

Review of Weeds Survey Results & Knowledge Platforms

Presented to : Van Vliet Lake Association Board – 2012/08/21

Presented by : Van Vliet Lake Weeds Subgroup – Formed at the VVLA 2012 Annual Meeting

Presenters : Ed Brodsky / Jeff Burke / Jim Sprester / Mike Czarny

Presentation Contents

1. Introductory Comments
2. Assessment of Legality of Harvesting in WI, under DNR supervision.
3. Review of Other lakes in WI conducting mechanical harvesting.
4. Interviews from other local lakes.
5. Mechanical Harvesting Contractors.
6. VV Riparian Owner - Survey Results.
7. Conclusions / Recommendations.
8. Appendix / Other Information

1.) Introductory Comments:

1. Based on continued requests and concerns about increased weed growth in the lake, coming from the floor of the VVLA Annual meetings, a group was formed at the July 2012 VVLA Annual meeting to investigate facts and practices.
2. We found the depth and breadth of opinions, memories, anecdotes and armchair - barroom science to be quite large. Conversely, we found the actual science for many typical questions to be not readily available.
3. Our intent was to always attempt to seek out and find facts and to list both knowns and unknowns as clear positions in an unbiased manner.
4. We recognize there may never be complete agreement on this issue. However, there should be a recognition and acknowledgement of the rights of riparian owners to investigate fact-based solutions to their problems, with the DNR and through the Van Vliet Lake Association.
5. We have provided references to websites and documentation.
6. The presenting members ask that questions or comments be held until the end of the presentation.

2.) Assessment of Legality of Harvesting in WI, under DNR supervision.

CONCLUSIONS :

1. **Public laws, DNR Guidance documents, and UWEX websites clearly define mechanical harvesting of native plants, for nuisance navigation, is an allowed option for riparian owners, conducted under and within DNR permitting and guidelines.**
2. **These issues and solution pathways were also acknowledged in recent lake studies, supported by VVLA, with private funds-efforts in both 2005-6 with public funds in 2011-12.**

•**Procedure defined under Wisconsin law** – NR 109 (October 2003). <http://docs.legis.wisconsin.gov/code/prefaces/toc>
(Included in VV APMP 2011 Appendix D)

•**Guidelines for implementation and management set forth in DNR documentation** – “AQUATIC PLANT MANAGEMENT STRATEGY Northern Region WDNR Summer, 2007 (working draft)”. (Pg 6 Treats impaired navigation or nuisance navigation conditions).

•**DNR Form 3200-113** - Mechanical / Manual Aquatic Plant Control Application - Section VI lists the 4 following reasons for aquatic plant removal : Maintain Navigational Channel for Common Use, Maintain Private Access for Boating, Maintain Private Access for Fishing, and Improve Swimming. ([Directed at Riparian Owners - Appendix #5](#))

•**June 2005 (Updated 2006) VV Lake Mgmt Study (Blue Waters)** ([Appendix #7](#))

- Section 5.5 - Pg 44 – “ Managing the excessive growth of aquatic plants could be considered.”
- Pg 53-56 – Options and recommended sites for harvesting.

•**December 2011 Van Vliet APMP (PITLC - Bonestroo)** ([Appendix #8](#))

- Active Goal # 6 – “To manage areas of impaired navigation and/or nuisance conditions as outlined in Northern Region WDNR APM Strategy Document, Appendix H, page 6.”
- Pg 21/25 – “Should there exist impaired navigation or nuisance situation, individual riparian owners or a group, can work to define and solve the problem, as defined on Page 6 in Appendix H.”
- Appendix H - Additional Information / Lake Resident Comments – “These changes may or may not be due to several years of low water levels. The residents and the Board of the Van Vliet Lake Association do feel this is an area of concern and should be closely monitored and addressed in the future.”
- Appendix F NR109

3.) Review of Other lakes in WI conducting mechanical harvesting.

CONCLUSIONS :

1. **Mechanical harvesting does occur within the state, in our area, under WI law and DNR supervision, for both invasive and non-invasive nuisance navigation issues.**
2. **The DNR grants permits and is supervising activities within our region, primarily for native nuisance navigation issues.**
3. **In our region, harvesting permits for native nuisance issues outweighs invasives by 6:1.**

The UWEX – Lakes website specifically lists mechanical harvesting activities, by lake, by reason, across the state of WI.

- 108 lakes in Wisconsin
- 21 Lakes in the Northern District (our area) *
- 5 Lakes in Vilas County *

*Appendix – Ref #1

3.) Review of Other lakes in WI conducting mechanical harvesting.

The Rhinelander DNR office provided us information about activities occurring within their six (6) county area. *

“As of August 1, 2012:

Invasive nuisance reasoning for harvest: 1

Native nuisance reasoning for harvest: 6

Cliff Schmidt of Schmidt’s Landscaping & Nursery/Schmidt’s Aquatic Plant Control is harvesting 2 lakes this year:

Papoose Bay of Rest Lake, Vilas County

Pine Lake, Forest County

The rest have in-house harvesters:

Rollingstone Lake, Langlade County

Pickerel/Crane Lakes, Forest/Langlade Counties (I just counted these as one lake since they are connected, & both are being harvested.)

Lower Post Lake, Langlade County

Cochran Lake, Vilas County

Tomahawk Lake, Oneida County (EWM & Native removal) “

* Ref - Hnue Yang, Water Resources Mgt. Specialist/Fisheries Tech. , WIDNR, email of 08/09/2012.

4.) Interviews from other local lakes.

CONCLUSIONS :

1.A survey of 8 regional lakes was initiated. 4 of 8 lakes have responded to date. Interviews from two (2) lakes, with a cumulative total of 45 years of mechanical harvesting for natives, have shown no direct cause and effect for harvesting being connected to invasives.

2.Checking of TSI's (Trophic State Indexes) on the DNR website for specific survey lakes have shown no deterioration .

3.As the interview history demonstrates, if done using approved DNR guidelines and a reputable mechanical harvester /contractor, one would not expect to see any (-) impact to the lake health.

4.Mechanical harvesting is an annual process that requires financial commitment from the riparian owners.

- The group attempted contact with 8 lakes conducting harvesting in our areas. The list was assembled based on information provided by the Rhinelander DNR office, lakes chosen from the UW extension website (<http://www4.uwsp.edu/cnr/uwexplakes/lakelist/byactivity.asp?AID=21>) and personal contacts.
- An interview script was constructed to help guide the phone interviews and remain consistent. (ref Appendix #2)
- The survey process is not complete. However, some common themes and information listed on the next slide, are emerging.
- The lakes are listed below:

Survey	Lake Name	County
x	Muskellunge Lake	Vilas
x	Rolling Stone Lake	Langlade
x	Pewaukee Lake	Waukesha
x	Cochran Lake	Vilas
	Lower Post Lake	Langlade
	Rest Lake (Papoose Bay)	Vilas
	Pine Lake	Forest
	Pickerel / Crane	Forest / Langlade
x = Complete		

4.) Interviews from other local lakes.

Mechanical harvesting has several common facets.

1. Each lake is different, however, the process does work and provides access relief to riparian owners
2. Riparian owners need to realize the process is akin to mowing the lawn. Results are temporary, it needs to be repeated, and it will have recurring costs.
3. Costs depending on scope and size, are incurred either via a contractor or specific equipment purchase /maintenance.
4. We thought cut weed disposition would be an issue. Most lakes have found local land areas, owners, hunters, and gardeners provide composting solutions.
5. The removal of plant biomass removes a large amount of nutrients from the lake.
6. The goal of native harvesting is to leave the bottoms/roots of the plants in place and to not disturb the bottom.
7. One may see improvement in fisheries, but the WI DNR acknowledges, facts are difficult to pinpoint and has initiated studies. ([Appendix #3](#))
8. There does not appear to be any significant negative impact issues regarding concerns typically expressed below :
 - Loss of water clarity
 - Algae Blooms
 - Invasives automatically appearing in cut areas
 - Loss of Fish Habitat
9. An excellent listing of (+'s) and (-'s) of mechanical harvesting can be found on the WA DNR website. ([Appendix #4](#))

5.) Mechanical Harvesting Contractors.

Conclusions :

1. **The number of contractors in this region is extremely limited.**
2. **One Contractor – Cliff Schmidt – has developed a good rapport with the local DNR office.**
3. **This contractor is aware of our developing interest and is willing to work towards a future plan.**

•The UWEX website provides searchable lists of firms offering services as a Weed Harvesting Contractor
<http://www4.uwsp.edu/cnr/uwexlakes/lakelist/fcsearchresults.asp?topic=33&category=Services>

•Because many of these firms are located in SE WI, it may not be feasible to believe 2-3 cost effective bids could be developed, due to travel considerations associated with equipment.

•Kevin Gauthier – WI DNR Rhinelander – Provided the name of Cliff Schmidt as a contractor who is conscientious and respected within the DNR offices.

•Interview with the Muskegon Lake Assoc President gave Cliff Schmidt good reviews. Reviews from Pine Lake and Rest lake are still pending.

•The group has established contact with Cliff Schmidt. He is aware of efforts to develop a potential scope and estimate for future discussion(s) - <http://www.schmidts-aquatic.com/index.html>

6.) VV Riparian Owner - Survey Results.

Conclusions :

1. **The survey is meant to reflect both the current state of riparian owners for mechanical harvesting and their financial appetite.**
2. **As of August 20, 2012, the survey received responses from > 65% of the riparian owners.**
3. **It seems clear a large number of riparian owners would like to see this plan further developed.**
4. **> 60%of the respondents are willing to fund at least the 1st year effort(s).**
5. **The survey results show a split of harvesting support along an east-west line,**

6.) VV Riparian Owner - Survey Results.

- The group attempted to identify both factual known or unknowns on the issue.
- The group assembled a survey with an information letter, to assess the willingness and financial support of riparian owners to develop a plan.
- The group attempted to keep the survey simple. Only two questions were posed:
 - Are you in favor of the VVLA work towards development of a plan to mechanically harvest nuisance weeds? Yes or No
 - If you answered YES to the above question - - - what range are you willing to contribute (Min / Max)? (The survey indicated answers to be an estimate and does not represent a commitment).
- Survey / Data Collection mechanics
 - The survey focused on the 76 riparian parcels on Van Vliet Lake. Owners were identified from the tax roles.
 - A data collection sheet was set up identifying each parcel / tax #. The group chose to collect 1 vote / parcel.
 - The group initiated the riparian owner survey contact plan in 2 phases.
 - Phase 1 – 55 parcels on the west side
 - Phase 2 (1 week later) - 21 parcels on the east side.
- After delivery of the survey / information packet, best contact efforts were used to conduct factual follow-up discussions and discuss the importance of the survey return.
- Survey data was entered, by parcel, into a spreadsheet.
- Data entry was double checked by a 2 person team.
- Data collection started on Thursday August 2 and continued until Sunday August 19, 2012. The data shown does include amended returns, resulting from the secondary information package sent by another individual.

5. VV Riparian Owner Survey Results.

- Data Tabulation is shown below.
- Results are shown for the lake as a total and for the east / west break out.

TOTALS**	53	18	34	\$ 10,210	\$ 17,960	76
Total Lake	# Survey Return	Weed Cut NO	Weed Cut Yes	\$ MIN	\$ MAX	# of Parcels
Returned Results	70%	34%	64%			

TOTALS**	40	10	29	\$ 10,210	\$ 16,960	54
West Side	# Survey Return	Weed Cut NO	Weed Cut Yes	\$ MIN	\$ MAX	# of Parcels
Returned Results	74%	25%	73%			

TOTALS	13	8	5	\$ -	\$ 1,000	22
East Side	# Survey Return	Weed Cut NO	Weed Cut Yes	\$ MIN	\$ MAX	# of Parcels
Returned Results	59%	62%	38%			

** 1 neutral vote - neither yes or no, but offered \$ support and land for weeds disposition

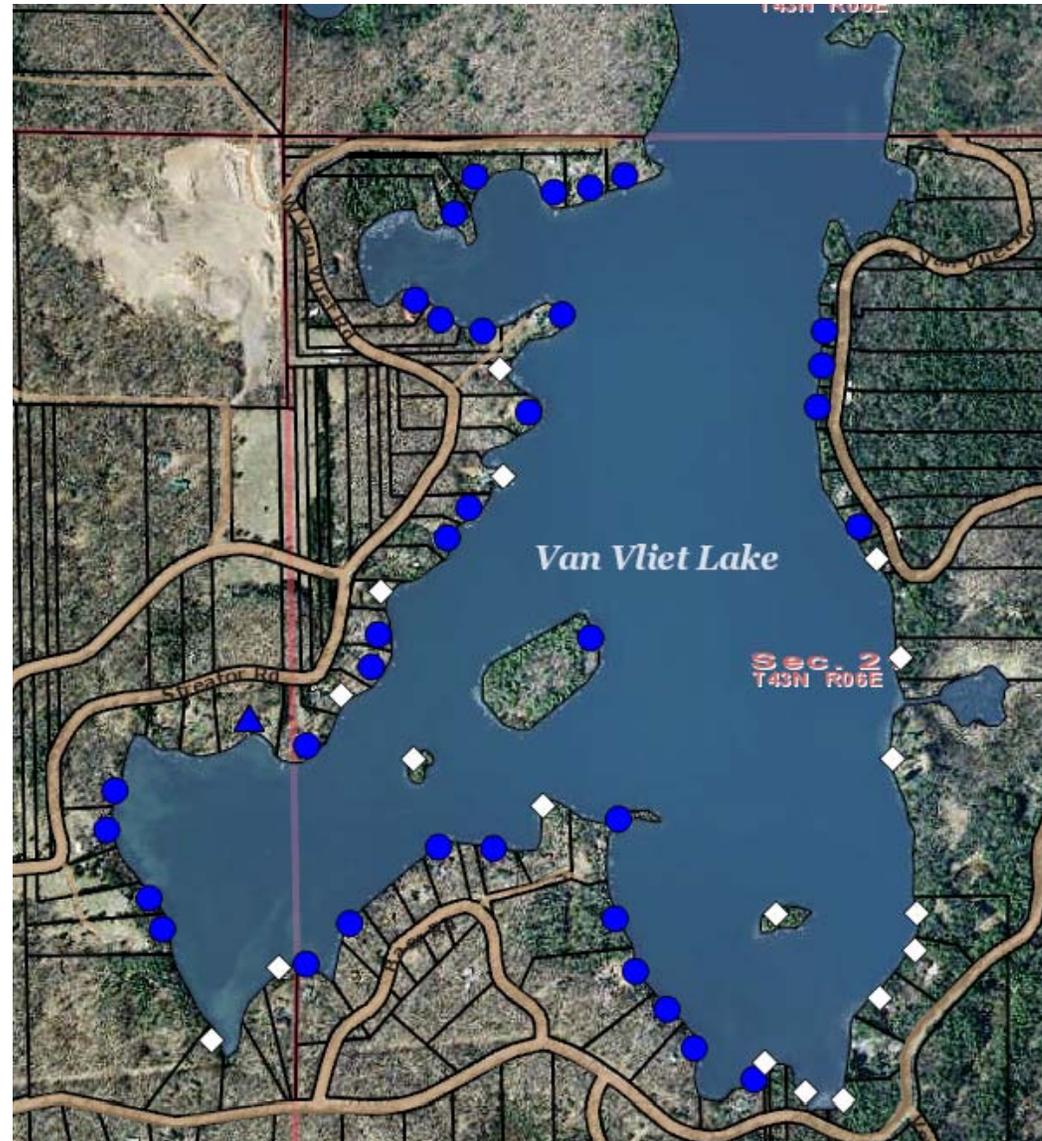
6.) VV Riparian Owner - Survey Results

● Circle – Yes

◇ Diamond – No

▲ Triangle – Neutral

Blank – No Registered Vote



7.) Conclusions / Recommendations.

A. CONCLUSIONS

1. Mechanical weed harvesting for nuisance native issues is a legal option to riparian owners.
2. It is on-going in the state and our area.
3. Interviews with local lakes involved in harvesting have shown minimal to no concerns with invasives, algae blooms, disturbance of the water chemistry, or loss of fish habitat.
4. Surveys of Van Vliet riparian owners have indicated a strong desire, within the segment most affected , to provide financial backing and further develop a plan.

7.) Conclusions / Recommendations.

B. RECOMMENDATIONS

1. We would recommend the VVLA board vote to recognize the existing team, composed of 3 VVLA board members and 1 VVLA member, as the official Aquatic Plant and Algae Control Committee, as outlined in the by-laws.
2. As part of this group's original commitment of follow-up and feedback to the riparian owners, this presentation will be sent out to the riparian owners. Our preference would be that it be sent with a VVLA Board cover letter.
3. The group would then propose to develop a final plan, with the VVLA Board, to include the following next steps:
 - i. Continue and complete other lake interviews, where possible.
 - ii. Interview 1-2 contractors and develop a written scope of work and cost estimate.
 - iii. If needed, contact educational resources on harvesting. These might include the DNR, UWEX-Lakes, and/or other lakes involved in harvesting.
 - iv. VVLA to Support normal effort costs, similar to other VVLA projects around the lake.
 - v. Develop and review overall multi-year plan with riparian owners, on the following points:
 - i. Educational Review with Riparian owners of (+'s) and (-'s) of Mechanical Harvesting
 - ii. Scope of work for year 1, 2, and 3.
 - iii. Investigate other funding venues, if appropriate. ([Appendix 6](#))
 - iv. Final Riparian owner buy-in - - Secure from riparian owners written binding financial pledges for year 1 with follow – up non-binding pledges for years 2-3, subject to review of year 1 results.
 - v. Secure and manage funding from riparian owners through VVLA .

8.) Appendix / Other Information

- 1.) Table - Northern Lakes Region from UWEX webpage – Lakes Harvesting
- 2.) Other Lake Survey / Interviews
- 3.) WI DNR Studies – Impact Mechanical Harvesting / Fish Habitat
- 4.) WA DNR Overview Mechanical Harvesting
- 5.) DNR Form 3200-113 - Mechanical / Manual Aquatic Plant Control Application
- 6.) DNR Form 8700-121 – Waterways Commission Financial Assistance Application
- 7.) December 2011 Van Vliet APMP (PITLC - Bonestroo)
- 8.) June 2005 (Updated 2006) VV Lake Mgmt Study (Blue Waters)

1. Northern Lakes Region from UWEX webpage – Lakes Harvesting

<http://www4.uwsp.edu/cnr/uwexlakes/lakelist/byactivity.asp?AID=21>

Region	Organization Name	County
NORTHERN	BEAVER DAM LAKE MGMT DISTRICT	BARRON
NORTHERN	CLAM LAKES P & R DISTRICT	BURNETT
NORTHERN	PIKE LAKE ASSOCIATION	BURNETT
NORTHERN	PICKEREL/CRANE P & R DISTRICT	FOREST
NORTHERN	ANTIGO INLAND LAKE P & R DISTRICT	LANGLADE
NORTHERN	POST LAKE P & R DISTRICT	LANGLADE
NORTHERN	ROLLING STONE LAKE P & R DISTRICT	LANGLADE
NORTHERN	HORSEHEAD LAKE PROTECTION AND REHABILITATION DISTRICT #1	ONEIDA
NORTHERN	LITTLE BEARSKIN LAKE ASSOCIATION INC	ONEIDA
NORTHERN	MID LAKE PROTECTION AND MANAGEMENT DISTRICT	ONEIDA
NORTHERN	BALSAM LAKE PROTECTION & REHABILITATION DISTRICT	POLK
NORTHERN	BIG BLAKE LAKE P & R DISTRICT	POLK
NORTHERN	CHURCH PINE/ROUND/BIG LAKE P & R DISTRICT	POLK
NORTHERN	WHITE ASH LAKE DISTRICT	POLK
NORTHERN	SOLBERG LAKE ASSOCIATION	PRICE
NORTHERN	LAKE CHIPPEWA FLOWAGE RESORT ASSOCIATION	SAWYER
NORTHERN	EAGLE RIVER CHAIN LAKES ASSOCIATION	VILAS
NORTHERN	FOREST LAKE ASSOCIATION, INC	VILAS
NORTHERN	LITTLE ST GERMAIN P & R DISTRICT	VILAS
NORTHERN	MUSKELLUNGE LAKE ASSOCIATION	VILAS
NORTHERN	TAMBLING LAKE ASSOCIATION INC	VILAS

2. Other Lake Survey / Interviews

Lake	Muskellunge
County	Vilas Cty
Contact	Tom Cerull (Pres - Lake Assoc)
Date of Contact	August 9, 2012
Questions	
1. Lake Specifics	<ul style="list-style-type: none"> Eutrophic / 272 acres / Drainage / Max 19 ft / Avg 9ft
2. Lake Organization-Type	<ul style="list-style-type: none"> Lake Association
3. Public Landing	<ul style="list-style-type: none"> Yes
4. Harvest Questions (Historical Perspective) <ul style="list-style-type: none"> a. Why did you start cutting ? b. Quantity - increase or decrease c. Timing d. How frequently do you cut / recut the same path ? e. Do you find cut paths start to develop a "memory" and require less cutting, [perhaps due to increased boat usage ? 	<ul style="list-style-type: none"> Tom has no insight into details of DNR cutting permit issued in 2007 Survey results clearly split between those landowners immediately impacted vs those with no issues Cut 1x in 2007 (Cliff Schmidt - 6 days \$6000) 4 bays were weedy - Cliff cut paths deep into bays (boating lanes) and into / near docks) Cliff went to \$7000 next yr - Reviews were mixed and during the next yr not enough financial backing could be raised Currently, Onterra (Eng Contractor) studied 21 lakes in township, came back to give future mgmnt feedback <ul style="list-style-type: none"> Weed cutting would not harm the lake. Weed cutting would not make weeds grow worse next yr. Lakes are attempting to fill in -. Measured muck level (34 ft) FYI - Lake runs aerator starting in 1992 (Fish Kill) - 5 HP motor during winter. keeps ~ 30-40 ft area clear.
5. Harvest Organization / Structure	<ul style="list-style-type: none">
6. Lake Quality <ul style="list-style-type: none"> a. can you speak about lake quality impact on fishing b. water quality c. algae blooms 	<ul style="list-style-type: none"> Water quality - no impact No algae blooms Fishing same
7. Weeds Disposition <ul style="list-style-type: none"> a. How and where do you dispose of weeds? b. How much do you get ? (increasing / decreasing) c. Do you track on a yearly basis how much weed volume or wt you remove ? 	<ul style="list-style-type: none"> Dropped in county forest. Cty worked it into land later No issues of smell or other
8. Invasives <ul style="list-style-type: none"> a. Do you have invasives ? b. Timing c. Did your invasives appear in areas where you had cut our did they show in new areas ? 	<ul style="list-style-type: none"> None
9. Years Harvesting	<ul style="list-style-type: none"> 1 x

2. Other Lake Survey / Interviews

Lake	Rolling Stone Lake
County	Langlade
Contact	Sonny Wreczycki (Head of Weed Cutter Group)
Date of Contact	August 7, 2012
Questions	
1. Lake Specifics	<ul style="list-style-type: none"> • 680 acres / Eutrophic / Drainage / Max 12 ft / Avg - NL
2. Lake Organization-Type	<ul style="list-style-type: none"> • Lake District
3. Public Landing	<ul style="list-style-type: none"> • Yes
4. Harvest Questions (Historical Perspective) <ul style="list-style-type: none"> a. Why did you start cutting ? b. Quantity - increase or decrease c. Timing d. How frequently do you cut / recut the same path ? e. Do you find cut paths start to develop a "memory" and require less cutting, [perhaps due to increased boat usage ? 	<ul style="list-style-type: none"> • Specific areas were difficult, if not impossible to navigate. Weeds floating all over as people tried to cut thru the mats • At start- 12-15 truckloads / day. Now maybe 1 truck / day. • Don't start cutting until June (Bass season) • Cut 1 x / yr. All paths remain very usable for the year. • Next yr - Vegetation gets much less dense over time and changes to a sparse population
5. Harvest Organization / Structure	<ul style="list-style-type: none"> • Originally volunteer -but securing volunteers became difficult. • Purchased 1st unit - \$70,000 • Purchased 2nd, much larger unit \$100,000 and sold 1st unit • Aquamarine unit-tax thru lake district
6. Lake Quality <ul style="list-style-type: none"> a. can you speak about lake quality impact on fishing b. water quality c. algae blooms 	<ul style="list-style-type: none"> • Can stir up lake if you cut too low, but keep it above 2 ft it works. • Areas of lake may have some turbidity for ~ 1-2 days • Some floaters, but cutter driver can use wind to collect many on next cut. • No impact on water clarity. • Had some algae before cutting, had some after - no cause/effect • Fishing is fantastic, because the fish can navigate the dense areas and feed.
7. Weeds Disposition <ul style="list-style-type: none"> a. How and where do you dispose of weeds? b. How much do you get ? (increasing / decreasing) c. Do you track on a yearly basis how much weed volume or wt you remove ? 	<ul style="list-style-type: none"> • Dump the weeds in a nearby gravel pit (private) • The gravel pit owner sells topsoil (it's great!) • Local people can come and get topsoil • People also use the material to feed deer in winter • There is almost no weed pile left - -from year to year - - it's used
8. Invasives <ul style="list-style-type: none"> a. Do you have invasives ? b. Timing c. Did your invasives appear in areas where you had cut our did they show in new areas ? 	<ul style="list-style-type: none"> • Yes - Curly leaf pond weed • 2012 1st ID'd • Found 3 plants near boat landing. / Not in a cut area (boulders)
9. Years Harvesting	<ul style="list-style-type: none"> • 26

2. Other Lake Survey / Interviews

Lake	Pewaukee Lake - http://www.lakepewaukeesd.org/lake_opps.html
County	Waukesha
Contact	Charlie Shong (Supt 22 yrs / Ret)
Date of Contact	August 10, 2012
Questions	
1. Lake Specifics	<ul style="list-style-type: none"> • 2437 / Mesotrophic / Spring Fed / 3 inlets / Max 45 ft / Avg 15 ft
2. Lake Organization-Type	<ul style="list-style-type: none"> • Sanitary District (1944)
3. Public Landing	<ul style="list-style-type: none"> • Yes - 3
4. Harvest Questions (Historical Perspective) <ol style="list-style-type: none"> Why did you start cutting ? Quantity - increase or decrease Timing How frequently do you cut / recut the same path ? Do you find cut paths start to develop a "memory" and require less cutting, perhaps due to increased boat usage ? 	<ul style="list-style-type: none"> • Heavily populated since 1920 - Nutrient rich. 1/2 Lake is deep and other 1/2 shallow. • District has a long history of chemical use (1944) because of large growth (Not invasive) - Na₂ASO₃. Kill rooted plants but got algae blooms (action-reaction). Followed up with CuSO₄. Used Hockney cutter - 1940's. Invented 1st harvester - gatherer. • Started with 2,4D in 1960's with 1st indication of EWM, used for 17 yrs. Chemically treated areas induced better growth of EWM, decline in natives. Stopped 2,4-D in 1985, Millfoil pretty much 100% plant base. In 1990's - 500 plants/m². • Went with 100% harvesting, found natives started to compete with EWM. • Harvesting is a process like cutting your grass, needs to be done every yr. • State of WI Waterways Commission provides funding for cutters and chemical treatment (gas tax \$) • Cutting Daily Basis. Starting in May, typically with Milfoil cut, natives compete, EWM density drops off dramatically. Typically in primarily native plants area - minimal amount of work basis, although natives don't rebound as fast, 1 cut / yr is pretty all that's needed. • Remove large nutrient base when you take out the plant mass. • Never cut native close to bottom (1-2 ft) vs EWM to roots. Natives grow back ! A proper harvest of natives does not provide a platform for invasive to take root. • Always try to harvest with "wind awareness" to minimize floaters • Conduct fall harvest due to invasive - - - Natives tend to go to sleep ~ Sept but EWM persists in growth phase and auto-fragment phase
5. Harvest Organization / Structure	<ul style="list-style-type: none"> • Sanitary District
6. Lake Quality <ol style="list-style-type: none"> can you speak about lake quality impact on fishing water quality algae blooms 	<ul style="list-style-type: none"> • Muskie has a hard time feeding in dense areas, where panfish reside. Cutting of "weed edge" increase oxygen level to provide higher fish populations and game fish access. • Cutting can cause algae bloom issues if you harvest EVERY ROOTED plant. If you're not <u>aggressively</u> harvesting or stirring up bottom, no issues with blooms.
7. Weeds Disposition <ol style="list-style-type: none"> How and where do you dispose of weeds? How much do you get ? (increasing / decreasing) Do you track on a yearly basis how much weed volume or wt you remove ? 	<ul style="list-style-type: none"> • Dump at local farm(s). Loader turn the piles over. Spread with manure spreader • Delivered to vegetable growers as compost between plants
8. Invasives <ol style="list-style-type: none"> Do you have invasives ? Timing Did your invasives appear in areas where you had cut our did they show in new areas ? 	<ul style="list-style-type: none"> • Yes - Curly leaf pond weed and EW • Since 1950's
9. Years Harvesting	<ul style="list-style-type: none"> • Since 1940's

2. Other Lake Survey / Interviews

Lake	Cochran
County	Vilas Cty / Land o' Lakes
Contact	Richard Moren
Date of Contact	8/12/2012
Questions	
1. Lake Specifics	<ul style="list-style-type: none"> • 133 acres / Spring / Max 12 ft
2. Lake Organization-Type	<ul style="list-style-type: none"> • Private Lake with Lake Board
3. Public Landing	<ul style="list-style-type: none"> • No
4. Harvest Questions <ul style="list-style-type: none"> a. Why did you start cutting ? b. Quantity - increase or decrease c. Timing d. How frequently do you cut / recut the same path ? e. Do you find cut paths start to develop a "memory" and require less cutting, [perhaps due to increased boat usage ? 	<ul style="list-style-type: none"> • Couldn't enjoy or use lake for rec - too many weeds. • Hired people to do lake studies - strongly recommended weed cutting. • Big Boat this yr - - No weed problems last 4 yrs - mainly algae blooms • Only 3 days / wk - start in June. • Like cutting your lawn underwater • Rick, as caretaker, does question if the effort vs \$'s spent is really worth it, in his opinion. • In many lake owners opinion - it's great !
5. Harvest Organization / Structure	<ul style="list-style-type: none"> • Own Harvester - Bought thru D&D Products
6. Lake Quality <ul style="list-style-type: none"> a. can you speak about lake quality impact on fishing b. water quality c. algae blooms 	<ul style="list-style-type: none"> • Fishing is phenomenal - musky and Lg Bass • All catch & Release (2yrs program) • Clarity - 9 ft down to 6ft • DNR involved in algae blooms • Lake has been higher than normal for last 4 yrs (Had to raise every dock)- Weeds have been low
7. Weeds Disposition <ul style="list-style-type: none"> a. How and where do you dispose of weeds? b. How much do you get ? (increasing / decreasing) c. Do you track on a yearly basis how much weed volume or wt you remove ? 	<ul style="list-style-type: none"> • Old gravel pit - turns into great topsoil. (Ben Peck) • 5 yd truck - 2 loads / day • In bad yrs - Rick questions if you can keep up with the volume. • Deer eat the piles all winter
8. Invasives <ul style="list-style-type: none"> a. Do you have invasives ? b. Timing c. Did your invasives appear in areas where you had cut our did they show in new areas ? 	<ul style="list-style-type: none"> • No invasives • Strict boat wash policy for all boats incoming
9. Years Harvesting	<ul style="list-style-type: none"> • 19

3. WI DNR Studies - http://dnr.wi.gov/org/es/science/fish/mechanical_harvest.htm

Habitat Research: Fish Community Response to Mechanical Harvesting of Aquatic Macrophytes

Objectives of this research is to test the hypothesis that an increase in the ratio of edge-to-surface area of dense macrophyte beds can significantly affect fish populations, angling harvest, and fish community structure.

Background

In many Wisconsin lakes, dense macrophyte beds limit the potential for angling, boating, and swimming. The problem has been exacerbated by Eurasian watermilfoil, an introduced invasive species which forms dense mats of vegetation at the lake surface. It tends to become the dominant species, frequently exceeding 95% of the total macrophyte community. These monotypic mats generally cover a much larger surface area than mats formed by native species.

In terms of angler satisfaction, the problems encompass more than just limited accessibility. Changes in macrophyte diversity and macrophyte bed physical characteristics also affect the population and behavioral characteristics of various species of panfish and game fish.

With the increasing demands for water-based recreational opportunities, resource managers must find effective and efficient ways to meet these demands. Removing so-called aquatic weeds with mechanical harvesters or herbicides may improve conditions for boating, swimming, and even accessibility for angling, but their impacts on fish populations are not well understood.

This study will indicate how milfoil responds to cutting and removal. It will also yield information on the increased utilization of invertebrate food organisms by smaller fish. Cutting and removal should decrease the total area of milfoil coverage, while increasing edge habitat and invertebrate food resources. It may also stimulate the regrowth of native species and improve water quality.

4. WA DNR Overview Mechanical Harvesting

<http://www.ecy.wa.gov/programs/wg/plants/management/HarvestingStrategies.html>

Advantages

- Harvesting results in immediate open areas of water.
- Removing plants from the water removes the plant nutrients, such as nitrogen and phosphorus, from the system.
- Harvesting as aquatic plants are dying back for the winter can remove organic material and help slow the sedimentation rate in a waterbody.
- Since the lower part of the plant remains after harvest, habitat for fish and other organisms is not eliminated.
- Harvesting can be targeted to specific locations, protecting designated conservancy areas from treatment.

Disadvantages

- Harvesting is similar to mowing a lawn; the plant grows back and may need to be harvested several times during the growing season.
- There is little or no reduction in plant density with mechanical harvesting.
- Off-loading sites and disposal areas for cut plants must be available. On heavily developed shorelines, suitable off-loading sites may be few and require long trips by the harvester.
- Some large harvesters are not easily maneuverable in shallow water or around docks or other obstructions.
- Significant numbers of small fish, invertebrates, and amphibians are often collected and killed by the harvester.
- Harvesting creates plant fragments which may increase the spread of invasive plant species such as Eurasian watermilfoil throughout the waterbody.
- Although harvesters collect plants as they are cut, not all plant fragments or plants may be picked up. These may accumulate and decompose on shore.
- Harvesters are expensive and require routine maintenance.
- Harvesting may not be suitable for lakes with many bottom obstructions (stumps, logs) or for very shallow lakes (3-5 feet of water) with loose organic sediments
- Harvesters brought into the waterbody from other locations need to be thoroughly cleaned and inspected before being allowed to launch. Otherwise new exotic species could be introduced to the waterbody.

5. DNR Form 3200-113 - Mechanical / Manual Aquatic Plant Control Application
<http://dnr.wi.gov/lakes/plants/forms/3200-113.pdf>

6. DNR Form 8700-121 – Waterways Commission Financial Assistance Application
<http://dnr.wi.gov/files/PDF/forms/8700/8700-121.pdf>

7. December 2011 Van Vliet APMP (PITLC - Bonestroo)
<http://www.vanvlietlake.com/Projects/LakeLevelWeeds/APMP%20intro.htm>

8. June 2005 (Updated 2006) VV Lake Mgmt Study (Blue Waters)
<http://www.vanvlietlake.com/Projects/LakeLevelWeeds/APMP%20intro.htm>