

The Use of Rapid Assessment Methods during the National Wetland Condition Assessment

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Ohio Rapid Assessment Method (ORAM)

- Wetland Rapid Assessment Method
- Assess wetland condition
- Numeric scoring system
- Metrics include:
 - Wetland area
 - Upland buffers and surrounding land use
 - Hydrology
 - Habitat alteration and development
 - Plant communities, interspersions, microtopography

NC Wetland Functional Assessment Team (WFAT)

- Developed by interagency team from 2003 to 2008
 - Federal agencies
 - US Army Corps of Engineers
 - Environmental Protection Agency
 - Federal Highway Administration
 - US Fish and Wildlife Service

NC Wetland Functional Assessment Team (WFAT)

– State agencies

- NC Department of Transportation (co-chair)
- NC Division of Coastal Management
- NC Division of Water Quality (co-chair)
- NC Ecosystem Enhancement Program
- NC Natural Heritage Program
- NC Wildlife Resources Commission

– Consultants

- Ecoscience, Corp. (Now Atkins)

Background

- Presently, DWQ and Corps regulate stream and wetland fill by length and acres, respectively
- Interest in DENR, DOT and Corps of Engineers administration to regulate based on wetland and stream value (quality)

Progress to date

- NC Wetlands Assessment Method (NC WAM) completed
- Interagency Team met for past six years
 - Developed rapid assessment method
 - “Rapid” method defined as taking no more than 15 minutes per site after training
 - Beta-tested method with Regional staff and others including consultants
 - Final method done April 2008
 - Training for RO and Corps staff begun in fall 2008

What is NC WAM?

General considerations

- High, Medium and Low values – by separate function and overall
- Within wetland type
- Comparisons between wetland type – regulatory agency decision
- Condition – compare to reference site
- Opportunity noted – used as appropriate

Three Main Functions

- Hydrology
- Water Quality
- Habitat

Hydrology

- Surface storage and retention
- Subsurface storage and retention

Water Quality

- Particulate change
- Soluble change
- Pathogen change
- Physical change
- For interstream flat wetlands – NC WAM uses “Pollution Change” instead

Habitat

- Physical structure
- Vegetation composition
- Landscape patch structure
- Uniqueness

Stressors

- Hydrological modifications
- Surface discharge into/out of wetland
- Sub-surface discharge into/out of wetland
- Habitat/Plant Community alteration
- Signs of vegetation stress

Key to Wetland Types

- Identified and described 16 general wetland types with dichotomous key
- Narrative descriptions with soil, plant species, landscape position, etc.
- Correlated with
 - Natural Heritage Types,
 - NC CREWS (Coastal Management) Types, and
 - HGM Types

The 16 General Wetland Types

- Mountain Bogs
- Salt/Brackish Marsh
- Estuarine Woody
- Non-Tidal Freshwater Marsh
- Tidal Freshwater Marsh
- Pine Savannas
- Seeps
- Bottomland Hardwood Forest
- Riverine Swamp Forest
- Headwater Forest
- Floodplain Pool
- Pocosin
- Hardwood Flats
- Pine Flats
- Small Basin Wetlands
- Non-Riverine Swamp Forest

Overall Evaluation Process

- One Field Assessment Form (four pages) with all metrics
- Form completed in field with some office map work
- Evaluate with rating calculator (computer program)
 - Boolean logic completed by Team for each wetland type
 - Systematic combination of each subfunction
- Generates rating of High, Medium or Low for each of up to ten sub-functions, three functions and then one overall rating

Implementation

- Will use NC WAM for
 - Watershed assessment
 - Wetland monitoring and functional uplift
 - Avoidance and minimization
 - Mitigation
 - Training

Avoidance, minimization and mitigation

- In general, impacts to lower quality wetlands will require less mitigation and be easier to permit.
- Impacts to higher quality wetlands will require more mitigation and be harder to permit.
- Essentially, we will replace functions instead of acres for wetlands.

Differences between NCWAM and ORAM

- NCWAM is a functional assessment method
- ORAM is a condition assessment method
- NCWAM assigns a high, medium, low rating
- ORAM assigns a numeric score
- NCWAM: Hydrology, Water Quality, Habitat
- ORAM: No emphasis on Water Quality, more emphasis buffer, habitat, stressors

Results from the NWCA sites

- NC had 47 sites selected

NCWAM type	Number of Sites
Bottomland Hardwood Forest	4
Brackish/Salt Marsh	18
Estuarine Woody	3
Hardwood Flat	8
Pine Flat	3
Pocosin	6
Riverine Swamp Forest	5
Total	47

Overall Scores

NCWAM Score	Number of Sites
HIGH	38
MEDIUM	8
LOW	1
total	47
ORAM	65.8

Results by NCWAM Wetland Type

Wetland Type	NCWQM	N	ORAM	ORAM Percent
Bottomland Hardwood Forest	HIGH	1	66.5	73.89
Bottomland Hardwood Forest	MEDIUM	3		
Brackish/Salt Marsh	HIGH	18	72.9	81.00
Estuarine Woody	HIGH	3	66	73.33
Hardwood Flat	HIGH	6	49.6	55.11
Hardwood Flat	MEDIUM	2		
Pine Flat	LOW	1	46.7	51.89
Pine Flat	MEDIUM	2		
Pocosin	HIGH	5	65.6	72.89
Pocosin	MEDIUM	1		
Riverine Swamp Forest	HIGH	5	78.8	87.56
Overall Mean			65.8	73.11

Summary of Results

- NCWAM seems a little biased toward rating wetland function “high”
- ORAM seems to have a more “normal” distribution for wetland condition
- There is a weak relationship between the two rapid assessments
- Remember, the rapid assessments have different purposes!
- USA-RAM next?

Questions

- Thanks to the EPA for funding
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