Toward a Mid-Atlantic Regional Wetlands Condition Assessment

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Mid-Atlantic Regional Wetlands Condition Assessment - Project Objectives

- Provide a periodic characterization of regional wetland conditions
  - based on probabilistic sampling
  - suitable at a number of spatial scales
- Diagnose the dominant stressors that are affecting wetland condition
- Generate a comprehensive landscape assessment of wetland conditions
- Inform the setting of restoration and creation goals
2008-2012

- Design, test, and apply a landscape assessment of all mapped wetlands in the region
  - extant remotely sensed data including ecosystem services - habitat and water quality
- Design and test a rapid assessment approach
  - synthesis of existing methods in the region
- Apply the rapid assessment method in a probabilistic survey design
  - (EPA’s GRTS - Generalized Random Tessellation Stratified survey design)
  - characterize wetland condition at several scales in the Mid-Atlantic region
- Initiate a strategy for continuing monitoring of wetlands in the region - 5 year iteration
Stratification by Physiographic Province

- 5 physiographic units, 400 points sampled, min. 80 assessed points/ecoregion
Regional Wetland Assessment Sampling Locations
Field teams
THANKS !!

2008

2009
• Assessment Area (AA): 0.5 ha (40m-radius circle) can be altered in shape to fit site
• Buffer – 100m concentric “ring” around AA
Example point - C & O Canal along the Potomac River in Maryland
Progress: Level 2 - Rapid Assessment

2008
- Adapted DE-, PA- & VA- RAPs to Palm Pilots
- Conducted training and QA audit w/ USEPA
- Sampled 200 sites in 5 ecoregions (2 teams)
- Updated MAWWG members at Spring & Fall mtgs.

2009
- Developed (Unified) Mid-Atlantic RAP
- Sampled 200 sites in 5 ecoregions (2 teams) in 2009 with Unified Mid-Atlantic RAP
- Conducting landscape analysis on “all” NWI polygons
- Developing Mid-Atlantic RAP Index scores
(Unified) Mid-Atlantic RAP - Variables

- Non-scoring factors
  - HGM Class, according to Mid-Atlantic Classification by Brooks et al.
  - Wetland Successional Stage (PAB, PEM, PSS, PFO, REM, LEM…)
  - Buffer Successional Stage (dominant land use or wetland + forest “age”)
  - Photograph (at least one of typical view)
  - Qualitative Condition Rating (BPJ from least disturbed-1 to highly disturbed-6: used to check computed score)
(Unified) Mid-Atlantic RAP Variables (cont’d)

- Scoring factors (*scoring numerics to be finalized*)
  - Buffer (dominant land use, + forest “age”)
  - % Invasive Plant Spp.(0-5, 5-20, 20-50, >50; dom. spp.)
  - Stressor Checklist (separately for AA and Buffer):
    - Hydrologic modification (ditch, fill, dead trees, stormwater, roads)
    - Sedimentation (deposits, intensive grazing, active construction…)
    - Vegetation alteration (mowing, mod. grazing, brush cutting…)
    - Eutrophication (discharges, heavy algal mats…)
    - Contaminant/Toxicity (point discharges, severe veg. stress, chemical odor)
Wetland Successional Stage
(All Sites)

Wetland Successional Stage

# of Sites

LEM    PAB    PEM    PFO    PSS    REM

Wetland Successional Stage
Contaminant/Toxicity

Total Stressors for All Sites
2008 & 2009

- Eutrophication: 1%
- Contaminant/Toxicity: 5%
- Hydrologic Modification: 44%
- Vegetation Alteration: 23%
- Sedimentation: 27%
Total Stressors for CP
2008 & 2009

- Eutrophication: 5%
- Hydrologic Modification: 45%
- Vegetation Alteration: 34%
- Sedimentation: 16%
Contaminant/Toxicity

Total Stressors for GP
2008 & 2009

Hydrologic Modification 57%
Sedimentation 21%
Vegetation Alteration 16%
Eutrophication 2%
Contaminant/Toxicity 4%
Total Stressors for All Sites by Ecoregion 2008 & 2009

- RV 25%
- AP 17%
- PD 30%
- CP 18%
- GP 10%
Total AA Stressor Category Occurrence by HGM Subclass

HGM Subclass

Depression Flat Headwater (complex) Lacustrine Mainstem (complex) Mainstem (complex) Slope

# of sites

4 3 2 1 0
Invasive Plant Species Cover
(All Sites)

- 0-5%: 250
- 5-20%: 100
- 20-50%: 50
- 50-100%: 0
Next steps

- Finalize scoring procedures for Unified Mid-Atlantic RAP (working with Mary Kentula, EPA-ORD on scoring)

- Calibrate landscape assessment models for remaining ecoregions
  - using available Level-3 Intensive data from reference wetlands

- Continue to update MAWWG members 2x/yr

- Compile final results as Mid-Atlantic RAP Index
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MAWWG Member States
- Pennsylvania
- Delaware
- Maryland
- Virginia
- West Virginia