

# **2018 Minong Flowage Association Public Information Meeting**

**EWM Management Update and Winter Drawdown  
Information**

**August 18, 2018**

# Aquatic Plant Survey Support

Surface Area of the Minong Flowage – 1,564 (WDNR); 1,602 (LEAPS)

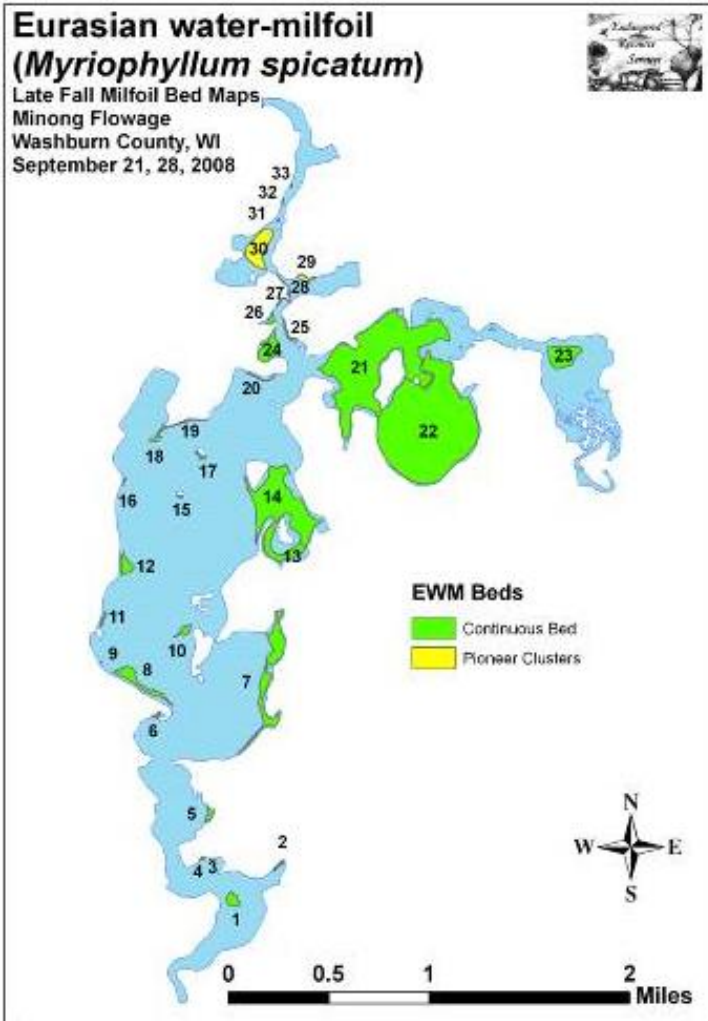
## \* Summer Point-intercept (PI) Surveys

- \* 878 points (each point represents approx. 1.78 acres)
- \* Survey of all points completed between mid-July and mid-August 2008, 2012, 2014, & 2018
  - \* Identifies all plants in the lake
  - \* Determines littoral zone
  - \* Determines frequency of occurrence for each species
  - \* Generates values for different parameters that are measures of the health of the aquatic plant community in the system
- \* **Fully comparable from one year to the next as the same points are sampled**

## \* Fall EWM Bed-mapping Surveys

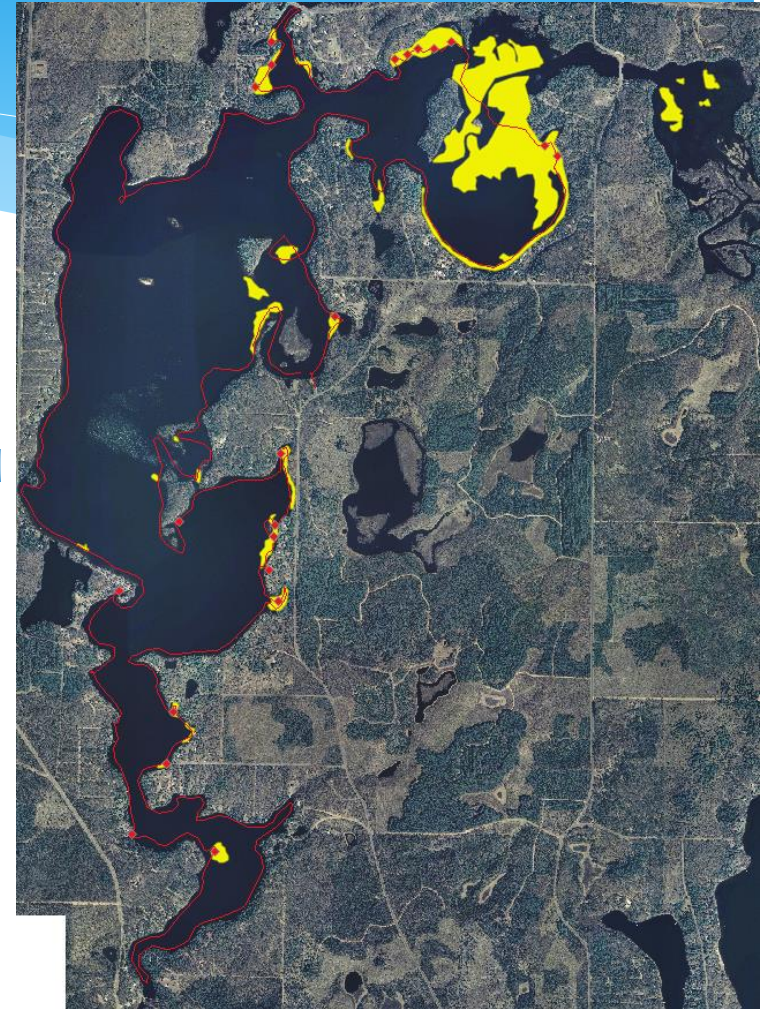
- \* **September/October meandering survey of the littoral zone to map the extent of EWM beds**
- \* **Used as a basis for following year herbicide application/drawdown planning purposes**
- \* **Completed every year since 2008**
  - \* Was even done in 2013 for EWM on dry ground
- \* **Confirms extent of summer EWM**
- \* **Most dependable annual account of EWM**
- \* **Comparable across time**

# How Much EWM – Fall Bed-Mapping?



Fall 2008 - 336 acres

2008 – 336  
2009 – 227.79  
2010 – 163.74  
2011 – 80.95  
2012 – 92.89  
2013 – Extended  
Drawdown  
2014 – 14.02  
2015 – 90.36  
2016 – 125.58  
2017 – 112.88



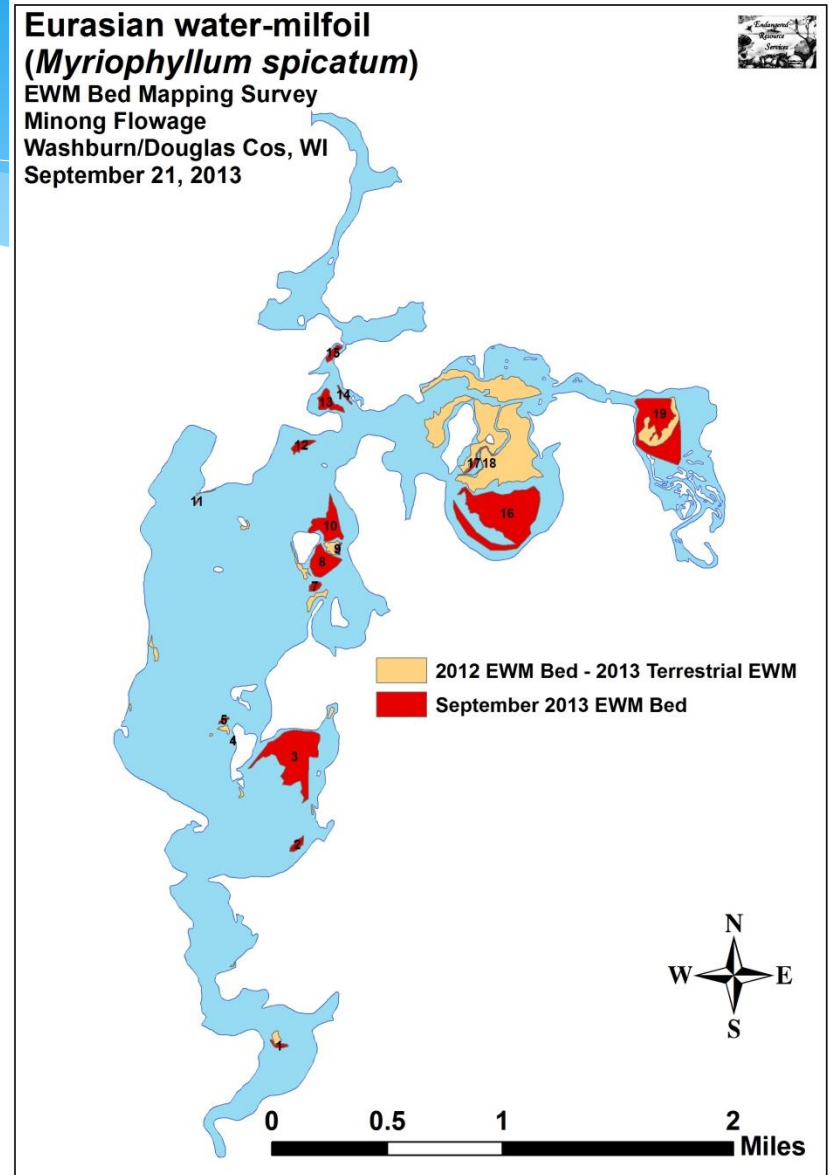
Fall 2017 - 112.88 acres

# 2013 Fall Bed-mapping – Terrestrial and Aquatic EWM

- \* 2013 Fall bed-mapping
  - \* Completed 9/21/2013
  - \* 18 aquatic beds of EWM
    - \* 115.22 acres
  - \* 90 additional acres in terrestrial beds
  - \* Total Acreage = 205.22



Figure 11: Surviving Terrestrial EWM Rosettes – September 21, 2013



# Past Management Results

## 3 years of herbicide

- \* 2009 – 69 acres treated
- \* 2010 – 122 acres treated
- \* 2011 – 88 acres treated
  - \* Fall 2008 – 336 acres (before chemical treatment)
  - \* Fall 2011 – 81 acres (after 3 years of chemical treatment)
- \* 76% decrease in EWM in 3 seasons
- \* Cost (financial):
  - \* Treatment - \$176,000.00
  - \* Match - \$58,667.00

## 11 month extended drawdown

- \* 2013 – Extended (March – February) Drawdown of 5.5-ft
  - \* Fall 2012 – 93 acres (before drawdown)
  - \* Fall 2014 – 14 acres (after drawdown)
- \* 85% decrease in EWM in two seasons
- \* Cost (financial):
  - \* No direct costs as it was a part of the dam repair project

# Criteria for Herbicide Use in the Approved APM Plan

## \* Outside of Serenity Bay

- \* >20 acres
- \* Density – Average 2 or greater
- \* Treatment areas 3 acres or greater in size

## \* Fall 2017 Numbers Outside of Serenity Bay

- \* 19.43 acres
- \* 1.2 average density
- \* Only one area greater than 3 acres
  - \* Can combine smaller areas to get to 3 acres

# Criteria for Winter Drawdown in the Approved APM Plan

## \* Within Serenity Bay

- \* Greater than 70 acres
- \* Average density 2.0 or greater
- \* If  $< 3.0$  acres and  $< 2.0$  average density leave unmanaged

## \* 2017 Numbers for Serenity Bay

- \* 88.45 acres
- \* Average density 2.0
- \* Three large areas greater than 3.0 acres

East of Smith Bridge – 4 EWM beds, 4.88 acres, Average Density = 1

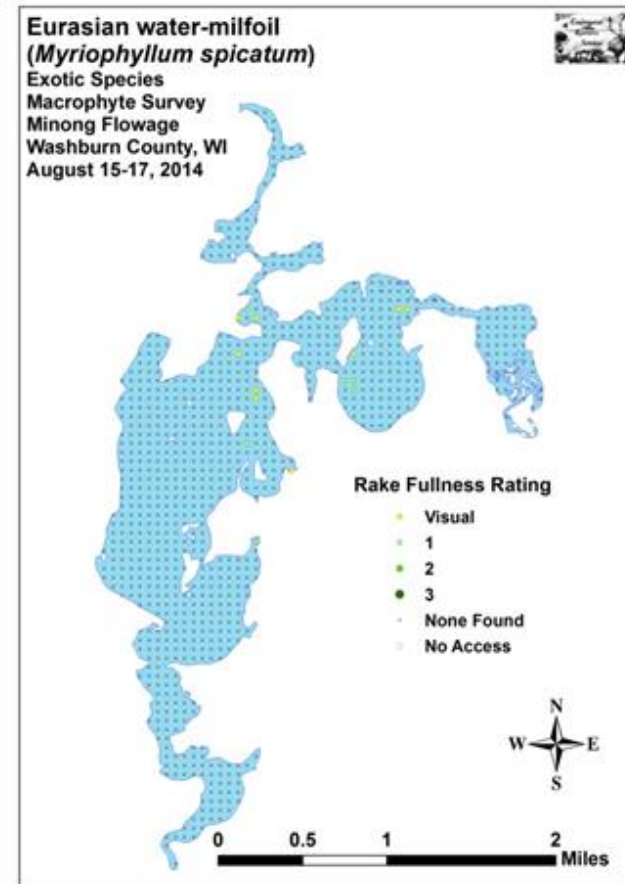
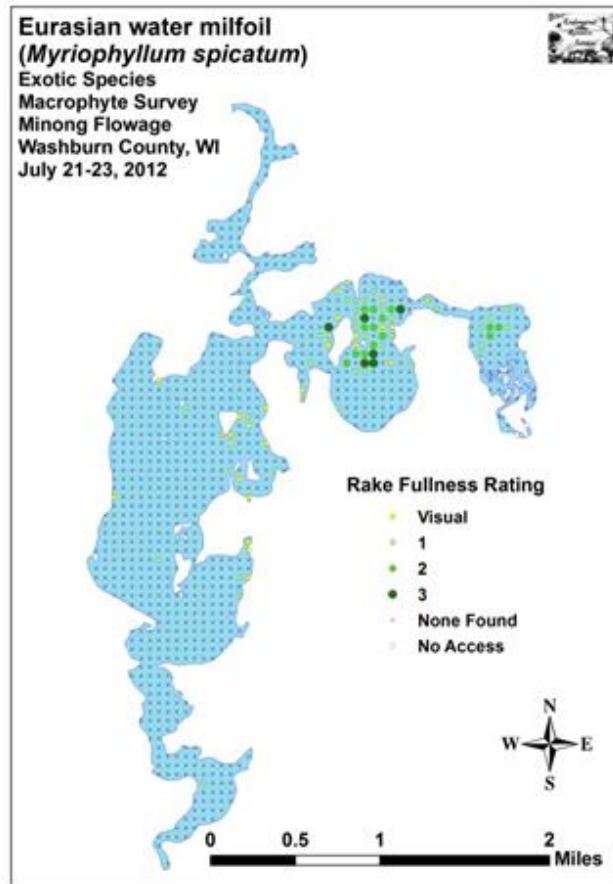
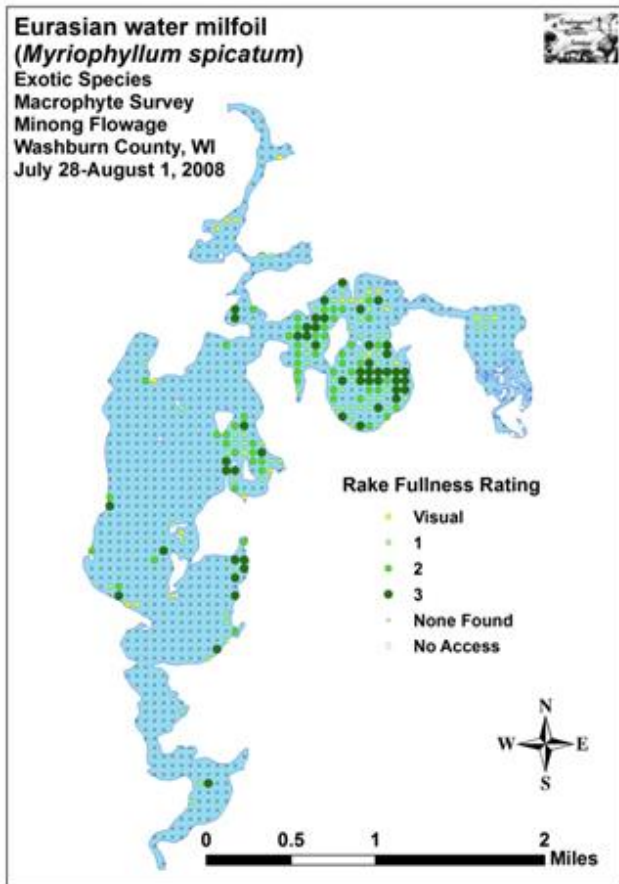
# Active Management of EWM – Three Options

- \* Winter Drawdown
- \* Wait for EWM levels meets criteria for a chemical management proposal
  - \* Maybe in 2019, could be 2020
- \* Do no management except landowner physical removal (or contracted physical removal)





# PI Survey EWM 2008, 2012, 2014



## \* Frequency of Occurrence in Sites with vegetation

\* 2008 – 44.03%

\* 2012 – 23.55% (after three years of herbicide)

\* 2014 – 2.63% (After an extended drawdown)

# 2018 Summer EWM

## \* EWM Numbers

- \* 60/220 sites w/EWM
  - \* 42 on the rake
  - \* 18 visual
  - \* 106.8 acres
- \* Frequency of Occurrence
  - \* 19.09% on rake
  - \* 27.27% rake and visuals
- \* Rake Fullness Value
  - \* Greatest – 2.0 out of 3
  - \* Average – 1.33 out of 3
- \* Depth of Growth
  - \* Average – 3.7 feet
  - \* Max – 5.0 feet
  - \* 15% in water deeper than 4.0 feet
- \* We could wait until 2019-20

## Eurasian water-milfoil (*Myriophyllum spicatum*)

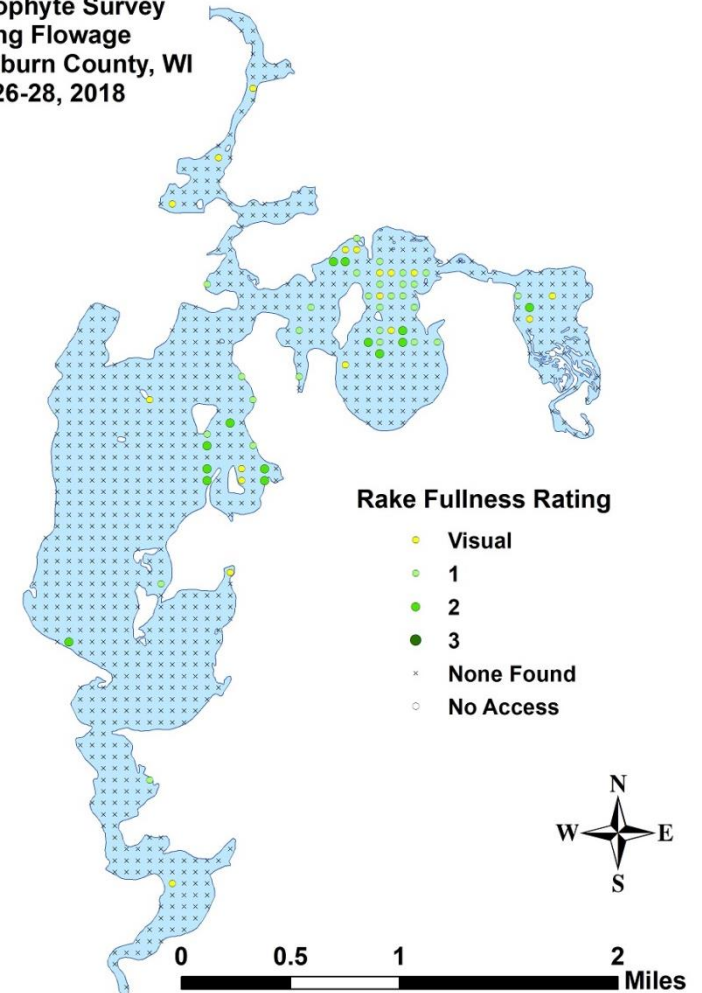
Exotic Species

Macrophyte Survey

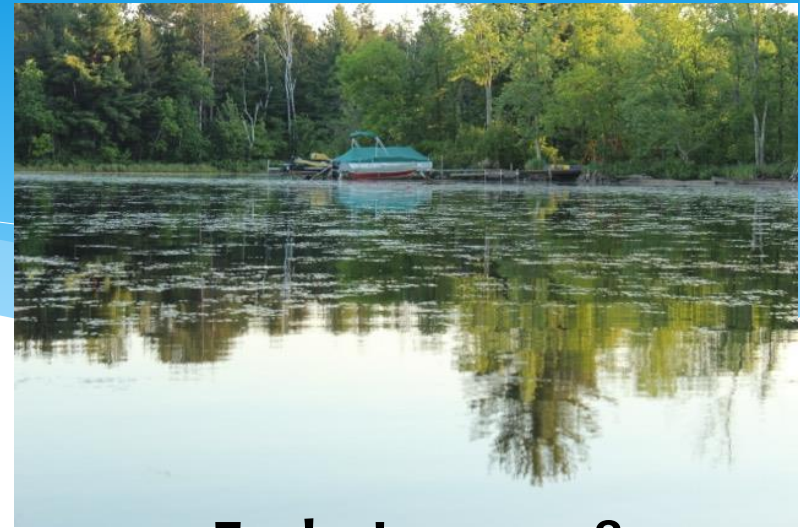
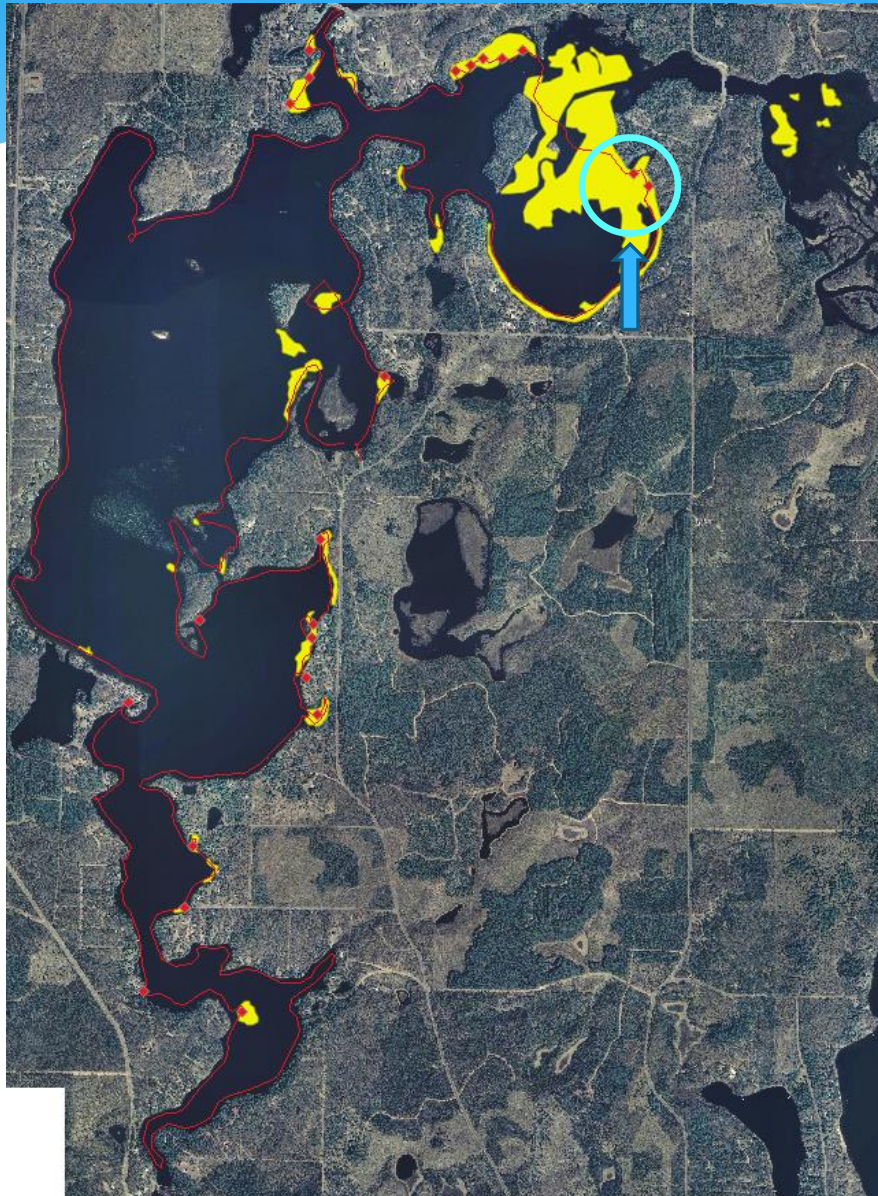
Minong Flowage

Washburn County, WI

July 26-28, 2018



# EWM in 2018



Early June 2018

Lloyd  
Dahlberg



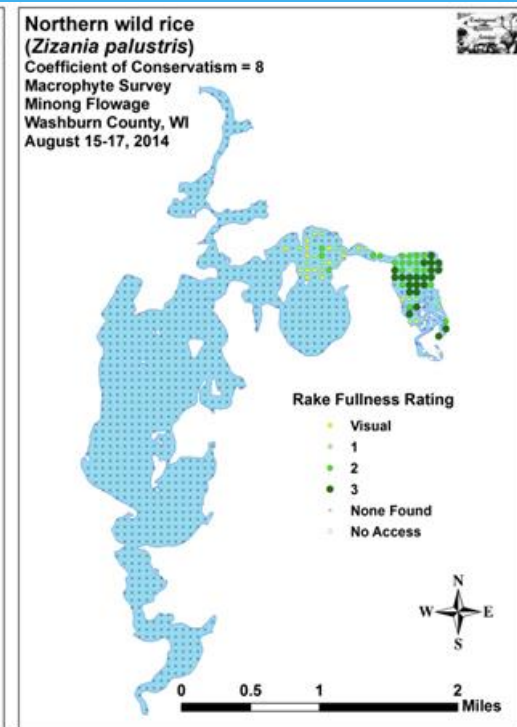
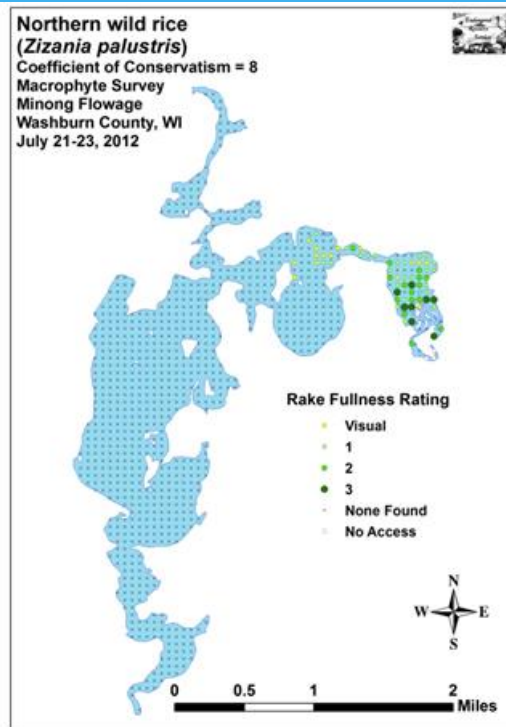
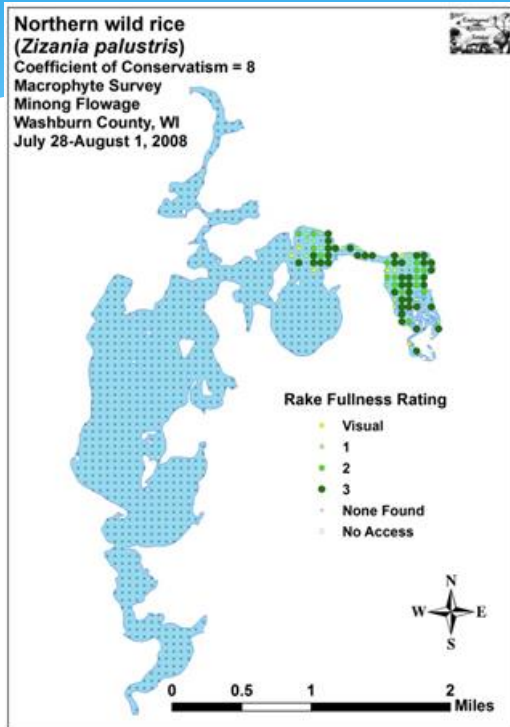
# PI Survey Data 2008, 2012, 2014, 2018

PI Survey Year	Points in the Littoral Zone	Littoral Acreage	Points w/vegetation	Acreage w/vegetation	Survey Points w/EWM	Additional visual sites	Total Acreage w/EWM
2008	517	920	377	671	166	22	334.64
2012	374	666	242	431	57	24	144.18
2014	461	821	228	406	6	9	26.7
2018	433	771	220	392	42	18	106.8

Freq of Occurrence (EWM) sites w/Vegetation (rake only)	Freq of Occurrence (EWM) sites w/Vegetation (rake and visual)
44.03	49.87
23.55	33.47
2.63	6.58
19.09	27.27

# of Native Plant Species	Average # of Native Species per site w/Vegetation	Mean Rake Fullness	Median Depth of Plants	Maximum Depth (ft) of Plants	Ave C	FQI	Simpsons Diversity Index
65	3.48	2.69	4	9.5	6.6	47.3	0.94
68	3.48	2.19	3	7.5	6.5	46.5	0.95
64	2.75	2.1	3	9	6.4	42.9	0.96
69	3.28	2.08	3	7.5	6.4	47.7	0.95

# Wild Rice 2008, 2012, 2014, 2018



Wild Rice				
PI Survey Year	# of sites (rake)	# of sites (visual)	Total Acreage	Rake Fullness
2008	72	7	140.62	2.36
2012	47	15	110.36	1.66
2014	58	16	131.72	2.1
2018	33	18	90.78	1.09

**\*A lot of wild rice was uprooted in the 2016 flood that has yet to recover.**



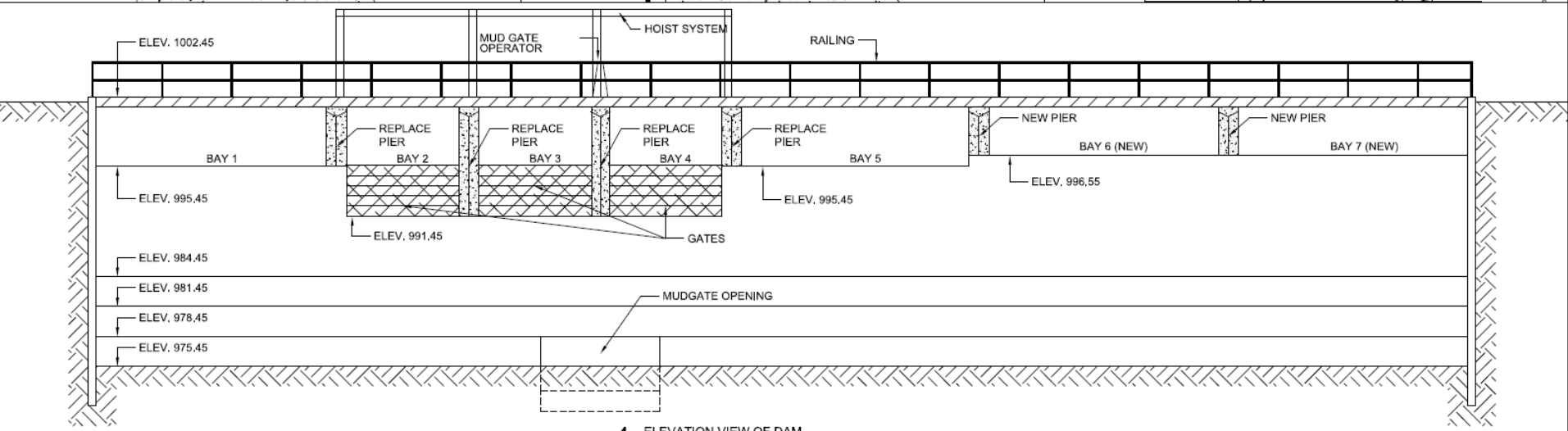
# Winter Drawdown

## \* Likely criteria

- \* **2018/19 or 2019-20**
  - \* Based on several things
  - \* EWM growth, native aquatic plant growth, WDNR permitting, finances
- \* **Lower the water level in the Minong Flowage by 5-ft (60 inches)**
  - \* Approx. 7,140 acre-feet of water
  - \* Approx. 54% of the total volume of the Minong Flowage (13,157 acre-feet)
- \* **Begin lowering water level in early October**
  - \* First 4-ft with one center gate opened 6 inches
    - \* Expected to take 26.4 days at 1.82 inches per day
  - \* Last 1-ft by opening the mudgate 1.2 feet
    - \* Expected to take an additional 6.17 days at 1.94 inches per day
- \* **Refill with spring snowmelt and rains once ice begins to separate from the shore and other dark objects**
  - \* Expected to take 2-4 weeks

## \* Other Details

- \* **Has to be requested by Washburn County Highway Department**
  - \* Washburn County has agreed to do this
- \* **Requires a WDNR Individual Permit for Water Resource Projects**
  - \* \$603.00 Permit Fee (maybe)
  - \* Will require 30-day Public Notice of Plans before approval
  - \* Permit sent in a 2<sup>nd</sup> time this past week
- \* **Requires a Temporary Lowering of Impoundment Water Level form**
  - \* \$500.00 fee
  - \* Expect to have a change made to the dam operation plan that will allow future temporary drawdowns for EWM control without special approval
- \* **WDNR will review drawdown plan before approval**



**4** ELEVATION VIEW OF DAM  
1" = 10'

DES BY SHAMBEAU	BOOK NO.								
DR BY MEX	JOB NO. 264033.02								
CHK BY HALES	DATE DEC 2012 FEB 2013	NO.	DATE	REVISION	NO.	DATE	REVISION		

MINONG DAM RECONSTRUCTION  
WASHBURN COUNTY  
MINONG WISCONSIN



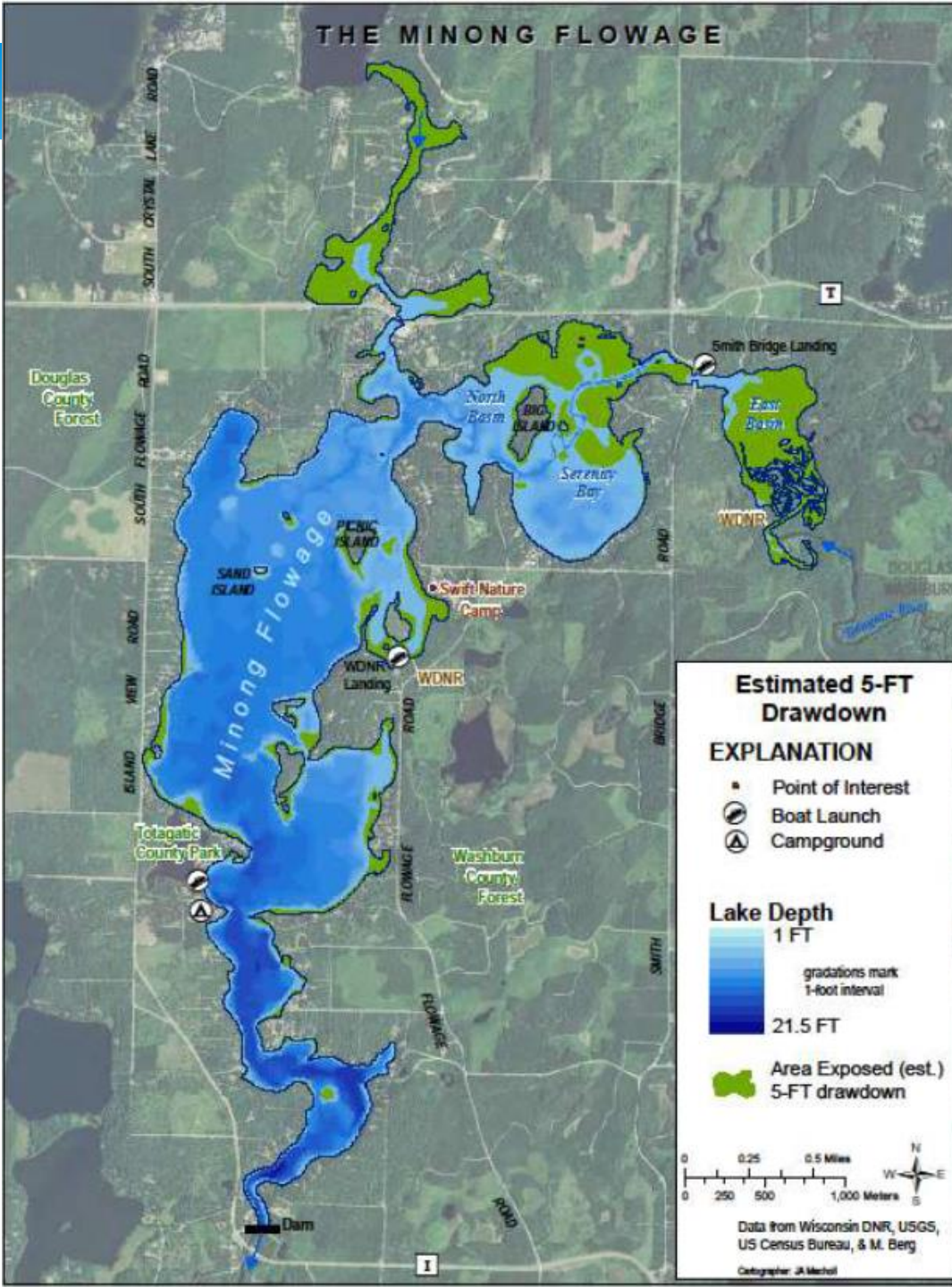
PIER DESIGN SECTIONS AND ELEVATION

DRAWING NO.  
**17**  
SHEET NO.





# THE MINONG FLOWAGE



## Estimated 5-FT Drawdown

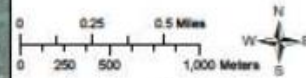
### EXPLANATION

- Point of Interest
- 🚤 Boat Launch
- ⛴ Campground

### Lake Depth



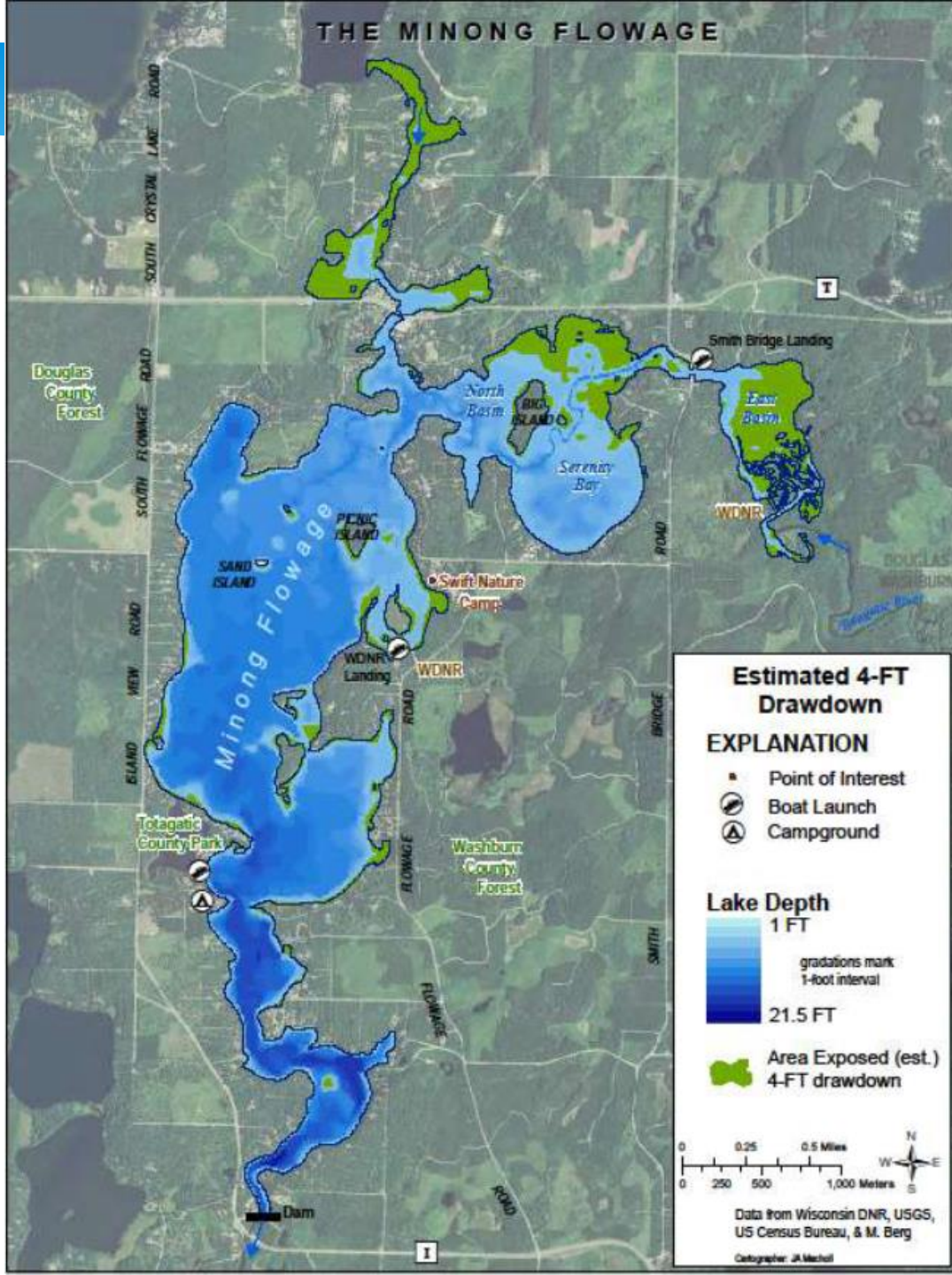
Area Exposed (est.)  
5-FT drawdown



Data from Wisconsin DNR, USGS,  
US Census Bureau, & M. Berg

Cartographer: J. Michol

# THE MINONG FLOWAGE

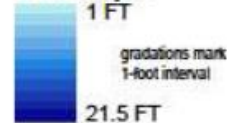


## Estimated 4-FT Drawdown

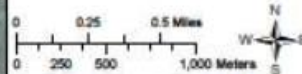
### EXPLANATION

- Point of Interest
- 🚤 Boat Launch
- ⛺ Campground

### Lake Depth



Area Exposed (est.)  
4-FT drawdown



Data from Wisconsin DNR, USGS,  
US Census Bureau, & M. Berg

Cartographer: J. Mehal

# Winter Drawdown – Stakeholder Support

## \* **Minong Flowage Association**

- \* Does not oppose, but had lots of concerns

## \* **Washburn County (forestry and highways)**

- \* Does not oppose

## \* **GLIFWC/Tribal Resources**

- \* Does not oppose

## \* **WDNR Fisheries, Wildlife, Lakes**

- \* Does not oppose, with conditions
- \* <2” daily withdrawal; start early enough to allow hibernating creatures to move; refill before May 15 (spawning impacts)

## \* **Renewable World Energy**

- \* Will work with the MFA but there will be compensation needed for loss of power generation

## \* **Douglas County**

- \* Has not been contacted yet

## \* **Towns of Minong**

- \* Has not been contacted yet

## \* **Town of Wascott**

- \* Has not taken a position on it yet

## \* **Washburn County Lakes and Rivers Association**

- \* Does not oppose as long as run of the river is maintained throughout (Totagatic)

## \* **Cranberry Flowage Association**

- \* May oppose simply because it does not benefit them, it only lowers the water level

## \* **Local Businesses**

- \* Mostly in support

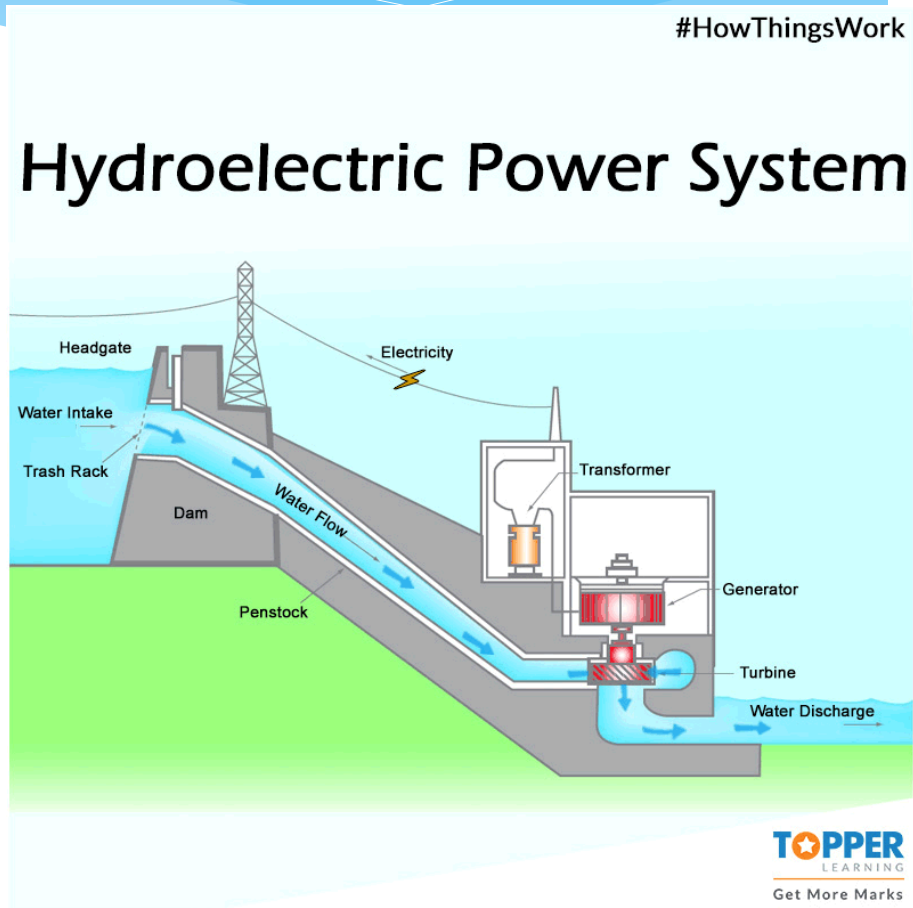
# MFA Drawdown Concerns

- \* Duration and timing of a drawdown
- \* How far down do we have to go
- \* Will it kill EWM
- \* Loss of aquatic vegetation
- \* Impacts on the fishery
  - \* Spawning, oxygen levels, survival of young fish
- \* Impacts on other wildlife
  - \* mussels, fur bearers, amphibians, ducks, and reptiles
- \* Impacts on shoreland vegetation
  - \* trees, shrubs, & grass
- \* Impacts on water quality
- \* How long to refill and when would it start
- \* Winter use of the Flowage
  - \* Snowmobiling and ice fishing
- \* Removal of problem stumps
- \* WDNR/Tribal Politics
- \* Paying for lost power generation
  - \* See next two slides
- \* Woody debris washed into the shore and floating in the Flowage
- \* Wells going dry
- \* Shoreland improvements, dock and boat removal

# Power Generation with the Minong Flowage Dam

## \* Minong Dam Power Generation

- \* **Run-of-the-river (what goes in, goes out)**
  - \* Currently at about 80 cfs
    - \* all flow in the river is going through the powerhouse
  - \* No water going over the dam
  - \* Must maintain at least 33 cfs in the river
- \* **Does not control or hold back water to release at a later time**
  - \* Can't divert more water into it
- \* **Less depth in the Minong Flowage means less hydraulic head (gravity) pushing water through the "penstock"**
  - \* Turbines won't "turn" as fast generating less power
    - \* Need at least 50 cfs to run a turbine





# Funding Sources?

- \* **Minong Flowage Association**
  - \* To be determined
- \* **Washburn County Parks**
  - \* Launch fees charged at the Campground
- \* **Renewable World Energies**
  - \* Donation to the MFA after the drawdown is completed
- \* **WDNR grant funds**
  - \* Planning and survey work, but not likely loss of power reimbursement
- \* **Tribal Resources/GLIFWC**
- \* **Washburn and Douglas Counties**
- \* **Towns of Minong and Wascott**
- \* **Other Lake Groups**
  - \* The Minong Flowage is a source lake for EWM!!

# Monitoring During a Winter Drawdown

- \* **Native Aquatic Plants (before and after)**
- \* **Eurasian watermilfoil and curly-leaf pondweed (before and after)**
- \* **Dissolved Oxygen (perhaps in some of the bays that are off the main lake)**
- \* **Water quality (CLMN)**
- \* **Voluntary Bag Limits**
- \* **WDNR/Tribal Fisheries Surveys**
- \* **Well Monitoring**
- \* **Power Generation/Flow over and through the dam**
  - \* **It is expected that some power generation would be maintained even through the drawdown**
- \* **Downstream flow during drawdown and refill**



# Questions and Comments

**Documents associated with the  
winter drawdown planning project  
are available at:**

**[http://leapsllc.com/index.php/minong-  
flowage-association/](http://leapsllc.com/index.php/minong-flowage-association/)**