

Little Bear River

Water Quality Trends as Related to BMPs

Goals and Objectives

- Goal: Assess whether water quality has changed in response to implementation of BMPs.
- Objectives:
 - Assess changes in TP loads as related to timing of BMPs
 - Assess changes in TP loads as related to season, month, other factors
 - Assess relationships among TP, TSS and flows as related to timing of BMPs

Methods

- Used WQ data collected from 7 sites on LBR
- Evaluated changes in TP concentration and loading over time and during various time periods using regression, ANCOVA and other assorted statistical tests.
- Assessed relationships between TP concentration and loading with flow, TSS, turbidity using primarily regression.

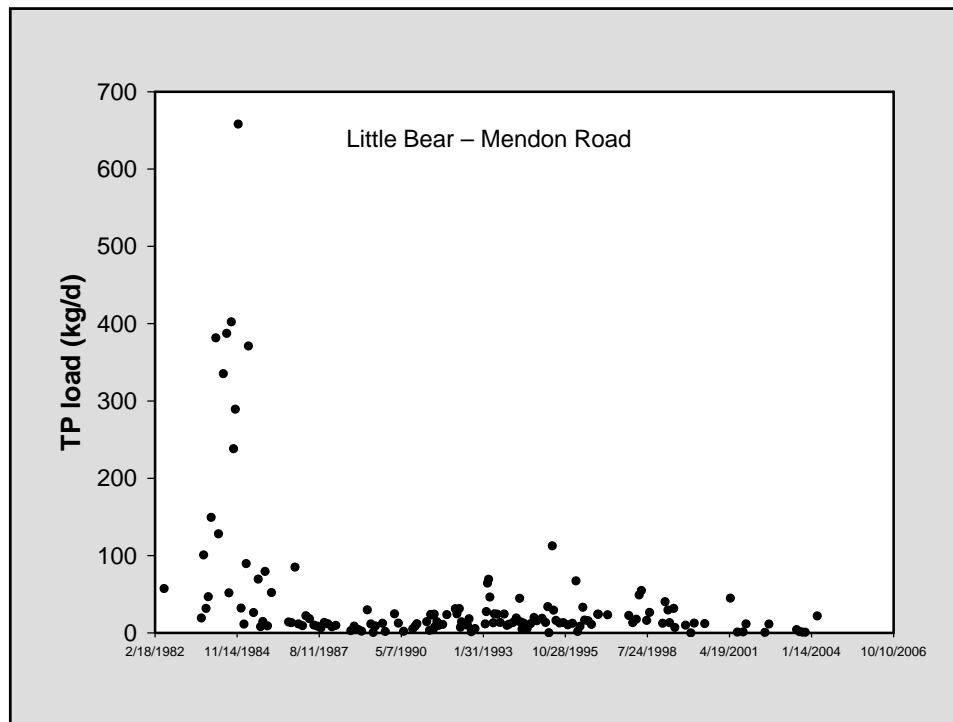
Sites used in analyses

Primary Sites

- LITTLE BEAR R W OF AVON AT CR XING
- LITTLE BEAR R @ CR376 XING (MENDON RD)

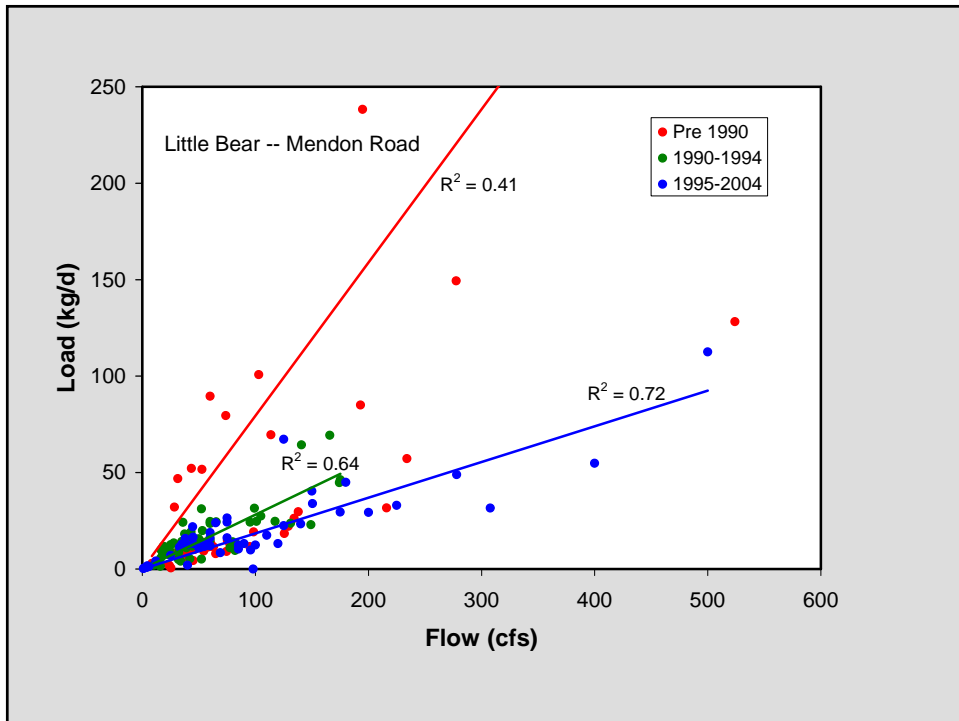
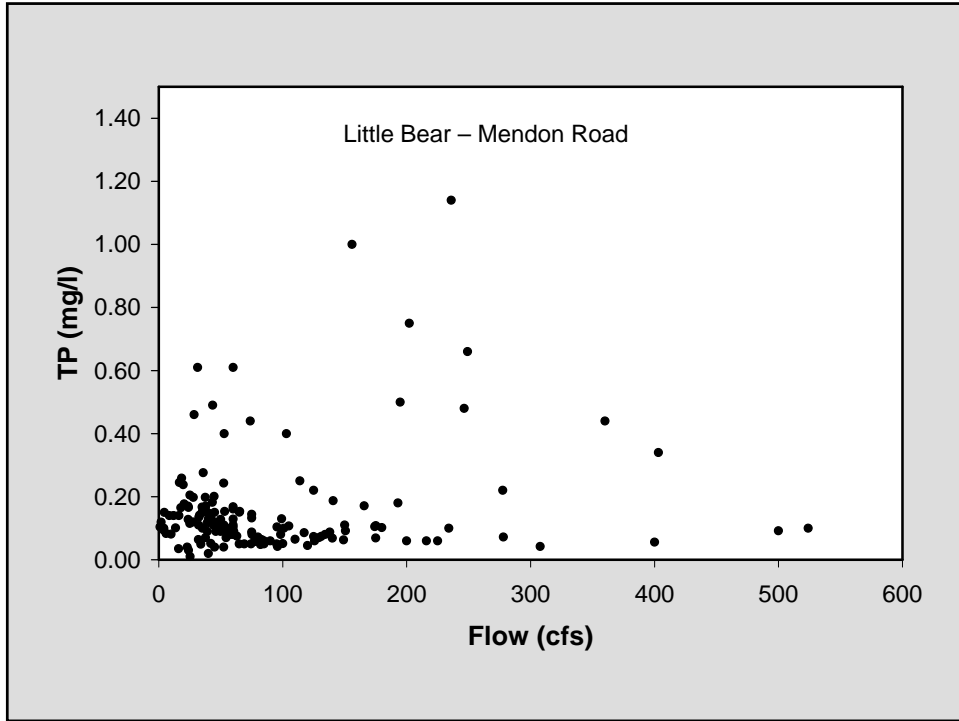
Secondary Sites

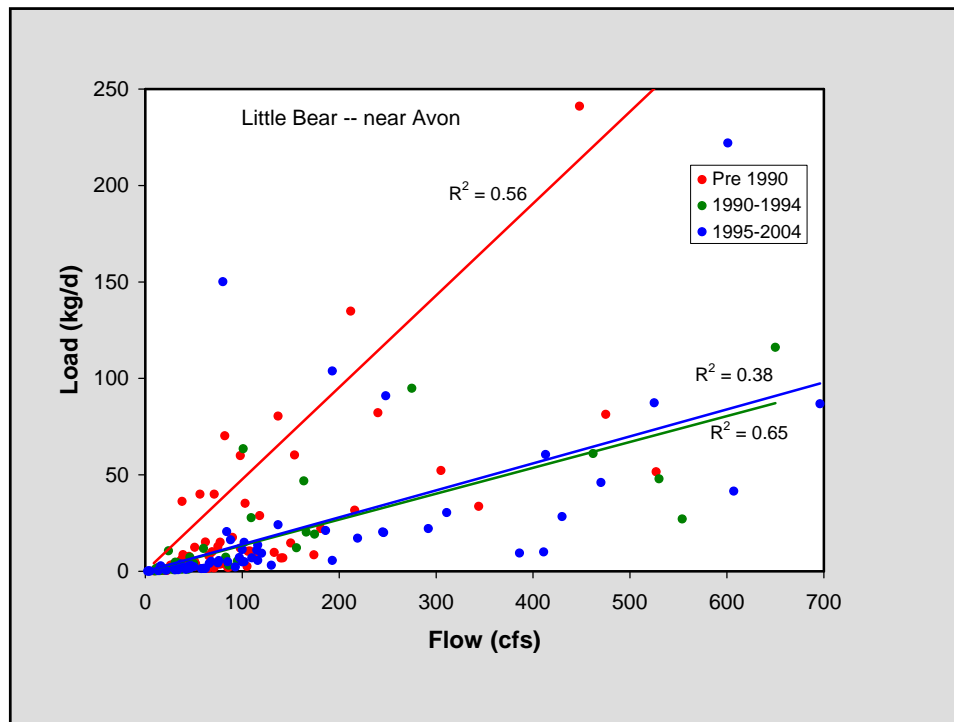
- WELLSVILLE CREEK ABOVE CONFLUENCE WITH LITTLE BEAR RIVER
- LITTLE BEAR R BL WHITE TROUT FARM AT CR XING
- S FORK LITTLE BEAR RIVER AB CNFL / E FORK LITTLE BEAR
- E FK LITTLE BEAR R AB CNFL / S FK LITTLE BEAR R
- E FK LITTLE BEAR R BL PORCUPINE RES AT CR XING



Summary of Results

- For period 1990-1999 (only period of data), for 5 secondary sites, found significant upward trends in TP loading for 4 of 5 sites.
- For 2 primary sites all years (1977-2004): TP loading declined significantly.
- For 2 primary sites 1990-2004: TP loading did not change significantly.
- For 2 primary sites during 1977-1989, 1990-1994, 1995-2004 with flow as a covariate: TP concentration was significantly higher in 1977-1989 than in the later time periods for both sites.
- For 2 primary sites, DTP concentration was significantly lower during 1995-2004 than for 1990-1994





Summary of Results (continued)

- Inconsistencies among sites.
- Weak relationships between TP and DTP.
- Weak relationships between flow and TP.
- Relatively strong relationships between TP, TSS and turbidity.

