



# NONPOINT SOURCE SUCCESS STORY

# Utah

## Nutrient Management Practices Improve Water Quality in Spring Creek

### Waterbody Improved

Since 2002, the Utah Division of Water Quality (UDWQ), in partnership with the Natural Resource Conservation Service (NRCS), Blacksmith Fork Conservation District (CD) and producers, has worked towards improving Spring Creek in Cache Valley, Utah. In 2000 Spring Creek was added to the Clean Water Act (CWA) section 303(d) list for exceedances in fecal coliform, total phosphorus, temperature, dissolved oxygen and ammonia. In 2002 a total maximum daily load (TMDL) was developed to quantify impairments and develop an implementation plan to address the listed impairments. The implementation plan has resulted in over 20 water quality improvement projects being completed and resulted in significant water quality improvements at the outlet of the watershed.

### Problem

Spring Creek is centrally located in Cache Valley, Utah. Cache Valley is in northern Utah and is one of the largest agricultural production regions of the state (Figure 1). The Spring Creek watershed is composed of springs, sloughs and irrigation canals. These separate water sources feed Spring Creek, a significant tributary to the Little Bear River. The Little Bear River then feeds into Cutler Reservoir, an important water resource in northern Utah.

Water quality assessments completed by UDWQ in 1996 and 1997 identified significant impairments to Spring Creek, including exceedances in fecal coliform, total phosphorus, temperature, dissolved oxygen and ammonia. These impairments, and the inability of the water body to support beneficial uses, resulted in the development of the Spring Creek TMDL in 2002. The TMDL highlighted multiple nonpoint sources of pollution, including animal feeding operations, manure application, grazing in waterways and farming without field buffers (Figure 2).

### Story Highlights

The 2002 TMDL highlighted water quality concerns and also identified water quality improvement opportunities. Since 2002, producers, CDs and agencies have worked cooperatively and diligently to implement water quality improvement projects of various sizes and types. Currently, more than 21 certified nutrient management plans have been written. In addition to these plans, 21 waste storage facilities have been

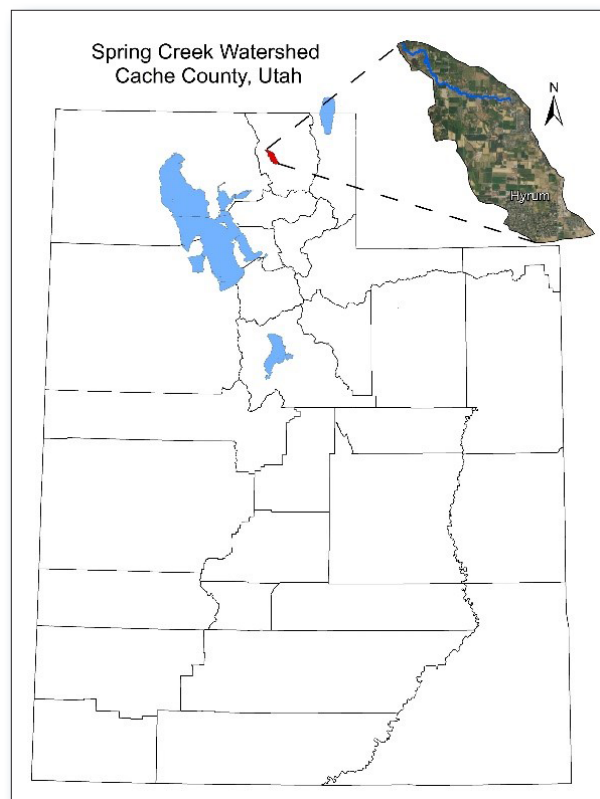


Figure 1. Spring Creek is in northern Utah.

constructed; 7,124 feet (ft) of berms have been built; and 1,110 ft of fence have been installed (Figure 3). Other best management practices implemented include 6,284 ft of riparian fencing, five offsite watering facilities and 1,200 ft of streambank protection. To



Figure 2. Before the project, runoff from uncontained animal waste areas entered Spring Creek.



Figure 3. After the project, animal waste is contained in a waste storage facility.

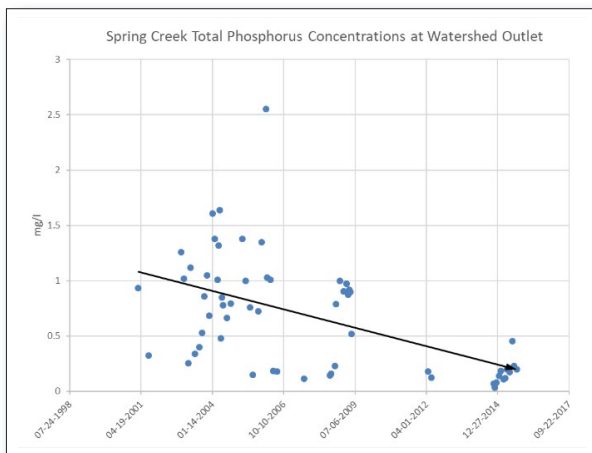


Figure 4. Downward trend of total phosphorus in Spring Creek (2001–2015).

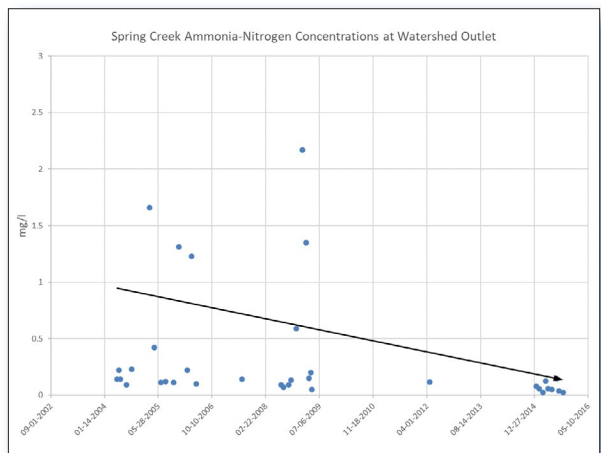


Figure 5. Downward trend of ammonia-nitrogen in Spring Creek (2004–2015).

date, ongoing efforts are continuing to improve water quality in the Spring Creek watershed.

## Results

As a result of the project implementation, significant water quality improvements have been observed within the Spring Creek watershed (Figures 4 and 5). These improvements include significant load reductions of phosphorus and ammonia, increased dissolved oxygen levels, and lower temperature levels. Additionally, unstable bare banks have revegetated/stabilized, and the riparian corridor has increased in width. Additional monitoring will continue to occur in

an attempt to delist Spring Creek for the parameters that are impairing the beneficial uses.

## Partners and Funding

Agencies and producers spent a combined total of more than \$1.26 million on nonpoint source water quality improvement projects in the Spring Creek watershed. Funding sources included \$317,271 of CWA section 319 funding; \$691,500 of NRCS funding; and \$252,000 of in-kind producer contributions. Additional resources and support came from Utah State University Extension and the Blacksmith Fork CD.



U.S. Environmental Protection Agency  
Office of Water  
Washington, DC

EPA 841-F-20-001UU  
December 2020

## For additional information contact:

**James Bowcutt**  
Utah Division of Water Quality  
801-536-4336 • [jdbowcutt@utah.gov](mailto:jdbowcutt@utah.gov)