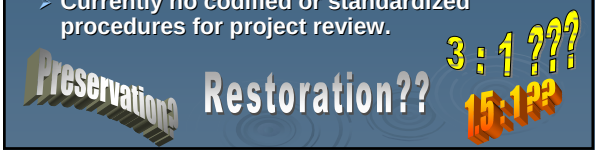
Stream Mitigation Stakeholder Process:

Overview

November 15, 2006

Why?

- Currently, 401 Water Quality Certification reviews for stream impacts conducted under context of the anti-degradation rule.
- Linear foot ratios used as basis for the establishment of mitigation requirements.
- Currently no codified or standardized procedures for project review.



Why?

- Mitigation projects may not adequately compensate for impacts approved through the 401 process.
  - No uniform way to deal with tiered use designations, previous disturbance, or relationship of mitigation to impact.
- Resolution of disputes difficult because of the lack of uniform policy.

Vision Statement

To develop a scientifically sound and predictable methodology for assessing impacts to stream ecosystems and associated compensatory mitigation proposals under review by Ohio EPA through the 401 Water Quality Certification Program.

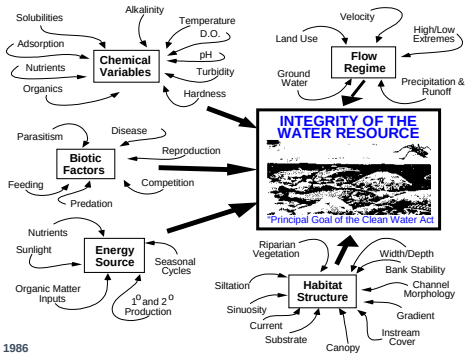
Goals for Protocol Development

- Protocol should be incorporated into a stream mitigation rule promulgated in the OAC.
- Protocol must be able to account for varying types of stream impacts with respect to existing stream uses as well as the range of potential mitigation projects which may be proposed to compensate for these impacts.

Goals for Protocol Development

- Protocol should provide predictability and uniformity to the 401 Water quality certification process.
- Protocol should emphasize the development of mitigation proposals which are scientifically sound and durable.
- Approved stream mitigation plans developed under the protocol must be adequate to compensate for lost or impaired in-stream uses.

The Five Major Factors Which Determine the Integrity of Aquatic Resources



after Karr *et al.* 1986

Weighting Factors Model

- Projects evaluated based upon a series of weighting factors. Both the proposed impacts and compensatory mitigation are evaluated.
- Stream "debits" and "credits" are calculated rather than linear foot ratios.

Weighting Factors Model

- Mitigation requirements met when mitigation credits equal or exceed those calculated based upon the impact.
- Evaluation process governed by protocol referenced in stream mitigation rule.

Weighting Factors Model

- Procedural Advantages:
  - Use of uniform policy lends predictability to program.
  - Weighting factor approach allows for better pre-application alternatives analysis.
  - Less likelihood for disputes since adequate data support is required for the evaluation.

Weighting Factors Model

- Procedural Advantages:
  - Provides applicant with much greater flexibility in the development of mitigation options.
  - Addition of default mitigation requirements for specific impact types simplifies the review process.

Weighting Factors Model

- Stream Resource Integrity Advantages:
  - Multiple factor weighting analysis improves the analysis of overall impact. The system provides better protection for existing uses.
  - Weighting factors used to reward sound design of mitigation projects.
  - Inherent flexibility allowed under the scoring system encourages the development of innovative alternatives.

Weighting Factors Model

- Model developed based upon a draft stream mitigation system used by the Savannah District of the Army Corps of Engineers.
- Model "Ohio-ized" to reflect Ohio EPA methodologies, anti-degradation categories, aquatic life use designations, and other important measures of stream resource integrity.

Weighting Factors Model

- Factors selected for weighting emphasize readily available data or data already required under current 401 procedures wherever possible.
- Use of multiple weighting factors ensures that no one attribute of the impact or mitigation will drive the evaluation. Provides a comprehensive measure of degree of impact and benefit.

Weighting Factors Model

- Scoring of weighting factors based upon relative importance of characteristic to stream resource integrity and anti-degradation considerations.
- Base scores based upon "average case" criteria established in the policy for each weighting factor. Ratio of the sum of factors for impacts vs. mitigation set to equal 1.5 (relates to current practice).

Weighting Factor Assessment Overview

- Impact Assessment
  - Proposed impacts to streams evaluated based upon six criteria. Each criterion assigned a score based upon proposed project and site-specific conditions.
  - Weighting factor scores for individual criteria are added, and the sum is multiplied by the linear feet of impact to determine the number of mitigation credits needed for the proposed impacts.

Weighting Factor Assessment Overview

- Impact Assessment (cont.)
  - Impact weighting factors:
    - Existing Aquatic Life Use (1.5 – 3.2 pts)
    - Existing Habitat Quality (0.2 – 1.5 pts)
    - Priority Area (0.1 – 1.0 pts)
    - Existing Geomorphic Integrity (0.2 – 1.5 pts)
    - Existing Flood Plain Quality (0.2 – 1.5 pts)
    - Impact Category (0.2 – 2.0 pts)
  - Debit Scoring Range: 1.5 – 12.2

Weighting Factor Assessment Overview

- Stream Mitigation Assessment
  - 12 weighting factors used to score proposed stream mitigation projects.
  - Individual weighting factors may not apply in all cases (e.g. projects which involve only stream preservation get no "stream restoration" credit).
  - Weighting factors designed to encourage and reward excellent projects, avoidance of the export of resource integrity, and the improvement of water quality.

Weighting Factor Assessment Overview

- Stream Mitigation Assessment (cont.)
  - Mitigation Weighting Factors
    - Stream Restoration/Relocation Design (0.0 – 3.0)
    - Riparian/Floodplain Preservation (0.0 – 1.0)
    - Riparian Restoration and Enhancement (0.0 – 1.0)
    - Resulting Aquatic Life Use (0.1 – 1.0)
    - Resulting Habitat Quality (0.1 – 1.0)
    - Priority Area (0.0 – 0.5)
    - Watershed Location (0.0 – 1.0)

Weighting Factor Assessment Overview

- Stream Mitigation Assessment (cont.)
  - Mitigation Weighting Factors (cont.)
    - Control (0.0 – 0.5)
    - Impact/Mitigation Relationship (0.1 - 0.5)
    - Implementation Schedule (-0.1 – 0.3)
    - Supplemental Water Quality Activities (0.0 – 0.3)
    - Threat to Stream Segment (0.0 – 0.3)

Weighting Factor Assessment Overview

- Stream Mitigation Assessment (cont.)
  - Credit Scoring Ranges:
    - Preservation: 1.3-7.4
    - Relocation: 0.7-10.1
    - Restoration: 2.3-10.4

Weighting Factor Model: Undesignated Streams

- The mitigation protocol requires a use attainability analysis for streams not designated in the OAC.
  - note: required by [ORC 6111.30 (A)(3)]
- Current protocols used for sites with drainage areas > 1 mi^2 . Consists of use attainability analysis (QHEI and biological assessment, if necessary).

Weighting Factor Model: Undesignated Streams

- For streams < 1 mi^2 , applicants will use PHWH protocols, if applicable. Weighting factor tables adjusted for these existing uses.
- Ohio EPA plans to promulgate PHWH use designations in conjunction with the stream mitigation rules.

Weighting Factor Model: Default Mitigation Requirements

- Many small streams have very limited aquatic life functions (Limited Resource Waters, Class I PHWH).
- In these cases use of Best Management Practices are called for to protect upstream and downstream stream uses and functions.

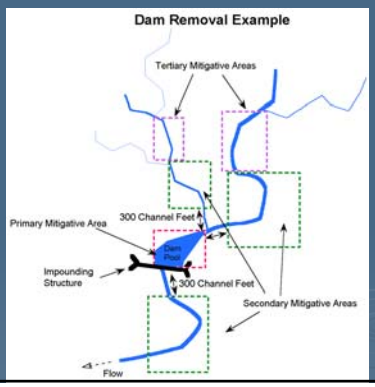
Weighting Factor Model: Default Mitigation Requirements

- For streams with lower quality aquatic life functions (MWH, LWH, and Class II PWHW), a default debit factor score of 3.0 is assigned.
- System will improve staff efficiency, simplify the process, and improve timeliness for projects with less environmental impact.

Collateral Benefit

- "Secondary" or "Tertiary" mitigation credits can be awarded
  - Applies where significant improvement to upstream and/or downstream stream resource integrity will result from a mitigation project.
- Purpose to recognize larger-scale benefits of certain restoration activities conducted through the 401 process.
- Potential for "stream mitigation bank" development.
- Credits only awarded where significant additional benefit can be justified by quality data.

Collateral Benefit



Current Status

- February 2006: Public Notice of draft stream mitigation rules.
- March-April 2006: Symposium and workshop presentations for the draft rule package.
- May 31, 2006: Interested party comment period ends.
- November 2006: stakeholder group meetings regarding the draft rule package begin.
- 2007: 2nd round of interested party review. Preparation of proposed rule package for submission to JCARR.