

Appendix J

Aquatic Plant and Water Depth Survey -- August 8, 2006

Notes from August 8, 2006 Aquatic Plant/Water Depth Survey on Nagawicka Lake

Misc. Notes

- ~Jerry Bills, Lisa Reas, Heidi Bunk, and Sue Beyler manned the DNR boat; Don Tills followed in his own boat
- ~Heidi repeatedly stated that dredging would be a viable option in areas where water depths were below 3' (between top of sediment and Ordinary High Water Mark)
- ~Water levels on August 8th appeared to be right at the OHWM – Jerry & Don commented that water levels are pretty constant in the lake
- ~Overall water clarity in the lake appeared quite good
- ~When asked about herbiciding Eurasian Water Milfoil (EWM) in sensitive areas, Heidi responded that it can be permitted if the vegetation in the areas in question is comprised of 50% or greater EWM.
- ~Heidi commented that she generally agreed with the sediment depths submitted in the dredging permit application.
- ~Lisa took water depths, Heidi & Sue inventories the aquatic & terrestrial plant species.

Site #1 – ZB1 - Zastrow's Bay (west)

- 3.25' to 3.5' water depths in channel – shallower water seen within pier reach of shoreline
- Very clear water
- Lots of small northern pike found in the area in fall

Plant Species

Water celery	Spiny naiad
Sago pondweed	Northern water milfoil
EWM	Chara
Widgeon grass	



Site #2 – ZB2 - Zastrow's Bay (east)

- 3.75' – 4' water depths in center of channel; 2' depths or less near piers
- Very turbid water – Mechanical harvester scraped bottom & removed nearly all plant growth

Plant Species

Water celery	Slender naiad
Clasping leaf pondweed	Whorled milfoil
EWM	Chara
Widgeon grass	Water star
Rosette of ?arrowhead?	

Site #3 – ZB3 - Zastrow's Bay (south)

- No water depths below 4' except within pier line; channel center 5'

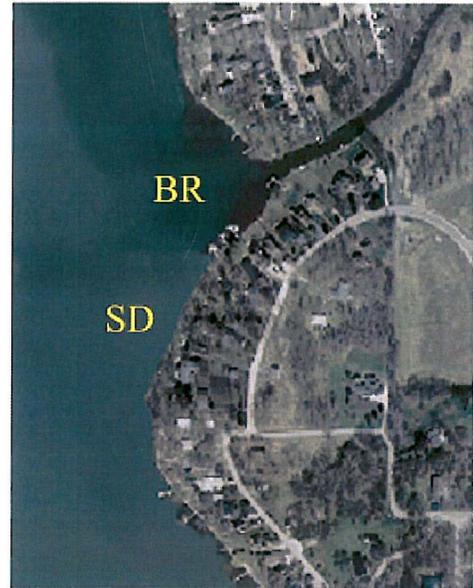
- Very turbid water; mechanical harvester scrape damage visible
- Gravel bottom along east shoreline – good spawning sites

Plant Species

Water celery	Sago Pondweed
Clasping leaf pondweed	Whorled milfoil
EWM	

Site #4 – BR - Bark River Inlet

- Variable water depths
- Very deep sediment; > 4'
- Aquatic vegetation laden with fine floccular sediment
- Sparse plant growth
- OK to dredge – Heidi’s comment



Restoration Limits – Heidi commented that vegetation restoration in this area would not be successful

- ❖ Too much boat traffic
- ❖ Too much silt entering area

Plant Species

Water celery	Coontail
Curley leaf pondweed	Sago pondweed
EWM	Duckweed
Arrowhead	

EWM Eradication Options – Heidi’s Comments

EWM eradication/control not feasible for the inlet area.

- Too much area to cover for liquid herbicide & granular herbicide applications
- Too much inflow of water from Bark River
- Too much boat traffic

Weevils may be the best option. They do have a population cycle that ranges from 5-9 yrs.

Site #5 – NE (1-6) - Northeast Channels

Heidi asked Lisa if utilizing biolog along the shorelines would help keep the shorelines stabile. Lisa commented that the biolog will degrade over a period of 5 to 7 years & that its purpose is generally to absorb wave, ice, & other erosive factors while vegetation is allowed to recover on a sensitive shoreline area. Since these shorelines are already well vegetated with soft and woody vegetation, the biolog would only really act to retain the very top of the sediment & that it would



be possible that the sediment could be pulled out from under the biologs if dredging was at a steep angle too close to the shoreline areas. This soft sediment & uncompacted shoreline soil would make anchoring the biologs quite difficult as well.

1) Very shallow; 2' water depth at center of channel. Lisa recommend 5' of undredged 'buffer' along shorelines be left untouched to ensure shoreline stability. Lisa also recommended anchoring woody tree falls diagonally along the shoreline in natural areas. In developed areas of the channel, 16" diameter biolog would be a great alternative to the existing sea walls.

2) Also shallow in middle of channel. Same vegetation as above seen with swamp willow being very prevalent. Anchored tree falls are also recommended for this channel.

3) Very narrow channel. Shallow in middle. No tree falls recommended due to narrowness of channel.

4) Heidi called this area 'Very Special Habitat'. Lots of tamarack. Very shallow depths – we did not go down this channel. Heidi felt dredging was not an option – the stability of the shorelines could not be risked.

5) Good water depths – heavy development on the channel. Aerators used along piers. (No tree falls recommended).

6) Good water depths – lots of fern vegetation on the shorelines. (No tree falls recommended).

Plant Species

Swamp willow

Water lilies

Cattails

Soft Stem bulrush

Misc. sedges

Wild iris

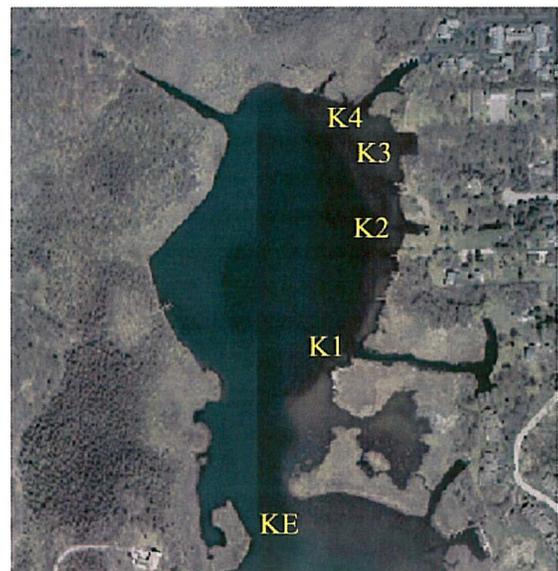
Site #6 – KE & K (1-4) - Kettle

KE - Heidi strongly recommended creating a specific, marked navigation channel into and out of the channel. This would assist in keeping the depth greater than 3' by not stirring up the shallower water/sediment along the west side of the Kettle entrance. It appears that over time, the entrance may have shifted eastward as sediment accumulated along the west side of the entrance.

Kettle Channels

K1 – 3' water depths (only one spot under 3'). Too narrow for tree falls.

K2 – 3' water depths. Heidi recommended that owner extend pier to deeper water – 3' water depth. Too much native aquatic vegetation to get to the end of the channel. Lots of young of the year bass seen.



K3 – Lots of water lilies. Heidi said dredging not favored there; owner should extend pier to 3' water depth.

K4 – 3' to 4' water depths. Heidi felt dredging not necessary. A few spots at mouth of channel showed depths just under 3'. Large parallel pier along much of north shoreline. Elevated pier along south shoreline. Lots of mowed lawn along water. Fifteen+ slips in the channel. Heidi commented that it exceeded reasonable use for the area. {DNR regs state that, in general, riparian landowners get 2 slips for the first 50' they own & 1 slip for each 50' after that.}

Open Kettle Plant Species

Water celery	Elodea
Clasping leaf pondweed	Whorled milfoil
Floating leaf pondweed	Coontail
Widgeon grass	Water star
Illinois pondweed	Arrowhead
Water lilies	Soft stem bulrush
Cattails	

Channel Plant Species

Lots of EWM	Elodea
Clasping leaf pondweed	Spatterdock
Curley leaf pondweed	Cattails
Sago pondweed	White water lilies

Site #7 - St. John's Bay

- o Water depths 3.25' to 3.5'
- o Only a couple spots less than 3' deep at or within the pier head line along southern shoreline
- o No milfoil seen
- o Very healthy celery, clasping leaf pondweed, IL pondweed, naiad, and sago pondweed communities seen – excellent/exceptional habitat
- o Very clear water seen (except where aquatic plant harvester had recently cut/scraped bottom)
- o Heidi commented (but we did not visit) shallow area (approx. 200') along west shore where main lake curves into St. John's Bay would be OK to dredge
- o St. John's Bay heavily used by migratory waterfowl
- o Sue commented that the fishery in the bay was outstanding; many forage species known to be there, specifically the chub sucker



Jerry commented that sheriff's boat needed safe/rapid entry/exit of bay for emergency response. Heidi questioned the issue since water depths are generally greater than 3.5' in channel.

Jerry commented that depth problem inevitable; dredging would be more of a proactive move on the part of the city.

Sue commented that if the bay is silting in that rapidly (1' in ten years), watershed issues must be addressed first. She also commented that as it is, St. John's Bay fisheries habitat couldn't be improved upon – it is that good.

Heidi & Sue commented that those few landowners dealing with less than 3' water depths along their piers should extend the piers to the 3' water depth. This would not impact navigation.