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PA FISH AND BOAT COMMISSION
COMMENTS AND RECOMMENDATIONS
February 22, 2018~~August 4, 2015~~~~June 24, 2015~~

WATER: UNT to Mahoning Creek (RM 10.09) (502B) Section 02
Schuylkill County

EXAMINED: 8 August, 2013

BY: Fisheries Management Area 5

Bureau Director Action: _____ Date: _____

Division Chief Action: _____ Date: _____

CW Unit Leader Action: _____ Date: _____

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AREA COMMENTS: Section 02 of the UNT to Mahoning Creek (RM 10.09) supported natural reproduction of Brown Trout and Brook Trout. The Brown Trout biomass of 42.54 kg/ha met the PFBC's minimum biomass criteria for a Class A population, as outlined in 58 PA Code §57.8a., Class A Wild Trout Streams. Furthermore, the presence of young-of-the-year and/or multiple age classes of Brown Trout and Brook Trout supported listing the stream on the PFBC's Listing of Wild Trout Streams, as outlined in 58 PA Code §57.11. Eleven percent of Section 02 was sampled.

The UNT to Mahoning Creek (RM 10.09) is a low fertility stream based on its low conductivity value of 50 *umhos.* The low value suggests that acidic run-off during the spring snow melt may create acidic conditions that may negatively impact its aquatic fauna, particularly in the headwater region. The current 25 PA Code Chapter 93 Water Quality Standards listing of Cold Water Fishes and Migratory Fishes (CWF, MF) set forth for the Mahoning Creek Basin and applied to Section 02 does not adequately protect the stream's flora and fauna based on the presence of a Class A Brown Trout population. Thus, it is recommended that the 25 PA Code Chapter 93 Water Quality Standards listing for the UNT to Mahoning Creek (RM 10.09), Section 02, be upgraded to High Quality- Cold Water Fishes and Migratory Fishes (HQ-CWF, MF).

AREA RECOMMENDATIONS:

1. Add the UNT to Mahoning Creek (10.09), (02B), Section 02, (from the UNT upstream of the intersection of Dairy Road and Struss Valley Road downstream to the mouth) to the Commission's Class A Wild Trout Streams list.

2. Add the UNT to Mahoning Creek (RM 10.09), to the PFBC's list of stream sections that support natural reproduction of trout with the limits extending from the headwaters to the mouth.

3. Survey Section 01 of the UNT to Mahoning Creek (RM 10.09) within the next five years (2015-2019) to document the potential status of a Class A wild trout population.

4. Request the Department of Environmental Protection reclassify the UNT to Mahoning Creek (RM 10.09), 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).

5. Continue management of the UNT to Mahoning Creek (RM 10.09) under Commonwealth Inland Waters regulations with no stocking.

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 Mahoning Creek (502B) Section 02 Fisheries Management Report

Prepared by
David Arnold

Fisheries Management Database Name: UNT to Mahoning Creek (RM 10.09)
Lat/Lon: 40°46'43"/75°50'35"

Date Sampled: August 8, 2013 Date Prepared: April 9, 2015

Introduction

The Unnamed Tributary (UNT) to Mahoning Creek (RM 10.09) is 7.40 km (4.60 mi) long and flows in a southerly direction entering Mahoning Creek at RM 10.09, DMS: 40°46'43" latitude and 75°50'35" longitude (Figure 1). The stream is classified as Cold Water Fishes and Migratory Fishes (CWF, MF) per listing as part of the Mahoning Creek Basin in the 25 PA Code Chapter 93 Water Quality Standards listing. Its basin is located within the northeastern corner of West Penn Township, Schuylkill County. The drainage area consists of forested and agricultural areas interspersed with residential houses. The stream is mostly closed to public access. The Unt to Mahoning Creek (RM 10.09) can be found on the Tamaqua, PA and Nesquehoning, PA United States Geological Survey 7.5 minute Topographic quadrangles.

The UNT to Mahoning Creek (RM 10.09) is partitioned into two management sections. Section 01 extends from the headwaters (40°47'33"/-75°54' 11") downstream 4.18 km (2.60 mi) to an UNT upstream from the intersection of Dairy Road and Struss Valley Road (40°47'09"/-75°52'04"). Section 02 extends form the UNT upstream from the intersection of Dairy Road/Strauss Valley Road downstream 3.22 km (2.00 mi) to the mouth (40°46'43"/-75°50'35"). Both sections are managed under Commonwealth Inland Water regulation with no stocking.

The UNT to Mahoning Creek (RM 10.09) was surveyed during 2013 to gather baseline information on the wild trout population for management and protection purposes as part of the Unassessed Waters Program. Only the lower area of Section 02 was open to being surveyed in 2013.

Methods

The habitat, water chemistry, and fish communities of the UNT to Mahoning Creek (RM 10.09) were examined on August 8, 2013 at one sampling site according to procedures outlined by Weber et al. (2011). Rapid bioassessment protocols (RBP) were used to assess the habitat in this stream (Barbour et al. 1999). Fish were captured using an Electrobackpack equipped with a Appalachian Aquatics Model 24 variable voltage electrofisher set at 250 volts AC-Alternating Current (Battery Backpack) and identified to species. Wild trout were measured and recorded in 25 mm (1.0 inch) 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 with trout densities determined by 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: 0.00

Sample site RM 0.00 was located at the mouth (Figure 1). The 355 m long station averaged 5.2 m in width and covered eleven percent of the total section length (Table 1). The stream flowed through a mature hardwood forest with dense rhododendron understory, which provided partial to dense shading. The substrate of the stream consisted of rubble, gravel and silt. Instream habitat was provided by water depths up to one meter, woody debris, and undercut banks. The RBP rating of 151 ranked the stream habitat as optimal (range 160-200; Table 2).

Physical-chemical parameters and their associated values measured under normal flow conditions were as follows: air temperature 23.6°C, water temperature 16.7°C, specific conductance 50 umhos and pH 6.7 standard units (Table 3).

Electrofishing captured 14 fish species; which included Brook Trout *Salvelinus fontinalis* and Brown Trout *Salmo trutta*, and the following migratory species: American Eel *Anguilla rostrata* (N=7) and Sea Lamprey *Petromyzon marinus* (N=2; lifestage: ammenocoetes) (Table 4).

Brown Trout

One hundred and eighty-five wild Brown Trout ranging from 25 mm to 349 mm in total length (TL) were captured during the survey. Forty-five (24 percent) were greater than or equal to the legal harvestable length (175 mm: 7 in). Total Brown Trout biomass was estimated to be 42.54 kg/ha, which reflected that of a Class A wild trout population. Brown Trout abundance was estimated at 1,119

trout/km (1,800 trout/mi) with 135 trout/km (217 trout/mi) being of legal length or longer (Table 5).

Brook Trout

Five wild Brook Trout were caught during the survey ranging from 50 mm to 249 mm in total length (TL). One (20 percent) was greater than or equal to the legal harvestable length (175 mm: 7 in). Total Brook Trout biomass was estimated to be 1.20 kg/ha.

Discussion

Section 02 of the UNT to Mahoning Creek (RM 10.09) supported natural reproduction of Brown Trout and Brook Trout. The Brown Trout biomass of 42.54 kg/ha met the PFBC's minimum biomass criteria for a Class A population, as outlined in 58 PA Code §57.8a., Class A Wild Trout Streams. Furthermore, the presence of young-of-the-year and/or multiple age classes of Brown Trout and Brook Trout supported listing the stream on the PFBC's Listing of Wild Trout Streams, as outlined in 58 PA Code §57.11.

The UNT to Mahoning Creek (RM 10.09) is a low fertility stream based on its low conductivity value of 50 *umhos*. The low value suggested that acidic run-off during the spring snow melt may create acidic conditions that may negatively impact its aquatic fauna, particularly in the headwater region. The current 25 PA Code Chapter 93 Water Quality Standards listing of Cold Water Fishes and Migratory Fishes (CWF, MF) set forth for Mahoning Creek Basin and applied to the UNT to Mahoning Creek (RM 10.09), Section 02, does not adequately protect the streams flora and fauna based on the presence of a Class A Brown Trout population. Thus it is recommended that the Chapter 93 Water Quality Standards listing for the UNT to Mahoning Creek (RM 10.09), Section 02, be upgraded to High Quality-Cold Water Fishes and Migratory Fishes (HQ-CWF, MF).

Management Recommendations

1. Add the UNT to Mahoning Creek (10.09), (02B), Section 02, (from the UNT upstream of the intersection of Dairy Road and Struss Valley Road downstream to the mouth) to the Commission's Class A Wild Trout Streams list.

2. Add the UNT to Mahoning Creek (RM 10.09), to the PFBC's list of stream sections that support natural reproduction of trout with the limits extending from the headwaters to the mouth.

3. Survey Section 01 of the UNT to Mahoning Creek (RM 10.09) within the next five years (2015-2019) to determine the potential status of a Class A wild trout population.

4. Request the Department of Environmental Protection reclassify the UNT to Mahoning Creek (RM 10.09), 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).

5. Continue management of the UNT to Mahoning Creek (RM 10.09), under Commonwealth Inland Waters regulations with no stocking.

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., R. T. Greene, and D. Miko. 2011. Protocols for conducting biological assessments of unassessed trout waters. Pages 95-101 in D. Miko, editor. Sampling protocols for Pennsylvania's wadeable streams. Pennsylvania Fish and Boat Commission. Harrisburg, PA.

Table 1. UNT to Mahoning Creek (RM 10.09), (02B), Section 02, Schuylkill County. Site sampling location, length surveyed, average site width and site area.

Site Date	Rivermile	Downstream limit description	Length (m)	Ave. Width (m)	Site Area (ha)
8/8/2013	0.00	Mouth	355	5.20	0.18

Table 2. High Gradient Rapid Bioassessment Protocol ratings for the UNT to Mahoning Creek (RM 10.09), (02B), Section 02, Schuylkill County, conducted at RM 0.00 on August 8, 2013.

Habitat Parameter	Score	Habitat Parameter	Score
Epifaunal Substrate / Available Cover	14	Left Bank Stability	8
Embeddedness	11	Right Bank Stability	8
Velocity / Depth Regime	16	Left Bank Vegetative Protection	9
Sediment Deposition	9	Right Bank Vegetative Protection	9
Channel Flow Status	14	Left Bank Riparian Vegetative Width	9
Channel Alteration	18	Right Bank Riparian Vegetative Width	9
Frequency of Riffles or bends	17	**Total Score**	**151**

Habitat Condition Rating: Optimal (151-200), Suboptimal (101-150), Marginal (51-100), and Poor (0-50).

Table 3. Water chemistries collected in the UNT to Mahoning Creek (RM 10.09), (02B), Schuylkill County.

Parameter	Site 1
Site RM	0.00
Sample Date	08/8/2013
Time (24 hour)	1327
Air Temperature (C)	23.6
pH Field Colorimetric (SU)	6.7
Specific Conductance (UMHOS)	50
Water Temperature (C)	16.7

Table 4. Fish species occurrence in UNT to Mahoning Creek (RM 10.09), (02B), Section 02, Schuylkill County during 2013. X indicates species presence recorded but not enumerated.

Common Name	Scientific Name	Coarse Abundance
American Eel	*Anguilla rostrata*	P
Blacknose Dace	*Rhinichthys atratulus*	X
Brook Trout	*Salvelinus fontinalis*	Present (3-25)
Brown Trout	*Salmo trutta*	Abundant(>100)
Common Shiner	*Luxilus cornutus*	X
Cutlips Minnow	*Exoglossum maxillingua*	X
Fallfish	*Semotilus corporalis*	X
Longnose Dace	*Rhinichthys cataractae*	X
Margined Madton	*Noturus insignis*	X
Pumpkinseed	*Lepomis gibbosus*	X
Rock Bass	*Ambloplites rupestris*	X
Sea Lamprey	*Petromyzon marinus*	Rare(<3)
Tessellated Darter	*Etheostoma olmstedi*	X
White Sucker	*Catostomus commersonii*	X

Table 5. Wild Brown Trout estimated abundance and biomass from the UNT To Mahoning Creek (RM 10.09) (02B), Section 02, on August 8, 2013.

Length Group (mm)	Population Estimate	Low 95% CI	High 95% CI	Estimated Number/Ha	Estimated Kg/Ha	Estimated Number/Km
25	1			5	0.01	3
50	251	118	578	1,360	3.45	707
75	78	46	141	423	2.69	220
100	1			5	0.08	3
125	1			5	0.14	3
150	17	9	35	92	4.04	48
175	25	14	47	135	9.1	70
200	6			33	3.16	17
225	5			27	3.65	14
250	5			27	4.94	14
275	3			16	3.85	8
300	2			11	3.29	6

325	2	11	4.14	6
Totals	397	2,150	42.54	1,119

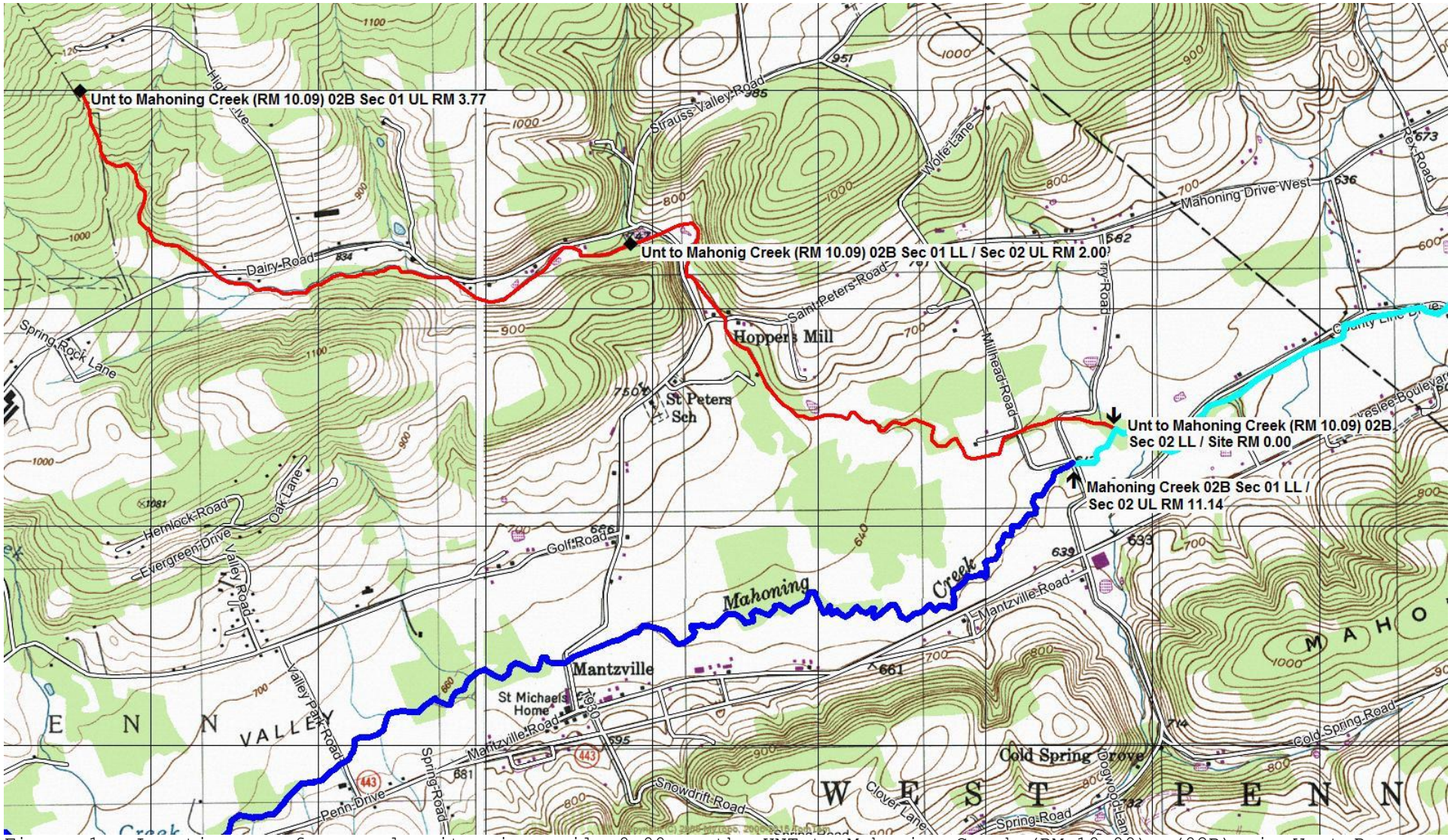

Figure 1. Location map for sample site river mile 0.00 on the UNT to Mahoning Creek (RM 10.09), (02B), in West Penn Township, Schuylkill County. USGS Topographic 7.5' Quadrangles – Tamaqua, PA and Nesquehoning, PA.