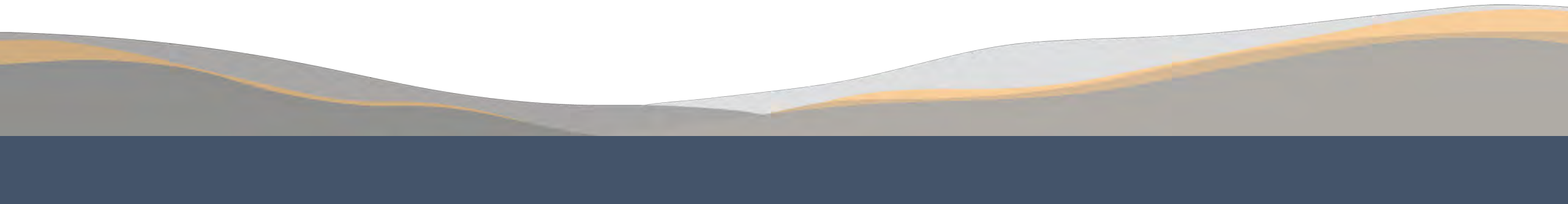




Lake Association Summit

March 21, 2024



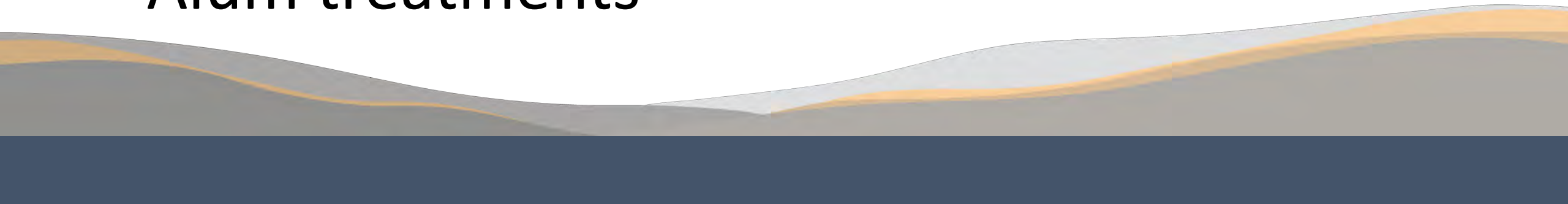
Agenda

- I. Welcome**
- II. RPBCWD projects update**
 - I. 2023 water quality summary**
 - II. Lake shoreland assessment + activity**
- III. Other District updates**
- IV. Updates from lake associations**

Projects Update

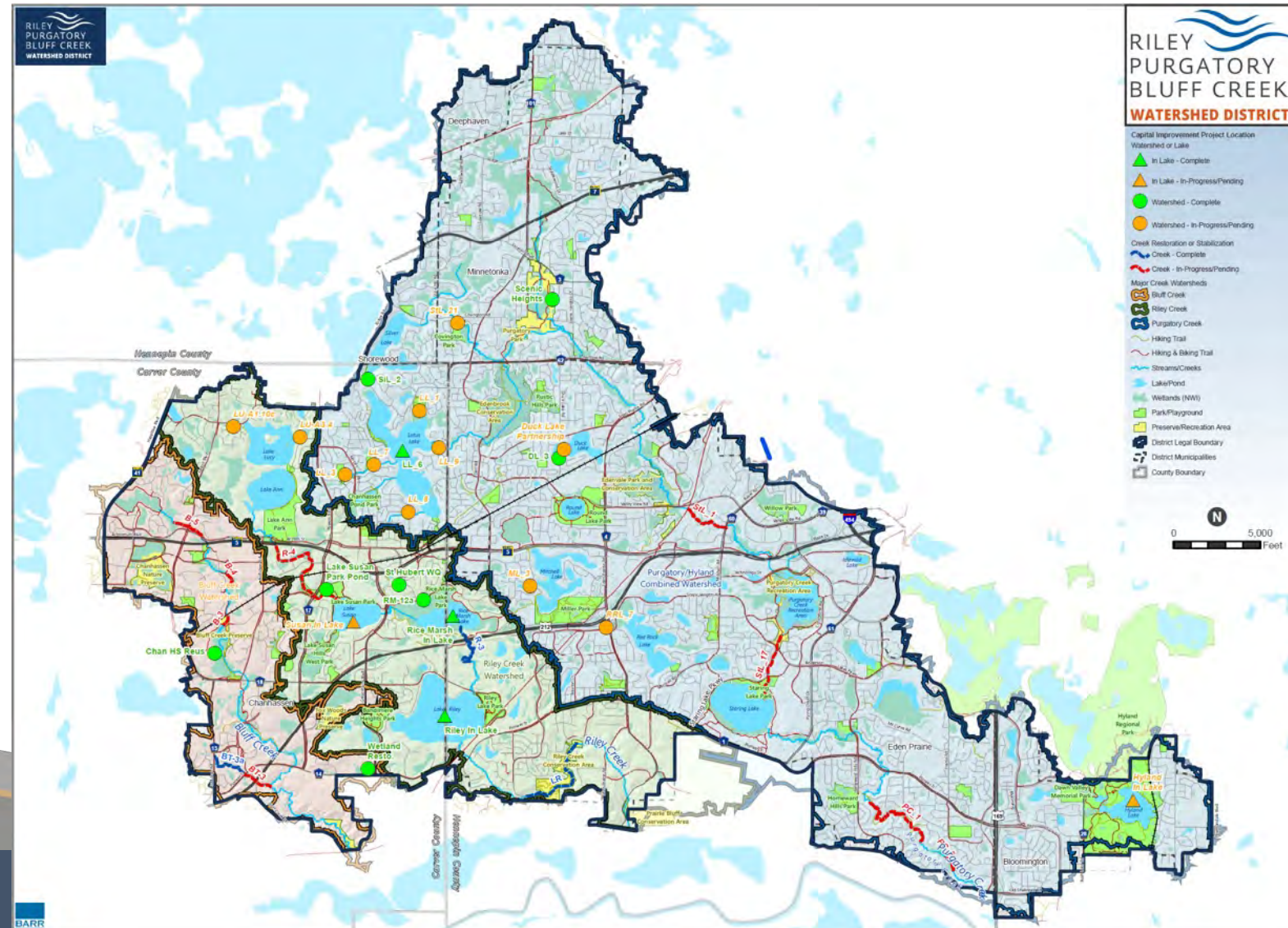
Project Updates

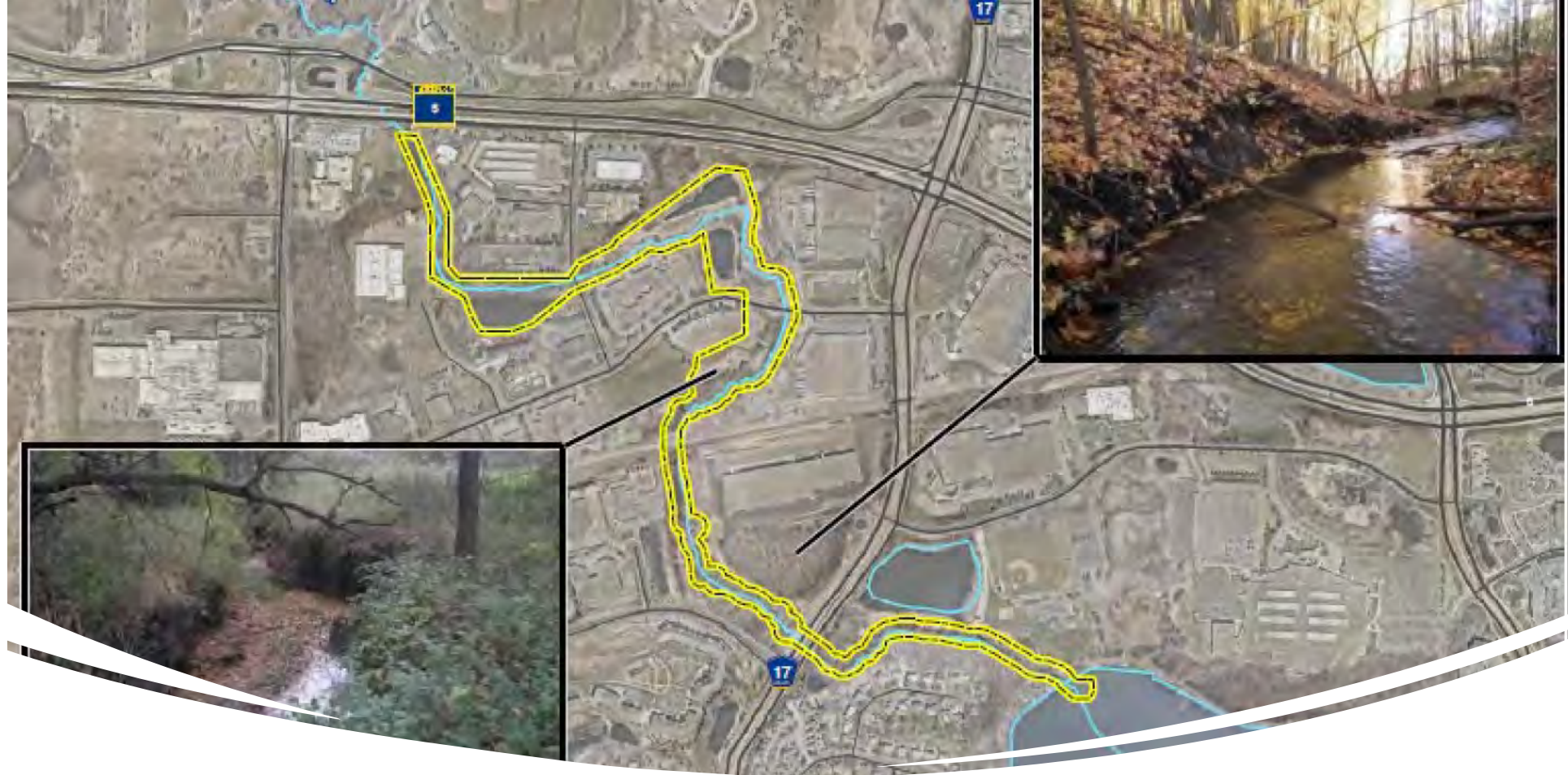
- Capital improvement projects
- Upper Riley Project
- Upper Bluff Project
- Herbicide treatments
- Alum treatments



Project Name		Activ 10 Year Plan Estimate	Total Levy 2018- Current	Total Expenditure 2018-Current
R4- Upper Riley Creek	39	\$ 1,625,000.00	\$ 2,382,677.00	\$ 208,004.00
LU-A1.10c	34	\$ 350,000.00	\$ -	\$ -
LU-A3.4	32	\$ 190,000.00	\$ -	\$ -
Lake Susan Park Pond	34	\$ 80,000.00	\$ 80,000.00	\$ 4,723.00
Susan In-Lake	32	\$ 310,000.00	\$ 142,047.00	\$ -
Riley In-Lake	30	\$ 300,000.00	\$ 309,449.00	\$ 518,665.00
Rice Marsh In-Lake	28	\$ 335,000.00	\$ 262,322.00	\$ 115,458.00
RM_12a	33	\$ 300,000.00	\$ 311,724.00	\$ 575,382.00
R3 - Middle Riley	34	\$ 954,000.00	\$ -	\$ 729,230.00
Lower Riley Crk	39	\$ 700,000.00	\$ 700,000.00	\$ 1,991,002.00
Subtotal		\$ 5,144,000.00	\$ 4,188,219.00	\$ 4,142,464.00
Scenic Heights	NIP	\$ -	\$ -	\$ 212,351.00
Staring Lake StL_21	35	\$ 450,000.00	\$ 450,000.00	\$ -
Lotus Lake LL_6 - In-Lake	32	\$ 690,000.00	\$ 690,000.00	\$ 265,774.00
Silver Lake SiL_2	32	\$ 535,000.00	\$ 535,000.00	\$ 472,435.00
LL Water Quality Improvement (1,3,7,8)	32	\$ 1,304,000.00	\$ 1,689,638.00	\$ 36,907.00
Lotus Lake LL_9	22	\$ 556,000.00	\$ -	\$ -
Duck Lake DL_3	37	\$ 220,000.00	\$ 220,000.00	\$ 194,126.00
Staring Lake StL_1	29	\$ 1,173,000.00	\$ 391,000.00	\$ -
Red Rock Lake RRL_7	28	\$ 441,000.00	\$ -	\$ -
Staring Lake StL_17	29	\$ 550,000.00	\$ 550,000.00	\$ -
Mitchell Lake ML_3	24	\$ 579,000.00	\$ -	\$ -
Hyland In-Lake	32	\$ 320,000.00	\$ 363,701.00	\$ 128,612.00
PC_1	31	\$ 265,000.00	\$ -	\$ 21,984.00
PC_2	31	\$ 185,000.00	\$ -	\$ -
Duck Lake Rd Partnership	NIP	\$ -	\$ -	\$ 705,000.00
Subtotal		\$ 7,268,000.00	\$ 4,889,339.00	\$ 2,037,189.00
BT3A	43	\$ -	\$ -	\$ -
BT3	39	\$ -	\$ -	\$ 450,287.00
B4	37	\$ 566,000.00	\$ -	\$ -
B5 - Upper	37	\$ 614,000.00	\$ 773,543.00	\$ 39,856.00
B3	39	\$ 1,476,000.00	\$ -	\$ -
Wetland Resto.	39	\$ 350,000.00	\$ 350,000.00	\$ 748,509.00
Chan HS Ruse	31	\$ 75,000.00	\$ 75,000.00	\$ -
Subtotal		\$ 3,081,000.00	\$ 1,198,543.00	\$ 1,238,652.00
Total		\$ 15,493,000.00	\$ 10,276,101.00	\$ 7,418,305.00

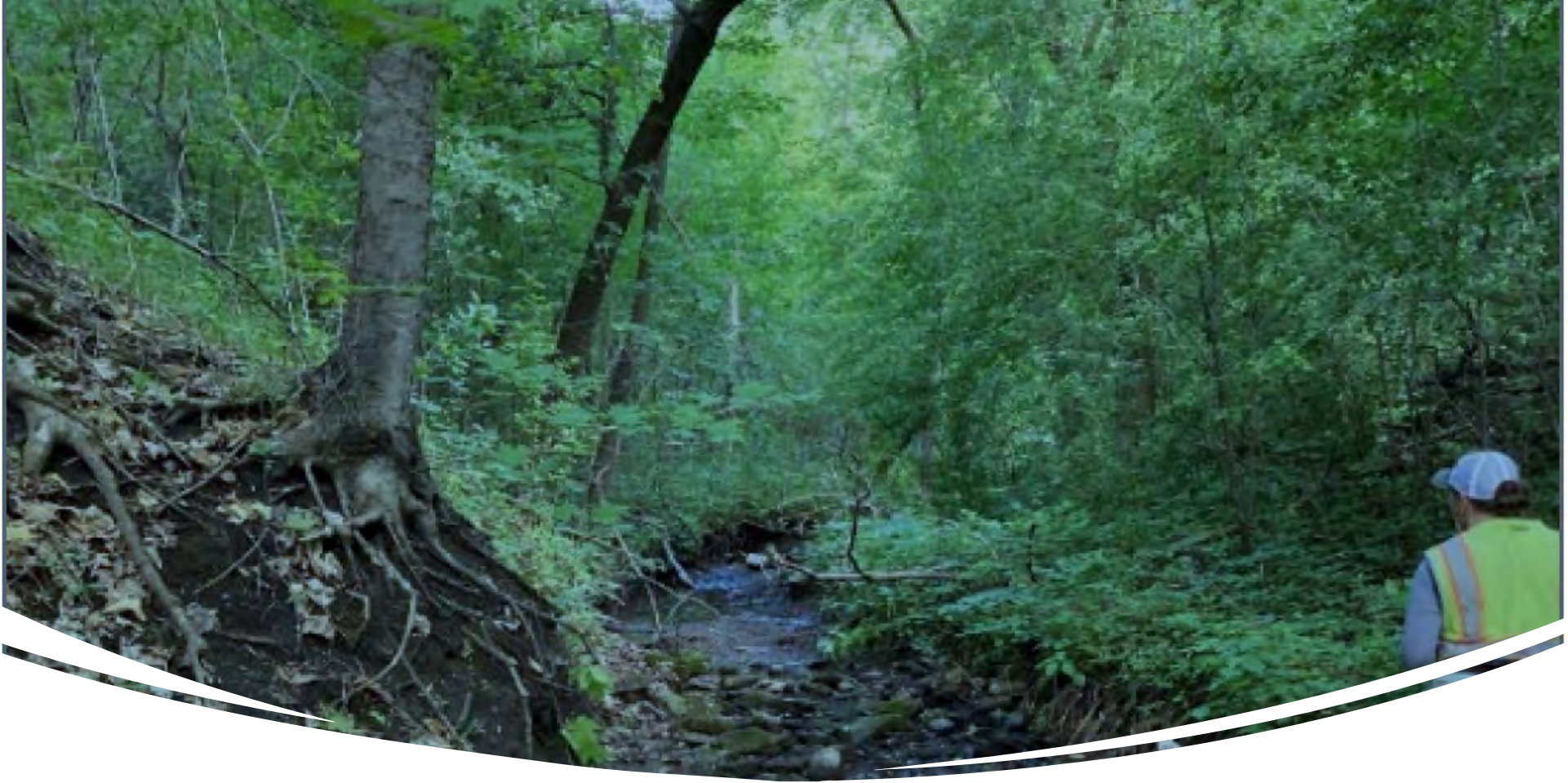
WATERSHED	PROJECTS SCORING 30+	PROJECTS COMPLETED	PROJECTS IN PROCESS	PROJECTS LACKING RIGHTS	CAPITAL EXPENDITURE	LBS TP REMOVED	LBS TSS REMOVED
Riley	9	5	1	2	\$ 4,124,464.00	1,360	2,213,180
Purgatory	8	5	2	1	\$ 2,037,089.00	7	
Bluff	7	3	1	0	\$ 1,238,652.00	276	406,873





Upper Riley Creek

- 250 LBS TP
- 470,000 LBS TSS



Upper Bluff Creek

- 69 LPS TP
- 68,455 TSS

Projected Herbicide Treatments

Treatments are overestimated to provide flexibility.

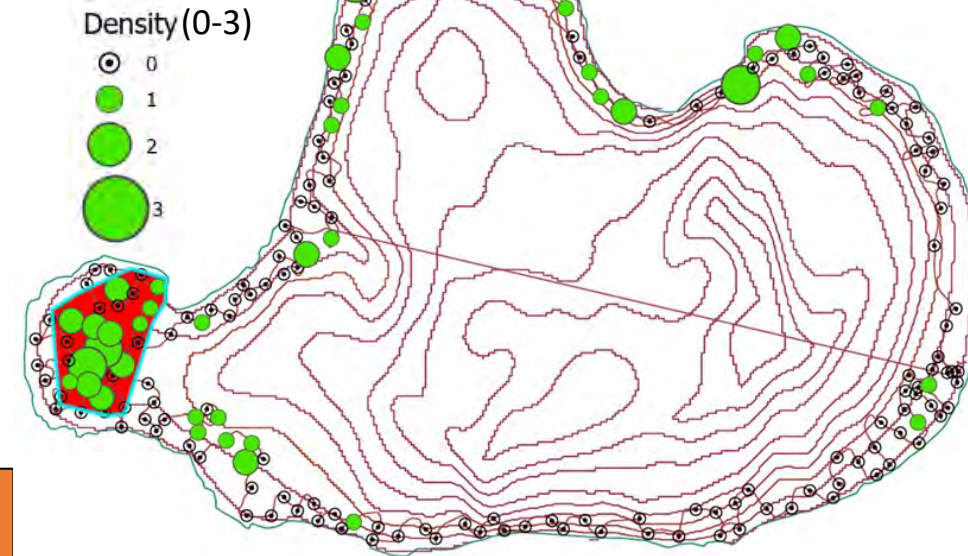
Treatments based on:

- Percent Occurrence of Invasive
- PI Surveys
- Spring Delineation
- Historical Treatment

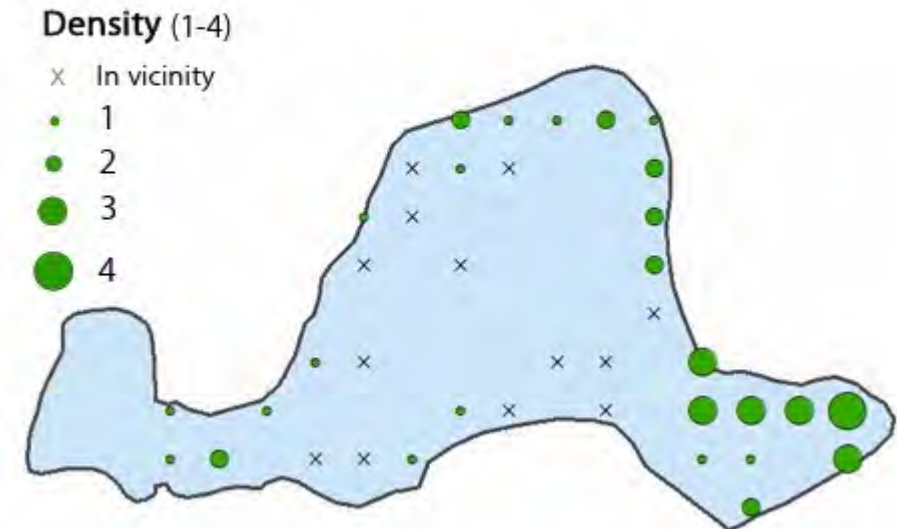
rpbcwd.org/aiscontrol

Lake	Delineation	Herbicide	# of Areas	Total Acres	Avg Depth	Likelihood
Mitchell	CLP	Flumioxazin	2 @ 6.5	13	7.5	Yes
Susan	CLP	Flumioxazin	2 @ 4.3	8.6	6	Yes
Red Rock	CLP	Flumioxazin	1	13	8.3	Yes
Riley	CLP	Diquat	--	20	--	Yes
Staring	CLP	Flumioxazin	2 @ 10	20	4	Unknown
Duck	EWM	Procellacor	1	7	4	Yes
Lotus	EWM	Fluridone	whole	245	10.2	Yes

Curly-leaf Pondweed

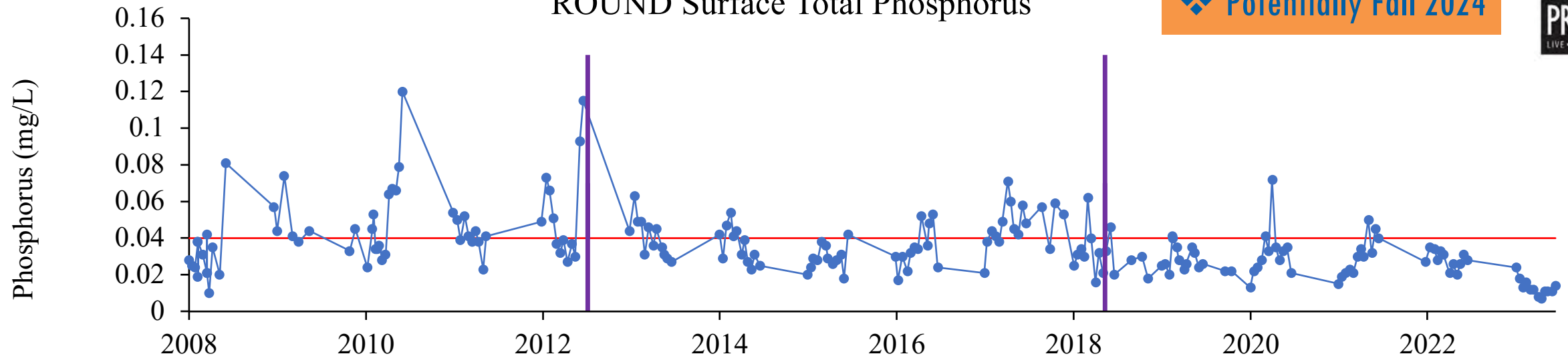


Eurasian Watermilfoil

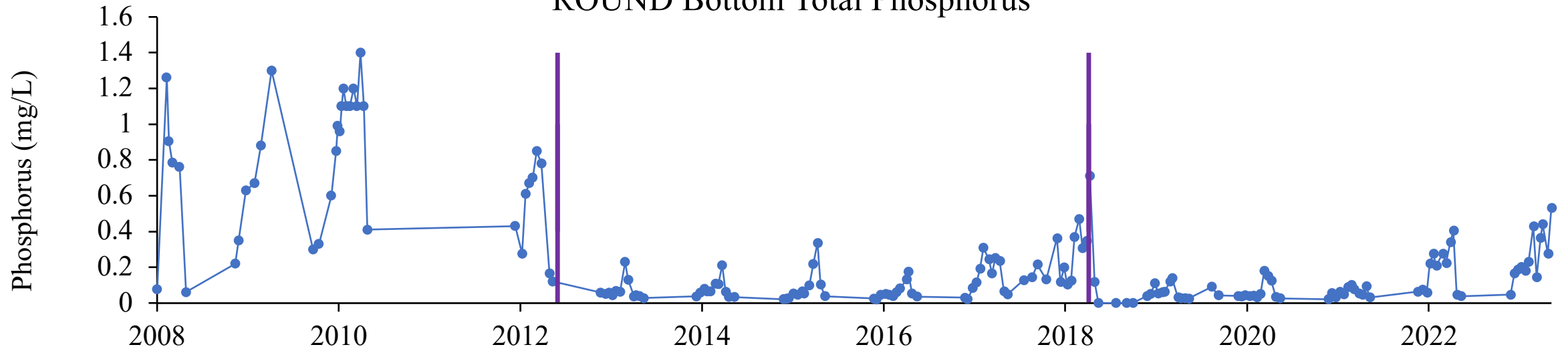


Round Lake Alum Treatment

ROUND Surface Total Phosphorus

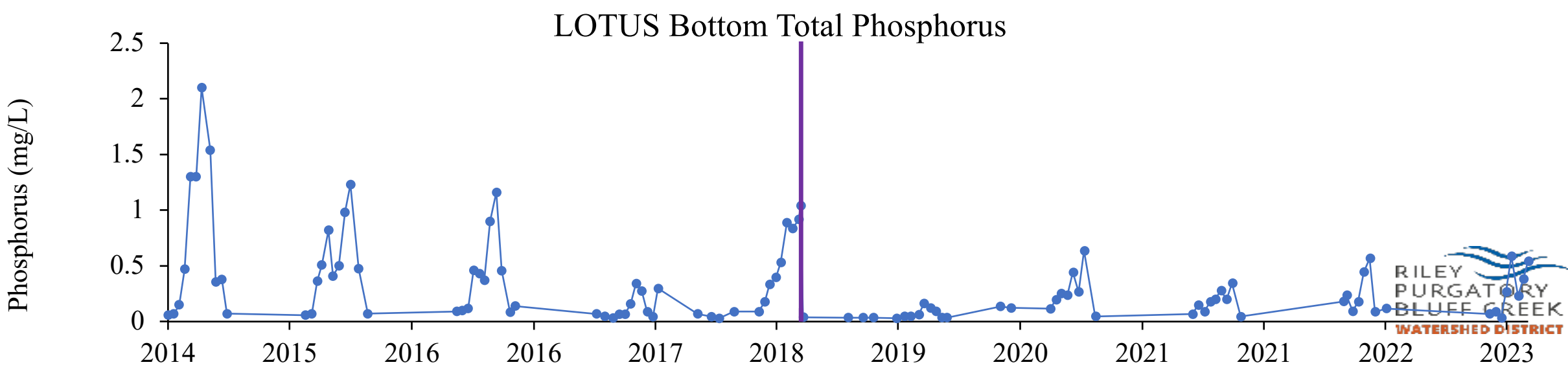
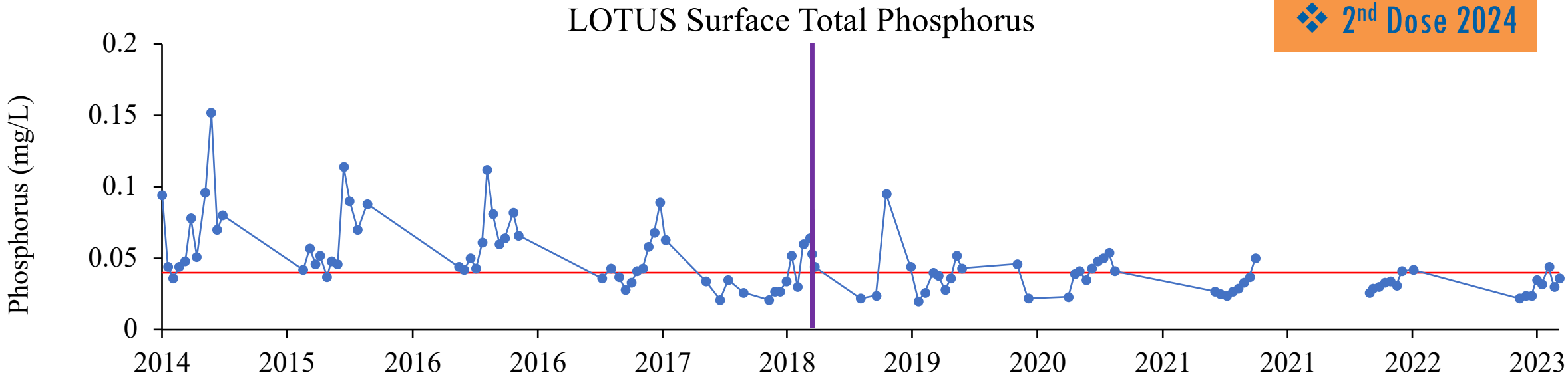


ROUND Bottom Total Phosphorus



Lotus Lake Alum Treatment

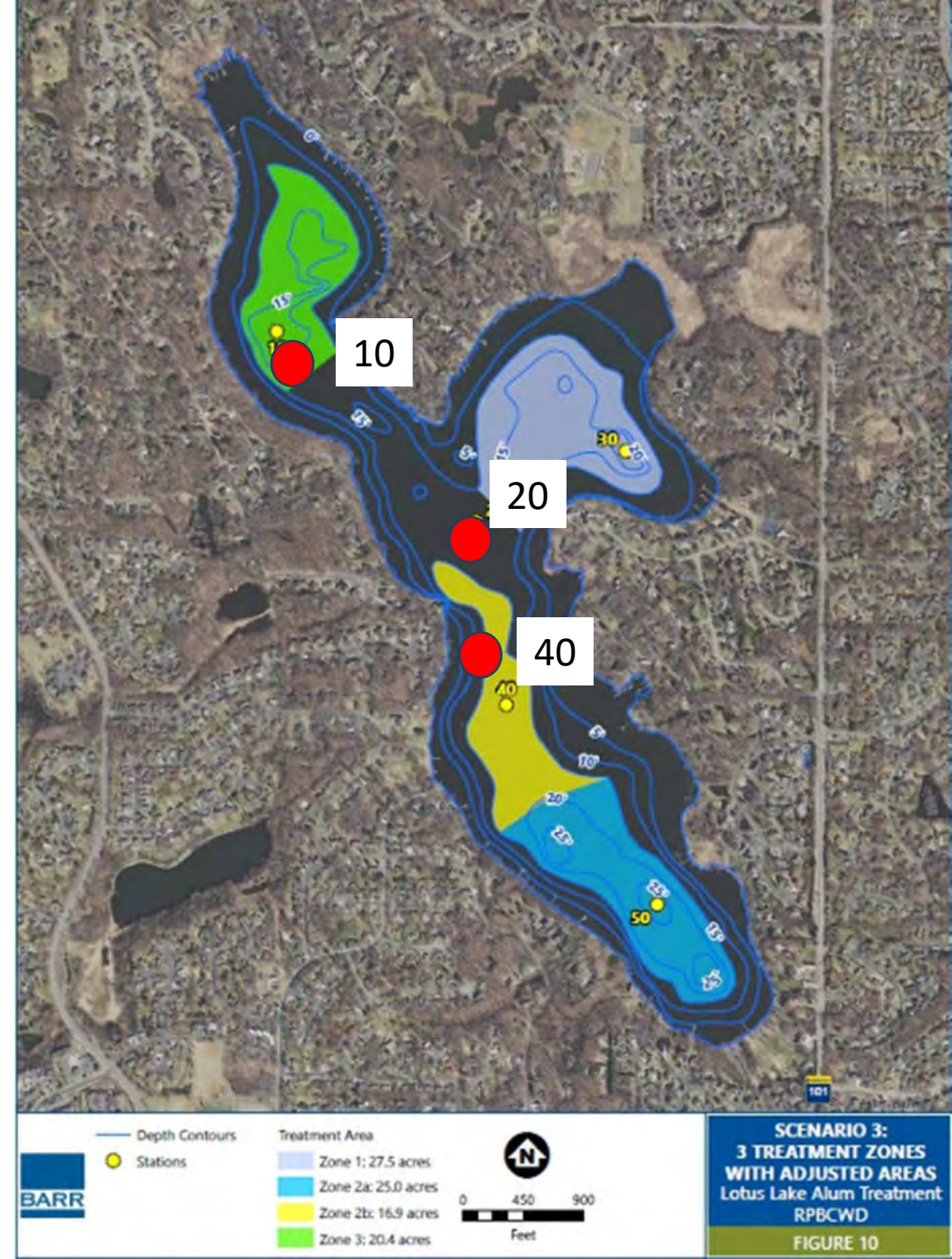
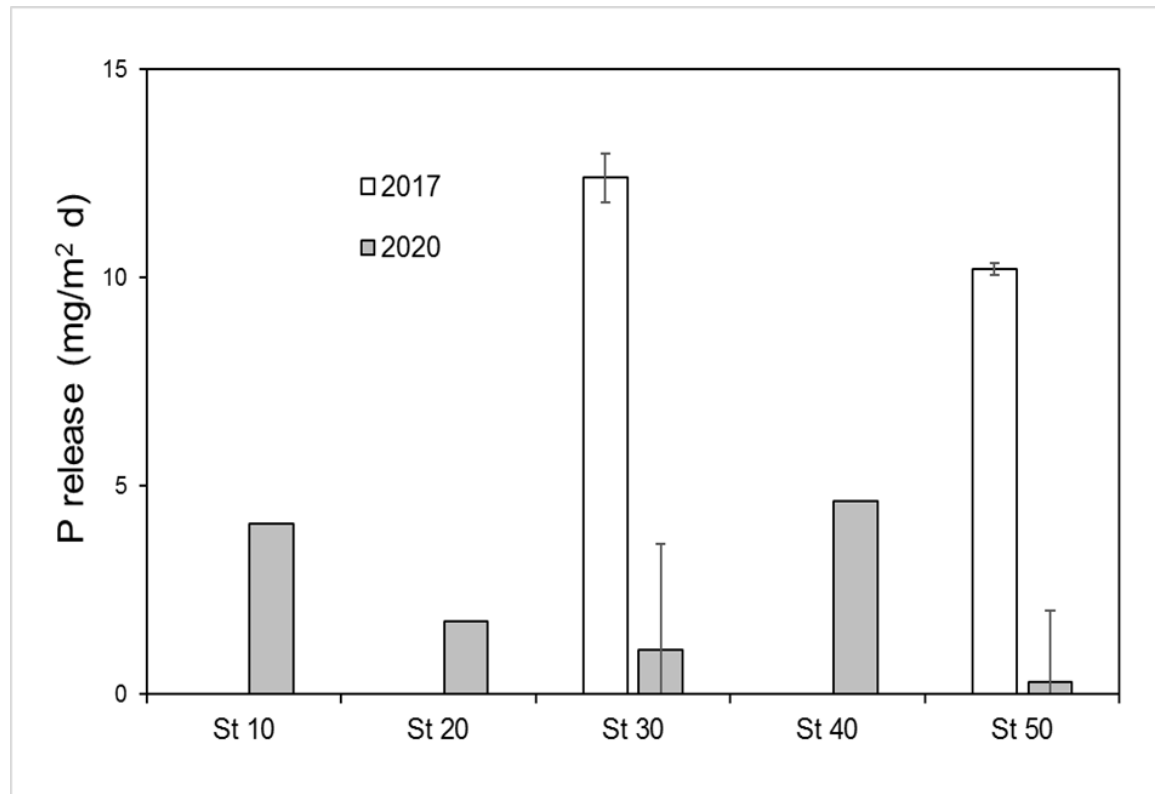
2nd Dose 2024



Contributing Sediments

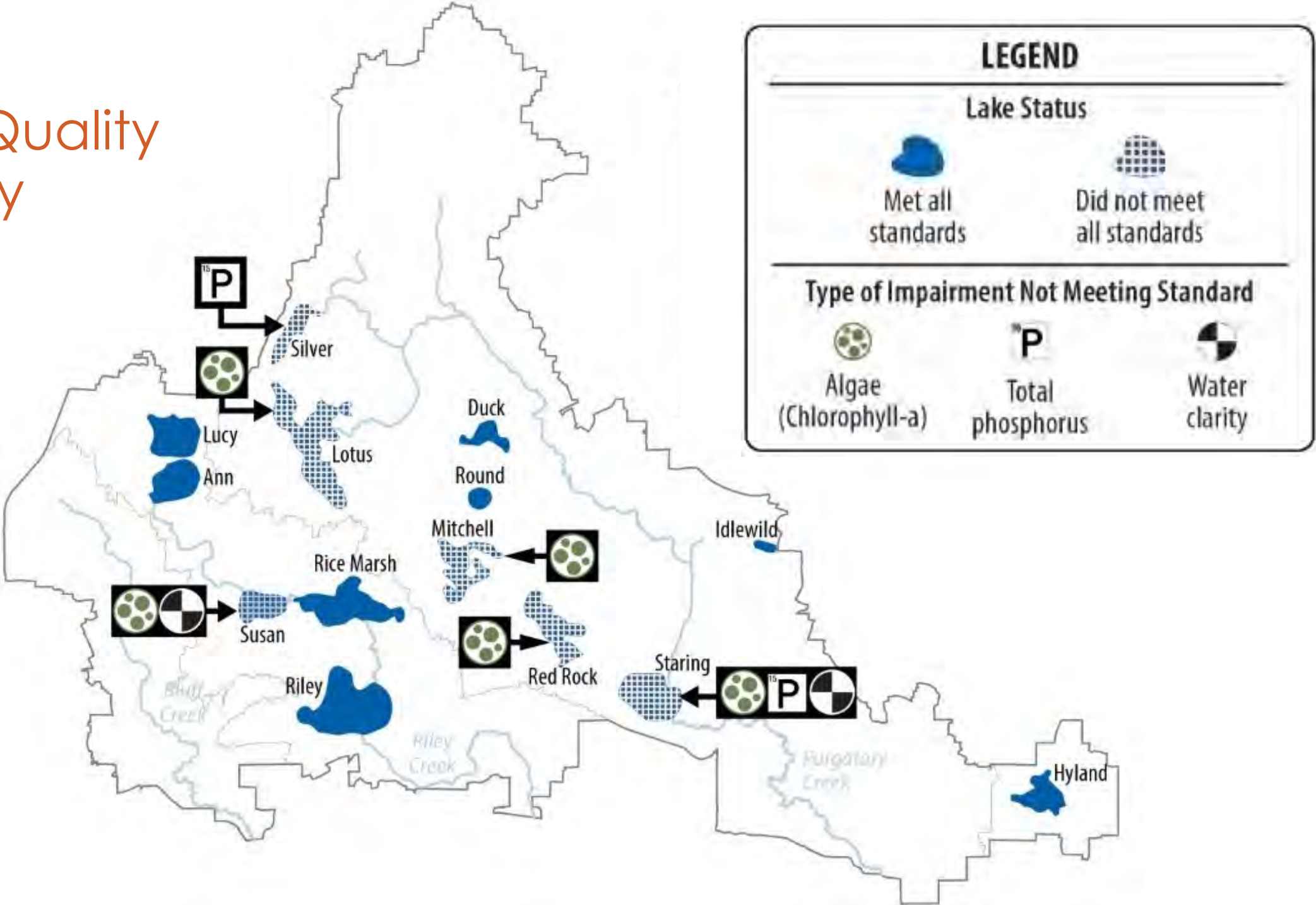
Adjust current alum treatment plan

- Consider shallow area treatment (15ft contours)
- Split remaining treatments



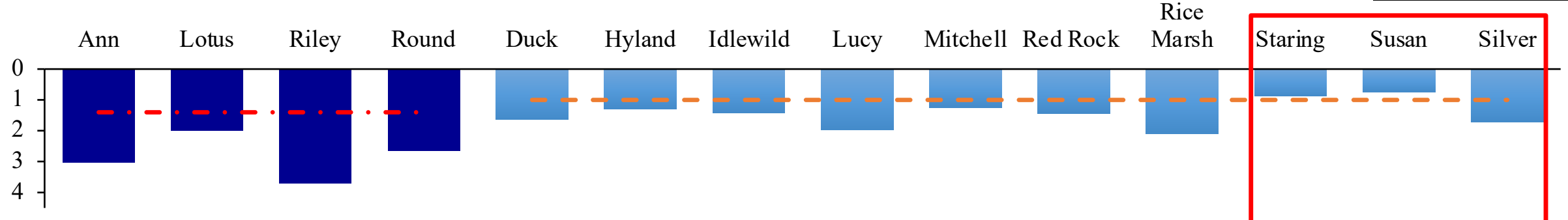
2023 Water Quality Summary

2023 Water Quality Summary



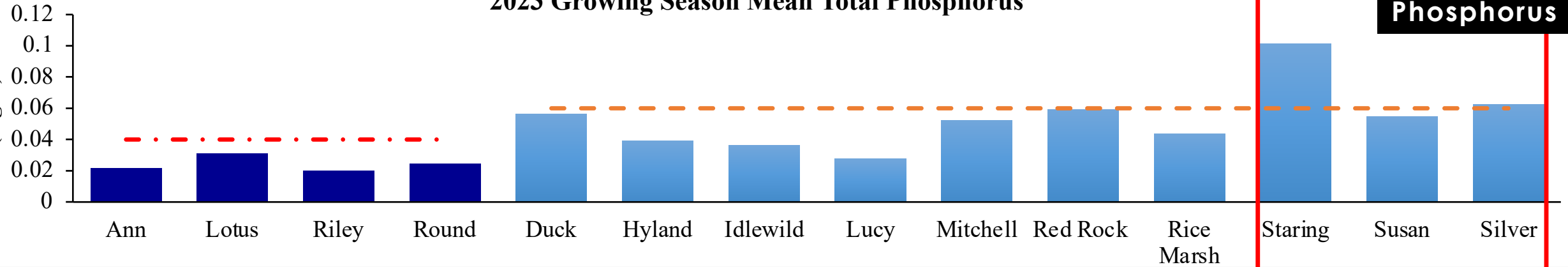
2023 Growing Season Mean Secchi Disk Depth

Secchi Disk Depth (m)



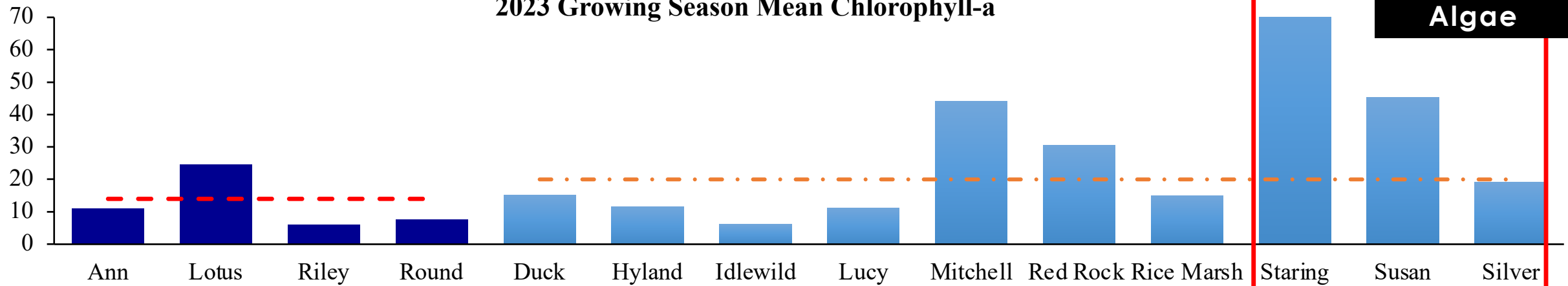
2023 Growing Season Mean Total Phosphorus

Total Phosphorus (mg/L)



2023 Growing Season Mean Chlorophyll-a

Chlorophyll-a (ug/L)



Water Quality Summary

Proposed delisting for Riley & Rice Marsh lakes

Standard for
shallow & deep
lakes

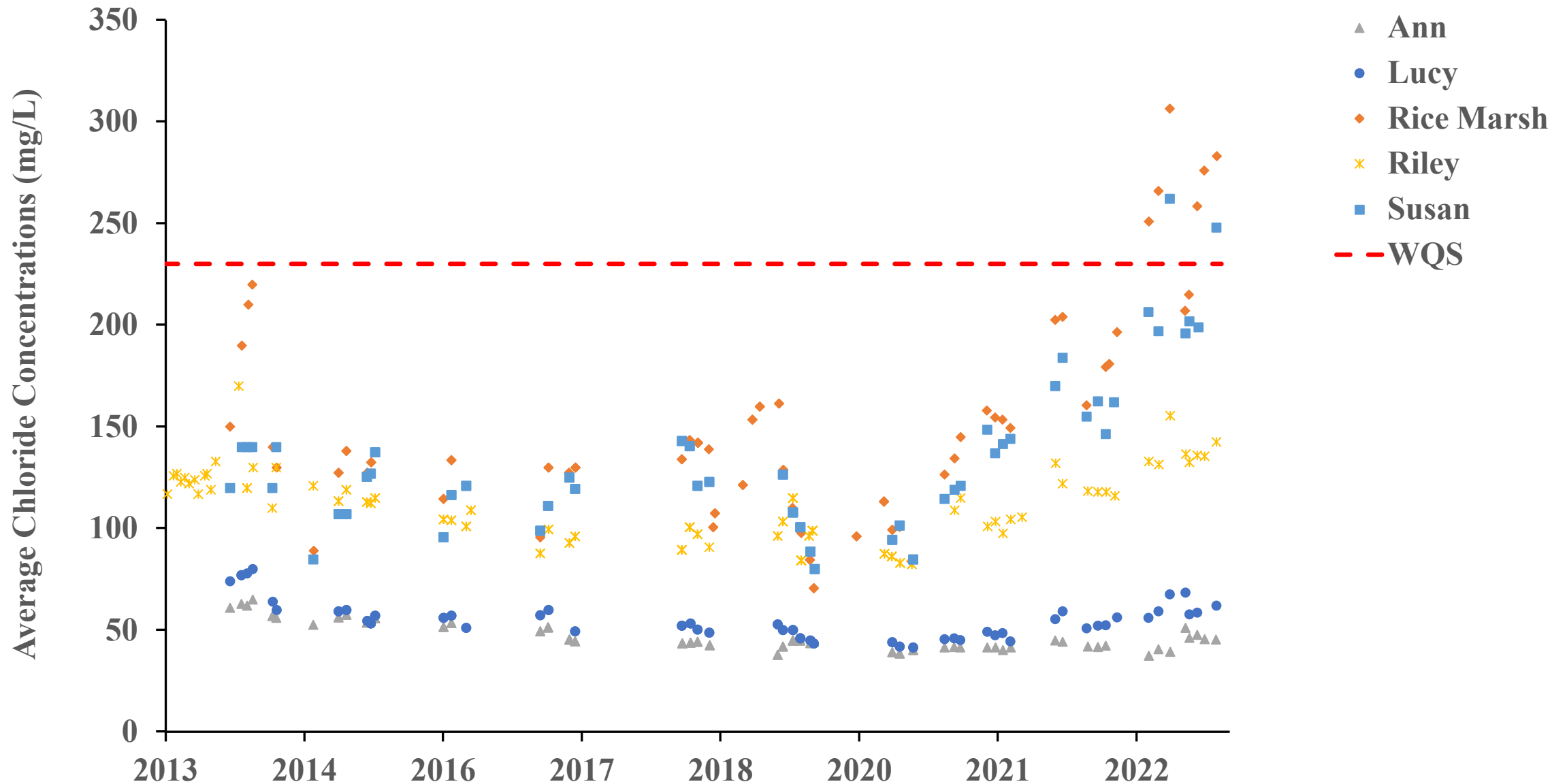


		10 Year Average		MPCA WQS	Units
	Consecutive Years	Growing Season	All Data		
Rice Marsh					
TP	5	0.0639	0.0624	≤ 0.060	mg/L
SECCHI	14	2.10	2.11	>1	ft
CHLA	5	17.45	16.89	≤ 20	ug/L

Riley					
TP	8	0.0280	0.0310	≤ 0.04	mg/L
SECCHI	10	3.21	3.79	>1.4	ft
CHLA	6	12.37	11.68	≤ 14	ug/L

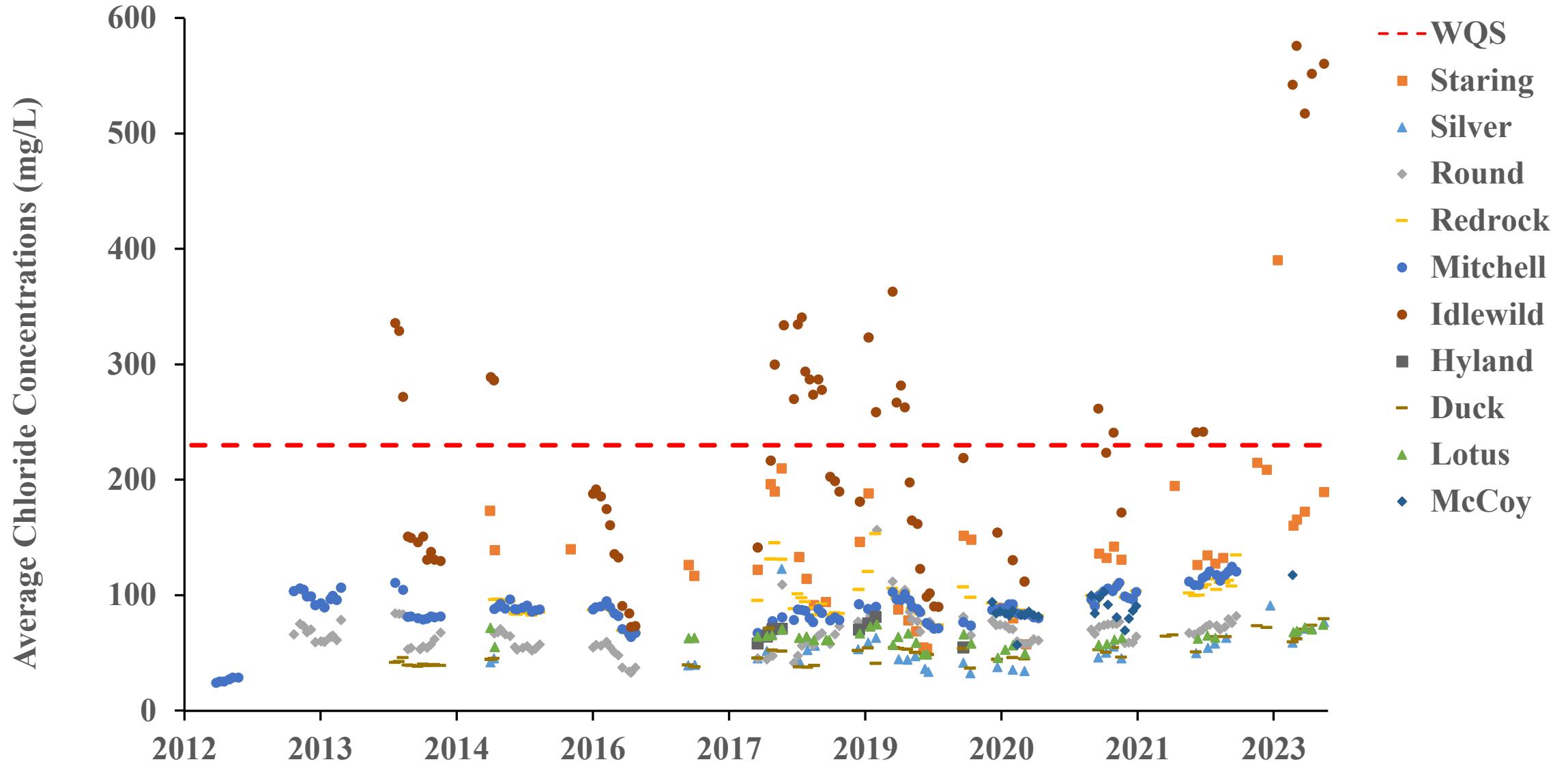
Riley Chain of Lakes - Chloride

Riley Chain of Lakes Average Chloride Concentrations



Purgatory Chain of Lakes - Chloride

Purgatory Chain of Lakes Average Chloride Concentrations



Shoreland Assessment

Shoreland Assessment

Why do a shoreland assessment?

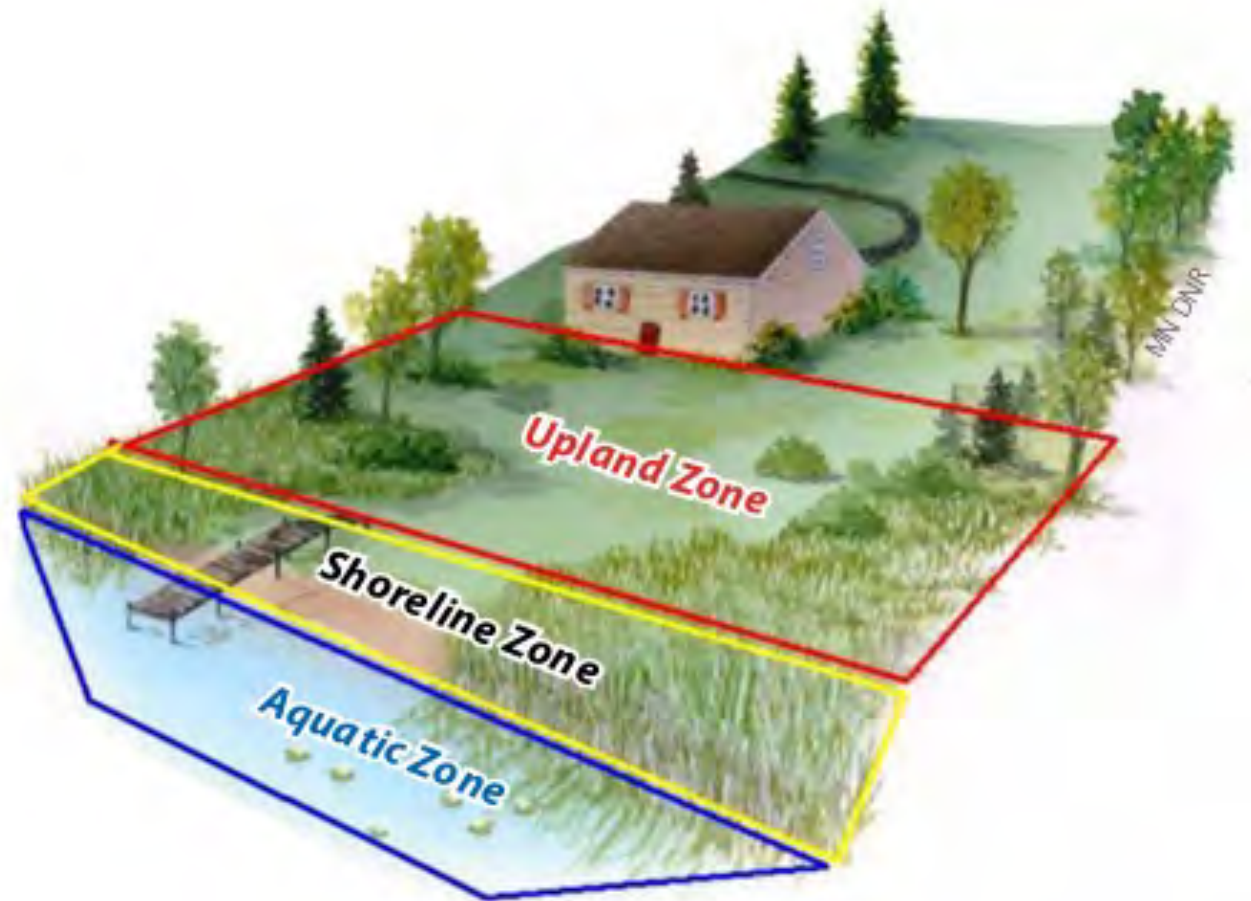
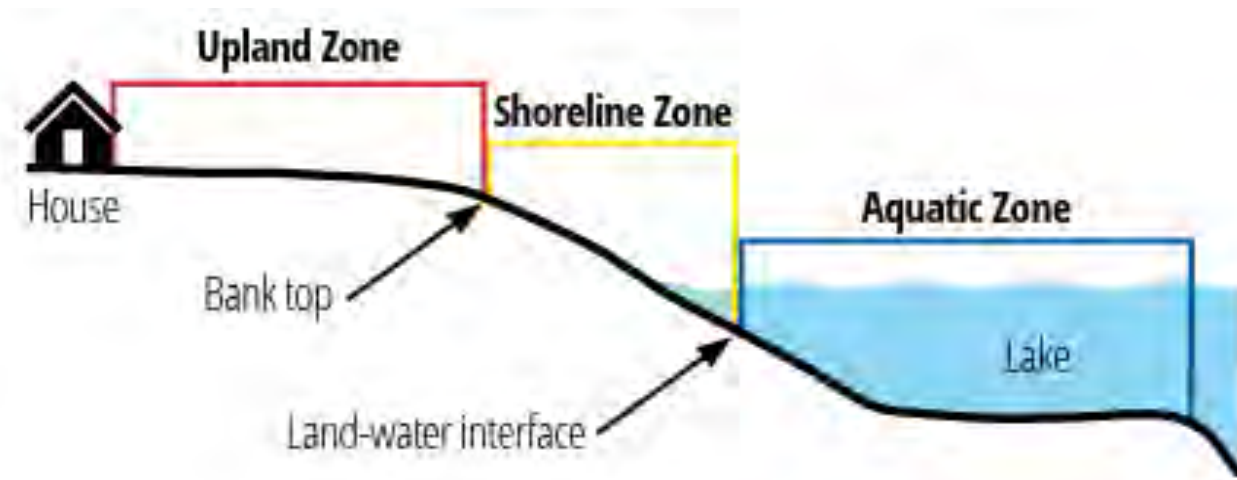
- Lake health can be greatly impacted by shoreland health
- Shorelines are a frequently understated ecosystem component
- Not included in most terrestrial and aquatic assessments
- Important runoff filter and habitat zone
- Heavily altered in the district
- Change in shoreline over time



Shoreland Assessment

What is a shoreland assessment?

- Rapid assessment of shoreland from the water
- Quantity and integrity of lakeshore habitat
- Differences in habitat within and between lakes
- Three metrics assessed within three zones:
Upland, Shoreline, Aquatic
- DNR methodology was modified minimally to fit RPBCWD needs



Shoreland Assessment

Modifications to DNR Methodology

- Scored By Property
- Additional Score for Aquatic Plants
- Different Final Score Scale

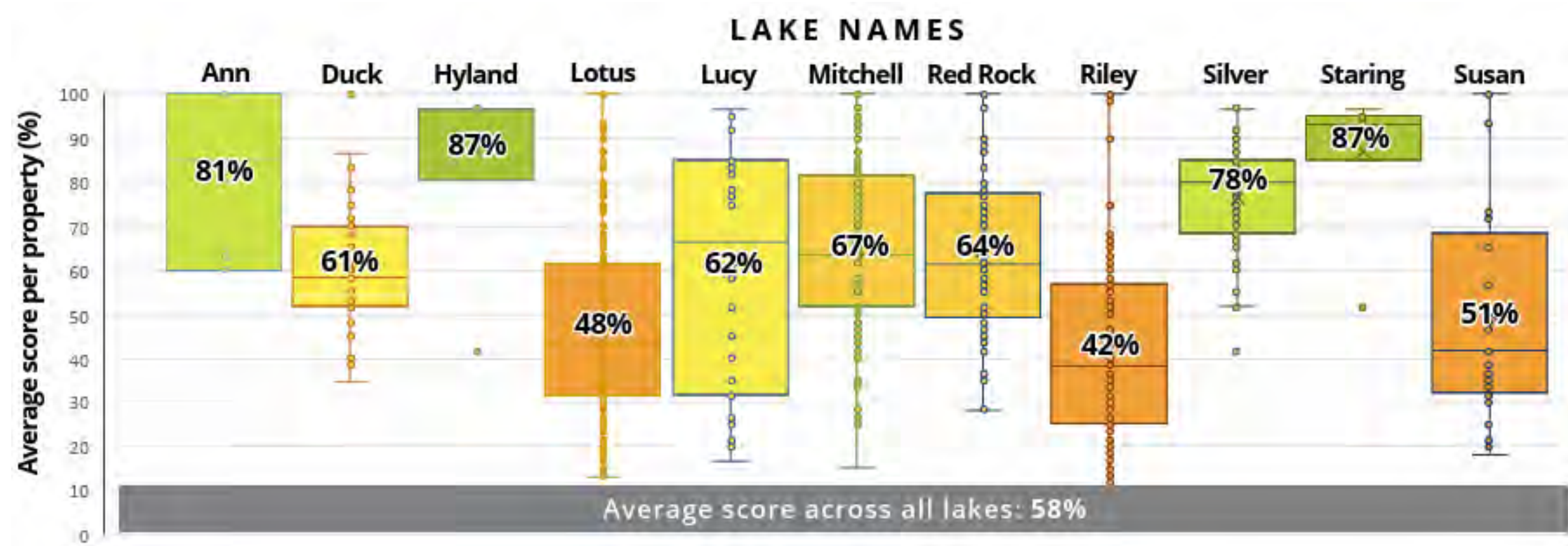


DNR Scoring	District Scoring
Excellent	90-100 HEALTHY
Good	80-90
Fair	70-80
Poor	60-70
	50-60
	40-50
	30-40
	20-30
	10-20
	0-10 DEGRADED

Shoreland Assessment

Results

- Scores By Property



Shoreland Assessment

Results

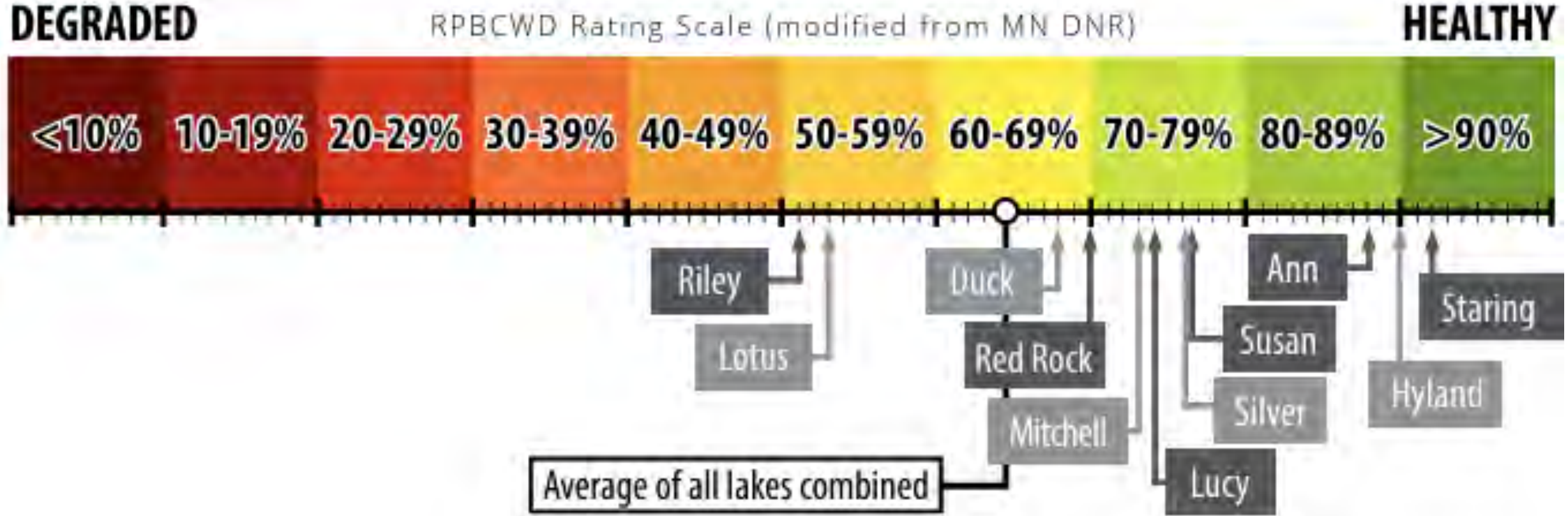
• Weighted Average by Shoreline Length

Lake	Weighted Average of Lake	Average of Property Scores
Staring	91.9	87.1
Hyland	89.9	86.9
Ann	88.2	81.2
Silver	78.6	78.3
Susan	76.6	50.5
Mitchell	72.9	67.2
Red Rock	68.8	64.8
Duck	68.1	61.0
Lucy	67.8	61.6
All Lakes Combined	64.4	58.3
Lotus	52.8	48.1
Riley	51.2	41.9

Shoreland Assessment

Results


- Weighted Average by Shoreline Length



Shoreland Assessment Activity

Assess the property image using the Shoreland Scorecard (each group will be given two images)

1. Begin with the image labeled with your group's name (A, B, C, D)
2. Group reports on the image that matches the group name
3. The staff score for the image will be revealed
4. Staff will discuss how property could improve its score



**RILEY PURGATORY
BLUFF CREEK
WATERSHED DISTRICT**

Shoreland Scorecard

SURVEY LOCATION

UPLAND ZONE - House to lake bank


Feature 1: Percent of frontage with trees						Feature 1 points:
0%	1-24%	25-49%	50-74%	75-100%		
0 points	5 points	10 points	15 points	20 points		
Feature 2: Percent of frontage with shrubs						Feature 2 points:
0%	1-24%	25-49%	50-74%	75-100%		
0 points	5 points	10 points	15 points	20 points		
Feature 3: Percent of frontage with natural ground cover						Feature 3 points:
0%	1-24%	25-49%	50-74%	75-100%		
0 points	2.5 points	5 points	7.5 points	10 points		

SHORELINE ZONE - Lake bank to waterline

Feature 4: Percent of frontage with trees, shrubs, and/or wetland						Feature 4 points:
0%	1-24%	25-49%	50-74%	75-100%		
0 points	5 points	10 points	15 points	20 points		
Feature 5: Percent of frontage with natural ground cover or wetland						Feature 5 points:
0%	1-24%	25-49%	50-74%	75-100%		
0 points	5 points	10 points	15 points	20 points		
Feature 6: Overhead woody habitat						Feature 6 points:
0% (none)			1-100% (any)			
0 points			10 points			

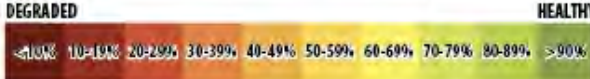
AQUATIC ZONE - Waterline to 50 feet into the water

Feature 7: Human-made openings in plant beds				Feature 7 points:	
Significant amount of plant bed cleared (25% or more plants removed)		Minimal clearing of plant bed (path for watercraft and/or small dockside clearing)			
0 points		10 points			
		None		20 points	
Feature 8: Downed woody habitat				Feature 8 points:	
No		Yes			
0		10			
Feature 9: Structure					Feature 9 points:
1+ marina (commercial or multi-dwelling use)	1+ docks (simple or complex) and 3+ lifts	1+ docks (simple or complex) and 0-2 lifts	1+ simple docks; no lifts	No docks; no lifts	
0	5	10	15	20	



TOTAL POINTS	
Maximum points available	150
SCORE (divide Total by Maximum)	%

DEGRADED
HEALTHY





A

GROUP REPORT

Shoreland Score

UPLAND

- Trees
- Shrubs
- Natural ground cover

SHORELINE

- Trees, shrubs, and/or wetland
- Natural ground cover/wetland
- Overhead woody habitat

AQUATIC

- Plant beds
- Downed woody habitat
- Docks

A

Shoreland Score

UPLAND

- Trees
- Shrubs
- Natural ground cover

SHORELINE

- Trees, shrubs, and/or wetland
- Natural ground cover/wetland
- Overhead woody habitat

AQUATIC

- Plant beds
- Downed woody habitat
- Docks

How to improve?

STAFF SCORE

38%

DEGRADED

HEALTHY

<10% 10-19% 20-29% 30-39% 40-49% 50-59% 60-69% 70-79% 80-89% >90%

B

GROUP REPORT

Shoreland Score

UPLAND

- Trees
- Shrubs
- Natural ground cover

SHORELINE

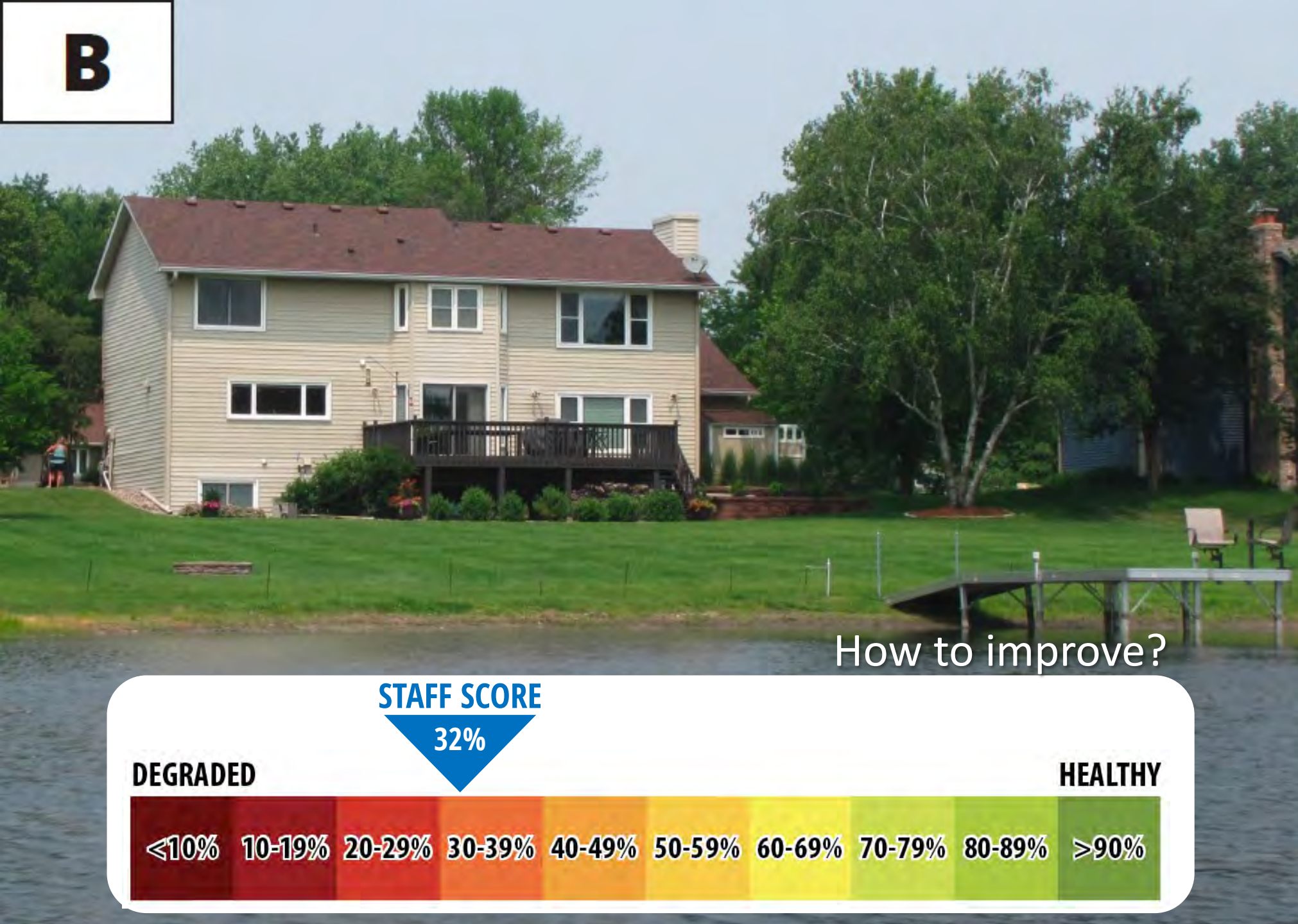
- Trees, shrubs, and/or wetland
- Natural ground cover/wetland
- Overhead woody habitat

AQUATIC

- Plant beds
- Downed woody habitat
- Docks



B



Shoreland Score

UPLAND

- Trees
- Shrubs
- Natural ground cover

SHORELINE

- Trees, shrubs, and/or wetland
- Natural ground cover/wetland
- Overhead woody habitat

AQUATIC

- Plant beds
- Downed woody habitat
- Docks

How to improve?

STAFF SCORE

32%

DEGRADED

HEALTHY

<10% 10-19% 20-29% 30-39% 40-49% 50-59% 60-69% 70-79% 80-89% >90%



C

GROUP REPORT

Shoreland Score

UPLAND

- Trees
- Shrubs
- Natural ground cover

SHORELINE

- Trees, shrubs, and/or wetland
- Natural ground cover/wetland
- Overhead woody habitat

AQUATIC

- Plant beds
- Downed woody habitat
- Docks

C

Shoreland Score

UPLAND

- Trees
- Shrubs
- Natural ground cover

SHORELINE

- Trees, shrubs, and/or wetland
- Natural ground cover/wetland
- Overhead woody habitat

AQUATIC

- Plant beds
- Downed woody habitat
- Docks

How to improve?

STAFF SCORE

88%

DEGRADED

HEALTHY

<10% 10-19% 20-29% 30-39% 40-49% 50-59% 60-69% 70-79% 80-89% >90%

D

GROUP REPORT

Shoreland Score

UPLAND

- Trees
- Shrubs
- Natural ground cover

SHORELINE

- Trees, shrubs, and/or wetland
- Natural ground cover/wetland
- Overhead woody habitat

AQUATIC

- Plant beds
- Downed woody habitat
- Docks



D

Shoreland Score

UPLAND

- Trees
- Shrubs
- Natural ground cover

SHORELINE

- Trees, shrubs, and/or wetland
- Natural ground cover/wetland
- Overhead woody habitat

AQUATIC

- Plant beds
- Downed woody habitat
- Docks

How to improve?

STAFF SCORE

55%

DEGRADED

HEALTHY

<10% 10-19% 20-29% 30-39% 40-49% 50-59% 60-69% 70-79% 80-89% >90%

Shoreland Assessment

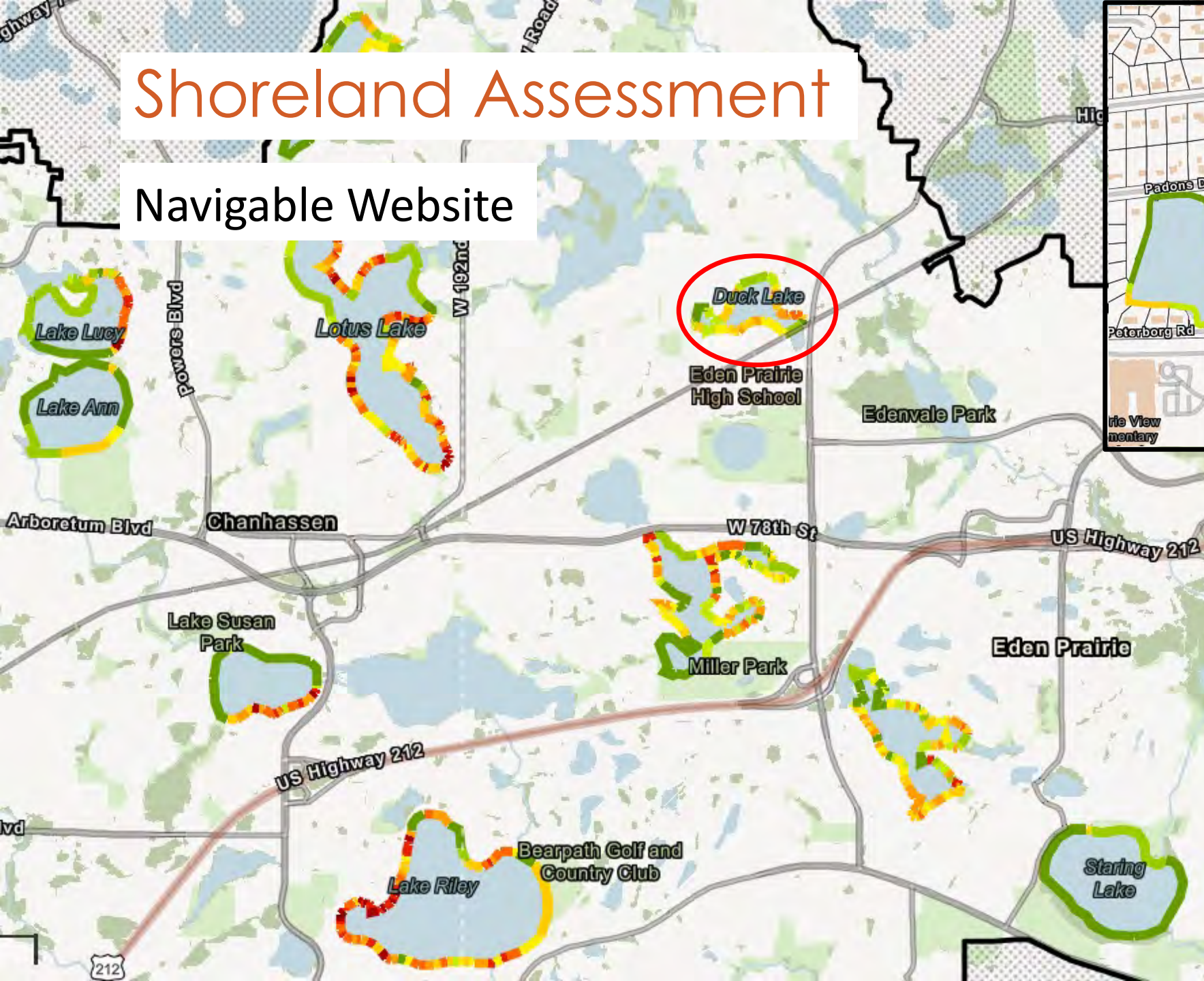
KEEP IN MIND...

- Rapid assessment finer details maybe missed
- Scores can be subjective
- Water clarity can impact plant bed and woody debris score
- Scoring from pictures leads to less accuracy
- Invasive species are not differentiated in scoring
- Each score has a large impact



Shoreland Assessment

Navigable Website



Parcel 053-0511622420002



16691 Duck Lake Trail , Eden
Prairie Minnesota 55346

Upland Score (out of 50) 33

Shoreline Score (out of 50) 35

Aquatic Score (out of 50) 40

Total Score (out of 150) 108

Percent Score 71.67%

Shoreland Assessment: Individual Scores

If you'd like to discuss your score, talk to Josh or Andrew after the meeting or reach out later.

SHORELAND ASSESSMENT – INDIVIDUAL PROPERTY

Lake name		
Address		
Zone feature	Maximum points available	Individual property assessment
UPLAND ZONE		
Tree cover	20	5
Shrub cover	20	5
Natural ground cover	10	2.5
Upland Zone points	50	12.5
SHORELINE ZONE		
Tree, shrub, and/or wetland cover	20	5
Natural ground cover or wetland	20	20
Overhead woody habitat	10	0
Shoreline Zone points	50	25
AQUATIC ZONE		
Human-made openings in plant bed	20	20
Downed woody habitat	10	0
Structure (docks)	20	15
Aquatic Zone points	50	35
TOTAL POINTS (150 is maximum available)		72.5
OVERALL SCORE		48.33333333 %



Where does **your overall score** fit on the shoreland health scale shown below?

DEGRADED

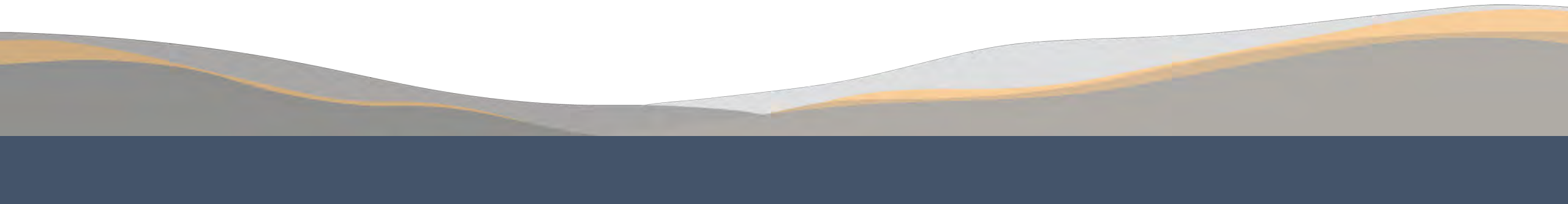
HEALTHY

≤10% 10-19% 20-29% 30-39% 40-49% 50-59% 60-69% 70-79% 80-89% ≥90%

Other Updates

Other District Updates

- Lake shoreland assessment webpage – launching late spring
- Lake resident webpage: **rpbcwd.org/lake-residents**
- Lake notifications: sign up at **rpbcwd.org/newsletter**
- Cost share program – get some \$\$ for a natural shoreline restoration
- Upcoming events – **rpbcwd.org/events**
 - **Creek Week**, multiple activities, May 5-11
 - **STEM on Tap** for educators
 - **Evening with Watershed** – late summer



Adopt a Dock Volunteers needed for Zebra Mussel Monitoring

To sign up, contact Eleanor Mahon,
emahon@rpbcwd.org

Volunteers needed on ALL lakes.

Lakes with most need:

- Duck
- Lotus
- Lucy
- Mitchell
- Red Rock
- Riley (southern shore)
- Silver



rpbcwd.org/adopt-a-dock

Resilient Shorelines Workshop

6 - 8 pm

Thursday, April 25

Eden Prairie Community Center



Blue Thumb workshop
presented by Metro Blooms

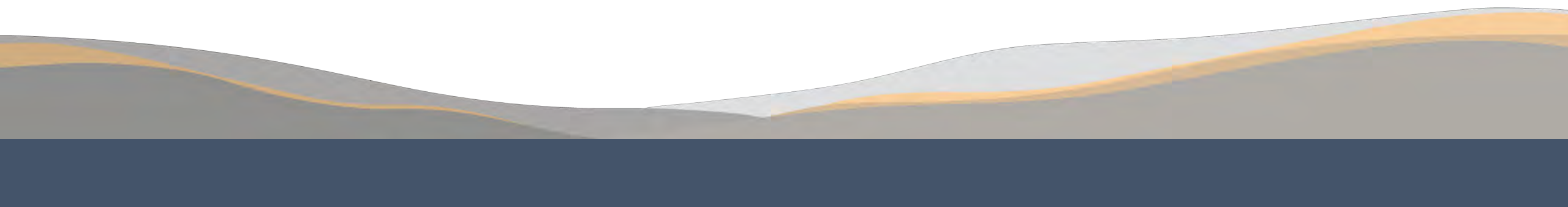
Register: **rpbcwd.org/events**

Fee: **\$15 (\$0 with promo code)**

- Shoreline assessment
- Project types
- Plant selection
- Access to resources to plan your own project!

Updates from Lake Associations

1. Duck Lake Association
2. Friends of Red Rock Lake
3. Lake Lucy Homeowners Association
4. Lake Riley Improvement Association
5. Lotus Lake Conservation Alliance
6. Lotus Lake – Sunrise Hills Civic Association
7. Mitchell Lake Association
8. Friends of Silver Lake



Thank you!

Photo of Lake Lucy shoreline
by Sharon McCotter

