

Protect, Restore, Reconnect, Sustain

The Eastern Brook Trout Newsletter

A partnership between
Trout Unlimited
And the
Eastern Brook Trout Joint Venture
Together with all who value
Brook Trout
And the Habitat Quality it Represents



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Important:

Due to suggestions regarding distribution of this newsletter, we are changing our distribution process to a direct email method. The newsletter team is asking for direct email addresses of those who would like to receive this newsletter. Please forward your email addresses to mwoolman@crosslink.net

We will be sending an invitation to TU members and designated agency staff as a reminder after field season is completed. Please complete and return the invitation in order to receive this newsletter on a quarterly basis. Thanks.

A message from the editor

The Editor defers this front page to a wonderful report from Amy Wolfe, who leads Trout Unlimited's Kettle Creek Home Rivers Initiative in PA to combat Acid Mine Drainage, (AMD) and is now moving that focus to the West Branch of the Susquehanna Restoration Initiative. This article reminds us that brook trout restoration doesn't just happen, but it takes partnerships, science and technology, and the driving forces of passion and energy. When these factors come together, good things happen. I hope this article will inspire you to keep up the good work, as we ARE making a difference. Enjoy.

Tight Lines,
Marcia

Protect, Restore, Reconnect, Sustain

Brook Trout

By

Amy Wolfe

Several majestic old-growth hemlocks border the stream and help to create a dense canopy that blocks much of the sun's radiant heat from warming the water too much. Too much for the skittish little brook trout, that is, who dart through the shallow riffles on their way to hide in the deep pool beneath the exposed roots of a hemlock tree. Lucky little fellows, I think as I make my way down the creek in a section where the water used to have a pH of 2.5. I envision them having fun and competing with each other as they explore the "new" nooks and crannies downstream from the upper reaches where they were once isolated and held captive above the inflow of abandoned mine drainage (AMD).

The stream I am describing is Huling Branch and it now provides nearly 2,000 more feet of clean, cold-water for brook trout to inhabit. Huling Branch begins as a Class A native brook trout stream, but severe mine drainage from abandoned surface and deep coal mines rendered the stream lifeless for nearly half its length before emptying into Twomile Run, a major tributary to Kettle Creek, which in turn empties into the West Branch Susquehanna River in north central Pennsylvania.

In 2004, we identified the first source of AMD to Huling Branch, which was emanating from an abandoned deep mine. We installed a collection system (basically a French drain) to collect the flow of AMD directly from the deep mine and divert the flow to a downstream location where future treatment would be feasible. The relocation of AMD via this collection system meant that this section of stream was no longer receiving a lethal dose of heavy metals (i.e. iron and aluminum) and acid every day. [Future projects will work to eliminate the source of the pollution, in this case an abandoned deep mine, through re-mining and reclamation.]

Since brook trout were well-established in the unimpaired water upstream from this deep mine discharge, we were obviously very curious if they had moved back into the section of stream no longer impacted by AMD. With the assistance of the PA Fish and Boat Commission, we conducted an electrofishing survey nine months after the installation of the collection system. Sure enough, we found a thriving population of brook trout. It wasn't quite up to Class A standards yet, but who cares what the classification might be – there were brookies! Most likely over time, the bottom substrate that has been coated for decades with heavy metals will become clean again and more hospitable to aquatic insects, thereby attracting more predators a.k.a. brook trout.

There are so many coldwater mountain streams throughout the Appalachian coal states just like Huling Branch that have absolutely gorgeous habitat, but are polluted by AMD and devoid of aquatic life. Take for example the West Branch Susquehanna River basin in Pennsylvania. Nearly 80% of the more than 1200 stream miles impacted by AMD already have supporting habitat and harbor the potential for restoring brook trout. The work to restore these streams in the West Branch Susquehanna watershed is underway through TU's West Branch Susquehanna Restoration Initiative – however, as typical of AMD cleanup, the work is slow, challenging, at times daunting, and tremendously expensive, but the results are enduring. Also, seeing brook trout thrive once again in a stream

Huling Branch has some of the "hottest" mine drainage found anywhere in PA, and with an average pH of 2.5 and aluminum and iron levels that hover around 75-100 mg/L instream, it's not hard to understand why no aquatic life can survive in it. Consider that in AMD-impaired waters, a combination of pH 5.5 with dissolved aluminum greater than 0.5 mg/L is a

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Effects of plastic fishing lures on brook trout growth.

Report from Russell Danner

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A group of 38 brook trout were fed a commercial trout diet containing a free choice assortment of plastic lures over a 90 day period. The growth of the fish was recorded and compared to a control group. Brook trout readily ate the soft plastic lures from the water's surface as well as the tank bottom. At the conclusion of the experiment the lures were recovered from the stomachs of 63% of the test fish stomachs. Several fish stomachs contained multiple lures (Figure). 12.5% of the fish had consumed more than 10% of their body mass in soft plastic lures. Fish that consumed soft plastic lures lost significant weight during the study, had a significant decreased in body condition factor, and began displaying anorexic behaviors. Two strains of brook trout were used in this study. The heritage brook trout strain only recently brought into the hatchery system and cultured consumed almost twice as many plastic fishing lures as the much more domesticated hatchery brook trout strain. Several other studies concerning plastics have shown harmful effects from exposure to improperly disposed of plastics. These harmful effects range from affecting aquatic environments aesthetically to acute and chronic health effects upon terrestrial wildlife due to the potential to ingest pieces of plastic lures or be exposed to the harmful chemicals within the plastics. This study focused on the health effect on brook trout. It is reasonable to conclude that wild brook trout exposed to these plastic lures may be similarly affected. A copy of the scientific report can be obtained from the Maine Department of Inland Fisheries & Wildlife. Contact information for the investigators is located above.

Brook Trout (continued)

where for decades only the habitat hinted of what was once there and could be there -- if only the water quality was good -- brings other rewards that are hard to put into words.

Furthermore, AMD remediation technology has advanced considerably in the past ten years or so. We learn more with every day that passes. So there really is hope for restoring the potential to these cold-water streams and ensuring clean, coldwater not only for the brook trout themselves and the ecosystems of which they are part of, but for future generations to enjoy and treasure.

Amy G. Wolfe is the Director of Abandoned Mine Programs for Trout Unlimited. She has been working on cleaning up the AMD in the Kettle Creek watershed since 1999 and heads up the West Branch Susquehanna Restoration Initiative.