Fisheries Ecology of Platter Kill, Gilboa, N.Y.

Joe Lydon

Department of Fisheries and Wildlife,
State University of New York,
Cobleskill, N.Y. 12043 USA

Abstract: An ecological stream characterization was performed on Platter Kill, Gilboa, Schoharie County, N.Y. as part of an ongoing project to survey flowing waters in Schoharie County that lack sufficient data for fisheries management. Benthic invertebrate and fish fauna were sampled along with the measurement of the physical and chemical properties at upstream and downstream sites. Despite the presence of brook trout, slimy sculpins, and a good EPT index, several water quality parameters and invertebrate populations were sub-optimal. The findings indicate a suitable environment for trout populations.

INTRODUCTION

The ecological survey of Platter Creek, Schoharie County, N.Y. was performed at the request of sponsor Trout Unlimited and in the interest of Schoharie County Conservation Association (SCCA). Trout Unlimited is interested in the trout population of the stream and the SCCA is interested in increasing angling opportunity in Schoharie County. The goal of this study is part of an ongoing project to characterize flowing waters in Schoharie County that have not been studied.

The importance of this study is that little is known about Platter Creek. Collecting data may categorize the stream into a future management consideration.

The specific objective of this study was to note physical, chemical, and faunal properties of Platter Kill. With data available, comparable studies and fisheries management may be performed in the future.

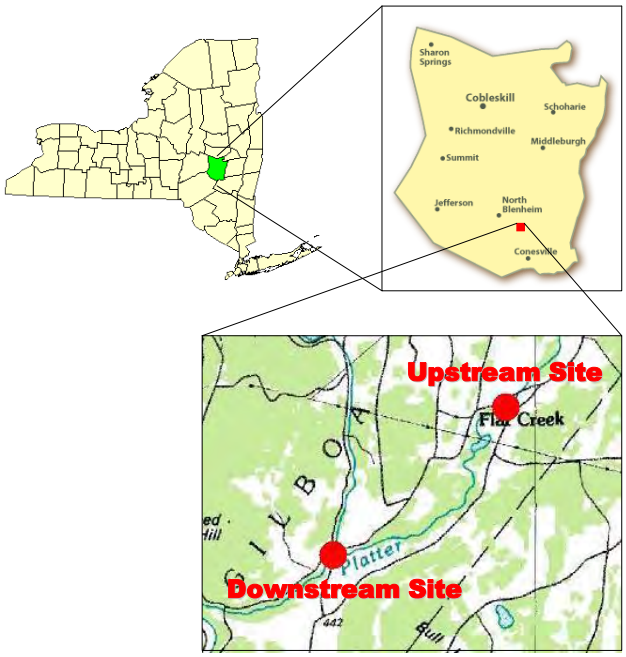
MATERIALS and METHODS

Platter Kill is located in Gilboa, Schoharie County, N.Y. (Figure 1). It is located intertwined with Flat Creek Road, northeast of Gilboa. Exact coordinates are 42° 25.8” N, 74° 23.8” W for the upstream site and 42° 28.4” N, 74° 29.9” W for the downstream site.

The study was performed April 12 of 2007, between 1500 and 1700 hours. The weather was moderately cool and cloudy. Snowmelt continued to have a significant impact on discharge.

Students enrolled in the Fisheries Management class at SUNY Cobleskill performed the study in three teams at both sites. One team measured the physical and chemical properties of the creek with chemical test kits, a YSI water analyzer, engineering level for gradient, and global flow probe for stream velocity. The second team collected invertebrates with surber samplers and later counted and identified them. The third team collected fish with a backpack shocker, scap nets, and buckets. The upper and lower sites were shocked for approximately 700 and 500seconds respectively. All game fish were measured for length.

Figure 1. Map of the survey sites on Platter Kill, Gilboa, Schoharie County, N.Y.



RESULTS

Temperature, dissolved oxygen and turbidity were at acceptable levels at both sites (Table 1). Total dissolved solids, conductivity, alkalinity, and hardness were low at the both sites. The pH, which is at an acceptable level at both sites, is unstable due to the extreme deficit of alkalinity.

Table 1. Water quality of the upstream and downstream sites on Platter Kill.

	Upstream	Downstream	Optimum levels
Temperature (C°)	2.55	3.20	---
Dissolved Oxygen (mg/L)	7.85	8.60	>5.00
pH	8.19	8.46	6.5 – 8.5
Total Dissolved Solids (mg/L)	0.058	0.068	0.100 – 0.300
Conductivity (mS/cm)	0.051	0.061	0.100 – 0.300
Turbidity (NTU)	4.5	7.2	0 – 10
Alkalinity (mg/L)	0	0	100 – 400
Hardness (mg/L)	34.2	34.2	100 – 400

The physical attributes of both sites were untypical of a high order stream moving down in elevation (Table 2). The higher gradient at the lower site was the reason for higher velocity, less depth and narrower width than the upper site. Discharge normally increased moving down the watershed.

Table 2. Physical parameters of the upstream and downstream sites on Platter Kill.

	Upstream	Downstream
Average Width (ft.)	11.0	10.0
Average Depth (ft.)	0.85	0.483
Velocity (ft./sec.)	5.05	17.3
Discharge ($ft.^3/sec.$)	47.2	83.6
Gradient (vert. ft./100 ft. horiz.)	2.3	3.5

Both the upper and lower sites of Platter Kill exhibit excellent EPT index, which is the relative abundance of mayflies (E), stoneflies (P), and caddisflies (T). These three orders of invertebrates are healthy water quality indicators. The density and biomass of invertebrates per square ft., along with biotic value were poor (Table 3).

Table 3. Benthic invertebrate community upstream and downstream sites on Platter Kill (per square ft.).

	Upstream		Downstream	
EPT value (%)	11.5	**(Excellent)**	62	**(Excellent)**
Density (Inverts/$ft.^2$)	32.25	**(Poor)**	23	**(Poor)**
Biomass (g/$ft.^2$)	0.0325	**(Poor)**	0.0188	**(Poor)**
Biotic Value	32.25	**(Poor)**	23	**(Poor)**

Both sites had poor species diversity (Table 4). The presence of slimy sculpins as well as brook trout are good indicators of adequate brook trout habitat. The upstream site had blacknose dace and creek chub which are also fish which are usually a part of a trout habitat niche, however no brook trout were caught.

Table 4. Fish community at upstream and downstream sites on Platter Kill.

	Upstream			Downstream		
Species	*Quantity*	*Relative Abundance (%)*	*CPUE (fish/hr.)*	*Quantity*	*Relative Abundance (%)*	*CPUE (fish/hr.)*
Brook Trout	---	---	---	2	17	14
Slimy Sculpin	---	---	---	10	83	71
Blacknose Dace	22	76	115	---	---	---
Creek Chub	7	24	36.8	---	---	---
Total	29	100	151.8	12	100	85

CONCLUSIONS

The findings from this study indicate that Platter Kill is a high order stream capable of sustaining brook trout populations. Brook trout and slimy sculpins were observed indicating a brook trout niche present. Health of the stream is moderately poor due to several sub-optimal parameters such as alkalinity, hardness, TDS, conductivity, and low invertebrate populations.

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