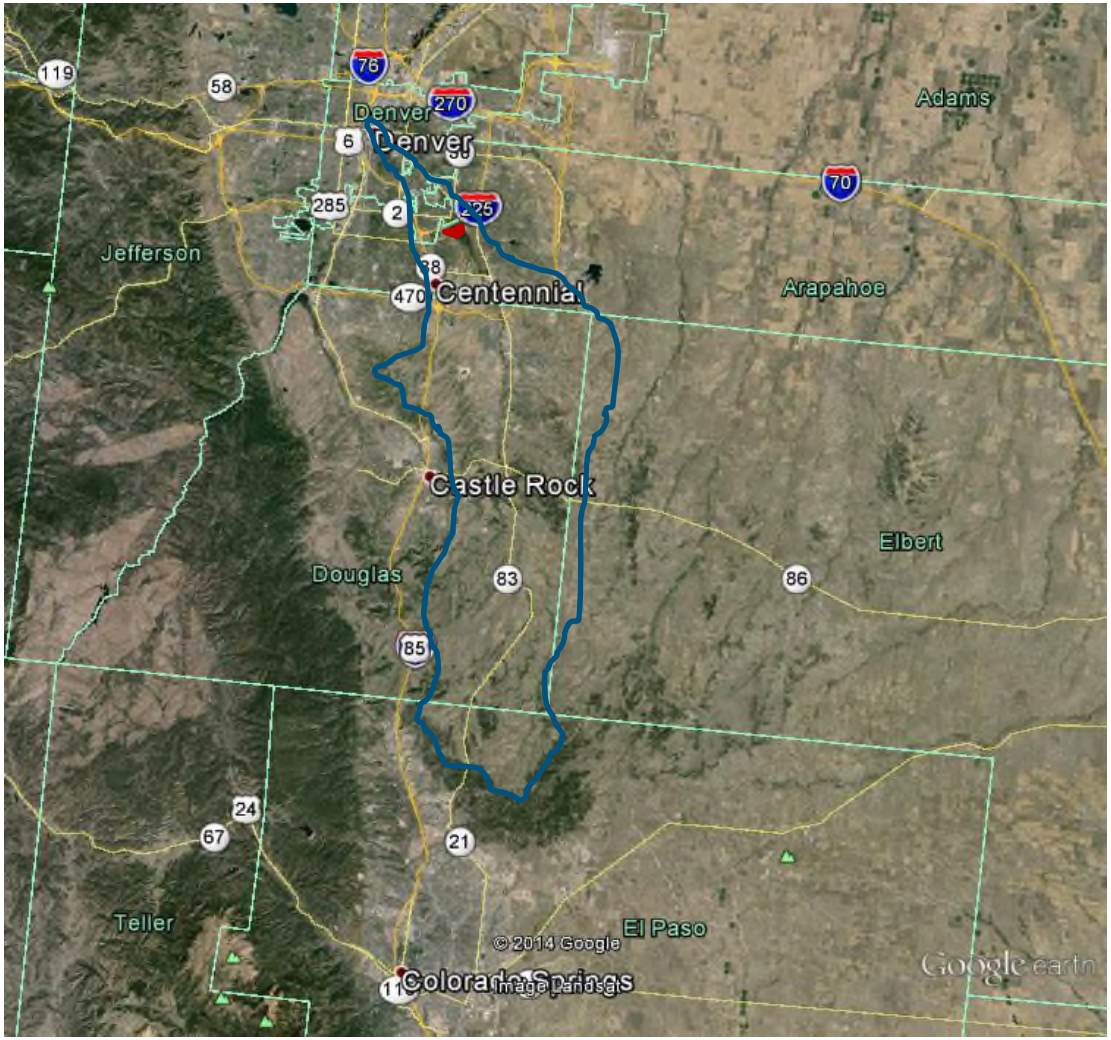
Natalie Love, Craig Wolf & Jamie Nogle
GEI Consultants, Inc.

Stormwater Monitoring in the Cherry Creek Basin, Colorado

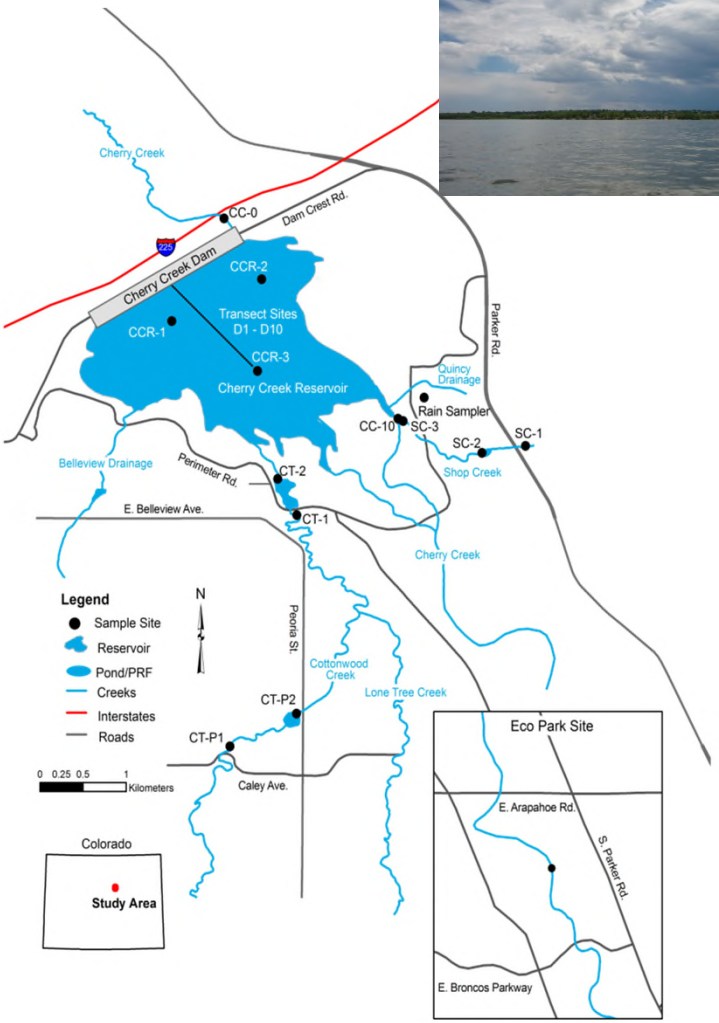
NWQMC 9th National Monitoring Conference
Cincinnati, OH
April 29, 2014

GEI Consultants

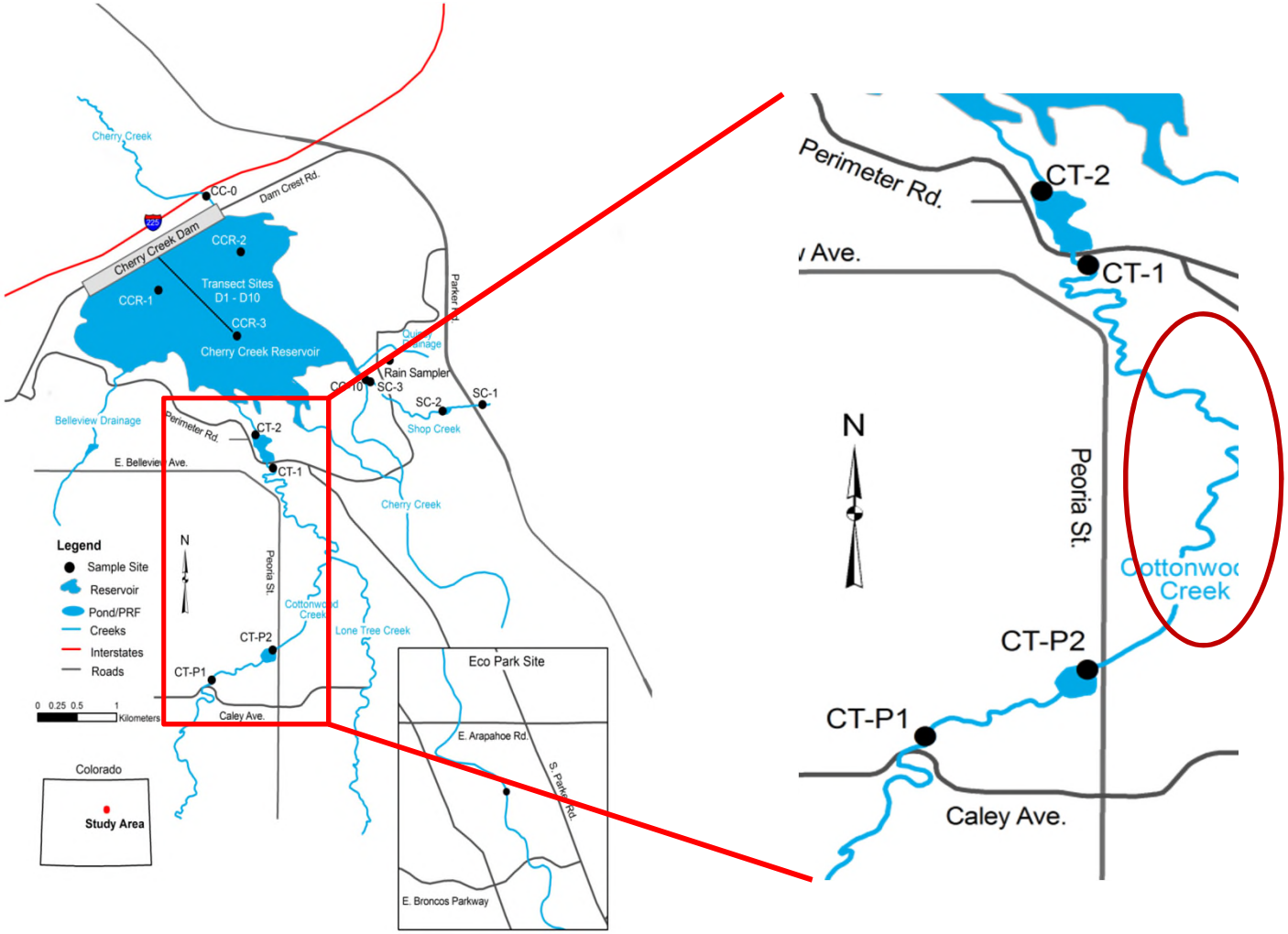
Cherry Creek Watershed



Reservoir and Stream Sampling Sites



Pollution Reduction Facilities



Current Monitoring Program

- **Reservoir monitoring monthly (including winter) and bi-monthly from May through September**
  - **Photic zone nutrients at all sites and nutrient profile at one site; chl a, phyto, zoops, temp, DO, pH, cond, ORP**
  - **Continuous temperature profile**
- **Baseflow sampling monthly**
- **Stormflow sampling up to 2 events per month; April through September**
- **Watershed Sampling twice/year**

June 6, 2012 Storm Event

http://i.i.cbsi.com/cnwk.1d/i/tim/2012/06/07/120607-Western_storms-AP120607141948_620x350.jpg

World > North America > United States > New York > New York

AccuWeather.com for New York, NY GO

United States WEATHER | New York, NY LOCAL WEATHER | GALE WARNING | FEATURED MIGRAINE

Home | Radar & Maps | News & Video | Severe Weather | Climate

News | Videos | Blogs | Personalities

Severe Storms, Tornadoes Left Denver Ankle Deep in Hail Thursday

June 08, 2012; 6:07 PM

Share |

View as slideshow

Storify

Severe weather slammed Denver and Colorado Springs on Wednesday evening and night, spawning tornadoes and causing deep hail to pile up. A total of seven tornadoes were reported along the Front Range of the Colorado Rockies.

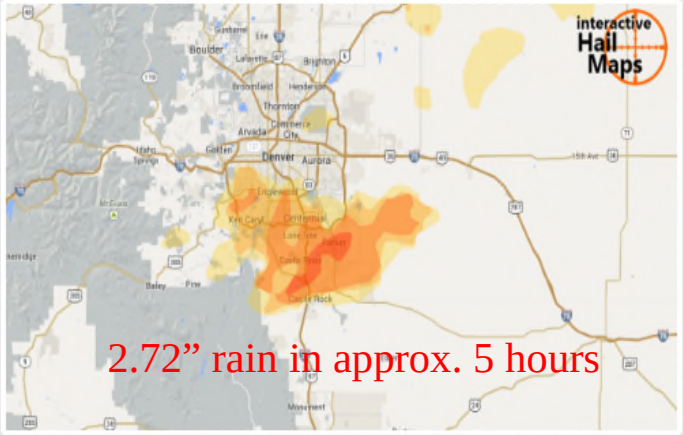
A weak tornado touched down north of the Denver International Airport during the evening. Many other unconfirmed tornadoes touched down south and east of the city.

http://www.accuweather.com/en/weather-news/denver-ankle-deep-in-hail-afte/66237

Map of Hail Storm Denver, Colorado June 6, 2012

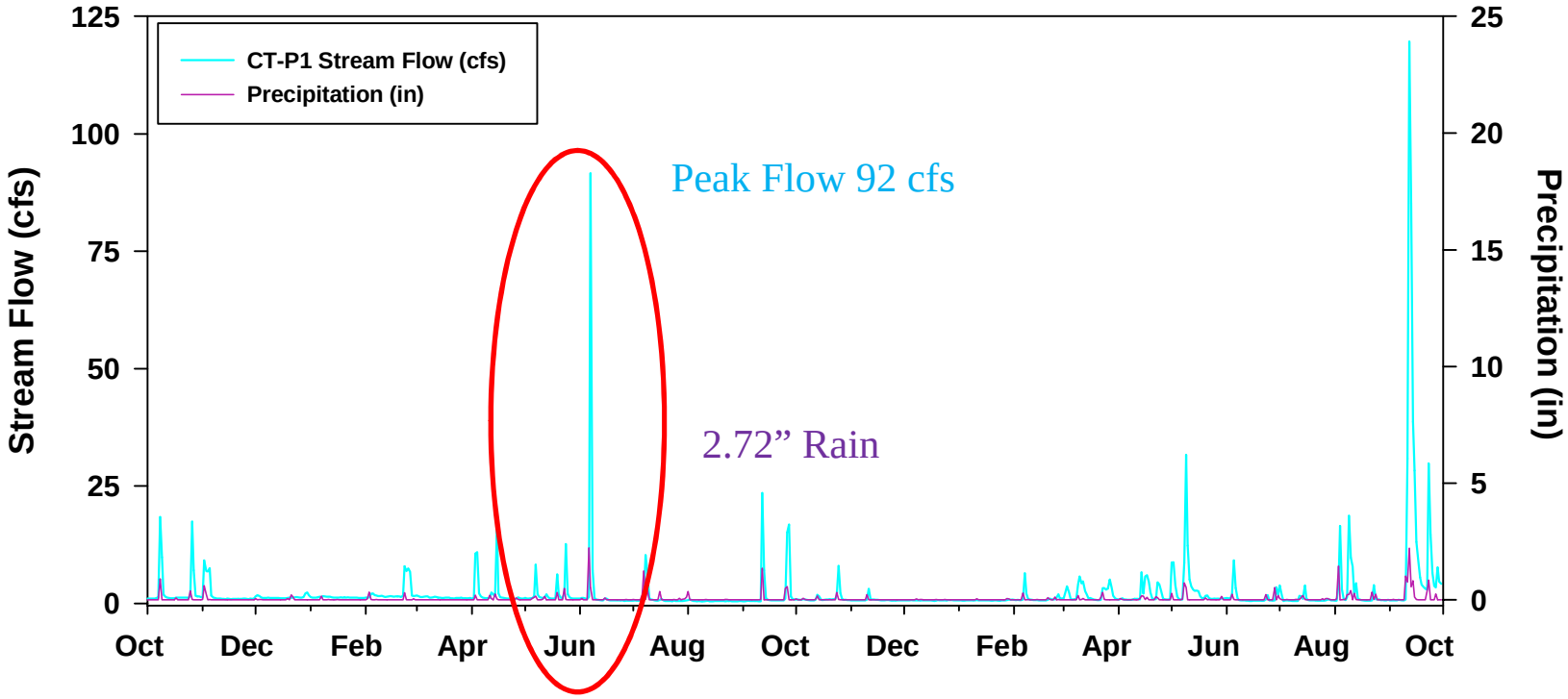
0

Posted by admin - June 24, 2012 - Hail Maps

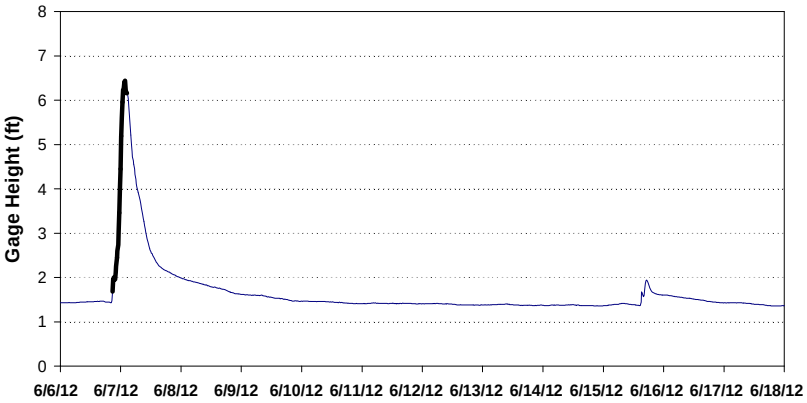


http://www.interactivehailmaps.com/map-of-hail-storm-denver-colorado-june-6-2012/

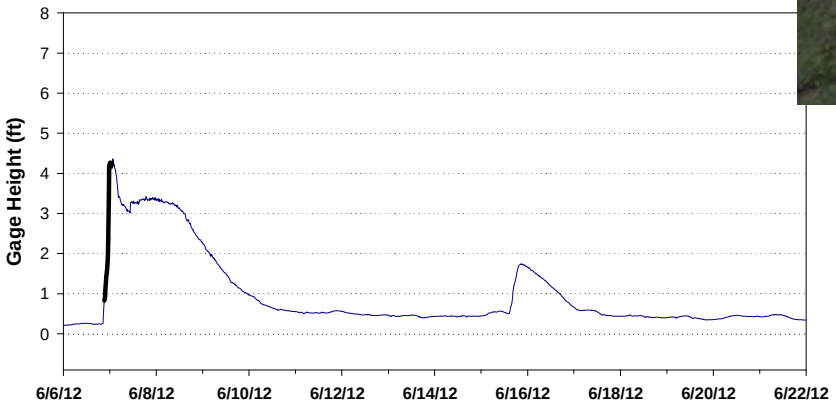
June 6, 2012
Cottonwood Creek CT-P1



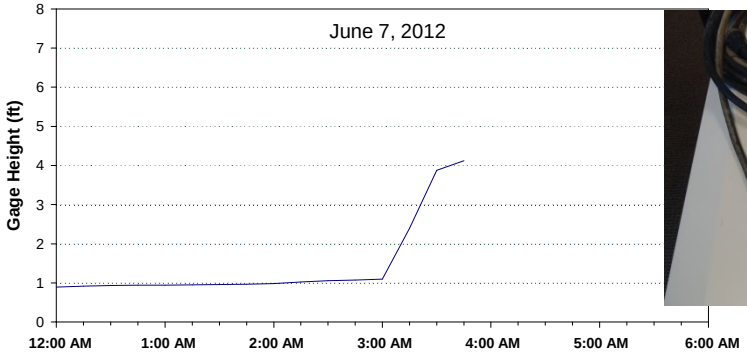
June 6, 2012
Cottonwood Creek CT-P1



June 6, 2012
Cottonwood Creek CT-P2

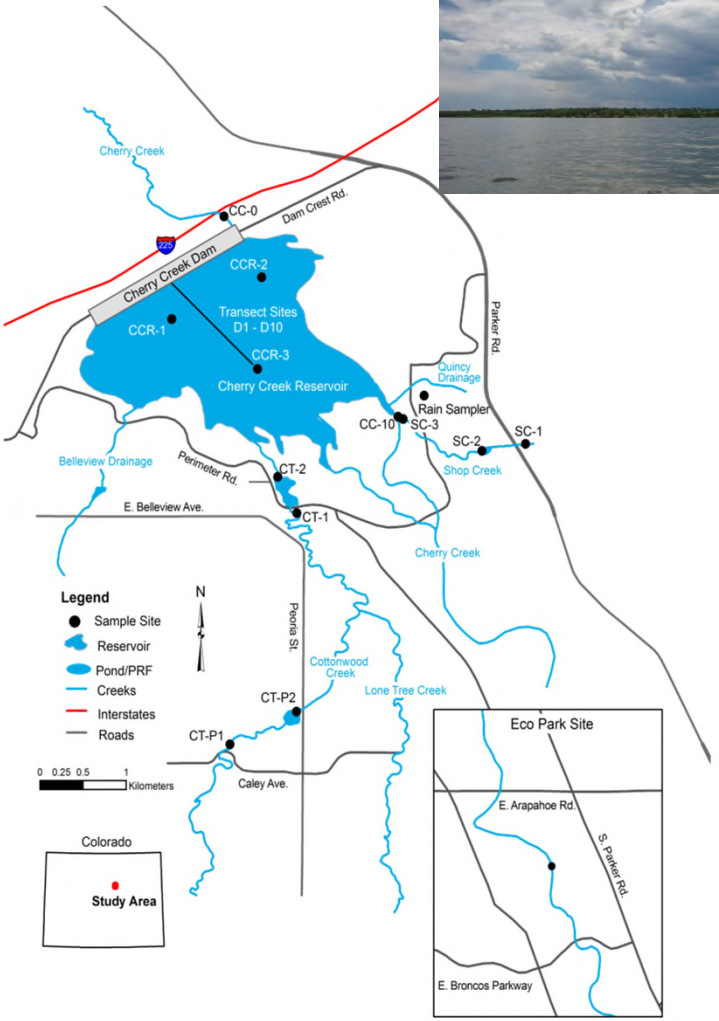


June 6, 2012
Cottonwood Creek CT-1

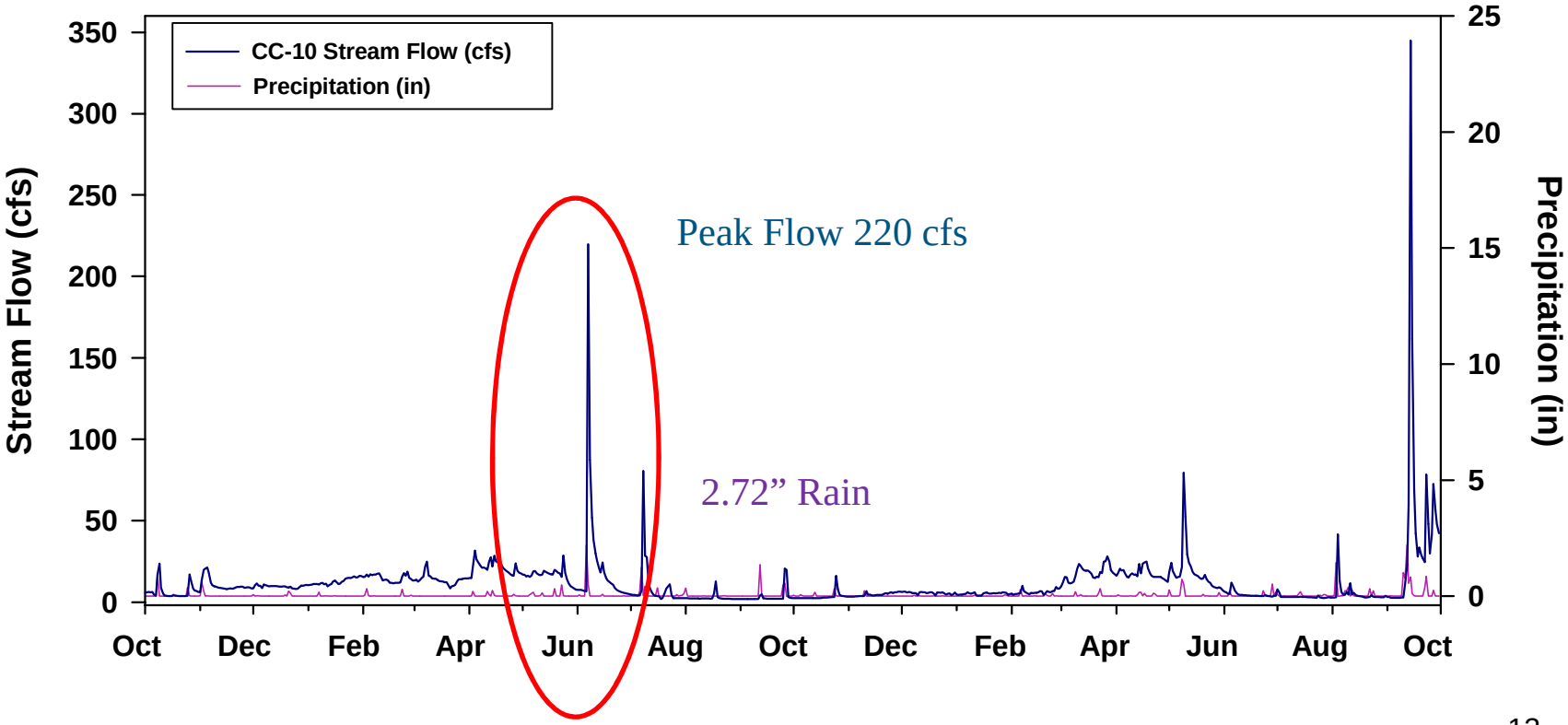


June 6, 2012
Cottonwood Creek CT-2

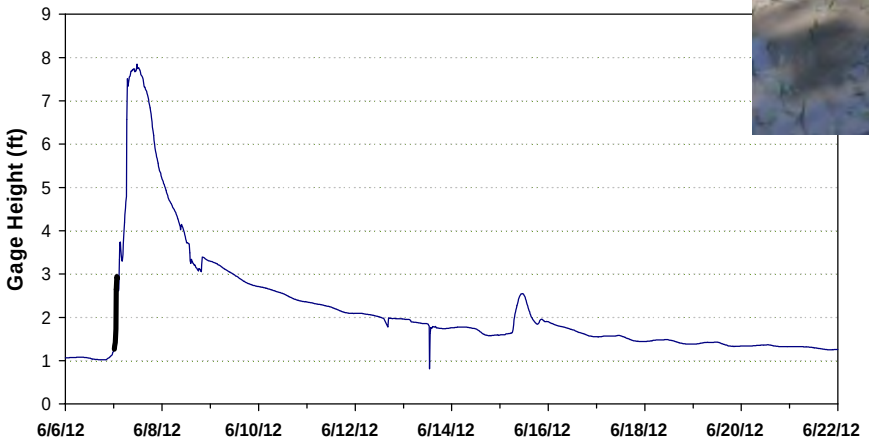
Reservoir and Stream Sampling Sites

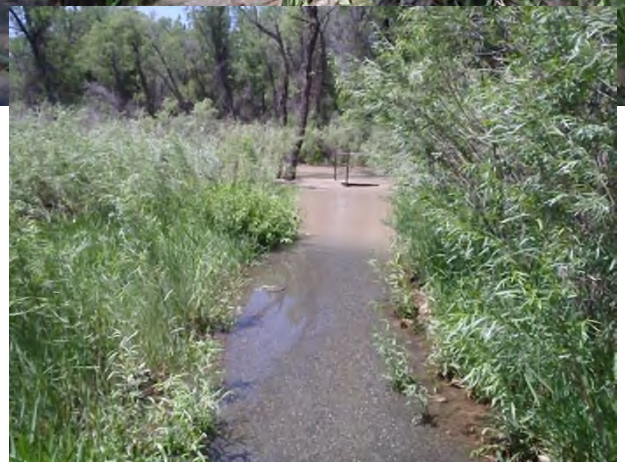


June 6, 2012
Cherry Creek CC-10



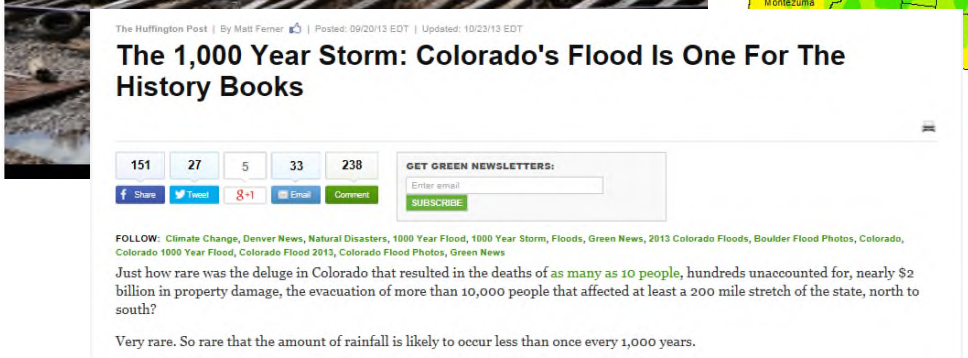
June 6, 2012
Cherry Creek CC-10



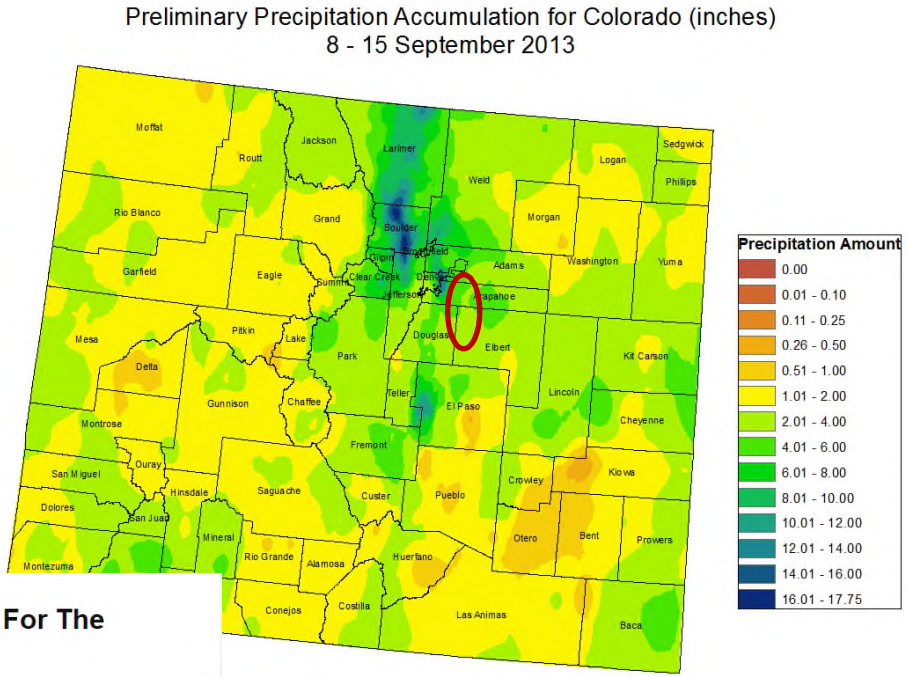


September 2013

http://www.cnn.com/2013/09/12/us/flooding-colorado/



http://www.huffingtonpost.com/2013/09/20/1000-year-storm_n_3956897.html

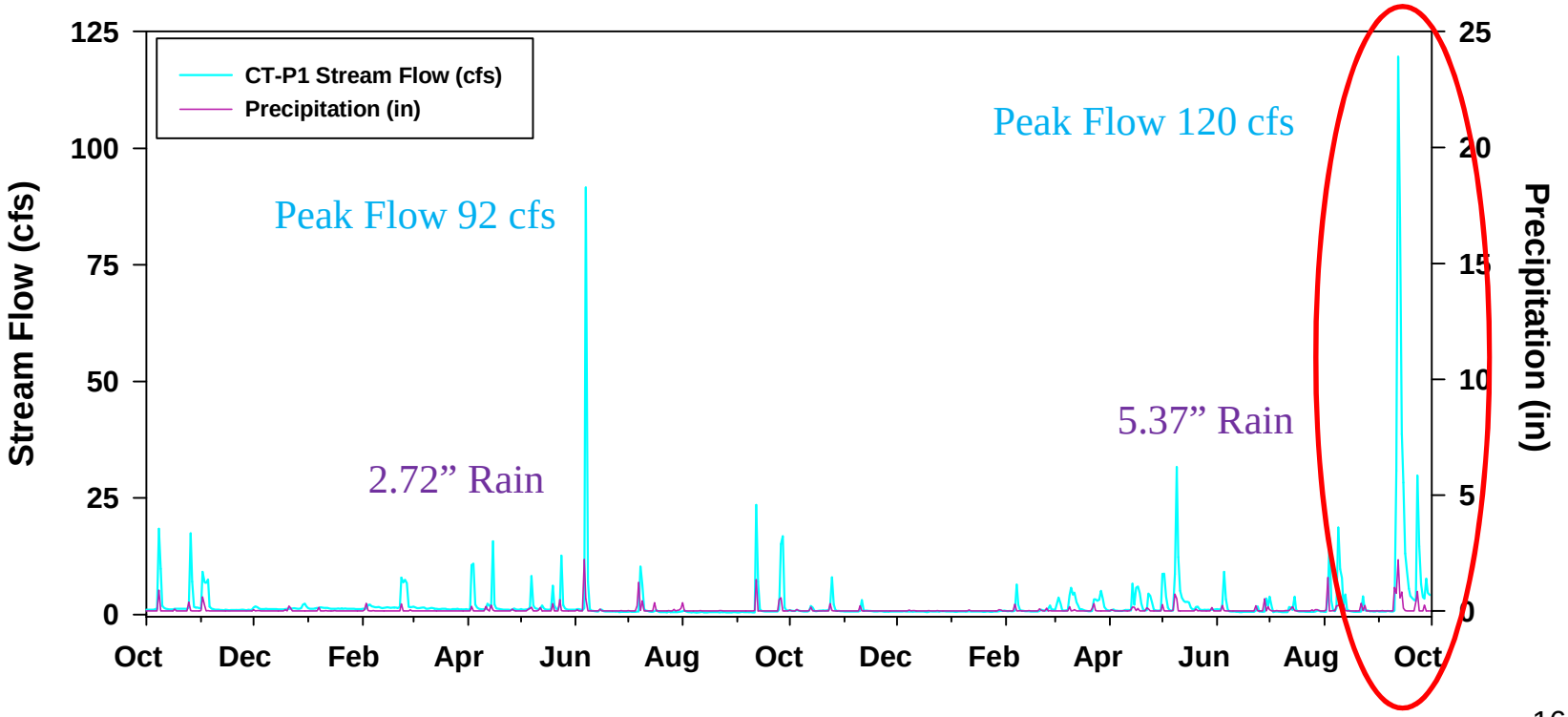


http://coflood2013.colostate.edu/images/CO_08_15Sep2013_Web.png

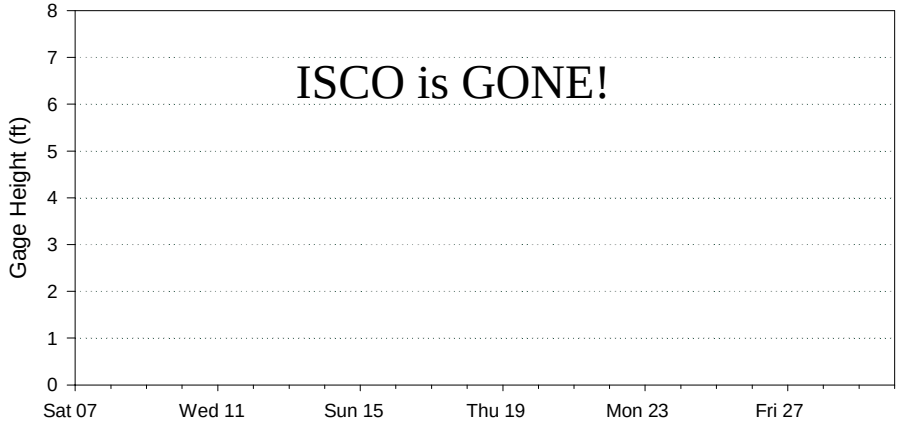
5.37” rain in approx. 5 days

Boulder area saw closer to 16” rain in same timeframe

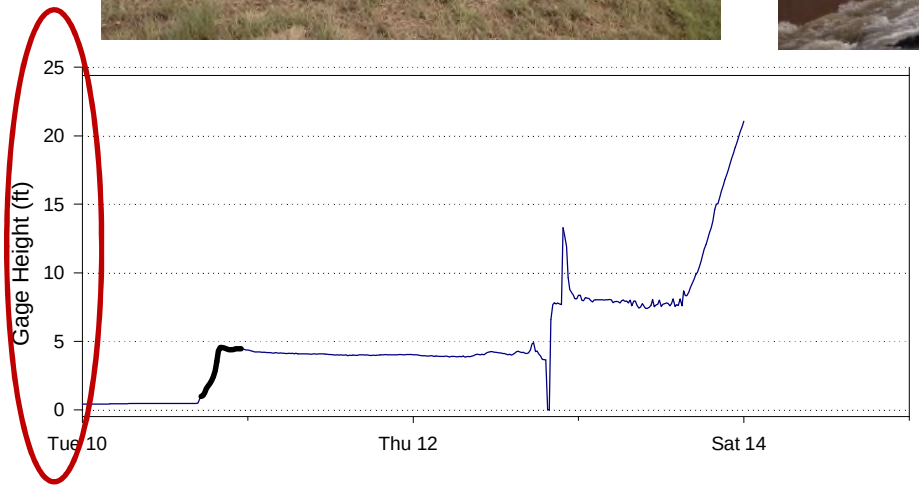
September 2013
Cottonwood Creek CT-P1



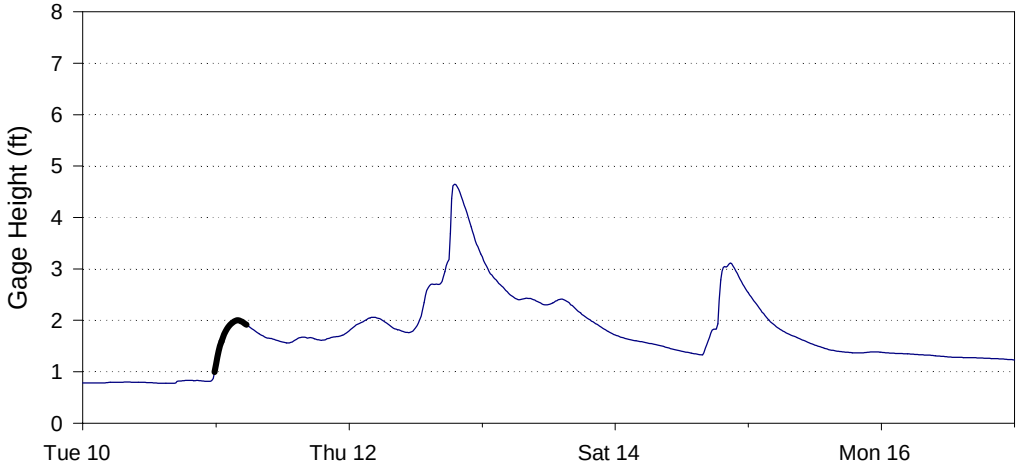
September 2013
Cottonwood Creek CT-P1



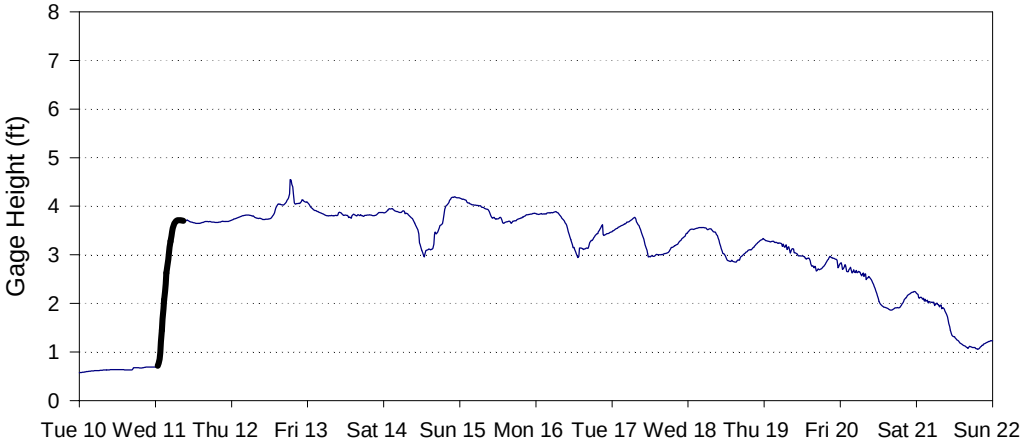
September 2013
Cottonwood Creek CT-P2



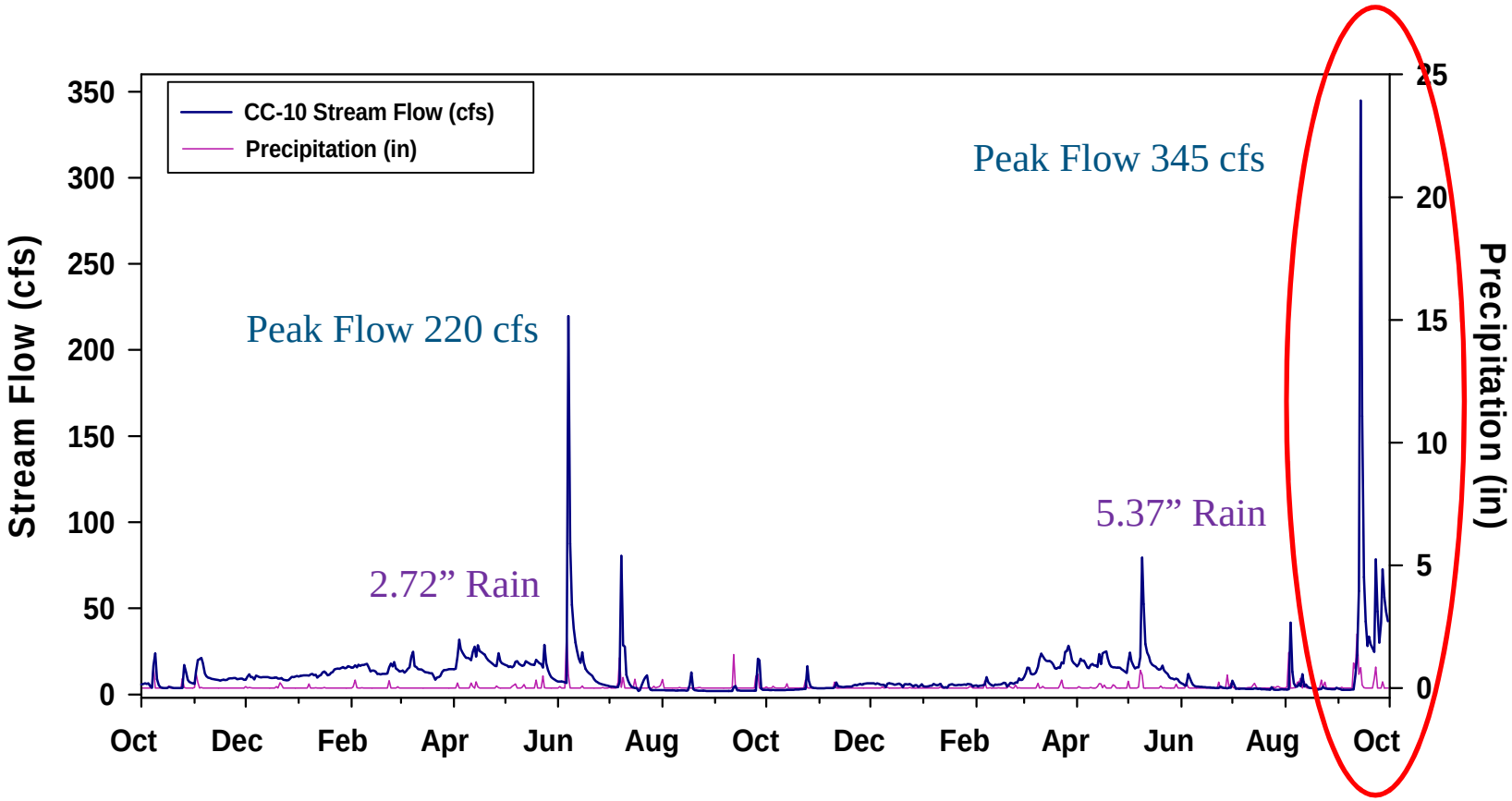
September 2013
Cottonwood Creek CT-1



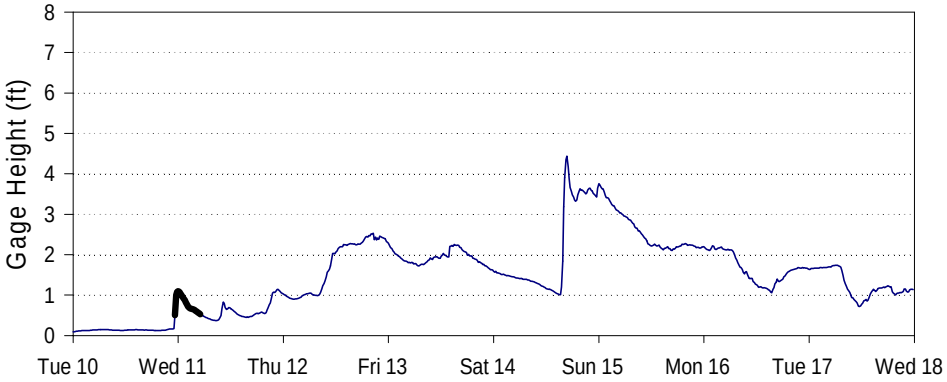
September 2013
Cottonwood Creek CT-2



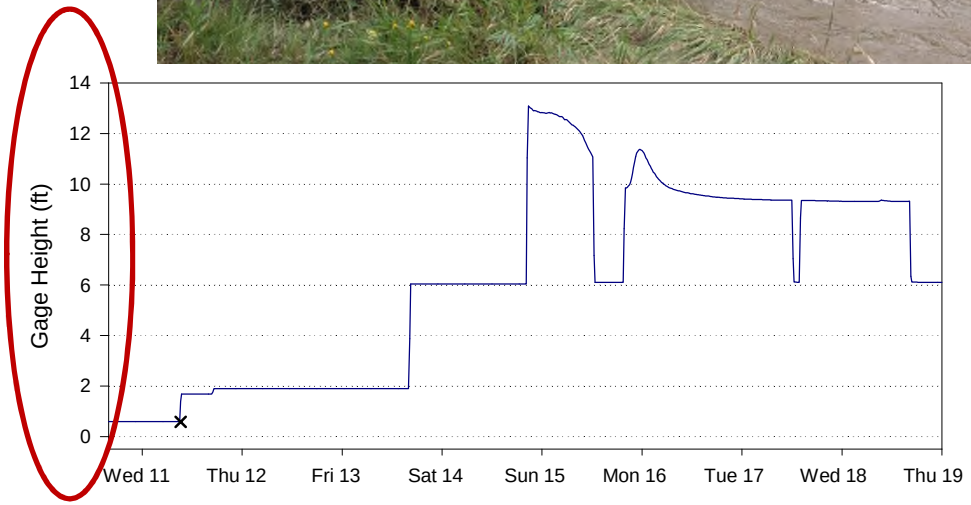
September 2013
Cherry Creek CC-10



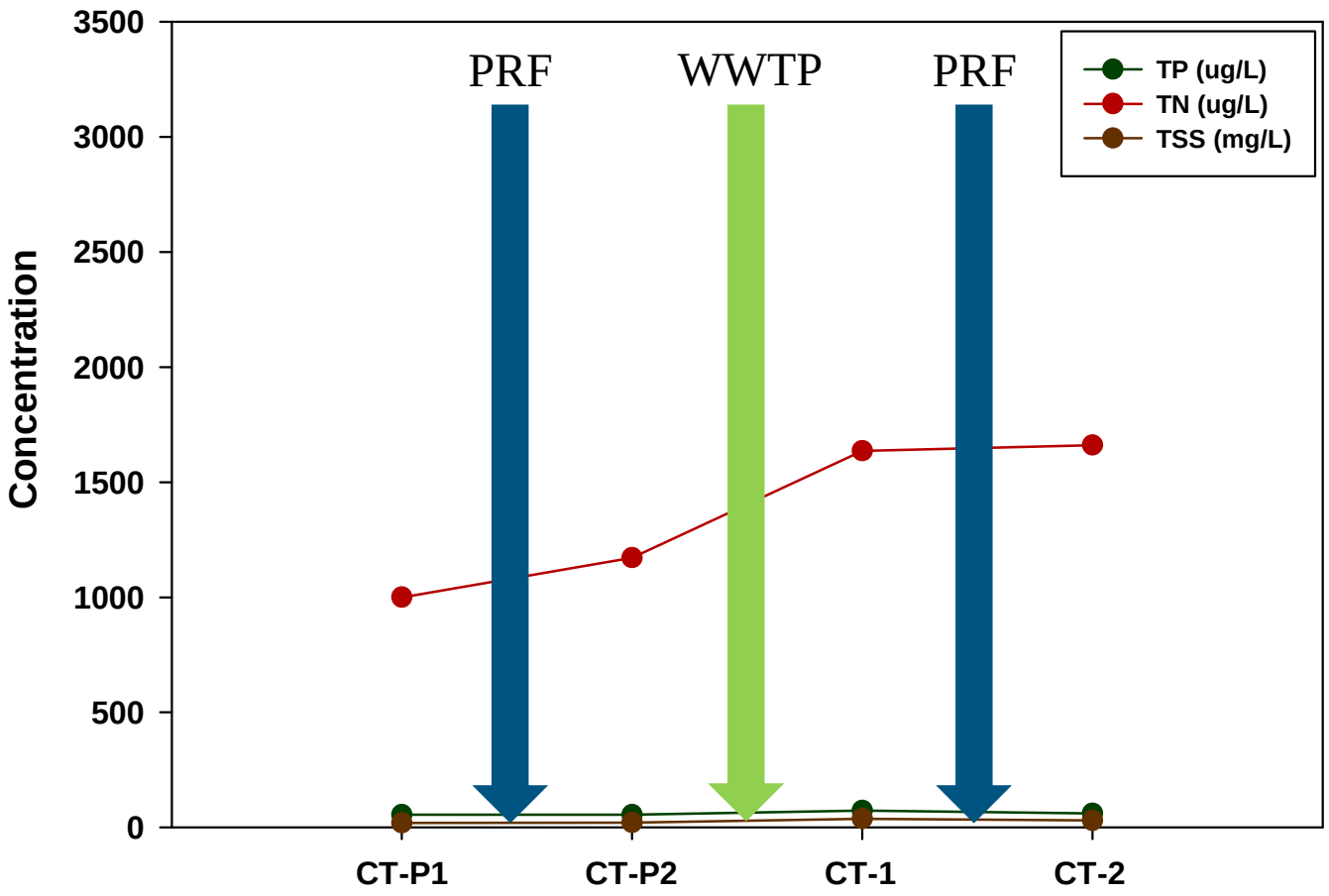
September 2013
Cherry Creek Ecopark



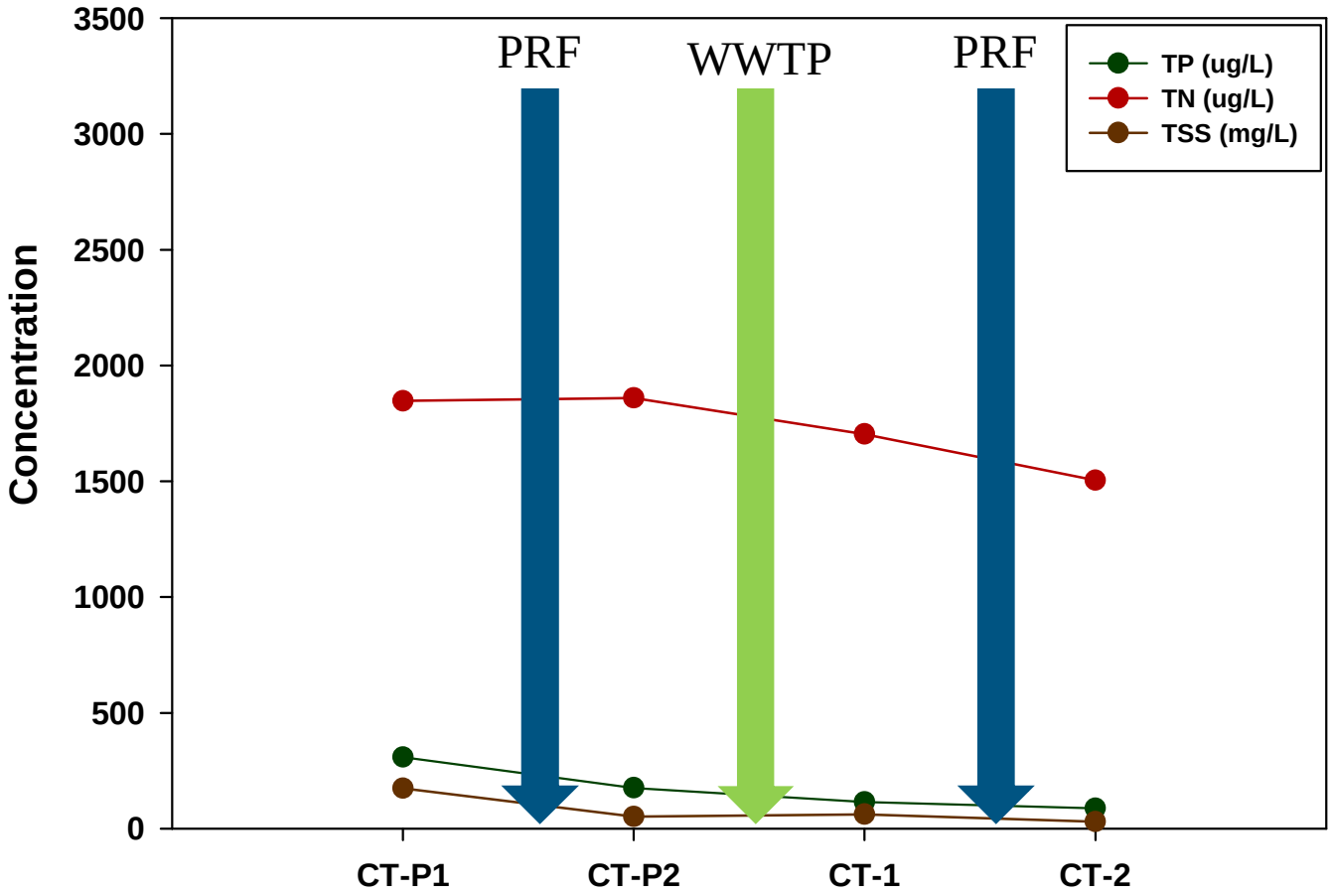
September 2013
Cherry Creek CC-10



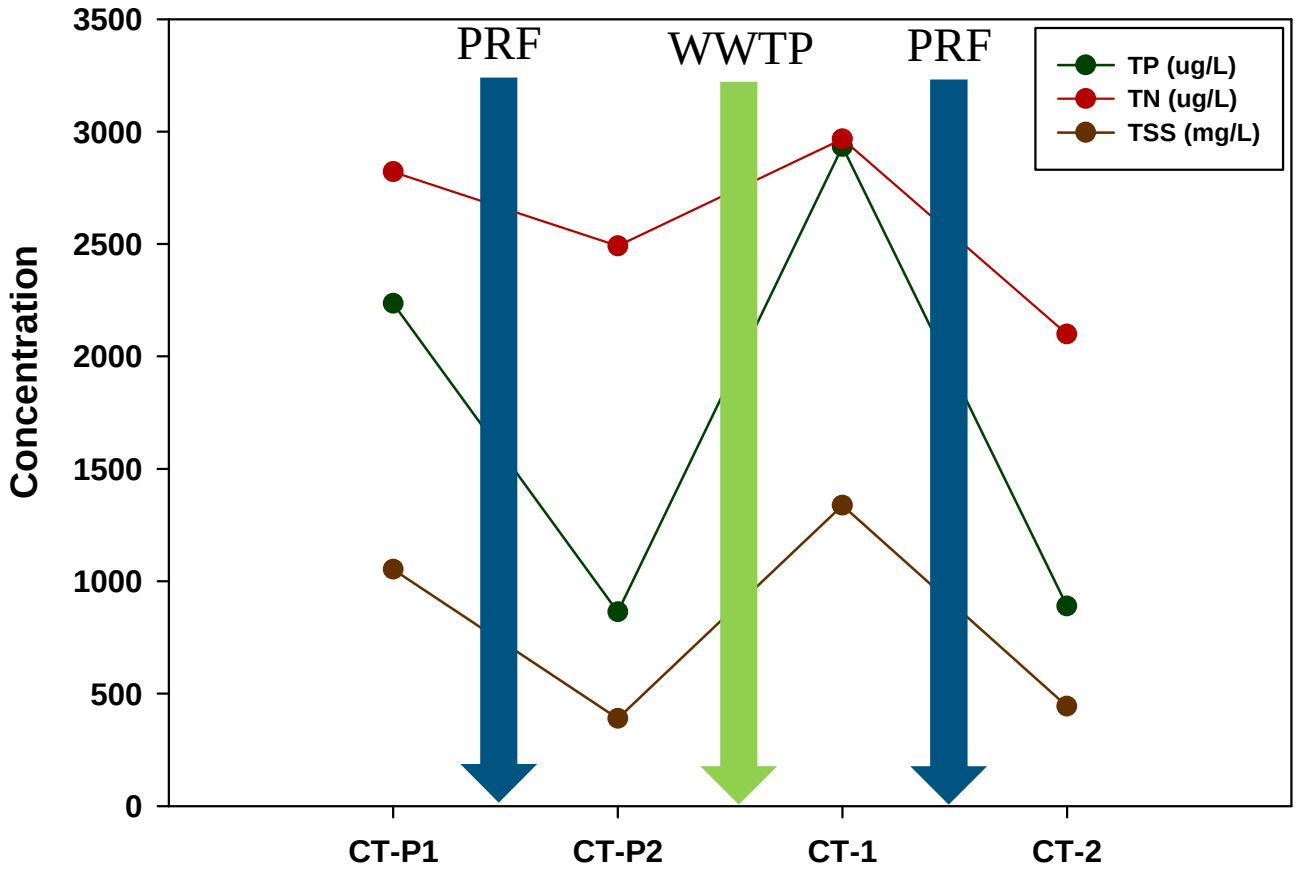
PRF Efficiency
Baseflow Conditions



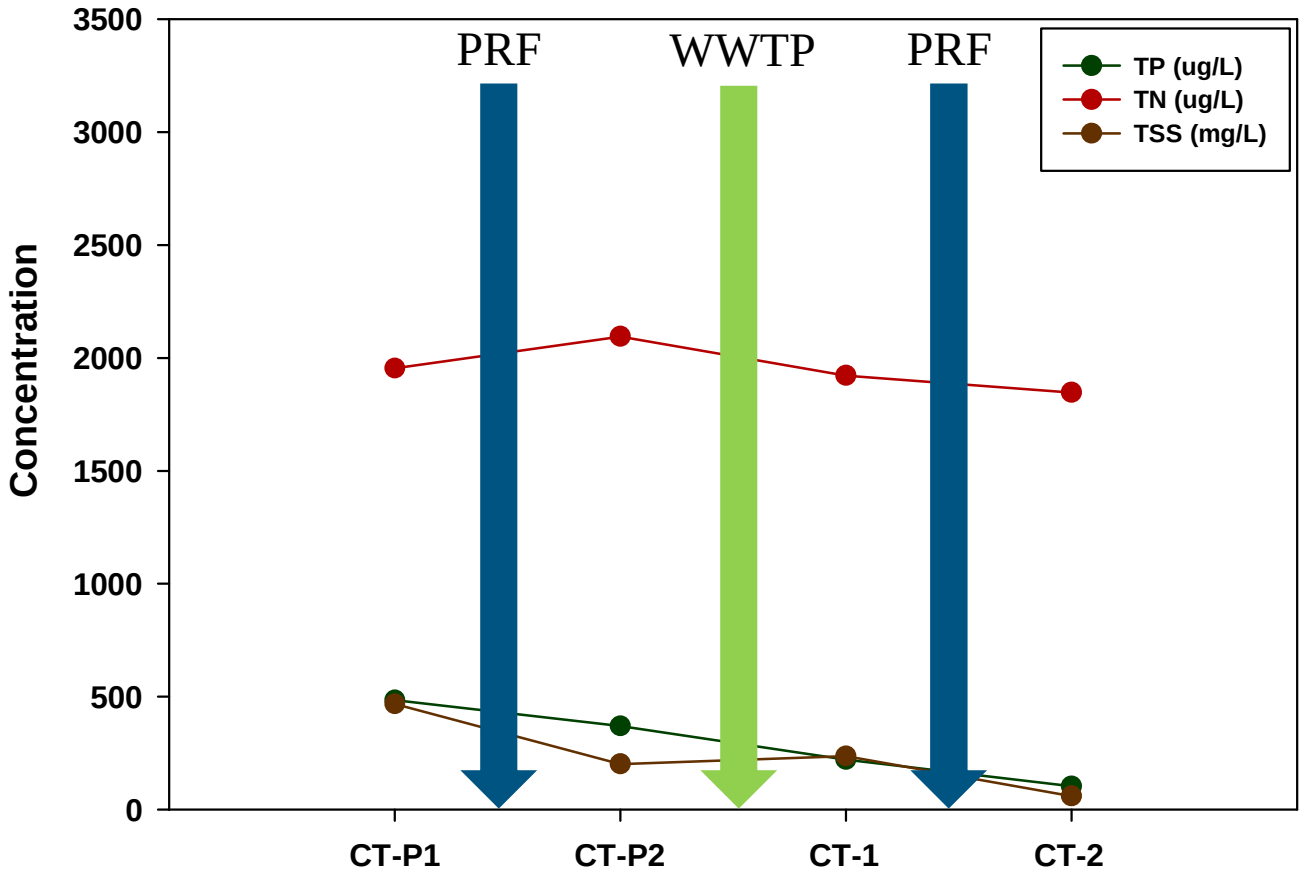
PRF Efficiency
"Typical" Stormflow Conditions



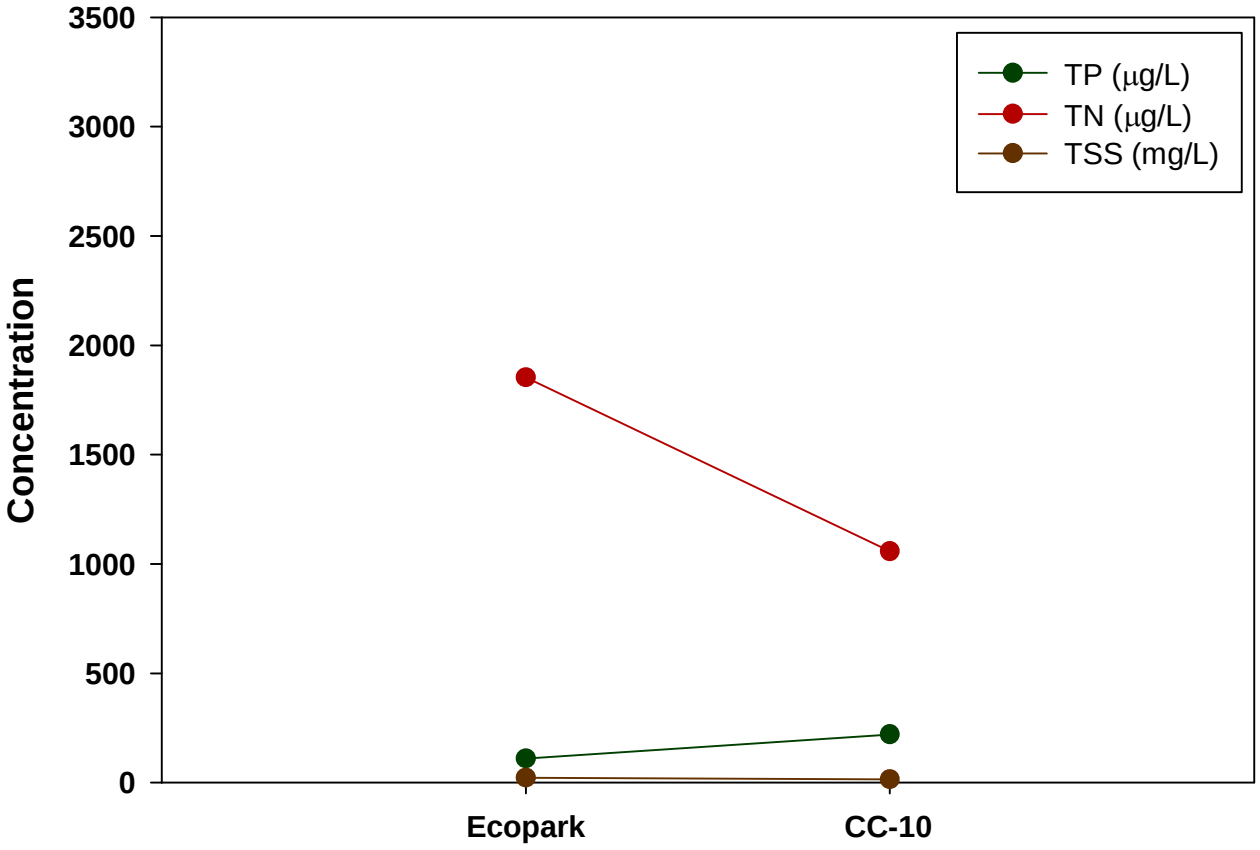
PRF Efficiency
June 2012 Storm Event



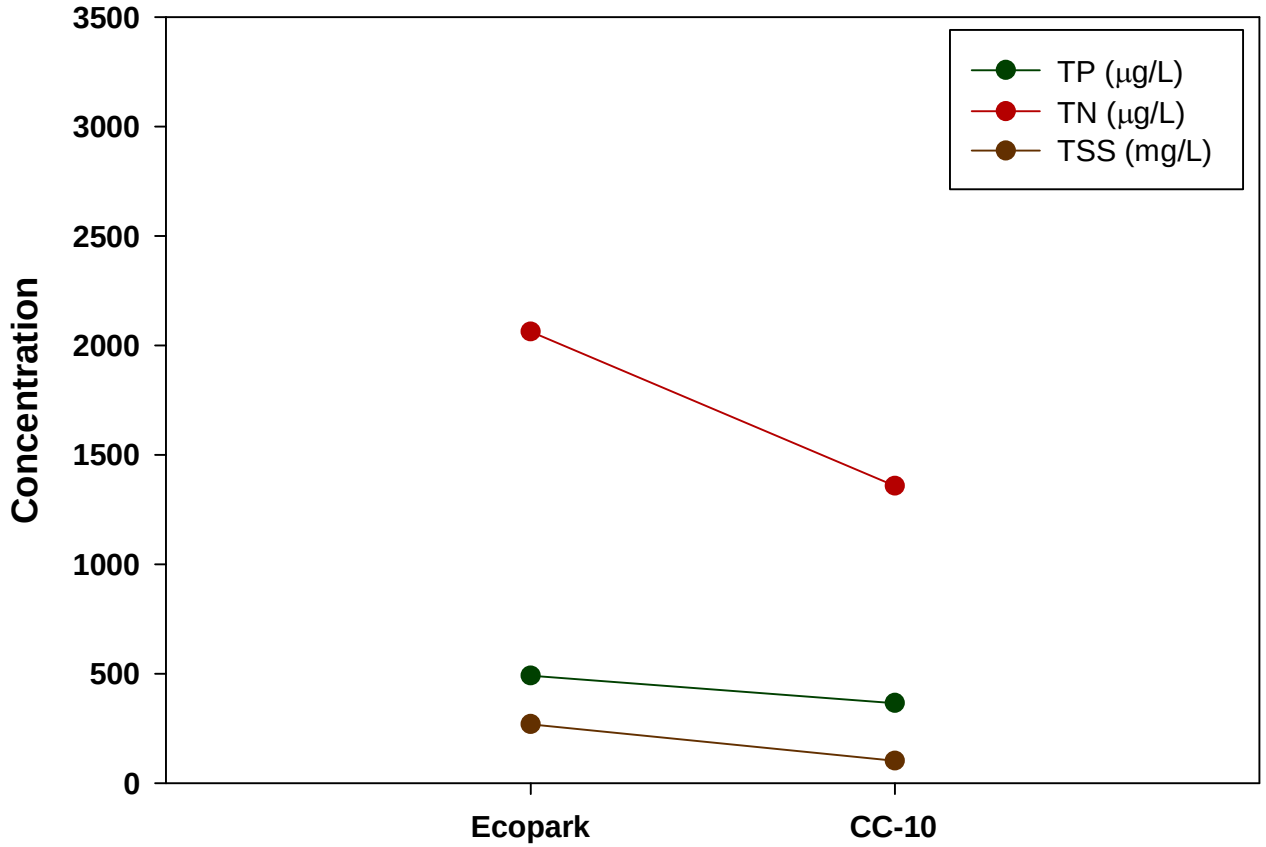
PRF Efficiency
September 2013 Storm Event



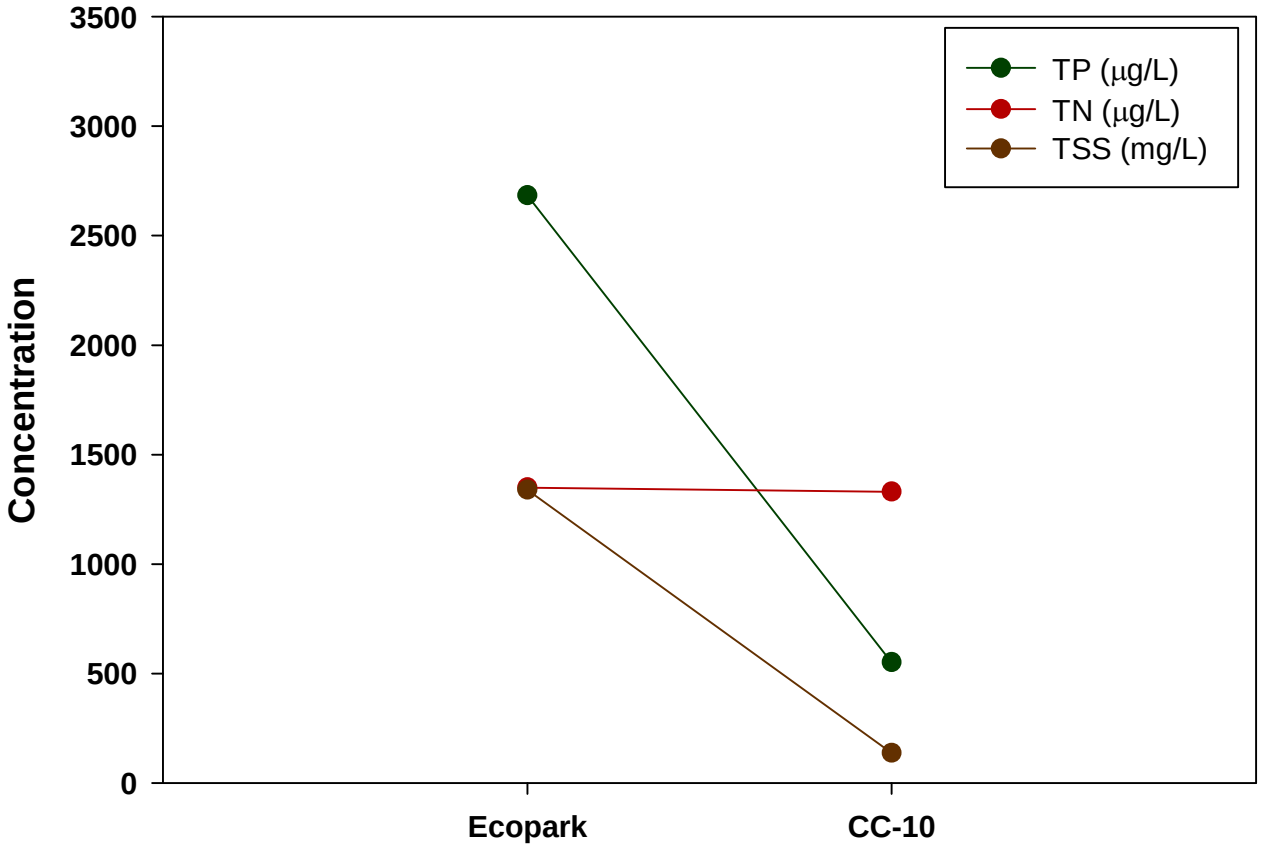
Cherry Creek Monitoring Baseflow Conditions



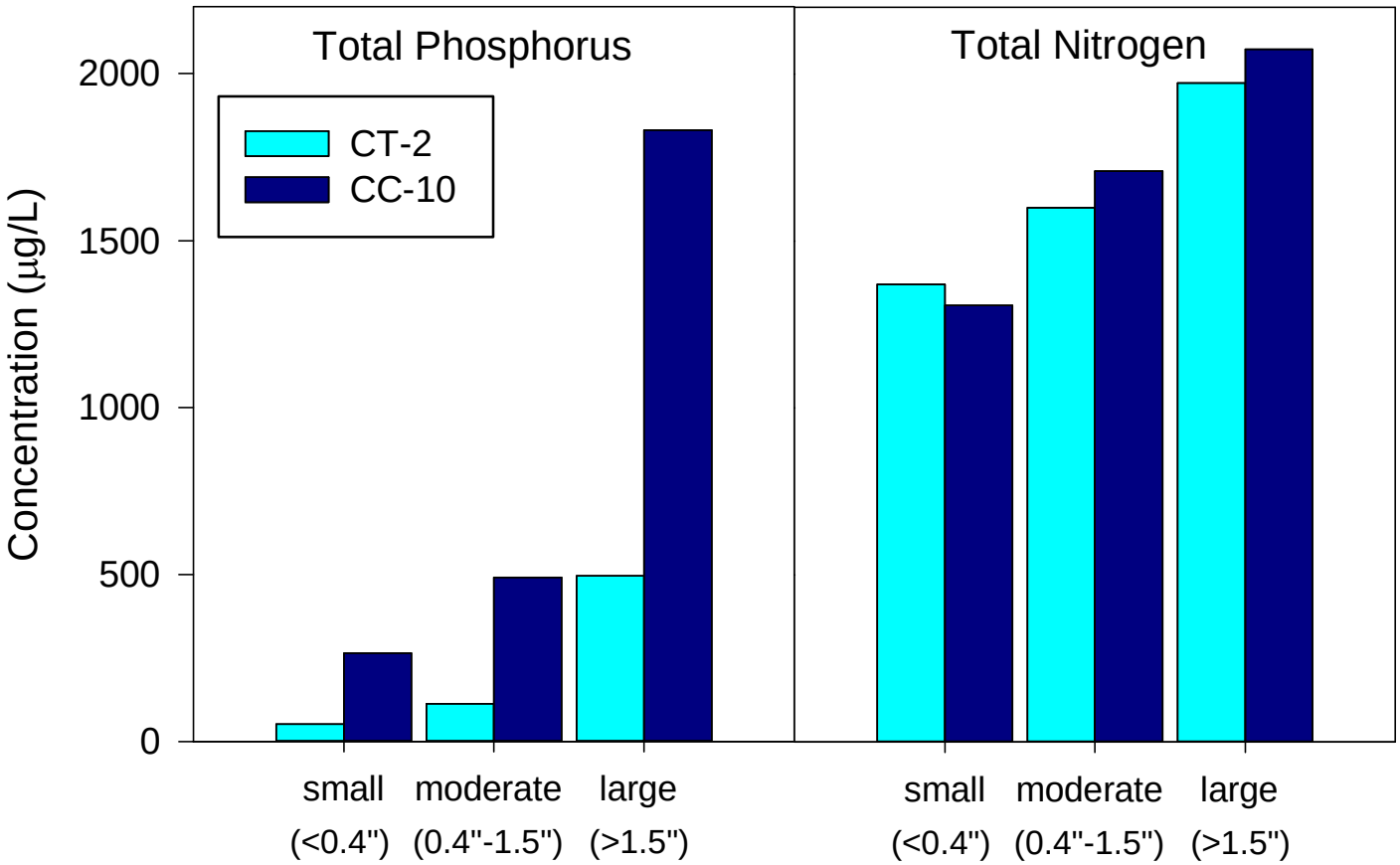
Cherry Creek Monitoring
"Typical" Stormflow Conditions



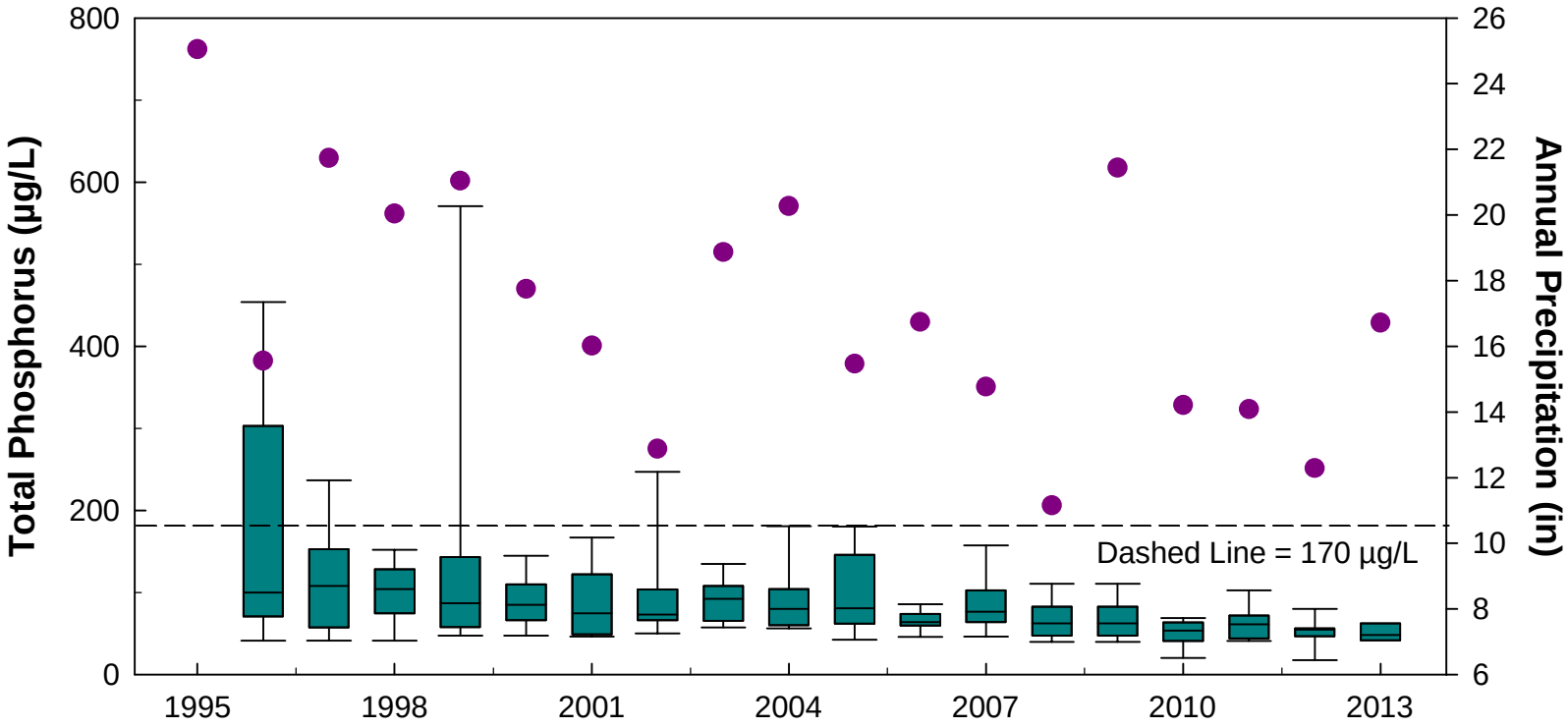
Cherry Creek Monitoring September 2013 Storm Event



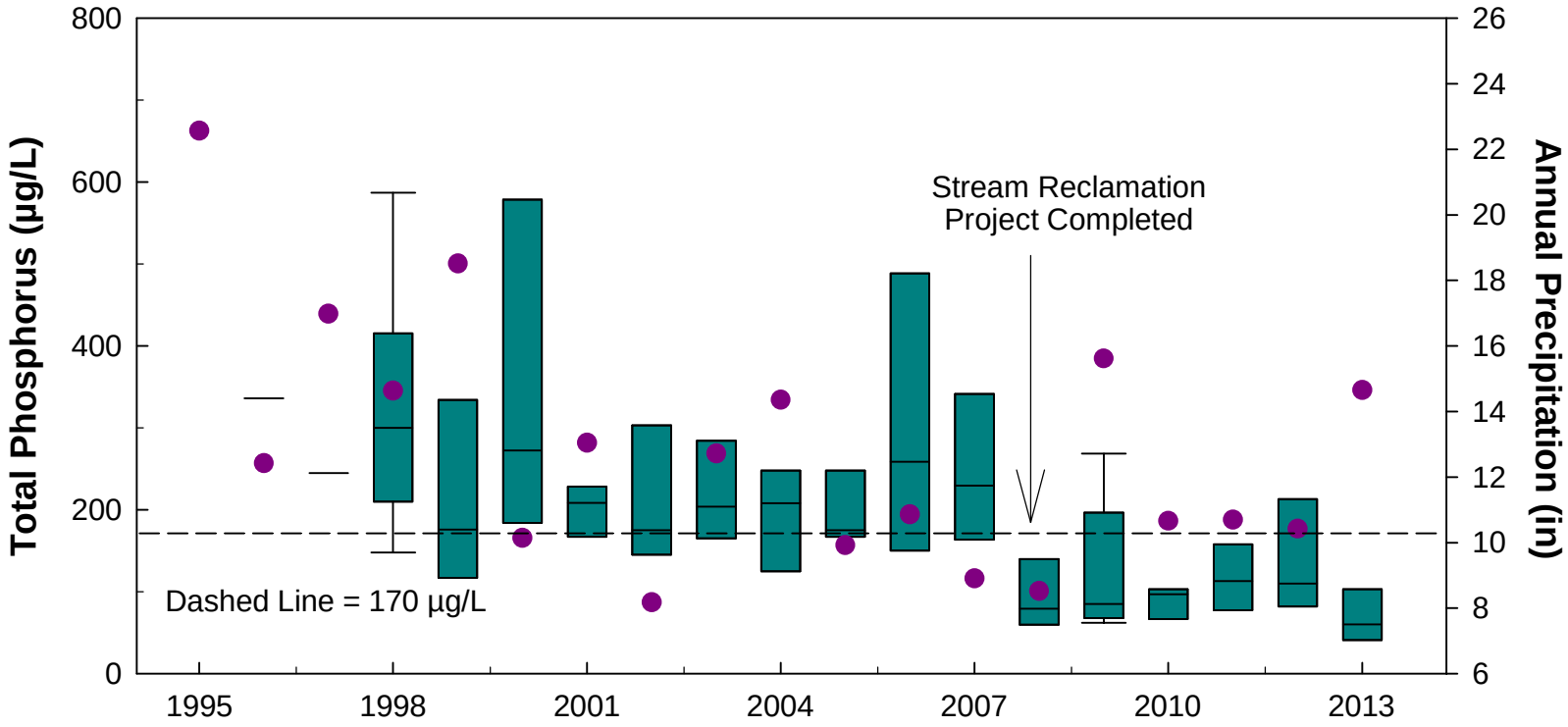
Nutrient Concentration Based on Storm Magnitude



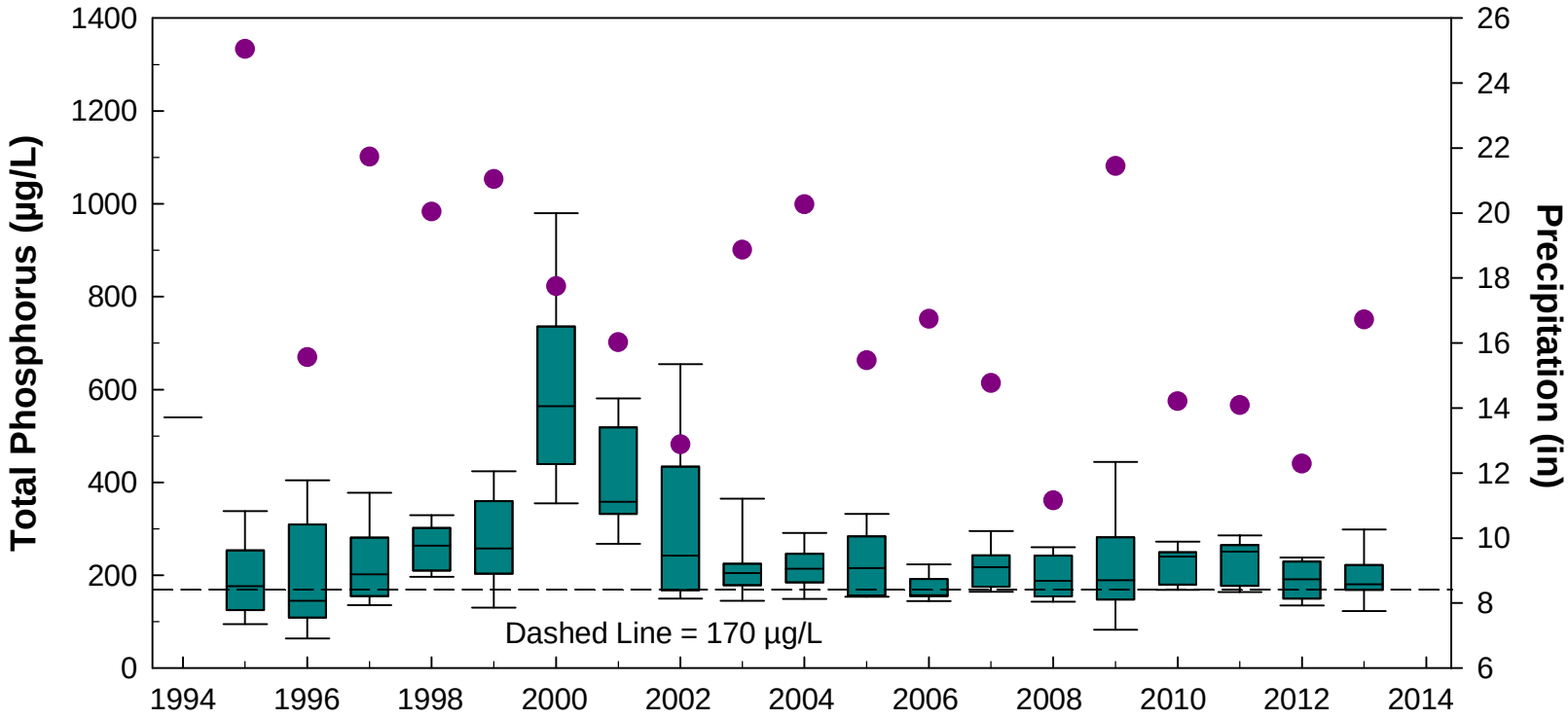
Historical Phosphorus Baseflow CT-2



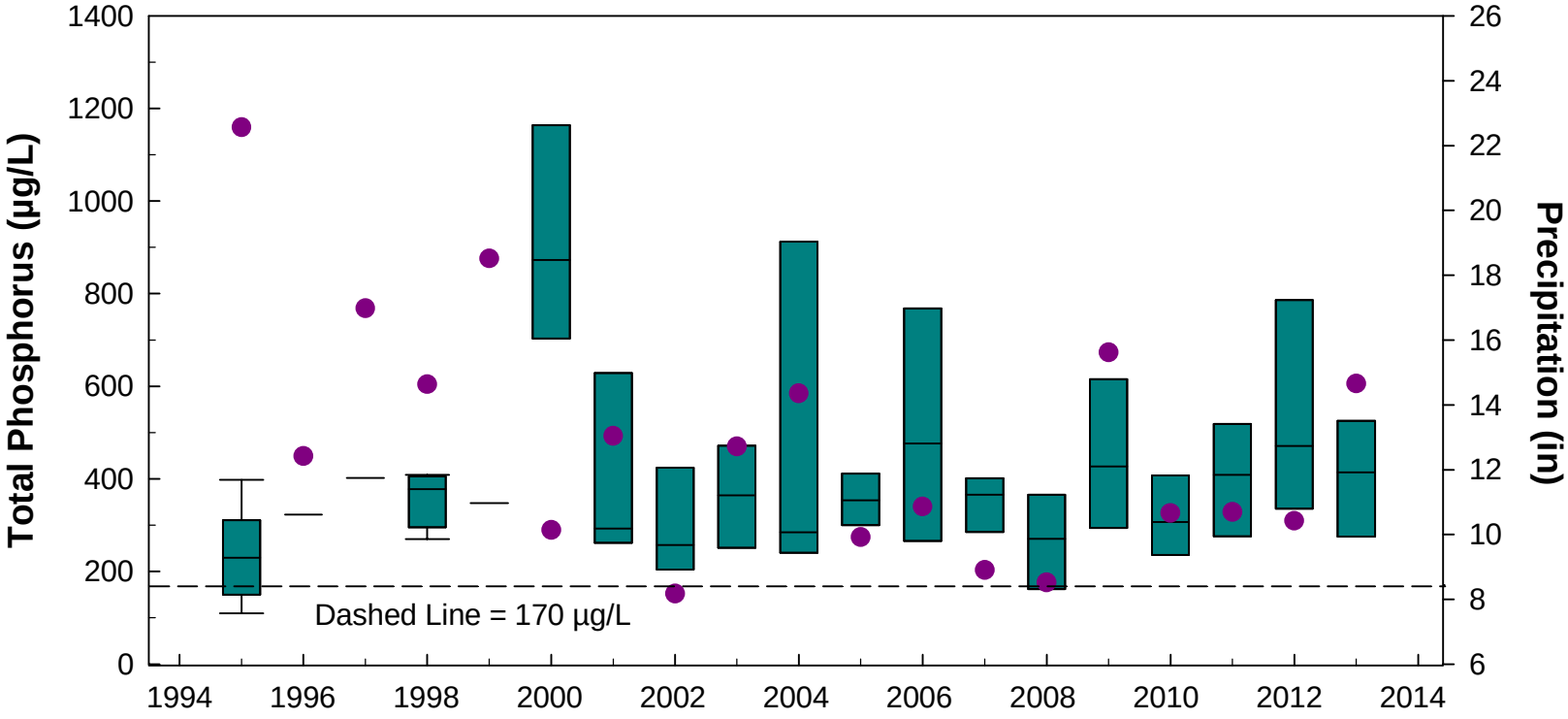
Historical Phosphorus Storm CT-2



Historical Phosphorus Baseflow CC-10



Historical Phosphorus Storm CC-10



Conclusions

- **Nothing too surprising…nutrient concentrations followed typical patterns based on size of storm event**
- **Overall PRF efficiency was good, even during large storm events**
- **Difference in nutrient concentrations between the two sites may be natural, but PRFs may also play a part**

Acknowledgements

- **Cherry Creek Basin Water Quality Authority**

Thank You!!

Natalie Love
(303) 264-1070
nlove@geiconsultants.com