

Peppermill Lake District

Harvesting Committee Report

11/8/2014

Harvesting Committee

- Members
 - Jay Crawford
 - David Brownstein
 - Russ Stearns
- Objective
 - Research options for future aquatic plant harvesting and control as outlined by the Board Chair and report findings to District Board

Considerations

- **Identify additional potential harvesting contractors to receive District RFP.**
 - The following additional harvesting contractors have been identified :
 - Wenninger Weed Harvesting, 429 Pickle Row, Wautoma, WI, 54982, Phone:920-787-4610, Contact: John Wenninger
 - Midwest Aquatics, N105W14564 Wilson Drive, Germantown, WI 53022-4358, Phone: 262-385-5874/262-302-0640, Contact: David Fetzer
 - Schmidt's Landscaping & Nursery, Inc., 320 Golf Drive, Lola, WI, 54945, Phone: 715-445-3962/715-570-0954, Contact: Cliff Schmidt (was not contacted)
 - Goose Lake may be a contracting source but should be contacted before sending them a RFP.
 - Clearwater Plant Harvesters, LLC, 7135 Fairway Drive, Crystal Lake, IL, 60014, Contact: Rich Sexton, 815-322—6630 (was not contacted)
- **In-house harvesting (District owns the equipment)**
 - Some state funding may be available through competitive cost sharing grants and partial loans. Funds are limited and becoming more difficult to obtain.
 - Harvester manufacturers contacted: Aquarius Systems, Inland Harvesters, Eco-Harvester and Aqua Marine
 - Typical new equipment costs ≈ \$140,000 for a medium sized harvester and ancillary equipment .
 - Smaller harvesters are available from a number of sources at lower cost but how efficient they would be needs to be carefully evaluated. Typical cost of the smaller harvesters is roughly \$50,000 with ancillary equipment adding an estimated \$20,000-30,000.
 - A smaller harvester manufactured by EcoHarvester in Waupaca, WI, pulls the plant rather than cutting. We could evaluate how it would work in a mucky bottom lake such as Peppermill. Harvester cost: \$52,000
 - A storage and maintenance facility, such as a pole barn, would be required. Estimated new structure cost \$15,000 plus site cost.

Annual Harvesting Cost Analysis

Contractor vs. Lake District Owned and Operated Mechanical Aquatic Plant Harvesting Equipment

Note: All costs below are preliminary estimates only and should be validated by the Board prior to any decision.

Contractor Harvesting

Annual Cost Estimate = **\$22,000.00**

(Source:2015 Proposed Budget)

District Operated Harvesting

New Equipment Acquisition Cost = \$140,000

(Source, Aquarius Systems, Inland Harvesters)

Includes: Harvester, Conveyor & Trailer. Tow vehicle, storage facility not included

Annual Loan Cost **\$17,009.16**

(10 yr loan, 4% interest, \$1417.43/mo payment)

(Assumes loan of \$140,000)

Annual Operating Cost

Fuel (1.5gal/hr/\$3.75gal) **\$675.00**

Operator Payroll **\$2,400.00**

(\$15/hr, 120 hrs harvesting,40hrs maintenance.)

Insurance

(Source, The Horton Group)

Equipment (\$0.40/\$100 cost) **\$560.00**

Storage/Maintenance facility , Note, facility would need to be acquired at additional cost **\$550.00**

Liability **\$100.00**

Workman's Compensation **\$325.00**

(\$13.56/\$100 payroll)

Maintenance/repair **\$2,000.00**

Total Annual Cost Estimate **\$23,619.16**

Other Considerations

- **Volunteer harvesting options**
 - Due to liability considerations, use of unpaid volunteers for large scale harvesting work is not recommended by our insurance agent. Paid volunteers (employees) could be used and covered under our workman's compensation policy at additional cost.
 - Numerous methods for individual plant cutting or removal available to property owners . Most useful around docks.
 - Hand Pulling
 - Electric Lake Mowers ≈ \$200
 - Weed Rakes ≈ \$150
 - Hand Cutter ≈ \$200 (cutting blade with ropes attached to each end.)
 - Hand skimmers to collect cuttings ≈ \$250
- **Chemical control only options (used in place of mechanical harvesting)**
 - Not recommended for large scale plant control by Cason and Associates (current chemical treatment contractor).
 - Leaves biomass in the lake
 - Increases nutrient levels
 - Decomposing plants consume dissolved oxygen
 - Some chemicals do not kill the seed base therefore plants will re-grow
 - Cason recommends that the lake be drawn down before lake wide treatment to limit downstream dispersal. DNR indicates that downstream monitoring "probably not required" but would need to be determined prior to any such chemical application.
 - Potentially costly. 2014 proposal for one treatment of just EWMF = \$6600 according to Cason and Associates. Needs verification.
- **Other harvesting methods**
 - **Tomahawk Lake vacuum system**
 - Developed by Tomahawk Lake. Uses volunteer scuba divers. Information publicly available.

Other Considerations

- **Harvesting fragment control using booms**
 - Contractor responsible for fragment control
 - Roche-a-Chri lake added “booms” 8ft. wide to their harvester at a cost of \$6,000 each to help collect fragments
- **Cost sharing Options with other lakes**
 - Only one nearby lake currently owns a harvester and is not currently interested. Should Peppermill Lake pursue acquiring a harvester then cost sharing with other lakes could be pursued.
- **Silting rate determination, methodologies, costs**
 - Two methods which use radioactive trace elements from core samples have been identified .
 - Further research being done to identify vendors and approximate cost.
- **Dredging**
 - Two methods identified, mechanical (earth mover type devise) and suction dredging. Most practical probably mechanical.
 - Cost highly variable. Example: If dump site for removed material was within 5 miles and no other work was required cost per cubic yard of material would be a minimum of \$25/yard.
 - Highly regulated by the DNR and other government bodies. Generally not allowed to dredge below the “true bottom/bottom.”
 - No state funds currently available .
 - Information source: Inland Dredging, 30+ years experience.
- **Manual skimmer technologies**
 - Appears to have limited capability to help control plants. See Volunteer Harvesting Options above.