

A Strategic Analysis of Wisconsin's Aquatic Plant Management Program

Where do we go?



What is the APM SA?

- Evaluation of pertinent information
 - Historical aspects (<1940 – present)
 - Scientific information
 - Socio-economic impacts
- Public participation
 - Multiple opportunities
 - Interviews
 - Comment period (coming)
- NR 150.10 [s. 1.11(2) (e) and (h)]



Content

- Overview of laws and rules governing APM
- History of APM
- Summary of stakeholder interviews
- Roles aquatic plants play
- Descriptions of management methods
- General suggestions
 - Planning, goals, IPM, etc.
- Recommendations for future management
 - Code revision

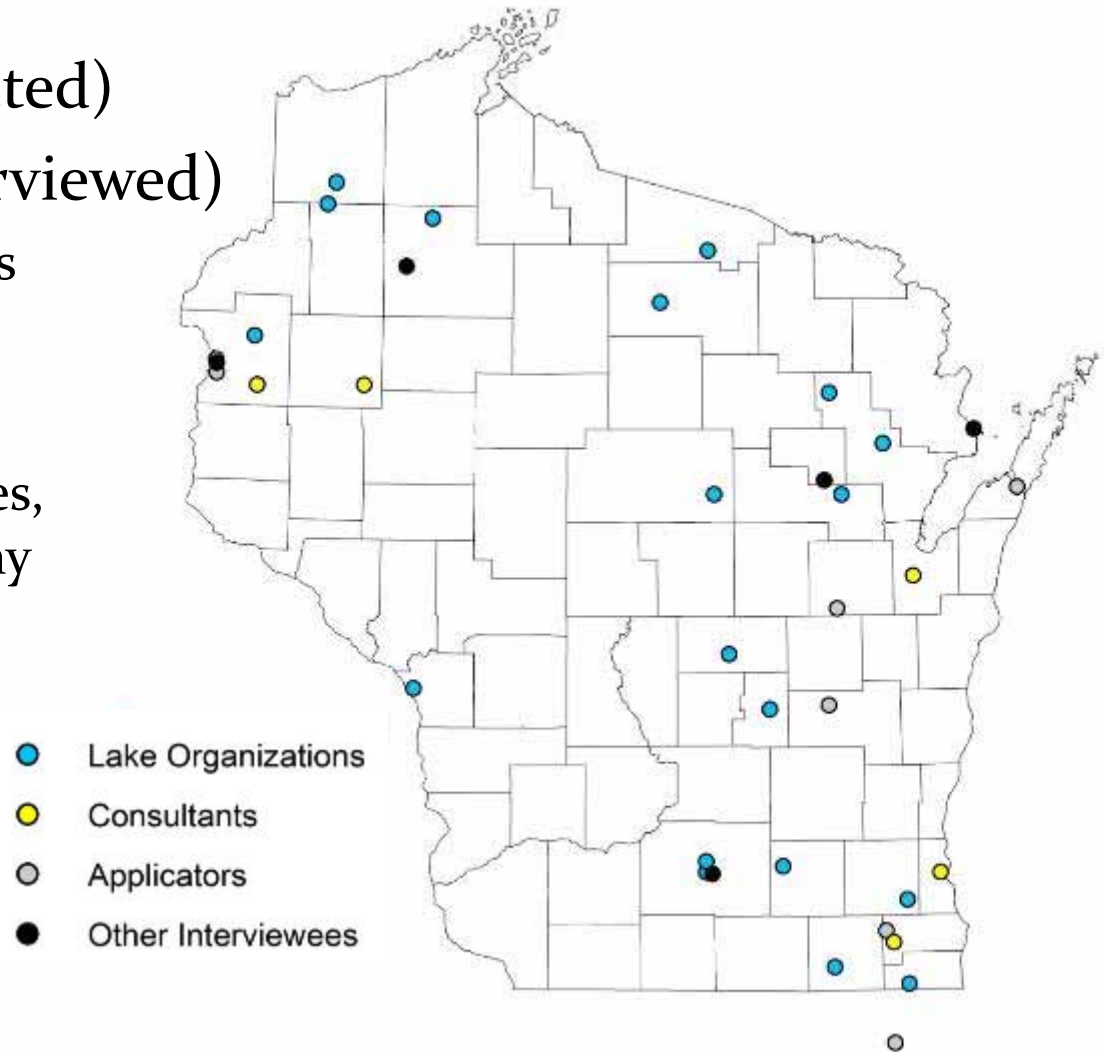


Summary of Stakeholder Interviews

- Important component to the SA because:
 - APM is a complex issue.
 - Helps guide the process by incorporating the public
 - There is a high potential for legislation or new department policy.
 - Development of controversial resource-oriented projects.

Interviewees

- Selection (59 contacted)
- Breakdown (39 interviewed)
 - 20 lake organizations
 - 7 consultants
 - 6 applicators
 - 3 county staff, 2 tribes, 1 boat rental company





Questions

- APM goals
- Management considerations
 - Research findings
- Management techniques
- Suggestions
- Other



Responses:

Management Goals

- Invasive species control
- Reduce plants impeding use
- Keep lakes natural and healthy
- Educating the public
- Long-term invasive control
- Usually not eradication



Responses:

Management Techniques and IPM

- Most lake groups didn't know the term (IPM)
- Adaptability and monitoring
- Timing of treatments
- Lake characteristics require different methods
- Concerns over herbicide tolerance
- Correct use of products (CET)
- Criticisms: Physical removal not effective/cause spread, costly



Suggestions for Improvement

- Collaboration
- Outreach
- Research

“Statewide perspective really valuable because helps [lake groups] recognize they’re not alone.”

“Lakes are human-coupled systems and need to be managed considering humans as part of the ecosystem.”



So why do this now?

- Last code was 1989 (28 years ago)
- Change is inevitable
- Emerging AIS issues
- Implementing new science
- More development pressures
- More demands from the public

Historical Perspective

- <1989 Aquatic Nuisance Control
 - Focused on nuisance management
 - Max label rates commonly used
 - Holsitic Management?
Nah, not even close!



Historical Perspective

- 1989 Aquatic Plant Management
 - Primarily focused on nuisance management
 - **More holistic approach**
 - **Lake “ecosystem”**
 - **Plans**



Historical Perspective

- 2001 Act 16
 - Lake “ecosystem” more in the forefront of management
 - Comprehensive Plans
 - **Gave DNR authority for mechanical, manual and introduction of non-native plants (NR 109)**
 - **Prevention, I&E**
 - **Start to shift towards AIS mgt.**



Historical Perspective

- Present
 - Implementation of new techniques/methods
 - Better plans
 - Holistic management is the norm
 - Comprehensive Plans
 - **Active research in a collaborative approach***
 - **AIS focused/protect native species**
 - **Revision of code(s) to reflect new technologies and philosophy**



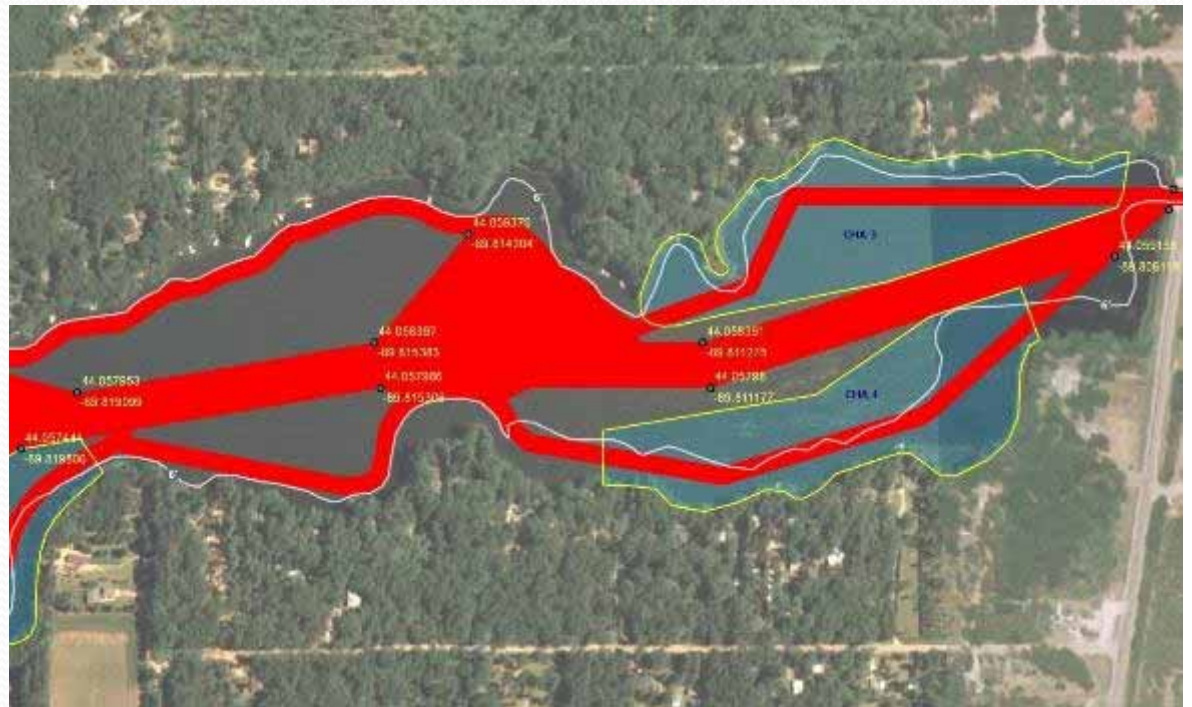
Today is not your parents APM

- Diverse methods
 - Mechanical
 - Manual
 - Water Levels
 - Chemical
 - Biological
 - Observation
- Nontarget concerns
- I and E
 - Sea change (panic to “chill”)
- Science driven
 - Policy
 - Rules
 - Practice



Mechanical

- Get acquainted with the plan
- Good map
- BMP's
 - Depth
 - Timing
 - Spawning
 - AIS risks
- Safety



Manual

- Under utilized technique
- Spot treatments
- Citizen involvement



Water Level

- Careful planning
 - Timing
 - Nontarget effects
- Time demanding
 - Citizen resistance
 - Chapter 30
- Habitat restoration
 - Mimic natural regime



Biological

- Efficacy
- Targets
 - PL, EWM, Zebes, Insects
- Sustainability
 - Habitat needs
 - Physical constraints



Observation

- Track changes
- Prevention
- Learning to live with AIS
- Sea Change
- Yes, No is an option!



Chemical

- Careful planning
 - Timing
 - Nontarget effects
 - Dosages
 - Products
- Goals
 - Relief or control (?)
 - Habitat restoration
 - AIS management
 - Nuisance



Why you need to know!

Some new kids on the block...check labels

- **2,4-D**

- AquaKleen
- DMA 4
- Navigate

- **Copper**

- Aquatrine
- Captain
- Clearigate

- **Imazamox**

- Raptor
- Clearcast

- **Diquat**

- Reward
- Weedtrine

- **Endotholl**

- Aquathol-K
- Hydrothol 191

- **Fluridone**

- Avast
- Sonar

- **Sodium Carbonate**

- Green Clean

- **Glyphosate**

- Aquapro
- Eagre
- Rodeo

- **Triclopyr**

- Renovate

- **Imazapyr**

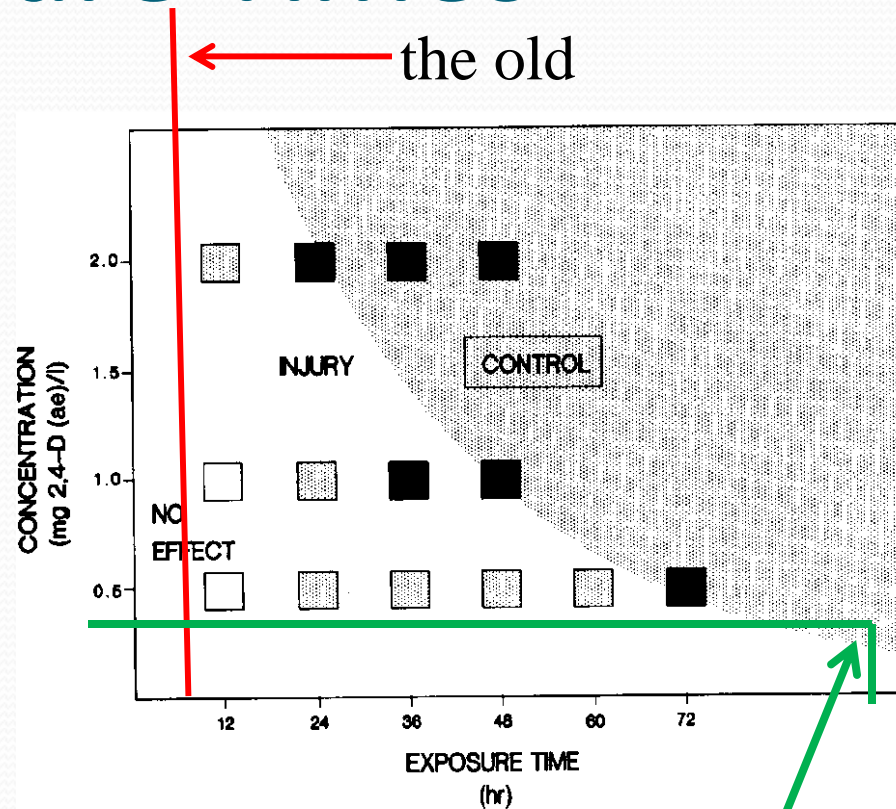
- Habitat
- Chopper

- **Flumioxazin**

- Clipper

Contact Exposure Times

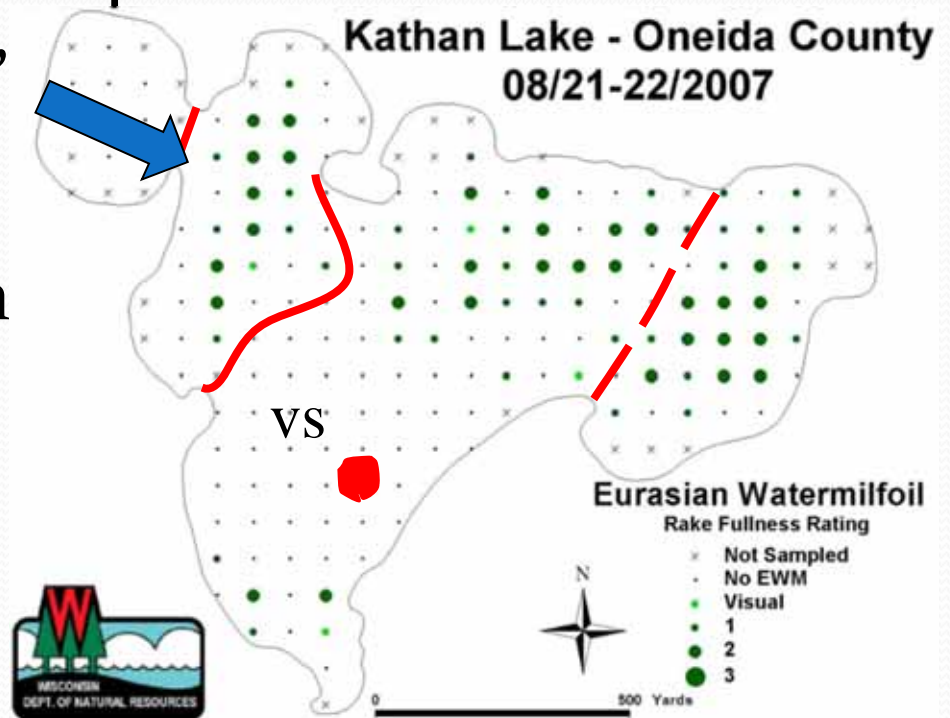
- CET crucial
- Got the right product?
 - Mode of Action
 - HRT (flowages)
 - Sediment type
- Granular vs liquid



Spot/whole lake treatment strategies:

Know your product and application

- Products are soluble; need large areas instead of small spot treatment
- 5 acre minimum or “bumps” on smaller areas
- Pellets do NOT “hold” product in place
- Wind speed/direction



Calculate volume of epilimnion or whole lake for unstratified lakes.

Histograms or Σ cont vol,

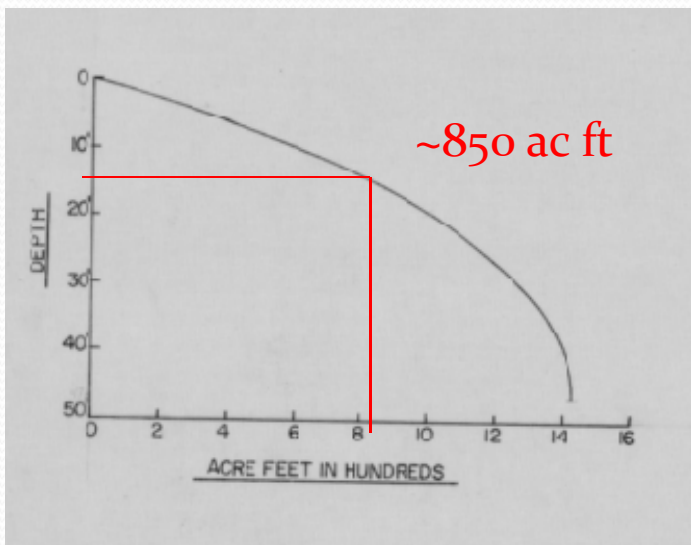
* assumed 15' thermocline for example

Rearrange equation to solve for concentration based on product:

$$\text{ppm} = \frac{(170.2 \text{ gal})(3.8 \text{ a.e.})}{(2.7 \text{ mp/ac.ft})(850 \text{ ac.ft})}$$

$$0.281 \text{ ppm or } 281 \text{ ppb}$$

Should expect whole lake impacts





Why do this now...

- We will continue to work collaboratively
 - Public
 - Industry
 - Agencies
 - Academia
- A comprehensive process for a comprehensive change



Who to Contact?

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Thank You!