Urban Runoff Pollution Constituents in Salt Lake County

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Goals

- Determine what constituents are found in Salt Lake County urban runoff
- Determine constituent load changes from previous studies & public report records
- Quantify load averages of constituents within collected runoff samples

Figure 1. A storm drain in the Millcreek area of Salt Lake City.

Research Methodology

- Compare current loads to loads reported in previous studies & public report records
- Collect samples from Salt Lake County street sweepers & drain sumps
- Analyze & average constituent loads within the runoff samples

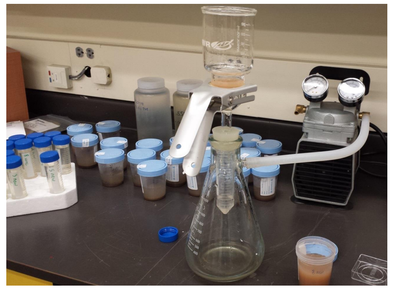


Figure 2. Filtering samples to analyze dissolved constituents.

Figure 3. Analyzing samples for dissolved constituents.

Impact

- Many different pollutants are flushed back into our water system through stormwater runoff.
- If we can identify & quantify the different pollutants within the stormwater runoff, we can begin researching ways to best filter them out of our water system through bioretention.

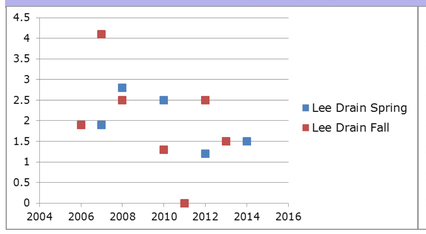
Figure 4. A bioretention cell at the Biology Growth Site on the University of Utah campus.

Results

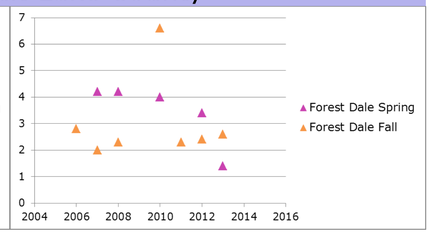
- Total Nitrogen & Total Phosphorus are two constituents in Salt Lake County urban runoff that are of most concern.
- An excess of Total Phosphorus & Total Nitrogen can contribute to a loss of dissolved oxygen in the waterways, which can become a threat to downstream wildlife, such as fish.

*Graphs 1-6 are all composed of composite samples unless otherwise stated. Data collected from Sampling Data Master report, obtained from the Salt Lake County Public Records Office.

Total Nitrogen (mg/L) Levels from Three Monitoring Facilities in Salt Lake County

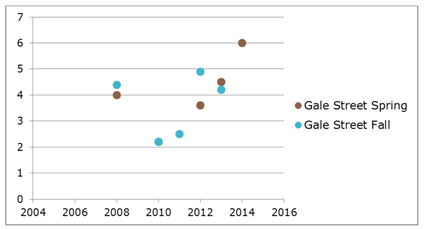


Graph 1. Total Nitrogen levels at the Lee Drain monitoring station in the industrialized part of west Salt Lake City.



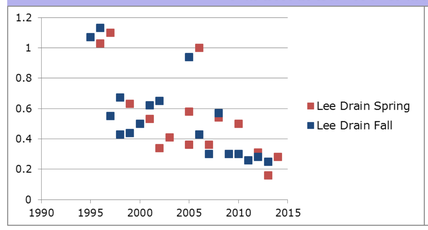
Graph 2. Total Nitrogen levels at the Forest Dale monitoring station, just south of Sugar House.

*Graphs 1-3. No composite sample for Fall 2010, grab sample instead. No samples available for Spring 2006, all of 2009, Spring 2011, Fall 2014, & no Spring 2014 for Forest Dale.

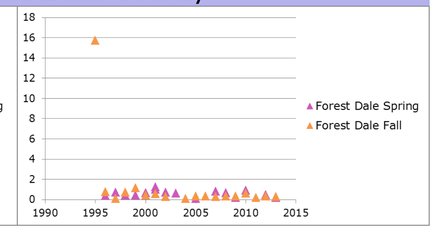


Graph 3. Total Nitrogen levels at the Gale Street monitoring station, one street west of 300 W on 900 S in Salt Lake City.

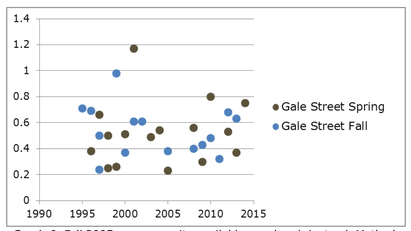
Total Phosphorus (mg/L) Levels from Three Monitoring Facilities in Salt Lake County



Graph 4. Holding time exceeded Fall 2000 & Spring 2001. Spring 2000 under detectible range & so not included. No composite available for Spring 2009 & Fall 2010, used grab sample instead. Method EPA 365.3 used between Fall 1995 & Spring 2006. Method SM 4500 PBS used Fall 2006 - Fall 2008. Method SM 4500 BE used Spring & Fall 2009 & Fall 2011. Method SM 4500 PBE used Spring & Fall 2010, & Spring 2012 - Spring 2014.



Graph 5. Spring 2001, holding time exceeded. Method EPA 365.3 used Fall 1995 - Fall 2005. Method SM 4500 PBS used Fall 2006 - Fall 2008. Method SM 4500 BE used Spring & Fall 2009. Method SM 4500 PBE used Spring & Fall 2010. Method SM 4500 PB5E used Fall 2011 - Fall 2013.



Graph 6. Fall 2005, no composite available, used grab instead. Method EPA 365.3 used Fall 1995 - Fall 2005. Method SM 4500 PB5 used Spring 2008 - Spring 2014.

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