

Memorandum

To: Morgan Case
From: Nick Miller
Date: September 9, 2013
Re: Trial run of proposed Carmen Creek water transaction

On the evening of August 28, 2013, the Water District No. 75D watermaster ceased diverting approximately 1.2 cfs of water into SCC-03 for the purpose of verifying that a proposed transfer of that amount of water would not be lost to seepage between SCC-03 and SCC-02. On the morning of August 29, 2013 I met with with Allen Bradbury of the Governor's Office of Species Conservation, Upper Salmon Basin Watershed Program, and Jay Smith, a local water user to conduct a number of flow measurements and photograph the flows. I have included a schematic of the creek showing the locations of my measurements and will place the digital photos/videos on the server for you to review.

I found that any losses to seepage through that reach appear to have been offset by gains from springs and seeps that entered the stream at various points in the reach. Further, it appears the injection of the water that would otherwise have been diverted at SCC-03 resulted in a live stream of water between SCC-03 and SCC-02 where the stream was mostly dry before the injection.

I conducted four measurements in the vicinity of SCC-03 to determine the flow in Carmen Creek above the diversion, the diverted amount, and the amount passing the diversion. The first two measurements were a current meter measurement in the ditch using a Son-tek Flow Tracker (2.03 cfs) and a measurement from the three-foot contracted rectangular weir (0.34' and 1.94 cfs). The other two measurements were current meter measurements taken in the stream with the Flow Tracker above (3.26 cfs) and below the diversion (1.54 cfs). Taken together, the measurements agree with one another fairly well and likely are a good representation of the flows.

Mr. Bradbury, Mr. Smith, and I walked the creek downstream from SCC-03 to the Mihalka Pond diversion and observed inflow to the stream at several locations from springs and return flows. I made two measurements in Carmen Creek just above the Mihalka Pond diversion (the diversion was closed). Current meter measurements at this location were difficult as the streambed is rocky, braided, and undercut the bank. The two measurements I took were 1.70 cfs at the first location and 2.6 cfs approximately 40 feet downstream from the first location. The first location was a much better section and likely is a better reflection of the actual flow at that location. Nevertheless, for purposes of evaluating the benefits of the proposed transfer on streamflow, it is sufficient to note that the flows are similar to or more than the flows left in the stream at SCC-03.

We continued down the stream to the Barsalou Ditch diversion (SCC-02) and observed that the diversion structure took almost the entire flow of the stream. I was unable to measure the amount diverted because the Cippoletti weir in the ditch was submerged. The weir box was approximately two feet wide and was flowing at approximately one foot deep. I took a few spot velocity measurements and found the velocity to be approximately one foot per second, so I estimated the diversion was taking about two cfs.

I measured the flow in the stream below Mihalka's Pond return and above the SCC-02 diversion and found the streamflow to be 2.08 cfs. Given that the flow below the SCC-02 diversion appeared minimal, this corresponds well with the estimate of the SCC-02 diversion.

Following the measurements, and per instructions from the watermaster, I adjusted the SCC-03 headgate to divert approximately 3.1 cfs, leaving less than 0.5 cfs in the stream.

In conclusion, it appears that the proposal to transfer water from SCC-03 to the McNutt Ditch will result in a live stream between SCC-03 and SCC-02.

3.26 cfs

SCC-03 = 2.03 cfs

1.54 cfs

1.70 cfs

0.0 cfs

Mihalka Pond

2.08 cfs

SCC-02 (Barsalou Ditch) = 2.00 cfs (estimate)

0.01 cfs (estimate)

0.1-0.5 cfs (estimate)

Eberhard Ponds

0.00 cfs

SCC-01 Not measured