Eastern Brook Trout
JOINT VENTURE
A Fish Habitat Partnership

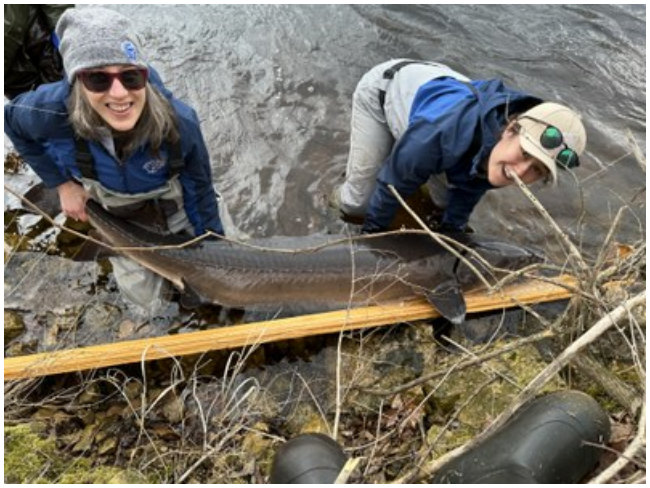
EBTJV Habitat News

The EBTJV is excited to welcome the Tennessee Aquarium as our newest MOU member, bringing us to 39 MOU partners. We share an interview with Stephanie Chance about the Conservation Institute's response to a 2024 drought event, their recovery efforts for Laurel Dace and Brook Trout, and more.

Here for the research links? In addition to news clips, we've compiled a (definitely not exhaustive) list of publications through mid-2024 related to Brook Trout population dynamics and distribution, genetics and hatchery influence, ecological interactions, and pollution and environmental impacts.

Speaking of research, please join us in congratulating Vermont's Jud Kratzer for his recent award on behalf of Vermont FWD for research on wood additions to northern VT streams. Every time we speak to Jud we learn a little more about this technique and its benefits to not just Brook Trout, but also fluvial function and ecosystem health. VFWD's recent work, in partnership with TU, the US Fish and Wildlife Service, and Weyerhaeuser Corporation, demonstrated how wood addition traps sediment and reduces sediment and nutrient loads downstream.

Please let us know what you think, and if there are topics you'd like us to cover next.



Meet Stephanie Chance and the Tennessee Aquarium

What unites Brook Trout, Laurel Dace, and Lake Sturgeon? EBTJV invited Stephanie Chance of the Tennessee Aquarium's Conservation Institute to talk to us about the Conservation Institute, its species recovery efforts and other conservation work, what makes for stellar outreach and fundraising, and its work on Brook Trout.

The Tennessee Aquarium is the newest signatory to the EBTJV Memorandum of Understanding, bringing the MOU list to 39 partners. The Tennessee Aquarium's Conservation Institute is a leader in restoration work, research, and outreach on the rich aquatic biodiversity of the Southeast.

Also, we are happy to help promote their "Laurel Dace Day" on May 17.

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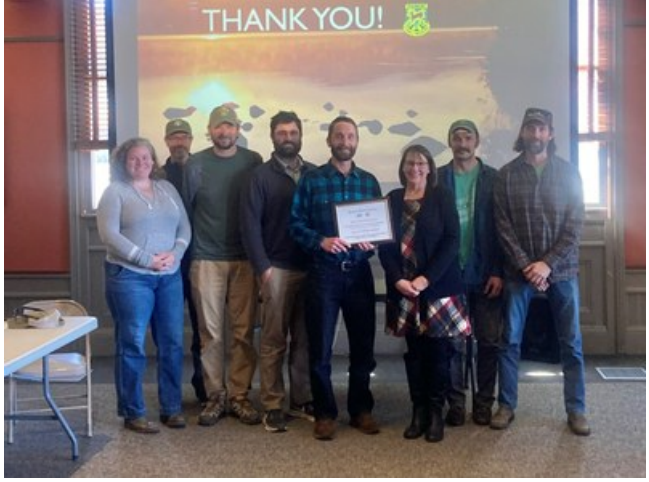

AFS recognizes VFWD biologist Jud Kratzer's research on strategic wood addition

What has increased the count of Brook Trout in northeastern Vermont by over 76,000? According to Jud Kratzer and the Vermont Fish and Wildlife Department, the answer is strategic wood addition.

In March, Jud Kratzer formally received the 2024 AFS Fisheries Administration Section's award for Outstanding Project in the Sport Fishery Development and Management Category.

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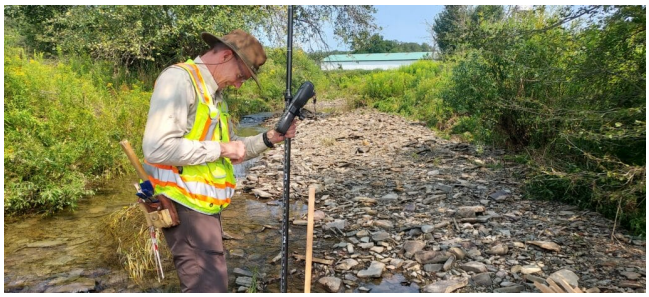
photo above: Jud Kratzer receives an award for Outstanding Project, on behalf of VFWD and partners, at the March 2025 Department meeting. The award was presented by the AFS Fisheries Administration Section President Lynn Quattro (Assistant Chief Freshwater Fisheries, SC DNR). Credit Joshua Morse – VFWD



Faces Of Restoration: Gian Dodici - Trout Unlimited (sharing TU content)

"Taking a dam out and seeing a free-flowing river again," he reflects. "I've got the best job in the world."

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Research on 6PPD-quinone: Where the Rubber Meets the Road (Sharing from USGS Ecosystem Mission Area, Environmental Health).

Stormwater and road runoff are recognized forms of pollution that can contain chemicals harmful to fish and other aquatic animals. This includes 6PPD-quinone, the oxidized form of the chemical compound 6PPD that is used to prevent tires from degrading and cracking, ensuring driver safety.

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In the News

April 15, 2025 – Beaver dams can improve watersheds in Pennsylvania – Williamsport Sun-Gazette. Beaver activity is enhancing stream health and habitat complexity in Pennsylvania watersheds, benefiting fish populations and water quality.
April 16, 2025 – New York culvert project expands Adirondack brook trout habitat – Outdoor News. A collaboration between Trout Unlimited and the New York State Department of Environmental Conservation is restoring culverts to reconnect brook trout habitats in the Adirondacks.
April 22, 2025 – FishAmerica Foundation and Partners Invest in Conservation – Fishing Tackle Retailer. Overmountain Chapter of TU (Tennessee) receives funding to reconstruct a barrier for rainbow trout that was damaged in Helene.
April 29, 2025 -- WV Rivers Coalition, Than Hitt received an award from Trout Unlimited.
May 8, 2025 – He caught a big brookie after fishing Moosehead 20 years – Bangor Daily News. After two decades of fishing Moosehead Lake, Alton Wilson lands his largest brook trout: 24.5 inches and 7.04 pounds.
May 8, 2025 -- DEC and New York State Water Resources Institute Award More Than $371,000 in Watershed Research Grants. NY.gov - Funding Supports Eleven Projects Addressing Critical Water Resource Issues in the Hudson River Estuary, Mohawk River, and Great Lakes Watersheds

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New Publications

- **Bauerlien, C., and Hartman, K.J.** 2025. SSRN Electronic Journal. Application of an ecologically relevant thermal tolerance metric reveals “heat weakening” in a salmonid The study introduces a new thermal tolerance metric to assess heat stress in brook trout, revealing a phenomenon termed "heat weakening," where repeated exposure to high temperatures reduces thermal tolerance.
- **Childress, E.S., Demarest, E.D., Wofford, J.E.B., Hitt, N.P., and Letcher, B.H.** 2024. Transactions of the American Fisheries Society 153(2):250–263. Strong variation in brook trout trends across geology, elevation, and stream size in Shenandoah National Park Analyzing long-term data, this study found that brook trout population trends vary significantly based on geological features, elevation, and stream size, emphasizing the need for site-specific conservation strategies.
- **Durhack, T.C., Thorstensen, M.J., Mackey, T.E., Aminot, M., Lawrence, M.J., Audet, C., Enders, E.C., and Jeffries, K.M.** 2025. Journal of Experimental Biology 228(3):jeb249964. Behavioural responses to acute warming precede critical shifts in the cellular and physiological thermal stress responses in a salmonid fish (brook trout, Salvelinus fontinalis) This research found that brook trout exhibit behavioral changes in response to acute warming before significant cellular and physiological stress responses occur, suggesting early behavioral indicators of thermal stress.
- **Erdman, B., Larson, W., Mitro, M.G., Griffin, J.D.T., Rowe, D., Haglund, J., Olson, K., and Kinnison, M.T.** 2024. Evolutionary Applications 17(12):1234–1245. Complications of estimating hatchery introgression in the face of rapid divergence: A case study in brook trout (Salvelinus fontinalis)This research highlights the challenges in estimating hatchery introgression in brook trout populations due to rapid genetic divergence, underscoring the complexity of managing genetic integrity.
- **Hitt, N.P., Rogers, K.M., & Kelly, Z.A.** (2024). Declines in Brook Trout Abundance Linked to

Atmospheric Warming in Maryland, USA. Hydrobiology, 3(4), 310–324. This study analyzed 36 years (1988–2023) of brook trout population data from Maryland streams. The researchers found significant declines in adult brook trout densities at 27% of surveyed sites, correlating strongly with rising air temperatures.

- **Jeon, Hyung-Bae, Yates, M.C., Gallagher, B.K., and Fraser, D.J.** 2024. Canadian Journal of Fisheries and Aquatic Sciences. Life's a ditch: Demographic history and environmental factors shape fine-scale local adaptation within small populations of brook trout. This study shows how fine-scale adaptation in small brook trout populations is shaped by their unique demographic histories and environmental settings, emphasizing the role of localized management.
- **Johnson, Z.C., Briggs, M.A., and Hitt, N.P.** 2024. Science of The Total Environment 857:159168. Can brook trout survive climate change in large rivers? If it rains This study suggests that increased precipitation may help brook trout populations in large rivers withstand the effects of climate change by maintaining suitable thermal habitats.
- **Kurek, J., Fraser, M.P., Nakamoto, B.J., Kidd, K.A., & Edge, C.B.** 2025. Legacy DDT and its metabolites in Brook Trout from lakes within forested watersheds treated with aerial applications of insecticides. PLOS ONE, 20(4), e0320665. This study found that brook trout from lakes treated with aerial DDT decades ago still contain residues exceeding Canadian wildlife safety guidelines, highlighting the long-lasting impact of legacy pollutants in aquatic ecosystems.
- **Michaelides, S.N., Pelletier, C., Frawley, C.J., and others.** 2025. Freshwater Biology 70(4):789–802.Minimal introgression but restricted gene flow: How stocking and dams influence wild brook trout (Salvelinus fontinalis) genetics and morphology The research revealed that while stocking has led to minimal genetic introgression in wild brook trout populations, dams have significantly restricted gene flow, affecting genetic diversity and morphology.
- **O'Donnell, MJ, AM Regish, SD McCormick, BH Letcher.** 2025. Journal of Thermal Biology. How quickly do brook trout lose long-term thermal acclimation? Study found a gradual loss of acclimation and discuss how it may be valuable to persistence and will be important to include in models of the impact climate change has on brook trout and other aquatic ectotherms with significant thermal plasticity.
- **Pelletier, C., and Forrester, G.** 2025. Transactions of the American Fisheries Society 154(1):123–135. Brook trout habitat selection and movements in fragmented streams at high temperatures The study investigated how brook trout select habitats and move within fragmented stream networks under high-temperature conditions, highlighting the importance of thermal refugia and connectivity.
- **Robinson, Z.L., Coombs, J.A., Hudy, M., Nislow, K.H., & Whiteley, A.R.** 2024. Evolutionary Applications 17(10):e13769. Estimates of Effective Number of Breeders Identify Drivers of Decline in Mid-Atlantic Brook Trout Populations. This study uses estimates of the effective number of breeders (Nb) in brook trout populations across the Mid-Atlantic to identify key drivers of population decline. Results highlight how environmental stressors, including habitat fragmentation and climate-related warming, reduce reproductive potential.
- **Sánchez-Hernández, J., Bærum, K.M., Byström, P., Arranz, I., and others.** 2025. Hydrobiologia 850(3):567–580. Differences in trophic niches and life-history traits between brook trout and brown trout in alpine lake food websThis study compares the trophic niches and life-history traits of brook trout and brown trout in alpine lakes, providing insights into their ecological interactions and potential competition.
- **Stewart, E.M., Bowman, J.C., Wilson, C.C., and Raby, G.D.** 2024. Conservation Physiology. Local conditions drive interpopulation variation in field-based critical thermal maximum of brook trout. This study examined how local environmental conditions influence the critical thermal maximum (CTmax) of brook trout populations, revealing significant interpopulation variation driven by habitat-specific factors.
- **Studio, J., and May, C.** 2025. North American Journal of Fisheries Management 45(2):456–468. Will the reexpansion of American Eel reduce brook trout populations or affect fish stocking in mountain streams? This study assessed the potential impacts of American eel reexpansion on brook trout populations and stocking practices, finding minimal negative effects on brook trout.
- **Yates, M.C., Wilcox, T.M., Kay, S., Peres-Neto, P., & Heath, D.D.** 2025. A Framework to Unify the Relationship Between Numerical Abundance, Biomass, and Environmental DNA. Environmental DNA, 7(2), 123–135. Using data from two previously studies of biomass and eDNA for brook trout, they demonstrate that quantitative eDNA data is unlikely to correspond exactly to either population *N* or biomass but can be adjusted to simultaneously reflect both.

And other items of interest:

- **Goodling, P.J., Fair, J.B.H., Gupta, A., Walker, J.D., Dubreuil, T.L., Hayden, M.J., & Letcher, B.H.** 2025. A low-cost approach to monitoring streamflow dynamics in small, headwater streams using timelapse imagery and a deep learning model. EGUsphere, Preprint. This study presents a cost-effective, non-contact method for monitoring streamflow in small headwater streams using time-lapse imagery and a deep learning model called Streamflow Rank Estimation (SRE). By capturing repeat images from fixed cameras and annotating pairs to indicate relative flow, the SRE model ranks images to produce a relative hydrograph. This approach offers a scalable solution for extending stream monitoring networks, particularly in under-monitored headwater systems.
- **Ouellet, V., Fullerton, A.H., Kaylor, M.J., Naman, S.M., Bellmore, R., Rosenfeld, J., Rossi, G., White, S., Rhoades, S., Beauchamp, D.A., Liermann, M.C., Kiffney, P., & Sanderson, B.** 2025. Food for fish: Challenges and opportunities for quantifying foodscapes in river networks. WIREs Water, 12(1), e1752. This paper introduces the concept of "foodscapes"—how food availability varies across space and time in rivers—and explores how these patterns affect fish populations. It outlines challenges in measuring food abundance, accessibility, and quality, and calls for better tools to improve conservation and management.

The list above was created via a combination of Google Scholar, suggestions from colleagues, and generative AI (for descriptions in this section only). Please help us refine this process: reach out if any of the content is in error, or if you'd like to see simliar content for related subjects.

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Support Brook Trout conservation

Help us keep wild Brook Trout on the map! The Eastern Brook Trout Joint Venture accepts monetary donations through our 501c(3) nonprofit sponsor Beyond the Pond. Donations are tax deductible to the extent allowed by

law. When you select EBTJV as the Fish Habitat Partnership to support, all funds go to us and go towards outreach, coordination, and on-the-ground habitat projects that improve cold water habitat so that future generations can enjoy catching this beautiful fish.

Donate Now

The Eastern Brook Trout Joint Venture (EBTJV) is a geographically focused, locally driven and scientifically based effort to protect, restore and enhance aquatic habitat throughout the Brook Trout's Eastern US native range. Learn more
We are a member of the National Fish Habitat Partnership
Our 501c(3) sponsor is the Canaan Valley Institute

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