The Use of Watershed-Based Tools and Resources for Compensatory Mitigation

North Carolina’s Experience
Requested Issues to Address

- How restoration priorities are linked to regulatory processes
- Challenges and opportunities presented by this
Local Watershed Planning as Tool for Identification of Restoration Priorities

- How watersheds are chosen for LWPlanning
- Primary LWP Components
- How Restoration Priorities Derived
Choosing Watersheds for Intensive Planning

- Evaluate projected NCDOT impacts for all 8-digit CUs in the state
- Of those CUs with significant future impacts, which ones are appropriate for LWPlanning
- Apply screening methodology to CUs selected for LWPlanning (based on GIS assessment of 14-digit hucs and RP input)
Relative Comparison of Assets within Watersheds of one 8-digit CU
Relative Comparison of Problems within Watersheds of one 8-digit CU
4 Key Ingredients of a successful Local Watershed Plan

- Technical Assessment: Consultant Services
- Watershed Water Quality Monitoring
- Local Stakeholders & Resource Professionals
- Team Coordinator / Local Partner to assist with local involvement & implementation
Shots of the “Right Medicine” based on prescribed recommendations:
Local watershed planning goes beyond identifying watershed solutions that can be implemented by EEP.
Recommendations based on particular needs of specific watersheds.
EEP projects are more effective when combined with other types of efforts (BMPs, local land use management, etc.).
Partnerships are key.
Prioritization of Projects

- Technical Data Regarding Environmental Benefit to Watershed
- Stakeholder Input
- Feasibility

Note: Different approaches to prioritization applied in different watersheds
Variety of Projects Identified within a Priority Watershed
Cost-Benefit Analysis

Long @ I-77

![Cost-Benefit Analysis Graph]

- Project Cumulative Cost vs. Cumulative % TSS Removed
- Remove Sites indicated on the graph
## Evaluation of Predicted Mgt Results

<table>
<thead>
<tr>
<th></th>
<th>TSS, lbs</th>
<th>TP, lbs</th>
<th>Zinc, lbs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Load w/o projects</td>
<td>3,135,736</td>
<td>2,769.2</td>
<td>337.34</td>
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<td>Load w/ projects</td>
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**Load w/o projects**
- TSS: 3,135,736 lbs
- TP: 2,769.2 lbs
- Zinc: 337.34 lbs

**Load w/ projects**
- TSS: 1,872,265 lbs
- TP: 2,100.5 lbs
- Zinc: 308.70 lbs

**Percent reduction**
- TSS: 40%
- TP: 24%
- Zinc: 8%
Comparison of Management Scenarios in Relation to Target

TSS Loading Target
600 lbs/ac-yr
Understanding Assessment Results and Developing Plan

- Collaborative effort
- Sets the stage for implementation
- Improves viability of chosen projects
Feasibility Issues
Integration of Priorities into Regulatory Context

- EEP restoration applied after avoidance and minimization
- Comply with existing criteria for traditional CM projects
- Use results of LWPs to justify implementation of alternatives
Opportunities for Implementation of Priorities for CM

- In some areas of NC, on-site/in-kind can not be accomplished
- Stream Mitigation Guidelines (USACE, EPA, NCWRC, NCDWQ) – published April 2003
- Publications documenting failure of CM and making recommendations for ways to improve it (NRC report; USACE RGL; MAP)
Barriers to Implementation of Watershed Priorities

- Resistance to change
- No net loss requirement drives restrictive policies
- Money
- Bureaucratic inertia
- Lack of methods to measure functional loss and replacement
The goal of the Clean Water Act is to …

“restore and maintain the chemical, physical, and biological integrity of the Nation's waters.”
The definition of insanity is doing the same thing repeatedly and expecting different results.

Albert Einstein