

Big Chetac and Birch Lakes Lake Planning Efforts Past, Present, and Future

BCABLA Annual Meeting

Saturday June 10, 2017

Birchwood Village Hall

8:00am - 10:00am

Lake Education and Planning Services, LLC

Past

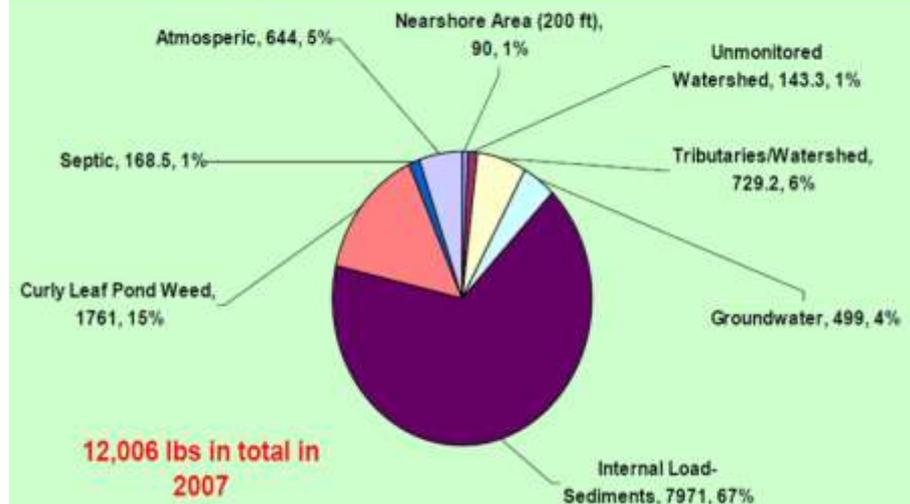
* 2007-2010 “Getting Rid of the Green” Lake Study

* Six Phases

- * Lake and Tributary Water Quality
- * Ground Water Analysis and Internal Loading
- * Nutrient and Water Budgeting, Septic System Survey
- * Limnologic History through Sediment Cores
- * Aquatic Plant Survey
- * User Survey, Plan, and Public Presentation

* High Phosphorus (nutrients) in the lakes are a problem!

Here's where it comes from.



The 2010 Plan Concludes

4.4 Should Anything be Done to Improve Conditions in the Lake?

Changing Big Chetac Lake from a nutrient rich, algae dominated system to a clear water plant dominated system **is not a reasonable goal**, given the history and characteristics of it. Setting appropriate goals for lake improvement based on what is desirable and what is politically and economically feasible, **is reasonable**. Under the assumption that current overall conditions in the lake can be improved, but not significantly changed; that previously unidentified aquatic invasive species like EWM are not desirable in the lake; that the existing fishery is desirable; that the majority of lake users would like to see improvements in water quality; and that greater lake understanding will help facilitate these things; **the answer to the question above is yes. If something can be done, something should be done.**

Goals from the 2010 Lake Management Plan

- reduce the number of days the lake experiences severe algae blooms (chlorophyll concentrations $>30 \mu\text{g/L}$) that impact lake use by implementing phosphorous reduction activities in the larger watershed, near shore area, and within the lake
- reduce the impact of the non-native invasive plant species curly-leaf pondweed through aquatic plant management activities including large-scale harvesting and use of early season chemical herbicides
- protect and enhance the native plant population in the lake through invasive species management, improvements in water clarity, and native species re-introduction
- prevent new, undesirable non-native invasive species from entering and establishing in the lake by implementing a prevention and early detection program that includes watercraft inspection, in-lake monitoring, and rapid response planning
- maintain the current fishery by working closely with WDNR fisheries management to help minimize impacts that may be caused by lake management activities
- educate lake residents and users as to how the lake “works” and what they can do to help protect, maintain, and improve the lake

WDNR and BCABLA Response

- * The WDNR approved the Lake Management Plan in September 2010 offering several implementation options to help guide the BCABLA
- * The BCABLA (through committee) evaluated the Lake Management Plan, considered WDNR recommendations for implementation, and decided on a course of implementation (November 2010)

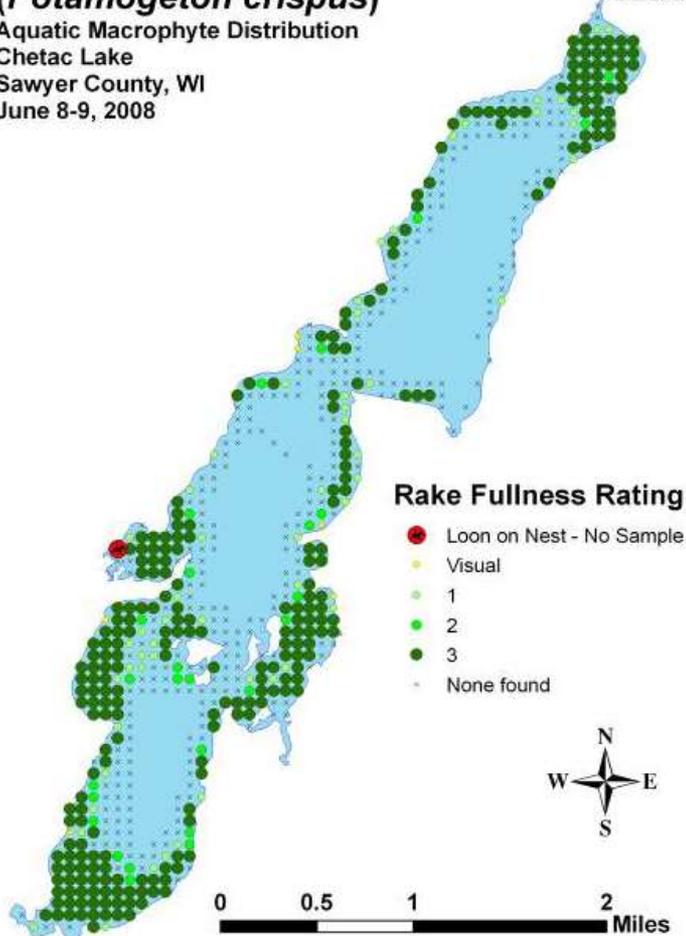
What was decided?

- * **Implement that which will likely have the most immediate impact on the lake**
 - * Reduction and control of Curly Leaf Pondweed primarily through the use of chemical treatment (70-90 acres)
 - * Try barley straw on the west shore
 - * Implementing a property owner and lake user educational program
 - * Place educational materials on the BCABLA website and other websites
 - * Complete a Feasibility Study for a possible future alum treatment
 - * Apply for WDNR grant money to support 3 years of these actions (2013-2015)

CLP Management

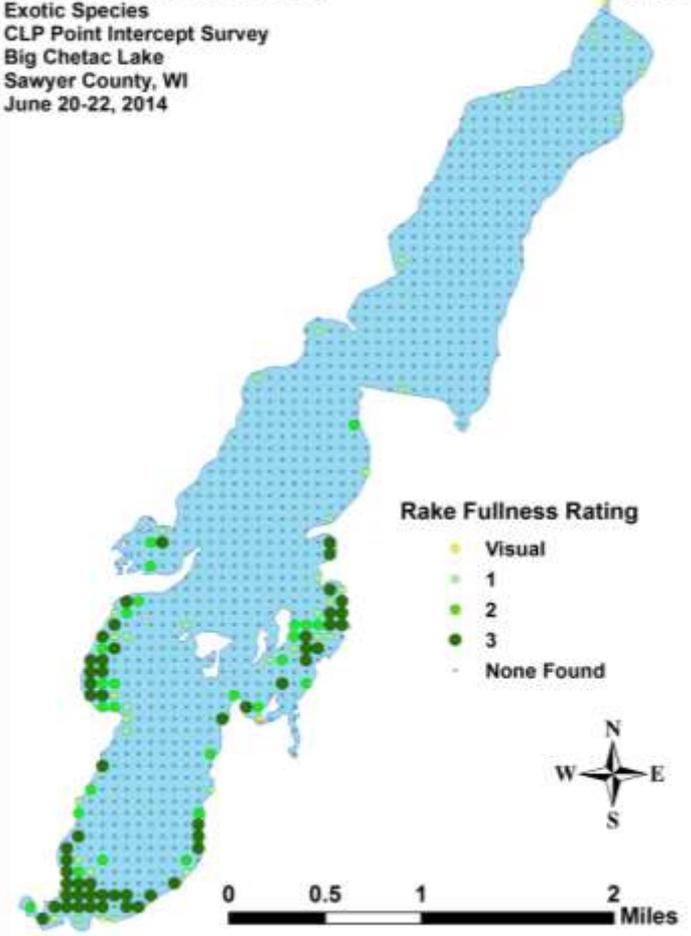
Curly-leaf pondweed (*Potamogeton crispus*)

Aquatic Macrophyte Distribution
Chetac Lake
Sawyer County, WI
June 8-9, 2008

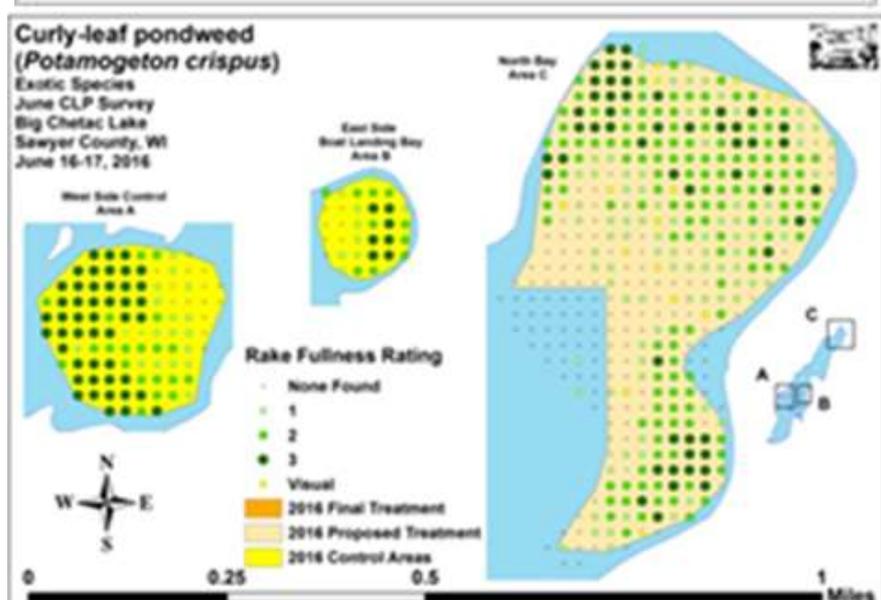
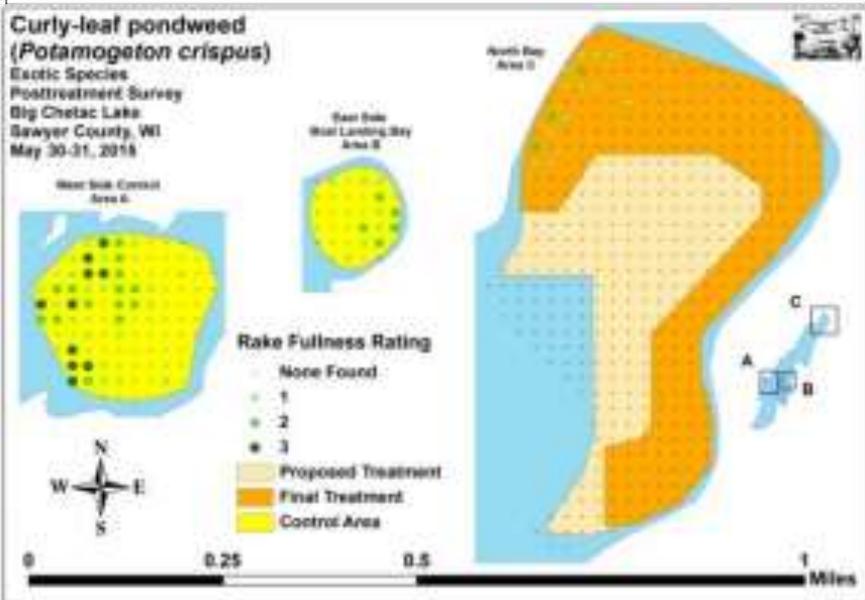
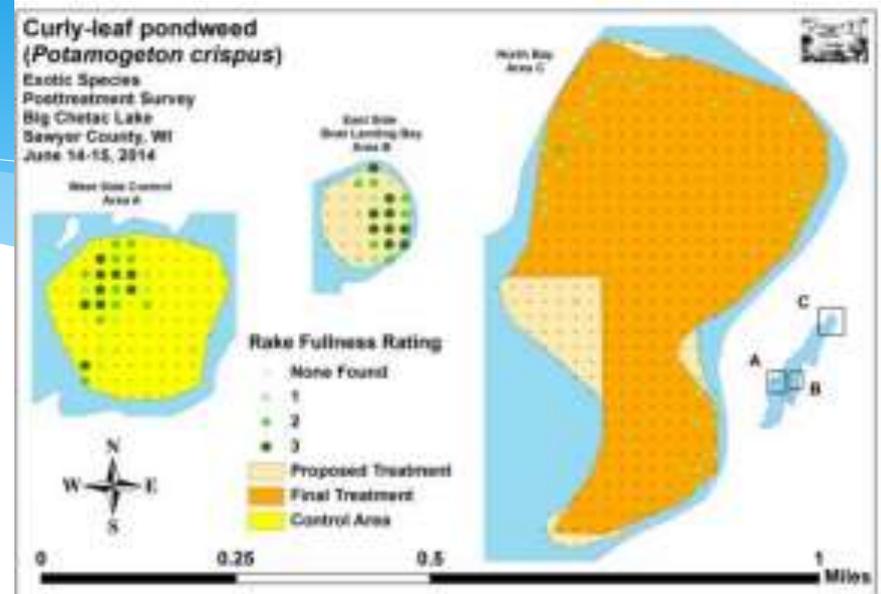
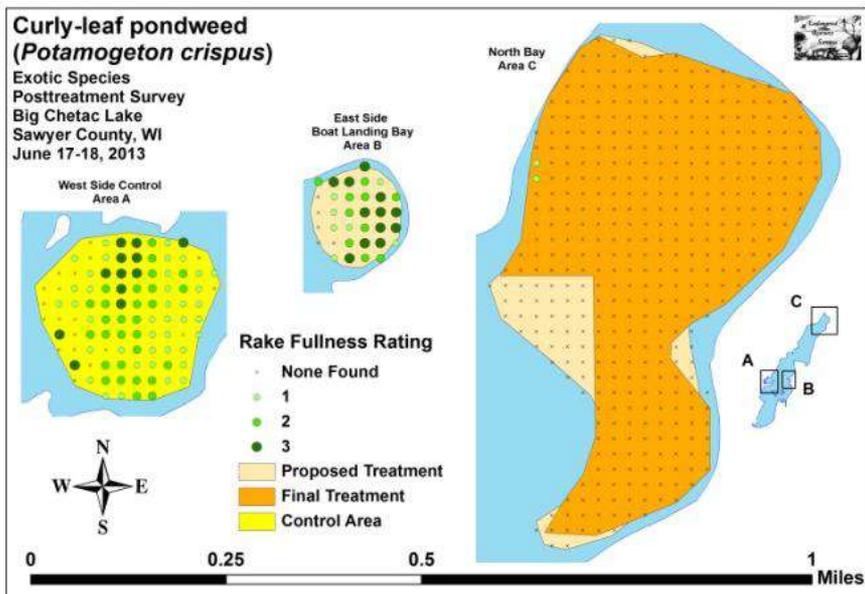


Curly-leaf pondweed (*Potamogeton crispus*)

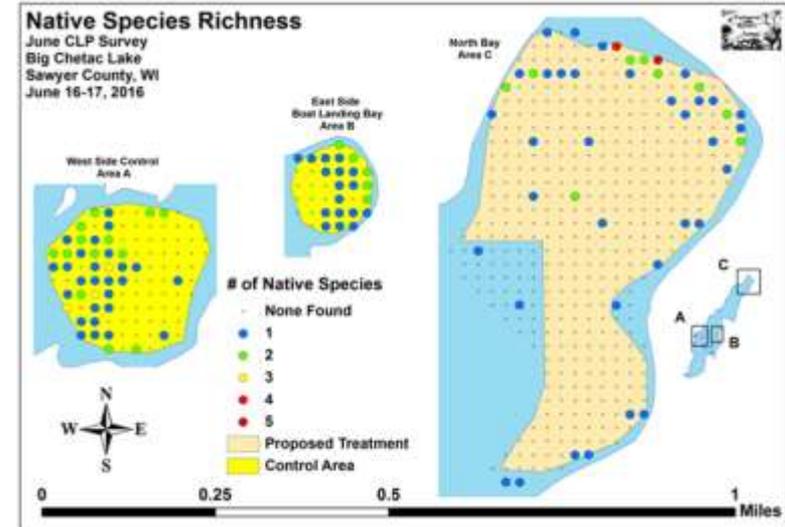
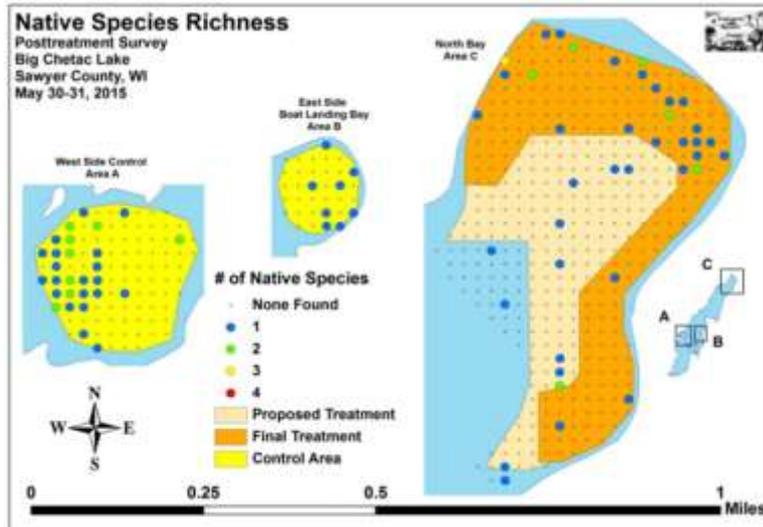
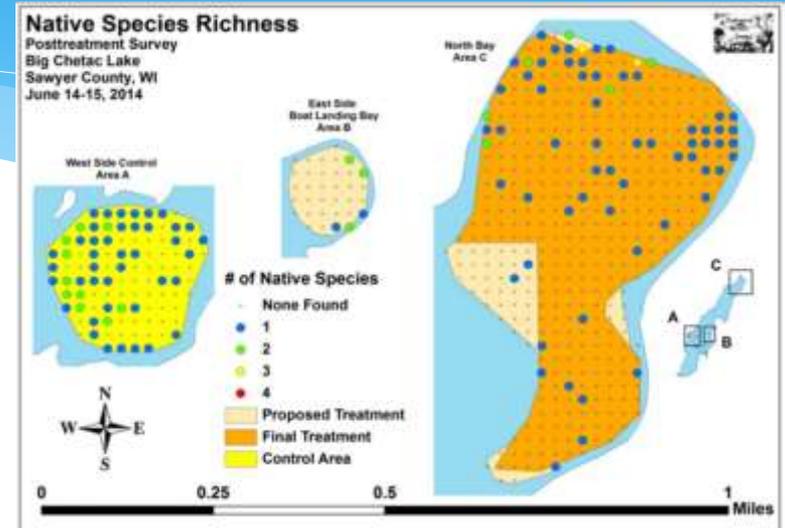
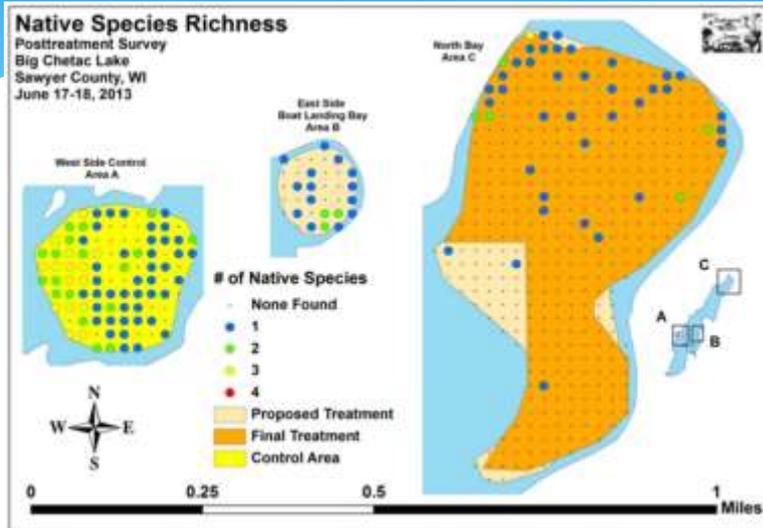
Exotic Species
CLP Point Intercept Survey
Big Chetac Lake
Sawyer County, WI
June 20-22, 2014



CLP Management June 2013-2016



North Bay Treatment Area Species Richness Recovery in June 2013-16



Late May/June Differences for Native Species North Bay - Big Chetac Lake, Sawyer County 2013-2016

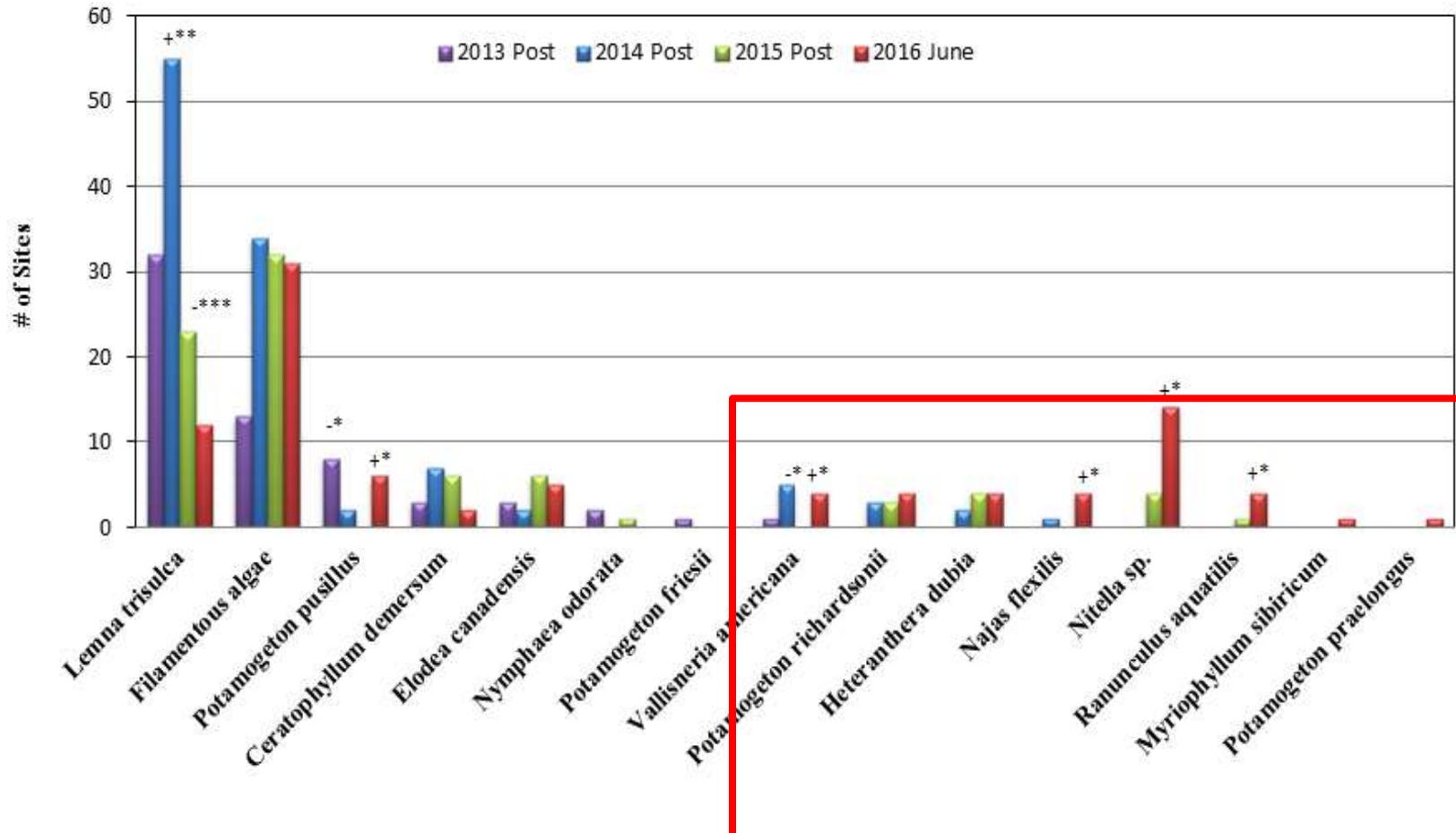
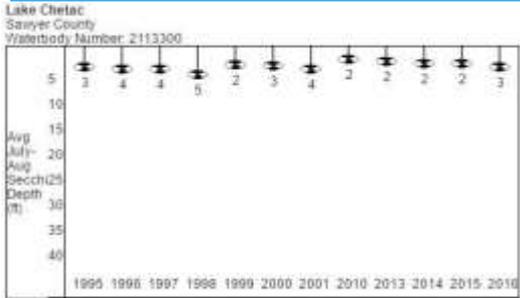
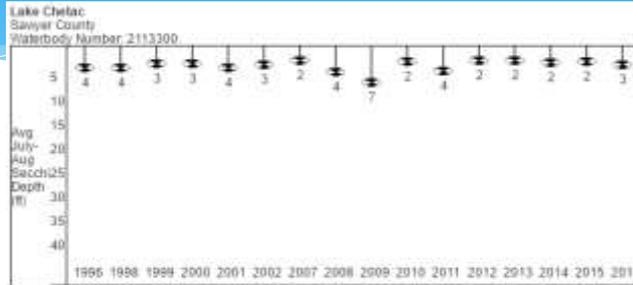


Figure 18: Late May/June 2013-2016 - Differences for Native Species – North Bay

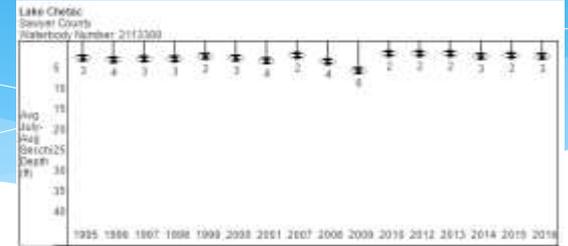
Big Chetac and Birch Lakes CLMN Water Quality Testing



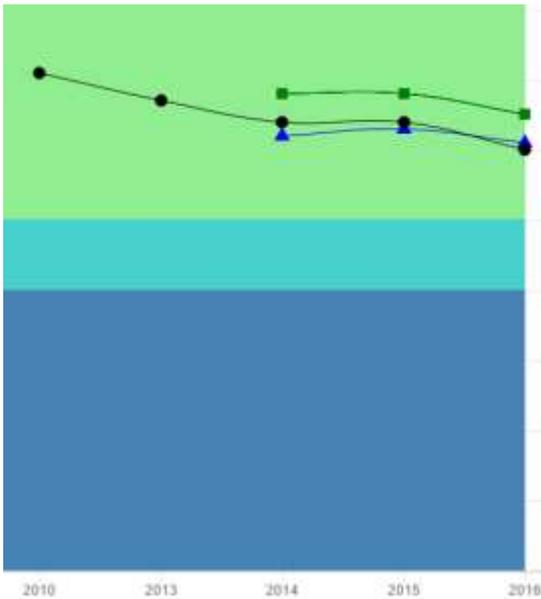
Past secchi averages in feet (July and August only).



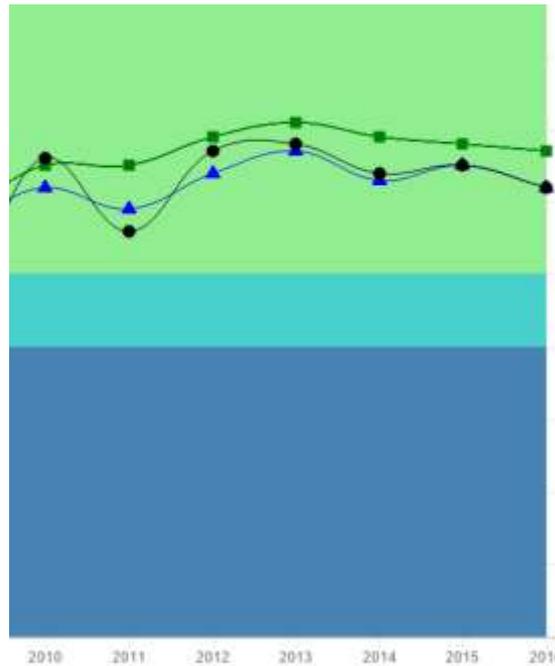
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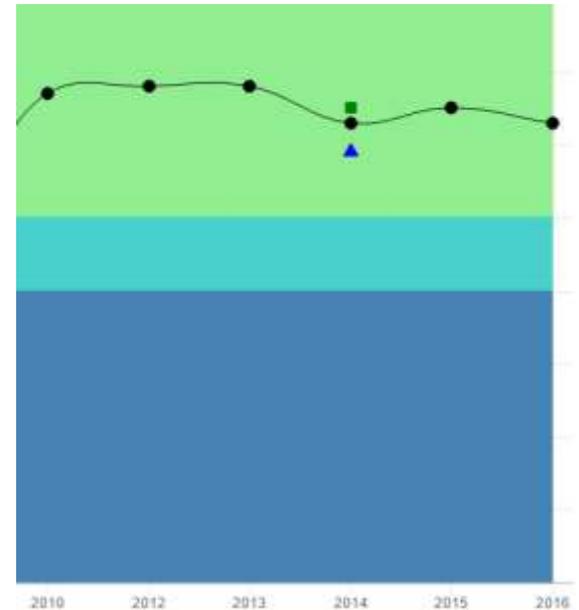
Past secchi averages in feet (July and August only).



North Basin



Central Basin



South Basin

Were Aquatic Plant Management Questions Answered?

Main Questions

Peripheral Questions

- * Can CLP in the lake be reduced through management?

- * Yes

- * Can a reduction in CLP be maintained?

- * Probably, but will need maintenance management

- * Does native plant growth improve if CLP is managed?

- * Maybe, but the verdict is still out

- * Was navigation improved?

- * Yes

- * Did water quality improve as a result of CLP management?

- * Maybe, but other factors also come into play

- * Some Constituents say “yes”

- * Were there any negative impacts on the fishery caused by CLP management?

- * Some users say “yes”

- * DNR data says “no”

- * Does not take into account catch rates by anglers

- * Still lots of concern by constituents

WDNR Opinion on 3-year Management Results

***Comments from January 7, 2016 WDNR Technical Team Letter**

- * The herbicide treatments have been effective at reducing CLP within the North Bay.
- * At least two native plant species were negatively impacted and still have not recovered completely
- * Poor water clarity is likely a bigger barrier for native plant growth than competition from CLP
- * The Tech Team does not support herbicide treatments in new areas of the lake until native plants increase significantly within the North Bay and/or the lake water clarity improves significantly
- * Consider development of a dye study for other areas of the lakes to determine if future treatments would provide adequate herbicide contact time, move into the wild rice beds or other non-target areas, and how much would leave the lake via the outlet
- * The Tech Team supports an alum treatment proposal for the North basin
- * Consider promoting and implementing shoreline Best Management Practices like buffers, rain gardens, and fish sticks to reduce nutrient runoff and increase shoreline habitat
- * Many management activities require detailed monitoring programs to assess the projects. Work with DNR staff to develop specific monitoring strategies for each of the projects

Findings of the Alum Study

- * **Alum Treatment in the North Basin (everything over 20-ft)**
 - * 47% decrease in mean summer total P concentrations
 - * 60% decrease in chlorophyll concentrations
 - * Frequency of nuisance algal blooms decreases from 73% to only 19% of the time during the summer
 - * Estimated cost is around \$1.7 million, applied over 2-3 years



Present

- * No management has been done for two years (2016 & 2017)
- * Continued opposition to management actions from 2013-2015
- * Concern over how management from 2013-15 impacted aspects of the lake including water quality, aquatic plants, the fishery, and aquatic insects
- * Some dissatisfaction with previous management planning and implementation process in that all Stakeholders were not included, or not listened too during the planning and implementation process
- * An updated Lake Management Plan is needed to help guide future management, whatever that might include.
- * A greater amount of community support is needed if management is to be continued in the future.

Exploratory Interviews – Summer 2016

- * Result of an agreement between the WDNR and BCABLA to suspend chemical management of CLP until a new effort to involve certain stakeholders was planned and completed.
- * Remaining money in the 2013-2015 AIS Control Grant from the WDNR would be used to cover the costs of a consultant to help guide and implement this effort.
- * Part of an effort to address issues with past management planning and implementation
- * Involved two groups of Constituents
 - * Local Government Representatives from the Towns of Edgewater and Birchwood and the Village of Birchwood
 - * Resort Owners on Big Chetac and Birch Lakes
- * Considered a Pre-cursor to preparing a new Lake Management Plan

Completed Interviews

- * 2 Town of Birchwood Officials
- * 3 Town of Edgewater Officials
- * 3 Village of Birchwood Officials
- * 2 Resorts on Birch Lake
- * 7 Resorts on Big Chetac Lake

Summer Survey Results

- * Fishing is the most important lake use, but not the only one.
- * Opinions on fishing impacts caused by management vary
- * Conditions in the lake vary, affecting different users at different times, and not all the time
- * Concern over what impacts future management would have on other wildlife
- * Concern over aquatic plants (including CLP) is mixed – there are bad times, and not so bad times
- * Decisions to manage aquatic plants (including CLP) should not be in the hands of one stakeholder group
- * In general, plant management would be supported if there was a determined need, with harvesting being the preferred method, but use of herbicides not ruled out.
- * Biggest concern was that too many plants would be taken out.
- * More proof from other lakes that management works.

More Survey Results

- * Green water is not necessarily unhealthy water, improvements may be needed but not for all uses or at all times
- * Less thick green slime, odor, and dense vegetation that interferes with navigation
- * Water quality depends more on environmental conditions than management actions
- * Most credible sources of information: scientific lake studies, people using the lakes, professionals
- * Least credible sources of information: word of mouth, social media, hearsay, opinion based comments, public surveys
- * Information provided by the BCABLA, WDNR, government entities, and individuals are viewed and trusted differently depending on the perspective
- * Monitoring of many different parameters provides checks and balances for management – more monitoring is needed
- * Communication between stakeholder groups was unsatisfactory during the last management planning and implementation effort
- * The Town and Village of Birchwood would be more involved if they felt efforts were being made to include Big and Little Birch lakes

Several Things Came Out of the Summer Interview Process

- * A need to increase the level of public *involvement*, not just information in management discussion, planning, and implementation
- * A need to improve communication among Stakeholder Groups
 - * Town Boards, Village, BCABLA, WDNR, Property Owners on all three lakes, Downtown Businesses/Chamber, Resort Owners, Fishermen and Sporting Clubs
- * A need to re-involve/involve Birch and Little Birch Lakes in the Process
- * A need to have a third-party (not WDNR, not BCABLA) facilitator guide the management process

Stakeholders Committee Proposal

- * Mechanism to increase the level of public involvement in management discussion, planning, and implementation
- * Provide a non-confrontational atmosphere for discussion among stakeholders to take place, free to express opinions without worries of repercussions
- * Proposed Stakeholder Group Representatives
 - * 3 BCABLA Representatives (two on Big Chetac, one on Birch)
 - * 2 Towns of Birchwood and Edgewater (one representative each)
 - * 1 Village of Birchwood (one representative)
 - * 2 Resort Owners (one on Big Chetac, one on Birch)
 - * 1 Red Cedar River Watershed Coalition (one representative)
 - * WDNR (non-voting)
 - * Third Party Facilitator (non-voting)
- * Others? (members, substitutes, resource liaisons, missing stakeholder groups)

Current Committee Members

Purpose: Too act as liaisons to the larger public community; Too gather and share input received from the public; and Too share Committee discussions with the public

* BCABLA

* Mark Robinson

- * BCABLA President, Big Chetac Lake

* Bob Reynolds

- * BCABLA Past President

* VACANT

- * Birch Lake, at large

* Resort Owners

* Julie Telitz-Thomas

- * Fred Thomas Resort

* Jim DelMedico

- * Maple Terrace Resort

* Red Cedar Watershed Coalition

* Gerry Johnson

- * President of the Red Cedar Lakes Association

* Town of Birchwood

* Romaine Quinn

* Town of Edgewater

* Pete Baribeau/Scott Spaeth/Bill Zimmer

* Village of Birchwood

* John Depoister/Virginia Hurckmann

* Non-Voting Members

* Alex Smith – WDNR

* Dave Blumer – LEAPS

- * Facilitator

Stakeholder Committee Meetings

- * **Have met five times: December 2016, January, February, March, & April 2017; plus a public meeting in May**
- * **Next meeting late June 2017**
- * **Discussions**
 - * **December 2016** – Should we have a Stakeholders Committee; should we apply for a lake management planning grant to involve Birch and Little Birch Lakes more in the planning process
 - * **January 2017** – Review of the 2010 Lake Management Plan; Lake use and the fishery
 - * **February 2017** – Aquatic plants and aquatic plant management
 - * **March 2017** – Similar management on other lakes; Water quality
 - * **April 2017** – Stakeholder Committee Make-up and Responsibilities
 - * **May 2017** – Public Meeting to discuss Stakeholder Committee actions
 - * **Next Meeting – June 2017 – Goal Setting for the 3 lakes**

2017-18 Lake Management Planning Grant Application

- * Suggested by LEAPS as a way to address some of the concerns voiced during the interviews.
- * Implements actions that directly involve Birch and Little Birch lakes.
- * Supported by the BCABLA (Sponsor) and the WDNR
- * One project (\$43,597.00) with a State Share funding request of \$24,957.00.
- * Requires an \$18,640.00 Sponsor Match
 - * **Match would be made with volunteer time and donated equipment use over two years.**

Water Quality Testing in Birch Lake and at its inlet (Hwy F) and outlet (below the dam)

* Birch Lake, Deep Hole

- * WDNR Directed Study
- * Surface Water
 - * April –October, 2017 & 2018
 - * Total phosphorus, chlorophyll a, water clarity, temperature and dissolved oxygen
- * Bottom Waters
 - * July-September 2017
 - * Total phosphorus and iron
- * Collected by Volunteers



* Inlet and Outlet Monitoring

- * Lake Planning Grant
 - * April-October, 2017 & 2018
 - * Total phosphorus, chlorophyll a (inlet), flow
- * Collected by Volunteers

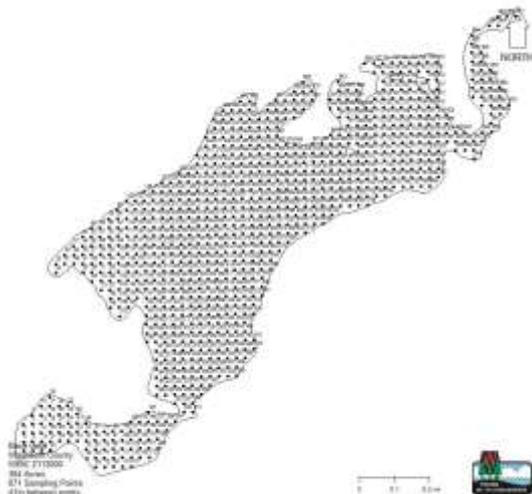


Aquatic Plant Point-Intercept Surveys

* Birch and Little Birch Lakes

- * Cold and warm water surveys
- * CLP and native aquatic plants
- * 871 points
- * Paid for and completed by the WDNR

Sampling maps created using the GIS tools later available from the 2007 to spring 2018. We suggest checking these maps against the most recent aerial imagery or to field verification. If your organization has a green entry 2018 (Native Aquatic Plants Survey at DNRA@DEL.NEADNR.TXPLANTS@dnr.wisconsin.gov)



* Big Chetac Lake

- * Warm water survey
- * Native aquatic plants
 - * Comparison to 2008 and 2014 native plant survey results
- * Close to 500 points in the littoral zone
- * Cost included in the lake management planning grant
- * Donated services from LEAPS

Big Chetac, Birch, and Little Birch Shoreland Habitat Assessment

* Purpose

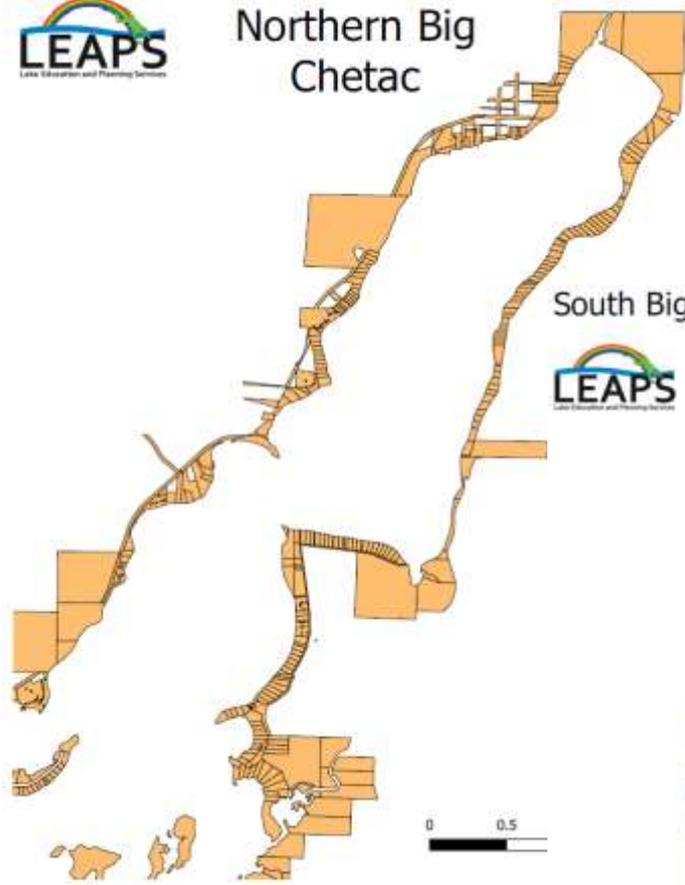
- * To determine condition of the shoreline in terms of habitat and runoff reduction
- * Not intended to separate “bad” and “good” properties
- * Provides data for future improvements with interested property owners
- * Recommends that interested property owners work with shoreland improvement specialists to identify projects
- * It is understood that not all properties can make changes

* What's Included?

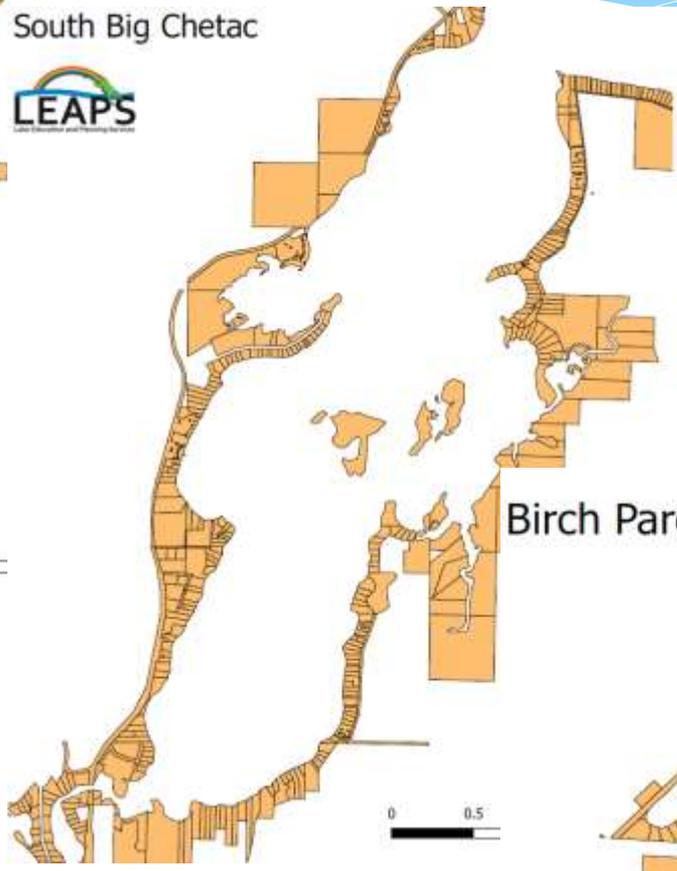
- * Assessment of individual parcels around the lakes starting at the waterline and then extending 35-ft inland.
- * Each property assessed based on the same set of parameters
- * Assessments made and photos taken
- * All properties prioritized as high, moderate, low, or no priority
- * Suggestions for making improvements
- * All properties, regardless of priority may be able to make improvements that would benefit habitat and the lake

***Also includes a Woody Habitat Survey of all three lakes**

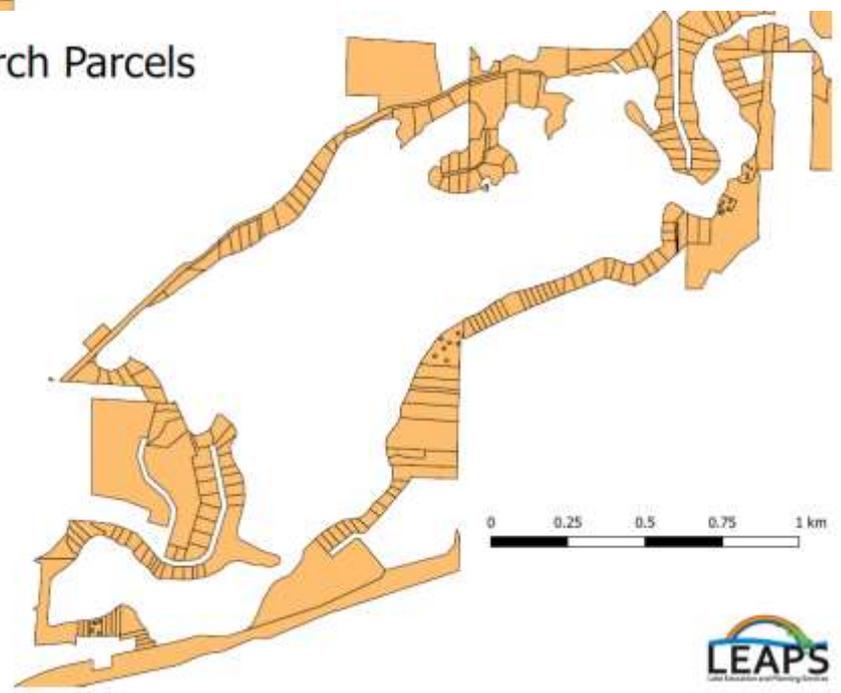
Northern Big Chetac



South Big Chetac



Birch Parcels



Lake Use and Fishing Success Survey

- * To collect semi-formal data about lake use and fishing success of resort guests/clientele in 2017
 - * Quantify fishing activity including what species is being caught the most, size structure of the fish being kept, and total time people are actively engaged in fishing
 - * Compare fishing time on the lake to time spent doing other on-the-water activities like water skiing and quiet sports
- * To actively engage Resort Owners/Managers and resort clientele in collecting data to be used for current and future lake management planning



- * Week-long Clientele or other extended stay audience
- * Weekend Campers if they are using the lake
- * Week day Campers if they are using the lake
- * Individuals, Families, and Groups
- * Don't expect to get everyone, but a good cross-section of these groups would be good
- * *Not specifically targeting fishermen or lake users that may be "day-trippers" not associated with campgrounds or resorts. Also not intended for the seasonal RV'ers unless under the following situation*
 - * If this audience wants to participate, have individuals contact me
 - * Forms will be sent with a return address for completed forms

Why Resorts?

- * A little more control over distribution and data collected
- * Reach a broad range of fishermen and lake users
- * Livelihoods depend a lot on fishing



- * In operation all season long
- * First line of contact for many users of the lakes
- * Have built a repoir with clientele suggesting more consistent data

Who is Involved at the Present Time?

* Resorts and Campgrounds

- * Fred Thomas Resort
- * Bay Vue Resort
- * Red School Resort
- * Big Chetac Resort
- * Red Cedar Springs Resort
- * Nystroms Resort
- * Dalens Resort
- * Maple Terrace Resort
- * Doolittle Park

* Other Notes

- * Intend to talk to other resorts
 - * Bear Paw, Fernwood, Sportsmens, North Star, Chit Chat, Echo Bay
- * **I could really use a local volunteer to distribute data forms and materials, collect data forms, enter data and crunch numbers**

WDNR Creel Survey on Big Chetac Lake in 2017

- * Official Creel Survey
 - * not associated with the Fishing Success Survey
- * Survey Personnel on the lake 40 hours a week during the fishing season, including ice fishing
- * Has an official boat.
- * Will approach anglers to gather information about what they are fishing for and their catch.
- * Completes whole lake fishing boat counts twice a day
- * Are not Natural Resource Wardens, have no enforcement credentials
 - * However it is generally considered illegal to not cooperate with a Creel Survey Technician if asked to do so.
- * Primarily interested in Big Chetac data, Birch Lake will be done officially in another year or two.



+



Public Meeting – May 20, 2017



Goal Setting for the Big Chetac and Birch Lakes

Goals from the Public Meeting

- * Include Birch and Little Birch Lakes in all management planning and implementation
- * **Monitoring of Boats, put better signs at the boat landings**
- * Improve water quality through phosphorus reduction by 25% in 5 years, reduce blue-green algae bloom days
- * **Restore native plants, preserve the fisheries**
- * **Keep navigation routes open, consider harvesting**
- * **Zero herbicide or intermittent use of herbicides to control CLP; better oversight of application and results**
- * Increase communications with property owners and other stakeholders
- * **Slow down and take our time to monitor and learn**
- * **Balance fishing with recreation use**
- * **Make sure Stakeholders Committee is made up of people with different perspectives**
- * Have a public meeting and educational event on shoreland survey and practices

FUTURE

- * Additional Stakeholders Committee Meetings
- * Additional Public Meetings
- * Completed draft of a new Lake Management Plan by early fall to review
- * Approval of new Lake Management Plan for implementation beginning in 2018
- * Filling vacant positions on the BCABLA Board and on the Stakeholders Committee
- * Continue to seek out more public involvement
- * Other?

Management Alternatives

* Aquatic Plant Management

- * Do nothing
- * Physical removal
- * Mechanical harvesting
- * Application of herbicides
- * Biological controls
- * Nutrient reduction
- * Native plant reintroduction
- * Winter drawdown
- * Dredging
- * Other?

* Algae Management

- * Barley straw
- * Copper sulfate solutions

* Water Quality Management

- * Do nothing
- * Aquatic plant management
- * Watershed Best Management Practices (BMPs)
- * Shoreland BMPs
- * Alum Treatment
- * Trophic State Manipulation
- * No Wake Ordinances
- * Increase circulation/flushing
- * Break up stratification, hypolimnetic aeration
- * Artificial Floating wetlands
- * Other?

Management Alternatives

- * **Fisheries Management**
 - * Do nothing
 - * Stocking
 - * Size and bag limits
 - * Habitat improvements
 - * Rough fish removal
 - * Other?
- * **Wildlife**
 - * Do nothing
 - * Goose Control
 - * Other?
- * **Recreational Use**
 - * Do nothing
 - * Enforce existing Town Ordinances (water skiing)
 - * Create new or expand Town Ordinances
 - * other power sports, power loading restrictions
 - * No Wake Zones
 - * Other?
- * **Fund Raising**
 - * Grants
 - * Lake Association Dues
 - * Towns and Village
 - * Donations
 - * Clubs/Organizations
 - * Chamber/Business Partners
 - * Lake District

Potential Monitoring Efforts

- * Aquatic Plant Survey (CLP and natives)
- * Algae Monitoring (could be done with volunteers)
- * Creel Survey, DNR Fish Survey, Young-of the Year Surveys (could be done with volunteers)
- * Woody Habitat/Debris Survey
- * Zooplankton Studies
- * Waterfowl Studies, Loon Watch (could be done with volunteers)
- * Frog and Toad Surveys (could be done with volunteers)
- * Water Quality – Secchi, Nutrients, Chlorophyll, Dissolved Oxygen, Temperature, Metals, pH, Suspended Solids, Turbidity, Biological Oxygen Demand (BOD), Water level (could be done with volunteers)
- * Tributary monitoring (could be done with volunteers)
- * Lake Use (could be done with volunteers)
- * Watercraft Inspection/Aquatic Invasive Species Monitoring (could be done with volunteers)
- * Other?

Young of the Year Panfish Survey (proposed)

Could be done by BCABLA Volunteers
and would provide interesting data!

Four year old female Bluegill
lays up to 50,000 eggs.
Crappie produces 40,000 to
150,000 eggs depending on
its size and age.



- * **Cautions to keep in mind though**
 - * Documenting young of year panfish is not necessarily an indication of good fishing down the road
 - * One of the primary challenges in managing quality panfish populations is limiting the number of new recruits to the population
 - * Lots of new recruits year after year can lead to overcrowding, slow growth, and ultimately poor size of adult panfish
 - * Manage for healthy predator populations to eat as many young of year panfish as possible
 - * Seeing low recruitment of panfish might be a good thing

*Max Wolter, WDNR Fisheries Manager

In the end, It's all about the lakes. Questions?

