

Diamond Fork River and Sixth Water Creek

Update on Instream Flow Studies

April 2017

Proposed 2017 Flow Rates

With the onset of snowmelt runoff in early March, flows on Diamond Fork River and Sixth Water Creek began to increase from their winter base flow levels, and currently remain high. Once the natural snowmelt runoff cycle ends, summer flows will be set at the legally mandated summer minimum flow levels of 32 cfs (cubic feet per second) on Upper Sixth Water Creek and 80 cfs on lower Diamond Fork. This will allow researchers to collect data at the mandated flow levels and contrast the results with data collected during last summer's lower-than-mandated flow conditions.

Researchers have also proposed a short-term "stepped flow experiment" that would occur in September 2017. The stepped flow experiment would involve two 5-day high flow periods with low-flow periods conducive to field sampling before, between, and after the high flow "steps". Details about the stepped flow experiment will be coordinated with water managers in mid-summer when more is known about the magnitude and effects of this spring's snowmelt runoff flows.

What is the Diamond Fork River/Sixth Water Creek Instream Flow Study?

The Central Utah Water Conservancy District, Utah Reclamation Mitigation and Conservation Commission, and United States Department of the Interior, Central Utah Project Completion Act Office, as Joint Lead Agencies (JLAs), have determined that winter instream flows for Diamond Fork River can no longer be delivered from the Sixth Water Flow Control Structure.

The JLAs have implemented a funding agreement with Utah State University scientists to conduct studies during 2016-2018 to determine desired instream flow regimes to maximize ecological health on the river systems.

STUDY FLOW RATES 2016-2017

During the winter of 2016/2017, releases through Strawberry Tunnel were set at approximately 20 cubic feet per second (cfs) resulting in a flow of about 25 cfs at the Sixth Water USGS gauging station, and approximately 35 cfs at Monks Hollow on the Diamond Fork River.

During the summer of 2016, Strawberry Tunnel releases were set at about 15 cfs, resulting in flows of about 20 cfs on upper Sixth Water Creek. Releases through the Sixth Water Flow Control Structure and Monks Hollow Overflow were kept to the minimum required for the Diamond Fork pipeline operation, resulting in flows of about 40-60 cfs on the lower Diamond Fork River near Monks Hollow.



More information, documents, and maps are available on the project website at:

<http://diamondfork.cuwcd.com>



Preliminary Findings

The Utah State University research team collected extensive field data at nine sample sites throughout the watershed between April-October 2016. Results remain highly preliminary, but initial findings include:

- At the upstream-most sample sites on Sixth Water Creek, Bonneville cutthroat trout recruitment observed during 2016 exceeded historical levels. Preliminary analyses suggest that recruitment may be maximized at summer flows well below the mandated minimum of 32 cfs.
- Based on macroinvertebrate data collected in June 2016, nearly all sample sites have high (>25%) proportions of mayfly, stonefly, and caddisfly taxa. Diet analyses indicate these species constitute an important food source for trout on Sixth Water and Diamond Fork.
- Lower-than-mandated 2016 summer base flows did not cause dissolved oxygen levels to drop to harmful levels at any of the study sites.
- Summer water temperatures on the downstream-most reaches of lower Diamond Fork may exceed the thermal tolerance of Bonneville cutthroat trout, but generally remain within the acceptable range for brown trout.

For more information, slides from a presentation on interim study findings can be found on the project website: diamondfork.cuwcd.com

Scientific data collection will continue in 2017 and instream flow recommendations will be provided by the end of 2018.

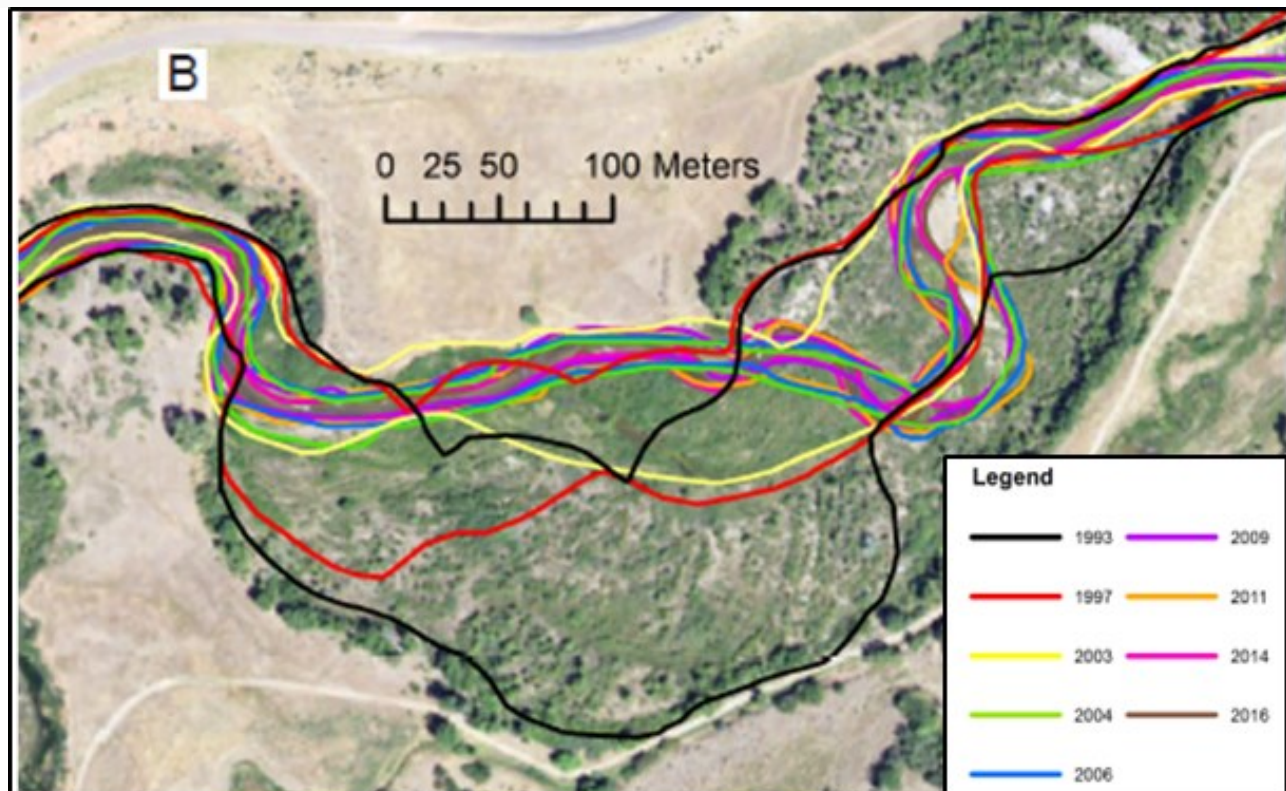
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Comparison of active channel locations for different years at the Oxbow study site on lower Diamond Fork. This portion of the river is where the largest rates of channel change have occurred since completion of the Syar Tunnel and Diamond Fork pipeline systems. Prior to completion of those water delivery systems, high flows of 300-400 cfs were delivered directly down the stream channels during the irrigation season.