

**Distribution**

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**PA FISH AND BOAT COMMISSION  
COMMENTS AND RECOMMENDATIONS**

February 22, 2018~~August 4, 2015~~~~March 30, 2015~~

**WATER:** UNT to Marsh Run (RM 0.56) (216E) Crawford County

**EXAMINED:** June 19, 2013

**BY:** Allen Woomeer, Brian Ensign and James Siford

Bureau Director Action: \_\_\_\_\_ Date: \_\_\_\_\_

Division Chief Action: \_\_\_\_\_ Date: \_\_\_\_\_

CW Unit Leader Action: \_\_\_\_\_ Date: \_\_\_\_\_

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**AREA COMMENTS:**

A resurvey of UNT to Marsh Run (RM 0.56) was conducted by Fisheries Management Area 2 staff following the 2012 survey conducted by Unassessed Waters Program cooperators that indicated a potential Class A wild Brook Trout population might be present in this stream. Area 2 conducted a modified Petersen mark and recapture estimate and found that a Class A wild Brook Trout population was present with a biomass estimated at 39.05 kg/ha. This is an important discovery for the Unassessed Water Program, since previously it was thought that wild trout and especially wild Brook Trout were not common or even present in the small streams of this part of Crawford County. 10.4% of the stream length was sampled.

**AREA RECOMMENDATIONS:**

1. Add UNT to Marsh Run (RM 0.56) to the Class A wild trout streams list and manage under Commonwealth Inland Waters regulations with no stocking.
2. Add UNT to Marsh Run (RM 0.56) to the list of stream sections that support natural reproduction of trout.
3. Upgrade the current 25 PA Code Chapter 93 Water Quality Standards listing of Cold Water Fishes for the UNT to Marsh Run (RM 0.56) basin to High Quality - Cold Water Fishes given the Class A wild Brook Trout population present in this stream.

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**

Unnamed Tributary to Marsh Run at River Mile 0.56 (216E)  
Section 01

Prepared by  
Allen Woomer

Fisheries Management Database Name: Unt To Marsh Run (rm 0.56)  
Lat/Lon: 41°41'05"/79°47'25"

Date Sampled: June 19, 2013

Date Prepared: October, 2013

### **Introduction**

The unnamed tributary (UNT) entering Marsh Run at River Mile (RM) 0.56 is a very small headwaters stream located in southeastern Crawford County. It has a total length of 4.89 km (3.04 mi), a drainage area of 3.59 km<sup>2</sup> (1.39 mi<sup>2</sup>) and flows east into Marsh Run at RM 0.56, 41°41'05" latitude and 79°47'25" longitude. The UNT to Marsh Run (RM 0.56) can be found on the Centerville, PA United States Geological Survey 7.5 minute quadrangle (Figure 1).

UNT to Marsh Run (RM 0.56) was surveyed to verify if a Class A wild Brook Trout *Salvelinus fontinalis* population was present in the stream. This survey follows a May 30, 2012 unassessed waters survey conducted by Unassessed Waters Cooperators from Allegheny College that found a potential Class A wild Brook Trout population present based on a single backpack electrofishing pass using the Unassessed Waters protocol (Weber et al. 2011). UNT to Marsh Run (RM 0.56) is managed as a single section from the headwaters to the mouth and the stream is 100% privately owned.

### **Methods**

The examination of UNT to Marsh Run (RM 0.56) was conducted on June 19, 2013. All procedures were carried out according to those outlined by Detar et al. (2011). One representative sampling station totaling 10 percent of the section length was sampled in 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 a gas powered electrobackpack equipped with a Coffelt Model BP-1C variable voltage electrofisher set at 100 volts AC-Alternating Current. 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: 0.71*

Sample site RM 0.71 was located at Steadman Road crossing, 41°40'57" latitude and 79°47'59" longitude. The 510 m long station averaged 2.7 m in width (Table 1) and represented 10.4% of the total stream length. This portion of the stream primarily flowed through rich woods interspersed with shrubs along the stream corridor, which provided dense shade to the stream. Bank erosion was moderate and the stream substrate consisted primarily of gravel with some rubble, silt and sand. The RBP analysis yielded a final score of 171 out of 200 (Table 2) indicating very good physical habitat.

Physical-chemical parameters and their associated values measured under normal flow conditions were as follows: air temperature 22° C, water temperature 14.3° C, specific conductance 150 umhos, pH 7.3 standard units, total alkalinity 51 mg/l, and total hardness 68 mg/l (Table 3). These results indicate water quality is well suited for the propagation and maintenance of trout. The UNT to Marsh Run (RM 0.56) is a very fertile and well buffered stream capable of supporting a high density coldwater fish community.

Eleven fish species including wild Brook Trout were captured at RM sample site 0.71. Other fish species captured included Mottled Sculpin *Cottus bairdii*, considered abundant based on subjective index, Creek Chub *Semotilus atromaculatus* considered common, Pearl Dace *Margariscus margarita*, Blacknose Dace *Rhinichthys atratulus*, Green Sunfish *Lepomis cyanellus* and White Sucker *Catostomus commersonii* considered present and Redside Dace *Clinostomus elongatus*, Brown Bullhead *Ameiurus nebulosus*, Pumpkinseed *Lepomis gibbosus* and American Brook Lamprey *Lampetra appendix* considered rare (Table 4). Fish species sampled with the exception of Green Sunfish, Pumpkinseed and Brown Bullhead are indicative of a coldwater environment. The sunfish and bullhead most likely escaped from a nearby pond that discharged into the stream in the site area.

### Brook Trout

Two hundred seventy-three, excluding recaptures, wild Brook Trout ranging from 25 mm to 274 mm in total length (TL) were captured during the survey with seventeen (six percent) being greater than

or equal to the legal harvestable length (175 mm: 7 in). Total Brook Trout biomass was estimated to be 39.05 kg/ha. Brook Trout abundance was estimated at 922 trout/km (1,483 trout/mi) with 45 trout/km (72 trout/mi) being of legal length or longer (Table 5).

### **Discussion**

The presence of young-of-the-year and multiple year classes verified that Section 01 of UNT to Marsh Run (RM 0.56) supported natural reproduction of Brook Trout and qualified for the Listing of Wild Trout Streams, as outlined in 58 PA Code §57.11. The wild Brook Trout biomass determined from the survey met the Pennsylvania Fish and Boat Commission's minimum biomass criteria for a Class A population as outlined in 58 PA Code §57.8a., Class A Wild Trout Streams.

UNT to Marsh Run (RM 0.56) supports an excellent wild Brook Trout population composed of several year classes and a good number of larger legal size brook trout. The fertile water quality and good physical habitat in this site help to maintain this high density wild fishery.

The documentation of strong and abundant wild brook trout populations in this and other streams in the upper Oil Creek basin is an important contribution of the Unassessed Waters Program, since they were not previously suspected to be this widespread and healthy in this area.

The current 25 PA Code Chapter 93 Water Quality Standards listing of Cold Water Fishes for the UNT to Marsh Run (RM 0.56) basin should be upgraded to High Quality - Cold Water Fishes due to the presence of the Class A wild Brook Trout population in this stream.

### **Management Recommendations**

1. Add UNT to Marsh Run (RM 0.56) to the Class A wild trout streams list and manage under Commonwealth Inland Waters regulations with no stocking.
2. Add UNT to Marsh Run (RM 0.56) to the list of stream sections that support natural reproduction of trout.
3. Request DEP upgrade the current 25 PA Code Chapter 93 Water Quality Standards listing of Cold Water Fishes for the UNT to Marsh Run (RM 0.56) basin to High Quality - Cold Water Fishes given the Class A wild Brook Trout population present in this stream.

## 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, 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.
- 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 Marsh Run (RM 0.56) (16E), Crawford 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)
06/19/13	0.71	Steadman Road crossing	510	2.7	0.14

Table 2. High Gradient Rapid Bioassessment Protocol ratings for the UNT to Marsh Run (RM 0.56) (16E), Crawford County, conducted at RM 0.71 on June 19, 2013.

Habitat Parameter	Score	Habitat Parameter	Score
Epifaunal Substrate / Available Cover	16	Left Bank Stability	9
Embeddedness	16	Right Bank Stability	9
Velocity / Depth Regime	17	Left Bank Vegetative Protection	10
Sediment Deposition	14	Right Bank Vegetative Protection	10
Channel Flow Status	14	Left Bank Riparian Vegetative Width	10
Channel Alteration	19	Right Bank Riparian Vegetative Width	10
Frequency of Riffles or bends	17	<b>Total Score</b>	<b>171</b>

Table 3. Chemistries collected in the UNT to Marsh Run (RM 0.56) (16E), Crawford County. Sample site(s) are within Section 01 in 2013 sample year.

Parameter	Site 1
Site RM	0.71
Sample Date	06/19/2013
Time (24 hour)	1330
Water Temperature (C)	14.3
pH Field Colorimetric (SU)	7.3
Specific Conductance (UMHOS)	150
Total Alkalinity Field Mixed Indicator (MG/L)	51
Total Hardness Field EDTA (MG/L)	68
Air Temperature (C)	22.0

Table 4. Fish species occurrence from the UNT to Marsh Run (RM 0.56) (16E), Crawford County, at sample site RM 0.71 on June 19, 2013.

Common Name	Scientific Name	Catch*
American Brook Lamprey	<i>Lampetra appendix</i>	2
Blacknose Dace	<i>Rhinichthys atratulus</i>	9
Brook Trout	<i>Salvelinus fontinalis</i>	179
Brown Bullhead	<i>Ameiurus nebulosus</i>	1
Creek Chub	<i>Semotilus atromaculatus</i>	54
Green Sunfish	<i>Lepomis cyanellus</i>	4
Mottled Sculpin	<i>Cottus bairdii</i>	>100
Pearl Dace	<i>Margariscus margarita</i>	22
Pumpkinseed	<i>Lepomis gibbosus</i>	1
Redside Dace	<i>Clinostomus elongatus</i>	1
White Sucker	<i>Catostomus commersonii</i>	3

\* - Catch of non-trout species is for the first 300 m of the marking run.

Table 5. Wild Brook Trout Petersen abundance and biomass estimates at sample site RM 0.71 on the UNT to Marsh Run (RM 0.56) (216E), Crawford County, on June 19, 2013.

Size Group	Estimate	low95CI	High95CI	NumHa	KgHa	NumKm
25	85	51	150	617	0.64	167
50	252	172	385	1830	4.50	494
75	1			7	0.04	2
100	24	12	53	174	2.39	47
125	56	25	140	407	9.94	110
150	29	15	60	211	8.65	57
175	18	7	45	131	8.35	35
200	2			15	1.34	4
225	2			15	1.90	4
250	1			7	1.30	2
Totals	470			3414	39.05	922



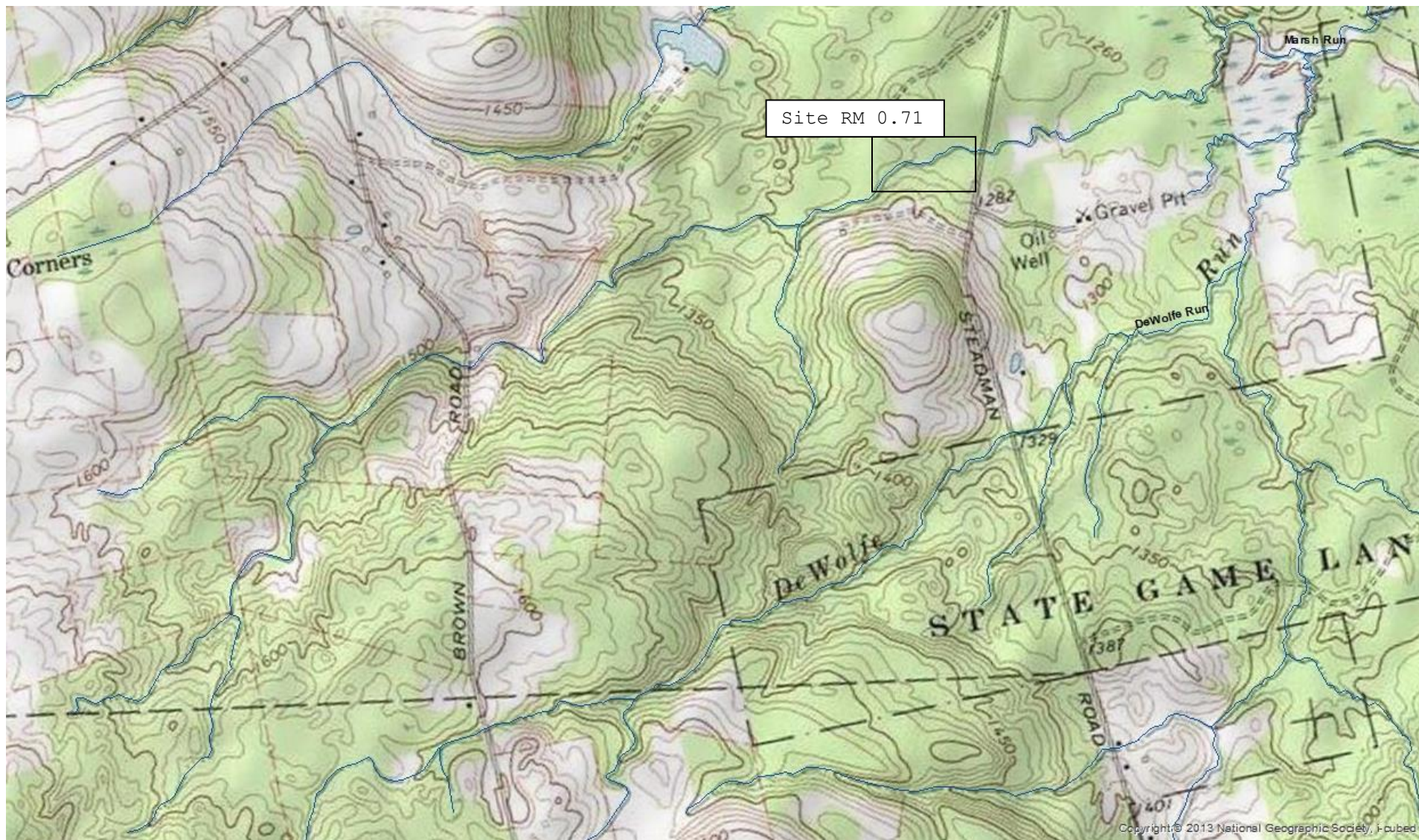


Figure 1. Location map for sample site river mile 0.71 on the UNT to Marsh Run (RM 0.56) (16E), Crawford County.