

- f. **Shoreland Areas:** Areas immediately adjacent to piers and docks along developed shorelines. To the extent practical, aquatic and riparian vegetation should be maintained. Plant management within shoreland is recommended to be left to the riparian landowners. Since shoreland areas are generally densely populated, it is time consuming, difficult, and costly for mechanical harvesters to maneuver between piers and boats, a situation that may also generate liability for damage to boats and piers. If a small-scale harvester is acquired, it may be used in shoreland areas provided that water depths are greater than 18 inches and that at least 12 inches of living plant material is maintained on the lake bottom after cutting.
4. **Focus harvesting efforts on invasive aquatic plant growth.** To reduce the risk for water quality degradation, special effort should be taken to avoid cutting native aquatic plants wherever and whenever possible. Conversely, harvesting intensity should be increased during times of the year (i.e., spring and early summer) when invasive aquatic plant growth is predominant and within areas where invasive species are most abundant. For example, curly leaf pondweed may be particularly abundant early in the cutting season but is largely absent by midsummer, a growth cycle that may require changes to harvesting routes and schedules over the season.
 5. **Limit aquatic plant management and human disturbance in designated sensitive areas.** As discussed in Chapter 2, five sensitive areas have been designated in Whitewater Lake by WDNR. Delineation/management reports for these environmentally sensitive areas are included in Appendix C. Applying aquatic plant management measures in each of these areas is subject to State of Wisconsin permitting requirements pursuant to Chapters NR 107 and NR 109 of the *Wisconsin Administrative Code*, and the specific recommendations described in this SEWRPC Staff Memorandum.
 6. **Adapt harvesting patterns and schedules to ambient conditions.** Operators shall be provided with a laminated copy of the approved harvesting plan. A copy of the plan shall be kept on board the harvester at all times. Harvester operators must fully understand that aquatic plant management maps are schematic in nature and care must be taken to choose harvester routes that best accomplish overall plan objectives (e.g., favor deeper water areas).
 7. **Do not harvest in the early spring to avoid disturbing fish spawning.** Many fish species spawn in early spring and some studies suggest that spawning can be significantly disturbed by harvesting activities. Thus, avoiding harvesting during this time can benefit the Lake's fishery. If a chemical treatment is applied in the early spring, harvesting should not occur until after Memorial Day to allow time for the chemical treatment to be effective.
 8. **Immediately return incidentally captured living animals to the water.** As harvested plants are brought on board the harvester, plant material must be actively examined for live animals. Animals such as turtles, fish, and amphibians commonly become entangled within harvested plants, particularly when cutting large plant mats. A second deckhand equipped with a net should accompany and help the harvester operator rescue animals incidentally collected during aquatic plant harvesting. If a second deckhand is not available, the harvester operator shall halt harvesting and remove animals incidentally collected during plant harvesting. Such stop-and-start work can dramatically decrease harvesting efficiency. Therefore, the WDNR recommends two staff be present on operating harvesters.
 9. **Using marker buoys and landmarks.** Temporary marker buoys may benefit harvesting operations by denoting areas to be cut. The modest size of Rice Lake generally reduces the need for marker buoys except as may be required to alert and control recreational boat traffic. Harvester operators must be familiar with the intent and execution logistics related to harvesting. Familiarity with local landmarks to the degree necessary to carry out the plan and/or use of marker buoys is component to this endeavor.
 10. **Insurance, maintenance, repair, and storage.** Appropriate insurance covering the harvester and ancillary equipment will be incorporated into the District's policy. The District will provide liability insurance for harvester operators and other staff. Insurance certificates will be procured and held by the District. Routine day-to-day equipment maintenance will be performed by the harvester operator

or other individuals identified by the District in accordance with the manufacturer's recommendations and suggestions. To this end, harvester operators shall be familiar with equipment manuals and appropriate maintenance/manufacturer contacts. Operators will immediately notify District staff of any equipment malfunctions, operating characteristics, or sounds suggesting malfunction and/or the need for repair. Equipment repair beyond routine maintenance will be arranged by the District. Maintenance and repair costs will be borne by the District. The District will be responsible for properly transporting and storing harvesting equipment during the off season.

11. **Management, record keeping, monitoring, and evaluation.** District staff manage harvesting operations, and, although they may delegate tasks, are ultimately responsible for overall plan execution and logistics. Nevertheless, daily harvesting activities will be documented in writing by the harvester operator in a permanent harvester operations log. Harvesting patterns, harvested plant volumes, weed pickup, plant types, and other information will be recorded. Daily maintenance and service logs recording engine hours, fuel consumed, lubricants added, oil used, and general comments will be recorded. Furthermore, this log should include a section to note equipment performance problems, malfunctions, or anticipated service. Monitoring information will be summarized in an annual summary report prepared by the District, submitted to the WDNR, and available to the general public. The report will also present information regarding harvesting operation and maintenance, equipment acquisitions and/or needs, expenditures, and budgets.
12. **Logistics, supervision, and training.** Harvesting equipment is owned and operated by the District. District staff or delegated board members are responsible for overall harvesting program oversight and supervision. Although District staff are ultimately responsible for equipment operation, they may delegate tasks to competent individuals when technically and logistically feasible. The District must assure such individuals are appropriately trained to successfully and efficiently carry out their respective job functions. For example, District members/staff likely have extensive experience operating and maintaining harvesting equipment and have detailed knowledge of lake morphology, plant growth, and overall lake biology. These individuals should actively share this knowledge through an on-the-job training initiative. The equipment manufacturer may also be able to provide advice, assistance, and insight regarding equipment operation and maintenance. Boating safety courses are available through many media and are integral to individuals involved with on-the-water work. All harvester operators must successfully complete appropriate training, must be thoroughly familiar with equipment function, must be able to rapidly respond to equipment malfunction, must be familiar with the Lake's morphology and biology, and must recognize landmarks to help assure adherence to harvesting permit specifications and limitations. Additionally, harvester operators must be able to recognize the various native and invasive aquatic plants present in the Lakes. Such training may be provided through printed and on-line study aids, plant identification keys, and the regional WDNR aquatic species coordinator. At a minimum, training should explain "deep-cut" versus "shallow-cut" techniques and when to employ each in accordance with this plan.
 - Discuss equipment function, capabilities, limitations, hazards, general maintenance, and the similarities and differences between the various pieces of equipment they may be expected to operate,
 - Review the aquatic plant management plan and associated permits with special emphasis focused on the need to restrict cutting in shallow and nearshore areas,
 - Help operators identify WDNR-designated sensitive Areas and be well versed regarding the aquatic plant management restrictions therein,
 - Assure operators can confidentially identify aquatic plants and understand the positive values such plants provide to the Lakes' ecosystem which in turn encourages preservation of native plant communities, and
 - Reaffirm that all harvester operators are legally obligated to accurately track and record their work for inclusion in permit-requisite annual reports.

The training program must integrate other general and job-specific items such as boating navigational conventions, safety, courtesy and etiquette, and State and local boating regulations. Other topics that should be covered include first aid training, safety training, and other elements that help promote safe, reliable service.

Nearshore Manual Aquatic Plant Removal

In nearshore areas where other management efforts are not feasible, raking may be a viable and practical method to manage overly abundant and/or undesirable plant growth. Should Whitewater and Rice Lakes residents decide to utilize raking to manually remove aquatic plants, the District or other interested party could acquire a number of specially designed rakes for riparian owners to use on a trial basis and/or rent or loan. If those rakes satisfy users' needs and objectives, additional property owners would be encouraged to purchase their own rakes.

Hand-pulling EWM and curly-leaf pondweed is considered a viable option in Whitewater and Rice Lakes and should be employed wherever practical. Volunteers or homeowners could employ this method, as long as they are properly trained to identify EWM, curly-leaf pondweed, or any other invasive plant species of interest. WDNR provides a wealth of guidance materials (including an instructional video describing manual plant removal) to help educate volunteers and homeowners.

Pursuant to Chapter NR 109 *Aquatic Plants: Introduction, Manual Removal and Mechanical Control Regulations* of the *Wisconsin Administrative Code*, riparian landowners may rake or hand pull aquatic plants without a WDNR permit under the following conditions:

- Eurasian water milfoil, curly-leaf pondweed, and purple loosestrife may be removed by hand if the native plant community is not harmed in the process.
- Raked, hand-cut, and hand-pulled plant material must be removed from the lake.
- No more than 30 lineal feet of shoreline may be cleared, however, this total must include shoreline lengths occupied by docks, piers, boatlifts, rafts, and areas undergoing other plant control treatment. In general, regulators allow vegetation to be removed up to 100 feet out from the shoreline.
- Plant material that drifts onto the shoreline must be removed.
- The subject shoreline cannot be a designated sensitive area.
- Emergent plant community augmentation could be pursued. This would require a field observation of water quality and sediment composition during summer months and would require permits from WDNR to introduce emergent plants.

Any other manual removal technique requires a State permit, unless specifically used to control designated nonnative invasive species such as Eurasian water milfoil. Mechanical equipment (e.g., dragging equipment such as a rake behind a motorized boat or the use of weed rollers) is not authorized for use in Wisconsin at this time. Nevertheless, riparian landowners may use mechanical devices to cut or mow exposed lakebed. Furthermore, purple loosestrife may also be removed with mechanical devices if native plants are not harmed and if the control process does not encourage spread or regrowth of purple loosestrife or other nonnative vegetation.

Permits are also required if shoreland property owners abut a sensitive area or if another group actively engages in such work.⁵⁵ Several locations in Whitewater Lake are designated sensitive areas, and a permit is therefore required to manually remove aquatic plants in those shoreline areas.

⁵⁵ *If a lake district or other group wants to remove invasive species along the shoreline, a permit is necessary under Chapter NR 109, "Aquatic Plants: Introduction, Manual Removal and Mechanical Control Regulations," of the Wisconsin Administrative Code, as the removal of aquatic plants is not being completed by an individual property owner along his or her property.*

Prior to the hand-pulling season, shoreline residents should be reminded of the utility of manual aquatic plant control through an educational campaign. This campaign should also foster shoreline resident awareness of native plant values and benefits, promote understanding of the interrelationship between aquatic plants and algae (i.e., if aquatic plants are removed, more algae may grow), assist landowners identify the types of aquatic plants along their shorelines, and familiarize riparian landowners with the specific tactics they may legally employ to “tidy up” their shorelines.⁵⁶

Suction Harvesting and DASH

Suction harvesting may be a practical method to control aquatic plants if dredging is warranted, but it is not likely to be a cost-effective, environmentally friendly, or practical method to manage aquatic plants alone. For this reason, suction harvesting is not practical for widespread application at the Lakes. However, it may provide a practical alternative in excessively shallow nearshore areas where increased water depth could meaningfully improve navigability (e.g., narrow access channels connecting lots without open-water frontage to the Lake).

Given how time consuming and costly DASH can be to employ and given the prevalence of invasive and nuisance plant growth across the Lakes, DASH will never likely be a primary component part of the District’s general nuisance and invasive plant management strategy. Nevertheless, some lake districts have employed DASH to aggressively combat small-scale pioneer infestations of invasive species. The District may wish to consider using DASH should such a situation arise in the future. Furthermore, DASH may also be considered as a temporary solution to remove nuisance plants in nearshore areas until a mini-harvester is acquired. Therefore, using DASH in specialized spot applications is component to this plan.

DASH may be of interest to private parties in specific situations. For example, DASH could be employed by individuals to control nuisance native and nonnative plants around piers and other congested areas. If an individual landowner or groups of landowners choose to utilize DASH, the activity is typically confined to the same area as riparian landowner manual aquatic plant manual control (30 feet of shoreline per property generally extending no more than 100 feet in areas including piers and other navigation aids). DASH requires a permit under *Wisconsin Administrative Code Chapter NR 109 Aquatic Plants: Introduction, Manual Removal and Mechanical Control Regulations*.

Water Manipulation

As discussed above, water level manipulation is a large-scale, permitted operation that can have major effects on lake ecology. Consequently, detailed information on the Lakes’ hydrology, including groundwater, should be compiled before undertaking such an operation. The WDNR would likely require and consider the following during review of the drawdown permit application:

- Existing lake bottom contours should be reevaluated with any changes mapped in order to develop updated bathymetric information.
- Lake volume needs to be accurately determined for each foot of depth contour.
- Lake bottom acreage exposed during various intervals of the drawdown must be determined.
- Knowledge of the drawdown and refill times for the Lake would guide proper timing of drawdown to maximize effectiveness and minimize impacts to Lake users.
- A safe drawdown discharge rate would need to be calculated to prevent downstream flooding and erosion.
- Effects of the lake drawdown to the structural integrity of outlet dams should be examined.

⁵⁶ SEWRPC and WDNR staff could help review documents developed for this purpose.

- A WDNR permit and WDNR staff supervision are required to draw down a lake. Additionally, lakeshore property owners need to be informed of the drawdown and permit conditions before the technique is implemented. Targeted invasive species populations should be monitored before and after refill is complete to assess efficacy and guide future management.

Shoreline Protection

Undercutting of shoreline has been observed along either side of Kettle Moraine State Park located on State Park Road between Whitewater and Rice Lakes. Eroded sediment has been accumulating in these areas. Because of this, a future plan could include possible shoreland stabilization measures to reduce erosion in these areas. The District is encouraged to partner with WDNR Parks staff to address shoreline protection.

3.2 CONCLUSION

This document is intended to inspire and guide ideas and actions. The recommendations should, therefore, be considered a starting point for addressing issues identified in Whitewater and Rice Lakes. Successfully implementing this plan will require vigilance, cooperation, and enthusiasm, not only from local management groups, but also from State and regional agencies, Walworth County, municipalities, and residents/users of the Lakes. The recommended measures aim to foster conditions that enhance the health of the Whitewater and Rice Lake ecosystems while promoting a wide array of water-based recreational activities suitable for the Lakes' intrinsic characteristics.