How the heck did we get here?

The History of MAWWG

Mark Biddle
Delaware DNREC, November 2023

Wetland Monitoring and Assessment tied to Clean Water Act Requirements

As part of the CWA 305(b) reporting, it's required to monitor and report on the conditions of waters through the assessment of the biological, chemical, and physical integrity of all waters (meeting WQS)

In the early 2000's, it was determined that wetlands were not being adequately protected through CWA programs

- Lack of data in 305(b) reports; data on only 4% of Nation's wetlands
- Some data on quantity, but little on the quality or condition of wetlands
- Lack of wetland-specific water quality standards

March 2003, EPA issues document *Elements of a State Water Monitoring and Assessment Program*

- Tool to aid state water quality monitoring programs meet CWA objectives
- States required to assess all waterbody types by incorporating the ten elements from EPA Guidance
- Wetlands are a waterbody type
- All Region III states included wetlands in their WQ Monitoring Strategies

Putting Tools and Science into Practice

Mid-Atlantic Wetland Work Group

- Purpose - Forum for states in the Mid-Atlantic to facilitate the development and implementation of wetland monitoring and assessment strategies and integration into wetland program management.
- Goals:
  - Development and implementation of state wetland monitoring strategies and methods for the Mid-Atlantic region
  - Integrate wetland monitoring activities into water assessment programs
  - More effectively manage waters on a watershed basis
  - Integrate best available science into wetland program decision-making

MAWWG Established in 2002

Collaborate - State and Federal Partners

US Army Corps of Engineers

Collaborate - Academic Partners

- Pennsylvania State University
- Virginia Institute of Marine Science
- West Virginia University
- Virginia Tech
- Kenyon College (Ohio)

Monitoring and Assessment Visioning

Each state identified 5 goals to accomplish in the next 5 years

Created Action items for each goal

EPA met with each state to determine best way to achieve goals

How can MAWWG help this process?

Identify Priorities for Monitoring and Assessment

Wetland Program Management, Integration, and Interagency Coordination

Regulatory Decision Making and Rule Making

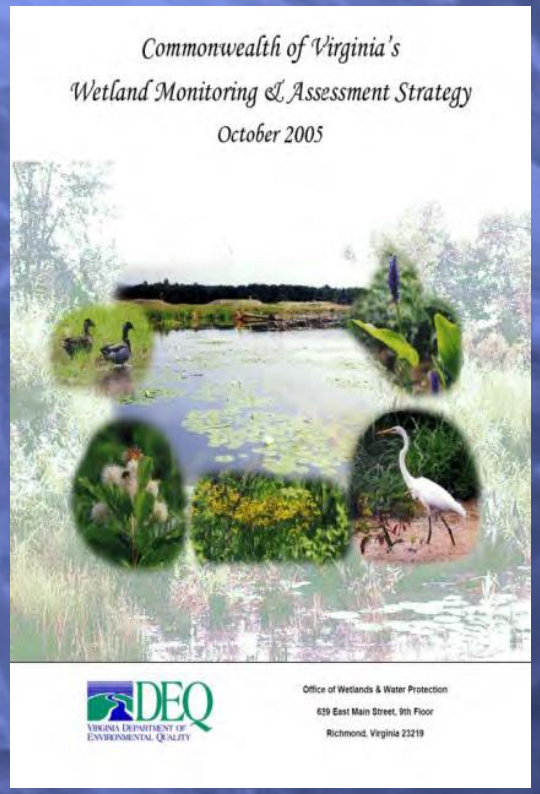
Mitigation – Banking, ILF, Protection, Preservation, and Restoration

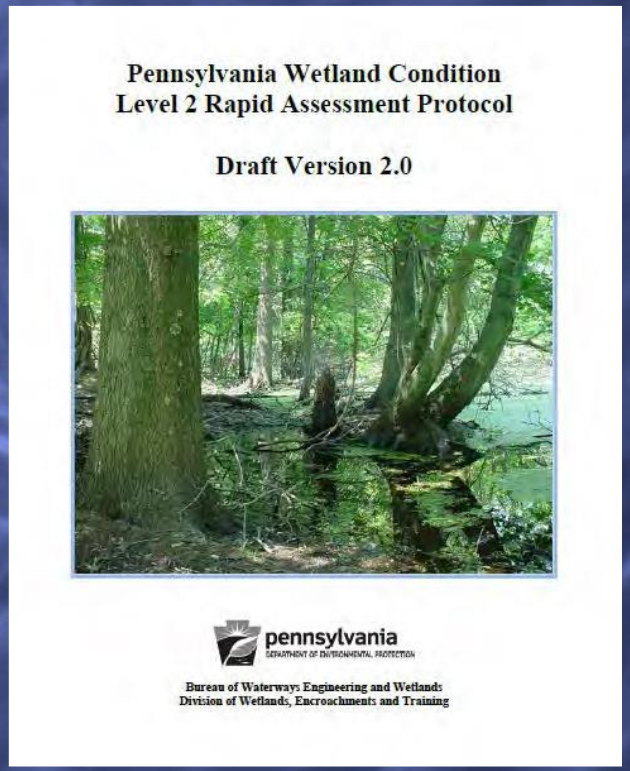
Tool Development, Refinement and Deployment

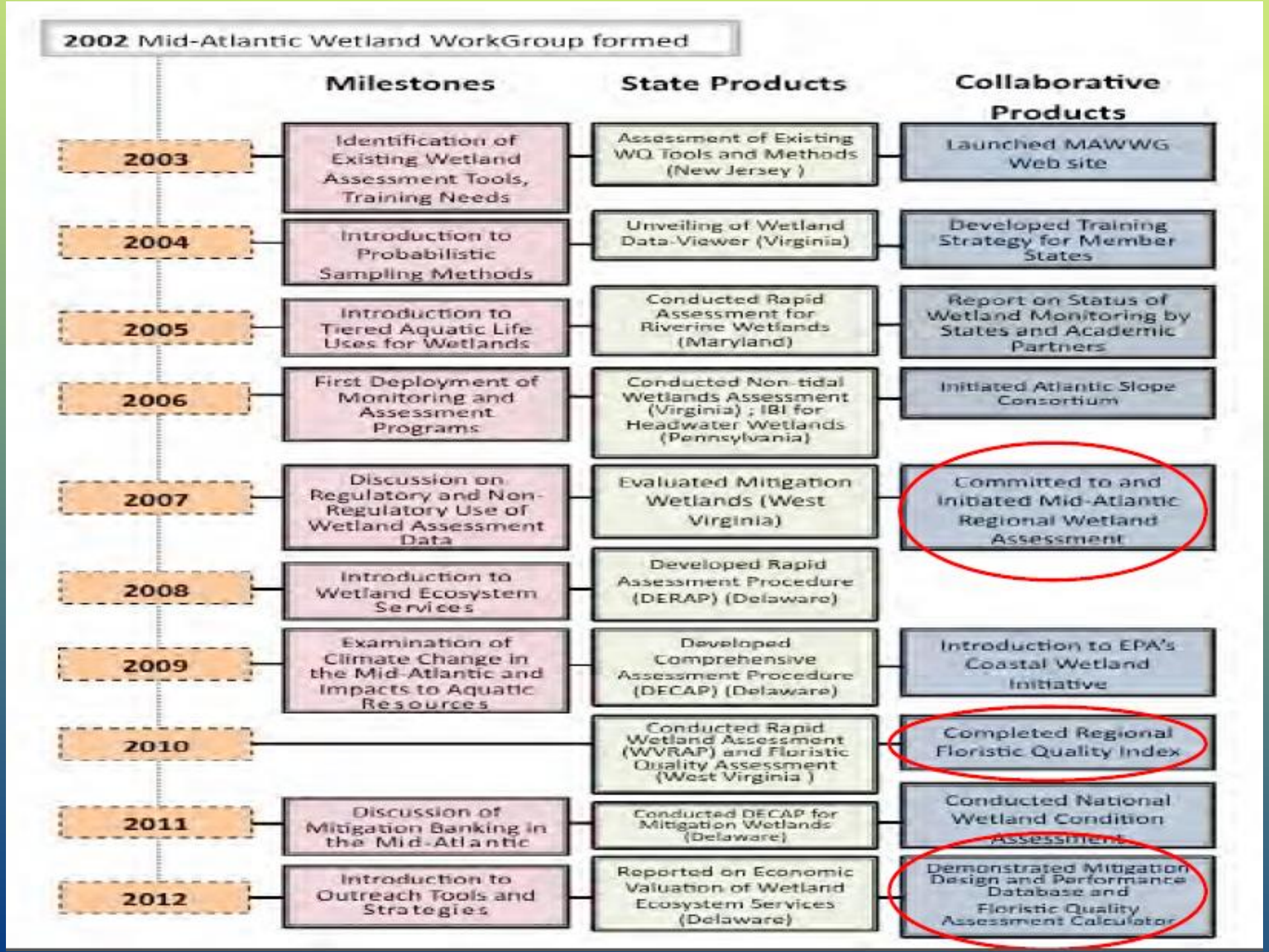
Training and Outreach

Already Tools, Strategies, and Protocols in Development

** MAWWG instrumental in progress and consistency






2002 Mid-Atlantic Wetland WorkGroup formed
Milestones
State Products
Collaborative Products
2003
Identification of Existing Wetland Assessment Tools, Training Needs
Assessment of Existing WQ Tools and Methods (New Jersey)
Launched MAWWG Web site
2004
Introduction to Probabilistic Sampling Methods
Unveiling of Wetland Data-Viewer (Virginia)
Developed Training Strategy for Member States
2005
Introduction to Tiered Aquatic Life Uses for Wetlands
Conducted Rapid Assessment for Riverine Wetlands (Maryland)
Report on Status of Wetland Monitoring by States and Academic Partners
2006
First Deployment of Monitoring and Assessment Programs
Conducted Non-tidal Wetlands Assessment (Virginia) ; IBI for Headwater Wetlands (Pennsylvania)
Initiated Atlantic Slope Consortium
2007
Discussion on Regulatory and Non-Regulatory Use of Wetland Assessment Data
Evaluated Mitigation Wetlands (West Virginia)
Committed to and Initiated Mid-Atlantic Regional Wetland Assessment
2008
Introduction to Wetland Ecosystem Services
Developed Rapid Assessment Procedure (DERAP) (Delaware)
2009
Examination of Climate Change in the Mid-Atlantic and Impacts to Aquatic Resources
Developed Comprehensive Assessment Procedure (DECAP) (Delaware)
Introduction to EPA's Coastal Wetland Initiative
2010
Conducted Rapid Wetland Assessment (WVRAP) and Floristic Quality Assessment (West Virginia)
Completed Regional Floristic Quality Index
2011
Discussion of Mitigation Banking in the Mid-Atlantic
Conducted DECAP for Mitigation Wetlands (Delaware)
Conducted National Wetland Condition Assessment
2012
Introduction to Outreach Tools and Strategies
Reported on Economic Valuation of Wetland Ecosystem Services (Delaware)
Demonstrated Mitigation Design and Performance Database and Floristic Quality Assessment Calculator

home | overview | tools and products | training | resources | participants

Bioassessment Tools

Search for bioassessment tools by state or physiographic province

Floristic Quality Assessment Index (FQAI)

General information and developments for the Mid-Atlantic region

Mid-Atlantic Regional Wetland Condition Assessment

On-going project to develop a regional rapid assessment protocol for wetland condition

Wetlands Mitigation Design and Performance Database

On-going project compiling reference wetland data to be interpreted and used to inform the design and performance evaluation of restored and mitigated wetlands

How do we inventory, assess ecological integrity, and restore natural resources across geographic scales?

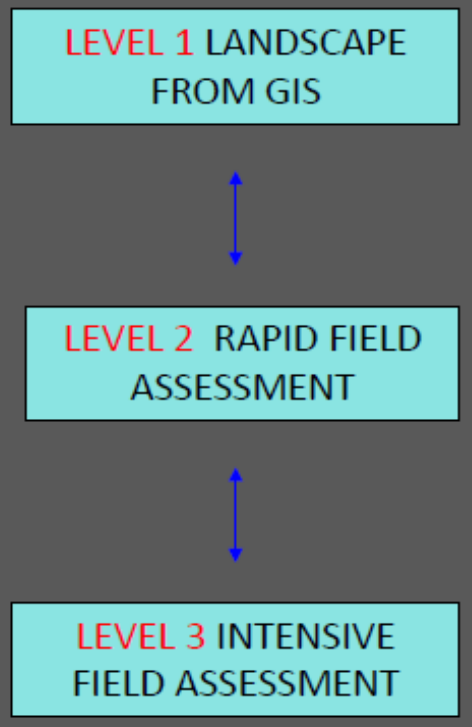
Case Study – Level 1
Wetland classification, inventory, & landscape assessment

Case Studies – Level 2
Mid-Atlantic Regional Wetlands Assessment

Case Studies – Level 3
Floristic Quality Assessment Index

Reference Wetlands for Mitigation

(Rapanos vs. U.S.)



- Condition assessment from office, reference
- Refined condition assessment
- Landscape profiles
- Stressor profiles
- High quality condition assessment
- FQAI, IBI, & HGM
- Mitigation design & performance

Wetland Monitoring Matrix

	INVENTORY	ASSESSMENT	RESTORATION
LEVEL 1	Use existing map resources (NWI) of wetlands	Map land uses in watershed; compute landscape metrics	Produce synoptic watershed map of restoration potential
LEVEL 2	Enhance inventory using landscape-based decision rules	Rapid site visit and stressor checklist; preliminary condition assessment	Select sites for restoration; examine levels of threat from surroundings
LEVEL 3	Map wetland zone abundance using verified inventory	Apply HGM and IBI models to selected sites for condition based on reference	Map specific sites for restoration; design projects with reference data sets

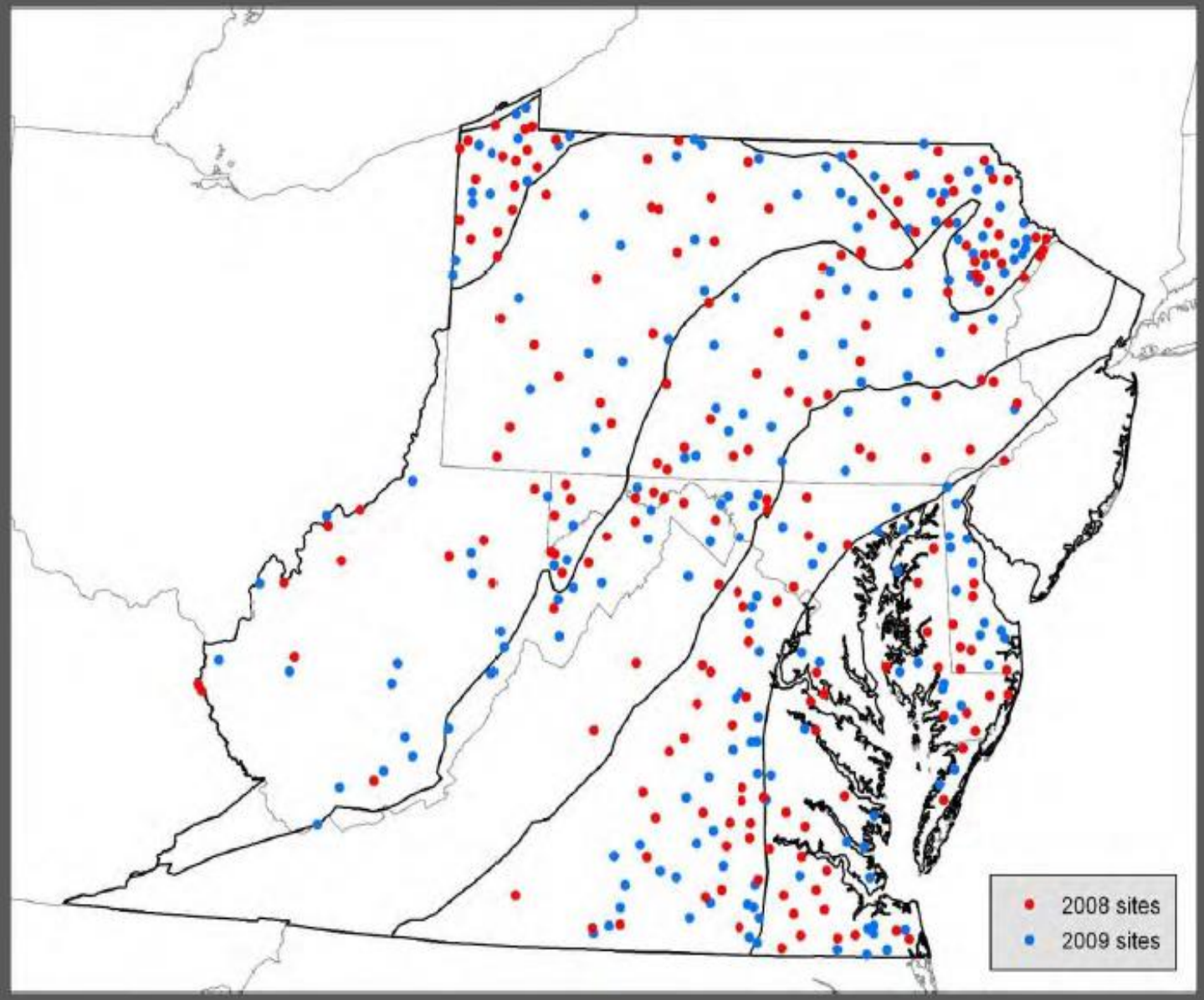
Hydrogeomorphic Classification for Mid-Atlantic Wetlands
Brooks et al. 2011 Wetlands 31:207-219

R.P. Brooks[1], M.M. Brinson[2], K.J. Havens[3], C.S. Hershner[3], R.D. Rheinhardt[2], D.H. Wardrop[1], D.F. Whigham[4], A.D. Jacobs[5] & J.M. Rubbo[1](Penn State[1], ECU[2], VIMS[3], SERC[4], DNREC[5])

Riverine
lower perennial (mainstem floodplain), floodplain complex,
upper perennial (headwater floodplain), headwater complex, intermittent
beaver impounded human impounded
Lacustrine (fringe)
permanently inundated, semi-permanently inundated, intermittently inundated,
artificially inundated
Slope
Stratigraphic, Topographic (mineral soil, organic soil)
Depression
perennial (riparian depression, emergent marsh)
seasonal
temporary (isolated depression, vernal pool) -- human impounded, human excavated

Regional Wetland Assessment Sampling Locations

Level 2
Rapid
Assessment



Using Reference Wetlands Data to Improve Design and Performance of Mitigation Projects

Gebo and Brooks 2012: Wetlands

Evolution of the Science, Policy and Practice

Assessments helped to identify *Reference Wetlands* to help improve design and performance mitigation and restoration projects

Gebo and Brooks (2012) found that: "Overall, mitigation sites displayed lower potential to perform a characteristic wetland function than reference wetlands."

Incorporate wetland functional analysis into regulatory permitting decisions

Advance consistency, assessment, and overall management of wetlands regionally

Individual state wetland program plans

Established biennial meetings with NEBAWWG

MAWWG 2023 and Beyond

Continue to provide a forum for states and tribes, in partnership with academia and conservation efforts, that provides a collaborative process for development and implementation of tools and strategies

"The reason I find MAWWG so valuable is that it allows me to have direct contact and maintain a relationship with other state wetland biologists from the region" – MAWWG member