

An Introduction to Benthic Macroinvertebrates

Loudoun Wildlife Conservancy
March 9, 2014

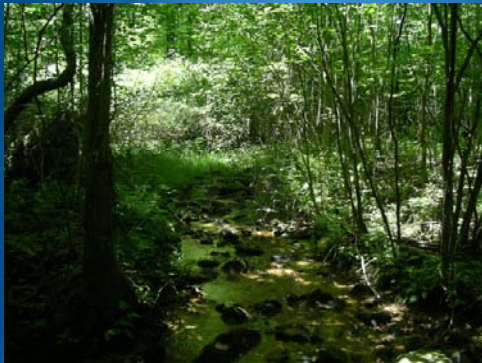


Today's Agenda

- What is a healthy stream?
- Why are macroinvertebrates good indicators of stream health?
- How do we sample benthic macroinvertebrates?
- Where do we sample?
- How can you participate?
- Introduction to Macroinvertebrate Identification

Activity - Macroinvertebrate Identification

Why is this a healthy stream?



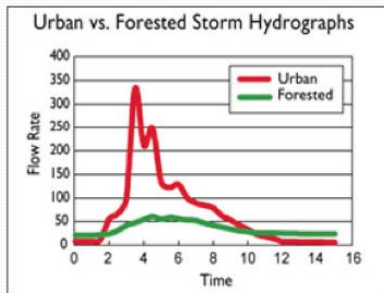
Healthy?



Could this be a problem?



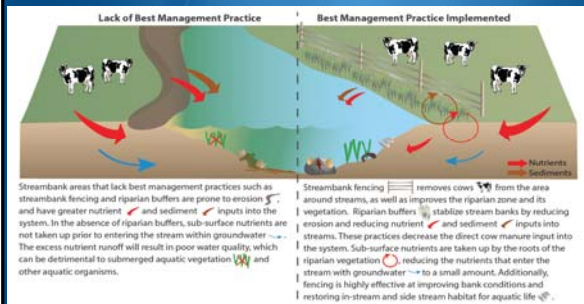
Urban vs. Forested Hydrograph



Too much water?

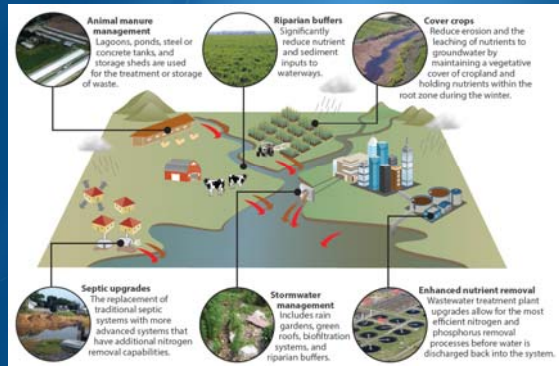


Best Management Practices



New Insights by Chesapeake Bay program 2014 - http://lan.umces.edu/pdfs/lan_report_438.pdf

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Rain Gardens

Additional initiatives being conducted within the Chesapeake Bay watershed

Rain gardens provide multiple benefits in developed areas.

Rain gardens are shallow depressions planted with evergreen, deciduous, and herbaceous species. Stormwater runs off impervious surfaces, collects in the depression, and infiltrates the soil. Surrounding vegetation reduces the velocity of water, which decreases soil erosion and extends residence time during which vegetation will take up nutrients. Rain gardens not only improve water quality, but they also provide wildlife habitat, attract pollinators, and are aesthetically pleasing.¹¹



Gutters and downspouts installed onto buildings and in lawns help assist in directing rain water from the roof to the garden. A landscape of native, drought resistant plants is well adapted to local conditions and easily maintained. Plants with deep root systems encourage stormwater infiltration and help absorb excess nutrient runoff. Additionally, a berm on the downward slope of a rain garden will help hold water in the garden during heavy rains, further improving its filtering capacity.



A rain garden and rain barrel used simultaneously for collection and filtration of stormwater runoff. Photo © Alexandra Fines, iStockphoto.com

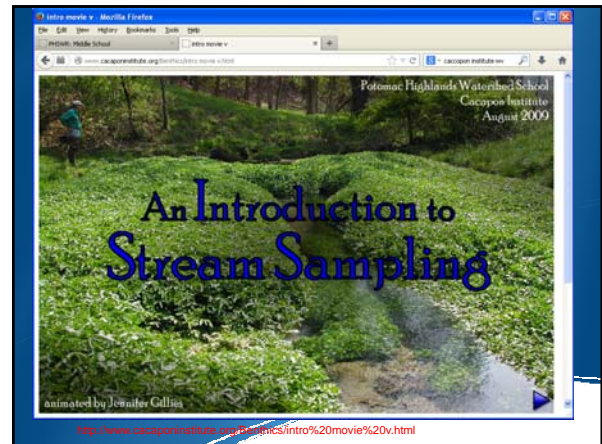
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What is a Benthic Macroinvertebrate?

Benthic = lives on the bottom

Macro = visible without magnification

Invertebrate = no backbone



How can I participate?

Help and practice in the field with an existing team

- Sign-up sheets
- Check our calendar:
<http://www.tinyurl.com/loudounstreammonitor>

Become a certified stream monitor

Upcoming Monitoring Events

Milltown Creek – David Ward – Sun, May 18, 2pm
Crooked Run – Phil Daley –
Goose Creek – Zoe Irwin –
North Fork Beaverdam Creek
Limestone Branch –

Certification Training – April 27th Purcellville

Break

Like us on Facebook

Loudoun Wildlife Conservancy
Loudoun Watershed Watch

Stream Sampling Exercise

Why are they good indicators?

- Spend up to one year in the stream.
- Have little mobility
- Generally abundant
- Primary food source for many fish
- Wide variety of tolerances to pollution

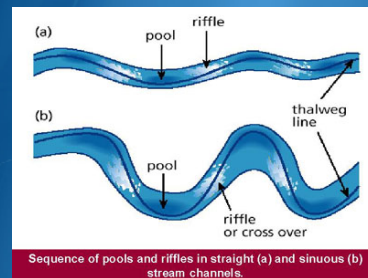
Pollution Tolerances

Group 1 - Pollution sensitive
(require higher DO, neutral pH, cold water)
Ex. mayflies, stoneflies, caddisflies

Group 2 - Somewhat pollution tolerant
Ex. scuds, dragonflies, damselflies

Group 3 - Pollution tolerant
(can tolerate low oxygen, lower/higher pH, warmer water)
Ex. aquatic worms, midge larva

How do we sample?



Where do we sample?

