

DATE: January, 15 2009 FILE REF: [Click [here](#) and type file ref.]

TO: Plum Creek File

FROM: Aaron Nelson

SUBJECT: Plum Creek Trout Population Estimate Summary

The following is a summary of the fall trout population estimates done in 2008 for three population estimate stations that were assessed on Plum Creek, Vilas County, as well as a historical comparison of fall population estimates for each of the population estimate stations.

### **Background**

Plum Creek is a popular destination for stream trout fishing for brook and brown trout in central Vilas County. It runs for 5 miles downstream from Plum Lake until it reaches Big St. Germain Lake and 4.5 miles of Plum Creek are currently classified as trout water; Class I from County Highway N downstream to N S line S7 and Class II from N S line S7 downstream to County Highway C. The current angling regulation for Plum Creek is a category 2 regulation consisting of a 7-inch minimum for all trout species and a daily bag limit of 5 trout.

Past population estimates have showed that Plum Creek has a good native brook trout population that is sustained by natural reproduction as well as a low-density brown trout population supported mainly through stocking of legal-size (approximately 8-inches long) yearlings. Past population estimates have shown some of these brown trout reaching trophy sizes of 20-inches and larger, most likely by spending part of their life in Big St. Germain Lake, and that brown trout were also capable of reproducing in Plum Creek as evidenced by the presence of fingerling brown trout in years when no fingerling trout were stocked.

### **2008 Population Estimates**

PE Stations 1 and 3 were assessed starting with a marking run on September 9<sup>th</sup> and completed with the recapture run on the 10<sup>th</sup>. PE Station 1A was assessed starting on September 17<sup>th</sup> with the marking run and completed on September 18<sup>th</sup> with the recapture run. All three stations were assessed with a DC-powered stream shocker with two anodes. Trout were collected and marked with either a top or bottom caudal fin clip depending on the station where they were captured. The intent of these surveys was to continue gathering trend data to track fluctuations in the Plum Creek trout population.

### **Population Estimate (PE) Stations**

#### **PE Station 1 – Topper’s bridge**

This station runs for 1,000 feet downstream of the crossing in T40N R08E S07 SW SW.

#### **PE Station 1A – Long’s cabin**

This station runs for 1,175’ upstream from a private cabin. The start for the station is the upstream side of a Hewitt ramp and the end of the station is the base of a riffle at the next cabin upstream.

### **PE Station 2 – Peterson farm**

This station begins at the north end of Wesley Sayner's old property line and runs upstream for 1,000 feet.

### **PE Station 3 – CTH N**

This station runs 1,383 feet from the snowmobile bridge crossing in T41N R08E S31 NW SW upstream to the County Highway N bridge.

### **PE Station 1 – Topper's bridge**

#### **Brook Trout**

In PE Station 1, two-hundred sixty-eight brook trout were captured during the marking run and 156 brook trout were captured during the recapture run with 56 marked brook trout recovered. The population estimate for this station was 740 brook trout or 3,951 brook trout per mile. This represents a 36% decrease in the brook trout population from the last fall population estimate done in 1999 when the estimate was 1,172 brook trout or 6,190 brook trout per mile. The majority of the difference between the 2008 and 1999 population estimates can be attributed to a 43% drop in fingerling brook trout (<4" long), with a 13% drop in stock-size brook trout 5-inches and larger, and a 9% drop in quality-size brook trout 8-inches and larger also noted. Despite the difference from the 1999 population estimate, the brook trout population is still up compared to population estimates done in 1976, 1977, and 1991 when the average population estimate was 247 and the average catch per mile was 1,307 brook trout.

The size distribution for brook trout captured in PE Station 1 was dominated by fingerling trout less than 4-inches, representing 72.8% of the brook trout caught. Stock size brook trout of 5-inches and larger made up 17.7% of the catch and quality size brook trout 8-inches and larger represented 1.1% of the catch. The largest brook trout caught measured between 10.0 and 10.9-inches long.

#### **Brown Trout**

No brown trout were captured or observed in PE station 1 during either 2008 electrofishing run, yielding a population estimate of 0 brown trout or 0 brown trout per mile. Brown trout were last documented in PE Station 1 in 1999 when the population estimate was 12 brown trout or 63 brown trout per mile. The overall trend for the brown trout population in PE Station 1 is a decline in brown trout of all sizes since 1976 when the population estimate was 67 and catch per mile was 342 brown trout with brown trout ranging in size from 3.0-inches up to 17.9-inches.

### **PE Station 1A – Long's Cabin**

#### **Brook Trout**

In PE Station 1A, five-hundred twenty-one brook trout were captured during the marking run and 513 brook trout were captured during the recapture run with 154 marked brook trout recovered. The population estimate for this station was 1,937 brook trout or 8,698 brook trout per mile. This represents an 18% increase in the brook trout population from the last fall population estimate done in 1999 when the estimate was 1,589 brook trout or 7,135 brook trout per mile. The difference between the 2008 and 1999 population estimates can be attributed to a 23% increase in fingerling brook trout (<4"), with a 5% drop in stock-size brook trout 5-inches and larger, and a 12% increase in quality-size brook trout 8-inches and larger also noted. The increase between the 1999 and 2008 population estimates for PE station 1A

represents a continued increase since the 1982 population estimate, which was the lowest on record for this station, with an estimated 310 brook trout or 1,393 brook trout per mile.

The size distribution for brook trout captured in PE Station 1A was dominated by fingerling trout less than 4-inches, representing 70.8% of the brook trout caught. Brook trout of 5-inches and larger made up 21.3% of the catch and quality size brook trout 8-inches and larger represented 2.4% of the catch. The largest brook trout caught measured between 10.0 and 10.9-inches long.

### Brown Trout

No brown trout were captured or observed in PE station 1A during either 2008 electrofishing run, yielding a population estimate of 0 brown trout or 0 brown trout per mile. Brown trout were last documented in PE Station 1 in 1999, when one 8-inch brown trout accounted for the population estimate of 2 brown trout or 9 brown trout per mile. The overall trend for the brown trout population in PE Station 1A is a decline in brown trout of all sizes since 1981 when the population estimate was 326 and catch per mile was 1,465 brown trout with brown trout ranging in size from 2.9-inches up to 13.9-inches.

### PE Station 3 – CTHN

It is worth mentioning recent maintenance work on existing boom cover habitat structures in this station which required opening up the canopy for heavy equipment access and may have led to more fishing effort than normal due to angler perception of better fishing with the work on habitat structures and the stream being easier to fish without obstructions from streamside vegetation. There were noticeable “paths” beaten down along the edges of the boom covers indicating heavy use by anglers.

This station is also one-quarter mile downstream of the dam on Plum Lake, consequently the warm water coming out of Plum Lake has a significant impact on the stream temperature and limits trout abundance in this reach. The downstream reaches have stream temperatures that are more suitable for trout due to discharge of groundwater from the steep stream banks along Plum Creek.

### Brook Trout

In PE Station 3, twenty-two brook trout were captured during the marking run and 20 brook trout were captured during the recapture run with 16 marked brook trout recovered. The population estimate for this station was 35 brook trout or 129 brook trout per mile. This represents a 39% decrease in the brook trout population from the last fall population estimate completed (a population estimate was attempted in 1999, but too few fish were caught during the marking run to justify a recapture run) in 1991, when the estimate was 57 brook trout or 218 brook trout per mile. The difference between the 2008 and 1991 population estimates can be attributed to an increase of fingerling brook trout (<4”) from 0 to 19 per mile, with a 51% drop in stock-size brook trout 5-inches and larger, and a 58% decrease in quality-size brook trout 8-inches and larger also noted. The decrease between the 1991 and 2008 population estimates for PE station 3 represents a steady decline in the brook trout population since the 1991 population estimate.

Relatively few brook trout were caught in PE Station 3, but from the available data, size distribution for brook trout captured in PE Station 3 was dominated by brook trout of 5-inches and larger, representing 85.7% of the catch. Fingerling trout less than 4-inches long represented 10.7% of the brook trout caught and quality size brook trout 8-inches and larger represented 10.7% of the catch. The largest brook trout caught measured between 8.0 and 8.4-inches long.

## Brown Trout

One 11-inch brown trout was marked and recovered during the recapture run in PE station 3, yielding a population estimate of 2 brown trout or 8 brown trout per mile. The overall trend for the brown trout population in PE Station 3 shows a decline in brown trout of all sizes since 1981 when the population estimate was 326 and catch per mile was 1,465 brown trout with brown trout ranging in size from 2.9-inches up to 13.9-inches.

## Summary

The brook trout population in Plum Creek appears to be stable despite a decline in the catch per mile for two stations. From the length frequency data there appears to be sufficient natural reproduction to maintain the brook trout population. Given the current size limit of seven-inches, brook trout five-inches and larger are not well represented in the length frequency, however, catch per mile rates for stock size (5-inches) and quality size (8-inches) brook trout from this years population estimate appear to be consistent with previous stock and quality size brook trout catch rates.

The brown trout population in Plum Creek is at an all-time low based on historical data; only one brown trout was captured between the three PE stations assessed. There were no brown trout fingerlings captured during any of the electrofishing runs done in 2008, indicating that there is little, if any natural reproduction by brown trout occurring at this time. The decline in the brown trout population can probably be attributed to the lack of natural reproduction that was occurring in past years as well as a reduced stocking rate that started in 1991.

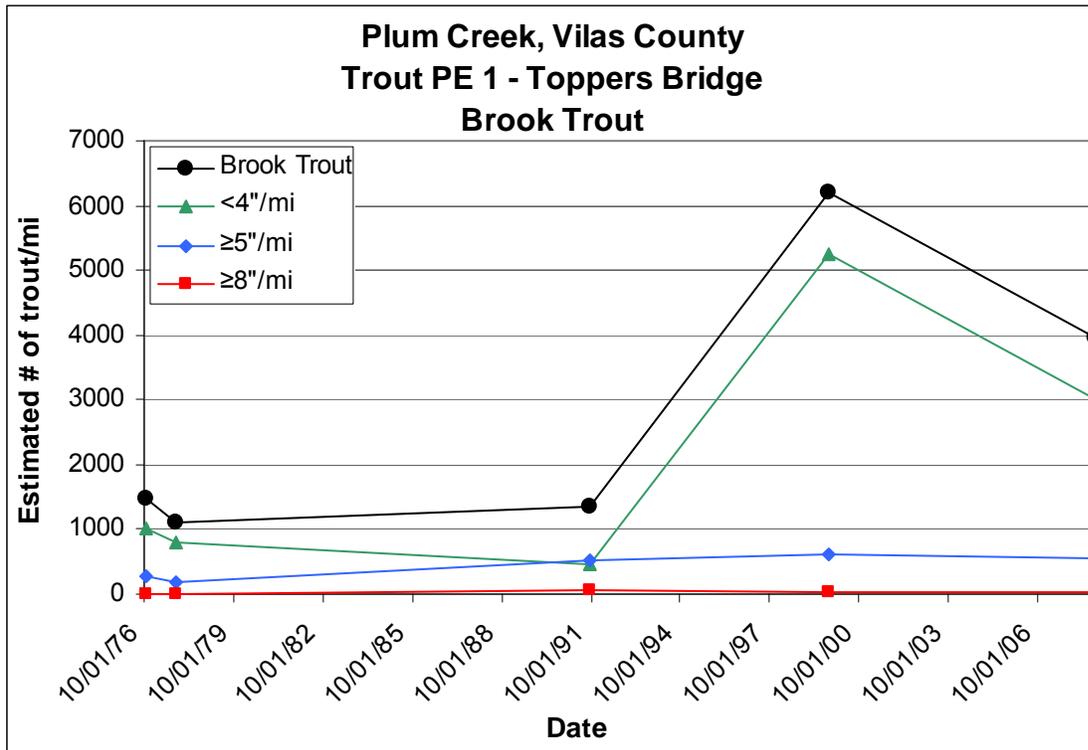


Figure 1. Estimated brook trout numbers for PE Station 1.

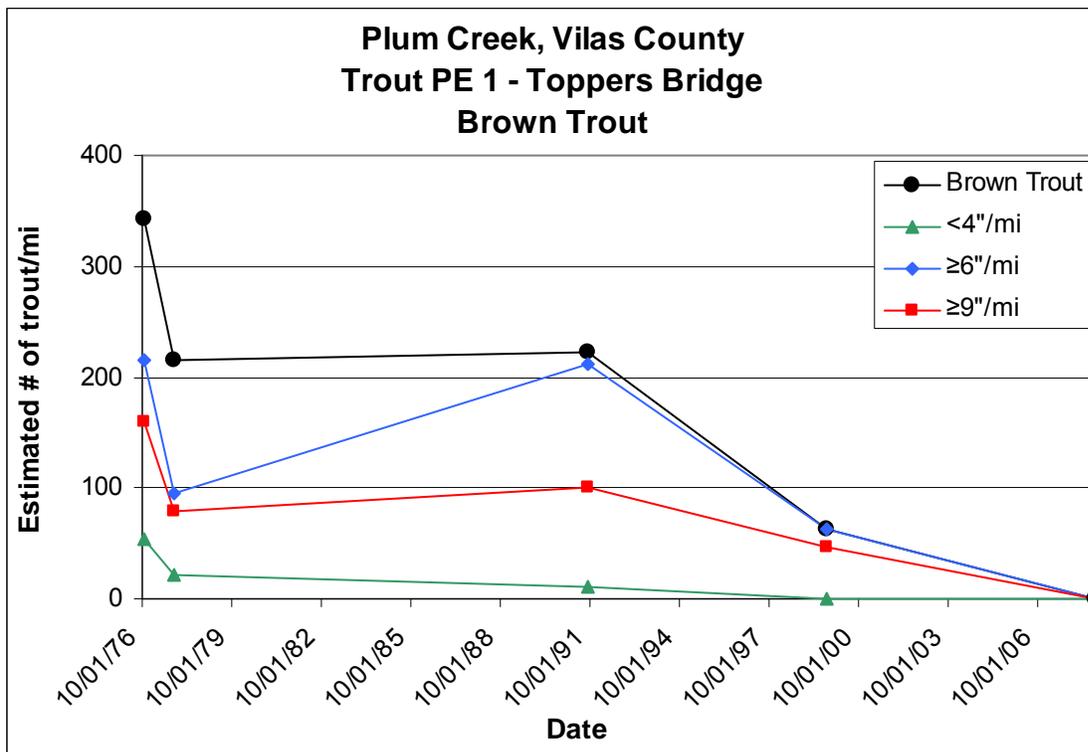


Figure 2. Estimated brown trout numbers for PE Station 1.

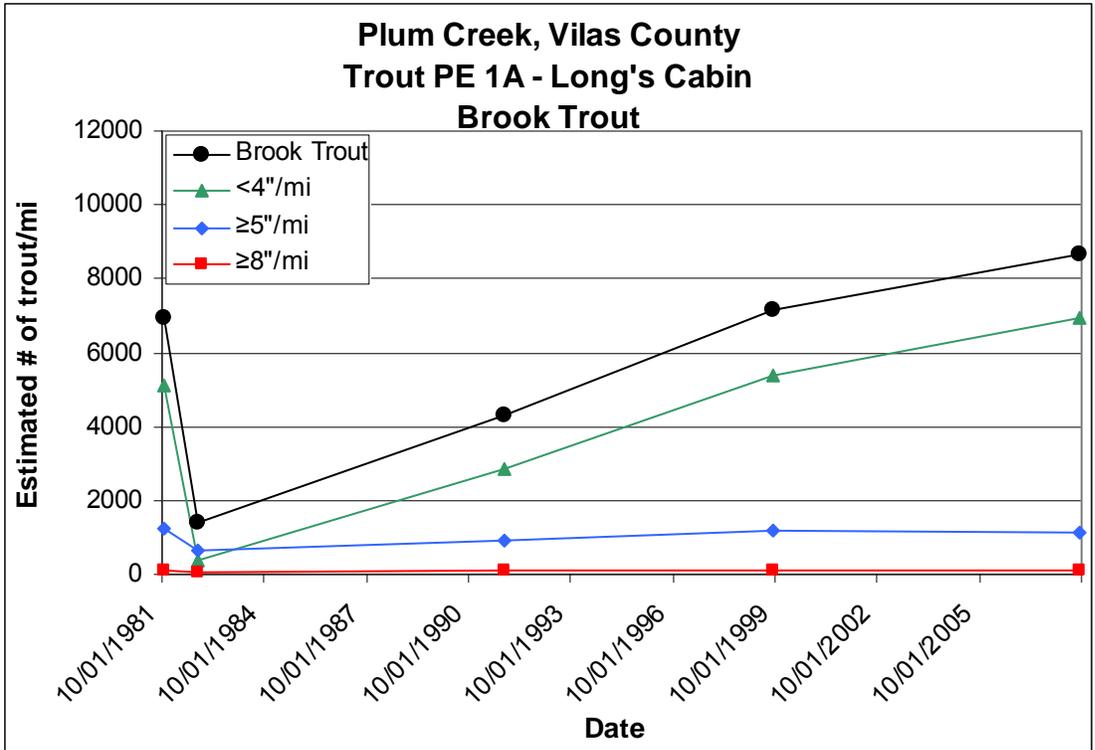


Figure 3. Estimated brook trout numbers for PE Station 1A.

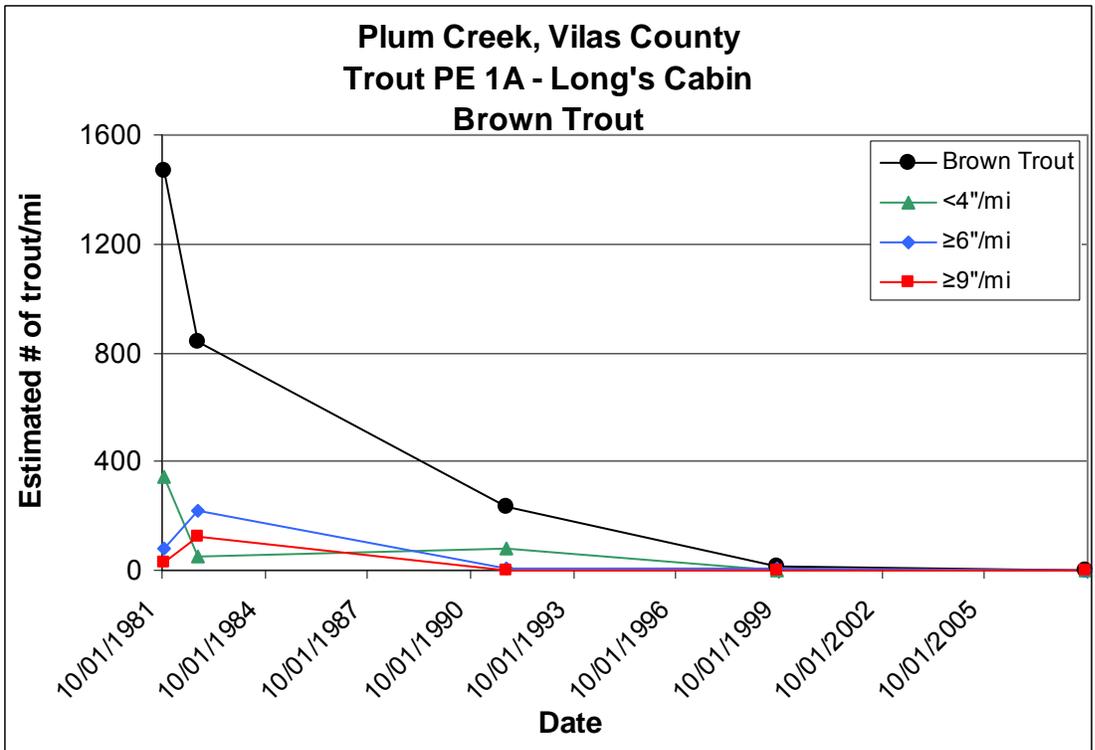


Figure 4. Estimated brown trout numbers for PE Station 1A.

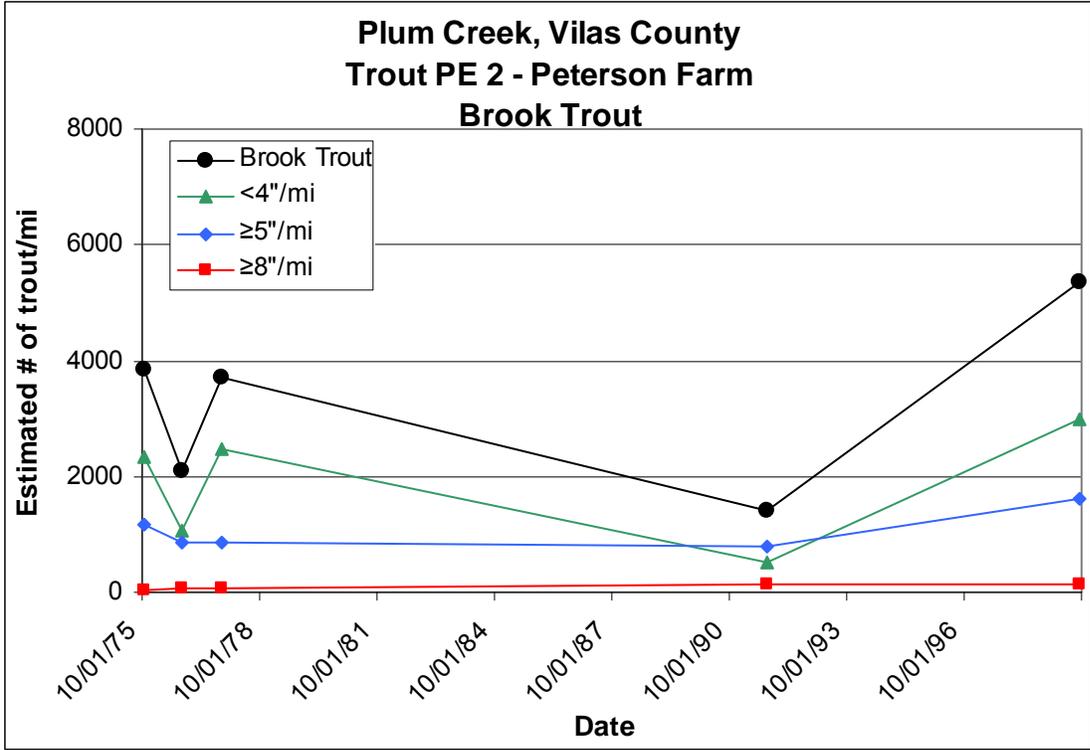


Figure 5. Estimated brook trout numbers for PE Station 2.

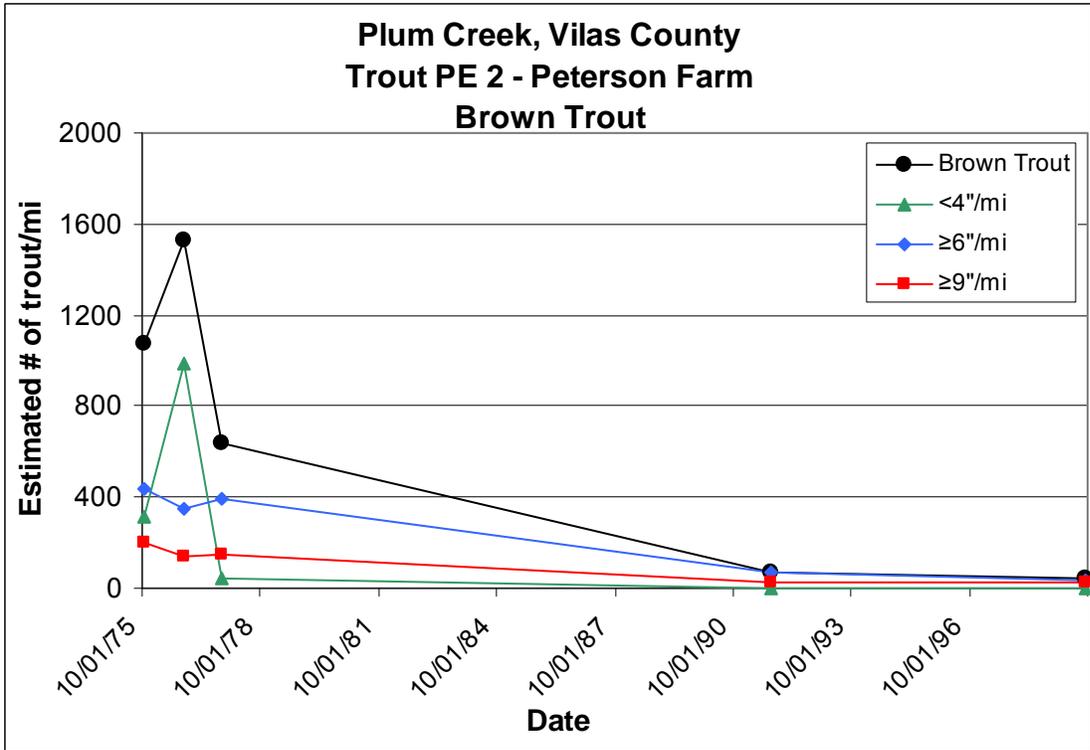


Figure 6. Estimated brown trout numbers for PE Station 2.

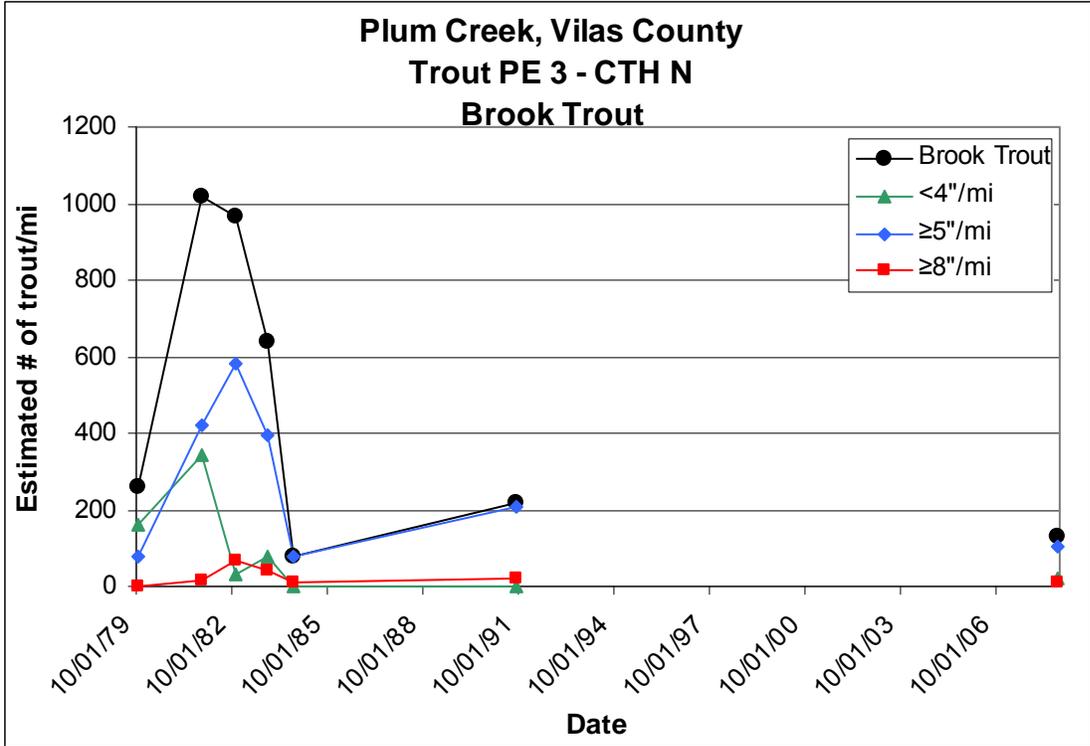


Figure 7. Estimated brook trout numbers for PE Station 3.

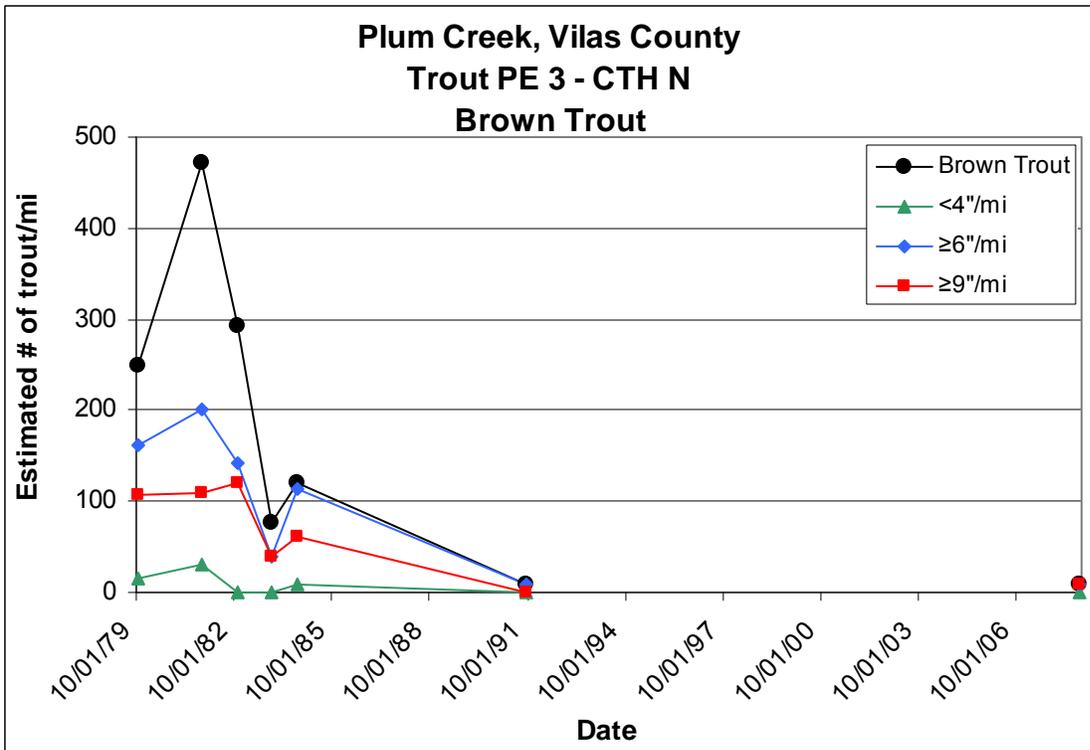


Figure 8. Estimated brown trout numbers for PE Station 3.

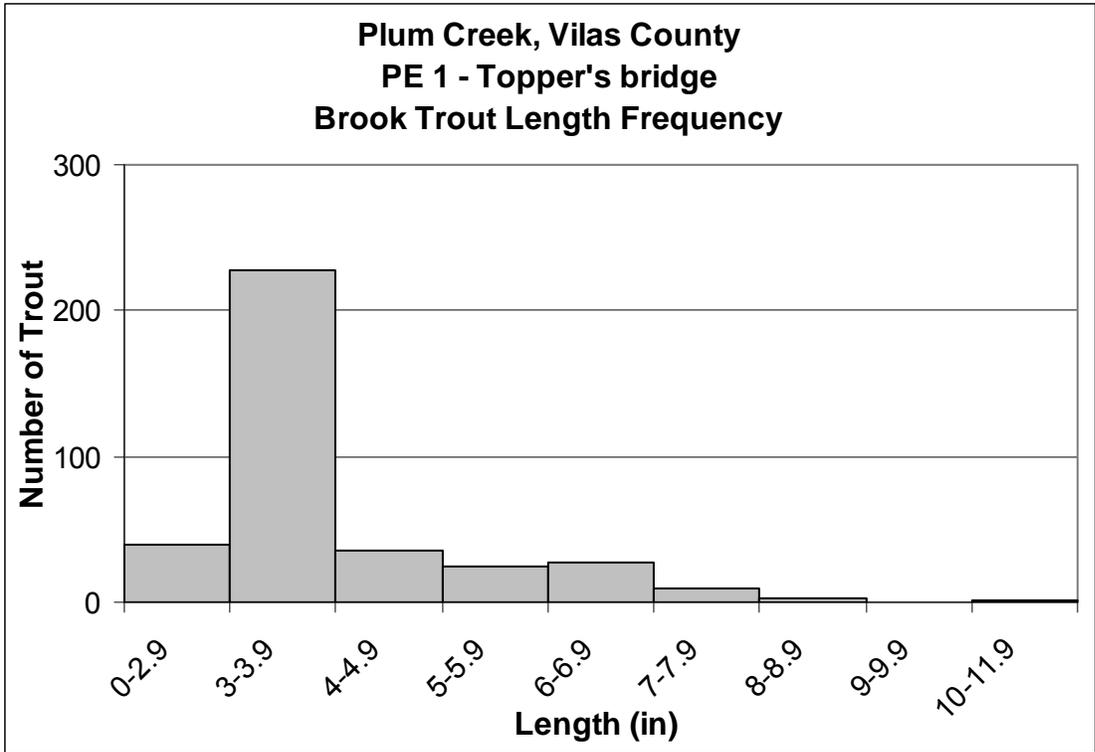


Figure 9. Brook trout length frequency for PE Station 1 – September 2008.

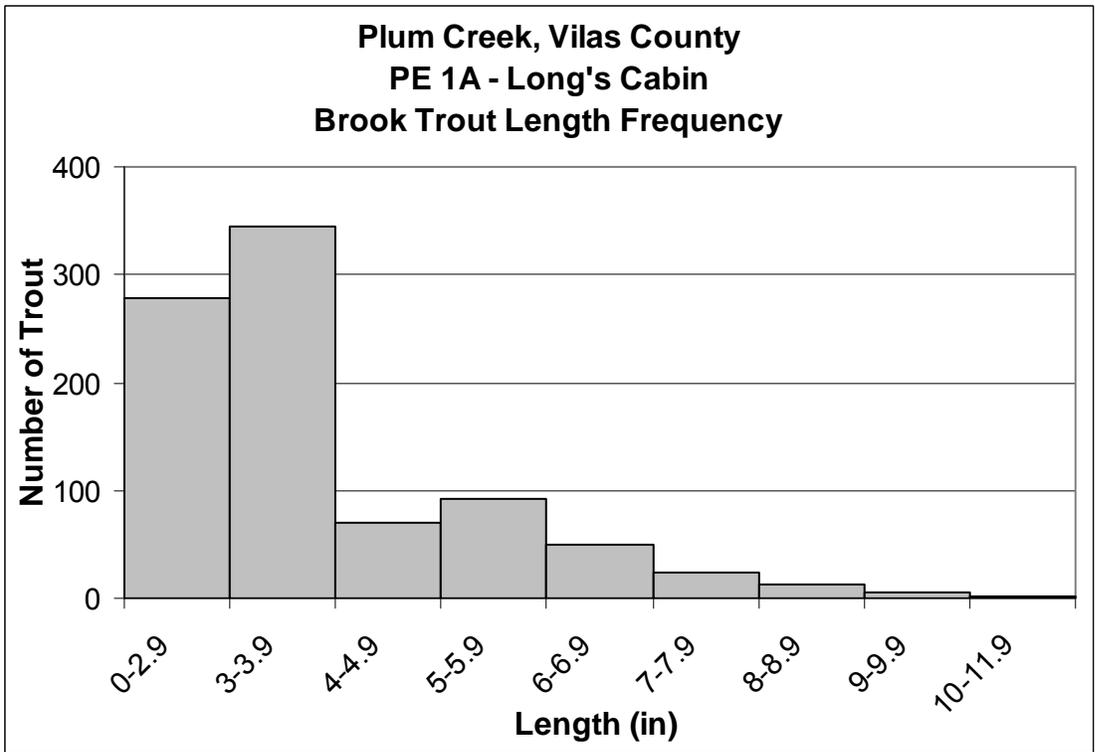


Figure 10. Brook trout length frequency for PE Station 1A – September 2008.

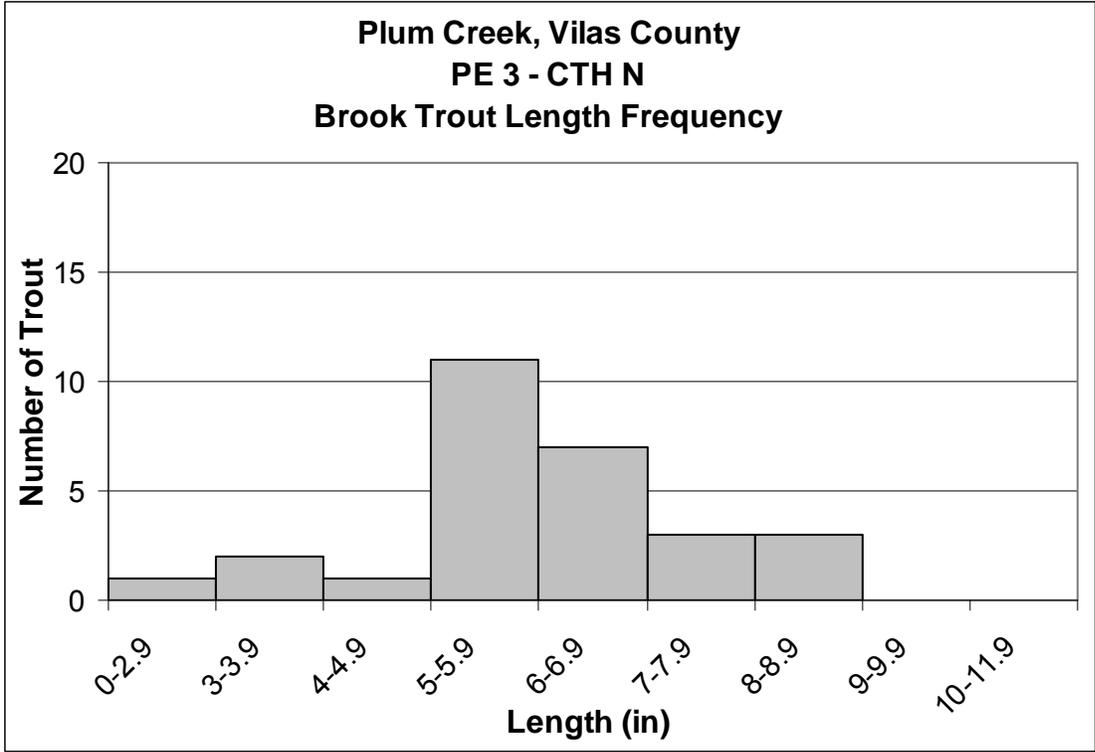


Figure 11. Brook trout length frequency for PE Station 3 – September 2008.

Table 1. Historical brook trout stocking for Plum Creek

Year	Species	Number Stocked	Average Size (in)
1963	BROOK TROUT	2,000	8
1964	BROOK TROUT	2,000	8
1965	BROOK TROUT	5,000	4.5
1965	BROOK TROUT	4,000	8

Table 2. Historical brown trout stocking for Plum Creek

Year	Species	Number Stocked	Average Size (in)
1963	BROWN TROUT	2,000	8.5
1964	BROWN TROUT	2,000	8
1965	BROWN TROUT	1,000	4
1966	BROWN TROUT	2,000	3
1966	BROWN TROUT	2,000	7
1967	BROWN TROUT	3,000	4
1967	BROWN TROUT	2,000	8
1968	BROWN TROUT	2,000	9
1968	BROWN TROUT	2,000	4
1969	BROWN TROUT	3,000	4
1969	BROWN TROUT	3,000	7
1970	BROWN TROUT	1,690	8
1971	BROWN TROUT	2,000	8
1971	BROWN TROUT	1,000	4
1972	BROWN TROUT	2,000	8
1973	BROWN TROUT	2,000	8
1974	BROWN TROUT	2,000	8
1975	BROWN TROUT	2,000	8
1976	BROWN TROUT	2,000	8
1977	BROWN TROUT	2,000	8
1978	BROWN TROUT	2,000	7
1979	BROWN TROUT	2,000	7
1980	BROWN TROUT	2,000	8
1981	BROWN TROUT	2,000	6
1982	BROWN TROUT	2,000	8
1983	BROWN TROUT	2,000	8
1984	BROWN TROUT	2,000	8
1985	BROWN TROUT	2,000	8
1986	BROWN TROUT	2,000	8
1987	BROWN TROUT	2,000	8
1988	BROWN TROUT	2,000	8
1989	BROWN TROUT	2,000	6
1991	BROWN TROUT	1,000	8
1992	BROWN TROUT	500	8
1993	BROWN TROUT	1,000	8
1994	BROWN TROUT	1,000	7
1995	BROWN TROUT	1,000	8
1997	BROWN TROUT	1,000	7
2002	BROWN TROUT	1,000	8
2003	BROWN TROUT	1,000	7
2006	BROWN TROUT	1,004	8
2007	BROWN TROUT	1,021	7

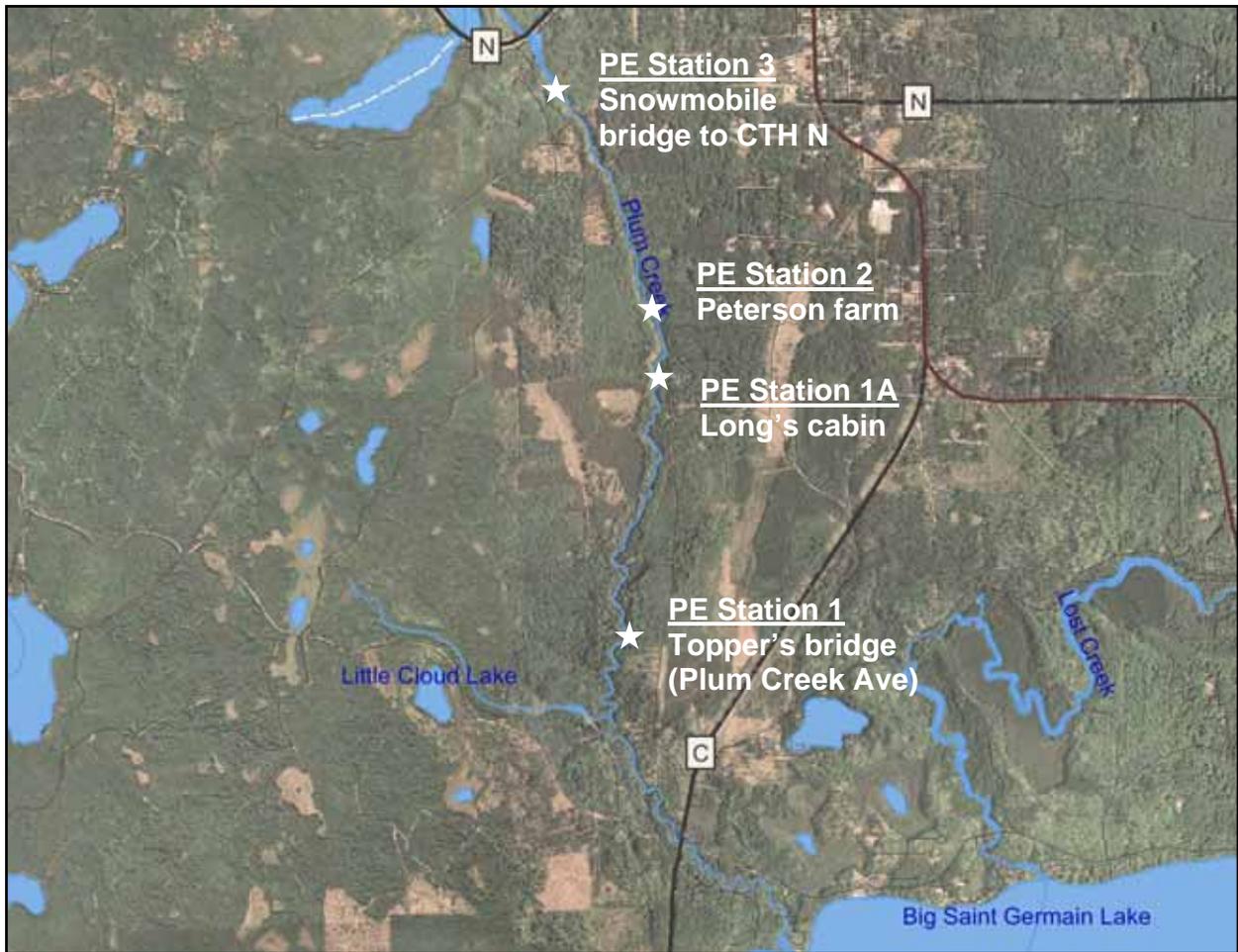


Figure 12. Map of Plum Creek with locations for the stations used for trout population estimates.