



Gillhouser Run

Indiana County

July 2008

Survey Gear: Backpack electrofishing

Gillhouser Run is a small, infertile, freestone tributary of Little Yellow Creek in east central Indiana County. The upper portion of the stream (37% of total length public owned) can be accessed through State Game Lands 79, just southeast of Yellow Creek State Park. Due to its infertile nature, the stream is susceptible to impacts from acidic precipitation. Historically, Gillhouser Run once held a healthy population of native brook trout, but by the late 1980's, Pennsylvania Fish and Boat Commission (PFBC) surveys indicated only a few trout remained. Water quality readings taken by the PFBC at the time indicated low pH and low alkalinity, suggesting an impact from acidic precipitation.

The PFBC recommended limestone sand dosing in 1991 to mitigate the impacts of acidic precipitation in Gillhouser Run. When added to streams, limestone sand serves to increase the pH and alkalinity, thus reducing the impact of acidic precipitation on the water quality and aquatic life in the stream. It was intended that by adding limestone and improving the water quality, the possibility existed that a wild brook trout population could be reestablished in Gillhouser Run.

In 1993, the Ken Sink Chapter of Trout Unlimited, based in Indiana, PA agreed to sponsor the limestone mitigation project on Gillhouser Run. Beginning in September 1994, limestone sand was first added to the upper portion of the stream. Limestone sand has been added four more times since the initial dosing. The table below shows the history of water quality sampling and the dates of limestone dosing (Table 1). Notable improvements in water quality have been seen after limestone dosing commenced. The overall average logarithmic pH increased from 5.9 to 6.6 after liming commenced (not including 1955 data) ; while the average alkalinity (a measure of the buffering and fish growing potential) increased from 1.5 to 5.8 mg/L.

| Table 1. Summary of water quality data for Gillhouse Run. | | | | |
|--|-----------------------------------|------------------|----------------------|------------------|
| | Lower Site (RM 0.76) | | Upper Site (RM 1.33) | |
| Date | pH | Alkalinity(mg/L) | pH | Alkalinity(mg/L) |
| 10/55 | 6.8 | 10 | 6.8 | 12 |
| 6/84 | 6.3 | 1 | --- | --- |
| 6/89 | 5.9 | 1 | 6.1 | 1 |
| 7/93 | 6.7 | 4 | --- | --- |
| 4/94 | 5.9 | 1 | 5.5 | <1 |
| 9/94 | 30 tons of limestone sand applied | | | |
| 10/94 | 6.9 | 8 | 6.9 | 9 |
| 11/94 | 7.3 | 10 | 7.3 | 10 |
| 12/94 | 7.3 | 5 | 7.3 | 5 |
| 2/95 | 7.5 | 3 | 7.6 | 3 |
| 4/95 | 6.5 | 3 | 6.3 | 3 |
| 4/95 | 7.4 | 3 | 7.6 | 3 |
| 6/95 | 25 tons of limestone sand applied | | | |
| 6/95 | 6.6 | 7 | 6.8 | 8 |
| 4/96 | 6.5 | 4 | 6.3 | 3 |
| 6/96 | 6.7 | 6 | 6.7 | 6 |
| 4/97 | 6.6 | 4 | 6.6 | 4 |
| 6/97 | 6.7 | 2 | 6.5 | 4 |
| 9/97 | 25 tons of limestone sand applied | | | |
| 4/98 | 6.4 | 2 | 6.4 | 2 |
| 7/98 | 6.5 | 8 | 6.8 | 12 |
| 6/99 | 5 tons of limestone sand applied | | | |
| 7/99 | 6.5 | 9 | 7.1 | 12 |
| 6/00 | 50 tons of limestone sand applied | | | |
| 6/00 | 6.9 | 9 | 6.8 | 8 |
| 7/08 | 6.8 | 7 | 6.8 | 10 |
| 11/08 | 6.5 | 5 | 6.3 | 5 |

After the initial limestone dosing was completed in 1994, PFBC biologists performed a transfer of wild brook trout the following year. Forty-three wild brook trout were collected from Shannon Run, Westmoreland County with assistance from members of the Ken Sink TU. These fish were placed in Gillhouse Run in hopes of restoring a reproducing brook trout population.

The Area 8 Fisheries Management staff surveyed Gillhouse Run annually from 1994 to 2000. A follow up survey was conducted in July of 2008 to assess the brook trout population eight years after the final limestone dosing was performed. Table 2 shows the number of brook trout captured at each 100 yard site. A total of 59 brook trout were captured in 2008, indicating that successful reproduction has occurred. This compares to 1 brook trout collected before treatment with limestone sand began in 1994. The average number of brook trout collected per 100 yards of stream has increased from less than 1 before treatment with limestone sand to greater than 10 after treatment. In 2008, the estimated biomass of brook trout in Gillhouse Run was 12.56 kg/ha, enough to categorize the stream as a Class C wild trout fishery. The most impressive

milestone of this project may be that the stream supported a fishable population of legal –size brook trout in 2008.

| Table 2. Number of brook trout captured at Gillhouse Run. | | |
|--|----------------------|----------------------|
| Year | Lower Site (RM 0.76) | Upper Site (RM 1.33) |
| 1984 | 0 | --- |
| 1989 | 0 | 1 |
| 1994 | 1 | 0 |
| Initial limestone dosing | | |
| 1995 | 12 | 5 |
| 1996 | 4 | 3 |
| 1997 | 6 | 5 |
| 1998 | 2 | 10 |
| 1999 | 2 | 7 |
| 2000 | 12 | 15 |
| 2008 | 21 | 38 |

In addition to brook trout, Area 8 Fisheries Management staff collected nine other fish species in Gillhouse Run after limestone dosing. Species captured have included brown trout, bluegill, blacknose dace, longnose dace, creek chub, mottled sculpin, fantail darter, white sucker, and pumpkinseed. Prior to treatment with limestone sand only five fish species had been captured in the stream. Improvements in water quality have enhanced conditions for brook trout and other species as well.

We would like to thank the Ken Sink Chapter of Trout Unlimited for sponsoring and providing hard working assistance to the limestone sand dosing project on Gillhouse Run. Thanks to their efforts anglers have the opportunity to fish over a native brook trout population that otherwise would not exist. The Gillhouse Run limestone remediation project can serve as another model success story of how the PFBC and local sportsmen’s groups can work together to improve stream life, habitat, and fishing in the Commonwealth.



Wild brook trout

-- Area 8 Fisheries Biologist Mike Depew and Fisheries Manager Rick Lorson

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