

Big Blake Lake Planning Meeting

Meeting 1

Saturday, February 20, 2016

Purpose of the Meeting

Review the data collected

Develop Aquatic Plant
Management Plan

Develop Lake
Management Plan



Grant Deliverables-Data Collected

- Lake resident survey
- In-lake physical and chemical monitoring
- Tributary monitoring
- Phytoplankton
- Zooplankton
- Aquatic plant point intercept surveys
- Curly leaf pondweed biomass and turion monitoring
- Watershed delineation, land use determination, and modeling
- Participation in AIS statewide programs: Citizen Lake Monitoring Network for AIS and Water Quality, Bait Dealer Initiative, and Clean Boats, Clean Waters
- Communication of information: the Blake Lake Bugle Newsletter, pontoon classrooms, and distribution of AIS flyers

- Sediment core collection and analysis
- Historical land use and conditions

- Development of an Aquatic Plant and Lake Management Plan

2004 Goals

- Public education and shoreline restoration
- Create a committee to improve the Straight River Watershed
- Work with County and Towns as they create land use and zoning regulations
- Collect in-lake data
- Reduce CLP

- Harvest CLP and native plants in navigation channels
- Implement watershed best management practices
- Promote the growth of native plants in sensitive areas

2016 Goals Format

Goal 1: Reduce algae and phosphorus in the three lake system by reducing watershed runoff

Action	Timeline	Cost Estimate	Volunteer Hours	Responsible Parties	Funding Sources
Identify shoreline landowners willing to install shoreline buffers, rain gardens, and water diversions on their property	2013, ongoing	\$1,000	80	Board Water quality committee	District
Provide technical assistance and cost sharing for implementation of projects	2014, ongoing	\$250,000		Board Consultant	District WDNR Lake Protection Grant*
Recognize landowners that have taken steps to reduce watershed runoff	Ongoing	\$50 annual		Board	District
Partner with landowners to install rain gardens, water diversions, and erosion control practices at or near the Church Pine Lake boat landing	2014, ongoing	TBD		Board Consultant	District WDNR Lake Protection Grant*
Support the work of the Horse Creek Watershed Farmer Led Council	2015, ongoing	TBD		Board LWRD	District
Work with Polk County LWRD/consultant to identify agricultural best management practices to reduce the phosphorus load from North Creek	2014, ongoing	TBD		Board LWRD Consultant	District WDNR Lake Planning Grant
Examine the economic feasibility and effectiveness of a sediment pond on North Creek	2015	\$2,500		Board Consultant	District WDNR Lake Planning Grant
Partner with landowners to install rain gardens, water diversions, and erosion control practices at or near the Big Lake boat landing	2014, ongoing	TBD		Board Consultant	District WDNR Lake Protection Grant*

Big Blake Lake Chemistry



Secchi Depth

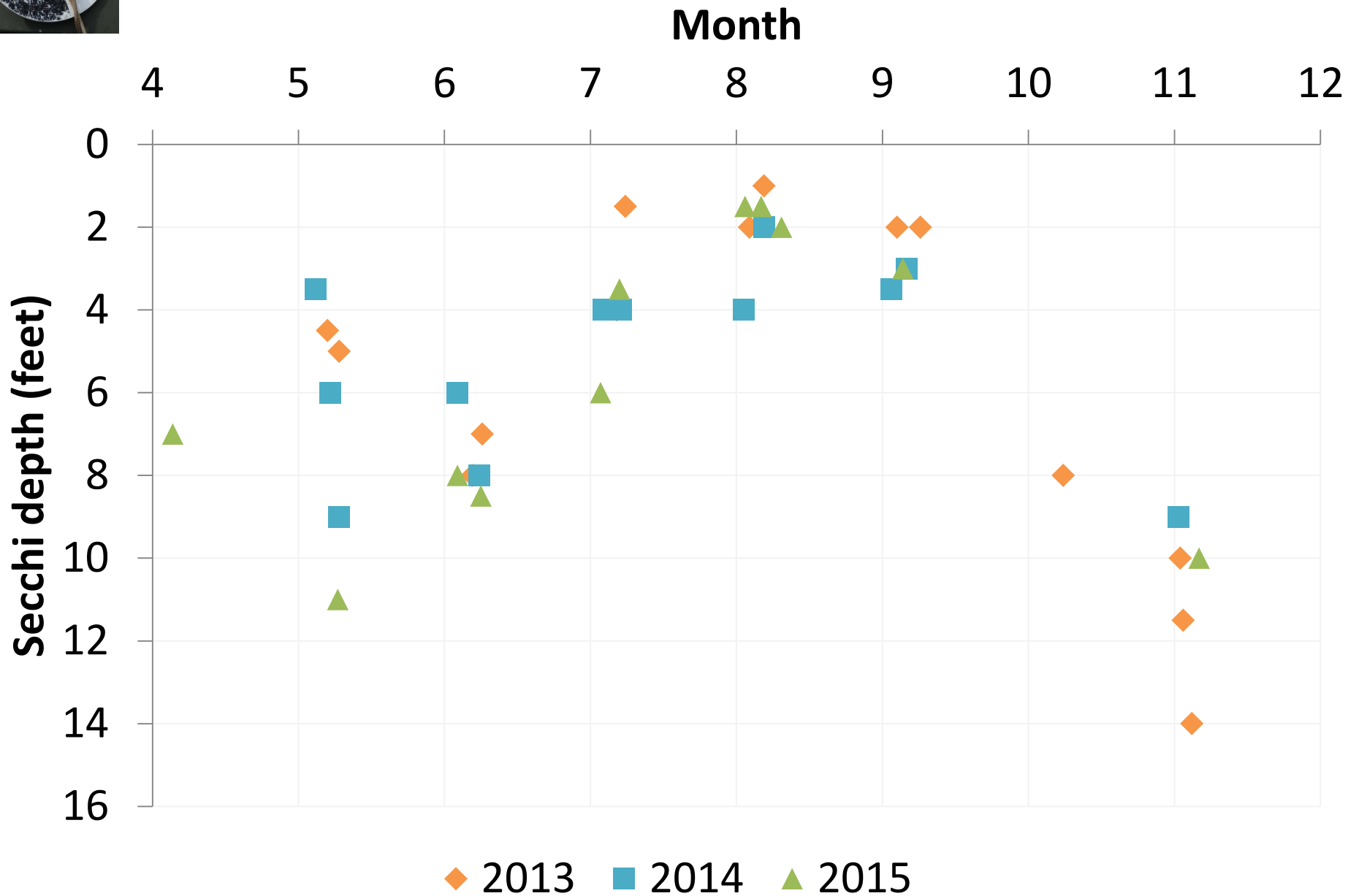
Measure of water clarity

Bigger numbers = greater clarity



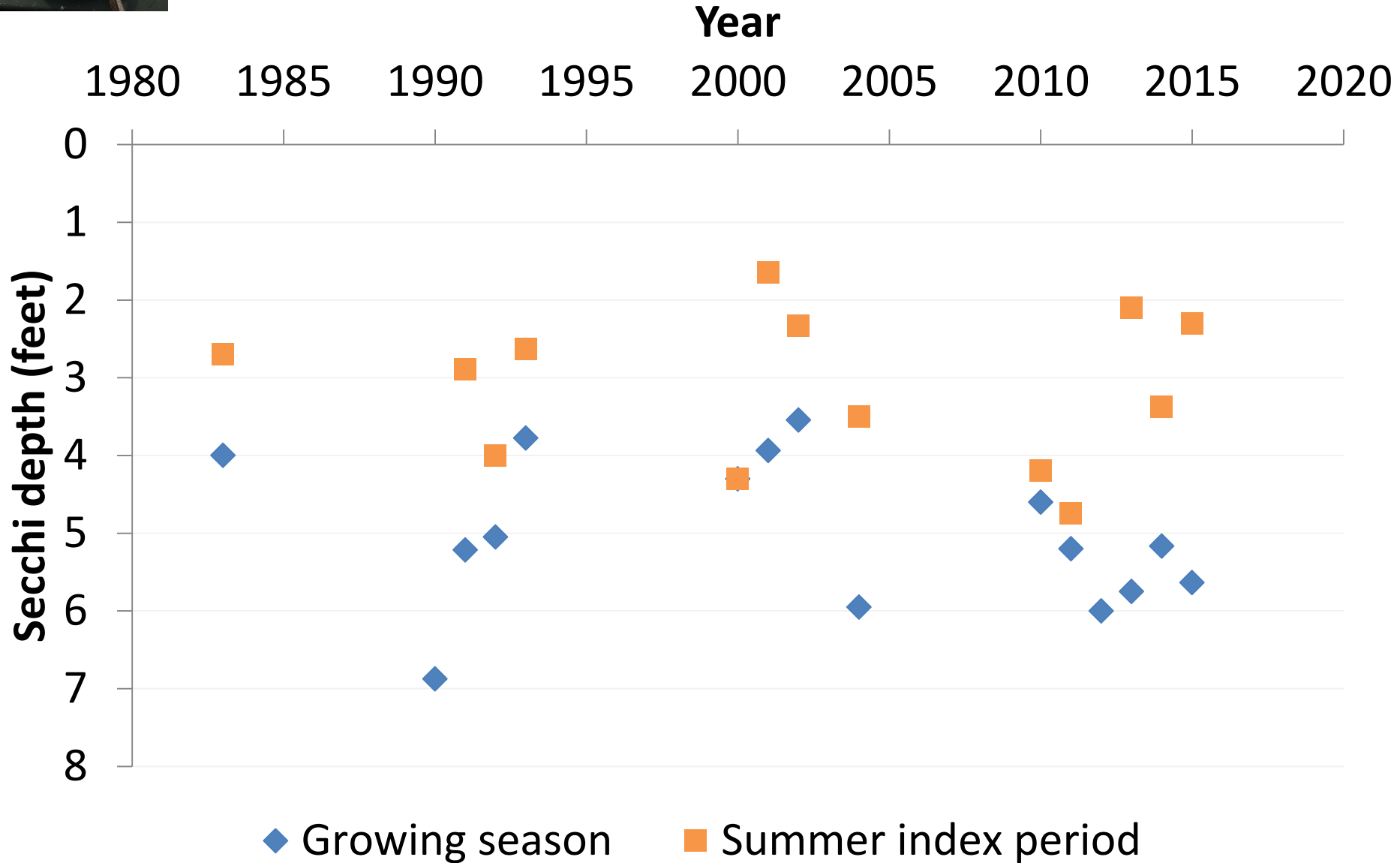


Big Blake Lake secchi depth profile, 2013-2015





Big Blake Lake average secchi depth profile, 1983-2015



Phosphorus (P)

Excess amounts can cause excessive plant and algae growth

Occurs naturally in soil

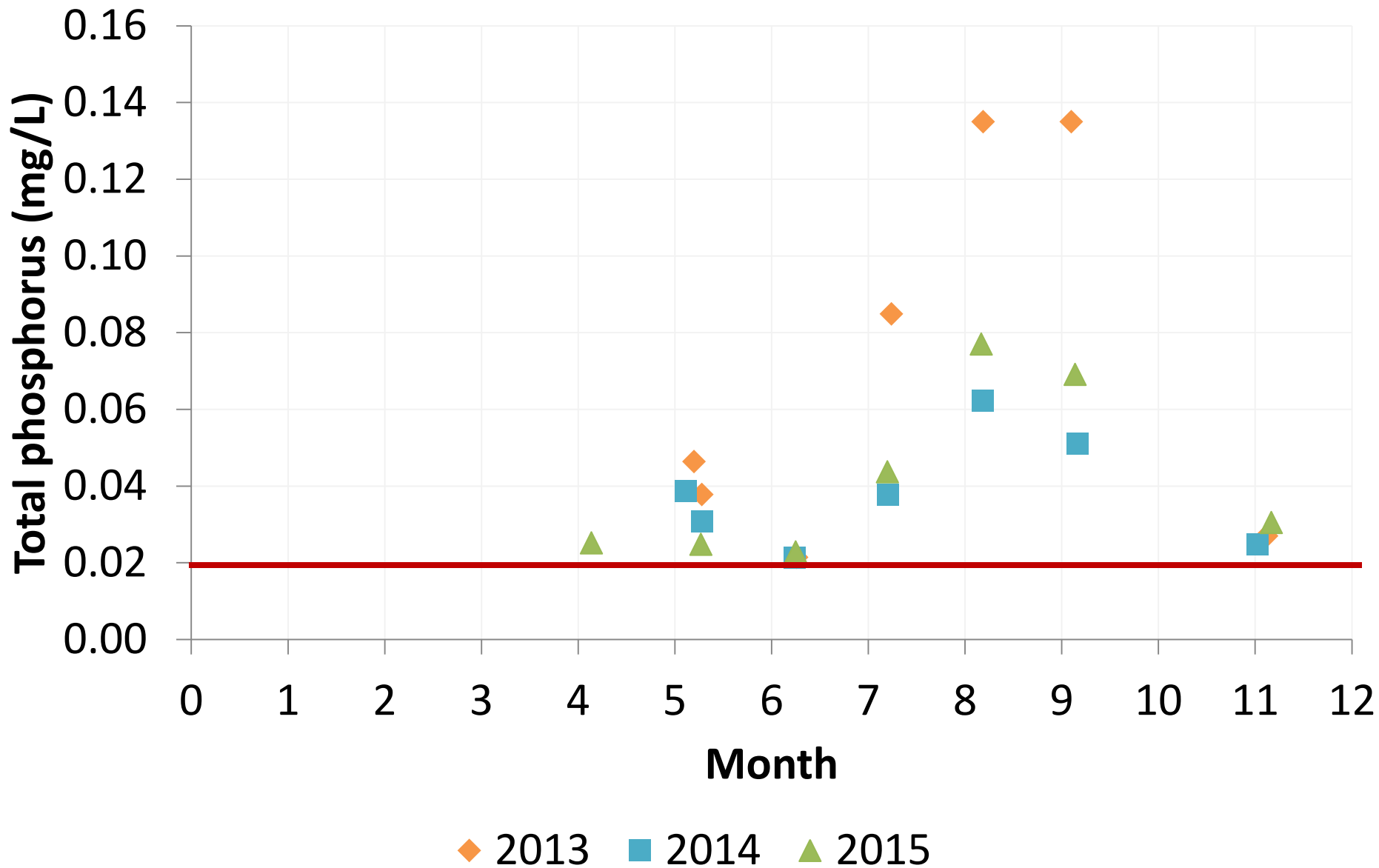
Component of fertilizer

Total P= all P in a water sample

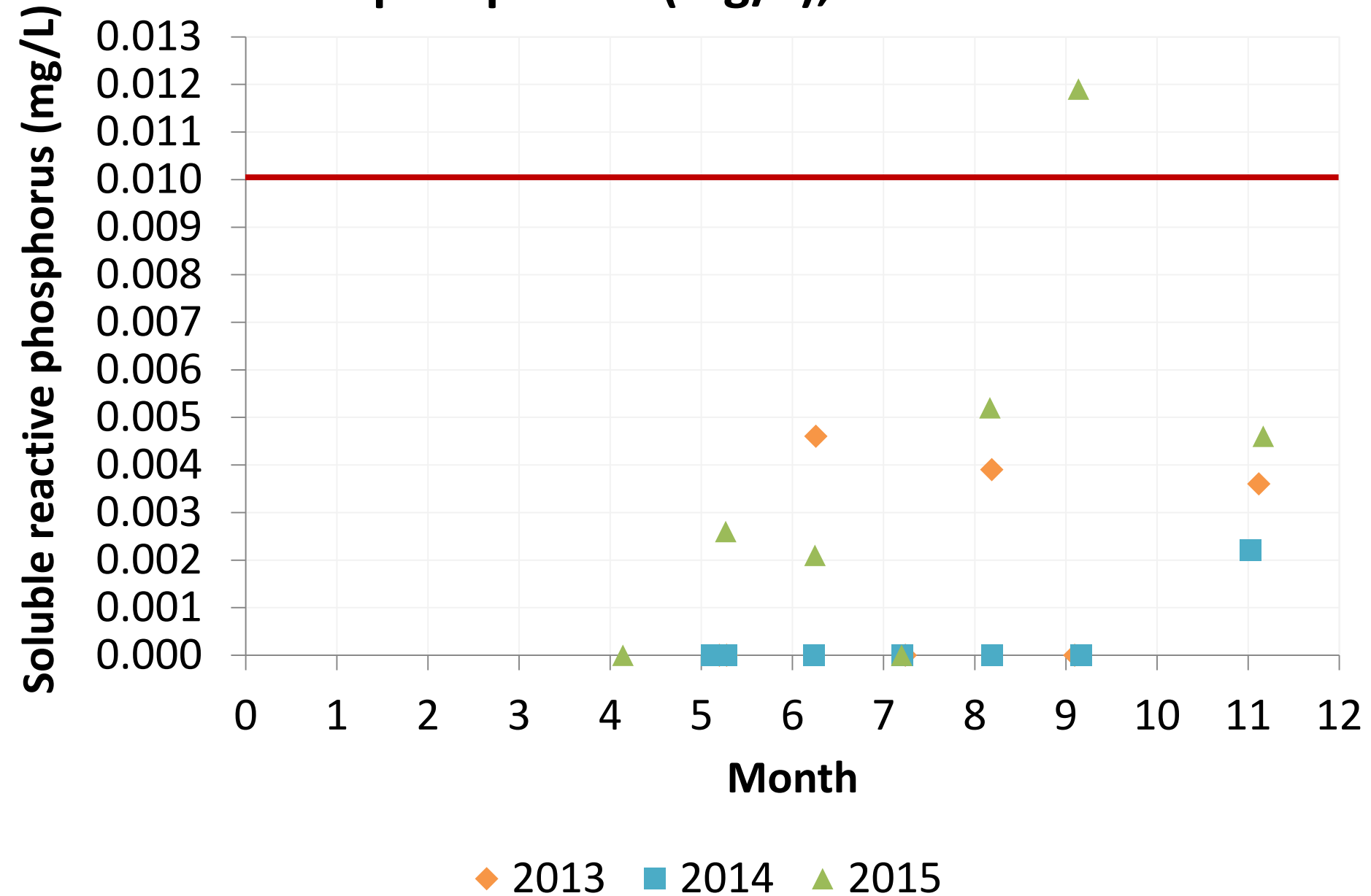
Soluble reactive P = P dissolved in water, ready for uptake by plants and algae



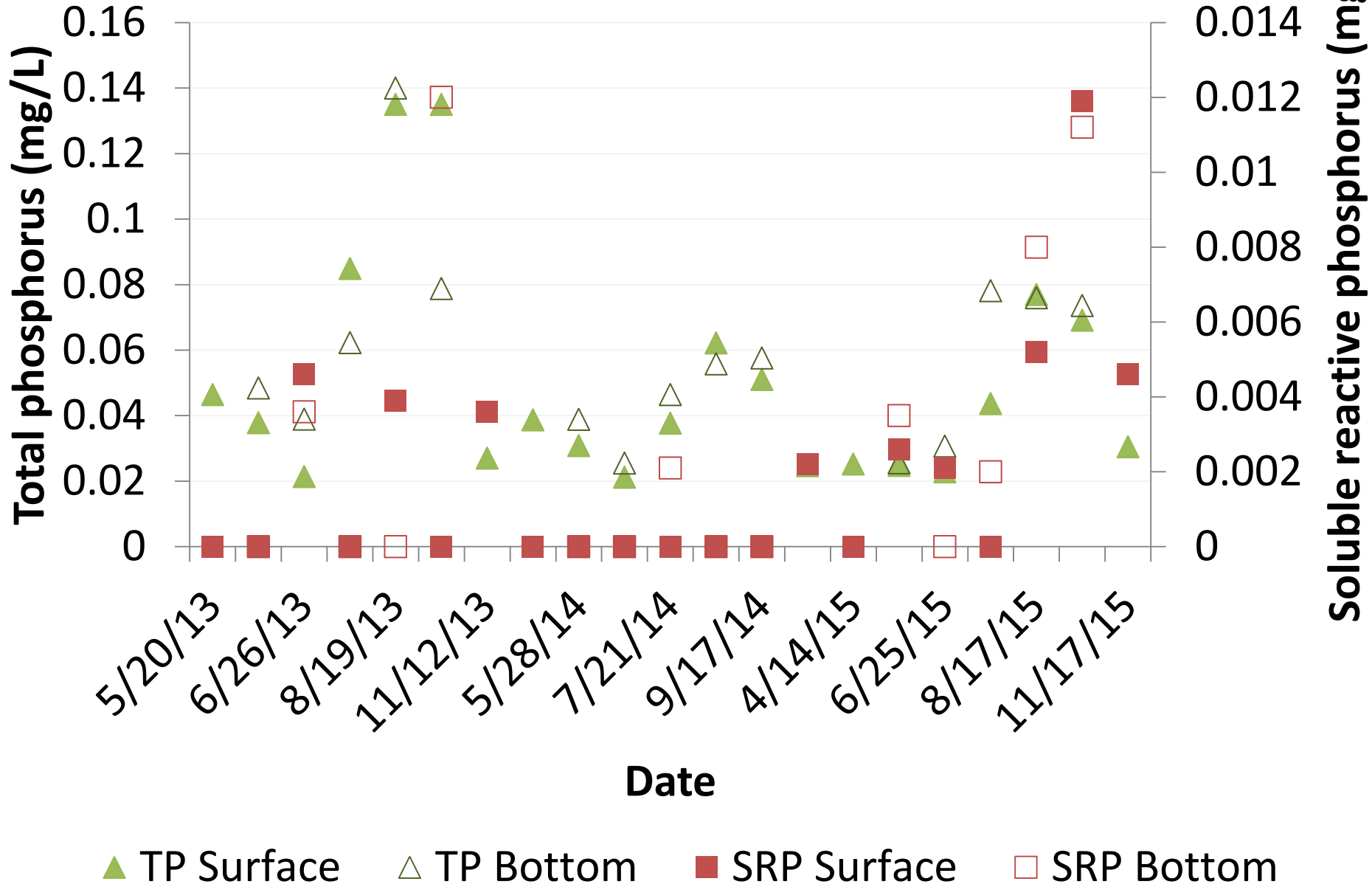
Big Blake Lake surface total phosphorus (mg/L), 2013-2015



Big Blake Lake surface soluble reactive phosphorus (mg/L), 2013-2015



Big Blake Lake top and bottom total phosphorus (mg/L) and soluble reactive phosphorus (mg/L), 2013-2015



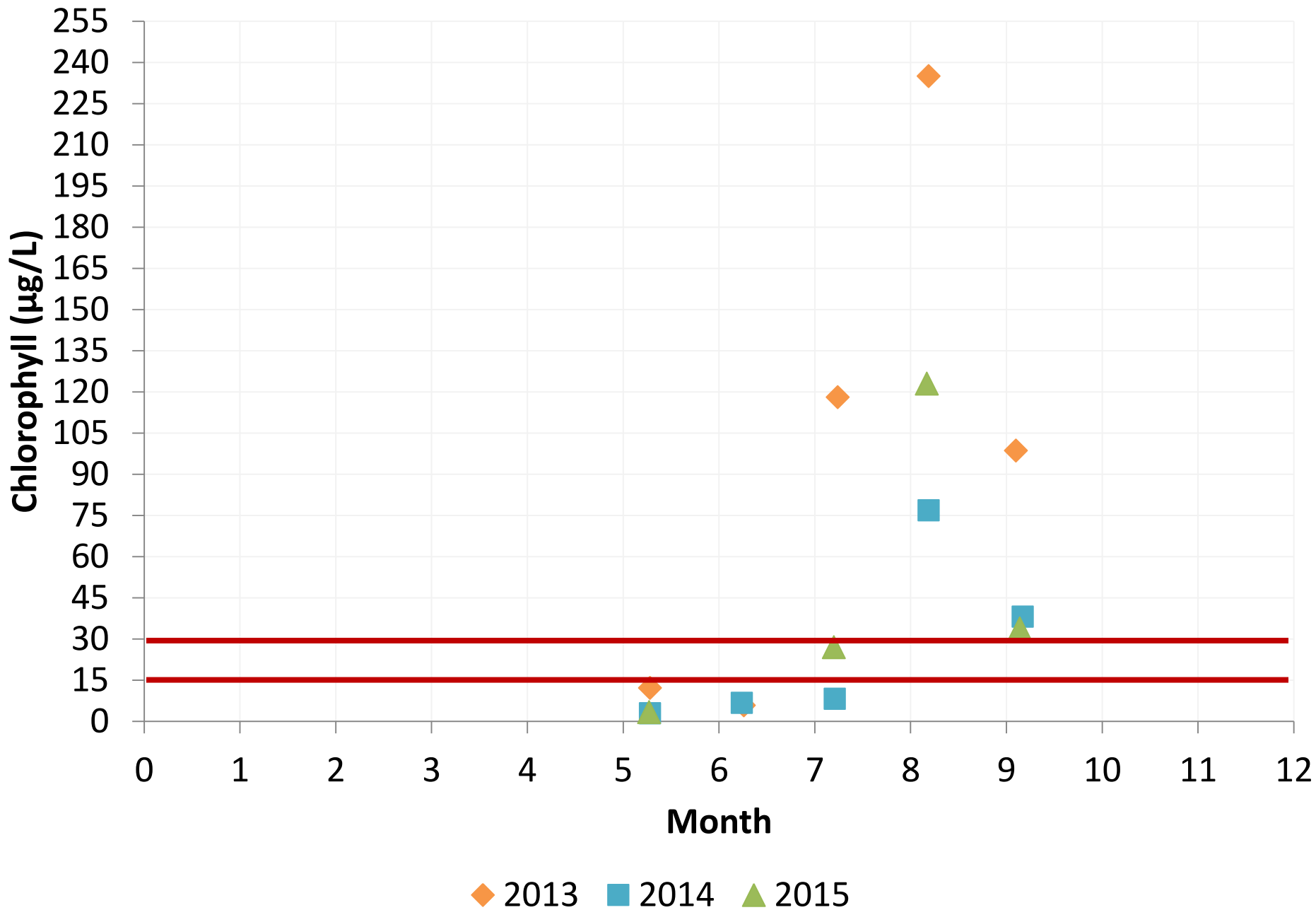
Chlorophyll

Pigment in plants and algae

Provides a general indication of the amount of algae in a lake

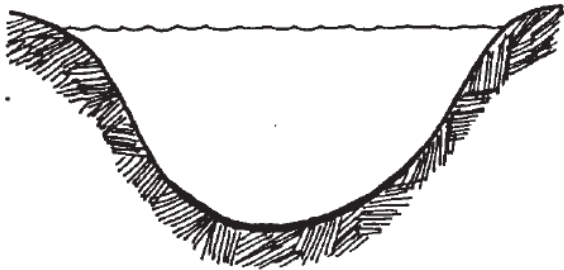
Higher values = more algae

Big Blake Lake chlorophyll ($\mu\text{g/L}$), 2013-2015



Trophic State Index

Serves as an indicator of water quality
– Reflects nutrient and clarity levels



OLIGOTROPHIC

- Clear water, low productivity
- Very desirable fishery of large game fish



MESOTROPHIC

- Increased production
- Accumulated organic matter
- Occasional algal bloom
- Good fishery



EUTROPHIC

- Very productive
- May experience oxygen depletion
- Rough fish common

Trophic State Index

2013 = 73

2014 = 62

2015 = 67

TSI	General Description
<30	Oligotrophic; clear water, high dissolved oxygen throughout the year/lake
30-40	Oligotrophic; clear water, possible periods of oxygen depletion in the lower depths of the lake
40-50	Mesotrophic; moderately clear water, increasing chance of anoxia near the bottom of the lake in summer, fully acceptable for all recreation/aesthetic uses
50-60	Mildly eutrophic; decreased water clarity, anoxic near the bottom, may have macrophyte problem; warm-water fisheries only
60-70	Eutrophic; blue-green algae dominance, scums possible, prolific aquatic plant growth. Full body recreation may be decreased
70-80	Hypereutrophic; heavy algal blooms possible throughout the summer, dense algae and macrophytes
>80	Algal scums, summer fish kills, few aquatic plants due to algal shading, rough fish dominate

Big Blake Lake Resident Survey



Big Blake Lake Resident Survey

The following survey is a component of a grant which was received to study Big Blake Lake. The survey should take approximately 5-10 minutes to complete. Responses will remain confidential. Final results will be compiled and used to guide management decisions for Big Blake Lake. Feel free to contact the Polk County Land and Water Resources Department with any questions at 715-485-8699. Surveys should be returned by June 1st to:

LWRD
100 Polk County Plaza- Suite 120
Balsam Lake, WI 54810

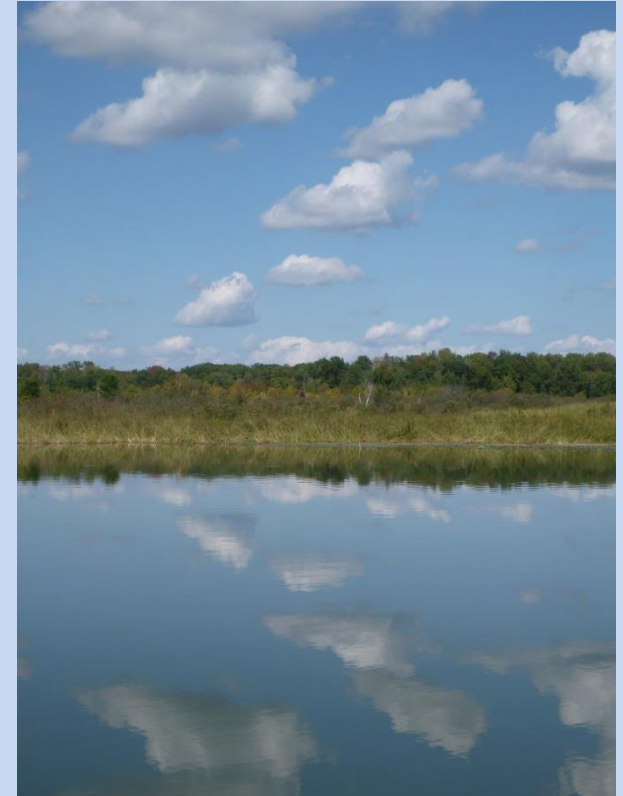
Thank you again for your participation!

-
1. How many years have you owned property on Big Blake Lake? Note: If you own more than one property, please answer all questions for the property you have owned the longest.
_____ years
 2. Which of the following best describes how you use your property?
 Year-round residence
 Seasonal residence (continued occupancy for months at a time)
 Weekend, vacation, and/or holiday residence
 Rental property/resort
 Other, please specify _____
 3. How many days in a typical year is your property used by you or others? Just provide your best estimate.
_____ days per year
 4. On the average day that your property is occupied, how many people occupy the property?
_____ people
 5. Do you own shoreline property (including shared access points) on Big Blake Lake?
 No, please skip to question 7 Yes
 6. Beginning at the water's edge, how would you describe the area measuring 35 feet inland (shoreline towards the road)? If you don't own shoreline property, please skip this question. Please check all that apply.
 Mowed lawn Stabilizing rock/rip rap
 Un-mowed vegetation Pier/dock
 Shrubs/trees Buffer zone/shoreline restoration
 Undisturbed woods Rain garden

Mailed 217 surveys in
May 2014

126 respondents, 58%

Thank you!



Big Blake Lake Owners

Property ownership: 21 years

People occupying property: 3.6

Number of days property used: 148 days

Most people are weekend residents (56%)

One third are full time residents (33%)



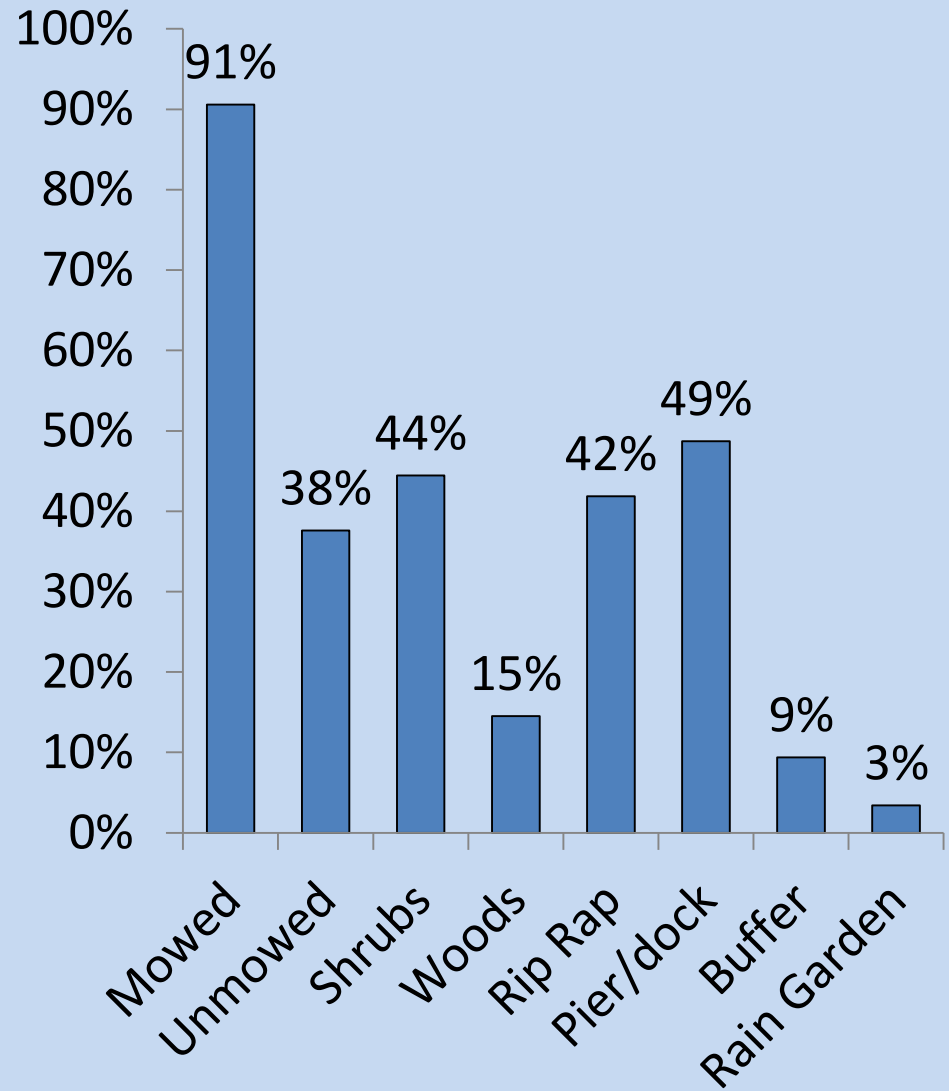
Characterizing the Shoreline

Half of property owners think the amount of lawn on Big Blake Lake is just right,

one quarter think there is too much lawn,

and one quarter are unsure.

Most believe that buffers, rain gardens, and natives plants are somewhat (34%) or very important (37%) to the water quality of Big Blake Lake.



A Very Positive Note

98% of survey respondents either don't use fertilizer or use phosphorus free fertilizers

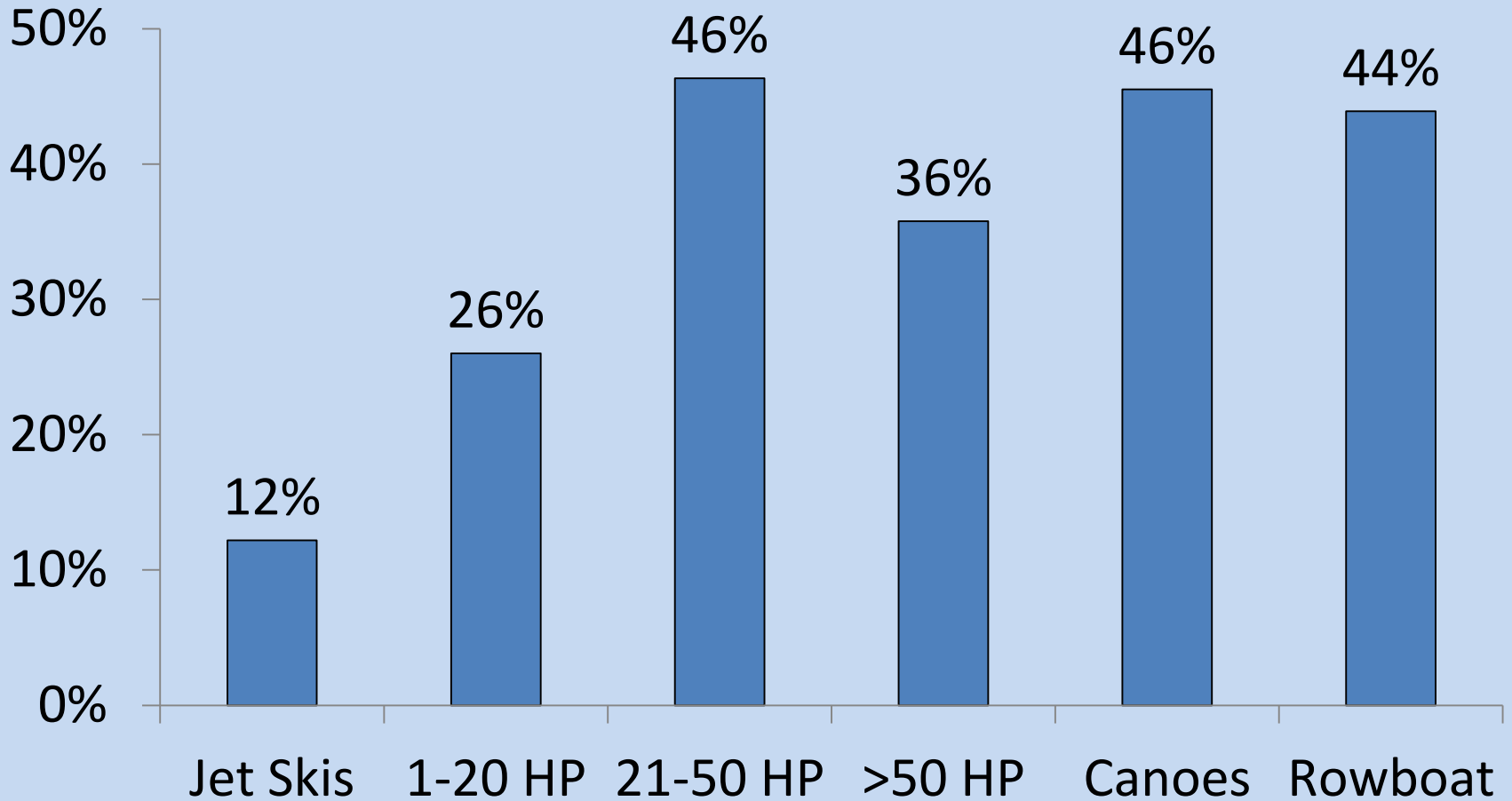


Activities Enjoyed on Big Blake Lake?

- Peace and tranquility (93%)
- Scenic view (89%)
- Fishing (83%)
- Motorized boating (80%)
- Observing birds/wildlife (79%)
- Swimming (70%)
- Non-motorized boating (47%)
- Ice fishing (45%)



Watercraft and Use



A quarter of respondents use their watercraft on other waterbodies

Concerns for Big Blake Lake

High or Medium Concern

By 75% of respondents

Excessive aquatic plant growth

Expansion of curly leaf
pondweed

Excessive algae blooms

Decrease in overall lake health

Lack of water clarity or quality

New invasive species entering
the lake

Increased nutrient pollution

Low or No Concern

By 60% of respondents

Excessive noise level on the
lake

Decreased wildlife populations



Current Conditions on Big Blake Lake

Water level:

too low (81%)

Water quality:

fair (54%) or good (26%)

Change in water quality:

graph

Months algae is a problem:

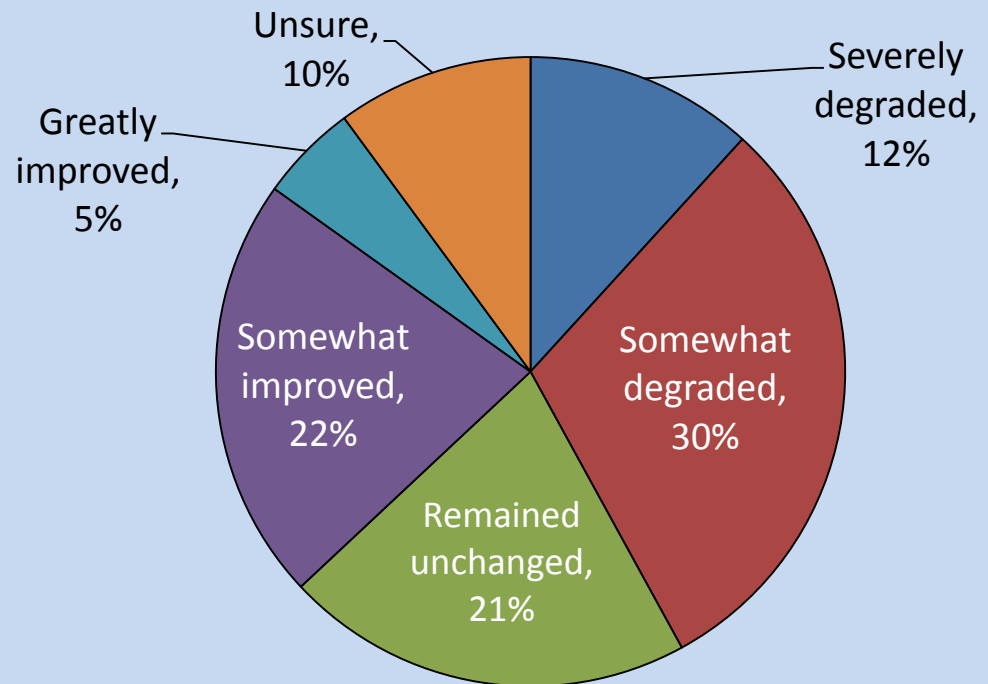
July (66%) and August (88%)

Aquatic plants:

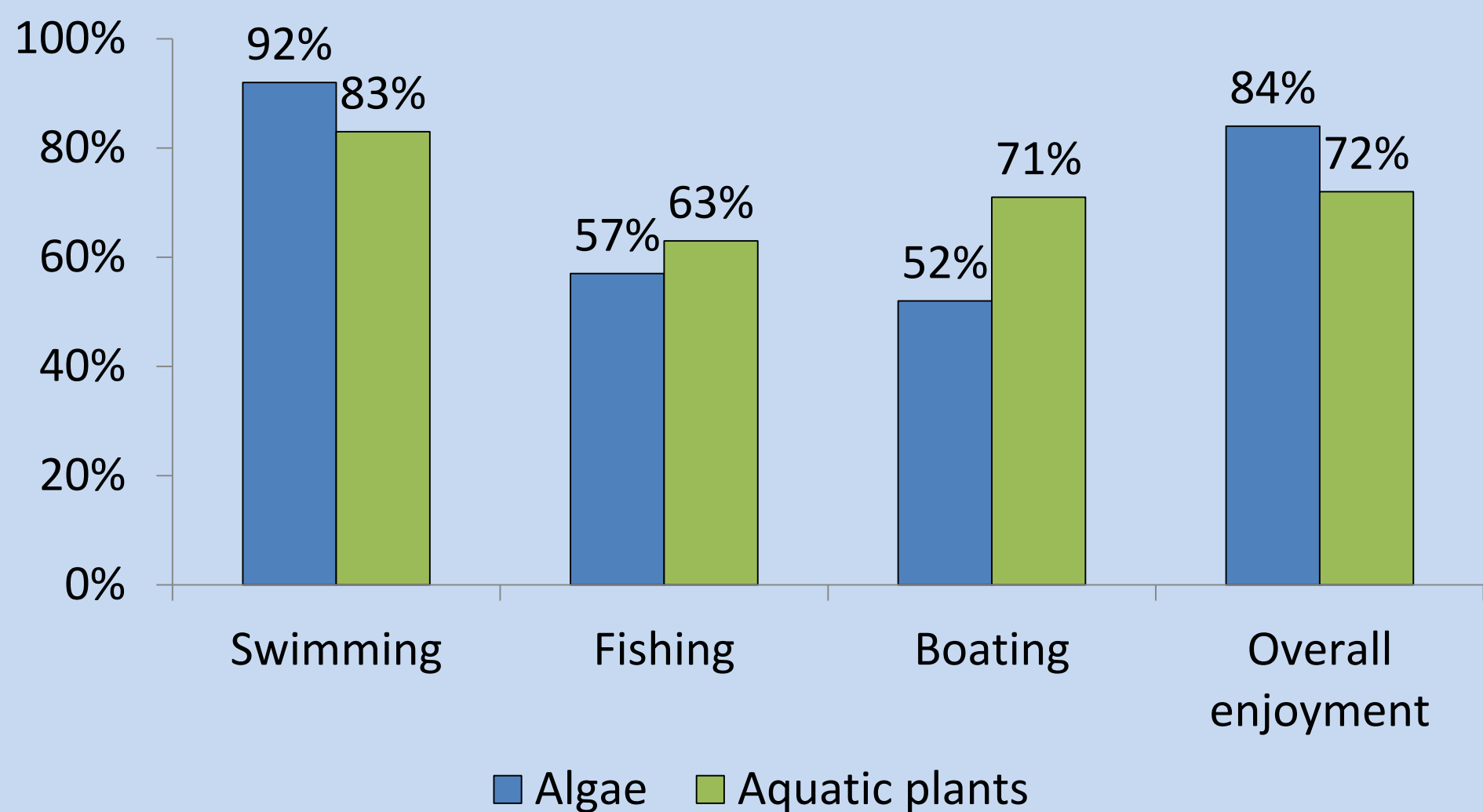
too many (69%) and healthy amount (29%)

Months aquatic plants are a problem:

June (46%), July (74%), and August (67%)



Uses Impaired by Algae and Aquatic Plants



Curly Leaf Pondweed (CLP)

50% of respondents can definitely recognize curly leaf pondweed and another 20% probably can

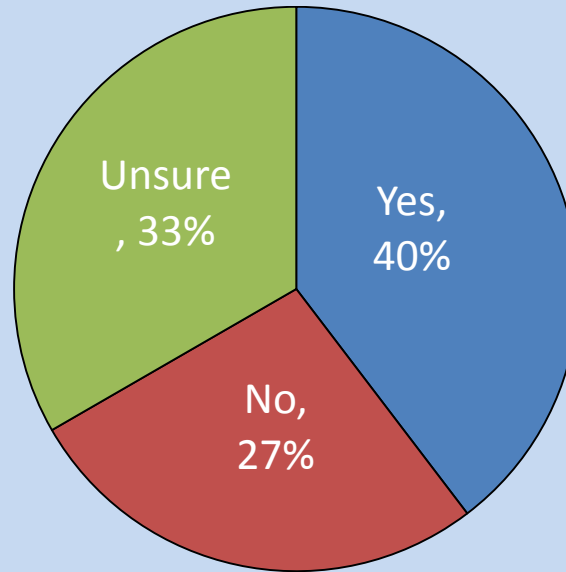


Paul Skawinski, UW-Extension Lakes

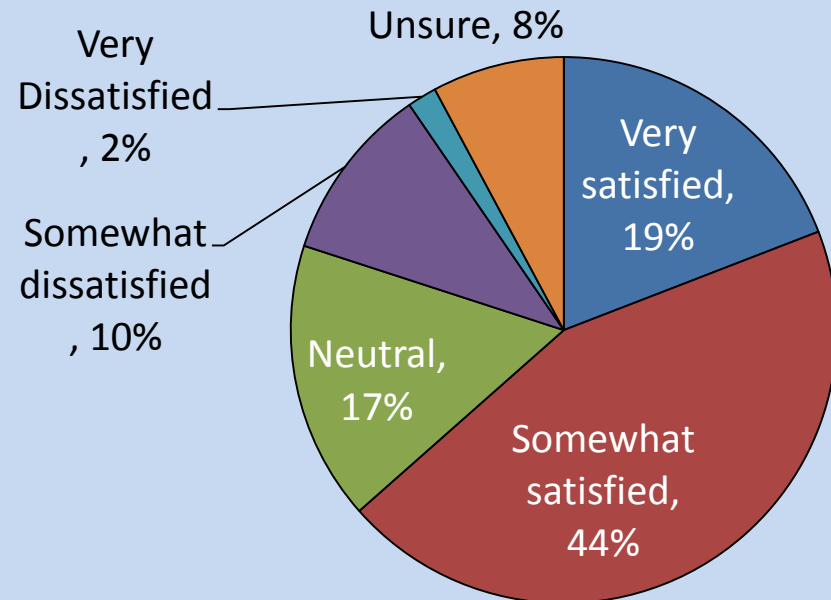


Aquatic Plant Management Program

Is the current program effectively controlling nuisance aquatic plant growth?



How satisfied are property owners with the aquatic plant harvesting program?



Actions to Manage Big Blake Lake

Ranked by priority

Bring the dam up to code: 91%

Programs to prevent and monitor AIS: 89%

Enhance fisheries: 78%

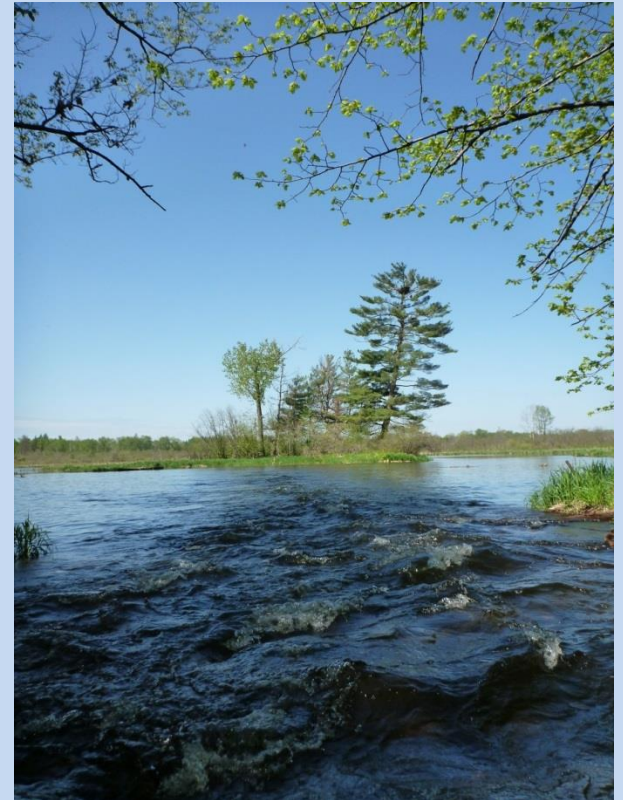
Upgrade non-conforming septic systems:
71%

Install shoreline buffers/rain gardens: 61%

Install farmland conservation practices: 54%

Lake fairs and workshops: 44%

Enforce slow no wake zones: 44%



Actions to Manage Aquatic Invasive Species (AIS)

Ranked by priority

Harvesting CLP: 90%

Monitoring to detect new AIS: 89%

Clean Boats, Clean Waters: 86%

Educational programs: 72%

Trainings to identify and manage AIS: 69%

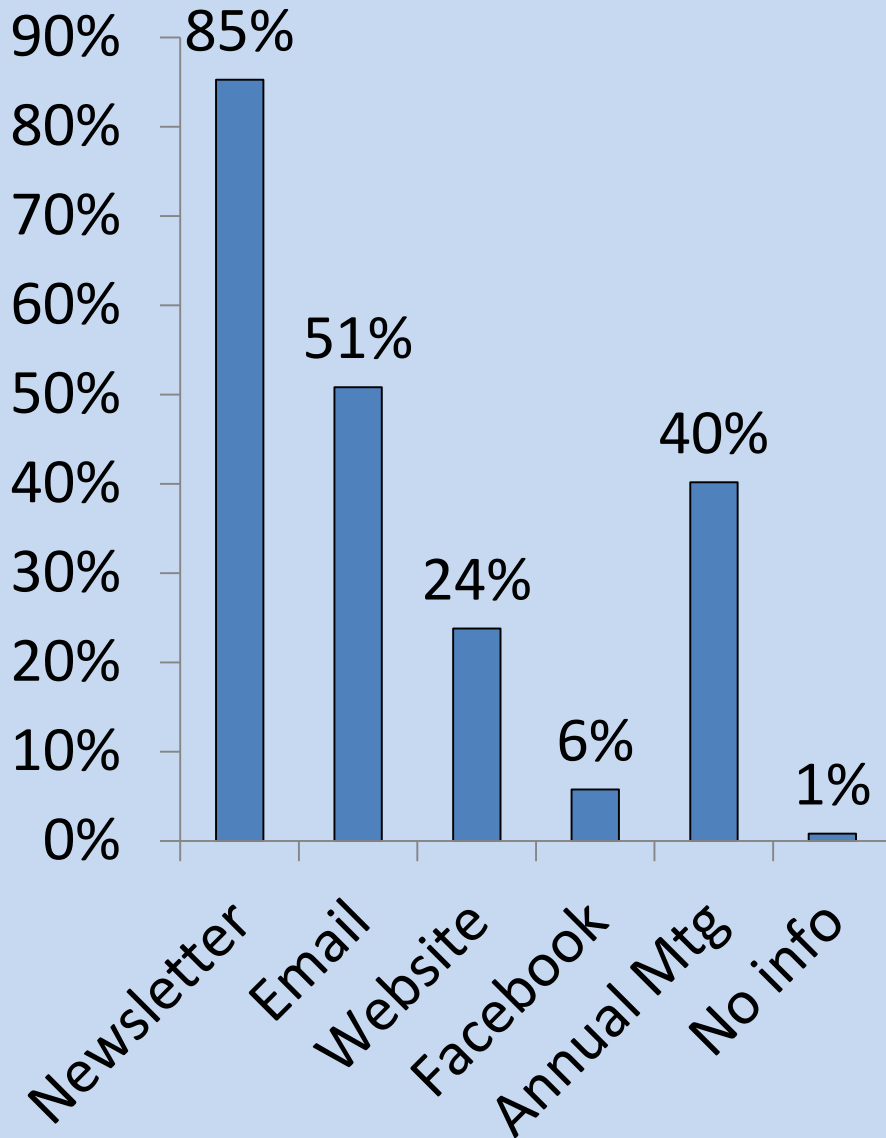
Herbicide control of CLP: 54%

Boat landing cameras: 37%

Boat wash stations: 35%



Communication



SPRING | SUMMER 2015

BLAKE LAKE BUGLE

Save the Dates!

- May 16: Spring Meeting, 9am
- June 6 and 13: CBCW season kickoff training
- June 13: Pontoon Classroom
- July 4: Pontoon Parade, 4pm
- August 15: Annual Meeting, 9am

Invasive Species Prevention
Clean Boats, Clean Waters page 4

County and State Resources for Property Owners
page 5

Spring Meeting Agenda
page 7





Current dam images

UPDATE: Blake Lake Dam Reconstruction

We are actively working on the dam reconstruction project and making progress. Working with the DNR and the Sherrard Family/estate, extra time has been needed to finalize legal agreements to get the project into reconstruction. We are moving as fast as we can while being mindful of the real estate issues inherent with the Sherrard family's recent loss. That being said, we are making progress.

We have been fielding questions in the past couple of weeks regarding the dam project. Yes - there are lots of discussions and rumors flying around, too. Our goal is to bring you up to date on our progress and answer some of the questions you may have. We will have more updates during the Spring Meeting on Saturday, May 16, 9am.

Questions & Answers

Q: How will the costs for the dam reconstruction at \$100,000-\$150,000 be assessed to members?

A: After careful consideration of the will of the District members who weighed in at the 2014 Annual Meeting, the value of the Sherrard Family deeded land to reconstruct the dam, and the loan terms offered by the BCPL State Trust Fund Loan Program, the Board has resolved that the dam may be assessed as follows:

\$100,000 Dam reconstruction cost @ 3% interest rate*
 Riparians: \$111.50 per year x 5 yrs = \$557.50
 Non-Riparians: \$57.10 per year x 5 yrs = 285.50

\$150,000 Dam reconstruction cost @ 3% interest rate*
 Riparians: \$167.25 per year x 5 yrs = \$836.25
 Non-Riparians: \$85.60 per year x 5 yrs = \$428

Continued on page 3

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 FIND US ON FACEBOOK

Half of property owners were unaware of the Facebook page and another third have never visited the page.

Questions?

Thank you!

