Building Blocks of a Wetland Regulatory Program: Approaches and Lessons Learned from Kentucky

Michelle Cook
Wetlands Program Coordinator
November 13, 2020

Kentucky Department for Environmental Protection
Division of Water

Overview

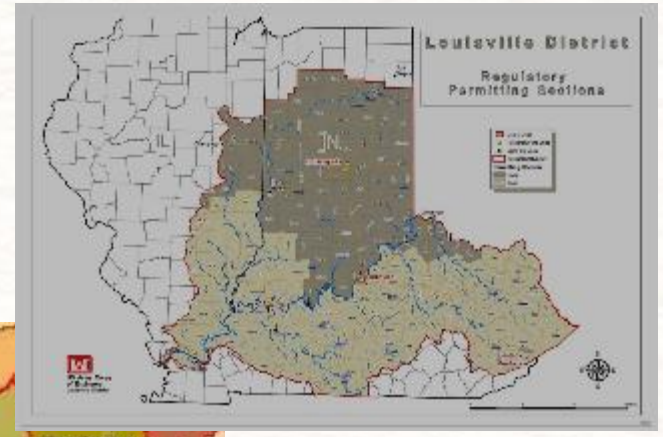
- Kentucky Division of Water (KDOW) Regulatory Program
- Rapid Assessment Method Development
  - Need
  - Drafting Process
  - Field Testing
  - Steps Toward Validation
- Next Steps / Vision for Implementation
- Lessons Learned

Overview of KDOW (Surface Waters) Regulatory Program

- Clean Water Act – Section 401
  - Water quality certifications (WQCs) of federal permits
    - Federal dredge and fill permits (Section 404)
    - Section 9 & 10 Rivers & Harbors Act
    - FERC
    - TVA

- USACE Districts with jurisdiction within Kentucky
  - Louisville (majority of the state)
  - Nashville
  - Memphis

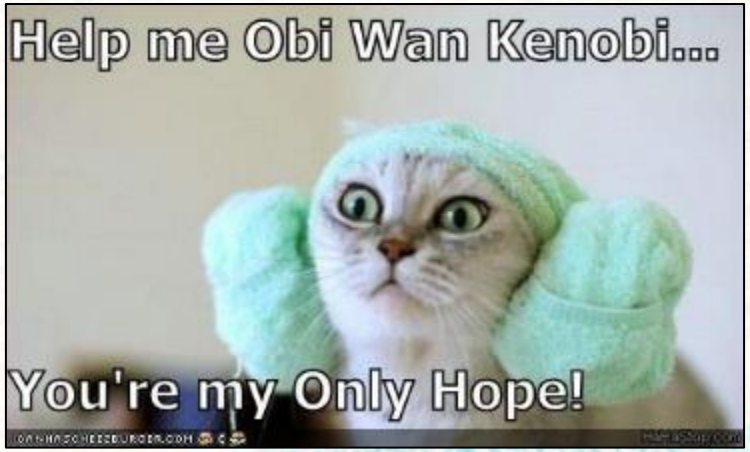
- Kentucky does not have state permitting program
  - All wetlands and streams that fall outside of the USACE's jurisdiction do not require a permit to impact
  - The State cannot require compensatory mitigation



Driver for Wetlands (Regulatory) Program Development

- Mid to late 2000s
  - USEPA approached KDOW about developing a wetlands monitoring and assessment program
  - Wetland Program Development Grants
    - This is the kind of thing we want states to do

- KDOW management approached 401 WQC Section supervisor
  - "You're our only wetland people"



Core Elements of a Wetlands Program

- USEPA Core Elements Framework (Enhancing State and Tribal Programs Initiative)
  - Core Elements are the major components of a strong wetlands program
    - Include M & A, Regulatory, Voluntary Restoration & Protection, and Water Quality Standards for Wetlands
  - Monitoring and assessment plays a foundational role in other core elements

- Clean Water Act
  - §404 / 33 CFR Part 332 (2008 Mitigation Rule)
    - Compensatory mitigation should successfully replace lost wetland functions and ecological services

(Some of the) Wetlands Program Gaps

- No wetland monitoring/assessment program
  - Only wetland delineation

- USACE Mitigation Requirements
  - Rapid stream assessment
    - Ecological integrity of existing, impacted, or mitigation streams for stream credit determination
    - Had nothing like this for wetlands
  - Wetlands – 2:1 ratio, regardless of condition / function
    - E.g., wetland containing a rare wetland community treated the same as roadside ditch
  - No disincentive to impact high quality, more ecologically valuable wetlands
  - No incentive to create like-condition wetlands

Approach to Filling Gaps

- Establish Wetland Monitoring and Assessment Program
  - Develop methodology for all types of wetlands, and the entire state
  - Begin ambient monitoring of wetland condition

- Get Staff Resources
  - No staff time committed to wetland monitoring
  - Training needed to become familiar with wetland assessment techniques / approaches

How We Began to Address (Some of) the Gaps

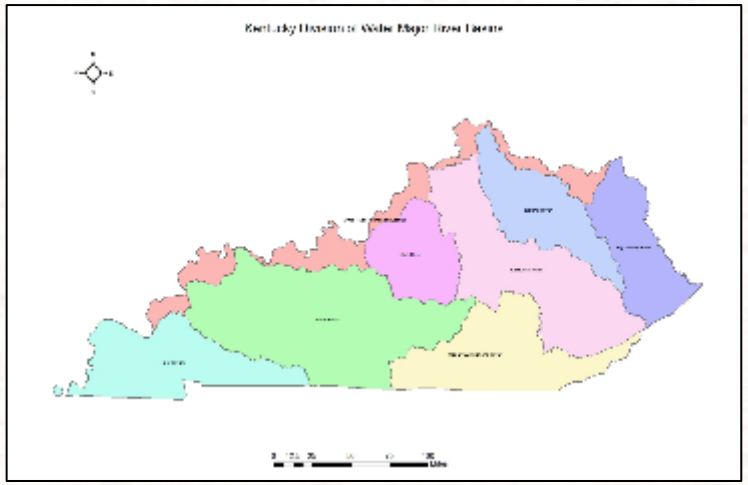
- First Project

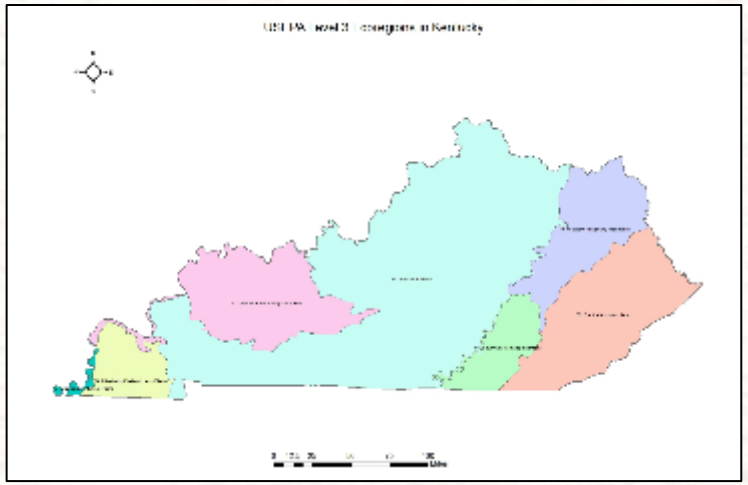
- Obtained Funding:
  - CWA Water Pollution Control (Section 106) – Monitoring Initiative Grants

- Project Outcomes:
  - Researched other states' ambient wetland monitoring programs and methodology
  - Statewide survey and planning process
  - Diana Woods (Region 4 USEPA) put KDOW in touch with NWCA folks

RAM Development

- Project Goal
  - Draft a rapid assessment method (RAM) to evaluate condition for all types of wetlands within Kentucky
- Funding
  - Wetland Program Development Grant (WPDG), 2009-2013
- Primary Purpose:
  - Assess and rate the quality of wetlands to inform mitigation policy
  - Primary users: applicants for Section 401 WQC & Section 404 permits, their consultants, and agency regulators





Preparing for RAM Development

- Identified staff resources to complete work
  - Did not have the capacity to perform in-house
  - Put contract out for bid
  - Established contract with biologists

- Luck & Networking
  - Learned from people who had been through the process
  - Met John Dorney (North Carolina) at a 401 WQC conference
    - Became a mentor: how to structure and manage the development process

Preparing for RAM Development

- Formed Technical Working Group (TWG) in 2010
  - Included stakeholders from major agencies within Kentucky
    - Especially USACE

- TWG Process
  - Met monthly (Jan-May, Oct-Dec, 2011)
  - Meeting facilitator attended **(some)** meetings to assist process
    - E.g., stay on track, take notes, record votes
    - Allowed RAM development staff to focus on discussion
  - Set “Ground Rules” & “Group Protocols”

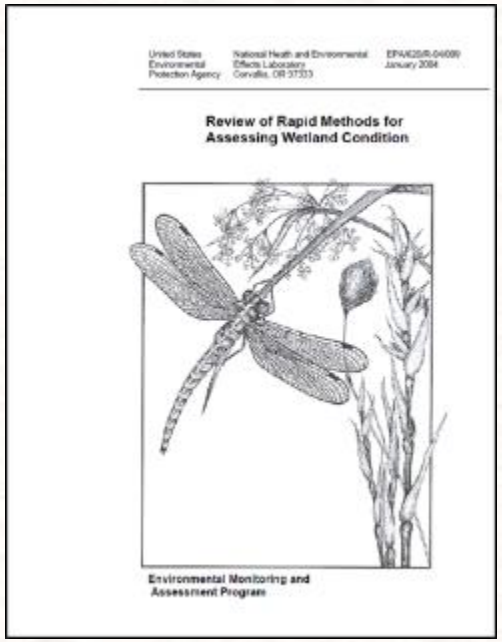
RAM Development – The Early Days

- Attended trainings
  - North Carolina Wetland Assessment Method (NC WAM)
  - Ohio Rapid Assessment Method (ORAM)

- Convened TWG for Draft RAM Development
  - Reached out to additional rapid assessment development experts!
    - Fennessy & Micacchion (OH EPA): ORAM development process
  - Took the first few months to discuss key decisions & wetland concepts
    - What will we call Kentucky's rapid assessment method?
    - **What state/method will we use as our model?**

Why Ohio Rapid Assessment Method (ORAM)?

- Others had reviewed and provided support for its use in Regulatory programs
  - USEPA Report (Fennessy et al., 2004): evaluation of RAMs (> 40 methods)
    - ORAM was one of the top methods
  - Others adopted / tweaked ORAM for their use
    - Tennessee Valley Authority (TVA) Highlighted Strengths:
      - Quantitative measure of wetland condition
      - Robust under a wide variety of circumstances
      - Highly transferable among states or regions
      - Truly rapid (less than ½ day to apply)
        - Once users become experienced, generally about 20 minutes to complete form
      - Consistent and repeatable results between users
        - Experienced biologists generally score within 5 points of each other
      - Verified and calibrated using more intensive (Level 3) onsite biological assessments
      - Results consistent with best professional judgement / users report feeling confidence in the results



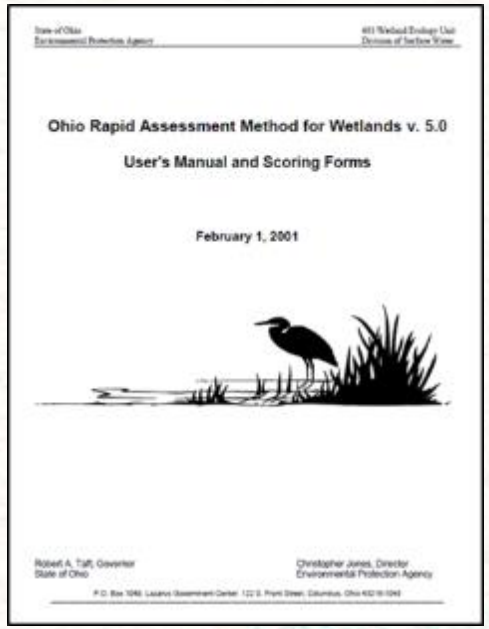
Why Ohio Rapid Assessment Method (ORAM)?

Tried and true!

- The latest version (ORAM 5.0) had been around for 10+ years (at the time of this project)

- Provided a full package
  - Regulatory mechanism & monitoring methodology
    - Categorizes wetlands based on their functions, sensitivity to disturbance, rarity and irreplaceability
    - Strictness of avoidance, minimization, and mitigation scaled to a wetland's category
  - Strong basis for regulatory decisions and mitigation requirements

- Importance to Kentucky
  - Regionally applicable: wetland types, some overlap in ecoregions & USACE Districts


Ohio Rapid Assessment Method for Wetlands v. 5.0

User's Manual and Scoring Forms

February 1, 2001

The KY-WRAM is Born

Drafting the Kentucky Wetland Rapid Assessment Method (KY-WRAM)

- In depth review & discussion of each ORAM sub-metric (+ MiRAM & TVA RAM)
  - What was the intention?
  - Was the scoring approach appropriate for Kentucky?
  - Was the score's weight within the overall method appropriate?
  - "Parking Lot" issues

- Frankenstein Approach
  - ORAM with several updates from MiRAM (+ formatting and guidance)
  - Adopted the landscape connectivity concept from NC WAM
  - Special wetland types/features from TVA RAM

KY-WRAM Field Evaluation & Draft Refinement

- 2011-2013
  - Iterative process to test & answer questions on specific metrics
  - Surveyed sites with varying degree of disturbance & various river basins (did it pass the gut check?)

- Reconvened in the fall / winter each year to review results
  - Incorporated feedback from meetings into revised KY-WRAM

- Looked into other questions
  - Comparability between raters
  - Comparability of ORAM & KY-WRAM
    - How did the various metrics score?
    - Tested major revisions to KY-WRAM

- End of 2013: Final draft developed & TWG was dissolved

Beginnings of KY-WRAM Validation

- Gaps in Wetlands Monitoring Program
  - Recognized limitations of rapid assessment methods
    - Should be only one of the tools in our toolbox (regulatory use, or otherwise)

- Gaps in KY-WRAM Evaluation
  - Only had our gut feeling; not a scientific approach
  - Had no methods to test efficacy of the KY-WRAM; needed Indices of Biological Integrity (IBIs)

- IBI Development **(occurred concurrently with KY-WRAM development)**
  - Began collection of biological data (vegetation, amphibian, & avian)
    - Evaluate OH EPA IBIs for Kentucky
  - Initially surveyed isolated, depressional wetlands
  - Switched to riverine wetlands

Continue to Build Program Capacity

WPDG Awards (2014-2020)

- KDOW took on some additional projects
  - Seasonality pilot study
  - Pilot beta testing with consultants to elicit feedback

- Continued to employ contractors to develop IBIs & evaluate the KY-WRAM (EKU)
  - Developed abiotic measure of anthropogenic disturbance (Disturbance Indicator method)
  - Created final draft of Indices of Biological Integrity (vegetation, amphibian, avian)
    - Draft metrics & statistical methods (literature reviews)
  - Developed & began evaluating KY-WRAM condition category breakpoints
    - Finally had significant data from riverine wetlands in all river basins

How Did We Make it Happen?

- Financial support from WPDGs & contracting were key

- Communicated staffing needs to management / took advantage of attrition & reorganization
  - First, created Wetland Program Coordinator position (full time) ~2010
  - Then created additional monitoring positions
    - 2017-2018: 1 part time position that became full-time
    - 2019-2020: 1 full time, 1 part time (botanist, ornithologist / botanist assistant -> “adopted” from other program)
- Staffing within agency wasn’t possible in the beginning, but worked our way to this point

Steps We've Taken Toward Implementation

- USACE Internal Evaluation
  - Methods have to be vetted by ERDC for USACE to implement in CWA 404 permitting program
  - KDOW continues to work to identify what assistance we can provide

- Partnerships & Trainings
  - Working with IRT & state In-Lieu-Fee Program to use methods in their programs
    - Provided training to KY-WRAM users
    - Provided vegetation method training to IBI users
  - Consistent contact with USACE

- Address new challenges as they arise
  - KDOW reorganization: 401 WQC and M & A staff now in separate branches
  - Formed a workgroup to facilitate communication

- We have built the foundation for a strong monitoring and assessment program!

Future Goals for Implementation

- Work with USACE to revise regulatory policies
  - Base mitigation credit determination on wetland area & **condition**
  - Improve performance standards for mitigation sites
    - Wetland credit release
    - Use KY-WRAM and/or IBIs to replace use of specific mitigation requirements (e.g., # of trees stems/acre)
  - **This hinges upon USACE adoption & implementation (ERDC)**

- Long-term goals
  - Develop State Permitting Program
    - Not reliant on the USACE for wetlands covered under NWPR
    - Protect waters that don't fall under USACE jurisdiction

Lessons Learned

What has gone well

- Didn't reinvent the wheel
- Sound, scientific approach to IBI & KY-WRAM development
- Communicated with management about program needs & took advantage of opportunities as they arose
- Reversed course when things weren't working

Lessons Learned

- Find a mentor(s) / make connections / build your coalition
  - Lean on others' experiences
  - Learn people's (& agencies') strengths and pick the best one for the job
- Leverage assistance from other agencies to reach common goals
  - The tools we've developed aren't just KDOW's, other agencies have an interest/need in using them

What could have gone better

- Spread ourselves too thin, got behind on milestones
- Implementation has been slow
- Communicating expectations (internally & externally)

Lessons Learned

- Have the big picture in mind, but don't take on too much
  - Planning projects around grant cycles can be challenging, better to under-promise and over-deliver
  - Develop your road map to use funding as efficiently as possible, but be realistic about what can be done
- Check in regularly & keep stakeholders engaged throughout the whole process
  - Dissolved the TWG too soon?
  - Didn't necessarily involve the people who make decisions?
- Communicate expectations clearly and often
  - Different agencies & project partners likely have different perspectives and goals; don't assume they know what you mean or need

Final Thoughts

- Turnover is inevitable, so plan for continuity
  - Don't be a silo
  - Stay in the loop so that if someone leaves, not everything is lost

- Find the balance between contracting and internal program building
  - Be mindful of becoming reliant on contractor assistance
  - Eventually need to take ownership & become a self-sustainable program; invest in your own people

- Monitoring & Assessment tools can fill important needs, but they are not the end point
  - It's not just about getting the method right (scientifically)
  - Need to understand steps for implementation early on; don't wait until the methods are drafted
    - Once KY-WRAM drafted, should we have created an implementation workgroup to keep momentum?

Acknowledgements

- EPA Assistance and Funding
  - Diana Woods & WPDGs 2009, 2013, 2015, 2017, 2018, 2019
  - CWA Section 106 Funding 2007-2020
  - Gregg Serenbetz
  - Many others

- Barb Scott (former KDOW Wetlands Program Coordinator)

- Technical Working Group
  - KY Division of Water (Barb Scott)
  - US Army Corps of Engineers (Layna Thrush)
  - US Army Corps of Engineers (Mike Hasty)
  - US Fish and Wildlife Service (Jenni Garland)
  - USFS (Tom Biebighauser)
  - NRCS (Mason Howell / Steve Blanford)
  - USEPA (Eric Somerville)
  - KDFWR (Doug Dawson)
  - KDNR (Paul Rothman / Danita LaSage / Thomas Barbour)
  - KSNPC (Deb White / Brian Yahn)
  - EKU (David Brown / Stephen Richter / Michelle Guidugli Cook)

- KY-WRAM & IBI Development
  - Eastern Kentucky University – Biology and Geology & Geography Departments)
    - Dr. David Brown
    - Dr. Stephen Richter
    - Dr. Kelly Watson
    - Technicians: Elizabeth Malloy, Michelle Guidugli Cook, & Kristin Hinkson
    - Graduate & Undergraduate Students
      - Kari Dupler
      - Jeff Folkerts
      - Britney Garrison
      - Jesse Godbold
      - Katie Kelly
      - Tanner Morris
      - Doug Mott
      - Will Overbeck
      - John Polascik
      - Noelle Smith
      - Jacob Stark
      - Todd Weinkam
      - Many others

- Statewide Survey
  - Dr. Stephanie McSpirit, Eastern Kentucky University

- KDOW Staff, especially
  - Melanie Arnold
  - Kristin Berger
  - Caroline Chan
  - Susan Cohn
  - Jacob Eldridge
  - Beth Harrod
  - Lisa Hicks
  - Alicia Jacobs
  - Cabrina Pennington
  - Jessica Schuster
  - Samantha Vogeler
  - Brittany White
  - Many others

- Botanists
  - Office of Kentucky State Nature Preserves
    - Martina Hines
    - Brian Yahn
    - Devin Rodgers
  - Copperhead Consulting
    - Heidi Braunreiter
    - Austin Prater
  - Deb White

Thank You!

Contact Information:

Michelle Guidugli Cook, Wetlands Program Coordinator

michelle.cook@ky.gov

Websites:

Wetlands Monitoring and Assessment Program

https://eec.ky.gov/EnvironmentalProtection/Water/Monitor/Pages/SurfaceMonitor.aspx

401 Water Quality Certification Program

https://eec.ky.gov/Environmental-Protection/Water/PermitCert/WQ401Cert/Pages/default.aspx