Diamond Fork River and Sixth Water Creek

Update on Instream Flow Studies

April 2018

Proposed 2018 Flow Rates

With snowpack levels well below average, the effect of snowmelt runoff on Diamond Fork and Sixth Water Creek streamflows this spring is expected to be minimal. For the summer of 2018, releases through Strawberry Tunnel will be set at approximately 20 cubic feet per second (cfs), resulting in a flow of about 25 cfs at the Sixth Water USGS gauging station. Releases through the Sixth Water Flow Control Structure and Monks Hollow Overflow will be kept to the minimum required for the Diamond Fork System operation, resulting in flows of approximately 40-55 cfs on lower Diamond Fork near Monks Hollow. This will allow researchers to collect a few key additional sets of data during lower-than -mandated flow conditions to supplement and help verify information collected during similar low flow conditions in 2016.

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 (USU) scientists to conduct studies during 2016-2018 to determine desired instream flow regimes to maximize ecological health on the river systems.

At this time, researchers have collected the majority of the data for this interdisciplinary study and are continuing to analyze and integrate study results. A draft of the final study report, including flow recommendations, is anticipated to be complete in October 2018. The final study report is due at the end of December 2018.

CENTRAL UTAH WATER CONSERVANCY DISTRICT

Study Flow Rates 2017-2018

In 2017, snowmelt runoff produced flood peaks of approximately 81 cfs on Sixth Water Creek and 255 cfs on lower Diamond Fork, which are average-magnitude flood events.

During the summer of 2017, flow releases were adjusted so that flows on upper Sixth Water Creek and lower Diamond Fork River matched the legislated 32 cfs and 80 cfs, respectively. A short-term "stepped flow experiment" with a series of high and low-flow "steps" was conducted in September 2017.

During the winter of 2017/2018 releases through Strawberry Tunnel were set at approximately 22 cubic feet per second (cfs) resulting in a flow of about 27 cfs at the Sixth Water USGS gauging station, and approximately 42 cfs at Monks Hollow on the Diamond Fork River.

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

http://diamondfork.cuwcd.com

Preliminary Findings

The USU research team collected extensive field data at nine sample sites throughout the watershed in 2016 and 2017. Results remain preliminary, but initial findings include:

- At the upstream-most sample sites on Sixth Water Creek, Bonneville cutthroat trout recruitment observed during both 2016 and 2017 exceeded historical levels. Preliminary modeling work suggests that recruitment success may be maximized at summer flows well below the mandated minimum of 32 cfs.
- On lower Diamond Fork, benthic aquatic macroinvertebrate densities were lower in 2017, when summer baseflows were higher and spring snowmelt runoff was substantial, than in 2016, when summer baseflows were lower than the mandated minimums and spring snowmelt runoff was minor.
- Lower-than-mandated base flows during summer 2016 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

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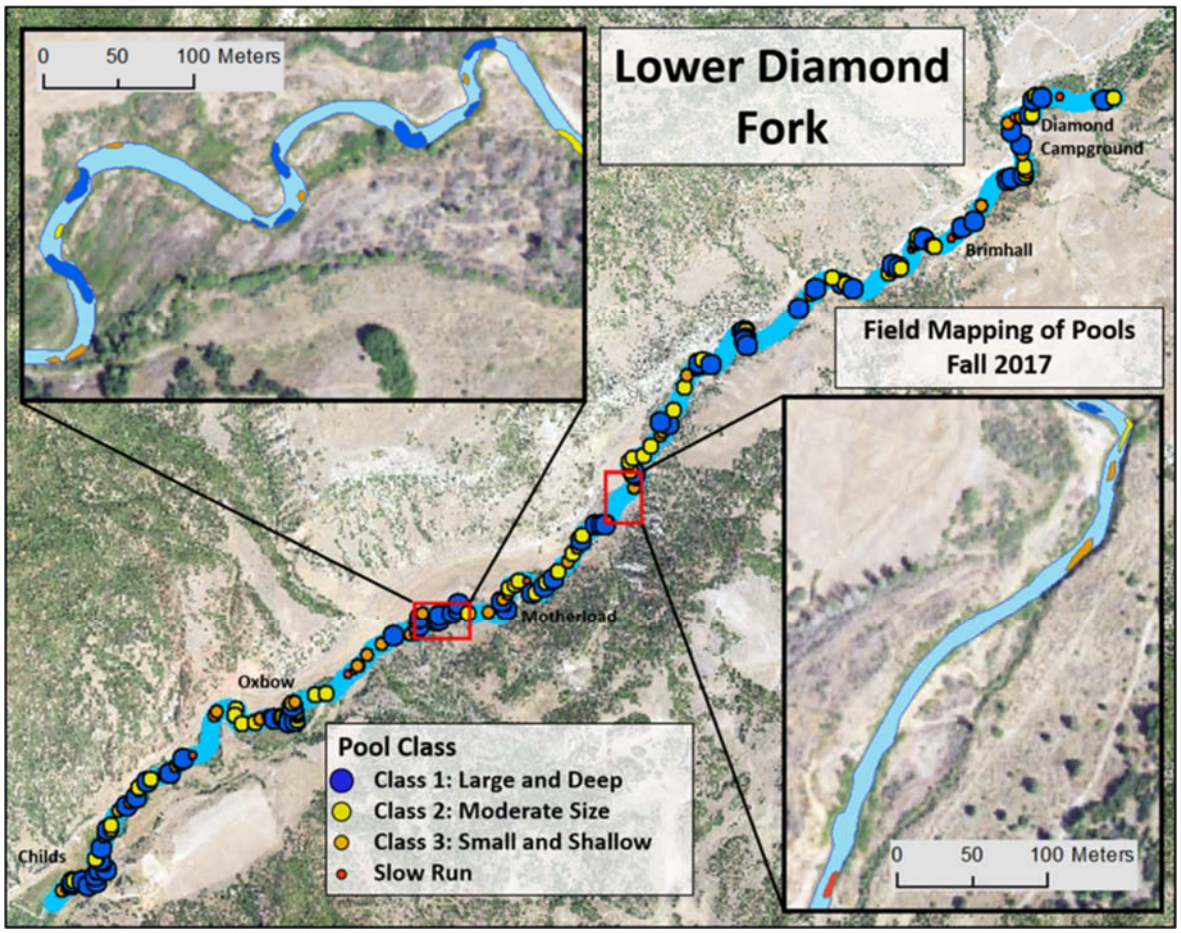

Map of existing pools on lower Diamond Fork. Comparisons of aerial imagery from 2006 and 2016 suggest that pool frequency and channel width have decreased over this time period. Additional data on lower Diamond Fork aquatic habitat conditions will be collected this year as part of a separate study that will also identify restoration target areas and concepts.