Distribution

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DEP Stream Code: 44808 **PA FISH AND BOAT COMMISSION** UNT to Freeman Run

COMMENTS AND RECOMMENDATIONS

February 16, 2012

WATER: UNT to Freeman Run (rm 2.05) (818D) Westmoreland County

EXAMINED: July 19, 2011

BY: Fisheries Management Area 8

Bureau Director Action: _____Date: _____

Division Chief Action: _____Date: _____

CW Unit Leader Action: _____Date: _____

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AREA COMMENTS:

The UNT to Freeman Run (rm 2.05) is located in Westmoreland County and is a 1.92 km (1.19 mi) long tributary to the Conemaugh River at River Mile (rm) 41.05. The stream was surveyed as part of the Wild Trout and Development project started in 2009. One site was surveyed in July 2011. The stream contains a Class A population of naturally reproducing brook trout at 52.11 kg/ha. The current 25 PA Code Chapter 93 water quality standards listing of Trout Stocking (TSF) for the UNT to Freeman Run (rm 2.05) basin does not adequately protect the existing flora and fauna present within the basin. We recommend an upgrade to High Quality – Cold Water Fishes (HQ- CWF) due to the naturally reproducing Class A brook trout population present. Current degradation of the watershed is occurring due to poorly designed logging roads. Additional degradation in the headwaters of the watershed will likely eliminate the Class A wild brook trout population.

AREA RECOMMENDATIONS:

1. Add the UNT to Freeman Run (rm 2.05), headwaters to mouth, to the list of streams supporting naturally reproducing populations of wild trout.

2. Add the UNT to Freeman Run (rm 2.05), headwaters to mouth, to the Class A wild trout list.

3. Logging and a proposed mine threaten this stream. Water quality protections for this stream are grossly inadequate. We recommend an upgrade to High Quality-Cold Water Fishes (HQ-CWF) based on the Class A wild brook trout population present.

4. Provided a copy of this report to Richard M. Spear, Water Pollution Biologist 3, Assessment and Planning Section, Bureau of Watershed Management, Pennsylvania Department of Environmental Protection, 400 Waterfront Drive, Pittsburgh, PA 15222-4745.

5. Provide a copy of this report to DEP via Dave Spotts for consideration of a 25 PA Code, Chapter 93 Water Quality Standards upgrade to Exceptional Value (EV) based on DEP qualifying criteria.

This work made possible by funding from the Sport Fish Restoration Act Project F-57-R Fisheries Management.

PENNSYLVANIA FISH & BOAT COMMISSION
BUREAU OF FISHERIES
FISHERIES MANAGEMENT DIVISION

UNT to Freeman Run (rm 2.05) (818D)
Section 01
Fisheries Management Report
Unassessed Water

Prepared by
M.A. Depew and R.D. Lorson

Fisheries Management Database Name: UNT to Freeman Run (rm 2.05)
Lat/Lon: 40°22'14"/79°10'34"

Date Sampled: July 19, 2011 Date Prepared: July 20, 2011

Introduction

The UNT to Freeman Run (rm 2.05) is a small stream located in Westmoreland County and flows east into Freeman Run at River Mile (RM) 2.05, 40°22'14" latitude and 79°10'34" longitude. The stream has a total length of 1.92 km (1.19 mi) and a drainage area of 1.43 km^2 (0.55 mi^2). The UNT to Freeman Run (rm 2.05) can be found on the Bolivar, PA United States Geological Survey 7.5 minute quadrangle (Figure 1).

The UNT to Freeman Run (rm 2.05) was surveyed as part of the Unassessed Waters Program to gather information on the resource for fish management purposes and to verify and document the presence of a reproducing population of trout. Knowledge of the presence of wild trout in streams is important in the proper permitting of land use activities and in the long-term restoration projects such as the Eastern Brook Trout Joint Venture. The riparian land along UNT to Freeman Run (rm 2.05) is under private ownership. The UNT to Freeman Run (rm 2.05) is managed as one section from headwaters to mouth.

Methods

The examination of the UNT to Freeman Run (rm 2.05) was conducted on July 18 and 19, 2011. All procedures were carried out according to those outlined by Weber (2010). One sampling station was chosen to be representative of Section 01.

Physical characteristics, physical-chemical values, and fish communities were examined. Rapid bioassessment protocols (RBP) were used to assess the habitat in this stream (Barbour et al.

1999). The fish communities were sampled using an electrobackpack equipped with an Appalachian Aquatics AA-24 variable voltage electrofisher set at 250 volts Pulsed-DC and 15 amps (Battery Backpack). Wild trout were measured and recorded in 25 mm (1.0 in) length groups. Statewide average weights calculated for each length group were used to generate the biomass estimate. Wild trout were given an identifying upper caudal fin clip during the initial electrofishing pass to facilitate a mark-recapture population estimate. Trout densities were determined using the Chapman modification of the Petersen estimator or M+C-R when R was less than three. Scientific and common fish names reference the Integrated Taxonomic Information System (http://www.itis.gov).

Results

Site River Mile: 0.52

Sample site RM 0.52 was located 30 m downstream from an old dam located approximately 500 m upstream from the bridge on Patterson Road at 40°22'31" latitude and 79°11'00" longitude. The 190 m long station averaged 1.84 m in width (Table 1). This portion of the stream primarily flowed through a dense forest and was paralleled by a heavily used and eroding logging road. Bank erosion was light and the stream substrate consisted primarily of silt runoff from the logging road and rubble. The RBP analysis yielded a final score of 124 in the Suboptimal range (Table 2).

Physical-chemical parameters and their associated values measured under normal flow conditions were as follows: water temperature 18°C, specific conductance 138 umhos, pH 7.2 standard units, total alkalinity 46 mg/l, total hardness 58 mg/l, and total dissolved solids 96 mg/l (Table 3). These results indicate a very productive headwater and coldwater stream.

Two fish species were collected at the site, including wild brook trout *Salvelinus fontinalis* and mottled sculpin *Cottus bairdii*, both common to a coldwater environment (Table 4).

Brook Trout

Excluding recaptures, eighty-three wild brook trout ranging in lengths from 25 mm to 224 mm total length (TL) were collected during the survey with eleven (13 percent) being greater than or equal to the legal harvestable length (175 mm: 7 in). Total brook trout biomass was estimated to be 52.11 kg/ha. Trout abundance was 479 brook trout/km (771 trout/mi) with 69 trout/km (111 trout/mi) being of legal length or longer (Table 5).

Discussion

Section 01 of the UNT to Freeman Run (rm 2.05) supported natural reproduction of brook trout. The brook trout abundance determined from the survey exceeded the Pennsylvania Fish and Boat

Commission's minimum biomass criteria for consideration as a Class A wild trout population. This small stream contains a very dense population of wild brook trout for its size. Numerous brook trout were found in every pool. The high productivity of the water likely is the reason for the abundance of larger sized individuals in this miniscule stream.

The brook trout population in this stream is severely threatened by an active timber operation as well as a proposed mine in the headwaters. At the time of the survey inadequate erosion controls were present at the logging road crossing present near the lower end of our site. A heavy thunderstorm that occurred between the two days of survey washed significant amounts of sediment into the stream. The amount of sediment washed into the stream was enough to reduce depths by a few inches in the pools downstream of the logging road (M. Depew, personal observation). The amount of sediment entering the stream will significantly impair the trout population by reducing available food and cover, elevating water temperature, and eliminating spawning habitat. Any additional impacts to the headwaters of this stream will likely substantially reduce or eliminate this Class A brook trout population.

The current 25 PA Code Chapter 93 water quality standards listing of Trout Stocking (TSF) for the UNT To Freeman Run (rm 2.05) basin does not adequately protect the existing flora and fauna present within the basin. As this stream contains a Class A population of wild brook trout, and given the current threats to this stream, we highly recommend an upgrade to Exceptional Value (EV) to adequately protect the existing flora and fauna present in this basin.

Management Recommendations

1. Add the UNT to Freeman Run (rm 2.05), headwaters to mouth, to the list of streams supporting naturally reproducing populations of wild trout.

2. Add the UNT to Freeman Run (rm 2.05), headwaters to mouth, to the Class A wild trout list.

3. Logging and a proposed mine threaten this stream. Water quality protections for this stream are grossly inadequate. We recommend and upgrade to High Quality – Cold Water Fishes (HQ-CWF) based on the Class A wild brook trout population present.

4. A copy of this report should be provided to Richard M. Spear, Water Pollution Biologist 3, Assessment and Planning Section, Bureau of Watershed Management, Pennsylvania Department of Environmental Protection, 400 Waterfront Drive, Pittsburgh, PA 15222-4745.

5. Provide a copy of this report to DEP via Dave Spotts for

consideration of a 25 PA Code, Chapter 93 Water Quality Standards upgrade to Exceptional Value (EV) based on DEP qualifying criteria.

Literature Cited

Barbour, M.T., J. Gerritsen, B.D. Snyder, and J.B. Stribling. 1999. Rapid bioassessment protocols for use in wadeable streams and Rivers. USEPA. Report 814-99-002 Washington, DC

Weber, R.J. 2010. Sampling procedures for unassessed streams in Pennsylvania. Pennsylvania Fish and Boat Commission, 450 Robinson Lane, Bellefonte, PA.

Table 1. UNT to Freeman Run (rm 2.05) (818D), Westmoreland County. Site sampling location, length surveyed, average site width and site area.

Site Date	River mile	Downstream limit description	Length (m)	Ave. Width (m)	Site Area (ha)
7/19/2011	0.52	Site located 30 m dnst from old dam.	190	1.84	0.03

Table 2. High Gradient Rapid Bioassessment Protocol ratings for the UNT to Freeman Run (rm 2.05) (818D), Westmoreland County conducted at RM 0.52 on July 19, 2011.

Habitat Parameter	Score	Habitat Parameter	Score
Epifaunal Substrate / Available Cover	11	Left Bank Stability	9
Embeddedness	10	Right Bank Stability	9
Velocity / Depth Regime	9	Left Bank Vegetative Protection	8
Sediment Deposition	9	Right Bank Vegetative Protection	8
Channel Flow Status	9	Left Bank Riparian Vegetative Width	4
Channel Alteration	16	Right Bank Riparian Vegetative Width	4
Frequency of Riffles or bends	18	**Total Score**	**124**

RBP Habitat Ratings with Total Score:
Optimal = 151-200
Suboptimal = 101-150
Marginal = 51-100
Poor = 0-50

Table 3. Chemical data collected in the UNT to Freeman Run (rm 2.05) (818D), Westmoreland County. Sample site(s) are within Section 01 in 2011 sample year.

Parameter	Site 1
Site RM	0.52
Sample Date	07/19/2011
Time (24 hour)	1115
Water Temperature (C)	18.00
pH Field Colorimetric (SU)	7.20
Specific Conductance (UMHOS)	138.00
Total Alkalinity Field Mixed Indicator (MG/L)	46.00
Total Dissolved Solids (MG/L)	96.00
Total Hardness Field EDTA (MG/L)	58.00

Table 4. Fish species occurrence in the UNT to Freeman Run (rm 2.05) (818D), Westmoreland County at sample site RM 0.52 on July 19, 2011.

Common Name	Scientific Name
Brook Trout	*Salvelinus fontinalis*
Mottled Sculpin	*Cottus bairdii*

Table 5. Wild Brook Trout Petersen abundance and biomass estimate collected at sample site RM 0.52 on the UNT to Freeman Run (rm 2.05) (818D), Westmoreland County collected July 19, 2011.

Size Group	Estimate	low95CI	High95CI	NumHa	KgHa	NumKm
25	4			114	0.12	21
50	25	14	47	714	1.74	132
75	24	14	45	686	4.09	126
100	3			86	1.17	16
125	13	6	28	371	9.04	68
150	9	4	20	257	10.56	47
175	11	5	25	314	20.11	58
200	2			57	5.28	11
Totals	91			2599	52.11	479

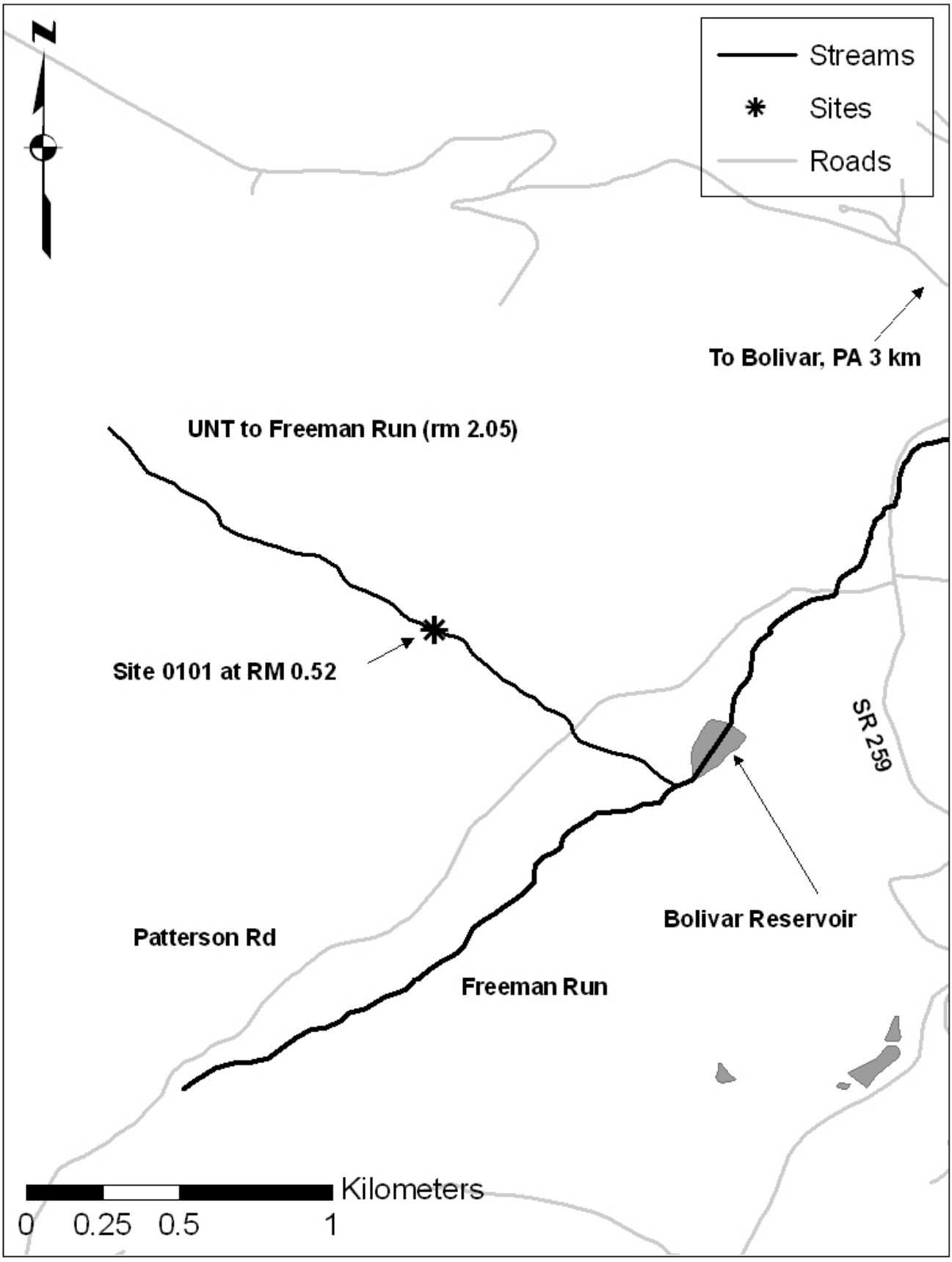

Figure 1. Location map for sample site river mile 0.52 on the UNT to Freeman Run (rm 2.05) (818D), Westmoreland County.