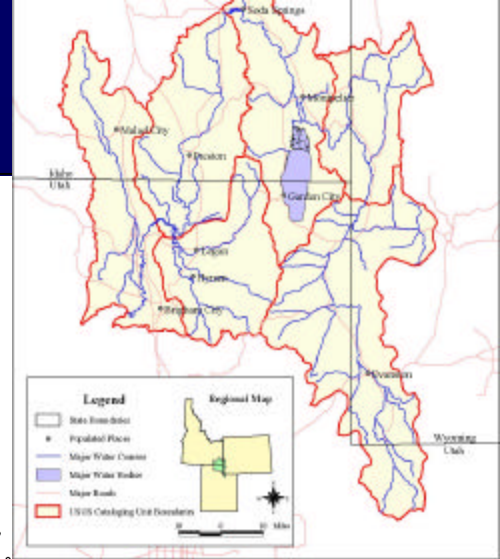
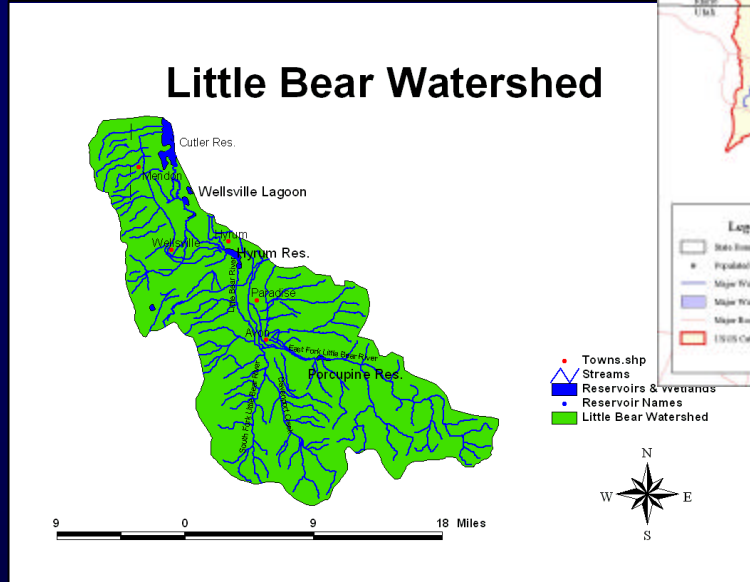


# CSREES Conservation Effectiveness Assessment for the Bear River Basin

- Utah State University
  - David Stevens, Doug Jackson-Smith, Nancy Mesner, Darwin Sorensen, John Harrison, Jeff Horsburgh
- Utah DEQ
- NRCS








# WQ efforts in Little Bear

- Hydrologic Unit Area Project
- TMDL Project, 319 funds
- Additional cost share programs
- Other planning (eg Phase II, Source Water Protection)

  
 Utah Department of Environmental Quality  
 Division of Water Quality  
 TMDL Section

**Little Bear River Watershed TMDL**

Watershed ID	Little Bear River at Toluca
Location	Kane County, Northern Utah
Pollutant of Concern	Total Phosphorus
Regulated Beneficial Use	Wildlife, Nodification, and other cold water aquatic life, including the necessary aquatic organisms in their food chain.
Loading Assessment	
1991-99 Load	
- Above Critical	21 kg/day
- Above Stream	8.4 kg/day
TMDL Target Load	
- Above Critical	9.8 kg/day
- Above Stream	4.8 kg/day
Load Reduction	
- Above Critical	12 kg/day
- Above Stream	2.4 kg/day
Diffused Targets/Loadings	<ul style="list-style-type: none"> <li>- 14 Annual Water Mgt. System</li> <li>- 25% reduction of cropland runoff</li> <li>- 10 mile<sup>2</sup> of streambank restoration</li> <li>- 5% to 20% of 8.45 mg/l total phosphorus concentration in stream</li> <li>- In-stream BMP's on 7000 acres designated as critical</li> </ul>
Implementation Strategy	<ul style="list-style-type: none"> <li>- MSZP</li> <li>- Annual Water Mgt.</li> <li>- Riparian Rehabilitation</li> <li>- Streambank Stabilization</li> <li>- Annual Waste Storage Practices</li> <li>- Point Source Control</li> <li>- Irrigation Water Mgt.</li> <li>- Nutrient Mgt.</li> <li>- Range Density Mgt.</li> <li>- Point Source Control</li> </ul>

This document is identified as a TMDL for Little Bear River and is officially submitted to the U.S. EPA to secure and approve as a TMDL.

**Little Bear River**  
Hydrologic Unit Area

Jon Robinson      Michele Alford  
1840 North 400 East      170 North Main Street, 205  
North Logan, UT 84301      Logan, UT 84301  
(435) 753-5616      (435) 753-5279  
www.pwqa.com/utahwatersheds      email: mchale@pwqa.org





**Overview**

**Introduction**  
 Located in the southeastern part of the state, the Little Bear River flows from its headwaters in the southern part of the state, through the rugged mountains of the Uinta Mountains, to the Little Bear Reservoir. The 117 miles of perennial stream and 170 miles of intermittent stream drain water from a 104,432 acre watershed supporting a variety of land uses including forest, agriculture, municipal and hydrothermal, geothermal and wilderness.

In 1990, the Little Bear River became part of a five-year on-going water quality project with the goal of improving water quality conditions and ultimately implementing specific conservation practices to help improve and protect the quality of water in the river.

As Utah's first TMDL-eligible, Hydrologic Unit Area Water Quality Project, the Little Bear River Project (LEBP) continues to develop innovative management systems that have been implemented and approved throughout the state.

Identified as a high priority watershed by the Utah Non-Point Source Task Force, LEBP staff collected monitoring data during 1990 - 92 on potential sources of water quality problems in the watershed. During this time, staff collected residential, commercial, agricultural, local, state, and federal grants; met with a number of resource agencies in the watershed; with municipal staff and financial resources, the project is being conducted on a grant-to-grant basis. As a result, progress has been made and conservation practices are being implemented as they are approved and developed a plan to guide implementation of the project goals.

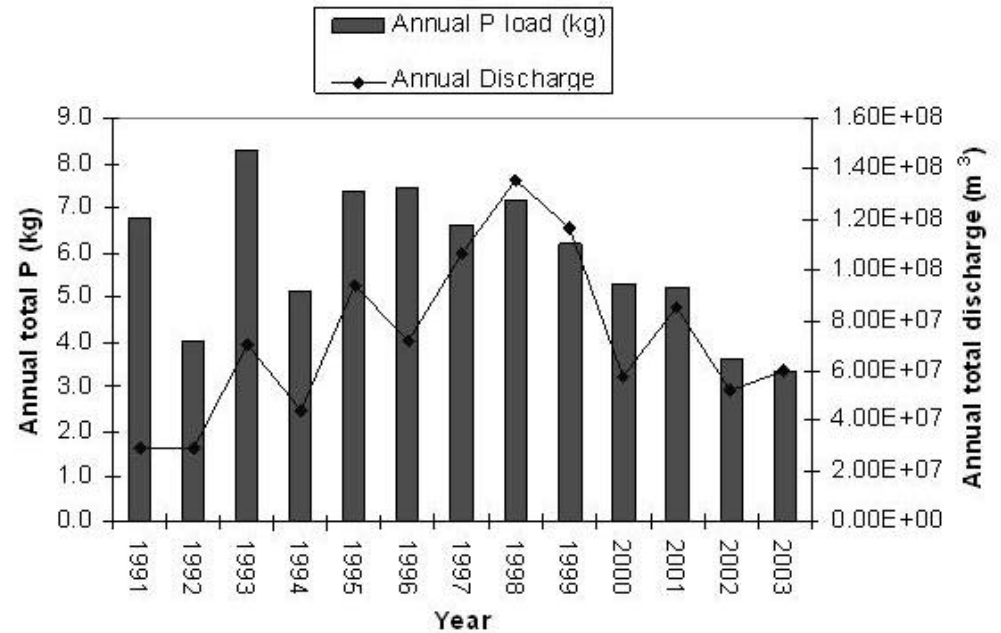
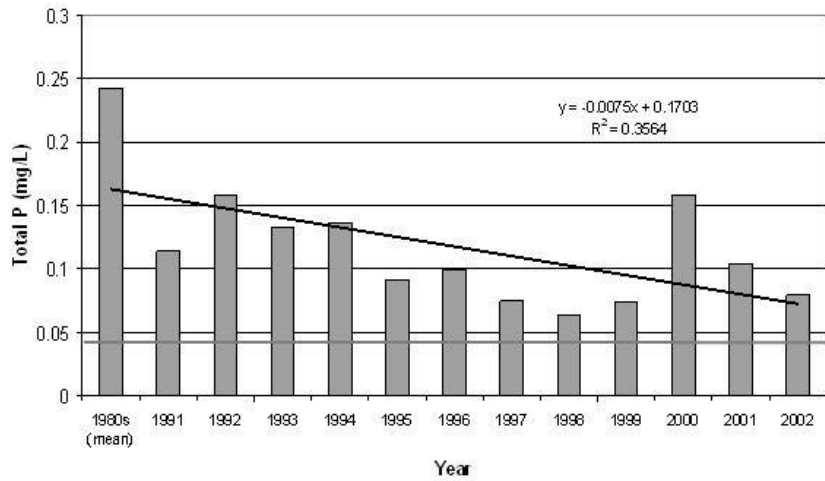


Project staff have worked with landowners and conservationists to address water quality concerns throughout the project area. Through continued resource management planning efforts a head array of partners provided guidance and input into project practices and activities.





Mean Annual Total P at Mendon Road







# Objective 1. Determine if programs to promote adoption of best management practices have reduced P loads at a watershed scale.

- Evaluate formal program participation and actual practice implementation
- Evaluate spatial relationships and time lags between BMP use and improved water quality
- Evaluate influence of exogenous factors on phosphorus loads

## Objective 2. Critically examine strengths and weaknesses of different water quality monitoring techniques.

- Are current techniques adequate?
  - How can the most info be derived from available data?
  - Are there innovative approaches when data are scarce?
- Evaluate predictive abilities of original modeling efforts
- How well do alternative wq indicators correlate with traditional approaches?

## **Objective 3. Develop recommendations on the most effective and socioeconomically viable agricultural bmps.**

- What social and economic factors within the watershed facilitate or impede implementation of conservation practices.
- How can future wq protection efforts be most effectively designed to maximize benefits while minimizing economic impacts