

Lower Clear Creek Water Quality Monitoring CC-40 Update

Clear Creek Consultants, Inc.

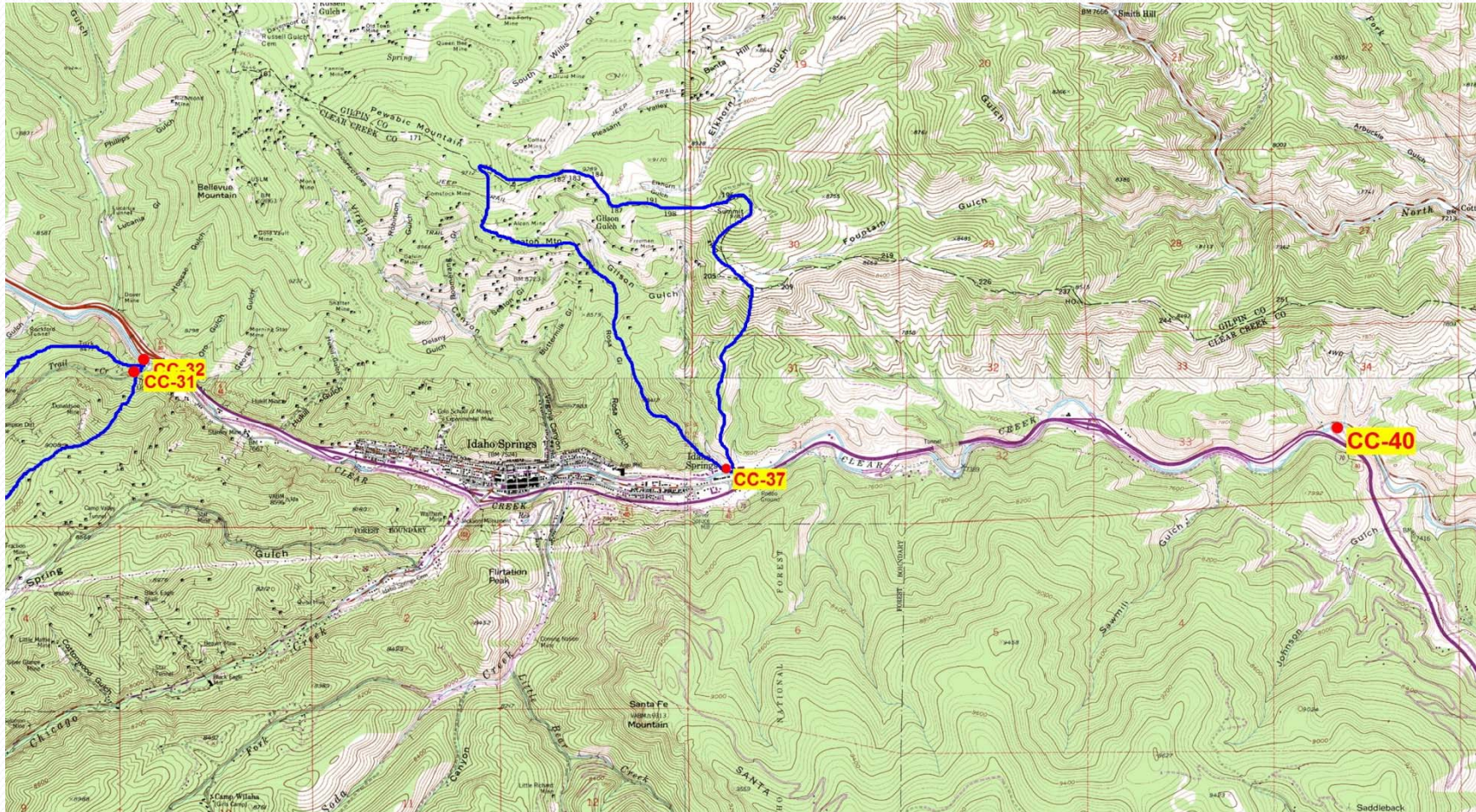
March 2011



CC-40 Background

- Clear Creek at Kermitts (CC-40) stream gaging station operated since 1995
- Highway runoff event sampling years 2000-2005
- Continuous recording conductivity/temperature (est.2004) and turbidity (est.2008)
- Storm event sampling for CCWF years 2008-2010
- Funding cooperators:
 - UCCWA (flow)
 - CCWF (turbidity/event sampling)
 - CDOT (conductivity/temperature, rainfall)

Lower Clear Creek



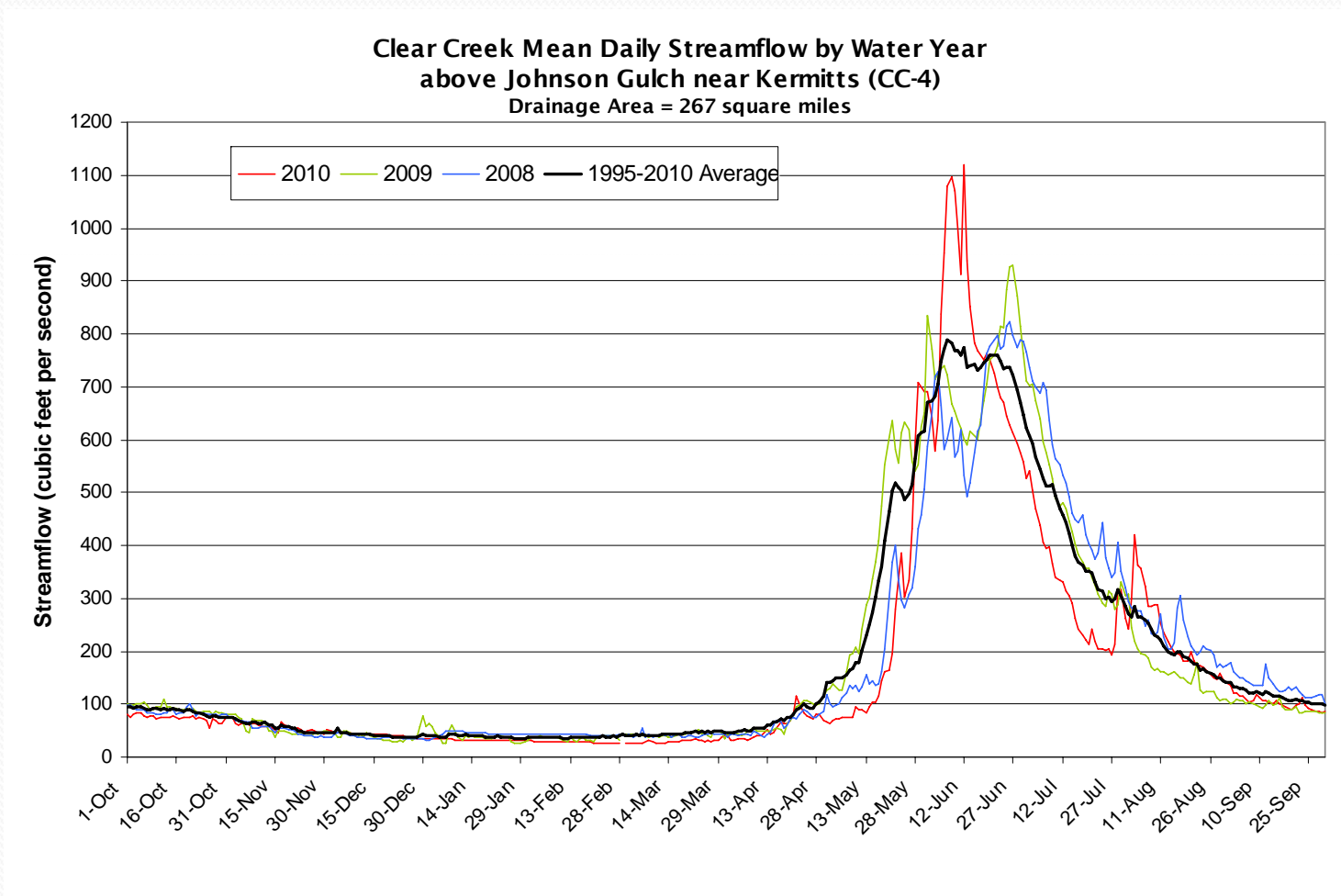
Clear Creek CC-40 Monitoring Station



Rainfall Runoff



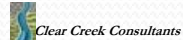
Clear Creek CC-40 Streamflow



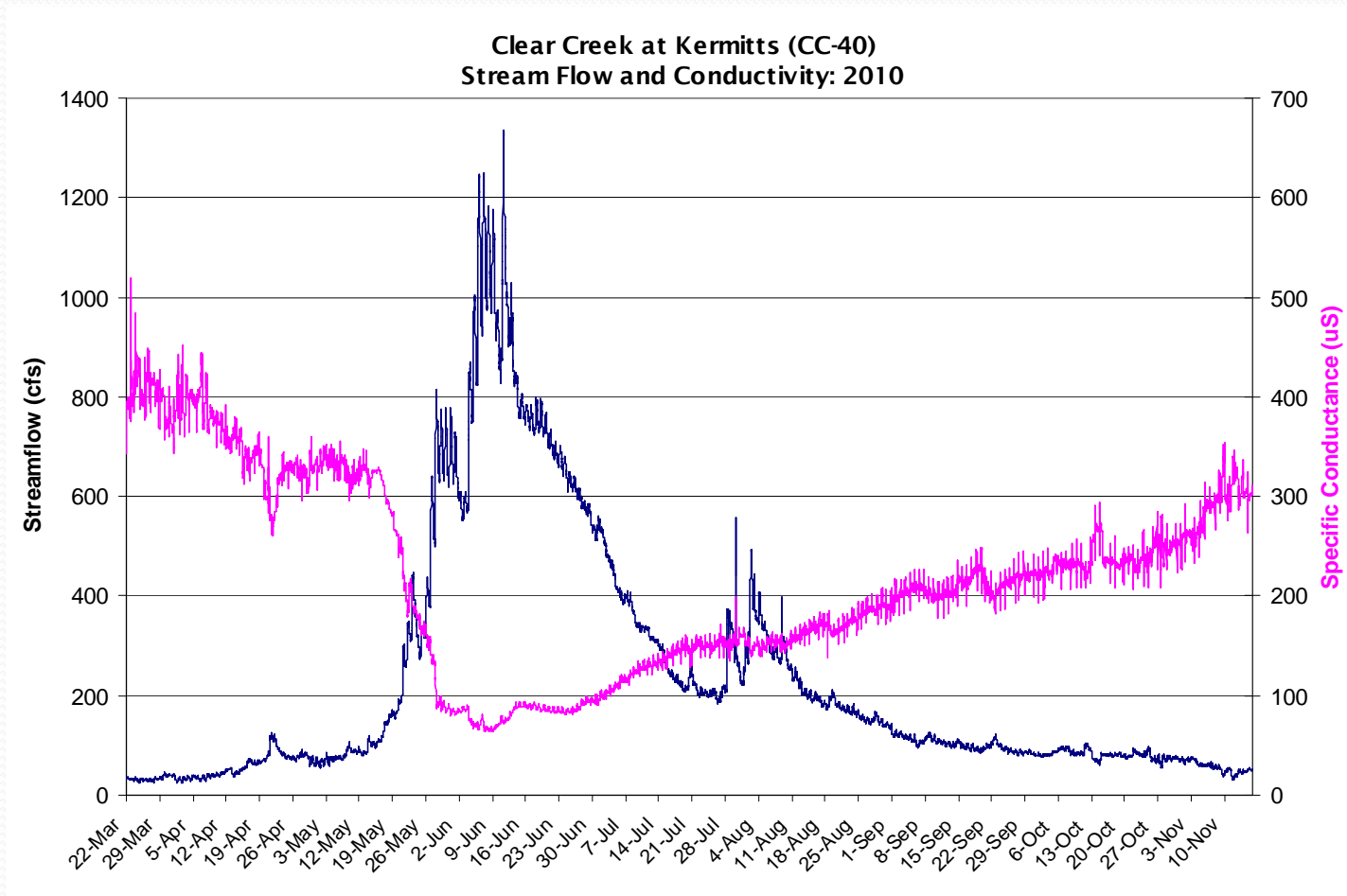
Clear Creek CC-40 Flow Rating Table

CLEAR CREEK NEAR KERMITTS PROVISIONAL STREAMFLOW RATING TABLE	
STAFF GAGE HEIGHT (feet)	STREAMFLOW (cubic feet per second)
3.4	24
3.5	32
3.6	43
3.7	57
3.8	74
3.9	88
4.0	104
4.1	122
4.2	143
4.3	168
4.4	195
4.5	227
4.6	262
4.7	303
4.8	326
4.9	351
5.0	377
5.1	405
5.2	434
5.3	465
5.4	497
5.5	530
5.6	565
5.7	602
5.8	641
5.9	681
6.0	723
6.1	767
6.2	813
6.3	861
6.4	911
6.5	962
6.6	1016
6.7	1072
6.8	1131
6.9	1191
7.0	1254
7.1	1319
7.2	1386
7.3	1456
7.4	1529

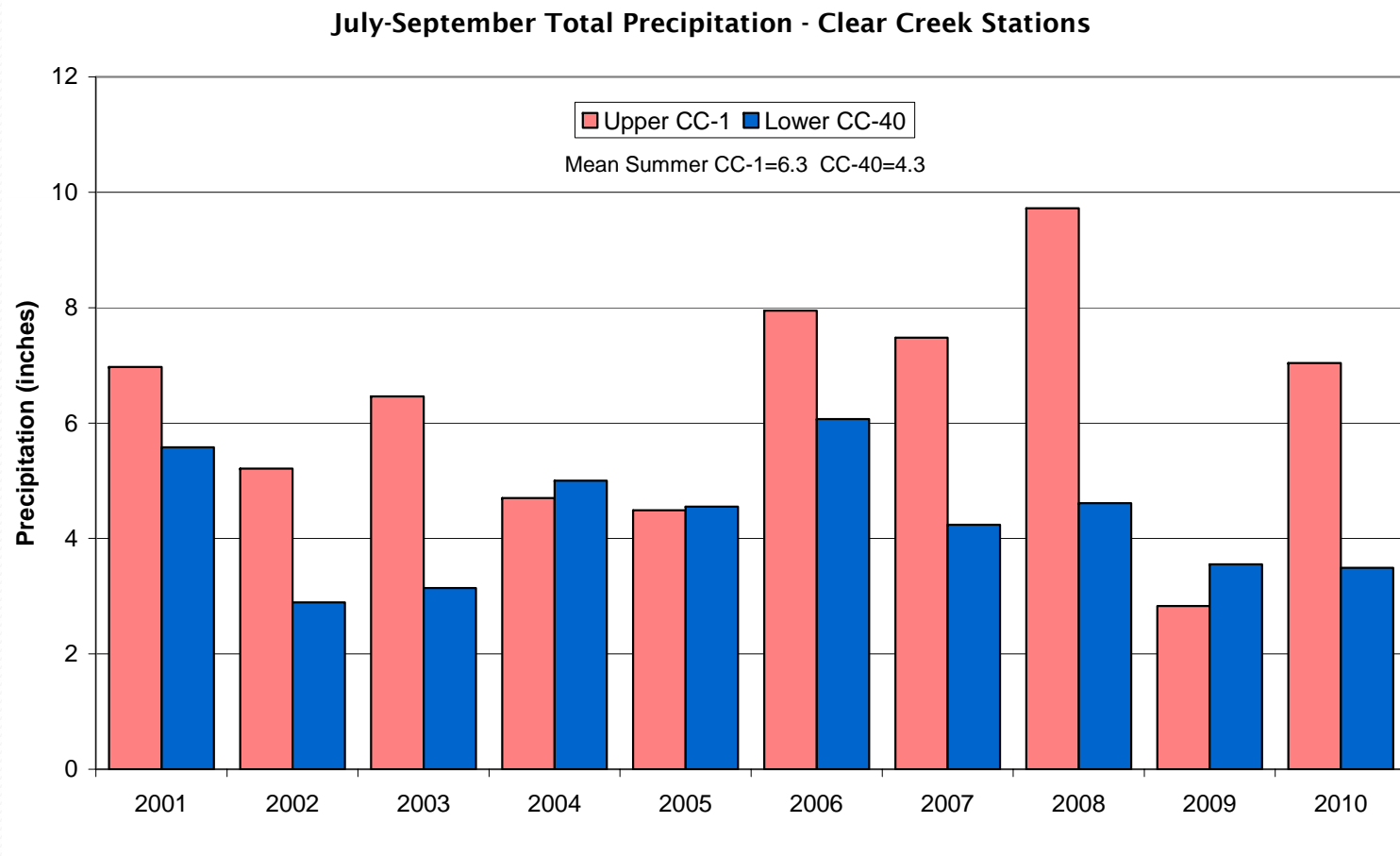
Streamgage sponsored by the Upper Clear Creek Watershed Association
Operated by:



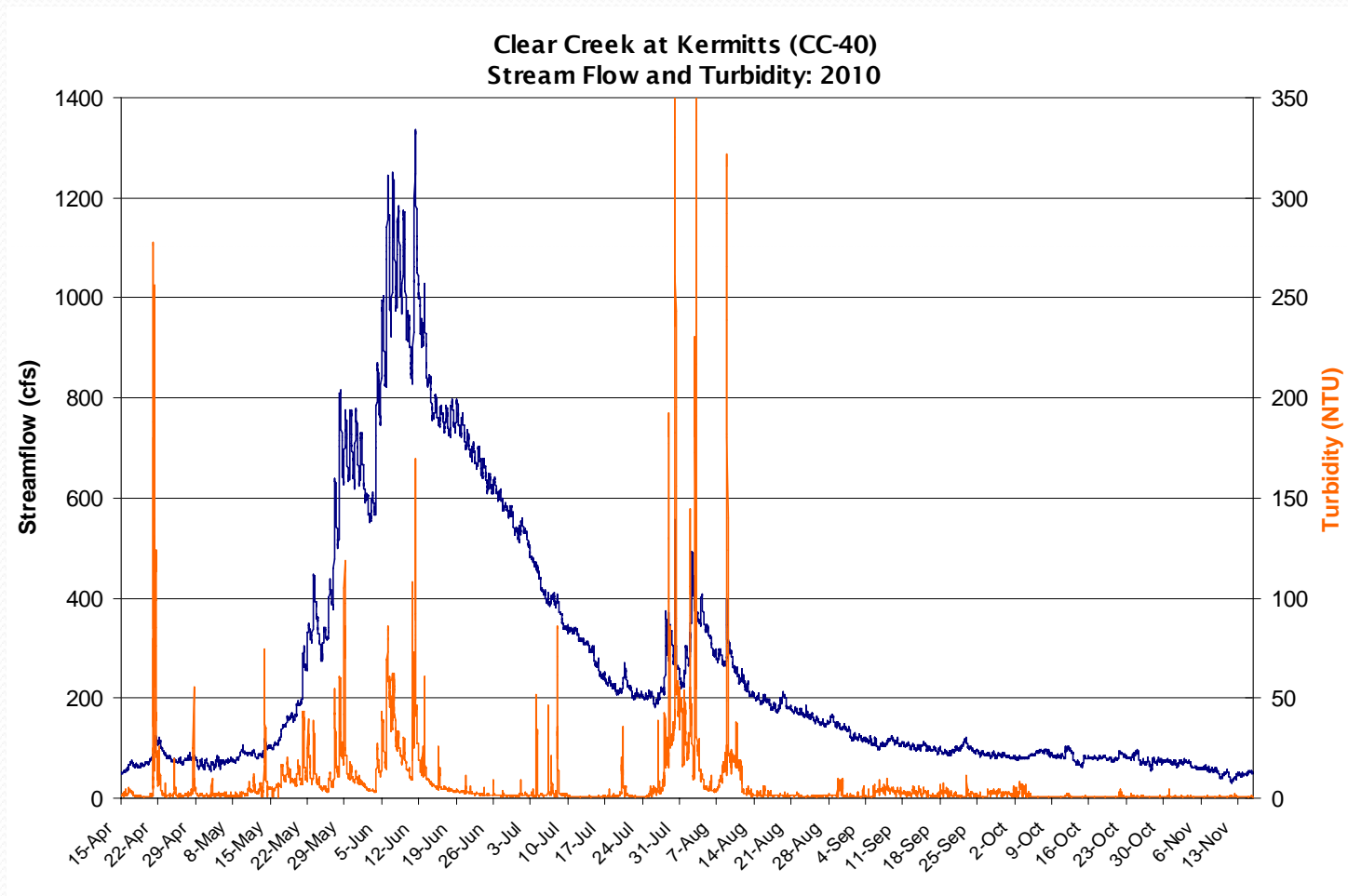
Clear Creek CC-40 Flow and Conductivity 2010



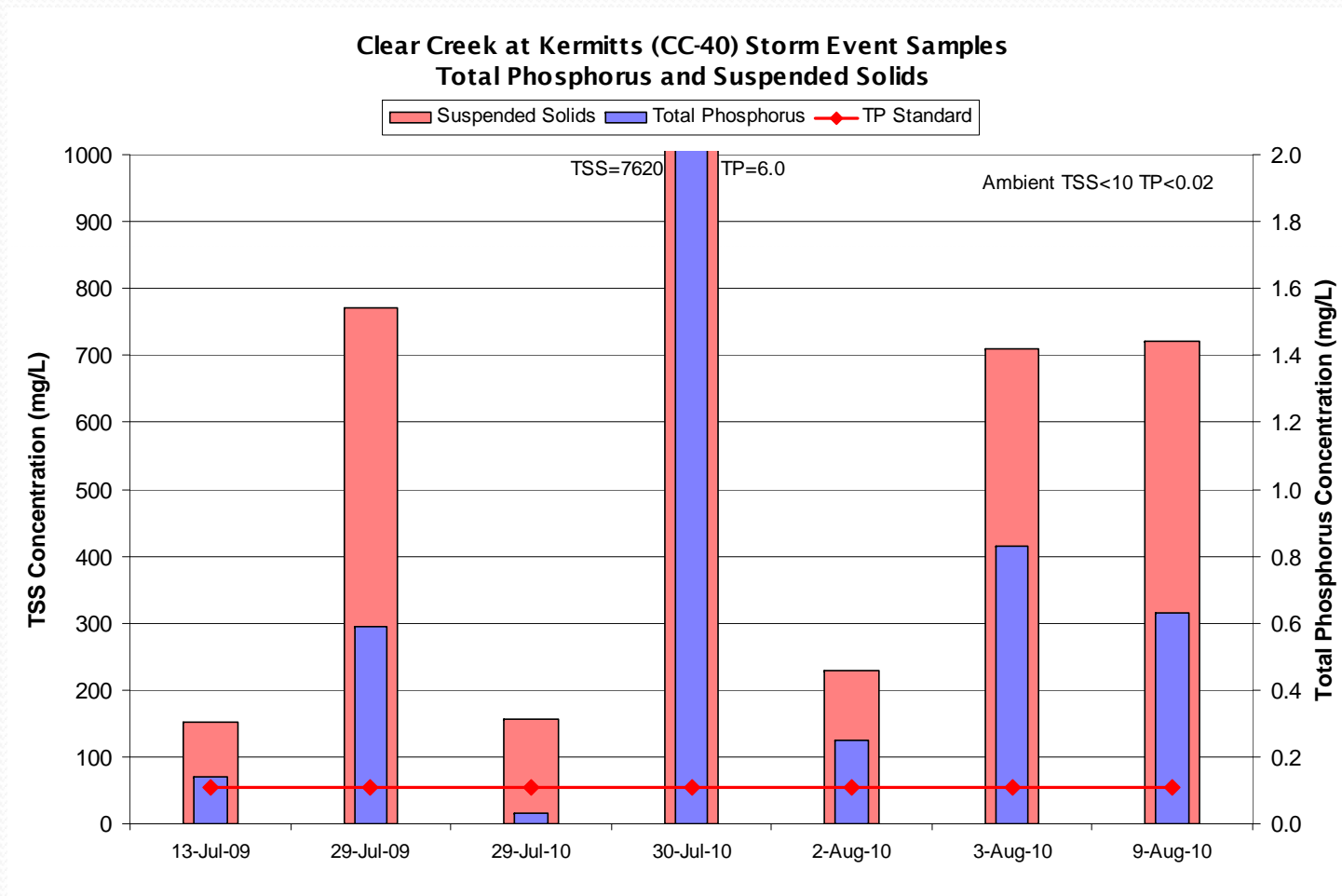
Clear Creek Precipitation Summary



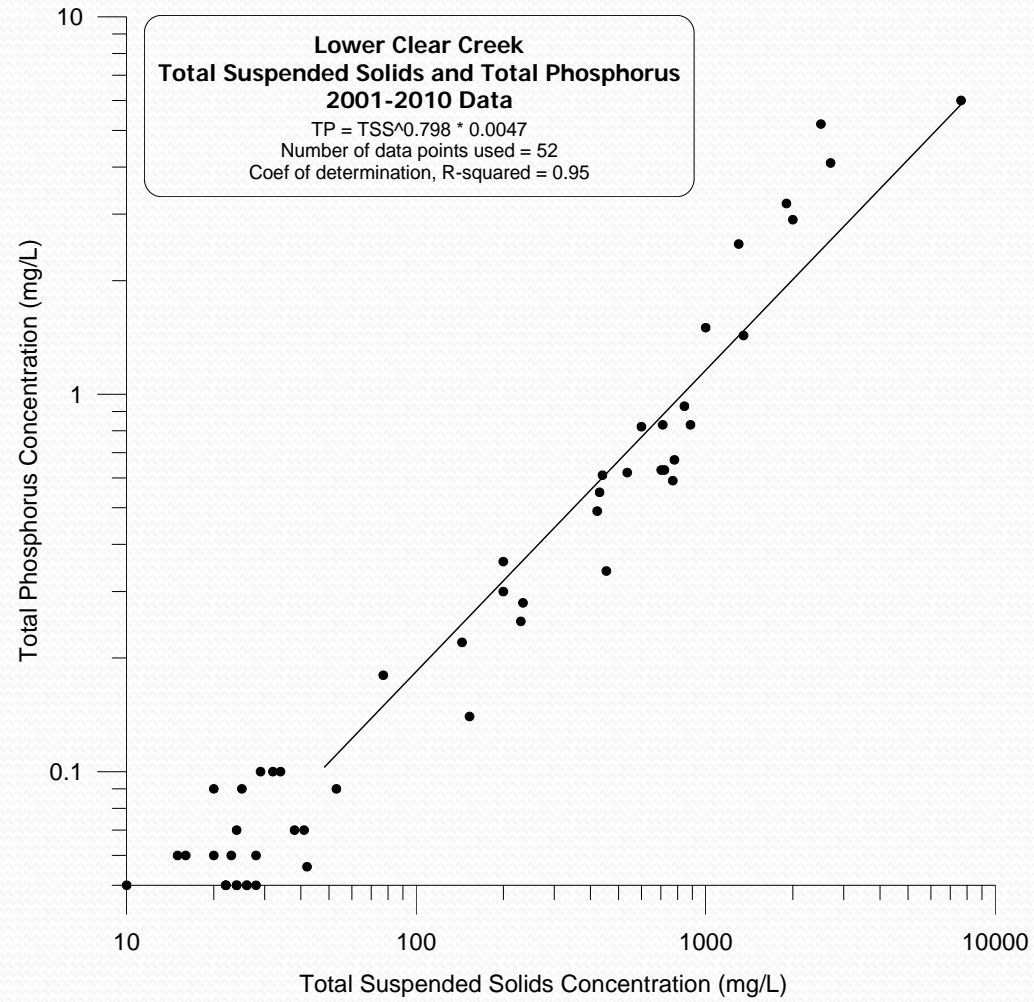
Clear Creek CC-40 Flow and Turbidity 2010



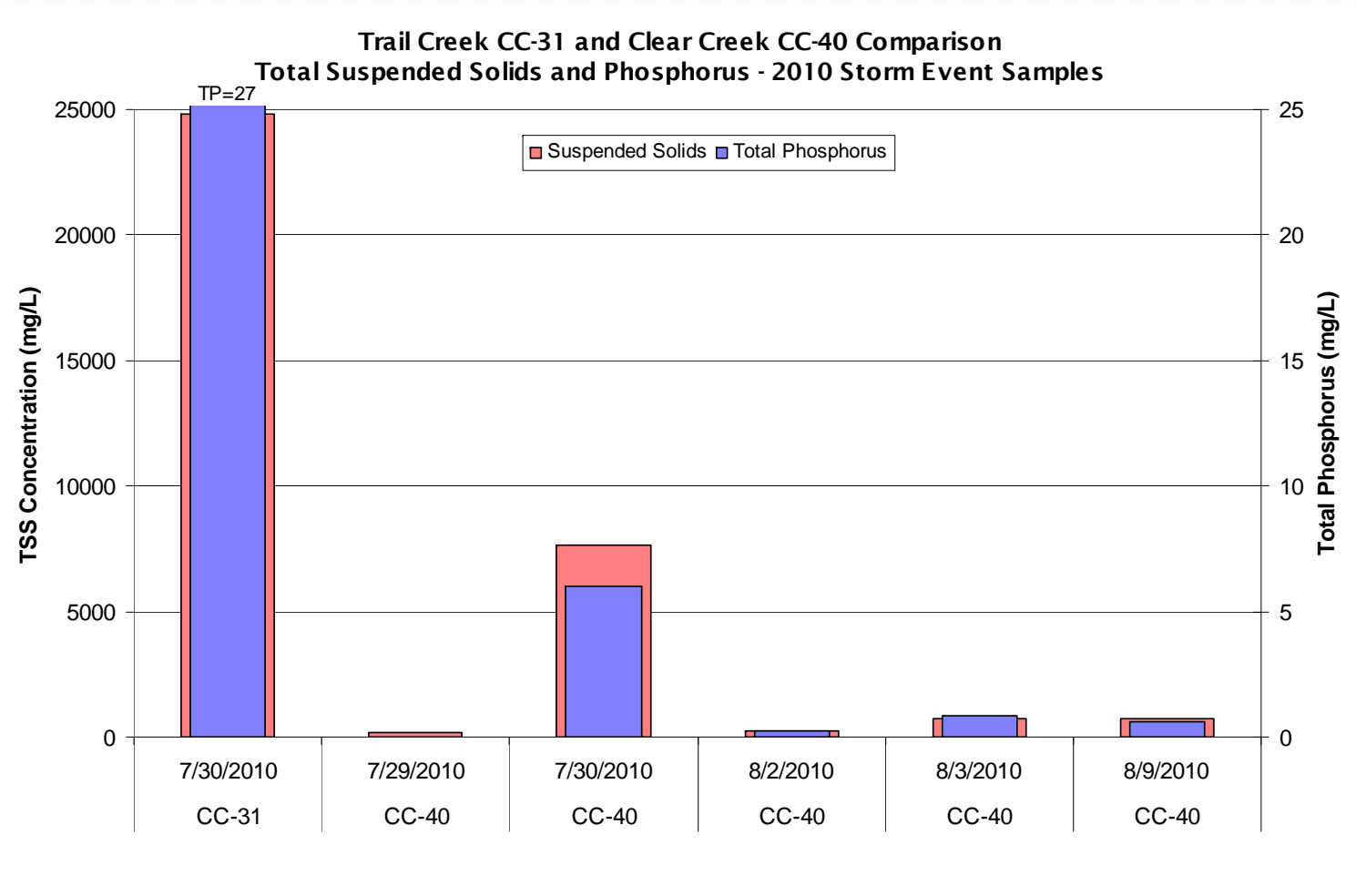
Clear Creek CC-40 Storm Event TP and TSS



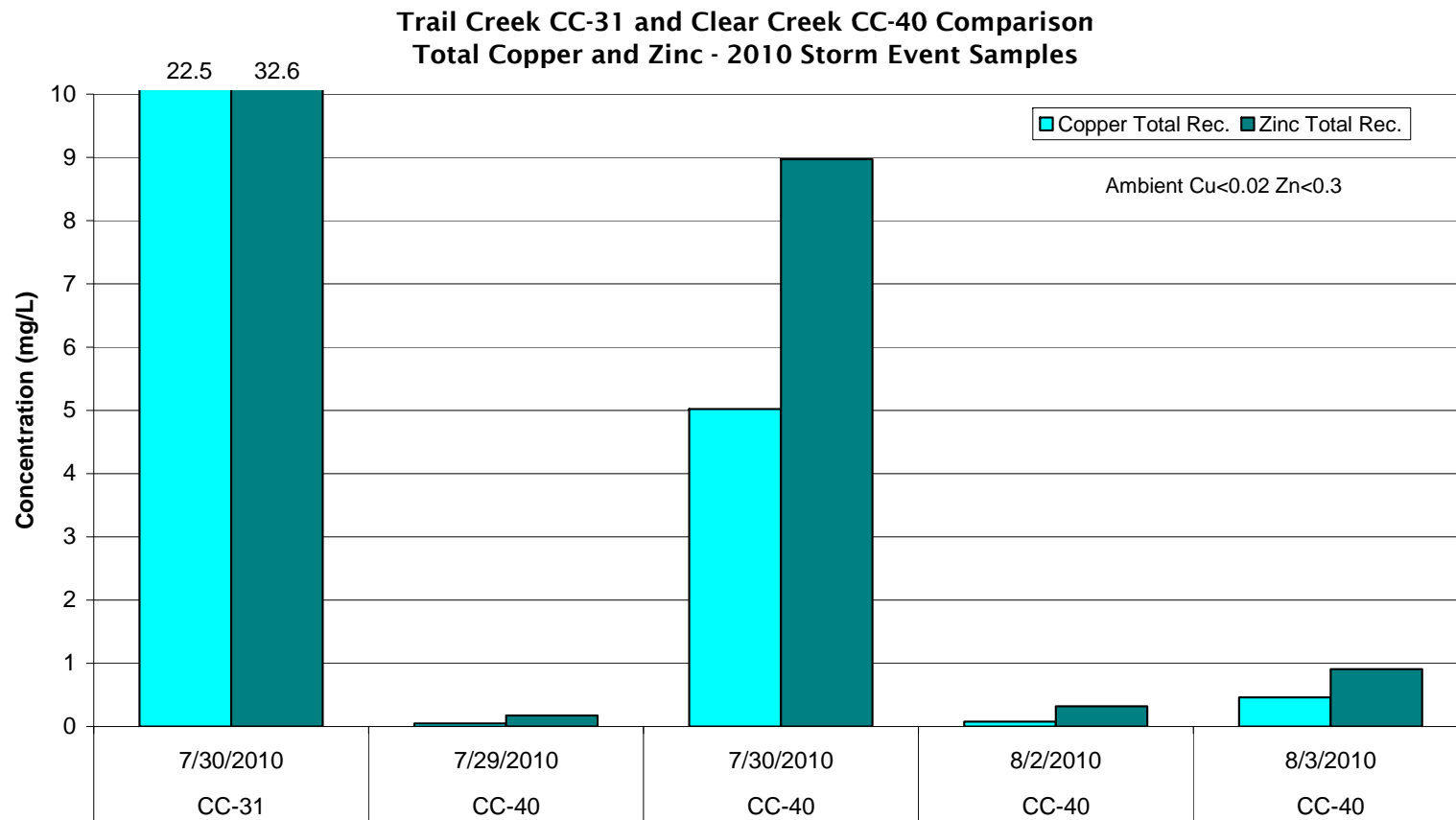
Clear Creek CC-40 Total Phosphorus and TSS



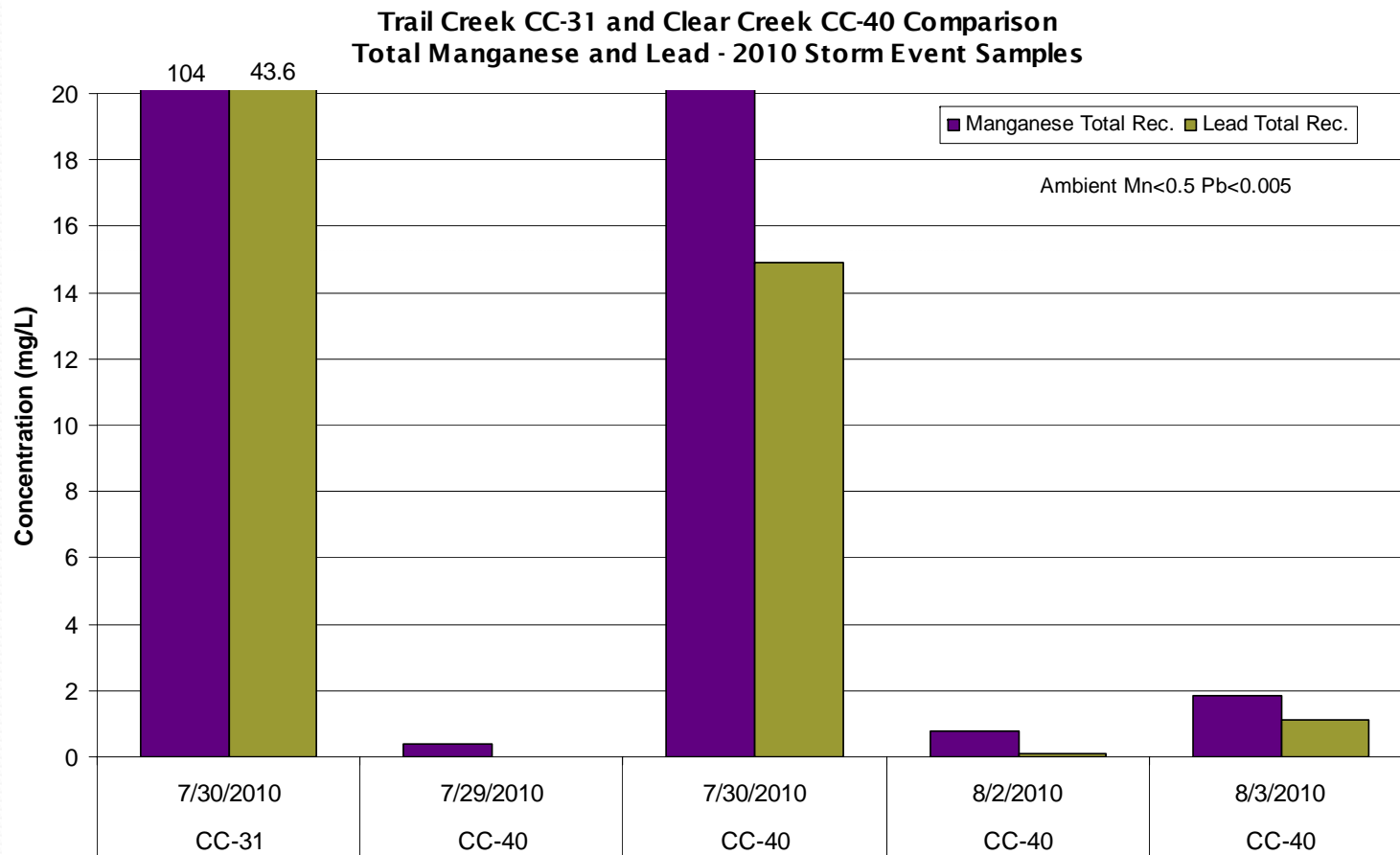
Trail Creek and Clear Creek Event Comparison



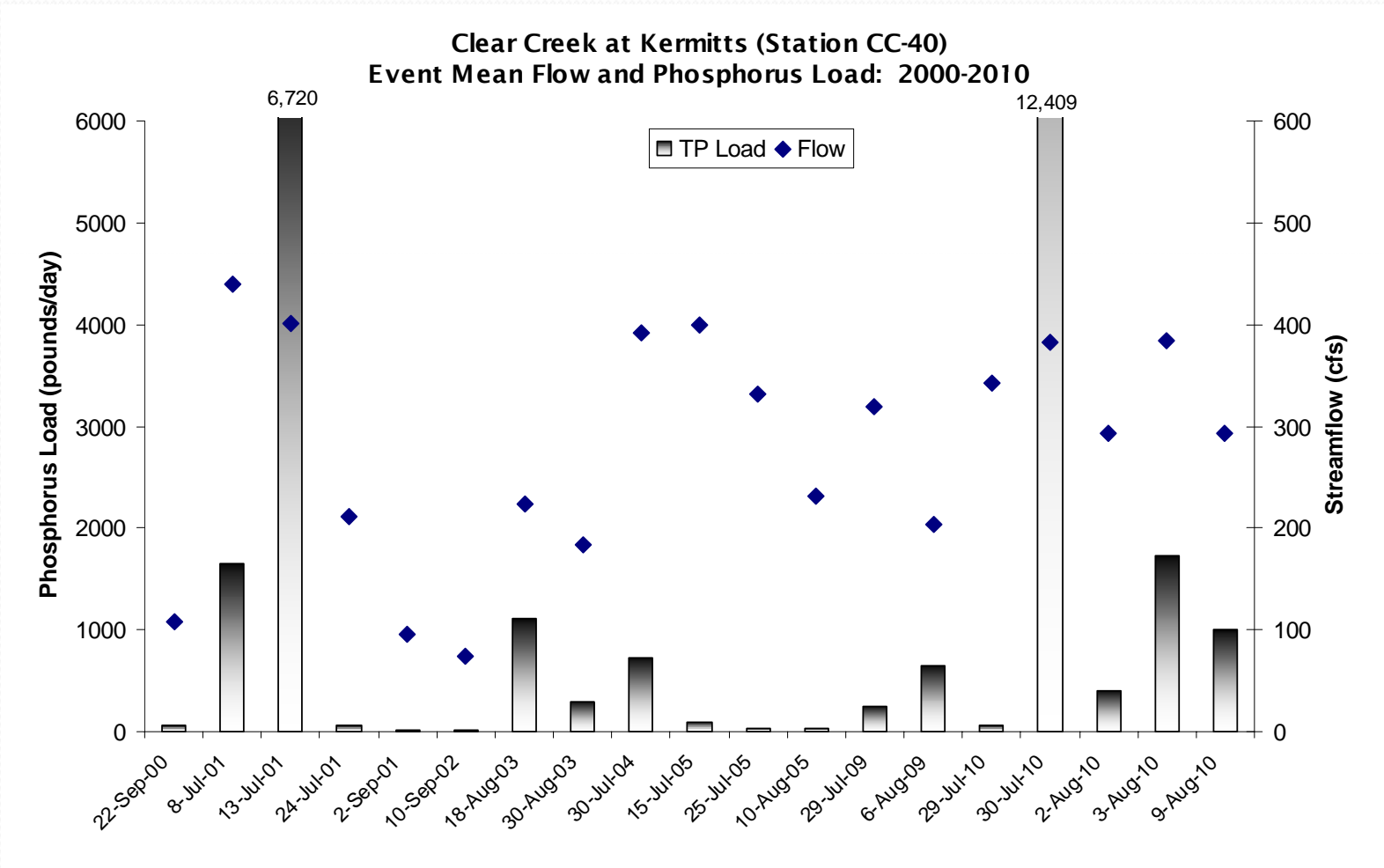
Trail and Clear Creek Copper and Zinc



Trail and Clear Creek Manganese and Lead



Clear Creek CC-40 Phosphorus Load





CC-40 Summary

- Peak flows were above average in 2010, while summer rainfall was below average at CC-40
- Maximum turbidity, TSS, and TP resulted from a series of storm events from 30-July to 9-August
- The 30-July event produced the highest TP (6.0 mg/L), along with high total metals
- Event phosphorus loading during this period was 15,523 lbs.
- Ambient phosphorus loading for WY 2010 was 6,451 lbs.

- Chloride was higher in upper Clear Creek (CC-1), related to I-70 traction sand/salt
- Total sediment and phosphorus was greater in lower Clear Creek (CC-40), related to the mining district