



Key Conclusions and Recommendations of NAS Report

- **NAS Conclusion:** *The goal of no net loss of wetland is not being met for wetland functions by the mitigation program, despite progress in the last 20 years*
 - ◆ **Ohio Response:** This conclusion confirmed by Ohio EPA studies of mitigation wetlands and banks in 1995, 2001, and 2003-2004

Mitigation Performance

- **NAS Conclusion:** *Performance expectations are often unclear, and compliance is often not assured or attained*
- **NAS Recommendation:** mitigation goals must be clear and specified in terms of measurable performance standards. BPJ in assessing mitigation should be replaced by science-based assessment procedures *that scale mitigation assessment results to results from reference sites, and reliably indicate ecosystem processes or use scientifically established structural surrogates*
- **Ohio Response:** "Part 6" approach to mitigation monitoring and performance and key rule changes to support this approach

1998 Wetland Water Quality Standards and Wetland Antidegradation Rule

- 3745-1-50 Definitions
- 3745-1-51 Narrative Water Quality Criteria
- 3745-1-52 Wetland Designated Use
- 3745-1-53 Wetland Chemical Criteria
- 3745-1-54 Wetland Antidegradation
 - ◆ 3 protection categories: Category 1, 2, 3
 - ◆ alternatives analysis
 - ◆ mitigation monitoring, performance, ratios

Overview of changes 1998 Wetland Rules

- 3745-1-50 Definitions
 - ◆ definitions added and modified
- 3745-1-51 Narrative Water Quality Criteria
 - ◆ minor modifications and updates
- 3745-1-52 Wetland Designated Use
 - ◆ significantly expanded and includes numeric wetland biocriteria and wetland tiered aquatic life uses
- 3745-1-53 Wetland Chemical Criteria
 - ◆ relatively minor modifications and updates
- 3745-1-54 Wetland Antidegradation
 - ◆ update, revision and reorganization of rule
 - ◆ mitigation moved to stand alone rule -55

New 3745-1-55 Wetland Mitigation

- Clarified and expanded mitigation monitoring and performance procedures
 - ◆ expanded definition of in-kind
 - ◆ out-of-kind allowed by requires explicit decision and choice of alternative wetland model
 - ◆ language to clarify performance requirements
- Mitigation ratios flattened
 - ◆ flat 2:1 for Category 1, 2
 - ◆ flat 3:1 for Category 3
 - ◆ upland buffer and preservation can be used for ratio greater than 1:1
- Preservation requirements reduced

Ohio EPA Studies in Natural and Mitigation Wetlands



2002-2004 Mitigation Inventory Surveys – Deni Porej & Chad Kettlewell

- 101 projects (178 wetlands)
- 71.2% of required acreage constructed
- 425.3 ac wetland impacts, 697.8 ac required, 496.8 ac constructed (71.2%)
- Replacement ratio 1:1.17
- Approx. 95% emergent marshes
- 5% no mitigation constructed

Where along the continuum do mitigation wetlands fall

Least impacted

Most disturbed

Range of Natural Wetland Condition



slide from Fennessy and Rokeach 2002

Elements of A Condition-Based Approach to Wetland Mitigation

- 1) A reference wetland data set of major wetland types and disturbance regimes
- 2) A detailed wetland classification scheme that incorporates landscape position (i.e. HGM class) and dominant plant community
- 3) A "rapid" condition-based wetland assessment method
- 4) Intensive biological, chemical, hydrological measures of wetland condition
- 5) Standardized mitigation monitoring protocols and performance standards

Key Rule Changes Supporting this Approach

- ◆ Expanding definition of "in-kind" to include HGM class and dominant vegetation
- ◆ Flattening of mitigation ratios and allowing part of ratio >1:1 to be satisfied with upland buffer and preservation
 - ◆ since higher confidence of success with quantitative performance standards, rationale for ratios (uncertainty, deterrence) no longer apply
- ◆ Adoption of numeric biocriteria and equating wetland aquatic life categories to antidegradation categories

Steps to ensure “functional replacement”

- STEP 1.
 - ◆ As part of permit application, the HGM class and dominant plant community of the impacted wetland(s) must be determined.
 - ◆ Specifying the type of wetland will account for different ecosystem processes (functions) and ecological services (values) of different wetland types without the necessity of developing a comprehensive list of those functions and values.

Steps to ensure functional replacement

- STEP 2.
 - ◆ The condition of the impacted wetland is assessed with the rapid condition tool (ORAM v. 5.0) or a wetland IBI.
 - ◆ This provides a measure of “functional capacity” since “good” condition equates to “good” functioning, etc.

Steps to ensure functional replacement

- STEP 3.
 - ◆ The size of the wetland to be impacted is determined.
 - ◆ Mitigation ratios are then used to determine the *amount* of mitigation required.

Steps to ensure functional replacement

- STEP 4.
 - ◆ Any residual moderate to high ecological services the impacted wetland(s) may still be providing, despite moderate to severe degradation, can be evaluated
 - ◆ A checklist approach can be used with a narrative discussion
 - ◆ If necessary, a more detailed quantification of residual services can be performed

Performance Standards

- STEP 5.
- Quantitative performance standards for wetland mitigation based on ecologic condition and key biogeochemical indicators are required:
 - ◆ Hydrology
 - ◆ Soils
 - ◆ Ecologic Condition
 - ◆ Morphometry
 - ◆ Perimeter:Area ratio
 - ◆ Basic vegetation establishment
 - ◆ Invasive species
 - ◆ unvegetated open water

Has “Functional” Replacement occurred?

- Yes, because...
 - ◆ 1) there was “no net loss” of wetland acreage,
 - ◆ 2) a mitigation wetland of same HGM class and dominant plant community was created with functions and ecological services equivalent to the impact wetland, and
 - ◆ 3) a mitigation wetland was created of equivalent “quality” as measured by biological, hydrological, and biogeochemical indicators (and therefore of equivalent functional performance).

Proposed Changes to 401 Rules in OAC Chapter 3745-32-04

- Plans, design and monitoring for mitigation
 - ◆ Section A – establishes a nine part plan to achieve mitigation goals
 - ◆ Section B – establishes a specific requirement for monitoring mitigation projects

Proposed Changes to 401 Rules in OAC Chapter 3745-32-04 cont.

- Comprehensive Mitigation Plan
 - ◆ Goals and Objectives
 - ◆ Baseline information on impact, mitigation, and reference sites
 - ◆ Mitigation site selection
 - ◆ Mitigation work plan

Proposed Changes to 401 Rules in OAC Chapter 3745-32-04 cont.

- Comprehensive Mitigation Plan cont.
 - ◆ Performance standards
 - ◆ Site protection and maintenance
 - ◆ Monitoring plan
 - ◆ Adaptive management plan
 - ◆ Financial assurances

Proposed Changes to 401 Rules in OAC Chapter 3745-32-04 cont.

- Mitigation Monitoring
 - ◆ Establishes a 5 year monitoring period with the ability to decrease or increase depending on type of and mitigation success
 - ◆ Provides flexibility to ensure the appropriate parameters are being measured