

PA FISH AND BOAT COMMISSION  
COMMENTS AND RECOMMENDATIONS

February 22, 2012

**Water:** Saucon Creek (502C), Section 05 Northampton County

**Examined:** July/August 1999

**By:** Arnold, Minnichbach, Hannold, Baldwin.

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

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

WW Unit Leader Action: \_\_\_\_\_ Date: \_\_\_\_\_

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

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**AREA COMMENTS:**

Section 05 of Saucon Creek was placed in the Selective Harvest Artificial Lures Only program effective January 1, 1997, based on the Class A wild brown trout fishery present in the 1993 and 1994 qualifying surveys. Section 05 flows through the City of Bethlehem's Saucon Park and city property. This area prior to 1993 was placed in the PFBC's catchable trout program. However, surveys in 1991 and 1992 noted a Class A brown trout fishery with standing crop estimates of 993/ha and 60.03kg/ha, and 1,124/ha and 69.67 kg/ha. Thus, stocking was terminated in 1994. The qualifying surveys of 1993 and 1994 found a Class A wild brown trout population with an estimated abundance of 523/ha and 65.46 kg/ha, and 652/ha and 80.64 kg/ha.

This is the first assessment of the SH-ALO program since its implementation in 1997. The section estimated abundance and biomass of wild brown trout during this survey was 2,111/ha and 212.73 kg/ha. Based on the qualifying surveys of 1993 and 1994, the program met the objectives of keeping the population at or above standing crop, increasing the abundance of (stockpile) age 3+ and older trout by a factor of 2, protect multiple-aged spawning stocks, and allow the harvest of some larger trout ( $\geq 12$  in., 300 mm LG).

In the summer and fall of 1999 Pennsylvania was under drought emergency conditions. The effects of the drought were not apparent in Saucon Creek as attested by the similarity in water chemistries, particularly water temperature, and the average site widths when compared to the qualifying surveys. Thus, the increased estimated abundance and biomass of wild brown trout in Section 05 for 1999 is not a direct result of the drought, rather a reflection of the SH-ALO regulations.

**AREA RECOMMENDATIONS:**

1. Continue management under Selective Harvest-Artificial Lures Only regulation to protect the wild trout fishery and to continue to offer the angler a diversity of fishing opportunities within an urban area.
2. Change Water Quality Designation and add Migratory Fishes designation. Change from CWF to HQ-CWF, MF.

3. Reinventory Saucon Creek (502C), Section 05, in 2003 and collect scale samples for aging purposes.

**CWU COMMENTS:**

Saucon Creek (502C), Section 05, was examined during July and August 1999 as part of a Federal Aid project to monitor Class A wild trout fisheries managed under special regulations.

Section 05 can be characterized as a fertile, limestone stream. The 1999 examination (conducted at two sample sites) recorded the presence of eight fish species, including an outstanding wild brown trout fishery estimated in excess of 212 kg/ha. Overall, the wild brown trout fishery has responded favorably to the implementation of special regulations.

**CWU RECOMMENDATIONS:**

1. Saucon Creek (502C), Section 05, should continue to be managed as a Class A wild brown trout fishery. Selective Harvest regulations should apply with no stocking.
2. Due to the presence of a viable Class A wild brown trout fishery the DEP Water Quality Standards should be upgraded to HQ-CWF. The special protected use designation should apply to the Saucon Creek basin from a point 0.38 miles upstream of the High Street Bridge downstream to the SR 0412 Bridge. Due to the presence of migratory American eels the MF protected use should be added to the designation. A copy of this report should be forwarded to DEP via Environmental Services.
3. I concur with the Area 5 recommendation stating that Section 05 should be re inventoried during the 2003 field season.

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**

Saucon Creek (502C)  
Section 05  
Special Regulations Monitoring  
Selective Harvest Artificial Lures Only

Prepared by:  
David A. Arnold

Date Sampled: July/August 1999

Date Prepared: November 2000

**Introduction**

Section 05 of Saucon Creek is a Class A wild brown trout (*Salmo trutta*) limestone stream located in the City of Bethlehem in Northampton County. This section has been managed under the Selective Harvest Artificial Lures Only (SH-ALO) Regulations program since January 1, 1997. Its placement in the program was based on the 1993 and 1994 qualifying surveys that found a Class A brown trout fishery (Arnold 1994 and 1995). The estimated section population and biomass of brown trout in 1993 and 1994 was 523/ha and 65.46 kg/ha, and 652/ha and 80.64 kg/ha, respectively. Prior to 1997 this section was managed as wild trout water under conventional statewide regulations from 1994 to 1996, and catchable trout water prior to 1994. Stocking was terminated in 1994 due to the continued presence of a Class A fishery in 1991 (993/ha; 60.03 kg/ha) and 1992 (1124/ha; 69.67 kg/ha). Section 05 begins 0.61 km (0.38 mi) upstream of the High Street Bridge and extends downstream 3.46 km (2.12 mi) to the SR 0412 bridge. The current DEP (PA Code, Title 25, Ch. 93, April 1993) water quality designations for this watershed is: Coldwater Fishes (CWF; PA Code, Title 25, Ch. 93, August 14, 1999).

The Pennsylvania Fish and Boat Commission's Management of Trout Fisheries in Pennsylvania Waters (PFBC, Bureau of Fisheries 1997) describes the program and objectives as follows: Selective Harvest management for wild trout fisheries is intended to enhance the fishery while providing anglers an opportunity for limited harvest of larger individuals. This program recognizes the differences in longevity and growth between wild brook and brown trout. Thus the minimum size limit is 305 mm (12 in) for brown trout and 229 mm (9 in) for brook and rainbow trout. The creel limit is 2 trout per day, combined species. The season is open year around, except no harvest is allowed between the day after Labor Day and the opening

day of the regular trout season. There are five main objectives: 1) to maintain standing stocks at or above levels found at the time of the qualifying survey, 2) to maintain high wild trout population densities to provide for high catch-and-release rates ( $\geq 1.0/\text{hr}$ ) of trout, 3) to stockpile older (age 3+) and larger trout by a factor of two in the time period since the qualifying survey, 4) to protect multiple-age spawning stocks, and 5) to allow anglers to harvest (if desired) some larger individual trout. In regards to objective 3, the amount of regulated habitat, the full force of fishing mortality prior to regulations and natural variation in response to climatic events may limit this response in older fish and should not be considered a rigid measure of program success.

This survey was conducted to monitor the Class A brown trout fishery and update its management plan.

### **Methods**

Physical, chemical and biological data were collected following the guidelines presented in the Pennsylvania Fish and Boat Commission's Stream and Rivers Examination Manual (Marcinko et al. 1986). Resident trout populations at RM 1.60 and 2.76 were assessed using DC current (200 VDC) from a Coffelt electrofisher (Model VVP-2C) powered by a Pincor generator (Figure 1). All trout species were counted by 25 mm length groups (LG) and total lengths with associated weights up to at least 10 per length group were recorded.

### **Results**

Two sites (RM 1.60 and 2.76), established in 1991, were surveyed on July 29 and August 10, 1999. Site locations are as follows:

Site RM 1.60      This site begins 750 m upstream from the SR 0412 bridge and proceeds upstream 300 m to a remnant cement dam. Average site width was 17.3 m.

Site RM 2.76      This site begins 20 m upstream from the High Steet bridge and proceeds upstream 300 m to a 1.2 to 1.5 m high wooden dam. Average site width was 12.8 m.

Summer water chemistries in Section 05 showed pH ranging from 7.9 to 8.0 SU during the monitoring period (Table 1). Total alkalinity ranged from 144 to 152 mg/l during this period. Water temperatures ranged from 15.0 to 16.8 C, despite the severe statewide drought conditions existing during this survey.

Wild brown trout were the dominant trout species at each site. Both sites were well above the Class A designation's minimum biomass estimate of 40.00 kg/ha, with 210.91 (RM 1.60) and 214.56 kg/ha (RM 2.76) for an overall section average of 212.73 kg/ha (Table 2). Sizes ranged from 75 to 524 mm at RM 1.60, and 75 to 399 mm at RM 2.76. Sub-legal trout (<300 mm LG, SH-ALO) accounted for greater

than 94 percent of the estimated abundance at both sites (RM 1.60, N=1775; RM 2.76, N=2257). The percentage of sub-legal trout that would have been available for harvest under conventional wild trout regulations (175-275 mm LG) at RM 1.60 and 2.76 is 67 (N=1193) and 59 (N=1324), respectively.

Hatchery rainbow trout (*Oncorhynchus mykiss*) occurred in low abundance at each site. A total of 4 hatchery rainbow trout were caught one at RM 1.60 (LG 250 mm), and three at RM 2.76 (one each 250, 275, and 300 mm LG).

### **Evaluation of Catch and Release Regulations**

This is the first survey since SH-ALO management went into effect on Section 05 of Saucon in 1997. The section's wild brown trout abundance and biomass increased from 523/ha and 65.46 kg/ha in 1993 and 652/ha and 80.64 kg/ha in 1994 (qualifying surveys) to the post SH-ALO findings of 2,111/ha and 212.73 kg/ha in 1999. This represents a 3.6 fold increase in abundance and nearly a 3 fold increase in biomass as compared to qualifying surveys average of 588/ha and 73.05 kg/ha. Thus, the objective to maintain populations at or above standing stock was met using this comparison. The objectives of increasing the portion of age 3+ and older trout by a factor of two and protecting multiple spawning stocks has also been attained on this water. The 1993 survey established that wild brown trout, for both sites, at age 3+ had a weighted mean length in the 225 mm LG. Based on qualifying surveys average, the portion of wild brown trout in 1999 age 3+ and older increased nearly 4 fold.

This survey showed a stock piling of sub-legal trout immediately below the SH-ALO's 12 inch (300 mm LG) minimum size limit in Section 05. There were substantial increases in the 200, 225, 250, 275 mm LG estimates. Population estimates in these lengths groups in 1993, 1994 and 1999 for Section 05 totaled: 350/ha, 295/ha, and 1,193/ha, respectively. The abundance of trophy size trout ( $\geq 350$  mm, 14 in) based on the 1993 and 1994 qualifying surveys increased 2.5 fold from an average of 4 (pre SH-ALO) to 10/ha (post SH-ALO).

Section 05 met the objectives of the SH-ALO program during this survey. The severe statewide drought in 1999 did not adversely affect the findings of this survey. Water temperatures were well within the brown trout's range and similar to past surveys. In addition, the average stream widths were comparable to those of the qualifying surveys. The average stream widths in 1993, 1994 and 1999 for RM 1.60 and 2.76 were 17.7, 16.0 and 17.3 m; and 13.8, 12.0, and 12.8 m, respectively.

## References

- Arnold, D. A., 1995, Stream Report Saucon Creek Section 05, 502C, PFBC files, 450 Robinson Lane, Bellefonte, PA.
- \_\_\_\_\_ 1994. Stream Report Saucon Creek Section 04 and 05, 502C, PFBC files, 450 Robinson Lane, Bellefonte, PA.
- PFBC Bureau of Fisheries, Fisheries Management, 1997, Management of Trout Fisheries in Pennsylvania Waters, 3<sup>rd</sup> Ed., PFBC Files, 450 Robinson Lane, Bellefonte, PA.
- Marcinko, M., R. Lorson, and R. Hoopes, 1986, Pennsylvania Fish & Boat Commission=s Stream and Rivers Examination Manual, PFBC Files, 450 Robinson Lane, Bellefonte, PA.

Table 1. Summer Chemical-thermal analysis of RM 1.60 and 2.76 (1993-1994, and 1999) of Saucon Creek (502C), Section 05, Northampton County. NC=Not Collected. A.T. C=Air Temp; W.T. C=Water Temp.; Sp. Cond.=Specific Cond. (umhos); TA=Total Alkalinity (mg/l); and TH=Total Hardness (mg/l).

<b>RM 1.60</b>			
	8/93	8/94	7/99
A.T. C	23	27	21
W.T. C	16.0	17.0	16.8
pH (SU)	8.0	8.1	8.0
Sp.Cond. (umhos)	325	315	349
TA(mg/l)	106	80	152
TH(mg/l)	144	140	196
<b>RM 2.76</b>			
	8/93	8/94	8/99
A.T. C	27	26	23
W.T. C	17.5	19.0	15.0
pH (SU)	7.9	7.9	7.9
Sp.Cond. (umhos)	300	315	326
TA(mg/l)	105	112	144
TH(Mg/l)	113	150	170

Table 2. Estimated Abundance (N/ha) and biomass (k/ha) for wild brown trout (*Salmo trutta*) managed by conventional statewide regulations w/o stocking (1993-1994), and Selective Harvest - Artificial Lures Only regulations (effective 1997, surveyed 1999) for RM 1.60, and 2.76 in Section 05 of Saucon Creek (502C), Northampton County.

<b>RM 1.60</b>						
Length Group mm	8/16/93		8/15/94		8/10/99	
	N/ha	Kg/ha	N/ha	Kg/ha	N/ha	Kg/ha
<175	44	0.55	95	1.24	582	6.24
175-224	127	13.74	44	4.57	363	34.33
225-299	155	26.46	116	22.39	830	131.52
300-349	15	5.47	71	25.11	92	26.89
≥350	0	0.00	10	5.02	16	11.93
<b>TOTAL</b>	<b>341</b>	<b>46.22</b>	<b>336</b>	<b>58.33</b>	<b>1883</b>	<b>210.91</b>
<b>RM 2.76</b>						
	8/16/93		8/15/94		8/10/99	
<175	60	1.43	472	7.38	933	14.25
175-224	463	49.64	113	11.89	527	47.02
225-299	173	31.62	326	63.29	797	126.41
300-349	4	2.03	50	17.71	77	23.67
≥350	0	0.00	6	2.68	6	3.21
<b>TOTAL</b>	<b>700</b>	<b>84.72</b>	<b>967</b>	<b>102.95</b>	<b>2340</b>	<b>214.56</b>
<b>Section 05</b>						
	8/93		8/94		8/99	
<175	53	0.99	284	4.31	758	10.24
175-224	295	31.68	78	8.23	445	40.68
225-299	165	29.04	221	42.84	813	128.96
300-349	10	3.75	61	21.41	85	25.29
≥350	0	0.00	8	3.85	10	7.56
<b>TOTAL</b>	<b>523</b>	<b>65.46</b>	<b>652</b>	<b>80.64</b>	<b>2111</b>	<b>212.73</b>

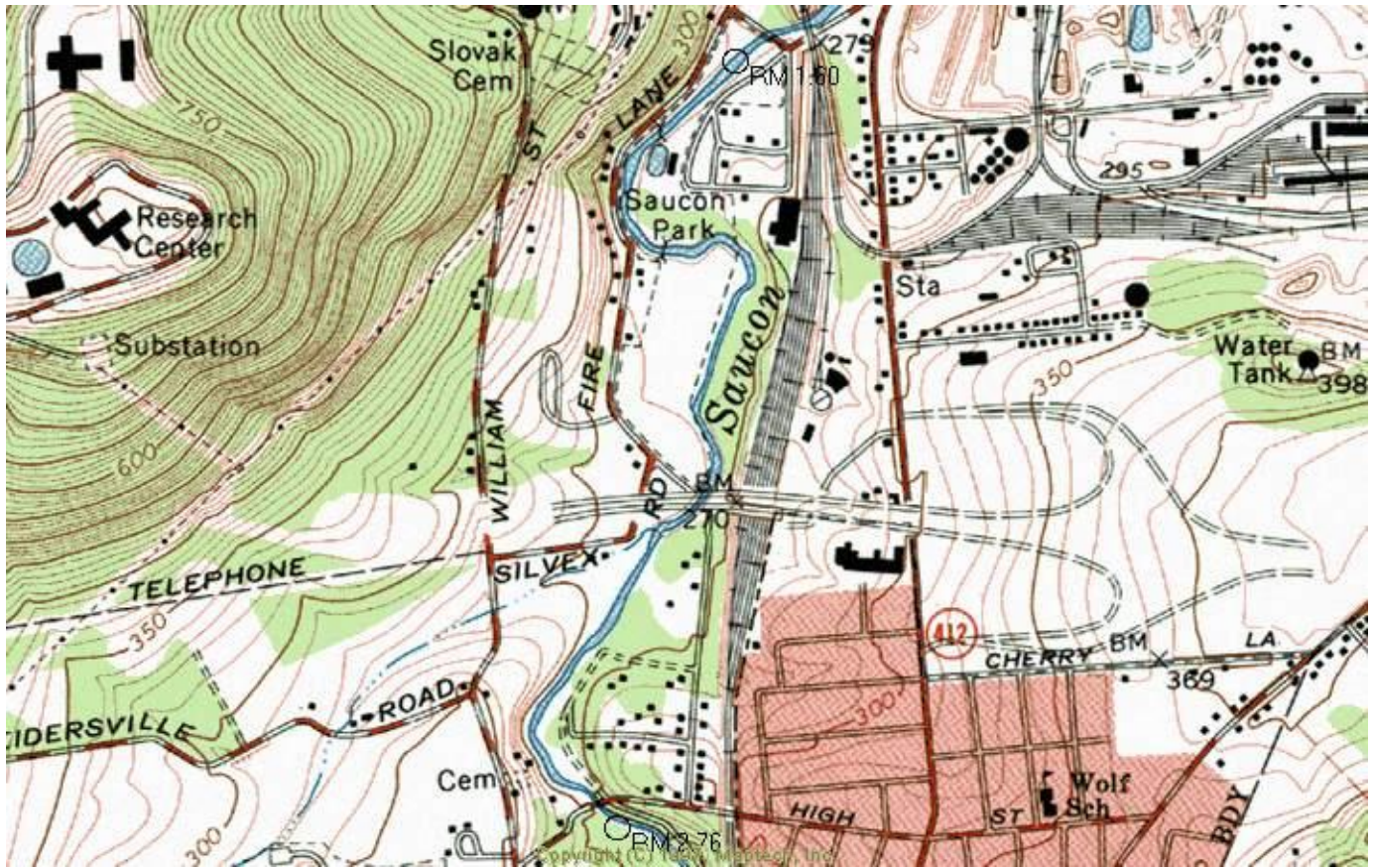


Figure 1. Towboat electrofishing sites at RM 1.60 and 2.76 in Section 05 of Saucon Creek, 502C, Northampton County, in July/August 1999.