Lower Phantom Lake Harvesting Meeting Saturday, February 2<sup>nd</sup>, 2019 Heidi Bunk Lakes Biologist Wisconsin Department of Natural Resources

## **Recent Timeline**

- Saturday, July 21st, 2018– Public Informational Meeting
- Tuesday, September 18<sup>th</sup>, 2018 Offload sites field visit, discussion regarding smaller harvester, offload sites for smaller harvester, artificial channel harvesting with smaller harvester
- Monday, November 19<sup>th</sup>, 2018 Question and Answer meeting; organized by Representative Horlacher.
- Friday, December 21<sup>st</sup>, 2018 Internal meeting regarding proposed changes to Lower Phantom Harvesting Permit. Staff attending: Wildlife Biologist, Fisheries Biologist, Lakes Biologist, Endangered Resources Biologist, Water Resources Supervisor.

# **Background Information**

- Harvesting became a regulated activity under NR 109, starting in 2002.
- Harvesting location maps received from 2002-2010 were often not specific.
- The APM program focused on receiving more specific lane placement, lane widths, lengths, depths in 2011.
- Emphasis was placed on 5 year permits as they came up for review and a new 5 year permit.

### Phantom Lake Background - Harvesting

- Phantom Lake's five year permit expired in 2011.
- A new five year permit was issued in 2012.
- Personal observations of harvesting of high quality plants during water quality sampling in 2008-2011.
- Fisheries and wildlife staff were consulted in the development of the 2012 permit.
- Goal of lane placement was to balance recreational needs of residents with the needs of the plants and animals residing in the lake.

2018 Lane Changes



#### Map 2 (continued)

#### BATHYMETRIC MAP OF LOWER PHANTOM LAKE



DATE OF PHOTOGRAPHY: MARCH 2000



#### **Phantom Lakes Harvesting Zone Map Key 2014**



TOGRAPHY: MARCH 2000

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# 2017 Survey – SEWRPC

1	A	В	С	D	E	F	G	Н
1	Table-Percent frequency of occurrence within vegetated areas of Aquatic Plants within Lower Phantom Lake: 1967-2017							
2								
3		Sampling Year						
4	Name	1967	1980	July 1992	June, July 1993	July 2002	July 2011	July, August 2017
5	Ceratophyllum demersum, Coontail	Common	Common	Present	43	40.1	14.7	21.3
6	Chara sp., Muskgrasses	Common	Abundant	Present	23	51.2	35.5	51.6
7	Elodea canadensis, Common waterweed	Common	Common	Present	43	73.4	21.9	22.4
8	Heteranthera dubia, Water star-grass		(a) a) )			9.6	1.1	0,4
9	Lemna trisulca, Forked duckweed [formerly, Lemna sp.]	Scarce	22623	252	Scarce	122		0.4
10	Myriophyllum heterophyllum, Various-leaved water-milfoil	877575		5.5	Abundant	10,000	1000	7.1
11	Myriophyllum sibiricum, Northern water-milfoil [fomerly repo	Abundant	Abundant	4:4	83	52.1	53.6	30.7
12	Myriophyllum spicatum,Eurasian water milfoil	1000	12670	Present	33	74.9	43.4	30.3
13	Najas flexilis, Slender naiad	Common	Common		( <del>-</del> ( - )	58.7	6.0	7.9
14	Najas guadalupensis, Southern naiad	1222	12125	Present	Scarce	12222	12020	2523
15	Najas marina, Spiny naiad	87572	0.53	515	17171	0.9	6.0	2.8
16	Nitella sp., Nitella	(14)(4)	(H(H))		1.000	0.3	0.8	2.0
17	Nuphar variegata, Spatterdock	Abundant	Common	Present	Common	12.27	12.5	6.3
18	Nymphaea odorata, White water lily	Common	Common	Present	Common	15353	11.7	1.2
19	Potamogeton amplifolius, Large-leaf pondweed	Common	Abundant	Present	Common	1.2	(4(4))	1.6
20	Potamogeton crispus, Curly-leaf pondweed	Scarce	Scarce	Present	Scarce	3.6	0.4	1.6
21	Potamogeton foliosus, Leafy pondweed		(*(*))		(m)=)	(e)e)	(*(*)	1.2
22	Potamogeton friesii, Fries' pondweed	12225	12/25	282	12121	12/22	12121	0.8
23	Potamogeton gramineus, Variable pondweed	105552	0.5%	5.5	12121	1.5	3.0	6.3
24	Potamogeton illinoensis, Illinois pondweed		$(\omega(\omega))$	Present	( <del>-</del> ( - )	3.0	8.3	9.4
25	Potamogeton natans, Floating-leaf pondweed	Common	Abundant	Present	Common	0.9	3.0	2.0
26	Potamogeton nodosus, Long-leaf pondweed	0.000		<b>7</b> 17	1000	10.00	1.1	T
27	Potamogeton praelongus, White-stem pondweed	Scarce		Present	Common	8.4	5.7	0.4
28	Potamogeton richardsonii, Clasping-leaf pondweed	007070	Common	Present	15256	41.6	37.7	36.2
29	Potamogeton zosteriformis, Flat-stem pondweed	Common	Abundant	Present	Common	31.4	17.7	6.3
30	Sagittaria cuneata, Arum-leaved arrowhead	192725	12/25	28:2	12121	02920	12020	18.1
31	Stuckenia filiformis, Fine-leaved pondweed [formerlyPotam	8878-72		Present	10.000	(597)	1000	3250
32	Stuckenia pectinata, Sago pondweed [formerlyPotamoget	Scarce	Abundant	Present	Common	15.3	29.4	12.2
33	Utricularia vulgaris, Common bladderwort	Scarce	Abundant	Present	Common	22.2	27.9	27.6
34	Vallisneria americana, Wild celery	Common	Common	Present	28	54.5	37.0	39.8
35								

#### Change in EWM





Source: WDNR and SEWRPC

#### EWM in 2017



#### **Species Richness**

Figure X.X

Aquatic Plant Survey Sites and Species Richness in Lower Phantom Lake: August 2017



NOTE: Samples were collected in Lower Phantom Lake between July 31 and August 7, 2017.

Source: WDNR and SEWRPC

# Petition Proposal # 1 – Increase Lanes B and I from 30 feet wide to 50 feet wide

Phantom Lakes Harvesting Zone Map Key 2014

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#### Proposal #1 – Department Considerations and Response

- Lane B has shown an increase in EWM density from 2011 to 2017.
- Lane I has not shown an increase in EWM from 2011 to 2017.
- The District states that navigation is too tight.
- If less boats are navigating through the edges of the lanes, overall plant fragmentation could decrease.
- The Department will be able to approve an increase in harvesting width from 30 feet (currently permitted) to 50 feet in the new permit, if requested by the District.

# Petition Proposal # 2 – More open water cutting in the area east of the B/I Lane Intersection

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#### Proposal #2 – Department Considerations and Response

- This area is quite shallow in general.
- Open water harvesting will disturb sediment, further fragment habitat, and encourage more motor boat traffic in an area that should be protected for animal and plant species.
- Reducing open water harvesting from 2011 to 2017 caused a decrease in EWM density and an increase in native plant diversity.
- The Department will not be able to approve additional open water harvesting in the new permit, if requested by the District.

# Petition Proposal # 3 – Widen two transit lanes to 30 feet wide, east of I. Use for general boating.



#### Proposal #3 – Department Considerations and Response

- Implementing harvest in the north south lane (J) will fragment the habitat significantly. The data shows that from 2011 to 2017, the elimination of open water harvesting in this area resulted in an increase in native aquatic plants and a decrease in EWM.
- The Department will not be able to approve harvesting lane J in the new permit, if requested by the District.
- The east west lane (K) is used by the harvester team to transport material to the off load site. This lane was added in the 2018, allowing for a 50 foot harvest after June 15<sup>th</sup>. This will carry through to the next permit if the District requests it.

#### Petition Proposal # 4 – Expand open water milfoil harvesting to Lane B (north), Lane I (west), south shoreline, southeast shoreline and point E (fishing pier).



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#### Proposal #4 – Department Considerations and Response

- The data does not support the District position that a large central area of the lake needs to be managed for EWM. The data demonstrates that there is a large amount of native vegetation in this area that could be impacted by open water harvesting approval.
- The large central area of the lake provides habitat for many animal species. This proposal further fragments the habitat and reverses the progress made since 2011.
- The Department will not be able to approve expansion of open water harvesting in the area described in Proposal #4 if requested by the District.

Petition Proposal # 5 – Allow harvesting end time to be moved from October 15<sup>th</sup> to October 31<sup>st</sup> each year to prevent additional sediment buildup.

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#### Proposal #5 – Department Considerations and Response

- Frogs and turtles start to burrow when the water temperature in the lake falls below 60 degrees. Area lakes typically are at or below 60 degrees by October 15<sup>th</sup> of each year. Harvesting after October 15<sup>th</sup> will disrupt the burrowing activity by herps.
- Harvesting after October 15<sup>th</sup> will occur in the prime migratory waterfowl window, decreasing the ability of waterfowl to feed unmolested and build crucial energy reserves for further migration.
- Harvesting after October 15<sup>th</sup> will cause conflict with waterfowl hunters.

#### Proposal #5 – Department Considerations and Response, continued

- Lower Phantom Lake is an impoundment of the Mukwonago River.
- Impoundments naturally receive deposition from the rivers flowing through them.
- Decaying aquatic plants release phosphorus and other nutrients. Many of the nutrients are recycled in the next growing season for new plants.
- The annual deposition from the river far exceeds deposition from decaying aquatic plants.
- The Department will not be able to approve extending the end of the harvesting season to October 31<sup>st</sup> each year if requested by the District.

#### Proposal #6 – Additional Harvesting in Outlet Bay

- Far eastern bay; Park fishing pier on north shore and Whispering Bay pier on the south shore
- Additional harvesting around Whispering Bay Condo pier
- 30 foot wide navigational channel down the center of the bay

#### Proposal #6 – Department Considerations and Response

- Multiple endangered, threatened, special concern forage fish species documented as utilizing the bay
- Continued disturbance of aquatic plants in this area will greatly affect the ability of these species to feed, rear, take cover, etc.
- The Department will not be able to approve additional harvesting in the Outlet Bay if requested by the District.

### What the heck is a forage fish species?

- Small, usually 1 4 inches
- Food source for game fish
- Many species host one of the growth stages for mussels
- Very sensitive to disturbance need plant beds that are minimally disturbed by vessels such as canoes, kayaks
- Generally eat zooplankton, insect larvae, green algae, bits of aquatic plants (depends on species)

# **Cladoceran and Damselfly**





# **Starhead Topminnow**





# **Pugnose Shiner**



### Least Darter





#### Additional Wildlife and Fisheries Comments

- The high native plant diversity is excellent for waterfowl and migratory water bird forage. This includes small forage fish, invertebrates, and plant food sources.
- Native aquatic plants provide a competitive advantage for native panfish and gamefish species, resulting in improved water quality and increased angling opportunities through what is commonly referred to as biomanipulation.
- Avoiding disturbance in the fall is important for allowing many species to properly prepare for hibernation or migration and to avoid conflict with other user groups, specifically waterfowl hunters.

# Additional Fisheries and Wildlife comments, continued

- Further fragmentation of the main water body, as proposed, is likely to increase Eurasian water milfoil populations by allowing openings via lake disturbance.
- Fisheries surveys have shown an increase in the average size and abundance of panfish species when comparing data from electrofishing in 2009 and 2017, which are critical to reducing common carp recruitment through direct predation on carp eggs.
- Increased catch rates during electrofishing could potentially be from increases in recruitment resulting due to improved native aquatic plant communities and quality nursery habitat. The increase in recruitment of panfish may also be a result of reduced panfish harvest via reduced plant harvesting.

# Proposal #7 – Options for harvesting inaccessible channels

- West/Central channel in wetland proximal to Lakeview and Oconee Streets
- Lakeside Street proximal to the Upper Phantom/Lower Phantom channel
- Channel proximal to Circle Drive, just north of Phantom Woods Drive
- Bay located proximal to Lake Street, NE side of Lake

## **Inaccessible Channels**



#### Proposal #7 – Department Considerations and Response

- These areas are too shallow to harvest with the existing harvester
- West/Central channel in wetland proximal to Lakeview and Oconee Streets and bay located proximal to Lake Street, NE side of Lake are both excellent candidates for use of a smaller harvester
- 1 foot of plant material must be left uncut
- All four areas are excellent candidates for DASH harvest (expensive).

#### Proposal #7 – Department Considerations and Response, Continued

- Lakeside Street proximal to the Upper Phantom/Lower Phantom channel and Channel proximal to Circle Drive, just north of Phantom Woods Drive – both potential candidates for smaller harvester, provided that there is enough water depth for the selected harvester and that there are piers/wharfs to access
- Hydraulic dredging could potentially be considered for all 4 areas

### Smaller Harvester – FB 120



## **DASH Harvesting**



### Dash Harvesting – Collection System





# Questions

