2009 Mid-Atlantic Stream Restoration Conference
Researcher and Practitioner Session: Practical Tools to Further the Science

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Questions from Breakout Room 2

Nick Jokay

1. Sediment Delivery Ratios are based, in large part, on reservoir sedimentation studies done before 1965. Can new sediment delivery ratio values be generated using more recent data and technology?
2. We need to hire people who have experience and education in general hydrology, open channel flow, upland soil erosion, sediment transport, and GIS.
3. Methods for assessing the entire condition of streams in moderately sized watersheds without having to walk the entire channel. Predict locations of bank instability perhaps statistically some how.

Research Needs Anonymous

1. Expand upon channel evolution concepts (e.g. validate more variations on stages, different stream type; do a 3-D expansion describing and predicting watershed evolution.)

2. Review and synthesize where major programs and their funding sources potentially apply to different stages of natural channel design and restoration in order to reduce gaps observed in short time frame restoration efforts (e.g. 1-year programs that have trouble with long term data needs.)

Cully Hession

1. Influence of riparian vegetation on channel morphology:

Much of my research and others has shown that for smaller streams, channels with mature riparian forest are wider than those without forest (grassy vegetation; see Hession et al. 2003 - attached). However, there is also some evidence (and outstanding guidance; see Fischenich 2007 - attached) that suggests that streams with forests are narrower. In Anderson et al. (2004) we found that on smaller streams channels were wider with forests, but on larger streams they were narrower. Typically, in the eastern US, we are doing restoration on smaller streams - also, our regional curves are based on monitoring sites that are along forested stream channels. So, we are building new channels on small streams, based on forested stream regional curves -- but, when we first 'restore' a stream, it is planted with herbaceous/grasses/wetland plants as well as trees. So, until the tress mature, this "new" stream will be a "grassy" stream channel (> 20 yrs for trees to mature, maybe more to impact width). Since these were designed as wider forested channels, they tend to narrow significantly (grasses trap sediments, Allmendinger et al. 2005).

Couple things here: 1) we need to be sure we provide clear guidance on channel width (with size of channel/watershed as a variable) and we should probably be designing these

channels with this in mind; 2) we have to acknowledge that as the vegetation matures, we expect channel change (and many mitigation strategies frown on this).

2. Related to channel width above, how are we changed sediment regime.
Trimble (1997, 2004) suggests that by planting trees on narrow "grassy" channels, they will widen (see above) and we will increase sediment loads over time (long time, again > 20 years when trees mature). While this may be too simplistic an assumption (Montgomery 1997), we do expect some channel widen and changes in sediment along a reach, but after widening, we would also expect some trapping due to the trees (McBride et al. 2008). We don't know the answer to this, but if we're planting +2010 miles of streamside areas with trees by 2010 (Ches Bay), we should sure be doing more research to understand the potential sediment regime changes.

3. Are we "over restoring" streams due to mitigation rules?
Typically, one gets more "credit" for doing more at a mitigation site. I don't know the #s off the top of my head, but say we just "protect" a mitigation site with easements and plant trees we might have to do 3 times as much stream length than if we do a full "natural channel design" with channel movement, structures, etc. So, if we have to mitigate for a 1 mile construction site damage to a stream, we'd have to find 3 miles of stream to do the low-impact mitigation, or only 1 mile to do the full rebuild on it. Is this really what we want? Might we be better serves with low-impact, low-cost protection of streams in ok shape that could repair themselves given the right vegetation/riparian management? Or, do we want bulldozers in streams that might be so impacted they won't ever be fully functional aquatic ecosystems (or worse, put bulldozers in a stream that really just needed some shade and removal of cattle to be happy)?

Doug Kirk, WVDOH

1. I need a practical method to evaluate the affects of bridge construction (including causeways and cofferdams) on sediment transport at specific locations in a river channel.

2. Regulatory agencies are now requiring us to perform this type of work in mussel streams, but they don’t know how to do it.

Anonymous

1. Add marylandstreams.org to web link.

2. Set up Research/Practitioner session at every conference at least ½ day.

3. Publish and Circulate results of this session with the contact list.

Others

1. What are the tough design questions?
2. What can researchers give to make the best possible projects?
3. What is the Standard of Care?
4. What are the general principles?
5. How do you predict how your objectives will unfold?
6. We need better and/or more universal Monitoring Techniques
7. What about Liability and Ethics?
8. Site selection and site types
9. We need a Risk Analysis model to reduce site uncertainty
10. Is it bankfull, or what do we design for?
11. How do we effectively develop the 'feedback loop'?

Notes from Breakout Room 2

1. Sediment Transport – How do we get the positive feedback loop going?
2. Where do the practitioners get their info?
3. We need to Peer Review at the Concept stage – What is the suite of people chosen.
4. How do we distribute the Information?
5. Get Practitioners involved with Researchers, develop project together, and combine resources and money.
6. The mode of operation between researchers and practitioners is different.
7. How do we disseminate the information?
8. We need more Synthesis papers.
9. There is a need for a better understanding of topics?
10. If a project fails, what was missing?

11. How can we do better?
12. NCED is a clearing house for info.
13. There is a need for certification.
14. How do we turn out students ready for this work?
15. How do you know what tools to use?
16. What are the design discharges?
17. When do you worry or not worry about sediment supply?
18. How do we design river bends to pass course sediment supply?
19. What are the questions asked that lead to hydraulic geometry?
20. How does hydraulic geometry lead to … incision, fish habitat, aggredation, etc., under what conditions?
21. We need more on prediction and channel evolution.
22. What about TMDL data collection and restoration?
23. How do we build a watershed evolution model?
24. What do you think of my approach (Rocky Powell)?
25. We need discussions on practitioners methods or questions for design.
26. Do an internet search for River Rat USFWS.
27. We need to embed “stream restoration” into bigger picture of water quality?
28. What are the efforts that can link Researchers and Practitioners?
29. We all agree on continued collaboration.
30. When we start project, get the other group involved.
31. Next time bring case studies of collaboration between researchers and practitioners.
32. Please report back to the session group with this list of discussion topics.