

Canyon Creek Seepage Study

August 18-19, 2008

A seepage study was conducted August 18-19, 2008 by IDWR staff. The study consisted of measuring surface water flows (stream flows, diversion rates, and return flows) in Canyon Creek in order to quantify gaining and losing reaches. During this study nine measurements or observations were taken (Table 1), including measurements of diversions, stream flows, and return flows. Above all diversions, Canyon Creek was flowing 6.64 cfs and lost 0.15 cfs of flow between diversions CC3 to CC2. The second diversion, CC2 was the largest, taking 5.5 cfs down a pipe. During this study the lowest diversion CC1 was not in use. Water from Eighteenmile Creek contributed 2.15 cfs routed through the Whitefish ditch to lower Canyon Creek; this more than doubled the remaining flow in the Canyon Creek at that point. The reach from the lowest diversion gained 0.14 cfs in seepage (Table 2).

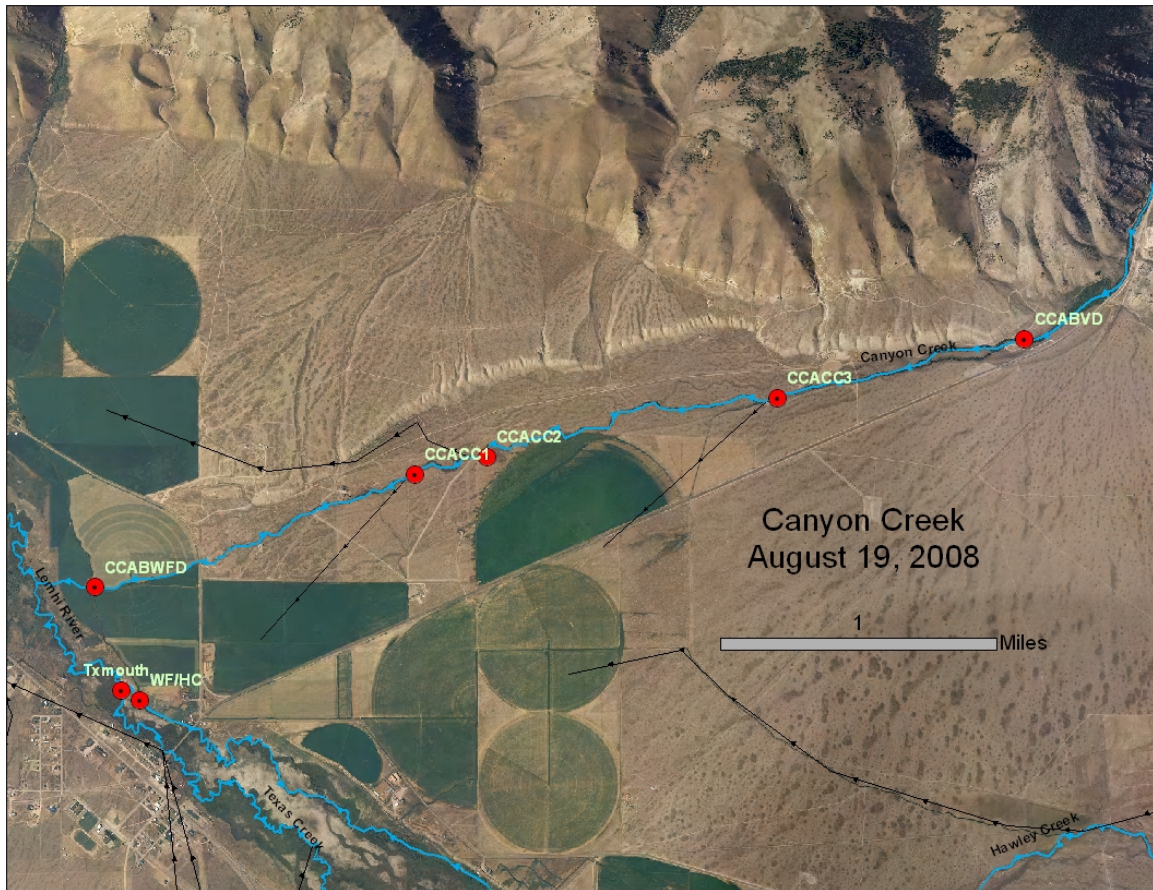


Figure 1. Map of Canyon Creek with important surface water features labeled.

Main stream location	Trib/diversion location	Discharge	Q diverted out	Trib/diversion Q in	Canyon Creek Q	Seepage	Point_X	Point_Y	Date and time	Notes
Above CC3		6.64			6.64				8/18/2008 4:50pm	Salmonid (7in.) in stream.
	CC3	0.10	0.10				2554551	1500141	8/18/2008 5:00pm	Trickle going down ditch. Juvenile salmonid in ditch.
Below CC3		6.54			6.54					
Above CC2		6.39			6.39				8/18/2008 5:50pm	
	CC2	5.47	5.47				2552860	1499798		Diversion is through submerged pipe, we measured above and below to determine diversion rate.
Below CC2		0.91			0.91				8/18/2008 5:45pm	
Above CC3 to CC2						-0.15				
Above CC1		0.86			0.86				8/19/2008 9:00am	CC1 was not running.
	CC1	0.00	0.00				2552443	1499696	8/19/2008 9:00am	Ditch was muddy, looks like it was recently used.
Below CC1		0.86			0.86					
CC2 to CC1						-0.05				
Above WF ditch		1.00			1.00					
	WF ditch	2.15		2.15			2550576	1499039	8/19/2008 10:00am	
Gauge/mouth		3.15			3.15				8/19/2008 10:00am	Center pivot in adjacent field was off, there was a handline that was on. Seven inch salmonid near measurement site.
CC1 to Mouth						0.14				

Table 1. Summary of seepage study for Canyon Creek, including reach gains and losses calculated from the measured flows. Coordinate values are in IDTM 83.

Canyon Creek Summary	cfs
Initial flow/input	6.64
Diverted rate out of Canyon Creek	5.57
Tributary/injection Input	2.15
Cumulative reach losses	-0.20
Cumulative reach gains	0.14
Calculated output	3.15
Measured output	3.15

Table 2. Summary of Canyon Creek seepage study.