Quantifying Pollutant Loading of Urban Stormwater on the Jordan River

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Total Maximum Daily Load Study

The 2012 TMDL completed by the Utah DEQ found that dissolved oxygen levels (DOC) throughout the lower Jordan River are below those necessary for their established beneficial use classifications. In response, the Utah Water Research Laboratory is now investigating the pollutant loading of stormwater to the river and its impact. With this information, it will be possible to implement mitigation techniques to begin restoring natural dissolved oxygen levels.

Goals

→Program Teledyne auto-sampler to capture water during rain storm events

→Determine relationship between fluorescent dissolved organic matter (fDOM) measurements and DOC

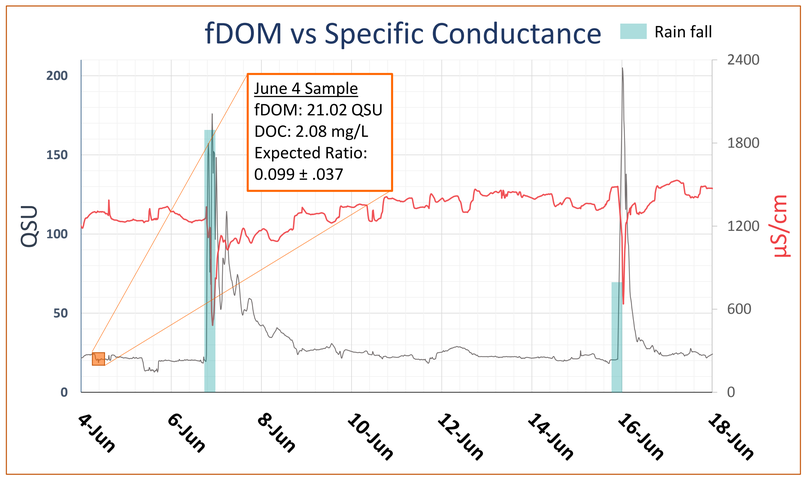
→Analyze storm samples in laboratory

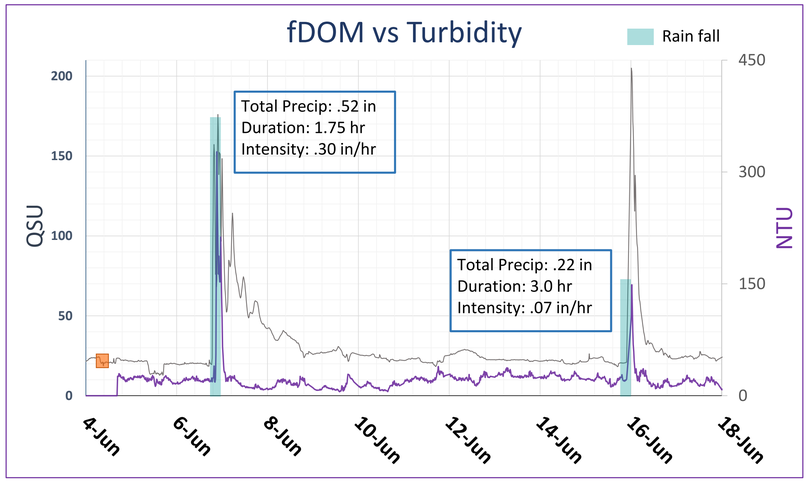
→ Use storm event data to quantify storm channel pollutant loading

Teledyne Isco Autosampler

Jordan River and storm drain at 1300 S Salt Lake City

Results





Methods

→ Access and analyze iUTAH GAMUT station data from 1300 S stormwater drain site

→ Graphically compare data to identify overlaps representing future storm events

→ Program autosampler to recognize and collect samples during storm events

→ Analyze storm samples in the laboratory to obtain DOC, Biochemical Oxygen Demand (BOD), metals and nutrient data

→ Compare lab results with GAMUT station data to identify fDOM relationship to BOD and DOC.

Conclusions

→ Auto-sampler can be programmed to actuate when specific conductance, turbidity and fDOM sensors at site respond to a storm event.

→ Depending on further analysis, fDOM sensor may be able to provide continuous data on BOD and DOC in the stormwater.

→ Eventually these data can be used to determine total pollutant loading due to stormwater to the Jordan River, and direct future remediation approaches.

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