues to develop a website devoted to aquatic nuisance species (ANS): www.ncwildlife.org/ANS. Currently, this page provides specific information about whirling disease, gill lice, didymo, and hydrilla. Available information also provides details regarding minimal steps to help prevent the spread of ANS (these steps have also been incorporated into NCWRC signs and messaging): CLEAN equipment of all aquatic plants, animals and mud; DRAIN water from boats, live wells and all equipment; DRY all equipment thoroughly; and NEVER MOVE fish, plants, or other organisms from one body of water to another.

Trout Distribution

The NCWRC continues its efforts to document the distribution of North Carolina's wild Brook Trout, Brown Trout, and Rainbow Trout populations. To date, over 700 Brook Trout populations have been identified. The NCWRC continues sampling efforts to identify new populations and

evaluate assemblages associated with legacy data. These occupancy data help support numerous conservation efforts (e.g., Eastern Brook Trout Joint Venture range-wide assessment, research [NCWRC, partner, and university], land acquisition, conservation planning, etc.). In addition, ancillary data collected via these samples populates critical, regional databases (e.g., Brook Trout restoration sites, habitat restoration opportunities, barrier inventory, etc.). In 2022, the NCWRC had a two-person crew (the Brook Trout Crew) focused on these collection efforts, and last year, the Brook Trout Crew conducted 132 surveys on 114 streams across 10 counties and five major river basins, collected genetic tissue from 44 Brook Trout populations, and discovered four Brook Trout populations that were unknown previously. Three of these unknown population were within the Savannah River Basin, which was a geographic area of focus in 2022 (59 surveys completed).

Long-term Trout Monitoring

In 2012, the NCWRC initiated efforts to obtain routine data on wild trout populations. Initial long-term monitoring efforts were completed in 1996; however, recent data are desired to gain a greater understanding of wild trout population dynamics in waters managed by the NCWRC. Colorado State University researchers are working with the NCWRC to evaluate population dynamics and future monitoring strategies. As appropriate, the NCWRC will continue to seek to partner with fellow resource agencies to develop more robust data sets.

Brook Trout Population Responses to Climate Variation Across the Southeast USA

Led by researchers at Colorado State University, and in conjunction with researchers at the NCWRC, U.S. Geological Survey Leetown Science Center, Great Smoky Mountains National Park, and U.S. Forest Service Southern Research Station, this project seeks to take a manager-centric, co-production approach to characterize how and why climate change impacts on Brook Trout populations differ over space in the Southeast USA. This project is composed of three phases: (1) Evaluate the robustness of GIS-derived landscape data to predict spatial variation in measured stream temperature and link thermal regimes to trout population stability over time, (2) Predict spatiotemporal variation in trout abundance and project population responses to future climate patterns for all stream segments, and (3) Develop a web-based decision support tool to inform and engage federal, state, and local partners managing coldwater resources. Each phase will inform the next, and upon completion, this project will have three primary outcomes: (1) allow trout managers to update their sampling protocols by identifying how often and where to sample given limited time and resources, (2) inform prioritization efforts at regional scales (e.g., Southeast Conservation Adaptation Strategy [SECAS], Southeast Aquatic Resources Partnership [SARP], and Eastern Brook Trout Joint Venture [EBTJV]) by identifying climate refugia and populations at greater risk, and (3) function as a planning tool to assist managers with spatial prioritization of management actions by ranking streams based on their population vulnerability to climate variation. Also, efforts are underway to characterize and locate fringe Brook Trout populations in North Carolina.

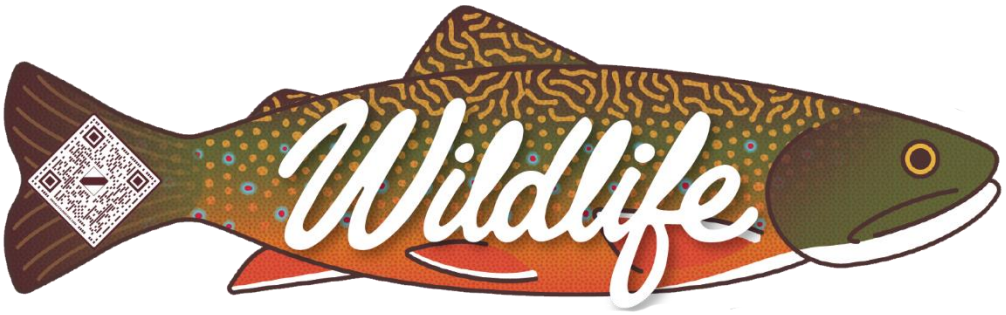
Lake Nantahala Kokanee Salmon Population

Kokanee Salmon *Oncorhynchus nerka* were stocked in western North Carolina reservoirs during the early 1960s, but Lake Nantahala was only system that successfully produced a self-

sustaining population that persists today. In 2014, the state record fish (4 lb and 1 oz) was caught, but since that time angler have been reporting lower catch rates and the emergence of a Blueback Herring *Alosa aestivalis* population within the reservoir. Exotic to western North Carolina, Blueback Herring are a planktivorous competitor of Kokanee Salmon. In 2017 and 2018, NCWRC staff worked with Duke Energy biologists to couple hydroacoustic and gill-net surveys to evaluate this unique fishery. Staff have developed an ArcGIS Survey123 project to allow anglers to collect real-time information relative to their catches from Lake Nantahala and its Kokanee population. An experimental stocking of Kokanee in Lake Nantahala occurred in 2020 and will be monitored via gill-net collections and angler observations (Survey 123 project noted above). It is important to note that the Kokanee Salmon stocking in Lake Nantahala is a temporary deviation from our cold-water fisheries management program, which typically focuses exclusively on Brook Trout, Brown Trout, and Rainbow Trout*;* therefore, we will not consider stocking Kokanee Salmon in any other water bodies. Our intent for these experimental Kokanee Salmon stockings is to restore the historic population in Nantahala Reservoir and not to expand the range of Kokanee Salmon in North Carolina waters.

NCWRC Trout Page

The NCWRC continues to update its trout webpage to provide pertinent information concerning its trout management program in one place to help facilitate information exchange. The page can be found at www.ncwildlife.org/trout. Recently, a sticker was developed to promote the trout page via a QR code (see below).



Habitat Enhancement

The NCWRC is actively engaged with partners to identify and initiate coldwater habitat enhancement projects. Efforts span the range of trout distribution in North Carolina, which includes waters on public and private lands. Additionally, staff have initiated a project to evaluate the efficacy of a rubberized fish ladder (Flexi-Baffles) to improve passage within a native Brook Trout population. Habitat enhancement activities remain a key aspect of trout management in the state.

Eastern Brook Trout Joint Venture

NCWRC has continued to be actively involved with the Eastern Brook Trout Joint Venture (EBTJV). Jake Rash serves as North Carolina's State Representative on the Steering Committee, Chair of the Steering Committee, and a member of the Science and Data Subcommittee.

Additional Publications from Previous Efforts

Previous research efforts and NCWRC activities have been reported in other SDAFS Trout Committee updates. This section provides additional information relative to those efforts.

Truong, T. N., S. S. Curran, F. B. Reyda, J. M. Rash, S. A. Bullard. 2022. *Plagioporus wataugaensis* n. sp. (Digenea: Opecoelidae) infecting intestine of northern hogsucker, *Hypentelium nigricans*, and white sucker, *Catostomus commersonii*, (Cypriniformes: Catostomidae) from the eastern U.S.A., including an emended diagnosis, key to Nearctic congeners, and phylogenetic analysis. Parasitology International 89:102580.

2023 SDAFS Trout Committee Meeting
S. Holston Tailwater Lodge, Bristol, TN
Submitted by Jim Habera

1. *Native Brook Trout restorations and enhancements*:

    - Native Brook Trout restoration in Norton Creek (2 km) in 2021 (partnership with the landowners, NPS-GSMNP, TU, and USFWS) involving removal of hatchery-origin Brook Trout was successful. YOY Brook Trout were present throughout the restoration zone in a summer 2022 survey.
    - Rainbow Trout removal to be completed in Right Prong Rock Creek (Nolichucky River watershed) during summer 2023; native Brook trout to be translocated (hopefully) in 2024 (from Phillips Hollow—via NC)
    - Planning to translocate native Brook Trout to Little Paint Creek (French Broad River watershed); fish from GSMNP streams (partnership with NPS).
    - More restoration work in Region 3 (Tellico River/Citico Creek watersheds)

2. *Tailwater trout fisheries*:

    - The CFRU/Tennessee Tech research project to assess stocked Rainbow Trout survival, growth, and recruitment in the Norris and Ft. Patrick Henry tailwaters has been completed. Substantial natural reproduction by Rainbows and limited recruitment of stocked fingerlings in the Norris tailwater may result in reduced or suspended fingerling Rainbow Trout stocking. Stocking of Rainbow Trout fingerlings in the Ft. Patrick Henry tailwater may also be curtailed because of limited recruitment.
    - No Cutthroat Trout stocking in 2022; scheduled for fall 2023 (Yellowstone instead of Snake River Fine-spotted subspecies). State record reset a few times but currently stands at 2 lbs. 8 oz. (Ft. Patrick Henry TW). Collected 3 lb. 12 oz. and 2 lb. 11 oz. fish in Boone TW in March 2023 during annual monitoring sample.
    - No Brook Trout available for 2023 (Boone and Norris tailwaters in Region 4).
    - Some anglers are expressing interest in establishing special harvest regulations for Brown Trout in Boone Reservoir (receives S. Holston and Wilbur tailwaters). Large fish are present in the Boone and striper anglers often catch them in spring. Most likely change (if any) would be to extend the S. Holston TW 16-22" PLR down to Boone Dam.

3. *Other Trout Waters*:

    - Preparing to recommend prohibiting bait collection (netting, seining, etc.,) in Buffalo Creek. This stream flows from the hatchery, is stocked weekly, and has a DH season.

4. *AOP:*

    - Replaced culverts on two native Brook Trout streams (in Cherokee National Forest) with bridges. One of these projects involved a Brook Trout restoration project and received EBTJV funding.

5. *Marketing:*

    - Marketing research indicated that TWRA received 17$ for every 1$ spent on trout-oriented marketing—the best return on investment in the program.

TWRA Region 3 SDAFS TC 2023 Roundtable Minutes
Region III Fisheries
Submitted by Justin Spaulding

Striped Bass in Tailwaters

The stomach contents of Striped Bass were analyzed for fish occurring within the Caney Fork River below Center Hill Dam. Striped Bass were collected through boat electrofishing targeting large pools at periods of no-generation. Fish were netted, placed in a livewell, measured (TL), and weighed (g). Fish were immobilized with electrical anesthesia gloves from SmithRoot. Stomach contents were removed using gastric irrigation with clear acrylic tubes. Prey items were quantified by percent frequency of occurrence and weight (g). Stomach contents were identified to genus. Study specimens were marked with a dorsal tag and returned to the water.

Fish were collected at specific intervals post stocking. Additionally, on days immediately after stocking, sampling occurred at sites that had been stocked and not stocked. Year to year variation in shad abundance may be influencing results. Sampling at intervals of days post-stocking instead of weeks post-stocking and in more years will help account for some biases. As of 2022, 59 Striped Bass have been sampled from three rivers during five sampling events.

A closed-system mark-recapture method was attempted in the same reaches where 32 fish had been tagged the day before. No live fish were recaptured, and one dead tagged fish was observed about 1 km downstream of a sample reach. Only two striped bass were collected on the second day of sampling where large schools were observed the day before. There were two sample reaches during the mark-recapture effort consisting of 3,800 m and 1,200 m.

Creel

Staff just completed an annual creel survey on the Tellico River intensively stocked resource. Estimates indicated over 90% of the 61,000 stocked trout were harvested. It was not uncommon to observe hundreds of anglers on a weekend morning. Students from Cleveland State Community College are conducting a creel survey on Hiwassee River. Both surveys are using Survey123 and iPads for data collection. This drastically reduces the time cost for data entry and allows managers to keep near instantaneous tabs on data as it is collected. Tennessee has been experimenting with QR codes and other passive creel techniques with mixed results. We are open to any other ideas to add more techniques to the fleet.

Brook Trout

Staff will complete a third year of stocking hatchery reared SABT fingerlings into North Fork Citico Creek, Ike Camp Creek, and Sugar Cove Branch. These restorations add 2.5 miles of distribution to our understanding. Staff will conduct qualitative sampling during spring of 2023 to try and detect evidence of reproduction from previously stocked cohorts. An additional 105

fingerlings from the Tellico Hatchery were stocked for the first time into Big Oak Cove Branch, which adds another 0.3 miles.

Trout Unlimited and Lee University are collecting eDNA and performing distribution surveys with assistance from Cherokee National Forest and Tennessee Wildlife Resources Agency. Several partners are also piloting large woody debris additions and habitat surveys in wild trout streams on South Cherokee National Forest.

Virginia

Submitted by Brad Fink (VDWR)
April 2023

Stocked Trout

Tiger Trout

Virginia began raising Tiger Trout in Coursey Springs Hatchery in spring of 2021 to determine their growth and survival in the hatchery compared to other species. Tiger Trout survived and grew better than Rainbow Trout and will most likely become a constant product of the hatchery. The initial goal was hatchery oriented, but it created a fairly large buzz among anglers as well. Anglers seems to be pleased with the Tiger Trout that have been stocked.

Stocked Trout Angler Creel Survey

VDWR plans to conduct an angler creel survey on stocked trout waters in 2024 and 2025 to gather information and update Virginia's Stocked Trout Management Plan. VDWR continues to implement the strategies in the current management plan to reach the objectives and goals presented in the plan.

Wild Trout

eDNA

The VDWR conducted eDNA sampling for Brook Trout in conjunction with USFS in 2019 and 2020. We sampled 85 streams to determine presence/absence of Brook Trout.

"Investigating the Use of eDNA Monitoring to Improve Management of Wild Brook Trout in Virginia."

Abstract - The Virginia Department of Wildlife Resources (VDWR) has managed wild Brook Trout *Salvelinus fontinalis* populations using a standard backpack electrofishing (EF) protocol for over 40 years. In 2019 and 2020, with the advent of environmental DNA (eDNA), the VDWR and United States Forest Service (USFS) explored using eDNA to monitor Brook Trout populations. Streams were sampled across the native range of Brook Trout in Virginia using both the standard electrofishing protocol and eDNA sampling to determine if the electrofishing protocol was accurate. In 2020, we sampled 56 streams where eDNA sampling and standard electrofishing were paired. Environmental DNA and standard electrofishing sampling presence/absence results matched at 52 of these streams. Additionally, data from the VDWR Coldwater Stream database was examined to determine where Brook Trout populations may have been extirpated. There were 36 streams identified based on the electrofishing protocol that indicated Brook Trout populations may be extirpated. In 2019, eDNA sampling indicated 8 of 36 streams thought to be extirpated were positive for Brook Trout DNA. Results indicated that determining presence or absence of Brook Trout using eDNA is more accurate and efficient than VDWR's standard

electrofishing protocol. The Virginia Department of Wildlife Resources plans to incorporate eDNA as a component of the standard electrofishing protocol. We found that eDNA sampling is a useful tool to identify streams where populations may have been extirpated and therefore where repatriation could be useful to increase resiliency of Brook Trout across their native range. The sampling efficiency of eDNA will allow agencies to more effectively monitor potential population loss due to pending climate change. Goals of both the Eastern Brook Trout Joint Venture (EBTJV) and Chesapeake Bay Program (CBP) are focused on conserving and increasing stream habitat occupied by Brook Trout. Using eDNA detection methods will allow for more accurate assessments toward reaching the goals in conserving Brook Trout populations.

Abstract was accepted by Wild Trout 2022 and presented by Steve Reeser at the meeting in August of 2022.

Reintroductions

DWR is looking into reintroducing trout in multiple streams thought to be extirpated of Brook Trout. These streams originally had Brook Trout prior to 1990, but have not had a positive eDNA or electrofishing sample results since. Limiting factors including temperature, pH, etc. will be examined prior to transporting fish from a nearby source.
Most recent reintroduction in Passage Creek: https://www.youtube.com/watch?v=qrKnzZ2UI1M

Impact of Stocking Hatchery Trout over Wild Brook Trout

In 2021 and 2022 we sampled multiple locations on five streams to begin determining the possible impacts to wild trout populations. Dry River, North River (Shenandoah Valley), Helton Creek, Fox Creek (Southwest VA) and South Fork Piney River (East Blue Ridge) were sampled. Three of the streams had four sites sampled and two had six sites. On streams with four sites, two were within the stocked section and two were not. A similar approach was taken on the streams with six sites. These samples were collected in late July and early August in 2021, then again in May of 2022 and August of 2022. Otoliths were collected near each sample site in August of 2022. VDWR plans to sample these same streams in 2023. Preliminary results of catch rate and relative weights indicate no impacts to the wild populations. Age and growth will be analyzed in 2023.

Wild Fish Health Sampling

We are continuing our fish health sampling efforts in wild Brook Trout streams. VDWR Regions II, III and IV have been choosing two wild trout streams each year and sending samples to the Lamar Fish Health Center in Lamar, PA for analysis. Streams were initially chosen based on fishing pressure and popularity, since these streams are visited more often.

Brown Trout Introduction Impacts on Wild Brook Trout

"Trends in Biomass and Relative Weight of Brook Trout in Response to Introduction of Non-native Brown Trout in an Appalachian Mountain Stream" ….. Publication in the 2021 Journal of SEAFWA. Virginia is monitoring streams with wild Brook Trout and Brown Trout coexisting and

have not seen Brown Trout overtake Brook Trout. Other streams will be added for analysis as long-term datasets become available.

AOP Training and Assessments

In June of 2021 multiple DWR biologists and staff received AOP assessment training for North Atlantic Aquatic Connectivity Collaboration (NAACC) with the USFWS. Biologists plan to conduct AOP surveys during wild trout monitoring surveys, in select watersheds with wild Brook Trout and on DWR Wildlife Management Areas to determine AOP concerns and prioritize crossing for improvements. This will be completed in partnership with "sister" agencies.

Outreach

Facebook / YouTube

Have been putting videos, etc., on social media about stocked and wild trout management and fishing to engage with the public.

Trout Slam

VDWR launched a marketing campaign called the Virginia Trout Slam. Anglers can catch all 3 species in one day, take pictures and send it in, the angler will get a bumper sticker. Over 100 people did it the first year. This program was supported by publicizing the stocking of all three species in waterbodies and it was successful. More information here https://dwr.virginia.gov/fishing/virginia-trout-slam-challenge/

Saving Private Stocked Trout Waters

Bringing community members together to clean private waters has retained fishing access on stocked trout waters in Shenandoah County. Individuals from other stocked trout waters attended the 2023 cleanup event in March to get ideas for their own cleanup days. See video on YouTube here: https://www.youtube.com/watch?v=McnEppTzw5c

West Virginia Roundtable Updates – 2023 report to the SDAFS Trout Committee
Submitted by David Thorne

- Trout Stream Surveys
    - 99 native Brook Trout (nBKT) data gap surveys – 74 nBKT positive, 13 for 2024 follow-up – nearly complete coverage of genetic material gathering across all HUC12s range wide
    - 94 Southern WV Trout Surveys – south of New River is not nBKT range – Rainbow and Brown Trout management opportunities in waters enhanced by cold-water discharges from alkaline coal mines – 25 wild reproducing trout positive, n of 1 – 46 trout per 100m, majority are allopatric Rainbow Trout, some have Rainbow and Brown trout, none are allopatric Brown Trout
        - These surveys document reproducing trout populations as a designated water use for the WV Department of Environmental Protection, affording the streams enhanced water quality standards (iron, aluminum, turbidity/sediment). These southern streams are in areas of high-density coal mining operations.
    - 2023 plans to follow-up with recent negative BKT encounters to confirm losses and describe limitations to persistence as well as continuation of gap surveys
    - Continued summer stream temperature monitoring and perennial climate monitoring with paired air/water loggers
- Stream Habitat Improvements/AOP
    - 2022 - 2 miles of instream large wood placement (excavator placement) with WVU group on Monongahela National Forest – First Fork (major Shavers Fork trib) to improve habitat and study the effects of added wood on nitrogen budget in the watershed
    - 2023 – Beaver Creek and Lambert Runs (1 mi each) of similar treatment, also Shavers Fork tribs
    - USFS has hand crews working with chainsaws and griphoists to increase wood loading in reaches farther upstream where smaller wood can be more effective
    - Kumbrabow State Forest low-water crossing removal/restoration – US Army Corps of Engineers is funding large portion with Section 206 monies (Bipartisan Infrastructure Law initiative)
    - Statewide AOP workgroup established to prioritize BIL funded projects across the state – major player is Division of Highways
- Native Brook Trout rearing facility at Reymann Memorial Farm complex – Brandon Keplinger and staff seems to have high confidence and success breeding and rearing quality native Brook Trout for augmentation and restoration opportunities – 2023

currently have about 1200 individuals for release into 4 or 5 waters of the Chesapeake Bay basin. All pairings are best-fit genetically for the waters they will be released to.

- Hatcheries – Jim Hedrick, Program Manager
    - Bowden Hatchery went back online in 2022 with $10 million in upgrades
        - State of the art Recirculating Aquaculture System
        - Now has 60 – 100 foot raceways
        - RAS includes drum filters, UV sterilization, CO_2 degassing, and Low Head Oxygenators, and new wastewater treatment
        - Expected to increase annual production from 200,000 pounds to 300,000 pounds annually
        - Upgrades reduce water usage by 50%; incoming and recirculating 8,000 gpm
    - 6^{th} Annual Gold Rush underway in selected waters
    - Established a new stocked trout float fishing opportunity on South Branch Potomac between Petersburg and Moorefield – seasonal put & take fishery only
    - Established a new walking or floating opportunity on the Greenbrier River between Durbin and Cass stocked by rail
- Special Regulations
    - New areas initiated by local interests in southern WV
        - Upper Guyandotte River and Barkers Creek watersheds – approx. 130 miles of varying fishery quality of Catch and Release waters, artificial lures and flies only
        - Elkhorn Creek watershed – approx. 103 miles, lots of high quality fisheries
        - Local interest is to help stimulate local tourism opportunities
    - Temperature monitoring and desire for more Delayed Harvest waters has us re-evaluating some of our established C&R areas that have high summer mortalities
        - Shavers Fork – 5.5 mi C&R changed to Delayed Harvest
        - Williams River – 2 mi C&R changed to Delayed Harvest
        - Paint Creek – 2 mi C&R increased to 12.5 mi and changed to Delayed Harvest
    - Total Special Regulations Waters approaching 400 miles of native, wild, and stocked trout waters
        - Catch and Release waters – 12 areas of 26.4 mi and 8 wild trout watersheds
        - Delayed Harvest waters – 5 areas of 22.2 mi
        - Fly Fishing Only – 5 areas of 6.2 mi and 2 native Brook Trout watersheds
- West Virginia University Research – driven by Trout Management Plan objectives
    - Ph.D. – sediment, Stable Isotope mainstem vs. tributary connectivity

    - Ph.D. – laboratory temperature and consumption at near threshold temps
    - M.S. – small stream long-term population findings expanded into larger nBKT watersheds
    - M.S. – stocking over nBKT impacts and angler catch rates of nBKT when targeting stocked trout
    - Ph.D. – Ohio basin native Brook Trout genetics
    - eDNA – possible contract with Wild Genomics lab analysis
- Personnel & staffing
    - New vacancy for Assistant Biologist in District 4 (southeast)
    - New pay plan to increase Biologists, Managers, and Hatchery staff
        - New series of Fish Culturist should help with staff recruitment and retention