

## **Distribution**

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

February 22, 2018~~August 4, 2015~~~~April 10, 2015~~

**WATER:** Kettle Run (306A) Centre County  
**EXAMINED:** June 24 and 27, 2013  
**BY:** Jason Detar, Dave Kristine, and Josh Keslar

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

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

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

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**AREA COMMENTS:** Kettle Run is a small, coldwater stream which flows into Penns Creek near the village of Zerby. The presence of both young-of-the-year and multiple year classes of Brook and Brown Trout during our examination verified that this stream supports natural reproduction of trout. In addition, the mean biomass for wild Brook Trout between the two sites was estimated at 54.68 kg/ha and met the minimum biomass criteria for listing as a Class A wild Brook Trout stream. Fourteen percent of the stream length was sampled.

**AREA RECOMMENDATIONS:**

1. Continue to list Kettle Run (06A), Section 01 (from the headwaters to the mouth) on the PFBC's list of stream sections that support natural reproduction of trout.
2. Add Kettle Run (06A), Section 01, to the Commission's Class A Wild Trout Streams program.
3. Manage Kettle Run (06A), Section 01, as a Class A wild trout stream under Commonwealth Inland Waters regulations with no stocking.
4. Request the Department of Environmental Protection upgrade the designation of the entire Kettle Run basin to High-Quality Coldwater Fishes (HQ-CWF) under 25 PA Code Chapter 93 based on the Class A qualifier found in 93.4b(2)(ii). Kettle Run is currently listed as Coldwater Fishes (CWF) and Migratory Fishes (MF) in 25 PA Code Chapter 93, which is an inadequate level of protection for the 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**

Kettle Run (306A)  
Section 01  
Fisheries Management Report  
Unassessed Water

Prepared by  
Dave Kristine, Jason Detar, and Josh Keslar

Fisheries Management Database Name: Kettle Run  
Lat/Lon: 40°50'53"/77°31'23"

Date Sampled: June 24 and 27, 2013 Date Prepared: January 7, 2013

### **Introduction**

Kettle Run is a small, coldwater stream located in Centre County and flows north through a narrow mountain gap into Penns Creek at River Mile (RM) 55.25 (40°50'53" latitude and 77°31'23" longitude) near the small village of Zerby. The stream has a total length of 3.04 km (1.89 mi) and a drainage area of 5.21 km<sup>2</sup> (2.01 mi<sup>2</sup>). Kettle Run can be found on the Spring Mills, PA United States Geological Survey 7.5 minute quadrangle (Figure 1). The current 25 PA Code Chapter 93 Water Quality Standards designation is Cold Water Fishes and Migratory Fishes (CWF, MF) for the entire stream.

Riparian land along the middle and lower reaches of Kettle Run is privately owned with the remainder of riparian land near the headwaters (15%) owned by the Commonwealth of Pennsylvania as part of the Bald Eagle State Forest. The watershed is primarily forested and most residential activity is located within a narrow gap in the mountains as the stream enters Penns Valley. Kettle Run was surveyed during 2013 as an initial Pennsylvania Fish and Boat Commission (PFBC) inventory to gather contemporary information on the wild trout population for management and protection purposes and as part of the Unassessed Waters Program.

### **Methods**

The habitat, water chemistry, and fish communities of Kettle Run were examined on June 24 and 27, 2013 at two sampling stations totaling fourteen percent of the stream length. Procedures were carried out according to those 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 a pulsed DC battery backpack electrofisher and identified to species. All wild trout captured were enumerated and their total length (TL) 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 for wild trout and their densities were determined by using the number of fish 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: 0.08**

Sample site RM 0.08 (40°50'51" latitude and 77°31'26" longitude) was located approximately 200 m downstream of Penns Creek Road Bridge. The 300-m long station averaged 2.3 m in width (Table 1). This portion of the stream was well shaded and flowed through a woodlot comprised of mature hemlocks and rhododendron. Bank erosion was light and the stream substrate consisted of boulder, gravel, sand, and silt. The RBP analysis yielded a final score of 143/200 (Table 2). Sediment deposition was scored as poor with heavy sediment deposits in pools, likely from a dirt and gravel road that closely parallels much of the stream.

Water chemistry parameters and their associated values measured under normal flow conditions were as follows: water temperature 16.3 °C, specific conductance 40 umhos, pH 6.6 standard units, and total alkalinity 9 mg/l (Table 3).

Five fish species were captured at the site, including wild Brook Trout *Salvelinus fontinalis*, wild Brown Trout *Salmo trutta*, Blacknose Dace *Rhinichthys atratulus*, Longnose Dace *Rhinichthys cataractae*, and Slimy Sculpin *Cottus cognatus* (Table 4).

One hundred and eighteen wild Brown Trout ranging from 25 to 374 mm in total length (TL) were captured with eight (seven percent) being greater than or equal to the legal harvestable length (175 mm: 7 in). Total Brown Trout biomass was estimated to be 32.60 kg/ha. Brown Trout abundance was estimated at 395 trout/km (636 trout/mi) with 27 trout/km (43 trout/mi) being of legal length or longer (Table 5).

Thirty-one wild Brook Trout ranging from 25 to 174 mm in total length (TL) were also captured. Brook Trout biomass was estimated at 5.88 kg/ha and abundance was estimated at 104 trout/km (167 trout/mi) with no trout being of legal length or longer (Table 6).

### **Site River Mile: 0.76**

Sample site RM 0.76 was located approximately 60 m downstream of an unnamed tributary at Zerby Gap (40°50'21" latitude and 77°31'09"

longitude). The 115-m long station averaged 1.2 m in width (Figure 1, Table 1). The stream here was high gradient in nature and flowed through a mature forest with a thick rhododendron understory and is paralleled by Lingle Valley Road. Excellent cover was provided by boulder pools and large woody debris. Bank erosion was light and the stream substrate consisted primarily of boulder, rubble, and gravel. The RBP analysis yielded a final score of 179/200 (Table 2). Water temperature and specific conductance was 14.8°C and 42 umhos, respectively (Table 3).

Wild Brook Trout were the only species occurring at this site (Table 4). We captured a total of 144 Brook Trout ranging from 25 to 199 mm in total length (TL) with one being greater than or equal to the legal harvestable length (175 mm: 7 in). Total Brook Trout biomass was estimated to be 103.47 kg/ha and abundance was estimated at 1,252 trout/km (2,014 trout/mi) with nine trout/km (14 trout/mi) being of legal length or longer (Table 7).

The mean abundance and biomass for wild Brook Trout at the two sample sites was estimated at 678 trout/km and 54.68 kg/ha, respectively (Table 8). The mean abundance and biomass for wild Brown Trout at the two sample sites was estimated at 195 trout/km and 16.30 kg/ha, respectively (Table 9).

### **Discussion**

Upon initial inventory, Kettle Run was found to support a robust population of wild Brook and Brown Trout. The stream should continue to be listed on the PFBC's list of stream sections that support natural reproduction of wild trout as verified by the presence of both young-of-the-year and multiple year classes of wild Brook and Brown Trout, as outlined in 58 PA Code §57.11. In addition, the estimated mean biomass of wild Brook Trout (54.68 kg/ha) exceeded the Pennsylvania Fish and Boat Commission's minimum biomass criteria of 30 kg/ha for listing Kettle Run as a Class A wild Brook Trout stream, as outlined in 58 PA Code §57.8a, Class A Wild Trout Streams. Thus, based on the wild trout biomass and sampling greater than 10 percent of the total stream length, Kettle Run should be managed as one section from the headwaters to the mouth as a Class A wild Brook Trout stream under statewide regulations with no stocking.

The current 25 PA Code Chapter 93 Water Quality Standards designation for Kettle Run is Cold Water Fishes and Migratory Fishes (CWF, MF). This is an inadequate level of protection for this stream. Due to the significant wild trout resource which meets Class A criteria, Kettle Run should be upgraded to the High Quality-Cold Water Fishes and Migratory Fishes (HQ-CWF, MF) designation by the PA Department of Environmental Protection (DEP) upon listing by the Commission as a Class A wild trout stream.

### **Management Recommendations**

1. Continue to list Kettle Run (06A), Section 01, (from the headwaters to mouth) on the PFBC's list of stream sections supporting natural reproduction of trout.
2. Add Kettle Run (06A), Section 01, to the Commission's Class A Wild Trout Streams program.
3. Manage Kettle Run (06A), Section 01, as a Class A wild trout stream under Commonwealth Inland Waters regulations with no stocking.
4. Request the Department of Environmental Protection upgrade the designation of the entire Kettle Run basin to High-Quality Coldwater Fishes (HQ-CWF) under 25 PA Code Chapter 93 based on the Class A qualifier found in 93.4b(2)(ii). Kettle Run is currently listed as Coldwater Fishes (CWF) and Migratory Fishes (MF) in 25 PA Code Chapter 93, which is an inadequate level of protection for the 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.
- 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. Kettle Run (06A), Centre County. Site sampling location, lengths surveyed, average site widths and site areas.

Site Date	Rivermile	Downstream limit description	Length (m)	Ave. Width (m)	Site Area (ha)
6/24/2013	0.08	200 m downstream of Penns Creek Road Bridge.	300	2.3	0.07
6/27/2013	0.76	60 m downstream of UNT	115	1.2	0.01

Table 2. High Gradient Rapid Bioassessment Protocol ratings for Kettle Run (06A), Centre County, conducted at RM 0.08 and 0.76 during 2013.

Habitat Parameter	RM	RM	Habitat Parameter	RM	RM
	0.08	0.76		0.08	0.76
Epifaunal Substrate / Available Cover	13	19	Left Bank Stability	8	10
Embeddedness	16	17	Right Bank Stability	9	10
Velocity / Depth Regime	13	16	Left Bank Vegetative Protection	9	9
Sediment Deposition	5	17	Right Bank Vegetative Protection	9	10
Channel Flow Status	13	19	Left Bank Riparian Vegetative	9	10
Channel Alteration	13	18	Width		
			Right Bank Riparian Vegetative	9	5
Frequency of Riffles or bends	17	19	Total Score	143	179

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



Table 3. Water chemistries collected in Kettle Run (06A), Centre County.

Parameter	RM 0.08	RM 0.76
Site RM	0.08	0.76
Sample Date	06/24/2013	06/27/2013
Time (24 hour)	1010	1225
pH Field Colorimetric (SU)	6.6	Not measured
Specific Conductance (UMHOS)	40	42
Total Alkalinity Field Mixed Indicator (MG/L)	9	Not measured
Water Temperature (C)	16.3	14.8

Table 4. Fish species occurrence in Kettle Run (06A), Centre County, at sample sites RM 0.08 and RM 0.76 during 2013.

Common Name	Scientific Name	RM 0.08	RM 0.76
Blacknose Dace	<i>Rhinichthys atratulus</i>	X	
Brook Trout	<i>Salvelinus fontinalis</i>	X	X
Brown Trout	<i>Salmo trutta</i>	X	
Longnose Dace	<i>Rhinichthys cataractae</i>	X	
Slimy Sculpin	<i>Cottus cognatus</i>	X	

Table 5. Wild Brown Trout catch and biomass estimates at sample site RM 0.08 on Kettle Run (306A), Centre County, on June 24, 2013.

Size Group	Catch	Mean Wt (g)	Wt Source	Kg/ Ha	Num/ Ha	Num/ Km
25	8	1.05	StateMeanWt	0.12	116	27
50	56	2.54	StateMeanWt	2.06	812	187
75	8	6.37	StateMeanWt	0.74	116	27
100	28	14.34	StateMeanWt	5.82	406	93
125	8	26.27	StateMeanWt	3.05	116	27
150	2	43.86	StateMeanWt	1.27	29	7
175	2	67.18	StateMeanWt	1.95	29	7
200	2	97.08	StateMeanWt	2.81	29	7
250	3	182.28	StateMeanWt	7.93	43	10
350	1	472.91	StateMeanWt	6.85	14	3
Totals	118			32.60	1,710	395

Table 6. Wild Brook Trout catch and biomass estimates at sample site RM 0.08 on Kettle Run (306A), Centre County, on June 24, 2013.

Size Group	Catch	Mean Wt (g)	Wt Source	Kg/ Ha	Num/ Ha	Num/ Km
25	2	1.04	StateMeanWt	0.03	29	7
50	11	2.46	StateMeanWt	0.39	159	37
100	9	13.69	StateMeanWt	1.79	130	30
125	7	24.44	StateMeanWt	2.48	101	23
150	2	41.09	StateMeanWt	1.19	29	7
Totals	31			5.88	448	104

Table 7. Wild Brook Trout catch and biomass estimates at sample site RM 0.76 on Kettle Run (306A), Centre County, on June 27, 2013.

Size Group	Catch	Mean Wt (g)	Wt Source	Kg/ Ha	Num/ Ha	Num/ Km
25	18	1.04	StateMeanWt	1.36	1304	157
50	52	2.45	StateMeanWt	9.27	3768	452
75	9	5.95	StateMeanWt	3.88	652	78
100	45	13.69	StateMeanWt	44.65	3261	391
125	14	24.44	StateMeanWt	24.79	1014	122
150	5	41.09	StateMeanWt	14.89	362	43
175	1	63.92	StateMeanWt	4.63	72	9
Totals	144			103.47	10,433	1,252

Table 8. Mean abundance and biomass for wild Brook Trout from Kettle Run (306A), Section 01. A total of two sites were examined at RM 0.08 and 0.76 during 2013.

Size Group	Population Estimate	Num/ha	kg/Ha	Num/km
25	10	667	0.69	82
50	32	1964	4.83	244
75	5	326	1.94	39
100	27	1696	23.22	211
125	11	558	13.64	73
150	4	196	8.04	25
175	1	36	2.32	4
Totals:	90	5,443	54.68	678

Table 9. Mean abundance and biomass for wild Brown Trout from Kettle Run (306A), Section 01. A total of two sites were examined at RM 0.08 and 0.76 during 2013.

Size Group	Population Estimate	Num/ha	kg/Ha	Num/km
25	4	58	0.06	13
50	28	406	1.03	93
75	4	58	0.37	13
100	14	203	2.91	47
125	4	58	1.52	13
150	1	14	0.64	3
175	1	14	0.97	3
200	1	14	1.41	3
250	2	22	3.96	5
350	1	7	3.43	2
Totals:	60	854	16.30	195

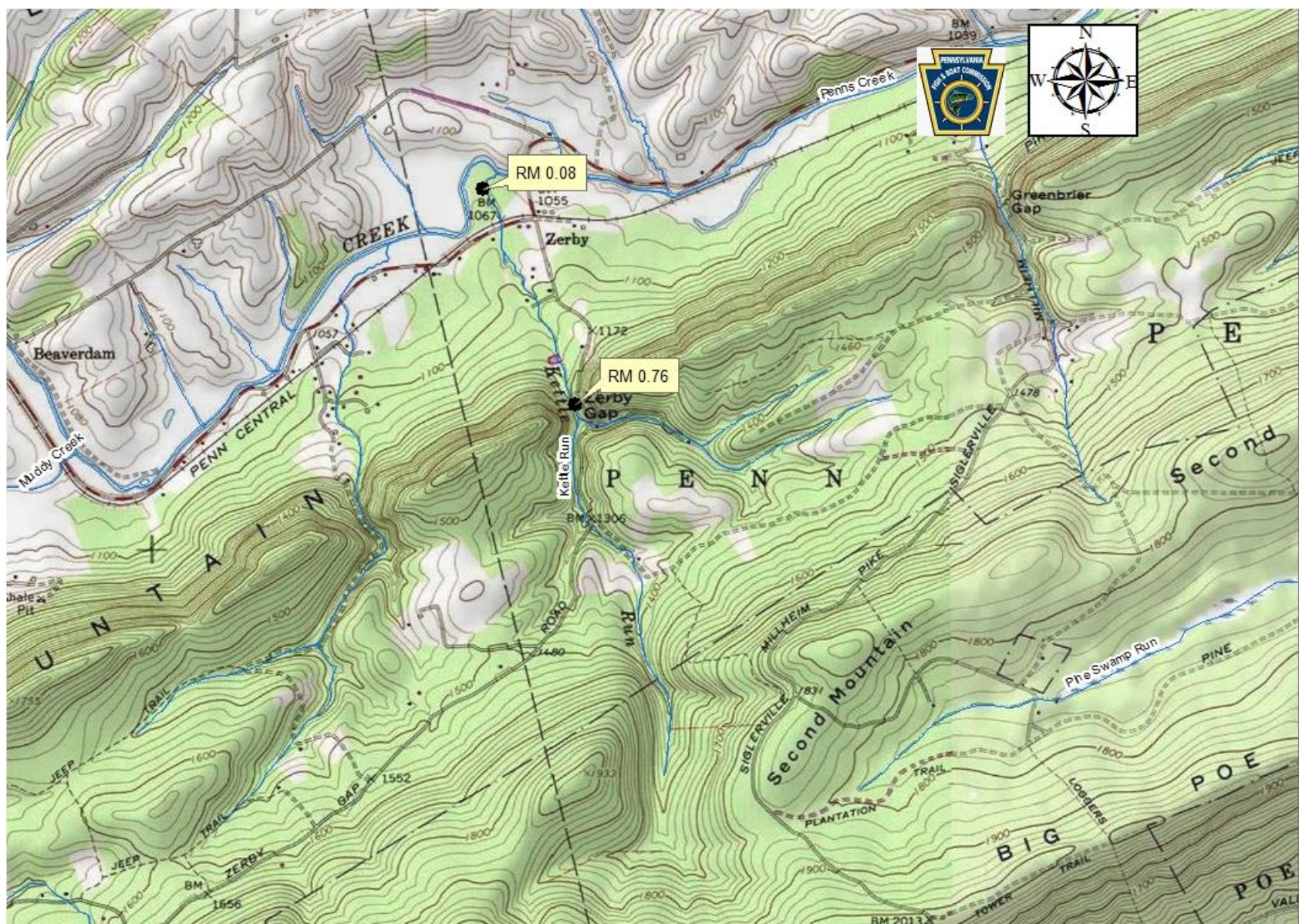


Figure 1. Location map for sample sites on Kettle Run (306A), Centre County during 2013.