Highlights from RMS Meeting

October 29, 2008

Loudoun Water's Broad Run Water Reclamation Facility

Presented by

Tom Broderick, Chair RMS

Loudoun Water

Overview of Meeting

I. Stormwater BMP Study-Fairfax County

II. Stormwater BMP Study-Montgomery Co.

III. Monitoring Updates from Around the Region

IV. Tour of Broad Run

I. Stormwater BMP Study Fairfax County—Summary of presentations by Shannon Curtis (Fairfax) and John Jastram (USGS)

- Fairfax County has partnered with USGS on a stormwater BMP study.
- Goals of the study:
  - Long-term (5-10 year) watershed-scale analysis of BMP effectiveness, water quality trends, and streamflow. In the end, hoping to correlate BMPs and water quality improvement.
  - Comparison of intensive monitoring sites and trend (partial) monitoring stations, to see if they produce similar results. If the partial monitoring stations are accurate, they could be more easily (<$) replicated throughout the County (and Region...).

I. Stormwater BMP Study Fairfax County (cont)

- Fairfax County has been working to develop watershed management plans for the 30 watersheds in the county.
  - Plans establish stream conditions—Index of Biotic Integrity (IBI) site ratings; identify resource protection areas; and are intended to protect watershed ecology, prevent flooding, and engage the public.
  - Developing the plans is expected to cost $20 Million over 7 years, and the implementing the plans is expected to cost $800 Million!

I. Stormwater BMP Study Fairfax County (cont)

- There is a lag time between BMP implementation and improvement, so Fairfax County needed a way to:
  - Measure the BMP & water quality relationship of the old and new BMP technologies.
  - Find cost-effective ways to evaluate these BMPs.

  Hence, the USGS Study....

I. Stormwater BMP Study Fairfax County (cont)

- In the initial phase of project—monitoring equipment is in place, but only starting to collect data.

- Intensive sampling—Continuous-record stream gage at 4 sites
  - Continuous water-quality monitor (turbidity, pH, SC, water temp)
  - Automated stream sampler (storm samples)-nutrients & sediment
  - Scheduled monthly sampling-nutrients & sediment
  - Annual benthic monitoring

- Trend monitoring stations-Partial-record stream gage at 10 sites
  - Scheduled monthly sampling-nutrients & Sediment
  - Annual benthic monitoring

- Sediment samples are sent to USGS lab in KY, and nutrient samples (500+/year) are being sent to the Norman Cole lab.

II. Stormwater BMP Study Montgomery County

Summary of presentation by Rachel Gauza

Montgomery County has focused its studies on construction via developer-funded monitoring in Special Protection Areas.

- Stream-specific parameters
- Sediment and Erosion Control (S&EC)
  - Grab sampling
- Automated flow-weighted sampling
- Stormwater Management (SWM)
  - Automated flow-weighted sampling
- Example: Clarksburg Monitoring Partnership
  - Monitored 14 construction sites

II. Stormwater BMP Study Montgomery County (cont)

- Montgomery County has run into issues evaluating BMPs this way.
  - Challenges include complications with collecting good data (weather, technical challenges, logistics in getting the samples and lab hours).
  - Developer's consultants using different methodologies—end up with incompatible data sets.

II. Stormwater BMP Study Montgomery County (cont)

- Measuring structural efficiencies alone aren't sufficient measures of BMP performance, therefore need biological monitoring.
  - 57 sites in 4 Special Protection Areas
  - Measure:
    - Average stream condition (benthics and fish)
    - Change in IBI over time
    - Changes to community structure-including taxa types

II. Stormwater BMP Study Montgomery County (cont)

- In Clarksburg, also did an integrated ecology study

- Examined:
  - hydrology (including storm events),
  - stream morphology,
  - water temperature and chemistry

II. Stormwater BMP Study Montgomery County (cont)

Conclusions:

- Structures are performing, but data is limited.
- Despite any BMPs, the development process changes stream morphology and stream conditions. Stream recovery needs to be further studied.

Future Directions:

- Improve developer consultant reporting via more oversight and progress reports.
- Study stream health using salamanders as indicators.
- Need to convert projects from “sediment & erosion control status” to stormwater management sites faster in order to implement stormwater controls sooner.

III. Monitoring Around the Region
Around the Room Updates

- New RMS Membership: We are pleased that Shannon Curtis (Fairfax Co.), Rachel Gauza (Montgomery Co.), Glen Rubis (Loudoun Co.), and Sudir Murthy (DC WASA) have joined our committee.
- DDOE -has two real-time monitors on the Anacostia and is doing fish tissue sampling for PCBs, toxics
- George Mason University-is doing a genetics study on fish, and is interested in partnering to study emerging contaminants.
- OWML-monitoring upgrades for Occoquan; can access data online with a password – http://www.owml.vt.edu/
- USGS-SAV study on hold – expect funding next year
- Montgomery Co.-completing 5-yr. rotation stream study & will have a Report.
- Next meeting: May or June 2009

IV. Broad Run Tour
Highlights

- Stormwater Management BMPs
  - Rain garden
  - Bioretention pond: water drains from 25-30 acres
- Water Reclamation Process Highlights
- Aquiary