

# Appendix E - Aquatic Plant Management Goals, Objectives, and Actions Big and Little Trade Lakes, Burnett County

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This Aquatic Plant Management Plan establishes the following goals for aquatic plant management in Big and Little Trade Lakes:

1. **Educate the Populace.** Provide education, outreach opportunities, and materials to the lake community
2. **Prevent the Introduction and Spread of AIS.** Increase the awareness and knowledge base of those who use the lakes.
3. **Manage Aquatic Invasive Species.** A combination of management alternatives will be used to help minimize the negative impacts of AIS in Big and Little Trade Lakes
4. **Protect Native Aquatic Plant Species.** Implement AIS management actions in a way that negative impacts to non-target plant species are minimized.
5. **Maintain or Improve Water Quality.** Collect water quality information to establish long-term trends that will be used for current and future lake and aquatic plant management planning.
6. **Implement Adaptive Management.** Provide annual and end of project assessment and evaluation reports that will be used for current and future lake and aquatic plant management planning.

Each goal includes several management objectives and actions to help meet those objectives.

## Goal 1. Educate the Populace

Providing education, outreach opportunities, and materials to the lake community will improve general knowledge and likely increase participation in lake protection and restoration activities. It is further recommended that the RTLIA continue to cultivate an awareness of the problems associated with AIS and enough community knowledge about certain species to aid in detection, planning, and implementation of management alternatives within their lake community. It is also recommended that the RTLIA continue to strive to foster greater understanding and appreciation of the entire aquatic ecosystem including the important role plants, animals, and people play in that system.

Objective 1 – Increase the level of understanding lake property owners, lake users, and others have about the things that impact the lake they live and/or recreate on.

**Action:** Obtain AIS educational materials (brochures, videos, pamphlets, newsletters, URLs, etc.) that can be distributed with relative ease through multiple outlets (meetings, webpage, social media, mailings, etc.) and that provide a brief summary of AIS species.

**Action:** Obtain educational materials (brochures, videos, pamphlets, newsletters, URLs, etc.) that can be distributed with relative ease through multiple outlets (meetings, webpage, social media, mailings, etc.) that explain the connection between shore land practices, water quality, and lake health.

**Action:** Provide approximate number of materials and their topic matter distributed through multiple outlets in an annual report.

**Action:** Provide at least one in-person educational opportunity (picnic at the lake, public workshop, guest speakers, etc.) annually on aquatic invasive species and other factors that affect the lakes.

**Action:** Document attendance at each event including volunteer time, mileage, and boat use in an annual report.

## **Goal 2. Prevent Introduction and Spread of AIS**

Aquatic invasive species (AIS) can be transported via a number of vectors, but most invasions are associated with human activity. Increasing the awareness and knowledge base of those who use the lakes will help to prevent new AIS from entering the lake, existing AIS from leaving the lake, and aid in early identification of new invasions. Early detection and rapid response efforts increase the likelihood that a new aquatic invasive species will be addressed successfully while the population is still localized and levels are not beyond that which can be contained.

### **Objective 1 – Provide AIS prevention information and other lake data to the public at the boat landings.**

**Action:** Continue to maintain and update signage, including Decontamination Stations, at the boat launches as necessary.

**Action:** Implement a watercraft inspection program, possibly supported by WDNR Clean Boats Clean Waters grant program, at both landings.

**Action:** Work with and encourage resort owners on the lakes to provide AIS educational materials and other publications (Ex. disturbances caused by wakes) that provide tips for education and prevention.

**Action:** Document hours worked and number of people reached at boat landings and include the approximate number of educational materials distributed to resort owners in an annual report.

### **Objective 2 - Implement a proactive and consistent AIS monitoring program.**

**Action:** Train volunteers on how to identify AIS and where to look in the lake to find them.

**Action:** Patrol the shoreline and shallow areas of the lake looking for AIS at least three times during the open water season.

**Action:** Record monitoring events as a part of the UW-Extension Lakes/WDNR Citizen Lake Monitoring Network (CLMN) AIS Monitoring Program.

**Action:** Document hours worked and number of people involved in AIS monitoring in an annual report.

## **Goal 3. Manage Aquatic Invasive Species**

Aquatic invasive species at best, continue to be a nuisance in Big and Little Trade Lakes reducing lake accessibility, negatively impacting the aesthetic of the lakes, and dominating current management discussion. At worst, they do all of the afore mentioned things and potentially have a negative impact on

the native aquatic plant species, aquatic life, and water quality in the lakes as they continue to spread and dominate parts of the littoral zone. A combination of management alternatives will be used to help minimize the negative impacts of AIS in Big and Little Trade Lakes including the possibility of mechanical harvesting, small-scale physical removal, diver removal and/or DASH, and targeted use of aquatic herbicides.

### ***Eurasian Watermilfoil***

Since the discovery of just a couple single plants in the channel coming from Little Trade Lake, EWM in Big Trade Lake has spread to where it now is found in the entirety of the littoral zone, with upwards of 11 acres of dense, bed-forming mats when last mapped in the fall of 2021. From 2019 to 2021, without any management, EWM went from 24 beds with an average bed size of 0.07 acres covering <2.0 acres, to 42 beds with an average bed size of 0.26 acres covering almost 11 acres (Figures 27-29). Bringing EWM back down to a more manageable level and keeping it there is the goal.

EWM has been in Little Trade Lake since at least 2009. Management actions and lake conditions have kept it at just over 2 acres for the last ten years, including in 2021 when only 1.1 acre of EWM was mapped. Keeping EWM at a low level in the lake is the goal.

#### **Objective 1 - Reduce the amount of EWM in Big Trade Lake to 3.5 acres or less.**

**Action:** Complete a large-scale herbicide application in 2023

Note: Manage CLP and EWM at the same time using ProcellaCOR and Galleon.

**Action:** Complete pre and post-treatment PI aquatic plant survey work

**Action:** Complete herbicide concentration testing

**Action:** Complete late season bed mapping of EWM

**Action:** Document management actions in an annual report.

#### **Objective 1a - Keep the amount of EWM in Big Trade Lake at or below 3.5 acres annually.**

**Action:** Property Owner Physical Removal

**Action:** Diver and/or DASH Removal

**Action:** Small-scale herbicide applications

**Action:** Complete late season bed mapping of EWM

**Action:** Document management actions in an annual report.

#### **Objective 2 – Keep the amount of EWM in Little Trade Lake at or below 1.95 acres annually.**

**Action:** Property Owner Physical Removal

**Action:** Diver and/or DASH Removal

**Action:** Small-scale herbicide applications

**Action:** Complete late season bed mapping of EWM

**Action:** Document management actions in an annual report.

### ***Curly-leaf Pondweed***

CLP continues to be a nuisance in Little and Big Trade Lakes, dominating early season plant growth likely to the detriment of early season native aquatic plant growth. Large amounts of CLP interfere with lake use and accessibility, and could be contributing to the degradation of water quality later in the season. The goal of CLP management is to see a decline in CLP distribution and density in the treated areas from the first year included in this APM Plan to the last year included.

Objective 3 – Reduce the amount of CLP in Big Trade Lake by 35% or 21 acres based on 2021 survey results.

**Action:** Complete large-scale herbicide applications for at least three years

**Action:** Complete pre and post-treatment PI aquatic plant survey work

**Action:** Complete herbicide concentration testing

**Action:** Document management actions in an annual report.

Objective 4 – Reduced the amount of CLP in Little Trade Lake by 35% or 12 acres based on 2021 survey results

**Action:** Small-scale herbicide applications for at least three years.

**Action:** Document management actions in an annual report.

### ***Purple Loosestrife***

Purple loosestrife has been found in many locations around Big Trade Lake but is most abundant in the shoreland wetlands off that part of Big Trade Lake adjacent to Church Road. Several times over the last 5 years, volunteers have physically removed isolated purple loosestrife plant in other parts of the lake, but did not work in the area adjacent to Church Road. For the last two years (2021 and 2022) beetles have been released in that area. Only isolated plants have been found in Little Trade Lake with most of these physically removed.

Objective 5 – Prevent purple loosestrife from gaining a larger foothold than it already has in Big and Little Trade Lakes.

**Action:** Train volunteers on how to identify purple loosestrife and then monitor the shoreline of both lakes between late July and late August annually looking for isolated plants.

**Action:** Document the locations of purple loosestrife identified with a GPS or on a handwritten map

**Action:** Physically remove isolated plants if possible, or at least remove the flowering head of the plant.

**Action:** Complete the required beetle rearing paperwork (permit and release site) each year and continue to raise and release *Gallerucella* beetles on the lake.

**Action:** Document monitoring and management actions in an annual report.

### ***Other Aquatic Invasive Species***

There are several other AIS that have been documented in and on the shores of Big and Little Trade Lake. These include plants - Yellow Iris, Giant Reed Grass, Narrow-leaf Cattail, and Reed Canary Grass; and animals – Chinese Mystery Snails. Of these invasive species, only Yellow Iris presents opportunities for management.

Objective 6 – Prevent yellow iris from gaining a larger foothold than it already has in Big and Little Trade Lakes.

**Action:** Train volunteers on how to identify yellow iris and then monitor the shoreline of both lakes between late May and early July annually looking for isolated plants.

**Action:** Document the locations of yellow iris identified with a GPS or on a handwritten map.

**Action:** Physically remove isolated plants if possible.

**Action:** Document monitoring and management actions in an annual report.

## Goal 4. Protect Native Aquatic Plant Species

When an AIS like CLP or EWM increases in distribution and density in a lake, it may start to have a negative impact on the native aquatic plant community. At the present time, this is likely true with CLP in both lakes, but probably not with EWM. When an AIS is managed with aquatic herbicides, it may have some negative impact on the native aquatic plant community as well. Physical removal, diver removal, or removal by DASH can minimize negative impacts simply due to these being a “species specific” management action. Aquatic plant harvesting and the use of herbicides are not wholly species specific but can be implemented in a way where negative impacts to non-target plant species are minimized, and removing the AIS may improve conditions for new or increased native aquatic plant growth.

### Objective 1 – Avoid negative impacts to native aquatic plant when implementing management using aquatic herbicides.

**Action:** Use “species select” systemic aquatic herbicides to the extent possible (florpyrauxifen-benzyl (ProcellaCOR), 2,4D, or triclopyr based herbicides for EWM). Contact herbicides like endothall and diquat are only species specific when used at appropriate times (Ex. early spring for CLP).

**Action:** Follow all label and accepted management guidelines when planning how much area/volume should be managed and the concentration of herbicide to be used.

**Action:** Apply aquatic herbicides in the early spring or spring (CLP and EWM), or in the early summer (prior to June 15) or fall (EWM only) when growth of native species is less active.

**Action:** Complete pre and post-treatment aquatic plant surveying on large-scale treatment to help document the impacts on target and non-target species.

**Action:** Repeat whole-lake, point-intercept, aquatic plant surveys in 2026, compare with survey statistics from previous years.

## Goal 5. Maintain or Improve Water Quality

Long-term data can be used to identify the factors leading to changes to water quality. Aquatic plant management activities, changes in the watershed land use, and the response of the lakes to environmental changes all have a direct impact on water quality. The CLMN Water Quality Monitoring Program supports volunteer water quality monitors across the state following a clearly defined schedule. There are two levels to the CLMN program: 1) Collecting Secchi disk readings of water clarity and often temperature profiles; and 2) Expanded monitoring that includes Secchi disk readings, temperature profiles, collection of water samples for total phosphorus and chlorophyll-a, and often dissolved oxygen profiles.

Available data suggests that the RTLIA has been monitoring water quality as a part of the Citizen Lake Monitoring Network (CLMN) at the Deep Hole in Big Trade Lake since 1986 with data gaps from 1996-1998, 2004-2011, and 2016. CLMN water quality monitoring in Little Trade Lake began in 2000, with a large data gap from 2004 to 2013. The background information and trends provided by these and future data are invaluable for current and future lake and aquatic plant management planning.

### Objective 1 – Track long-term changes in water quality in both lakes.

**Action:** Maintain at least one trained volunteer to continue water quality monitoring as a part of the CLMN expanded monitoring program on both lakes.

**Action:** Evaluate the intensity/success of water quality monitoring efforts and the ability of given volunteers to collect all the suggested data each year.

**Action:** Enter all data collected into the WDNR SWIMS database.

**Action:** Share the results of water quality monitoring with the lake community at the annual meeting or other event, and in annual reports.

## **Goal 6. Implement Adaptive Management**

This APM Plan is a working document guiding management actions on Big and Little Trade Lakes for the next five years. This plan will follow an adaptive management approach by adjusting actions based on the results of management and data obtained about that management. This plan is therefore a living document, progressively evolving and improving to meet environmental, social, and economic goals, to increase scientific knowledge, and to foster good relations among stakeholders.

Annual and end of project assessment reports are necessary to monitor progress and justify changes to the management strategy, with or without state grant funding. Project reporting will meet the requirements of all stakeholders, gain proper approval, allow for timely reimbursement of expenses, and provide the appropriate data for continued management success. Success will be measured by the efficiency and ease in which these actions are completed.

The RTLIA and their retainers will compile, analyze, and summarize management operations, public education efforts, and other pertinent data into an annual report each year. The information will be presented to members of the RTLIA, Burnett County, and the WDNR and made available in hardcopy and digital format on the internet. These reports will serve as a vehicle to propose future management recommendations and will therefore be completed prior to implementing following year management actions (approximately March 31st annually). At the end of this five-year project, all management efforts (including successes and failures) and related activities will be summarized in a report to be used for revising the APM Plan.