Distribution

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PA FISH AND BOAT COMMISSION
COMMENTS AND RECOMMENDATIONS
February 22, 2018

WATER: Emeigh Run (308B) Cambria County

EXAMINED: May 12 and June 28, 2012

BY: J. Detar, D. Kristine, J. Keslar, D. Nihart, and S. Sholstis (DEP)

Bureau Director Action: _____ Date: _____

Division Chief Action: _____ Date: _____

CW Unit Leader Action: _____ Date: _____

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AREA COMMENTS:

Emeigh Run is a third-order, coldwater stream located near the town of Emeigh in Cambria County. The stream was found to support an excellent wild brook trout population during an initial inventory of the stream in 2012. Multiple age-classes of brook trout were present including a good abundance of legal-size fish. Results of the 2012 survey estimated the total biomass of wild brook trout at site RM 0.00 at 34.37 kg/ha and at site RM 0.34 at 53.19 kg/ha. Average biomass for the two sites was 43.78 kg/ha. Both sites exceeded the minimum biomass criteria for listing as a Class A wild brook trout stream. Eleven percent of the total perennial stream flow length was sampled.

AREA RECOMMENDATIONS:

1. Add Emeigh Run from headwaters to the mouth to the PFBC's list of stream sections that support natural reproduction of trout.

2. Add Emeigh Run, Section 02, (confluence with UNT at RM 1.1 to the mouth) to the Commission's Class A Wild Trout Streams program.

3. Manage Emeigh Run, Section 02 (confluence with UNT at RM 1.1 to the mouth), as a Class A Wild Trout Stream under Commonwealth Inland Waters regulations with no stocking.

4. Request the Department of Environmental Protection designate Emeigh Run, Section 02, as High-Quality Cold Water Fishes and Migratory Fishes (HQ-CWF, MF) under 25 PA Code Chapter 93 based on the Class A qualifier found in 93.4b(2)(ii).

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

Emeigh Run (308B)
Fisheries Management Report

Prepared by
David Kristine and Jason Detar

Fisheries Management Database Name: Emeigh Run
Lat/Lon: 40°41'58"/78°48'14"

Date Sampled: May 12 and June 28, 2012
Date Prepared: March 29, 2013

Introduction

Emeigh Run is a third-order, coldwater stream located in Cambria County that flows west from its source in Susquehanna Township to its confluence with West Branch Susquehanna River at River Mile (RM) 229.8 (40°41'58" latitude and 78°48'14" longitude) near the town of Emeigh (Figure 1). The stream has a total length of 5.8 km (3.6 mi) and a drainage area of 9.9 km^2 (3.9 mi^2); perennial flowing length is 4.4 km. The stream's current 25 PA Code Chapter 93 Water Quality Standards designation is Cold Water Fishes and Migratory Fishes (CWF, MF). Emeigh Run can be found on the Barnesboro, PA United States Geological Survey 7.5 minute quadrangle.

All of the riparian lands along Emeigh Run are privately owned. The watershed is a mixture of small farms, woodlots, reclaimed strip mines, residences, and shallow gas wells. A review of Pennsylvania Fish and Boat Commission (PFBC) files found no previous survey or any other information for the stream.

Emeigh Run was surveyed during 2012 as part of the unassessed waters program to gather contemporary information on the wild trout population for management and protection purposes.

Methods

The examination of Emeigh Run was conducted on May 12 and June 28, 2012. Two sampling stations totaling eleven percent of the total perennial flow length (4.59 km) were sampled. Procedures were carried out according to those outlined by Detar et al. (2011). Physical characteristics, water chemistry, and fish communities were examined. Rapid bioassessment protocols (RBP) were used to assess the habitat in this stream (Barbour et al. 1999). Fish communities were sampled using a pulsed DC battery backpack

electrofisher. Wild trout were measured and recorded in 25 mm (1.0 inch) length groups (total length). Statewide average weights calculated for each length group were used to generate the biomass estimate. Wild trout densities were determined by using the number of trout captured in a single electrofishing pass. Scientific and common fish names reference the Integrated Taxonomic Information System (http://www.itis.gov).

Results

Site River Mile: 0.00

Sample site RM 0.00 (40°41'58" latitude and 78°48'14" longitude) began at the mouth and extended 305 m upstream averaging 3.3 m in width (Table 1). The first 35 m of the site flowed beside a local coal/aggregate yard and the remainder of the site flowed through a forested riparian corridor with substrate consisting mainly of rubble, gravel, and silt. The RBP habitat assessment for the site received a total score of 153 (Table 2). Several parameters including substrate embeddedness, sediment deposition, and bank stability were found to be sub-optimal. Excellent cover for trout was provided by log jams, woody debris, and undercut banks. Water chemistry parameters and their associated values measured under normal flow conditions were as follows: water temperature 16.8°C, specific conductance 222 umhos, pH 7.3 standard units, and total alkalinity 46 mg/l (Table 3).

Seven fish species were captured in Emeigh Run at this site including wild brook trout *Salvelinus fontinalis* and brown trout *Salmo trutta* (Table 4). One-hundred and eighteen wild brook trout ranging from 50 mm to 299 mm in total length (TL) were captured during the survey with 23 (19 percent) being greater than or equal to the legal harvestable length (175 mm: 7 in). Total brook trout biomass was estimated to be 34.37 kg/ha. Brook trout abundance was estimated at 386 trout/km (621 trout/mi) with 75 trout/km (121 trout/mi) being of legal length or longer (Table 5). In addition, four young-of-the-year brown trout were captured in the 50 mm length group. The brown trout were all captured downstream of a culvert located 35 m upstream of the mouth which posed a barrier to fish passage. Total brown trout biomass was estimated to be 0.1 kg/ha (Table 6). No brown trout were found upstream of this culvert. Wild brown trout are present in the West Branch Susquehanna River where Emeigh Run flows in and this is likely the source of these fish.

Site River Mile: 0.34

Sample site RM 0.34 (40°41'46" latitude and 78°48'00" longitude) was located 462 m upstream of SR 0219 and extended upstream 205 m averaging 2.5 m in width (Table 1). The stream was densely shaded by a mature forested riparian corridor and substrate consisted mainly of rubble, gravel, and silt. We found excellent cover for trout at this site provided by large woody debris and complex

pools. The RBP habitat assessment for the site received a total score of 167 with velocity depth regimes, deposition of sediment, and channel flow status scoring in the sub-optimal range (Table 2). Water chemistry parameters and their associated values measured under low flow conditions were as follows: water temperature 17.1°C and specific conductance 237 umhos (Table 3).

Wild brook trout, blacknose dace *Rhinichthys atratulus*, largemouth bass *Micropterus salmoides*, bluegill *Lepomis macrochirus*, and creek chub *Semotilus atromaculatus* were captured at this site (Table 4). A total of 128 wild brook trout were captured ranging from 50 mm to 324 mm in total length (TL) during the survey with 20 (16 percent) being greater than or equal to the legal harvestable length (175 mm: 7 in). Total brook trout biomass was estimated to be 53.19 kg/ha. Brook trout abundance was estimated at 624 trout/km (1,004 trout/mi) with 98 trout/km (158 trout/mi) being of legal length or longer (Table 7).

Discussion

Emeigh Run supports an excellent wild brook trout population. Based on the presence of both young-of-the-year and multiple year classes this stream should be listed from the headwaters to the mouth on the PFBC's list of stream sections that support natural reproduction of wild trout, as outlined in 58 PA Code §57.11., Listing of Wild Trout Streams. In addition, the estimated wild brook trout biomass at both sites (34.37 and 53.19 kg/ha, average 43.78 kg/ha) met the Pennsylvania Fish and Boat Commission's minimum biomass criteria of 30 kg/ha for a Class A wild brook trout stream at both sites, as outlined in 58 PA Code §57.8a., Class A Wild Trout Streams. Thus, based on the wild trout biomass and sampling 11 percent of the stream's flowing length, we recommend Emeigh Run be managed as one section from the headwaters to the mouth as a Class A wild trout stream under Commonwealth Inland Waters regulations with no stocking.

Management Recommendations

1. Add Emeigh Run from headwaters to the mouth to the PFBC's list of stream sections that support natural reproduction of trout.

2. Add Emeigh Run, Section 02, (confluence with UNT at RM 1.1 to the mouth) to the Commission's Class A Wild Trout Streams program.

3. Manage Emeigh Run, Section 02 (confluence with UNT at RM 1.1 to the mouth), as a Class A Wild Trout Stream under Commonwealth Inland Waters regulations with no stocking.

4. Request the Department of Environmental Protection designate Emeigh Run, Section 02, as High-Quality Cold Water Fishes and

Migratory Fishes (HQ-CWF, MF) under 25 PA Code Chapter 93 based on the Class A qualifier found in 93.4b(2)(ii).

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.

Detar, J., R. Wnuk, R.T. Greene, and M. Kaufmann. 2011. Standard electrofishing protocols for sampling Pennsylvania wadeable streams. Pages 5-24 *in* D. Miko, editor. Sampling protocols for Pennsylvania's wadeable streams. Pennsylvania Fish and Boat Commission. Harrisburg, PA.

Table 1. Emeigh Run (308B), Cambria County. Site sampling locations, lengths surveyed, average site widths and site areas.

Site Date	Rivermile	Downstream limit description	Length (m)	Ave. Width (m)	Site Area (ha)
5/12/2012	0.00	Mouth	305	3.3	0.1
6/28/2012	0.34	Site located approximately 462 m upstream SR 0219	205	2.5	0.05

Table 2. High Gradient Rapid Bioassessment Protocol ratings for Emeigh Run (308B), Cambria County, conducted at RM 0.00 and 0.34 on May 12 and June 28, 2012.

Habitat Parameter	Score RM 0.00	Score RM 0.34	Habitat Parameter	Score RM 0.00	Score RM 0.34
Epifaunal Substrate / Available Cover	17	17	Left Bank Stability	7	8
Embeddedness	14	16	Right Bank Stability	6	8
Velocity / Depth Regime	16	15	Left Bank Vegetative Protection	8	9
Sediment Deposition	13	15	Right Bank Vegetative Protection	8	9
Channel Flow Status	16	12	Left Bank Riparian Vegetative Width	8	10
Channel Alteration	16	20	Right Bank Riparian Vegetative Width	8	10
Frequency of Riffles or bends	16	18	**Total Score**	**153**	**167**

Habitat Condition	Total Score
Optimal	151-200
Suboptimal	101-150
Marginal	51-100
Poor	0-50

Table 3. Chemistries collected in Emeigh Run (308B), Cambria County.

Parameter	Site 1	Site 2
Site RM	0.00	0.34
Sample Date	5/12/2012	6/28/2012
Time (24 hour)	1415	1140
pH Field Colorimetric (SU)	7.3	Not measured
Specific Conductance (UMHOS)	222	237
Total Alkalinity Field Mixed Indicator (MG/L)	46	Not measured
Water Temperature (C)	16.8	17.1

Table 4. Fish species occurrence in Emeigh Run (308B), Cambria County, during 2012.

Common Name	Scientific Name	RM 0.00	RM 0.34
Brook Trout	*Salvelinus fontinalis*	X	X
Brown Trout	*Salmo trutta*	X	
Blacknose Dace	*Rhinichthys atratulus*	X	X
Bluegill	*Lepomis macrochirus*	X	X
Green Sunfish	*Lepomis cyanellus*	X	
Creek Chub	*Semotilus atromaculatus*		X
Largemouth Bass	*Micropterus salmoides*	X	X
White Sucker	*Catostomus commersonii*	X	

Table 5. Wild brook trout catch and biomass estimates at sample site RM 0.00 on Emeigh Run (308B), Cambria County, on May 12, 2012.

Size Group	Catch	Mean Wt(g)	Wt Source	Kg/ Ha	Num/ Ha	Num/ Km
50	63	2.45	StateMeanWt	1.53	626	207
75	1	5.98	StateMeanWt	0.06	10	3
125	15	24.41	StateMeanWt	3.64	149	49
150	16	41.09	StateMeanWt	6.54	159	52
175	10	64	StateMeanWt	6.36	99	33
200	8	92.48	StateMeanWt	7.35	80	26
225	1	130.84	StateMeanWt	1.3	10	3
250	3	178.9	StateMeanWt	5.34	30	10
275	1	226.42	StateMeanWt	2.25	10	3
Totals	118			34.37	1173	386

Table 6. Wild brown trout catch and biomass estimates at sample site RM 0.00 on Emeigh Run (308B), Cambria County, on May 12, 2012.

Size Group	Catch	Mean Wt(g)	Wt Source	Kg/ Ha	Num/ Ha	Num/ Km
50	4	2.53	StateMeanWt	0.10	40	13
Totals	4			0.10	40	13

Table 7. Wild brook trout catch and biomass estimates at sample site RM 0.34 on Emeigh Run (308B), Cambria County, on June 28, 2012.

Size Group	Catch	Mean Wt(g)	Wt Source	Kg/ Ha	Num/ Ha	Num/ Km
50	64	2.45	StateMeanWt	3.06	1250	312
75	29	5.98	StateMeanWt	3.39	566	141
125	6	24.41	StateMeanWt	2.86	117	29
150	9	41.09	StateMeanWt	7.22	176	44
175	11	64	StateMeanWt	13.75	215	54
200	6	92.48	StateMeanWt	10.84	117	29
225	1	130.84	StateMeanWt	2.56	20	5
250	1	178.9	StateMeanWt	3.49	20	5
300	1	308.14	StateMeanWt	6.02	20	5
Totals	128			53.19	2501	624

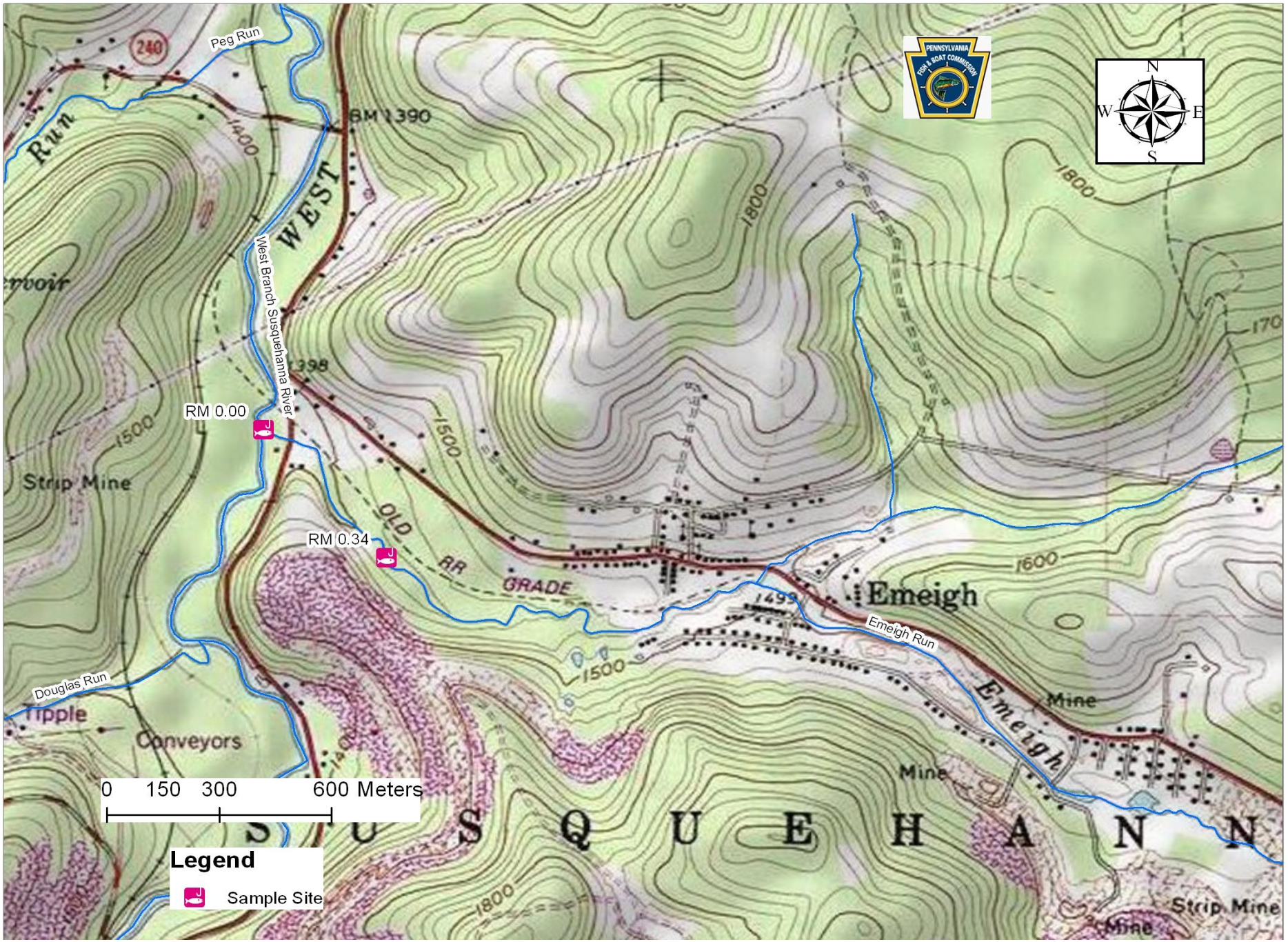

Figure 1. Location map for two sample sites on Emeigh Run (308B), Cambria County.