Measuring Mitigation:

A Review of the Science for Compensatory Mitigation Performance Standards

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Performance Standards

- Review ELI study goals and objectives
- Review ELI findings
- Metrics

ELI study

- Looked only at peer reviewed literature of biological indicators that could help create performance standards.
- Made distinction between design and performance standards.

Goal of study:

- 1. To capture the status of the peer reviewed literature on selected biological indicators, abiotic factors, functional assessments and developmental trajectories as they relate to performance standards for wetland mitigation.
- 2. To provide background research to help the federal agencies develop performance standards and monitoring guidance by 2005.

Reports calling for Mitigation Standards:

- 2001 National Academy of Sciences Report "clearly specified performance standards be
 - adopted to enhance mitigation effectiveness".
- 2001 GAO Report
 - Success of in lieu fee mitigation was impossible to assess because data were not collected and no standards were set.

Performance Standards:

"Observable or measurable attributes or outcomes of a compensatory mitigation project that help determine whether the project meets its objectives."

- Streever 1999, NAS 2001

Performance Standards:

- Developed from mitigation goals and objectives
- Give a clear set of standards to identify the extent to which mitigation is functioning as replacement for lost functions and values.

Challenge:

- Develop and implement scientifically based performance standards that will work within a regulatory structure.
- Standards need to be clear, measurable, and pertain to the desired ecological function of the replacement wetland.

Observations

- Science of wetland restoration is still relatively young.
- Literature is dominated by studies of sites less than 10 years old.
- 1990 MOA was 1st call for mitigation requirements.

General Findings:

- Short monitoring periods 2 to 5 years
- Baseline information importance / deficiency in
- Landscape level perspective for monitoring and assessment.
- Need to enhance standardization in data collection and access, language and definitions and sampling protocols.
- Limited transferability of standards among different regions and wetland types.

General Conclusions:

- Report suggests that performance standards can be developed and implemented.
- Multiple parameters necessary to accentuate strengths while minimizing weaknesses of the various metrics.

Metrics Reviewed: Biotic Parameters



Abiotic Parameters

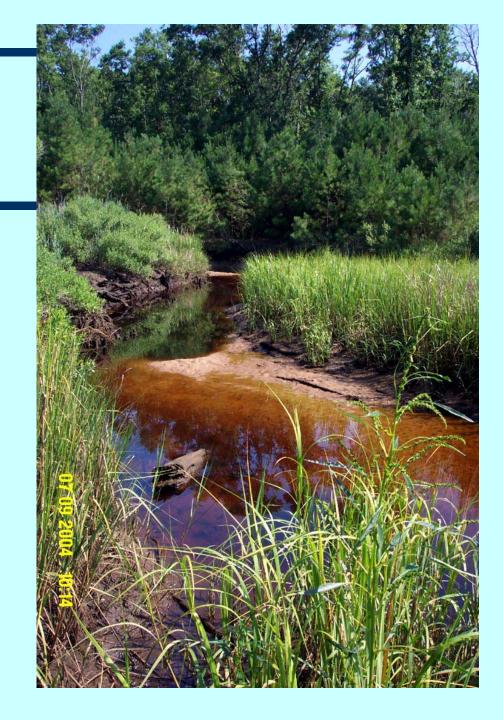
Hydrology, Soil, Sediment, Substrate, Nutrients



Dark parent material catina. Left is non-hydric, middle-left is about on the line, right two are hydric. Site is Sakonnet Vineyards in RI (8/23/00)

Landscape Level Parameters

- HGM,
- Developmental Trajectories



Summary of Findings:

- Biotic Parameters
 - Showed promise but problems using as sole parameter.
- Abiotic Parameters
 - Showed promise but require long monitoring times.
- Landscape Level Parameters
 - HGM reference sites difficult and time consuming and may not always translate into replacement functions.
 - Trajectories few available and difficult to establish