Minong Flowage: 2021-23 EWM Management Planning and Control Project

Minong Flowage Association June 12, 2021 Annual Meeting

Dave Blumer

Lake Education and Planning Services

2021-2023 AIS-Population Control (Winter Drawdown) Project Award

- **ACEI26521**
  - 3-year Total Project Value = **$115,868.00**
  - State of Wisconsin Grant Award = **$86,901.00 (75%)**

Grant Components

- **Planning and implementation of a winter drawdown**
  - 2021-22 winter season
- **Public Information Campaign**
  - Newsletters
  - Annual Stakeholders Discussion
- **Aquatic plant surveys**
  - Whole-lake, point-intercept surveys 2021 and 2023
  - Fall EWM mapping surveys 2021, 2022, and 2023
  - Wild rice aerial surveys – GLIFWC 2021, 2022, and 2023
- **Lake Monitoring**
  - Water quality (Deep Hole Near Dam, Central Basin)
  - Lake Level at four sites (cooperate with Cranberry Lake and Flowage, Steve Schieffer (EIS))
  - Precipitation (three sites CoCoRaHS program)

Grant Components

- **AIS Education and Prevention**
  - Clean Boats Clean Waters (CBCW grant and at Pogos and Smith Bridge)
  - AIS monitoring (at least two official times annually)
  - Zebra mussel monitoring (installation of plate samplers annually)
  - Purple loosestrife beetle rearing
  - Installation of a Decontamination Station at the County Park
- **Island Protection and Healthy Lakes Project Promotion**
  - Signs and publicity campaign

2021 Tasks

- **Winter Drawdown Planning (20 hrs)**
- **Public Information (32 hrs)**
- **Aquatic Plant Surveys (22 hrs)**
  - Endangered Resource Services
- **Lake Monitoring**
  - Water quality (24 hrs)
    - Citizen Lake Monitoring Network
    - Deep Hole and Central Basin
  - Lake Level Monitoring (18 hrs)
    - Ecological Integrity Services
  - Precipitation Monitoring (33 hrs)
    - CoCoRaHS
    - https://www.cocorahs.org/
- **AIS Education and Prevention**
  - CBCW
    - DNR Landing (200 hrs, paid and volunteer)
    - Pogos and Smiths Bridge (30 hrs volunteer)
  - AIS monitoring (32 hrs)
  - Zebra mussel monitoring (32 hrs)
  - Purple Loosestrife Beetle rearing
    - Swift Nature Camp
  - Decontamination Station (24 hrs)
    - Washburn County
- **Island Protection and Healthy Lakes Projects (20 hrs)**
  - Signage and Publicity Campaign to protect the islands
  - Promote property involvement in Healthy Lake Initiative

MFA Donated Services

- **Volunteer Time (over 3-yrs)**
  - 287 hours worth $3,440.00
- **Boat Use (over 3-yrs)**
  - 78 hours worth $780.00
- **Cash Expenses (over 3-yrs)**
  - Materials
  - Drawdown Publicity Campaign
  - Island Protection Campaign
  - Value = $1,367.00
- **Clean Boats Clean Waters (over 3-yrs)**
  - Pogos and Smiths Bridge
  - 90 hours worth $1,080.00
  - Additional CBCW at DNR landing and County Park (separate grant)

Expected Outside Support - Donations

- **Washburn County**
  - Launch Fees
  - Donated Professional Services
- **Swift Nature Camp**
  - Volunteer time
- **Outside Stakeholders**
  - Participation in discussion and planning
- **Renewable World Energies**
  - 10% refund of lost electricity generation
- **GLIFWC**
  - Wild rice aerial survey

Expected Value of Outside Donations over 3-yrs = $11,333.00

Reimbursable Expenses

(must pay, then be reimbursed at the end of the year)

- **$40,000.00 to reimburse RWE after drawdown**
- **$6,375.00 to pay ERS for Whole-lake Plant Survey**
- **$1,750.00 to pay ERS for fall EWM bedmapping**
- **$1,835.00 to pay EIS for lake level monitoring project**
- **$1,235.00 to cover misc. expenses**
  - Beetle rearing
  - State Lab of Hygiene (water samples)
  - CoCoRaHS rain guages (3)
  - Island protection signs
  - Consultant mileage and materials
  - MFA misc expenses

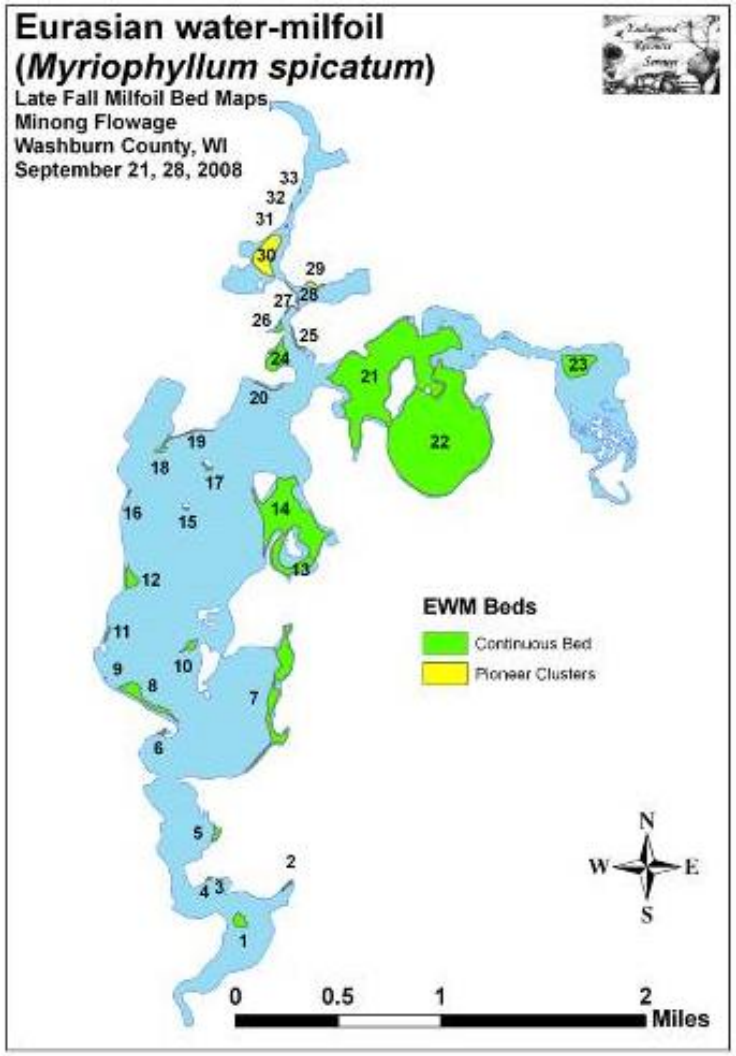
Expected Expenditures over 3-yrs = $51,195.00

EWM in the Minong Flowage

- 2002 – 1st ID in Minong Flowage
- 2003 WDNR Summer Survey
  - Estimated 103 acres of EWM
- 2008 – 1st fall bed-mapping
  - 336 acres
- 2008-09 1st Aquatic Plant Management (APM) Plan
- Chemical Treatments
  - 2009 – 68 acres
  - 2010 – 125.5 acres
  - 2011 – 87 acres
- 2012 – Dam Repair Project Proposed
- 5.5 ft Drawdown for Dam Repair
  - March 2013 through Feb 2014
- 2014-15 New APM Plan
  - Approved Feb. 2016
- 2016 Chemical Treatment
  - 26.9 acres in DNR Bay
- 2016 Flood Event
- 2017 - 5-ft Winter Drawdown first proposed
- 2018 – Winter Drawdown Planning and Permit Request
- December 2018 – WDNR Public Meeting
- 2019-20 – Possible 5-ft Winter Drawdown (DELAYED)

- 2021-23 New grant with funding to make it possible to reimburse for lost power generation

How Much EWM? – Fall Bed-Mapping



Fall 2008 - 336 acres

Total 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

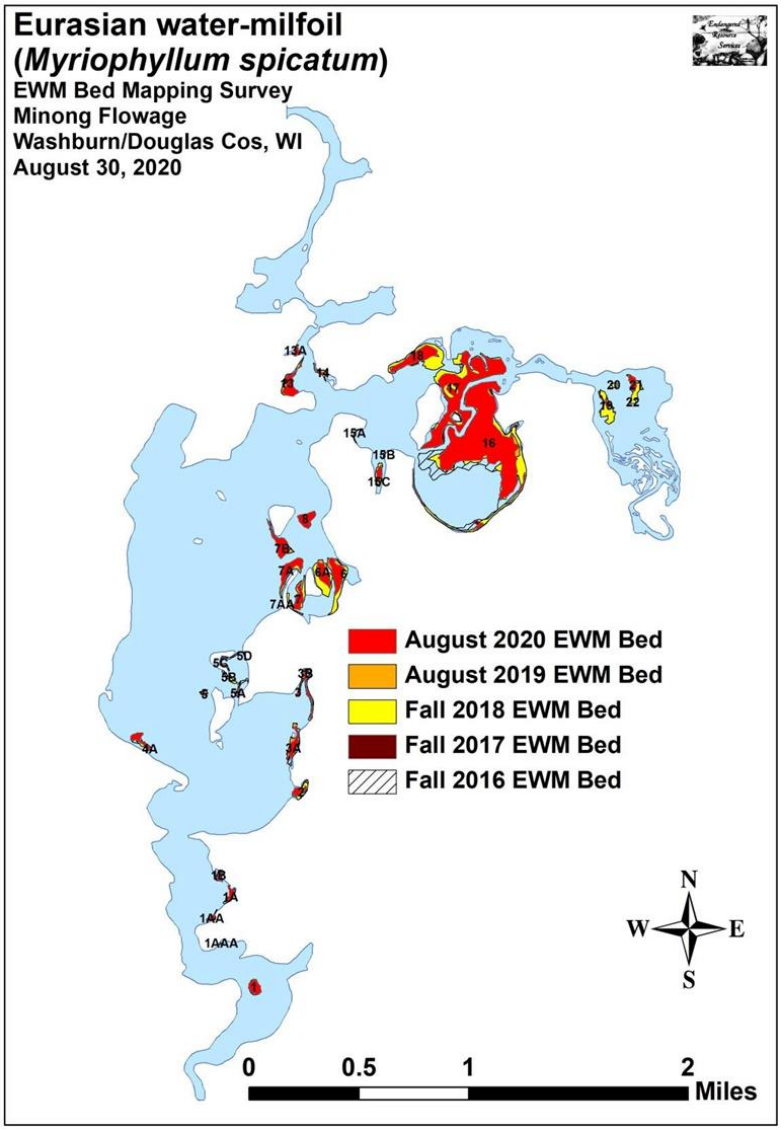
2017 – 112.88

2018 – 141.88

2019 – 85.27

2020 – 112.13

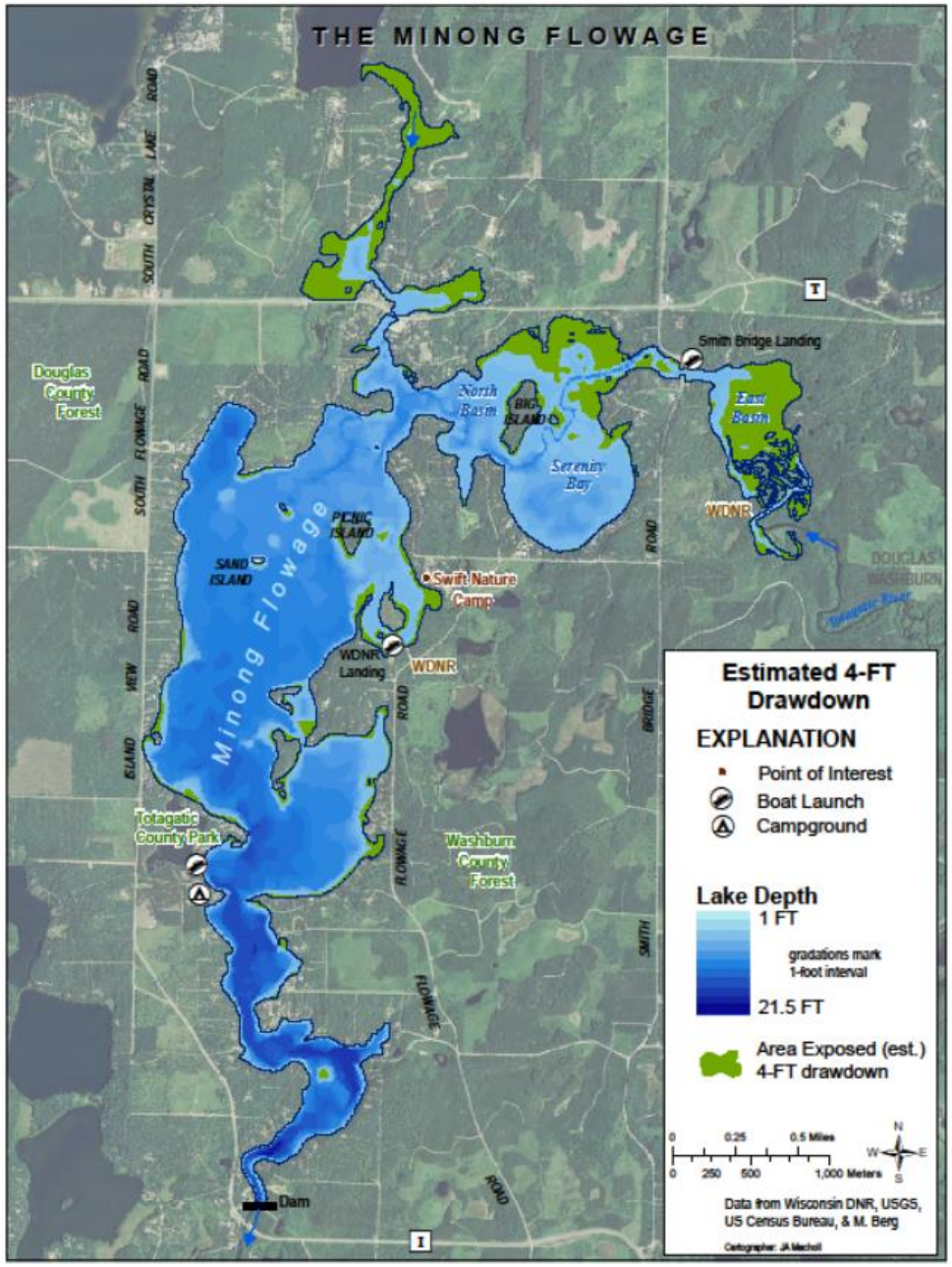
2021 - ??



Fall 2020 – 112.13 acres

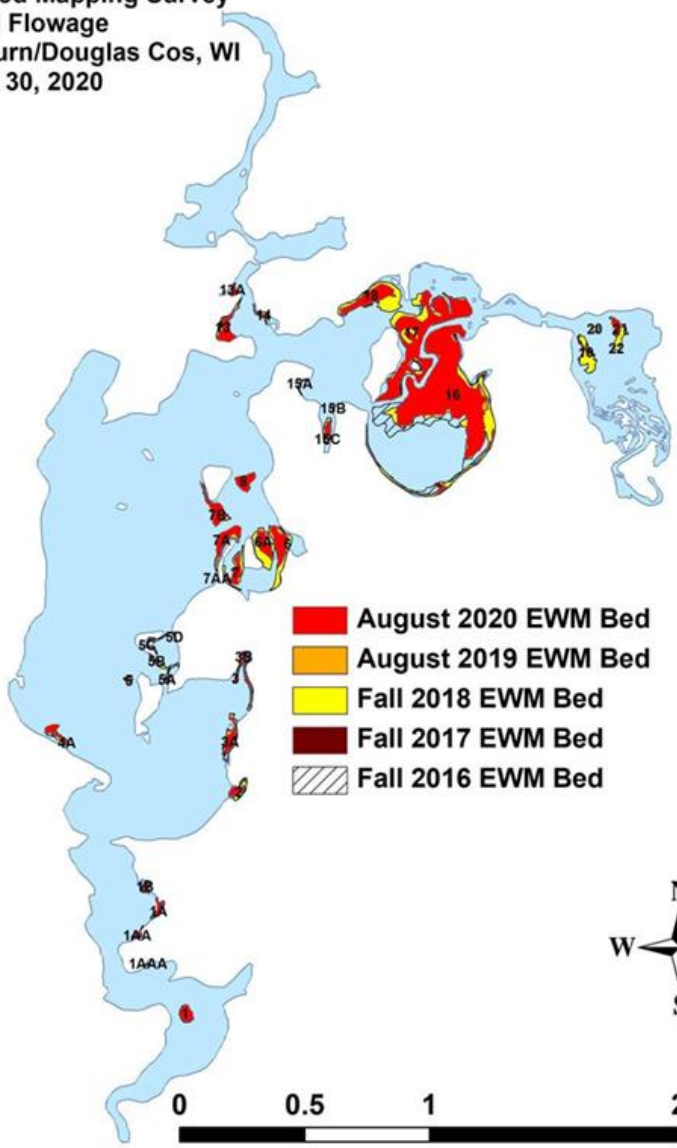
Winter Drawdown

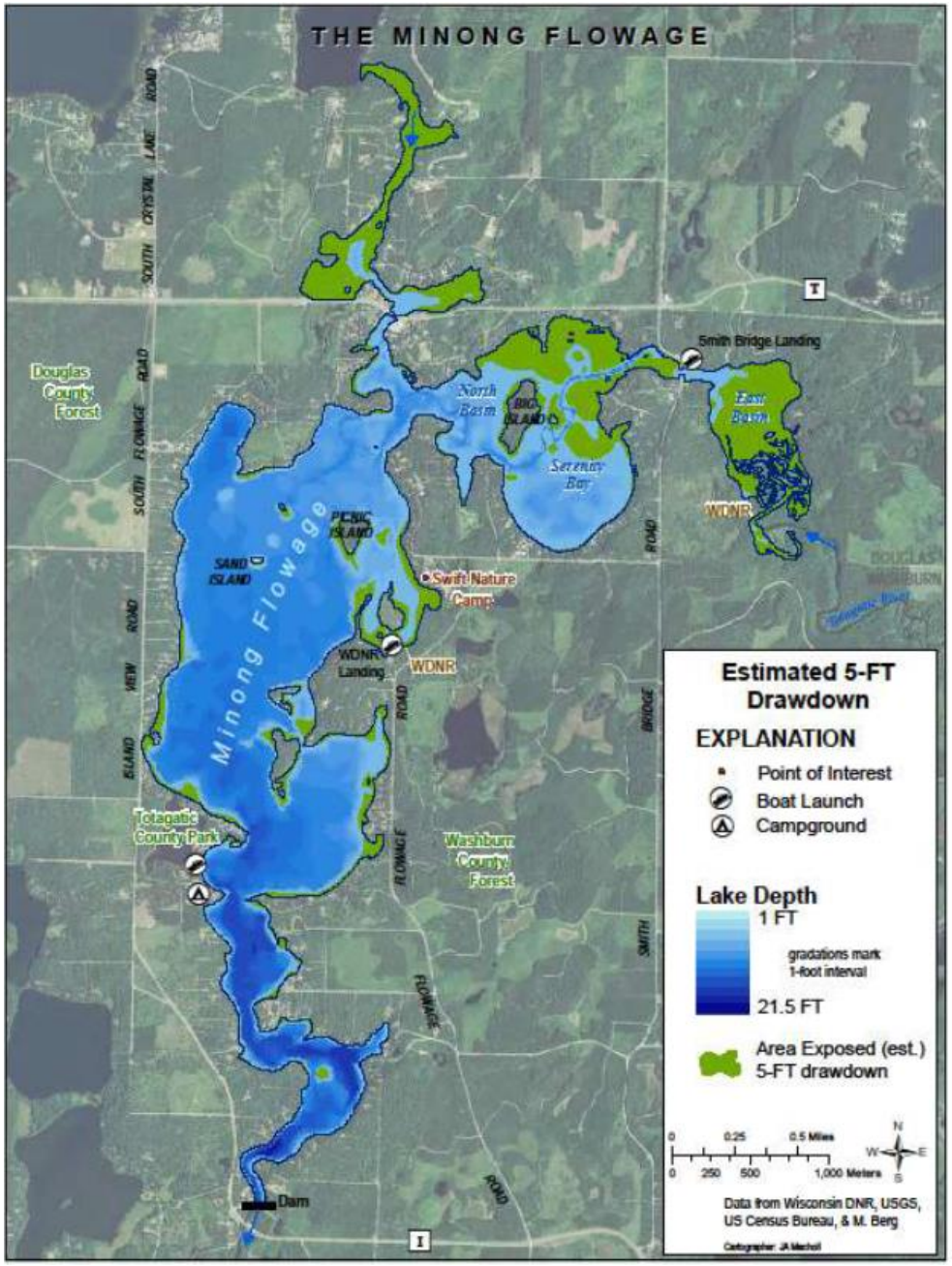
- **Sept/Oct 2021 to April 2022**
  - Based on several things including EWM growth, native aquatic plant growth, WDNR permitting, finances
- **Lower the water level in the Minong Flowage by 5 feet**
  - Approx. 7,140 acre-feet of water
  - Approx. 54% of the total volume of the Minong Flowage (13,157 acre-feet)
- **Begin lowering water level in late September or 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



Eurasian water-milfoil (*Myriophyllum spicatum*)

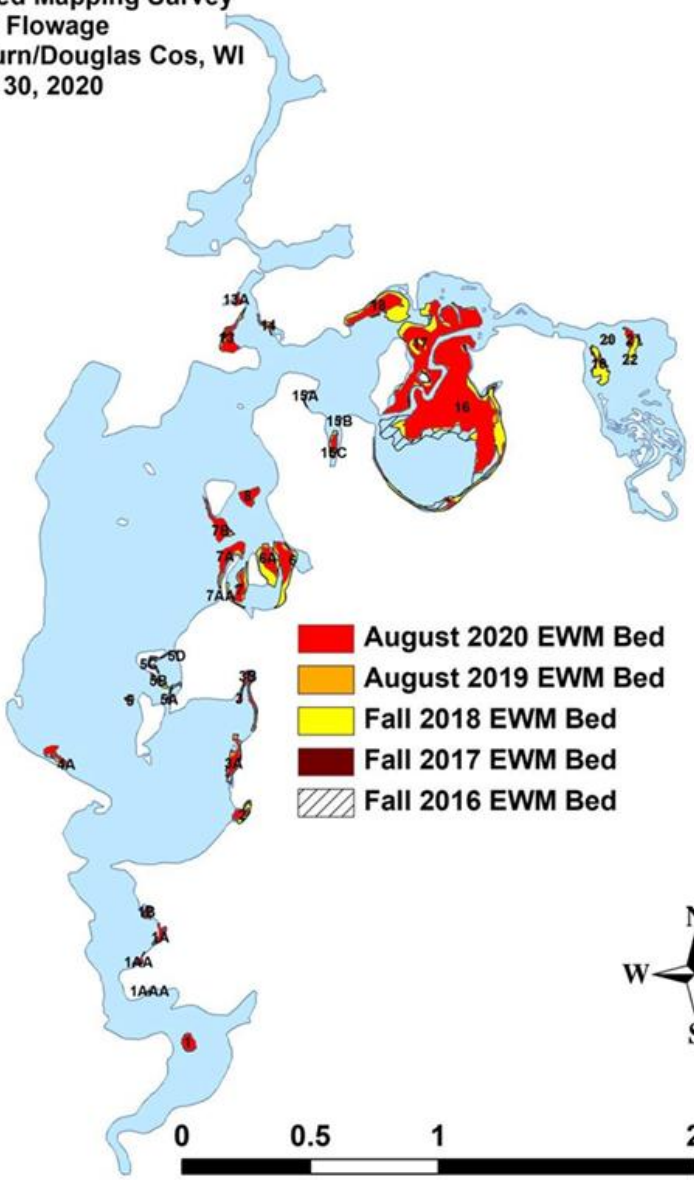
EWM Bed Mapping Survey
Minong Flowage
Washburn/Douglas Cos, WI
August 30, 2020





Eurasian water-milfoil (*Myriophyllum spicatum*)

EWM Bed Mapping Survey
Minong Flowage
Washburn/Douglas Cos, WI
August 30, 2020

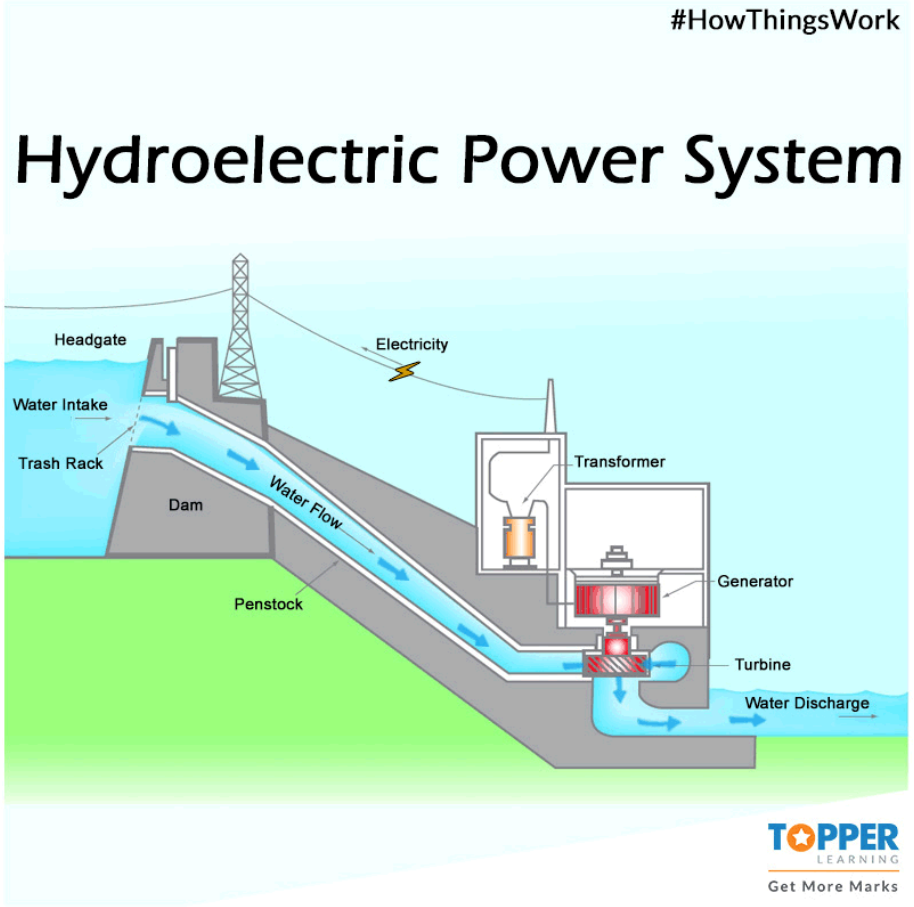


Monitoring During a Winter Drawdown

- 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
- Other concerns as planning moves forward

Generating Power w/ the Minong Flowage Dam

- **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



Potential Loss of Power Generation during the Drawdown

Power Generation at the Minong Flowage Dam (Renewable World Energies, 2018) (MWH)										
	2013		2014	2015	2016	2017		Average 2014-17		Difference Ave(14-17) - 2013
October	122.7		255.6	141.3	246.3	292.5		233.93		111.23
November	63		177.6	295.5	179.7	245.7		224.63		161.63
December	42.9		231.6	243	186	169.8		207.60		164.70
January	38.7		32.7	140.4	138.6	154.8		116.63		77.93
February	35.7		32.1	86.7	105.3	170.4		98.63		62.93
March	75.6		30.3	203.1	251.7	228.9		178.50		102.90
April	180.6		181.8	197.4	285.9	259.5		231.15		50.55
May	182.4		281.4	204.6	267	304.5		264.38		81.98
June	143.4		273	192	242.4	239.1		236.63		93.23
July	88.5		175.2	162	223.8	225		196.50		108.00
August	38.4		126	145.5	213.6	209.4		173.63		135.23
September	48		284.4	145.5	264.3	213		226.80		178.80
	559.2							1291.05		731.85
				Ave Oct-April Power 2014-2017			1291.05			
				Ave Oct-April Power 2013=			559.2			
				Difference=			731.85	x$50/MWH =		$36,592.50

Potential Loss of Power Generation during the Drawdown

Power Generation at the Minong Flowage Dam (Renewable World Energies, 2018) (MWH)									
	2013		2014	2015	2016	2017		Average 2014-17	Difference Ave(14-17) - 2013
October									111.23
November									161.63
December									164.70
January									77.93
February									62.93
March									102.90
April									50.55
May	182.4		281.4	204.6	267	304.5		264.38	81.98
June	143.4		273	192	242.4	239.1		236.63	93.23
July	88.5		175.2	162	223.8	225		196.50	108.00
August	38.4		126	145.5	213.6	209.4		173.63	135.23
September	48		284.4	145.5	264.3	213		226.80	178.80
	559.2							1291.05	731.85
				Ave Oct-April Power 2014-2017			1291.05		
				Ave Oct-April Power 2013=			559.2		
				Difference=			731.85	x$50/MWH =	$36,592.50

THIS WILL BE UPDATED WITH 2018-2020 DATA

QUESTIONS?