

# Improving Utah's Water Quality Lower Bear River Watershed



UtahStateUniversity  
WATER QUALITY EXTENSION

NR/WQ/2014-01pr

Published June 2014

## MAJOR WATERBODIES

Bear River  
Malad River

## MAJOR CITIES

Brigham City  
Tremonton  
Malad City (Idaho)

## MAJOR LAND USES

Agriculture  
Recreation  
Rangeland

## LOCAL WATER QUALITY ISSUES

Excess phosphorus & sediment  
Improper animal waste management  
Bank erosion  
Low dissolved oxygen  
Loss of riparian plants and aquatic habitat  
Impacts from drain tiles

## LOCAL CONTACT:

Justin Elsner  
Lower Bear River Watershed  
Coordinator  
(435) 753-5616 ext. 130

## Watershed Description:

The Lower Bear River watershed drains about 260,000 acres from below Cutler Dam in Cache Valley to the Bear River Migratory Bird Refuge, and ultimately to Great Salt Lake's Willard Bay. Over 55,000 people live in the Lower Bear watershed, which contains a diverse landscape of farmland, pastures, small urban areas, mountains and wildlife habitat.

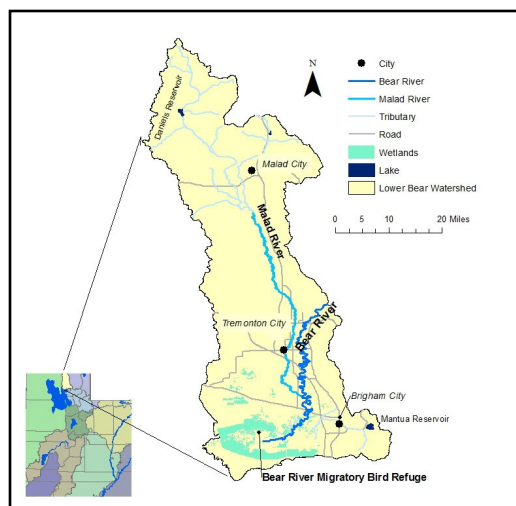
Almost 90% of the lower Bear River watershed is in the Malad River sub-watershed. The Malad originates in southern Idaho, captures runoff from a number of small creeks, but also from salty springs, which gives the Malad a naturally high salt content. The Malad joins with the Bear River near Bear River City, UT (about 20 miles above the Bear River Migratory Bird Refuge).

Water is diverted at multiple points along the river and its tributaries for irrigation, to generate hydroelectric power, and to sustain wildlife. Two of the largest water diversions in the watershed provide approximately 191,000 acre-feet of water per year for agriculture and hydroelectric power production, in addition to 84,000 acre-feet of water per year being diverted for avian wildlife habitat at the Bear River Migratory Bird Refuge.

The Bear River's water quality is as important as its quantity, because water of poor quality does not support wildlife and agriculture. Excess sediments, which enter the river during

spring runoff and during storms, can affect habitat for aquatic life. Irrigation water returning to the river through runoff or via field drains can carry high concentrations of nutrients, which can cause over-fertilization of downstream waters.

Water from the Lower Bear River plays a crucial role in sustaining the delicate ecosystems of the Bear River Migratory Bird Refuge and the Great Salt Lake. Maintaining a high standard of water quality is essential to preserving the character of life in these important environments.



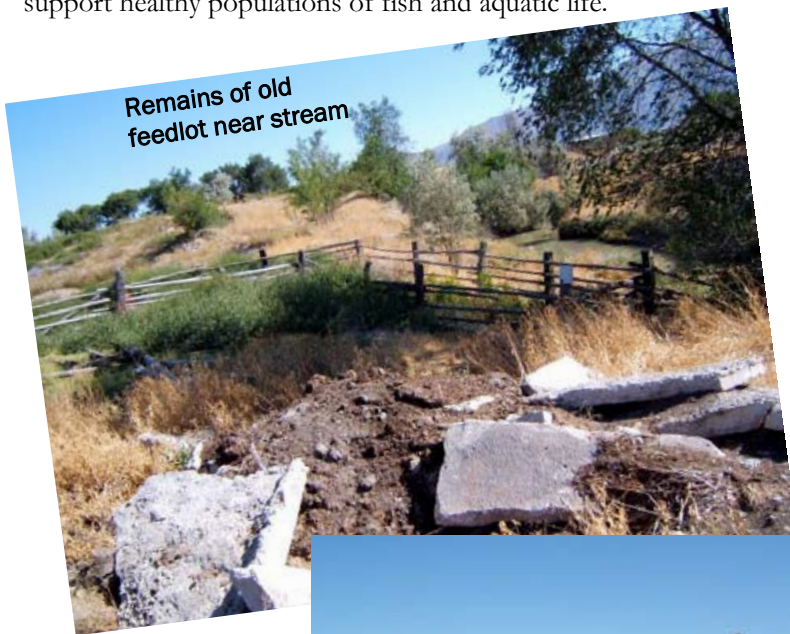
# Lower Bear Water Quality Improvement

## Project Description:

In recent years, water quality improvements along the Lower Bear River have focused on reducing runoff from animal feeding operations. Manure from these facilities is often applied to agricultural land to add nutrients and improve the quality of the soil without the added expense of synthetic fertilizers. However, manure must be stored until it can be applied at the appropriate agronomic rate and under appropriate conditions. When stored and applied incorrectly, excess nutrients may drain into nearby water bodies, causing algal blooms, fish kills, and other water quality problems.

Manure waste can be stored in pits or surrounded by berms. These storage facilities are typically large enough to hold several months of manure and are lined with bentonite, concrete or other impermeable material to prevent leaching into the groundwater. Waste storage facilities are an integral part of a producer's nutrient management plan and are essential in protecting agricultural land and water resources.

Managers of animal feeding operations also follow a "nutrient management plan". These plans identify appropriate storage, transport, and field application of all nutrient sources, including manure. Careful adherence to these plans, combined with good record keeping and monitoring assure that losses of nitrogen or phosphorus to the environment are minimized or eliminated. In this way, soil quality is maintained, water is protected, animals remain productive, and the streams and rivers in the area can support healthy populations of fish and aquatic life.



Remains of old feedlot near stream



New waste storage facility

## Partners

Northern Utah Conservation District  
U.S. Fish and Wildlife Service  
EPA  
Utah Division of Water Quality  
Utah Division of Wildlife Resources  
Natural Resources Conservation Service  
Utah Association of Conservation Districts  
Local Landowners  
Local Irrigation Companies  
Utah Watershed Coordinating Council  
Utah State University Extension  
Lower Bear River Advisory Committee

## Related Projects

Soil testing and training  
Mountain Wilds to Wetland Wonders  
Stream restoration  
Animal feeding operation inventory  
Animal feeding operation improvements  
Wildlife habitat improvements  
Water quality outreach and education  
Spring development

## References

Bear River Watershed Information System [bearriverinfo.org](http://bearriverinfo.org).  
Lower Bear River & Tributaries, TMDL(2002)  
<http://www.waterquality.utah.gov/TMDL/index.htm#approved>

## Funding

EPA 319 and Utah State NPS funds  
NRCS Environmental Quality Program (EQUIP)  
NRCS Wildlife Habitat Improvement Program (WHIP)  
Local Landowners

*To learn how you can participate or lend your support to Utah community water quality projects, please contact your local conservation district or county agent.*