

A photograph showing three people wading in a river. One person in a green jacket is in the center, holding a yellow measuring tape. Another person in a tan jacket is on the left, also holding the tape. A third person in a blue and white jacket is on the right, standing on the bank. The background shows a wooded area with bare trees.

Assessing physical, chemical and biological parameters pre and post dam removal : Pre-removal project

Musconetcong Watershed Association

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Presented at: NJ Water Monitoring
Summit

December 1, 2011

Why monitor the Finesville dam removal?

- MWA uses
 - track progress of project
 - Learn more about dams and restorations
 - Provide information to public
- Other uses
 - Share information with others
 - Only 5% dam removals have ecological data
- We had resources!



Where is
Finesville
?



The border between Hunterdon and Warren County corresponds to the position of the river in this map

Finesville Sampling Sites



What parameters are MWA monitoring?

- River Watcher Volunteers
 - Visual/Habitat assessment
 - Macroinvertebrate Assessment
 - Dissolved Oxygen (LaMotte kits)
 - Temperature
 - Physical parameters
 - Turbidity
- Lab, and WWN partners
 - Macroinvertebrate Sampling + analysis by Ecoanalyst
 - Continuous Dissolved Oxygen, Temperature, Conductivity



Sampling Timing

- Fall 2009 MWA River Watcher Volunteers
 - Macroinvertebrate lab sample
 - Visual/Habitat
 - Physical
 - DO/temp
- March-October 2011 Volunteers monthly/quarterly
 - DO/temp
 - Macroinvertebrates
 - Physical
- March -June 2011 WWN
 - Continuous Dissolved oxygen, temperature
- August 2011 WWN
 - Second round DO/Temp



Successive Diurnal Dissolved Oxygen Data from Finesville sites pre-removal

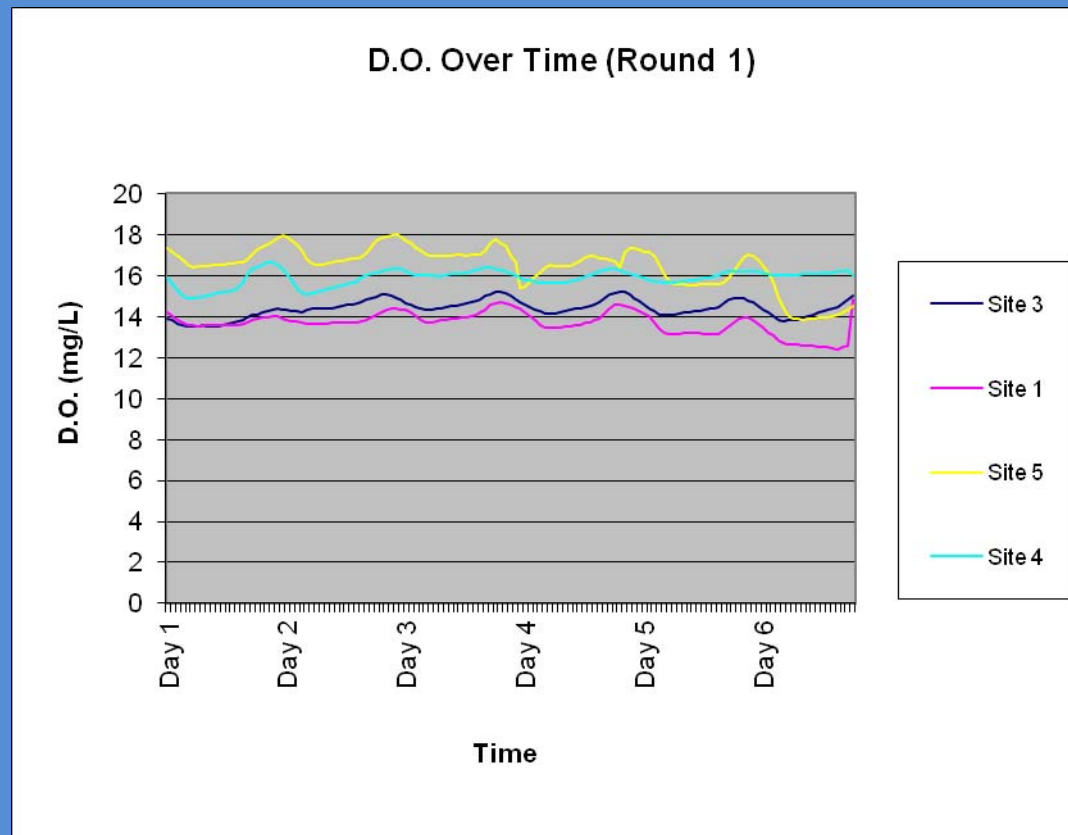
Site 3 collected 3/22-3/30

Site 1 Collected 3/30-4/5

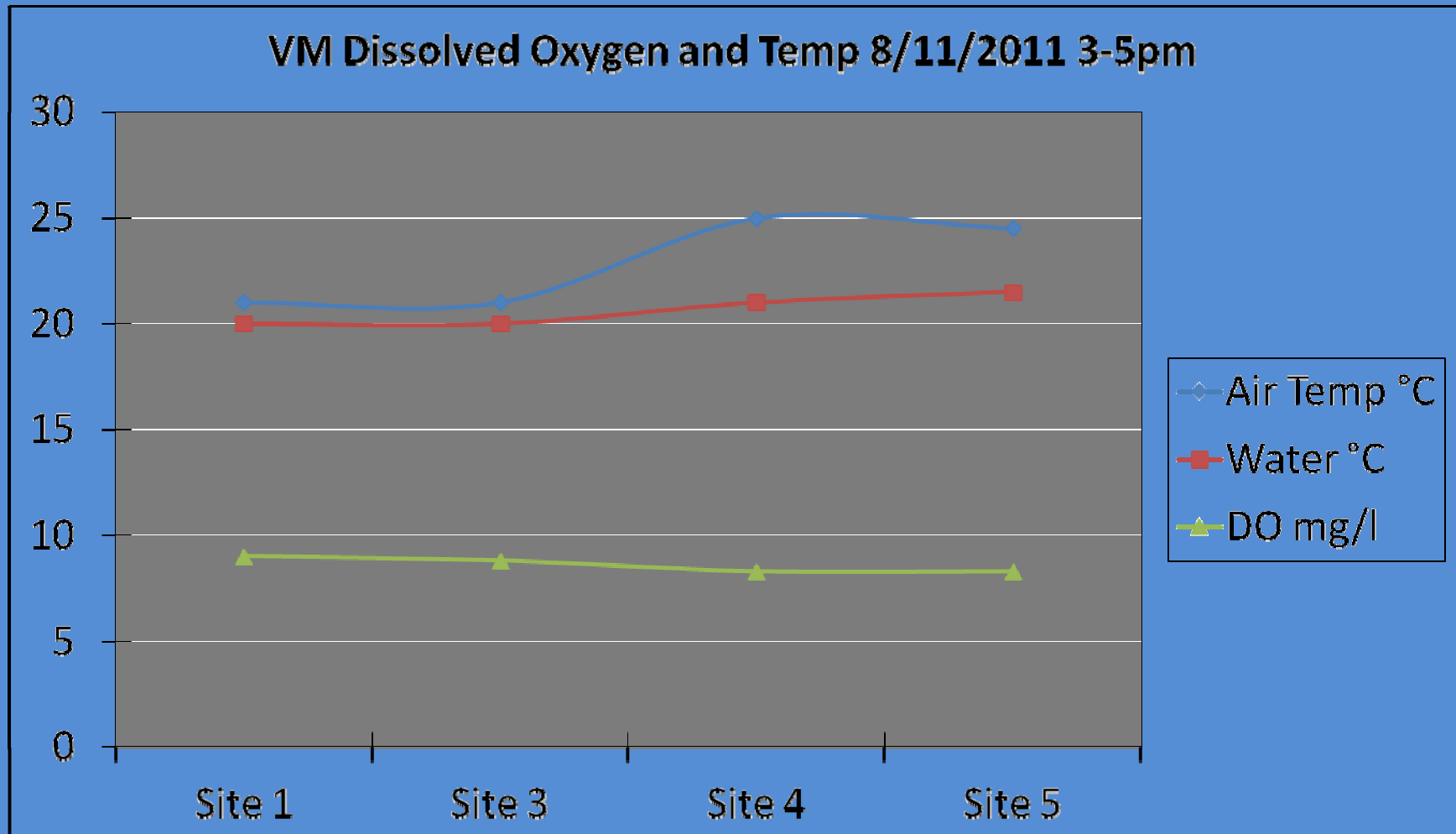
Site 5 Collected 4/6-4/14

Site 4 Collected 4/14-4/20

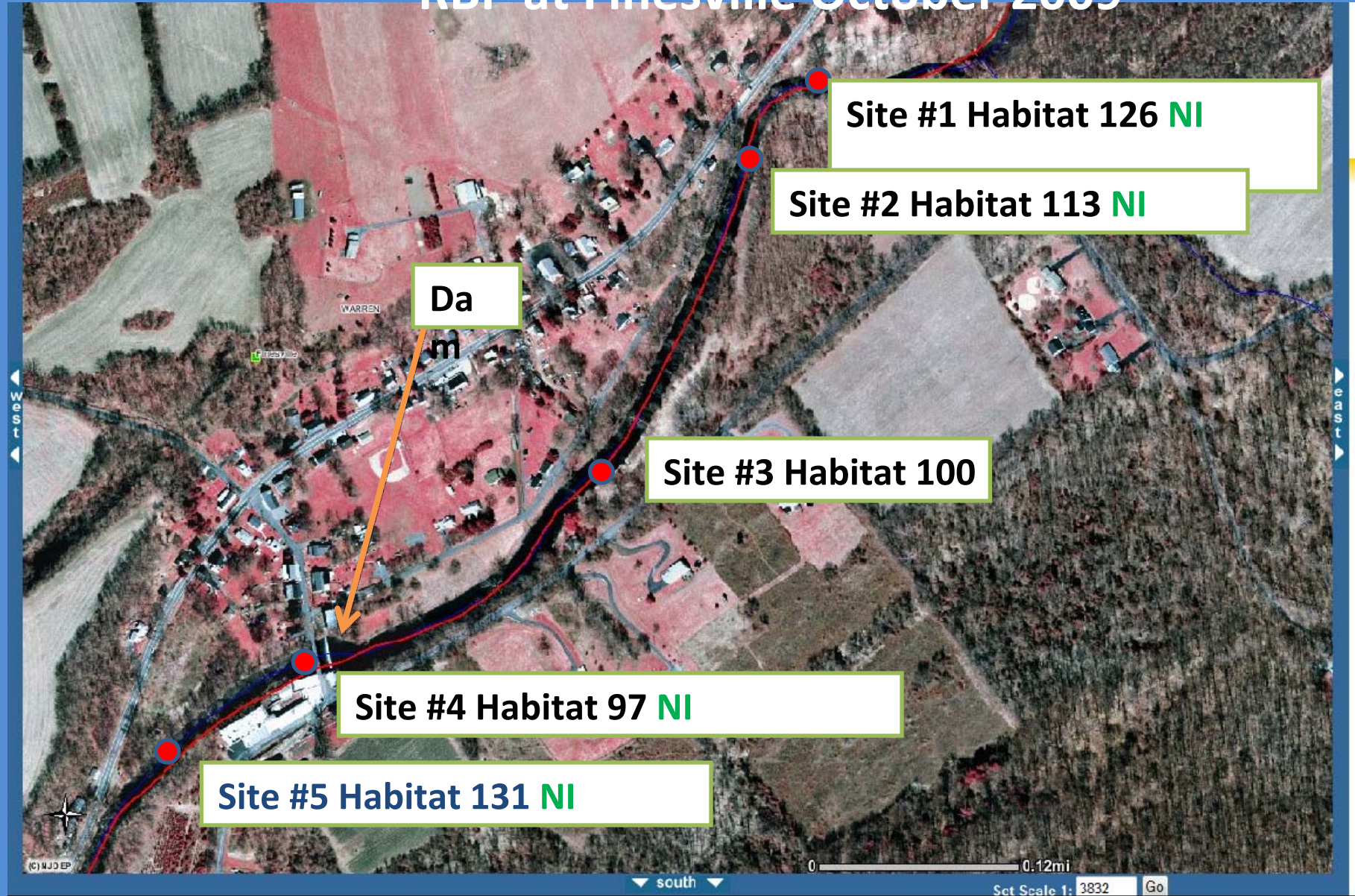
*Collected at Finesville sites in successive weeks with YSI 660 OMS



VM Temperature

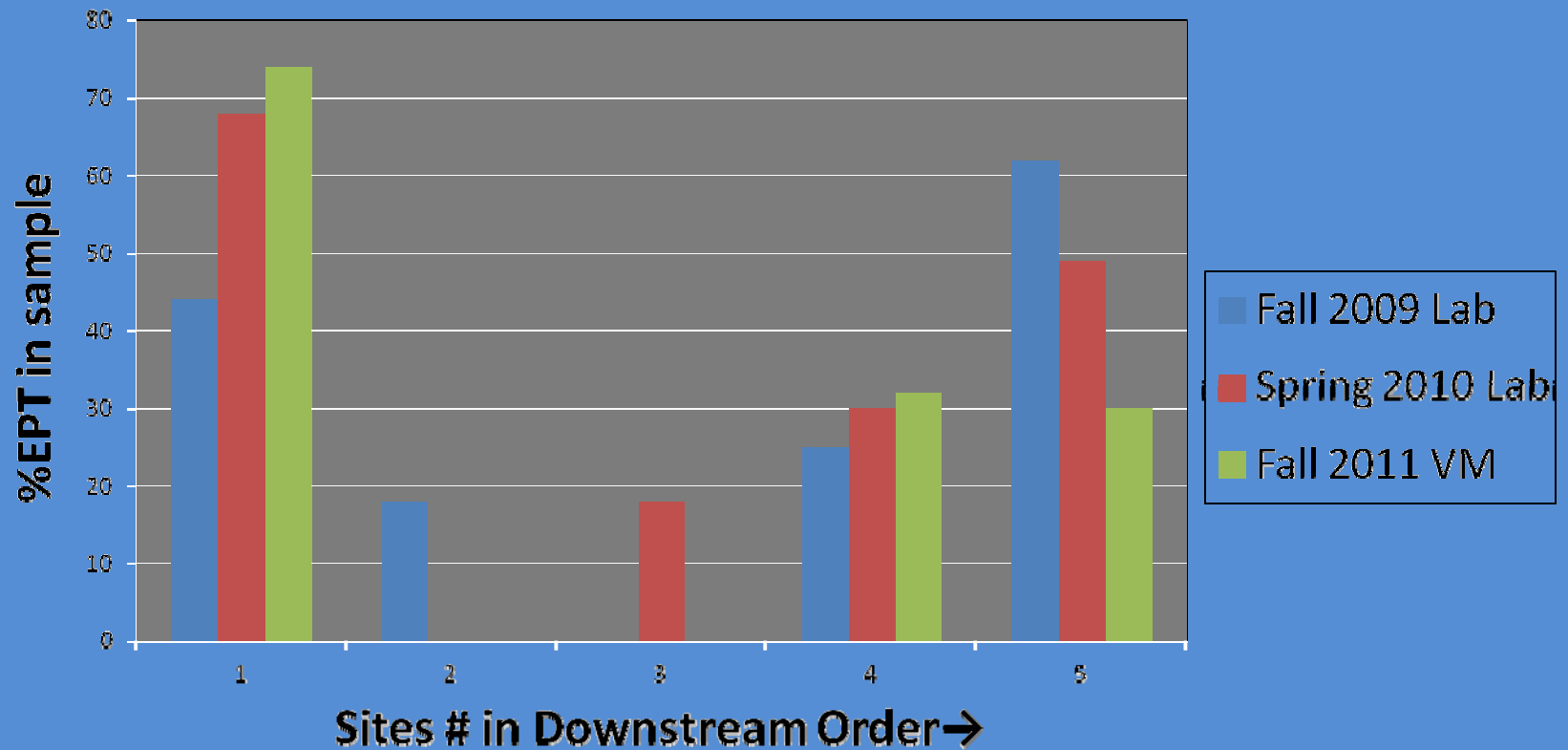


Biological Assessment using NJIS and RBP at Finesville October 2009



Effects on %EPT

%EPT at Finesville Dam sites

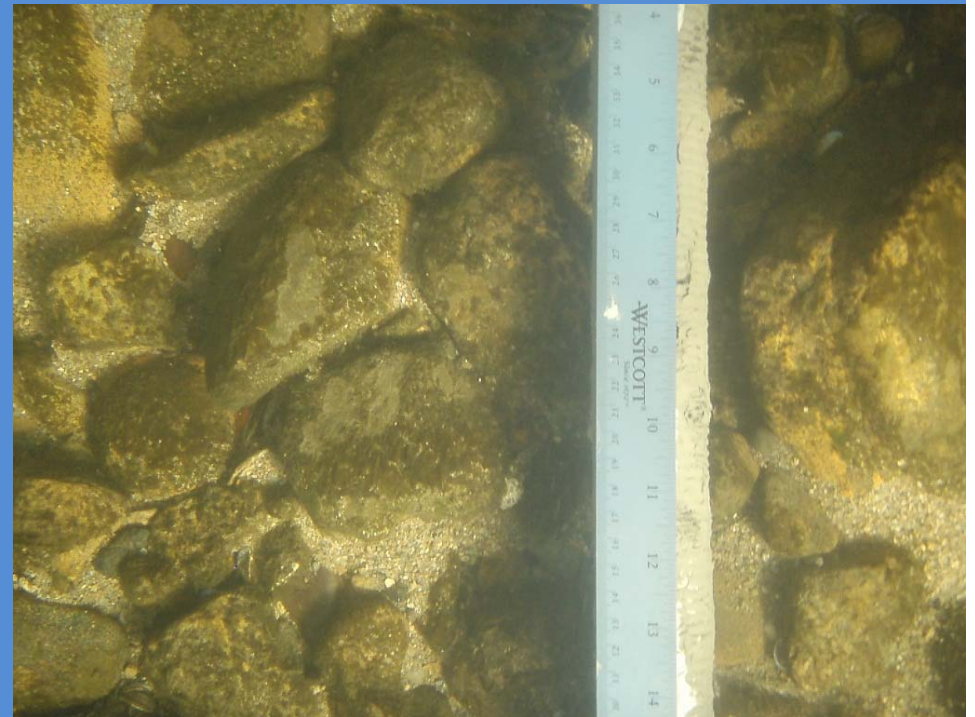


If you give a volunteer a problem...

They are likely to make a gadget to solve it!



Assessing changes to stream bottoms is easier with Chuck Gullage's bucket gizmo—when paired with Brendan Barry's recycled garage spring % metal ruler!



Challenges

- Timing
 - Weather
 - Probe function & availability
 - Staff availability
- Methodology
 - Visual/Habitat scoring tool not enough
 - Bioassessment protocol for Wadeable ambient conditions
- Logistics Site #2
 - not accessible by land pre-removal
 - Not accessible by kayak in all seasons



Did the Dam Effect DO/Temp?

Maybe...

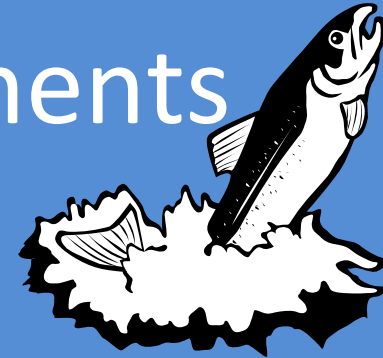
- Springs in stream may mask temp variations

Maybe not...

- Dam pool is long and narrow
- Minimal development
- Upper half of impoundment heavily shaded
- Not much sediment behind dam
 - No fines at Finesville
 - Two larger Dams upstream
 - Water velocity slows to only half of typical stream
- Still looking at data!



Dam removal documents



- Feasibility study

[www.nj.nrcs.usda.gov/programs/watersheds/documents/Musconetcong-Finesville/Feasibility-032309Finesville Dam Removal Final Draft.pdf](http://www.nj.nrcs.usda.gov/programs/watersheds/documents/Musconetcong-Finesville/Feasibility-032309Finesville%20Dam%20Removal%20Final%20Draft.pdf)

- Environmental Assessment

<http://www.nj.nrcs.usda.gov/programs/watersheds/documents/Musconetcong-Finesville/Environmentalassessment122210.pdf>

Thanks to

Equipment Loans, Technical Advice, Monitoring assistance

- EPA Region 2
- NJDEP Watershed Watch Network
- Allen Barlow (Conserve Wildlife)
- Katherine Axt (NJDEP WWN)
- Americorps (Chris Trainor, Liz Fulton and Lauren Smith)
- DRBC
- EcoAnalysts, Inc
- River Watcher volunteers!

Funding

- Watershed Institute
- Leavens Foundation
- NJDEP Watershed Watch Network



...And the MWA River Watchers

Rally Bartholomew

Susan Bernardo

Gerry Bowers

Ellen Cushing

Scott Guillemain

Chuck Gullage

CJ Koop

Tom Koven

Karl Oboda

Don Proefrock

Lisa Rodriguez

Stu Shafran

Joe Srsich

Dillon George

Dave Uporsky

Mark Wagner

