

Today's webinar will begin in a few moments.

Your County's Streams and Rivers:
A riparian look at improving water quality

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County Ideas
that Work

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COMMUNITY

Webinar Date

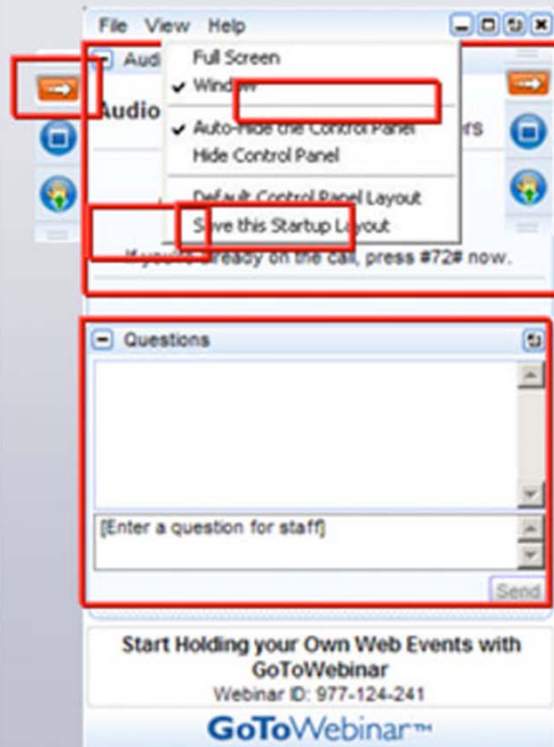
Webinar Title

Your County's Streams and Rivers: A riparian look at improving water quality



County Ideas
that Work

How to Participate



- Open and close your Panel
- View, Select, and Test your audio
- Submit text questions
- Q&A addressed at the end of today's session,

About the National Association of Counties

- advances issues before the federal government;
- improves understanding of county government;
- assists counties in finding and sharing innovative solutions
- provides value-added services to save counties money.

For more information visit NACo's new Website: www.naco.org.

Tips for viewing this webinar:

- The questions box and buttons are on the right side of the webinar window.
- This box can collapse so that you can better view the presentation. To unhide the box, click the arrows on the top left corner of the panel.
- If you are having technical difficulties, please send us a message via the questions box on your right. Our organizer will reply to you privately and help resolve the issue.

Question & Answer Session Instructions

- Type your question into the questions box at any time during the presentation, and the moderator will read the question on your behalf during the Q&A session.

Moderator: Alyssum Pohl

NOAA Digital Coast Fellow



Alyssum has a background in marine conservation, and is delighted to be spending 2 years at NACo, helping counties implement GIS and other digital tools to help with their issues related to coastal resiliency.

Agenda:

- Erosion and Scouring
- Are Logjams Bad For Stream Health?
The Pros and Cons of Logjams
- Garnering support for water quality projects



Merritt Frey, River Network
Habitat Program Director

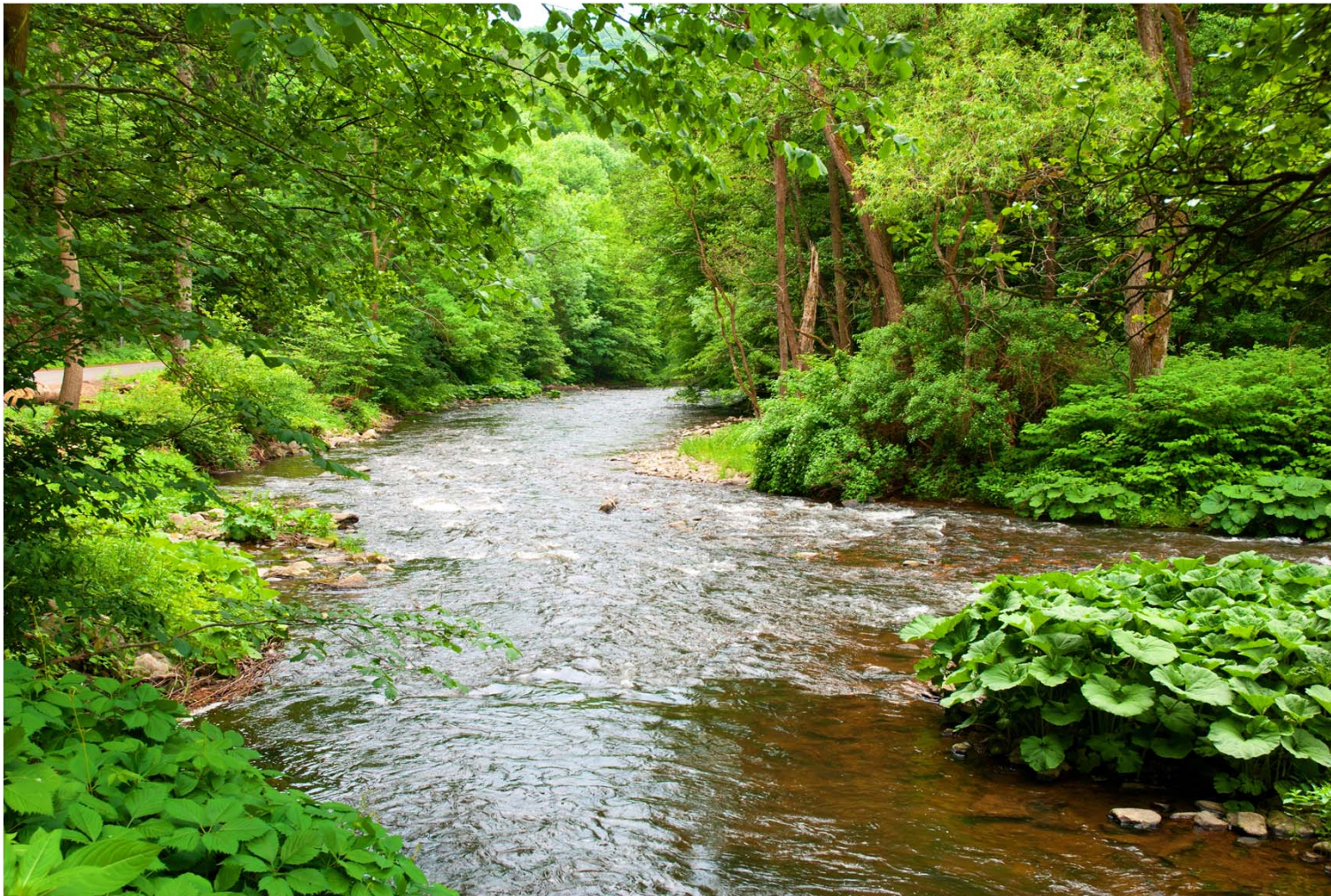
Erosion & Scouring



Rea Monaghan, Bucks County
Planning Commission
Environmental Planner

Logjams





Riparian Erosion and Scouring

Causes and solutions for counties



Image: <http://www.crwr.utexas.edu/>

Contact Information

Merritt Frey

River Habitat Program Director

River Network

1985 South 500 East

Salt Lake City, UT 84105

Office: 801-486-1224

Email: mfrey@rivernetwork.org

Web: www.rivernetwork.org

Twitter: [@MerrittFrey](https://twitter.com/MerrittFrey)

Agenda: Erosion and Scouring

- Problem
- Causes
- Solutions
 - Protecting the bank
 - Re-establish natural channel/function
 - Address upstream issues
 - Spot fixes
- Lessons in engagement
- Resources

The Problem



Image: sixmilecreek.org



Image: iihhr.uiowa.org



Image: Cornell

Causes

- Loss of riparian vegetation
- Stream alteration (channelization, etc.)
- Scouring flows from upstream land use changes
- Structure installation (bridges, etc.)
- Others?

Solutions: Protecting the Bank

- Various approaches to establishing buffers and revegetating.
- Benefits: directly stabilizes; fairly quick response; multiple benefits (wildlife, etc.), \$ may be available
- Challenges: changes land use, existing structures, invasive species, long-term mgmt, may be washed out



Solutions: Protecting the Bank

- Ideas for action:
 - Local ordinances protecting existing buffers.
 - Establishing development setbacks.
 - Restoring urban buffers in targeted areas.
 - Using existing programs (e.g., Farm Bill, etc.) to reestablish buffers where lost.
 - Working with individual landowners to restore buffers.

Solutions: Reestablish Natural Function

- Reestablish more natural stream channels, wetlands.
- Benefits: often addresses real root of problem; multiple benefits; long-term fix.
- Challenges: can be costly; permitting; land use; perception.

Solutions: Reestablish Natural Function



Images: U.S. EPA

Solutions: Reestablish Natural Function

- Ideas for action:
 - Educate constituents about the benefits of naturally functioning systems.
 - Comment on proposed stream alteration permits to avoid new damage.
 - Identify areas in need of restoration and partner with others to tackle.
- Example:
http://www.mde.state.md.us/programs/Water/TMDL/Documents/www.mde.state.md.us/assets/document/Appendix_H2_Baltimore_County_Stream_Restoration.pdf

Solutions: Address Upstream Changes

- Reduce/minimize impervious surfaces
- Infiltrate water
- Capture/slow down water
- Benefits: address source; pollution reduction, g.w. recharge, etc.
- Challenges: retrofitting, cost, development patterns.



Image: Rutgers

Solutions: Address Upstream Changes



Images: mygreenmontgomery.org



Solutions: Address Upstream Changes

- Ideas for action:
 - Ensure new development focus on infiltration, etc.
 - Identify opps during redevelopment
 - Creative funding opps available
- Example:
 - http://water.epa.gov/polwaste/nps/success319/md_sligo.cfm

Solutions: Spot Treatments

- Bioengineering and revetments
- Instream structures
- Traditional approaches (e.g., riprap, gabions)

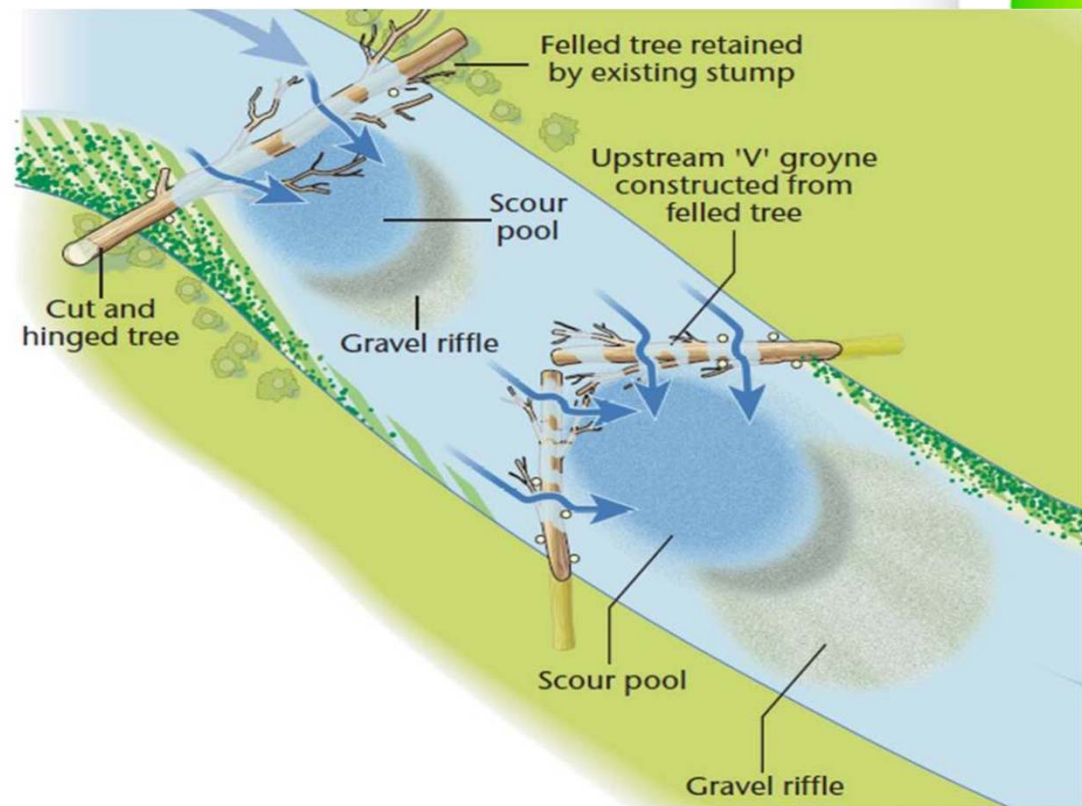


Image: www.flyfishing.co.uk

Lessons in engagement

- Engage stakeholders early
- Spell out the harm in meaningful terms
- Be frank about benefits and challenges
- Be explicit about expectations
- Plan ahead for maintenance

Resources

- Center for Watershed Protection:
 - www.cwp.org
- Riparian buffer strategies:
 - <http://www.rivernetnetwork.org/what-works>
- EPA's "Green Infrastructure Case Studies: Municipal Policies for Managing Stormwater with Green Infrastructure"
 - http://www.epa.gov/owow/NPS/lid/gi_case_studies_2010.pdf



Are Logjams Bad For Stream Health? The Pros and Cons of Logjams



May 7, 2014
Rea Monaghan, Environmental Planner

Bucks County Planning Commission
Neshaminy Manor Center
1260 Almshouse Road
Doylestown, PA 18901

215-345-3267
remonaghan@co.bucks.pa.us

Agenda

- *Neshaminy Creek Watershed Sediment Reduction Plan for Municipal Implementation*
- Pros & Cons of logjams / Management Methods / Pennsylvania Department of Environmental Protection protocol
- Stakeholder Outreach
- Lessons Learned

- Next Steps
- Additional Resources





pennsylvania

DEPARTMENT OF ENVIRONMENTAL PROTECTION

Coastal Resources

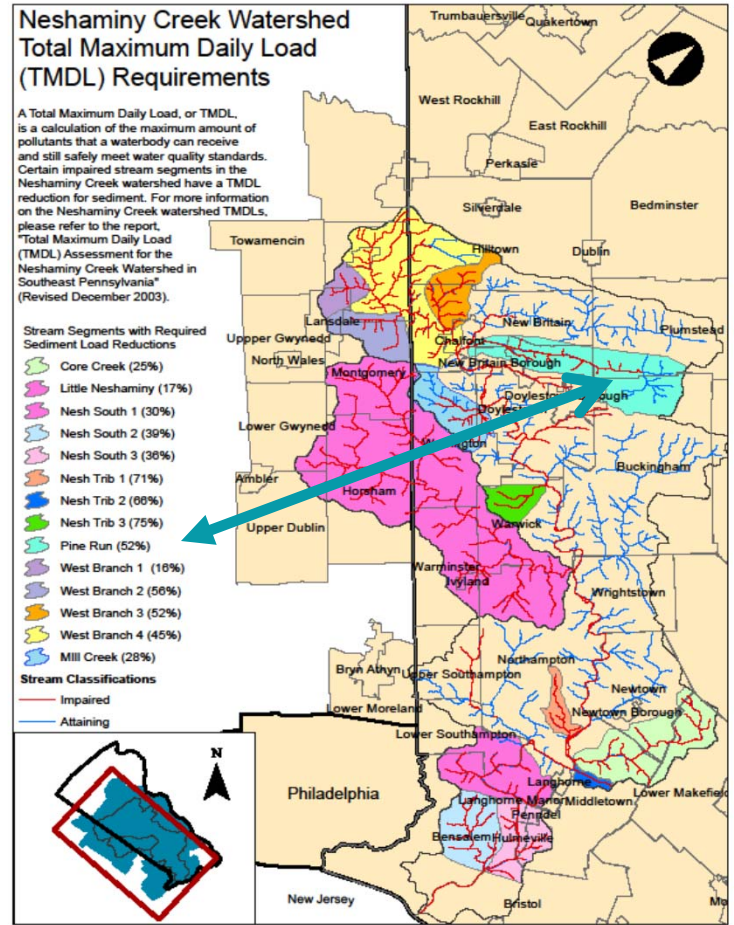
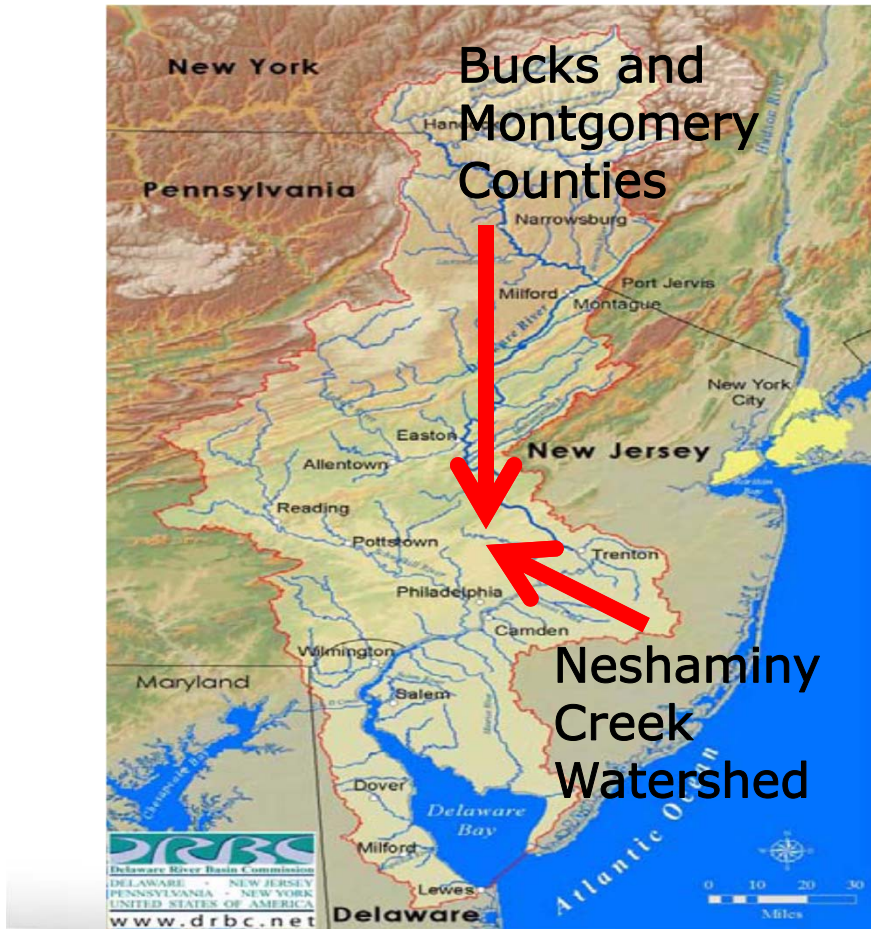
MANAGEMENT PROGRAM



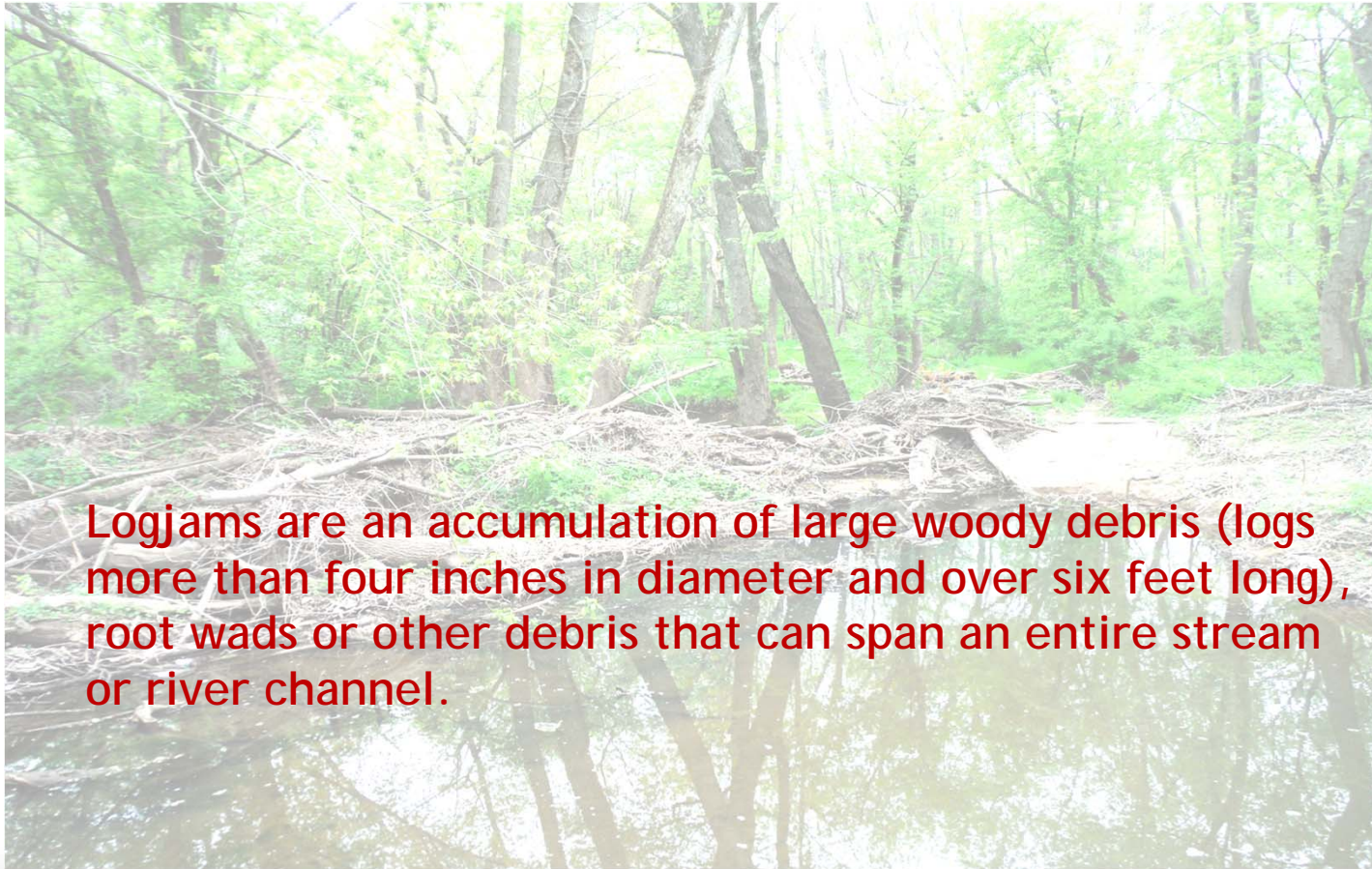
- Coastal Zone Management grant funding to conduct the *Neshaminy Creek Sediment Reduction Plan for Municipal Implementation*.
- Partners / Consultant
- *Total Maximum Daily Load Assessment for the Neshaminy Creek Watershed in Southeast PA (2003)*
 - 14 sub-watersheds impaired
 - Reduction percentages range from 16% to 75%
 - Cross through 34 municipalities
- Stream assessments conducted in the Pine Run sub-watershed



Regional and TMDL Map



What are Logjams?



Logjams are an accumulation of large woody debris (logs more than four inches in diameter and over six feet long), root wads or other debris that can span an entire stream or river channel.

Pros and Cons of Logjams

- Benefits
 - Provide beneficial stream configuration and cover
 - Allow sediment to deposit
 - Stabilize channels by trapping sediment
 - Stabilize banks and prevent erosion
 - Allows a stream to change over time at its own speed
 - Flood Mitigation
- Disadvantages
 - Obstruct streamflow
 - Backwater effect
 - Restricts fish passage
 - Downstream debris collection
 - Increased flooding
 - Structural damage / Small watercraft risk
 - Scouring and erosion of stream banks

Source: <http://soilwater.ohiodnr.gov/portals/soilwater/pdf/stream/stfs18.pdf>

Abutment / Logjam /Sediment Bar

Bridgeview Park to Old Iron Hill Road



Backwater Effect

Old Iron Hill Road to End of Pine Run Reservoir



Scouring and Eroding Banks

Pine Run Forebay to Pine Run Road



Debris and Deposited Sediment

Pine Run Forebay to Pine Run Road



Blocked Water Flow and Pooling

Pine Run Forebay to Pine Run Road



Logjam and Erosion

Limekiln Road to Rickerts Road



Embedded Logs and Loose Debris

Rickerts Road to Chapman Road



Scouring and Eroded Banks

Rickerts Road to Chapman Road



Lacking Riparian Buffers

Rickerts Road to Chapman Road



Evaluating Logjams

- Evaluate logjams/woody debris by:
 - Current in-situ
 - Size
 - Soil type
 - Time
- From this evaluation, look for potential impacts from:
 - Removal
 - Leaving in place
 - Opening center

Source: [http://www.mi-wea.org/docs/MBest_WDB\(A\).pdf](http://www.mi-wea.org/docs/MBest_WDB(A).pdf)

Existing or Engineered Logjams

- **Management Methods**
 - Clean and Open Method
 - Habitat and Bank Protection Method
 - Engineered Structure Method

Source: [http://www.mi-wea.org/docs/MBest_WDB\(A\).pdf](http://www.mi-wea.org/docs/MBest_WDB(A).pdf)

Clean and Open Method

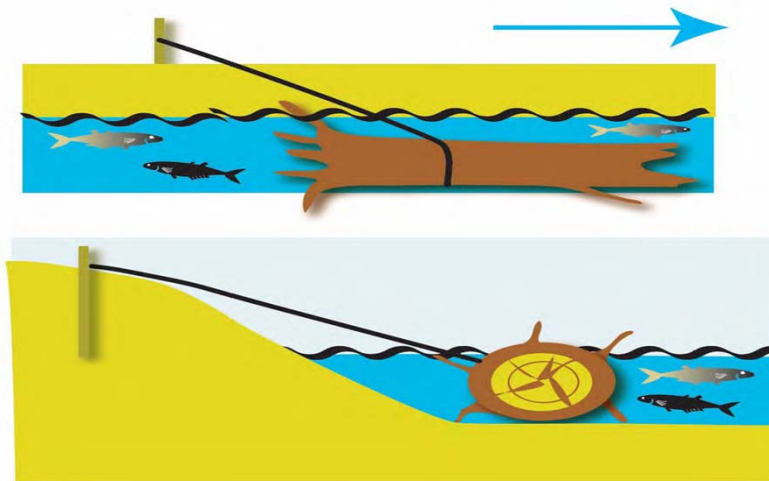
- Secure Permit from PA DEP
- Part of a larger river maintenance/riparian corridor management plan, but can be used effectively at individual sites.
- Benefits for river maintenance



Source: <http://www.hrwc.org/wp-content/uploads/2013/03/Clean-and-Open-Method.pdf>

Habitat and Bank Protection Criteria

- Use for areas of occurring or potential streambank erosion and/ or areas that need habitat structure.
- Used To maintain the flow capacity of streams or channels.
- Move or place selected woody debris in optimum position.
- Secure - Attach woody debris to bank by using cable and post or chain.



Source:
[http://www.mi-wea.org/docs/MBest_WDB\(A\).pdf](http://www.mi-wea.org/docs/MBest_WDB(A).pdf)

Engineered Structure Method

- Engineered logjams (ELJs)
 - Control stream flow by forming multiple layers of logs
 - First layer is placed parallel to the stream flow
 - Additional layers are added and the logs are permanently joined to each other at the points of crossing
 - Rootwads are also used in engineered designs
- Cons
 - Like natural logjams, ELJs can have significant downstream effects
 - Transformation of the location of high-energy flow
 - Formation of a new river channel
 - Backwater effects

Source: http://www.dnrc.mt.gov/wrd/water_op/floodplain/streambank_course/engineered_log_jams.pdf

Permits Required to Remove Logjams After A Flood

- Streams are Waters of the U.S.
 - In most instances, a permit must be obtained from the PADEP (General and Emergency)
- PA DEP makes determination of additional agencies or departments to be contacted and informed of removal (e.g., Conservation District for Chapter 102 Erosion & Sedimentation (E&S), Fish & Boat Commission, Army Corps of Engineers)
- Case-by-case basis

Stakeholder Outreach

- Municipal managers, municipal engineers, project partners, and Watershed Plan Advisory Committee members (WPAC)
- Solicited input regarding “hot spot” areas and stormwater infrastructure locations
- Conducted workshops
- Plan development updates
- Funding opportunities

Lessons Learned

- Guidance versus regulation
- Important to engage community groups (watershed associations, Environmental Advisory Councils, etc.)
- Applying calculations

Next Steps

- Applied for Coastal Zone Management funding for Phase II (Neshaminy Creek Sediment Reduction Assessment: West Branch 3 (Reading Creek) and Neshaminy Tributary 3 (Fish Creek))
- Educational outreach and needs assessment

Additional Resources

Neshaminy Creek Sediment Reduction Plan for Municipal Implementation

<http://www.buckscounty.org/docs/pc/ncfinalplanmarch2014.pdf?sfvrsn=2>

Natural Resources Conservation Service Conservation Practice Standard. Streambank and Shoreline Protection

[http://efotg.sc.egov.usda.gov/references/public/TN/Streambank_and_Shoreline_Protection_\(580\)_Standard_FINAL_2007.pdf](http://efotg.sc.egov.usda.gov/references/public/TN/Streambank_and_Shoreline_Protection_(580)_Standard_FINAL_2007.pdf)

Permitting and Work Around Streams After A Flood

http://www.columbiaccd.org/permitting_and_working_around_the_stream_after_a_flood.pdf

Integrated Streambank Protection Guidelines

<http://wdfw.wa.gov/publications/00046/ispg.pdf>

Habitat Improvements for Trout streams

http://www.fishandboat.com/water/streams/habitat_improve_trout.pdf

Additional Resources (continued)

Landowner's Guide to Managing Streams in the Eastern United States

<http://wolfrunwater.org/landowners/default.htm#L4a>

Woody Debris Management Fact sheet

<http://www.grand-ledge.com/pdf/GLRC.WoodyFactSheet.pdf>

Rootwad Composites for Streambank Erosion Control and Fish Habitat Enhancement

<http://www.spa.usace.army.mil/Portals/16/docs/civilworks/regulatory/Stream%20Information%20and%20Management/ERDC%20Rootwad%20Composites.pdf>

Drainage System Maintenance. Flood Protection for Your Community

http://www.stcplanning.org/usr/Program_Areas/Flood_Mitigation/DrainSystMaintenance.pdf

Engineered Log Jams

http://www.dnrc.mt.gov/wrd/water_op/floodplain/streambank_course/engineered_log_jams.pdf

Additional Resources (continued)

Stream Debris and Obstruction Removal

A Proactive Landowner's Guide to Maintaining a Free-Flowing Stream

<http://www.davey.com/hoa/elements/pdf/3-3%20Stream%20Debris.pdf>

Linkages between sediment delivery and streambed conditions in the Lagunitas Creek watershed, Marin County, California

http://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/TMDLs/lagunitascrksediment/Lagunitas%20Sediment%20Linkages%2019June2012.pdf

Stream Channelization

<http://www.epa.gov/region7/wetlands/pdf/ChannelizationFS04-Final.pdf>

Common Problems Addressed in Stream Restoration

http://wildfish.montana.edu/docs/common_restoration_problems.pdf



Recap:

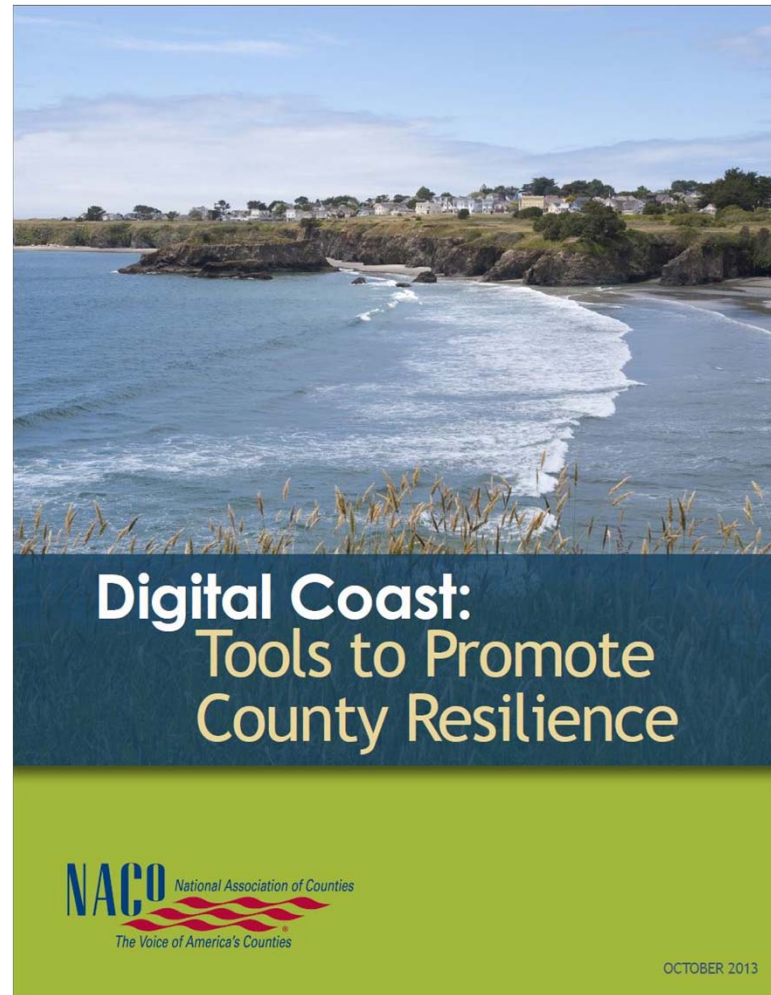
- Address underlying erosion problems
 - =/- bandaid solutions
- Logjams can be + or -
- Watershed steward
- Local and community support
- Articulate the benefits of participation and engagement

Please let me know if you would like to see
NACo host a webinar on a specific
coastal resiliency topic.

apohl@naco.org

New NACo Publications

Resources for Coastal
Counties page



<http://www.naco.org/programs/csd/Pages/CoastalCounties.aspx>

New NACo Publications

Why Digital Coast Matters to Counties

National Association of Counties
NACo National Association of Counties

WHY DIGITAL COAST MATTERS TO COASTAL COUNTIES

OVERVIEW

More than just data, Digital Coast provides tools, training and examples of how counties can bolster resiliency through data and information resources.

Coastal counties make up only 17 percent of the U.S. land area, but provide 58 percent of our nation's GDP. Coastal increases in population, extreme weather events, sea level rise and other changes underscore the importance of smart decision-making to promote economic, social and natural resilience in coastal areas.


Digital Coast, based at www.csc.noaa.gov/digitalcoast, strives to be the primary data and information resource for anyone working to preserve our coastal communities and natural resources. It is an effective resource enabling county and local stakeholders to promote resilience, build knowledge and capacity, facilitate decision-making, conduct public outreach and education and achieve local natural resource management goals.

A number of products within Digital Coast have county-specific information to make it easier to find local data. The *Stories from the Field* section provides examples of how coastal managers apply geospatial information to various management issues. *Coastal County Snapshots* and the *Land Cover Atlas* are available through the Tools section, providing county-level information and reports. The *Data Access Viewer* allows users to see what data are available for any given area of interest, and users can now search geographically within the *Data Registry*.

ACTIVITIES

NACo partners with several organizations to support and refine Digital Coast resources based on user input. NACo and the Digital Coast partners regularly host webinars, workshops and other training events to introduce counties to Digital Coast tools. Contact us for information about upcoming events and further resources.

The Digital Coast partners, working in concert with the National Oceanic and Atmospheric Administration (NOAA) Coastal Services Center, are: American Planning Association, Association of State Floodplain Managers, Coastal States Organization, National Association of Counties, National Estuarine Research Reserve Association, National States Geographic Information Council, The Nature Conservancy and the Urban Land Institute.



For more information, contact:
Alyssum Pohl | apohl@naco.org | Kathy Nothstine | knothstine@naco.org
Jen Horton | jhorton@naco.org | 202.393.6226 | www.naco.org/coastal

http://www.naco.org/programs/csd/Documents/DigitalCoast_FINAL.infosheets.01.30.14.pdf

Podcast

NACo Podcasts



NACo
County Solutions and Innovation Blog

Resources

- Digital Coast www.csc.noaa.gov/digitalcoast
- This webinar will be posted:
<http://www.naco.org/programs/csd/Pages/CoastalCounties.aspx>
- New NACo Publications
<http://www.naco.org/programs/csd/Pages/CoastalCounties.aspx>
http://www.naco.org/programs/csd/Documents/DigitalCoast_FINAL.infosheets.01.30.14.pdf
- Center for Watershed Protection
www.cwp.org
- Riparian buffer strategies:
<http://www.rivernet.org/what-works>
- EPA's "Green Infrastructure Case Studies: Municipal Policies for Managing Stormwater with Green Infrastructure"
http://www.epa.gov/owow/NPS/lid/gi_case_studies_2010.pdf
- *Neshaminy Creek Sediment Reduction Plan for Municipal Implementation*
<http://www.buckscounty.org/docs/pc/ncfinalplanmarch2014.pdf?sfvrsn=2>
- Logjam Removal and River Restoration
http://www.nwipa.org/documents/Palmiter_Guide.pdf
- Ohio Stream Management Guide. Stream Debris and Obstruction Removal
http://ohiodnr.com/Portals/7/pubs/fs_st/stfs21.pdf
- A New Way. Restoring Habitat in an Urban Watershed
[http://www.miwewa.org/docs/MBest_WDB\(A\).pdf](http://www.miwewa.org/docs/MBest_WDB(A).pdf)
- Woody Debris Management 101. Clean and Open Method
<http://www.hrwc.org/wp-content/uploads/2013/03/Clean-and-Open-Method.pdfW>

Contact Info for Today's Speakers

- Rea Monaghan
 - remonaghan@co.bucks.pa.us
- Merritt Frey
 - MFrey@rivernetnetwork.org
- Alyssum Pohl
 - apohl@naco.org

Questions?

