

Lakeshore Management Informational

Tom Langer, tom.langer@cmsc wd.org

Carnelian Marine St. Croix Watershed District

August 22, 2023 Informational with City of
Fifty Lakes




Introduction

- Aquatic Ecologist Education
- >15 year career experience
- Public & Private sectors
- Currently Regulatory and Lakeshore Specialist
- Volunteer Loon Watcher



Lakeshore Management Informational



- Introduction and Overview.
- Waterfront Management: Regulatory, Social, Economic, and Cultural.
 - Connect schematics to actual observations.
 - Connect these trends to Research & Monitoring.
 - Authorities – multiple and overlapping. Reliant on each other. Alignment opportunities.
 - Mgmt. Goal: Fishable Waters, Swimmable Waters, Natural Appearance.
 - Overarching Objectives: Clarity, Consistency, Transparency, & Capacity.
- Approaches to change the culture: Education, Engagement, & Enforcement
 - Handout materials.
- Open discussion.
 - Share experiences. What is City observing? Concerns?
 - City Rules

“Minnesota’s lakes are in trouble and the situation is urgent. Across the state, we have **lost approximately half our natural shorelines on Minnesota lakes.** In some areas, we’ve lost even more and we are losing these shorelines at a fast rate”



Source:

Minnesota’s Vanishing Natural Shorelines: A Loss that Contributes to Degraded Lake Quality

A Summary Report to the Policy Committee of the Clean Water Council April 2022

Waterfront Management

Regulatory, Education, Engagement, & Cultural influences on Waterfronts



Authorities

Shoreland

County, City/TWP,
Watershed,
National Park Service (NPS)

Shoreline

County, City/TWP, DNR
Watershed, NPS

Aquatic

DNR, NPS

Research & Monitoring



What initially drew you to Big Carnelian / Big Marine Lake?

The property is fairly secluded. We love the nature and the bike trails.

We looked for something that felt like a cabin up north.

We were looking for a deep clear lake with good fishing.

Feels like being up north without having to drive so far.

Been fishing on the lake for 25yrs. Finally moved here 5 years ago.

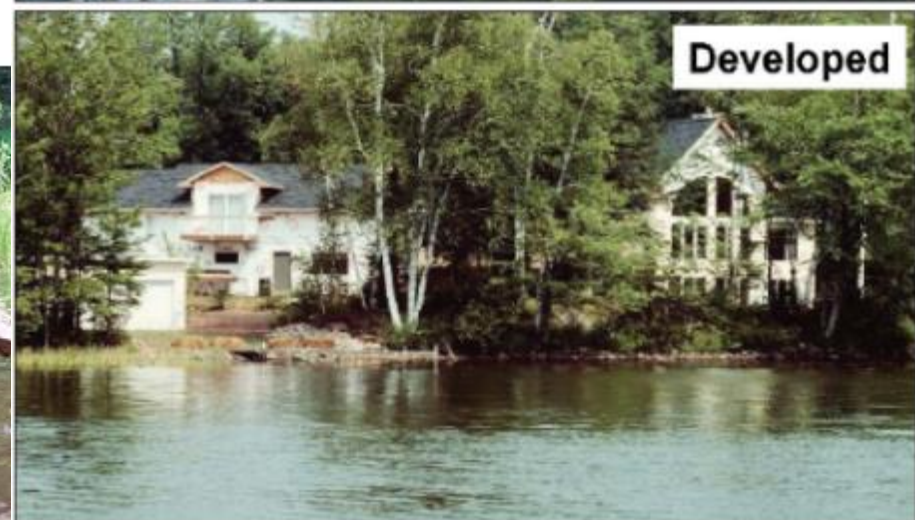
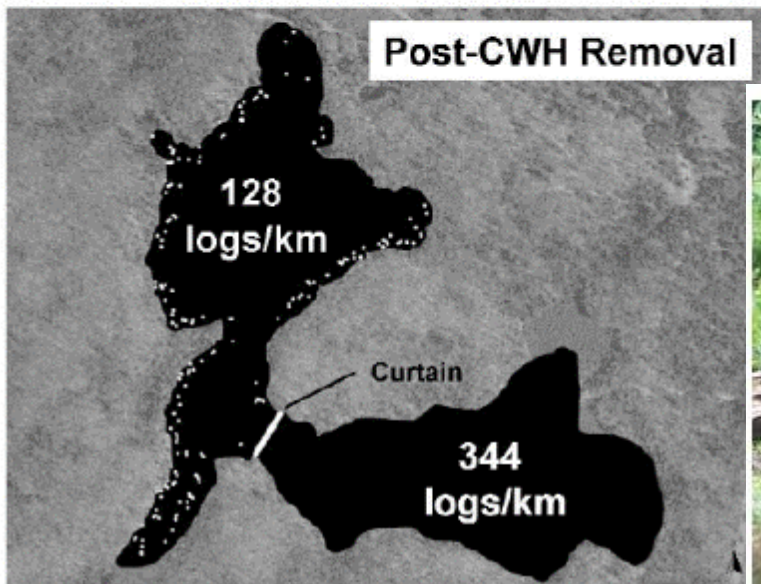
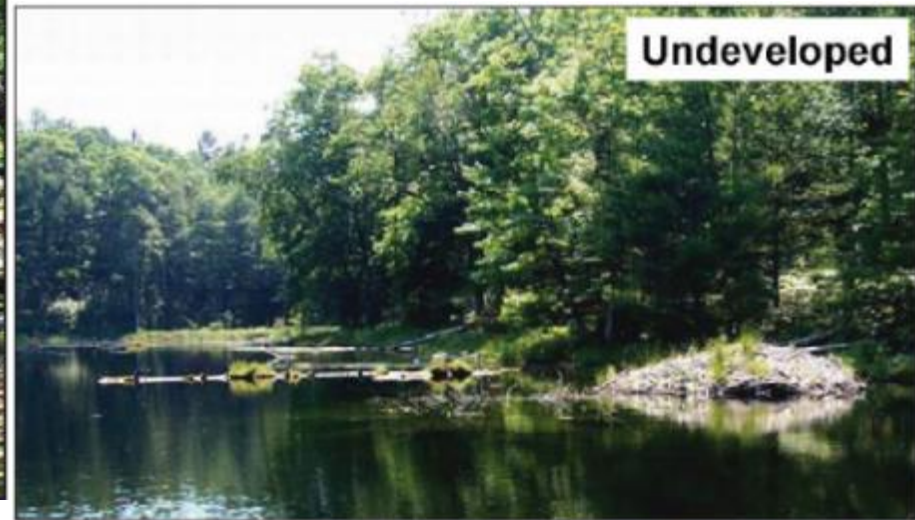
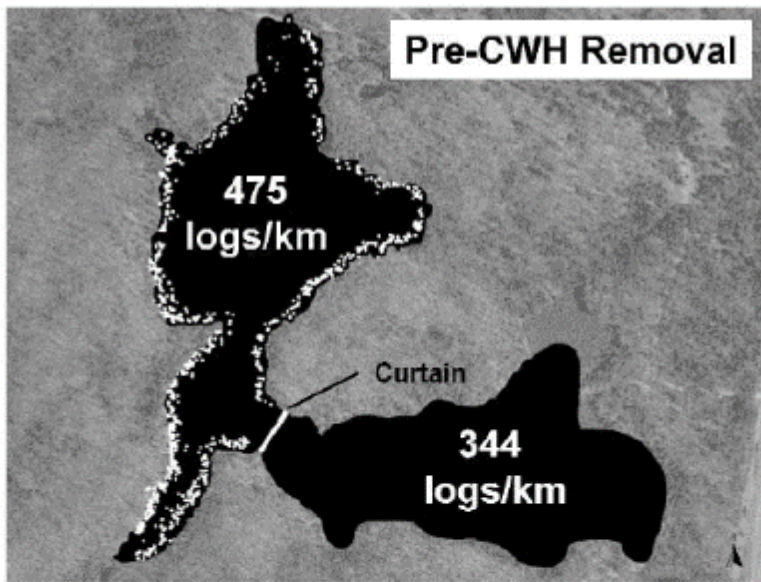
We looked for a lake here that would be deep and spring-fed to have clearer water. We like the nature. You can see deer and foxes but it is close to the cities and near good schools and churches.

Big Marine is an undiscovered gem.

What difference do you see?
(Large to subtle)



Science of Shorelines



Summary of The Science of Shorelines

Shoreline modifications to beach and rock results in:

- Loss of critical habitats
- Loss of niche specific species
- Replacement of desirable species
- Decreased community resilience

Woody debris removal results in:

- Overuse of remaining habitats
- Loss of species and density
- Diet shifts & decrease fitness
- Greater boom-or-bust Fisheries

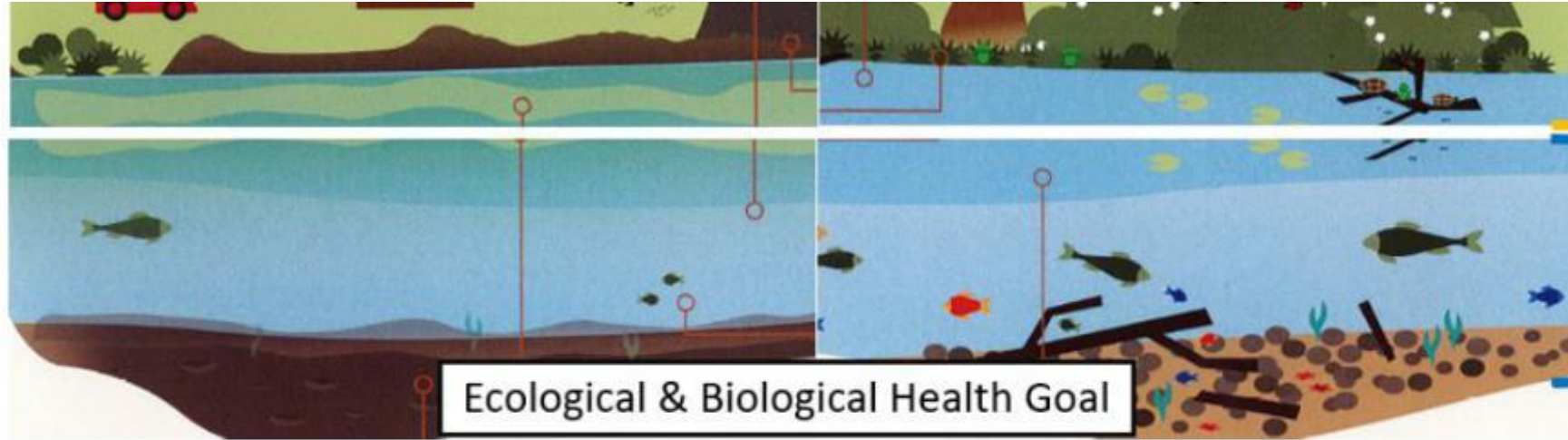
Vegetation removal results in:

- Overuse of remaining habitats
- Loss of species and density
- Increased erosion induced habitat loss
- Decreased nutrient recycling/ habitat loss



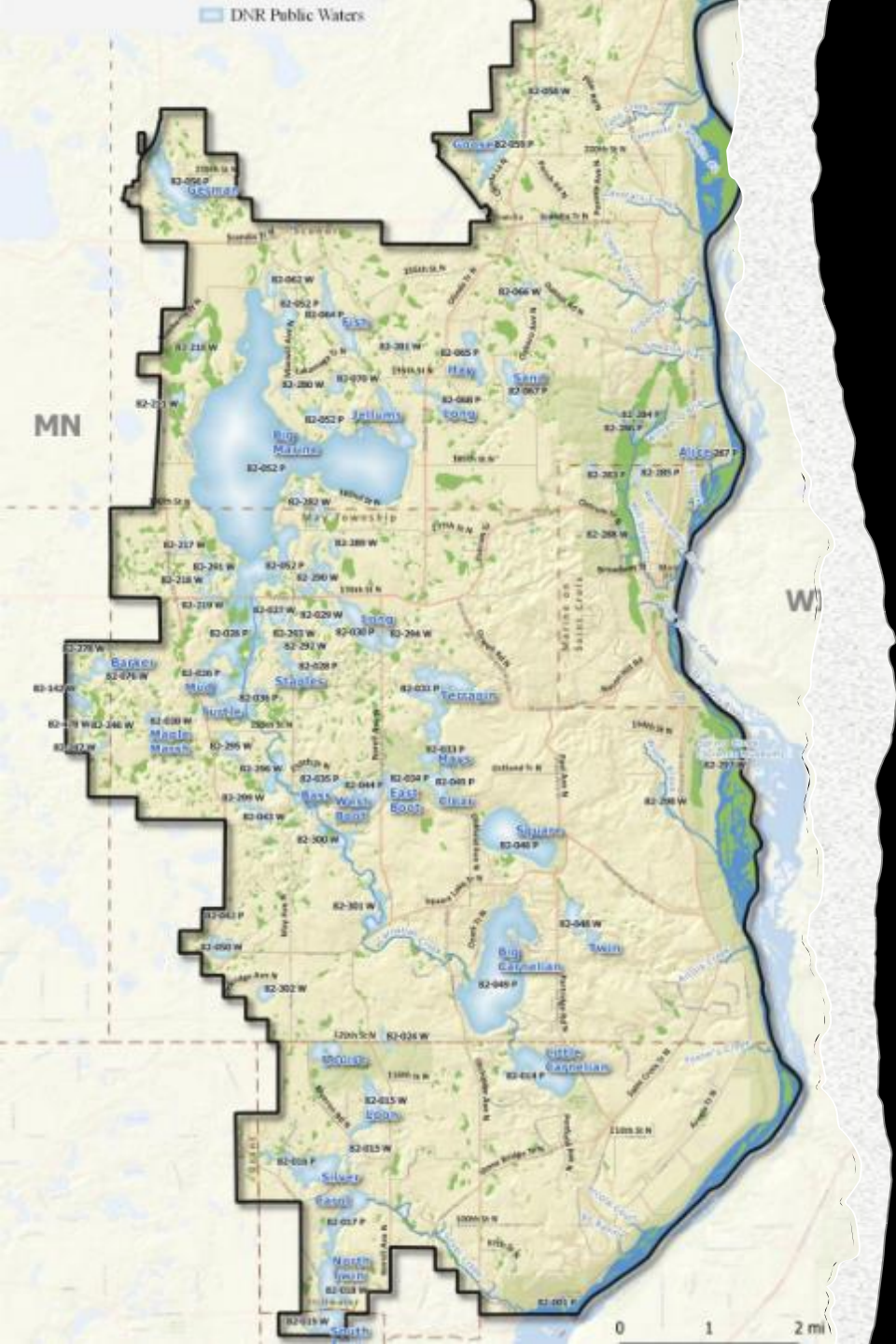
Scientific Literature Takeaway:

Shore modifications and habitat removal negatively influence the lake ecosystem



Research & Monitoring



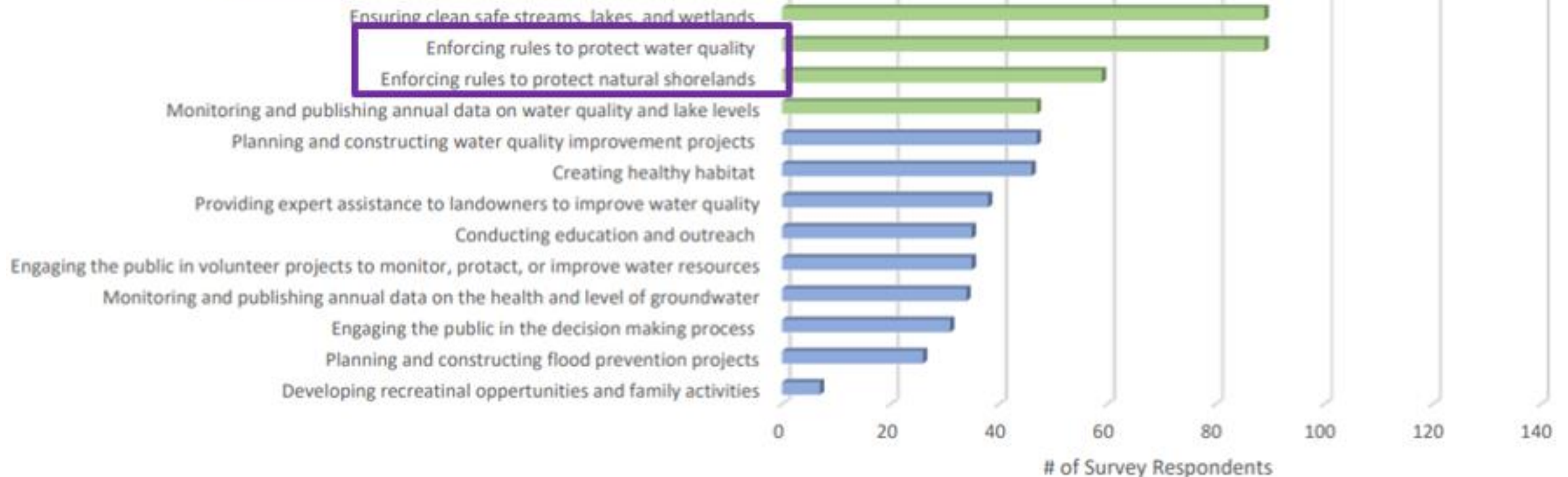


The Experiences of the Carnelian-Marine-St. Croix WD

- 71 DNR Public Waters
- 31 Named Lakes
- 21 Spring Streams
- 18.5 Miles of St. Croix River
- Several hundred wetlands
- 5 Municipalities

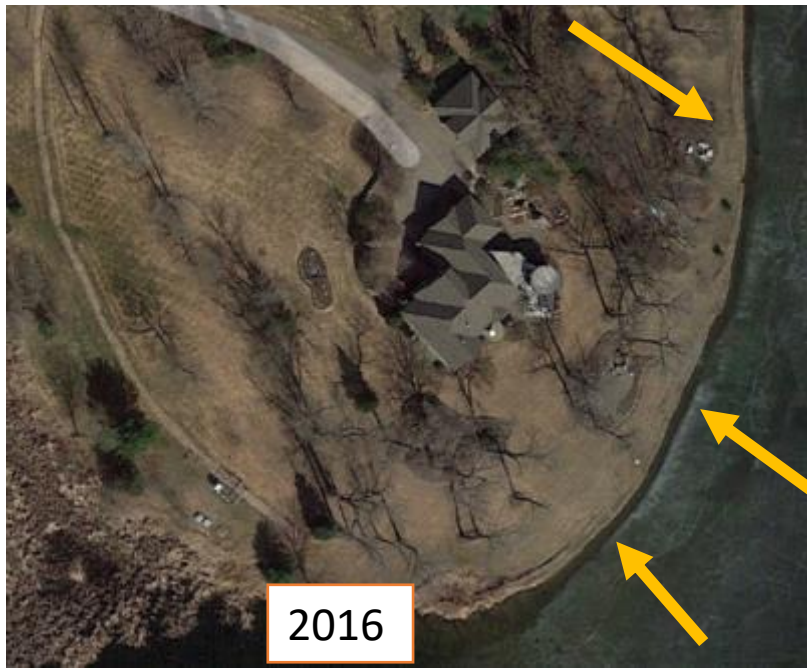
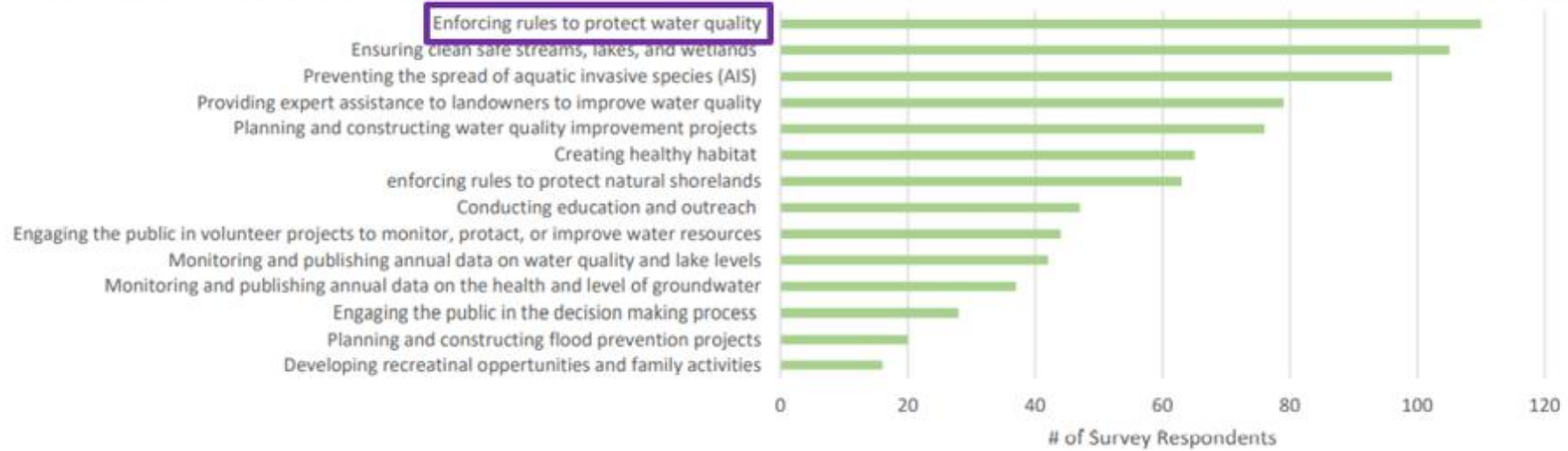
Lakeshore Owner Engagement 2021

What Were Shoreline Landowners Highest Priorities for the District in the Next 10 Years?

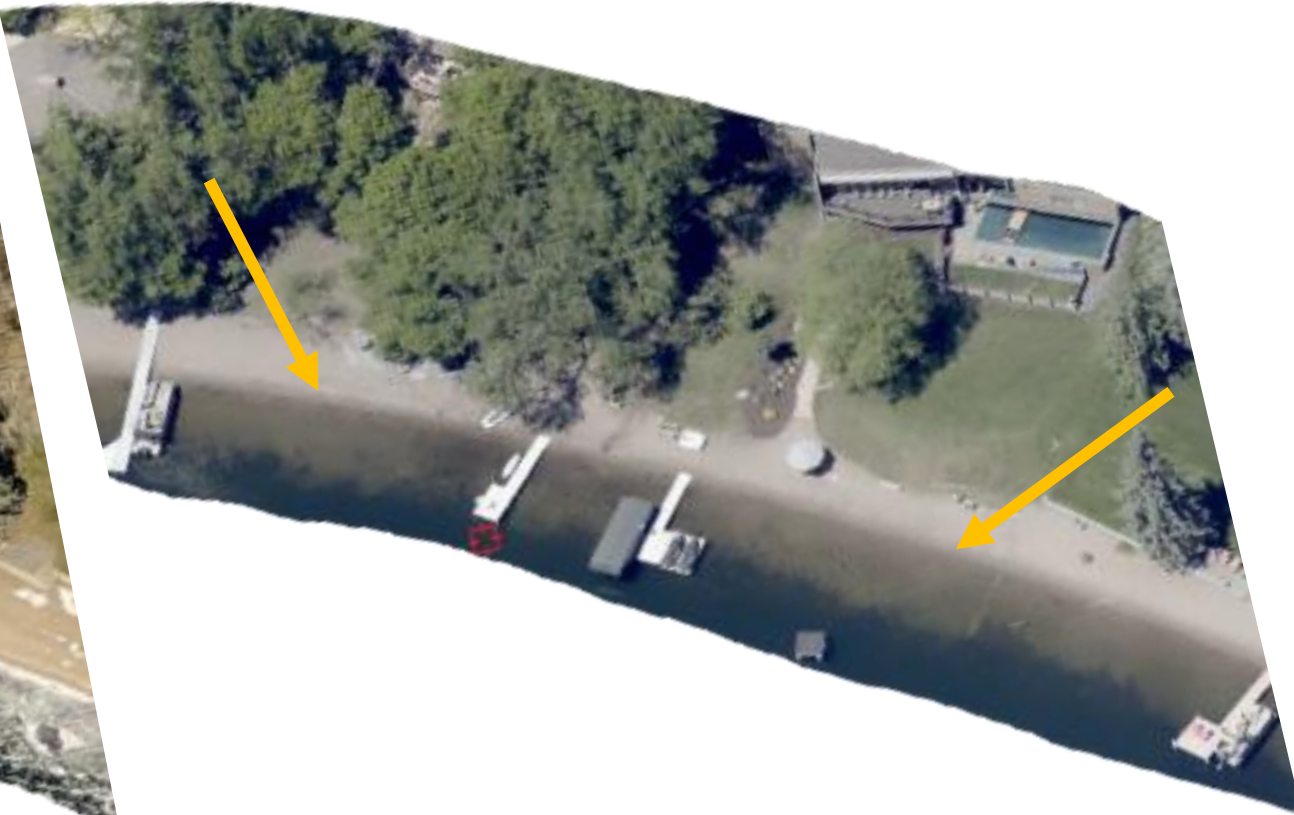
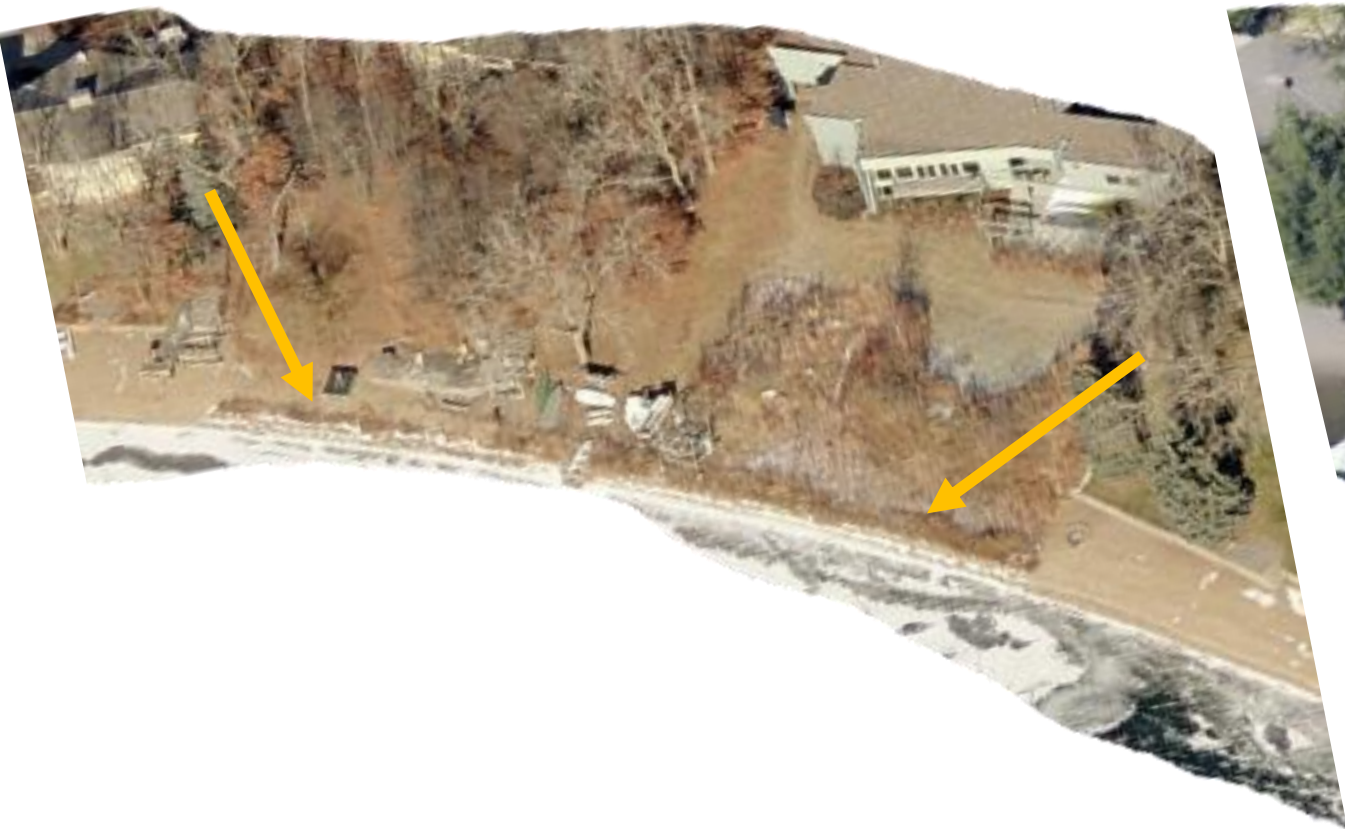


Public Engagement

What should be the highest priorities for the District in the next ten years?



Large Loss of Native Shoreline Over the Last 15 Years

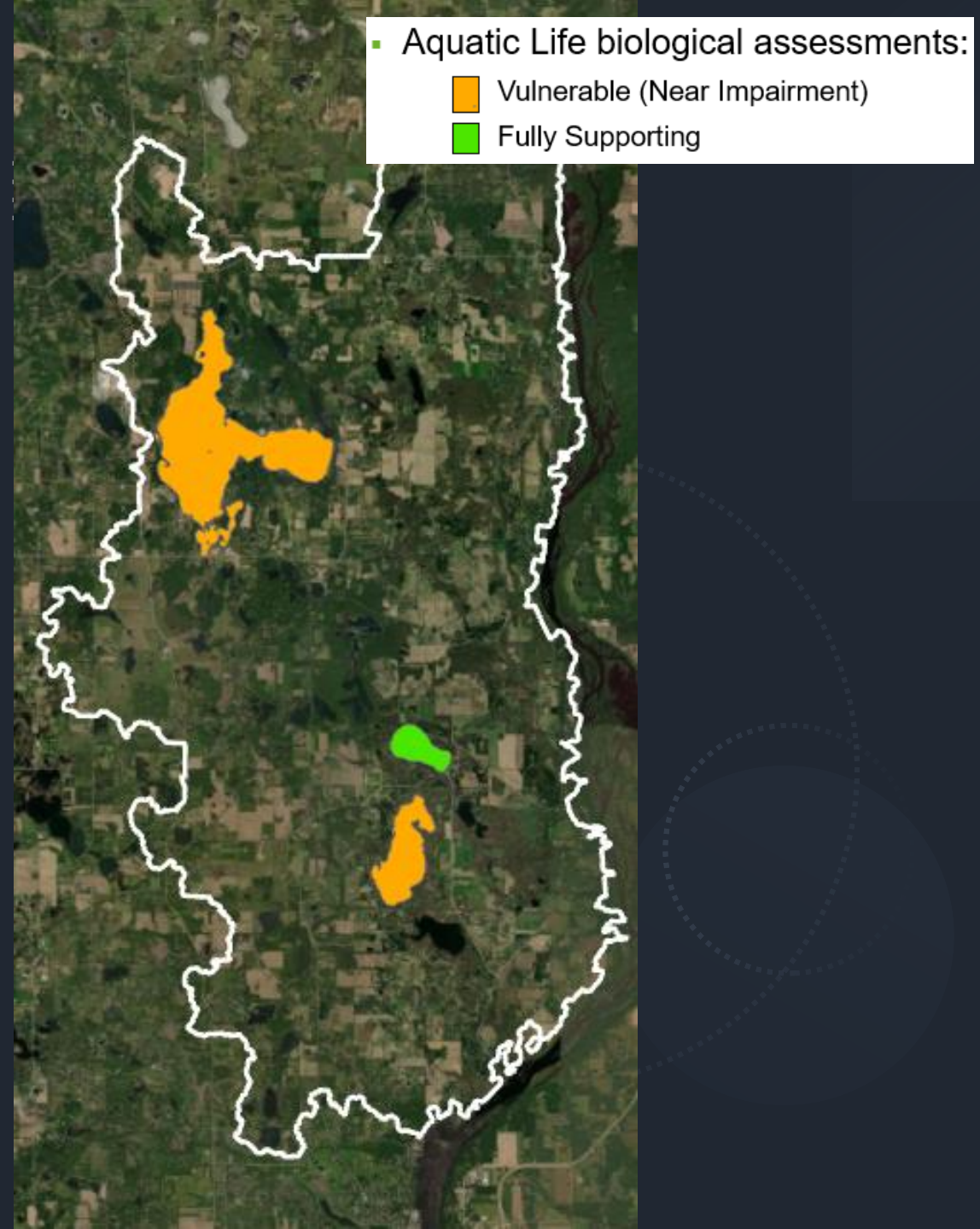


DNR and MPCA Findings

Big Carnelian and Big Marine Lakes are at high risk of becoming impaired for lack of biodiversity

Shoreline and shoreland alteration is the primary stressor

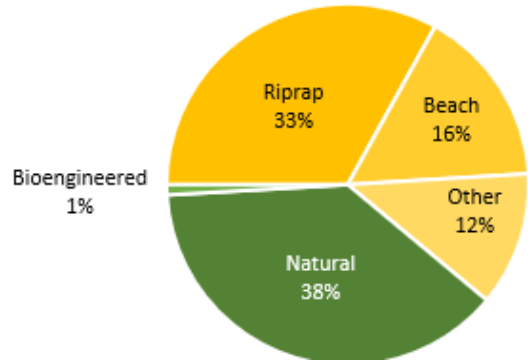
Restoration of shoreline and shoreland areas are **needed on developed parcels.**



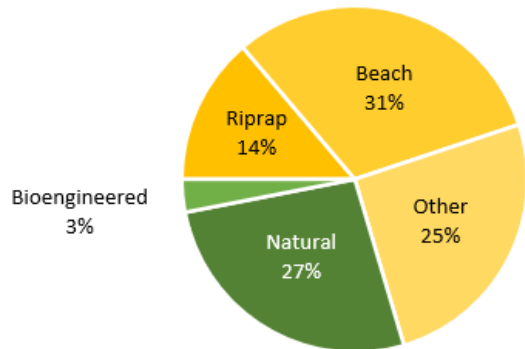
Monitoring Trends & Connection to Aquatic Life

Nearly impaired Aquatic Life

Dominant Shoreline Type of All Lots

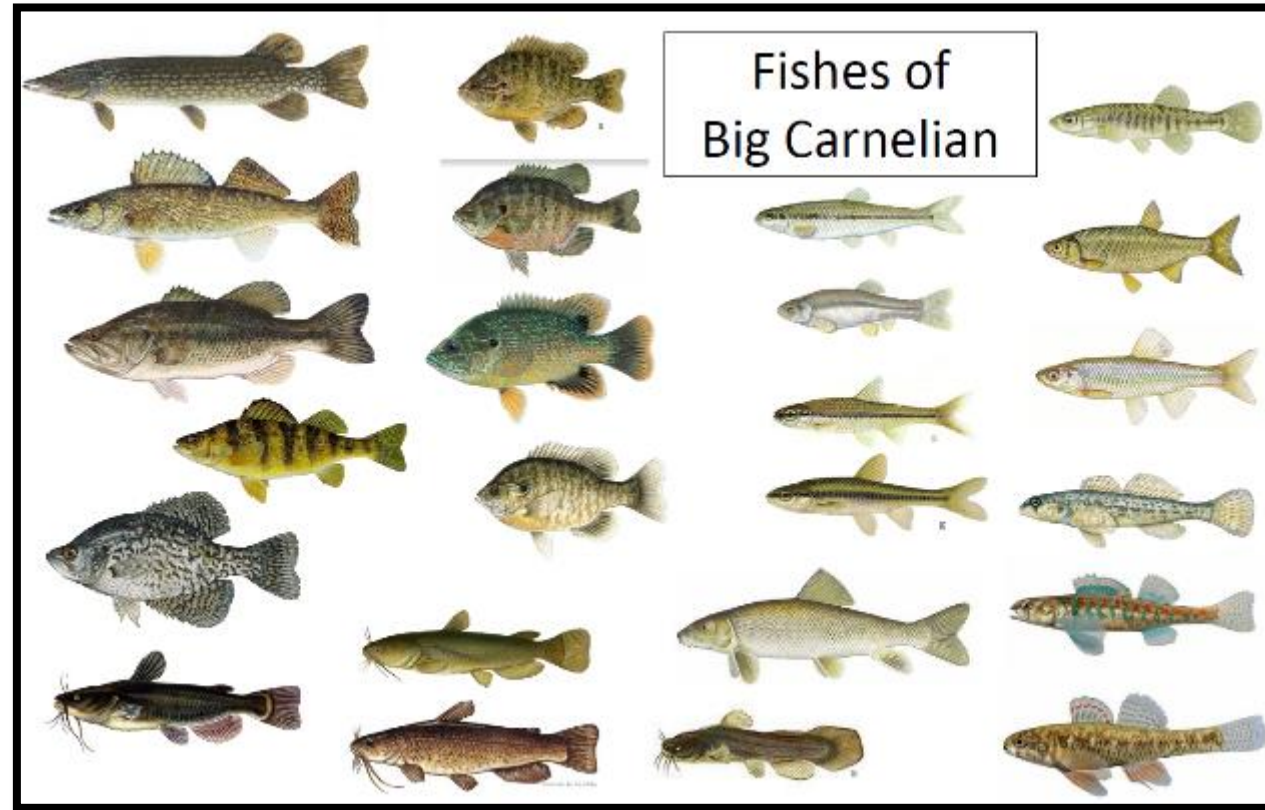
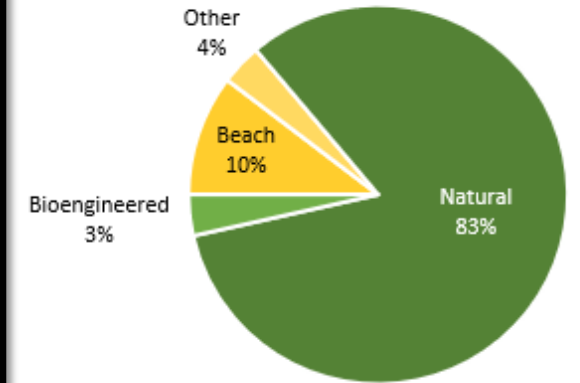


Dominant Shoreline Type of All Lots



Supporting Aquatic Life

Dominant Shoreline Type of All Lots



How did you feel when you learned your lake is impaired for declining biodiversity?

When I first moved here there were so many fish you could almost walk across the lake on their backs.

I've noticed the fish. There aren't as many and they are smaller. They don't look healthy.

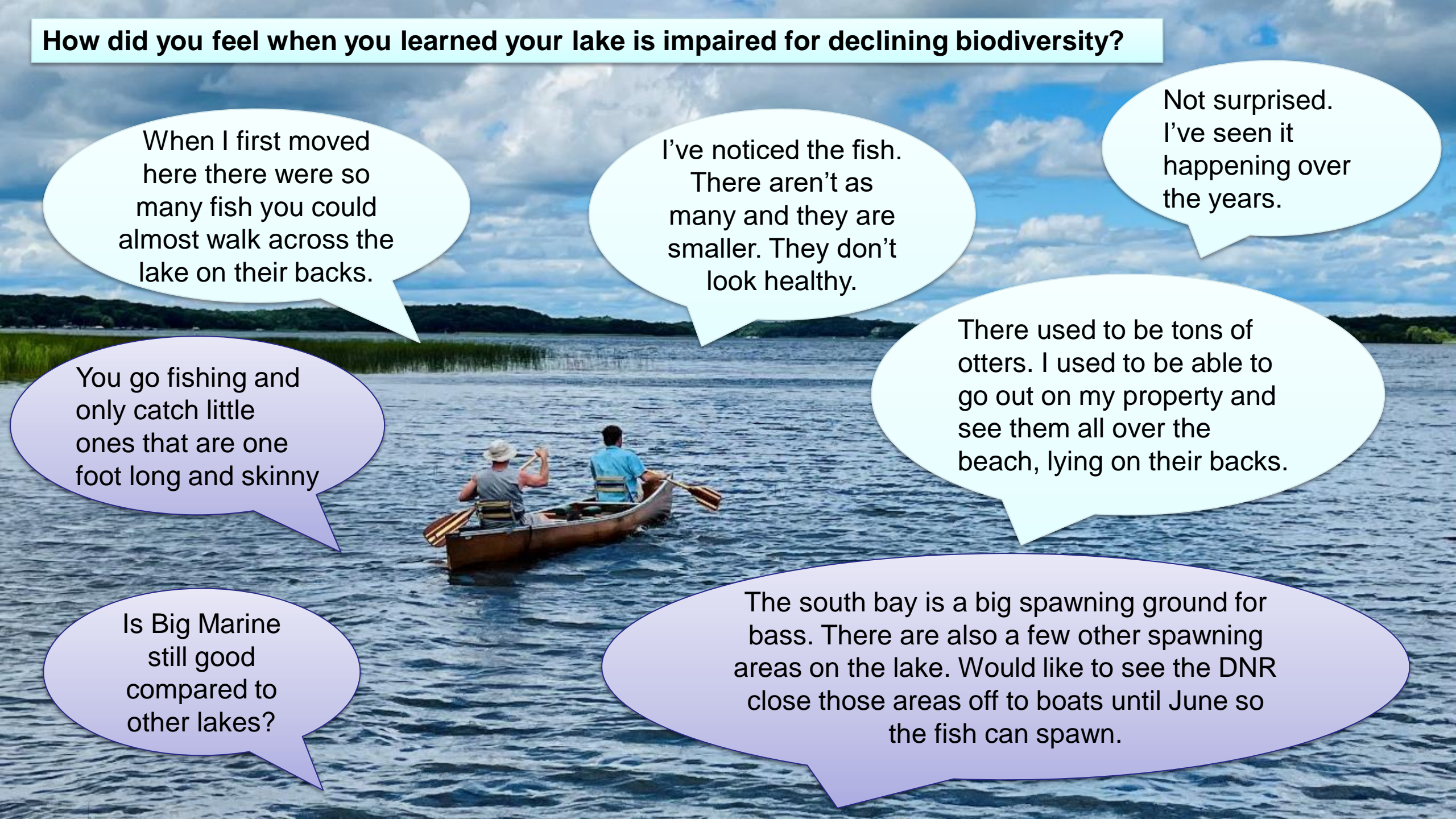
Not surprised. I've seen it happening over the years.

You go fishing and only catch little ones that are one foot long and skinny

There used to be tons of otters. I used to be able to go out on my property and see them all over the beach, lying on their backs.

Is Big Marine still good compared to other lakes?

The south bay is a big spawning ground for bass. There are also a few other spawning areas on the lake. Would like to see the DNR close those areas off to boats until June so the fish can spawn.



CMSCWD Management Plan & Measurable Goals

Educate

Contact landowners prior to violations.
Targeted outreach.

Enforce

Stop modifications without a permit.

Engage

Increase natural shoreline conditions.
Have parcel with 50% or greater natural conditions.



What 50% Natural Shorelines Look Like



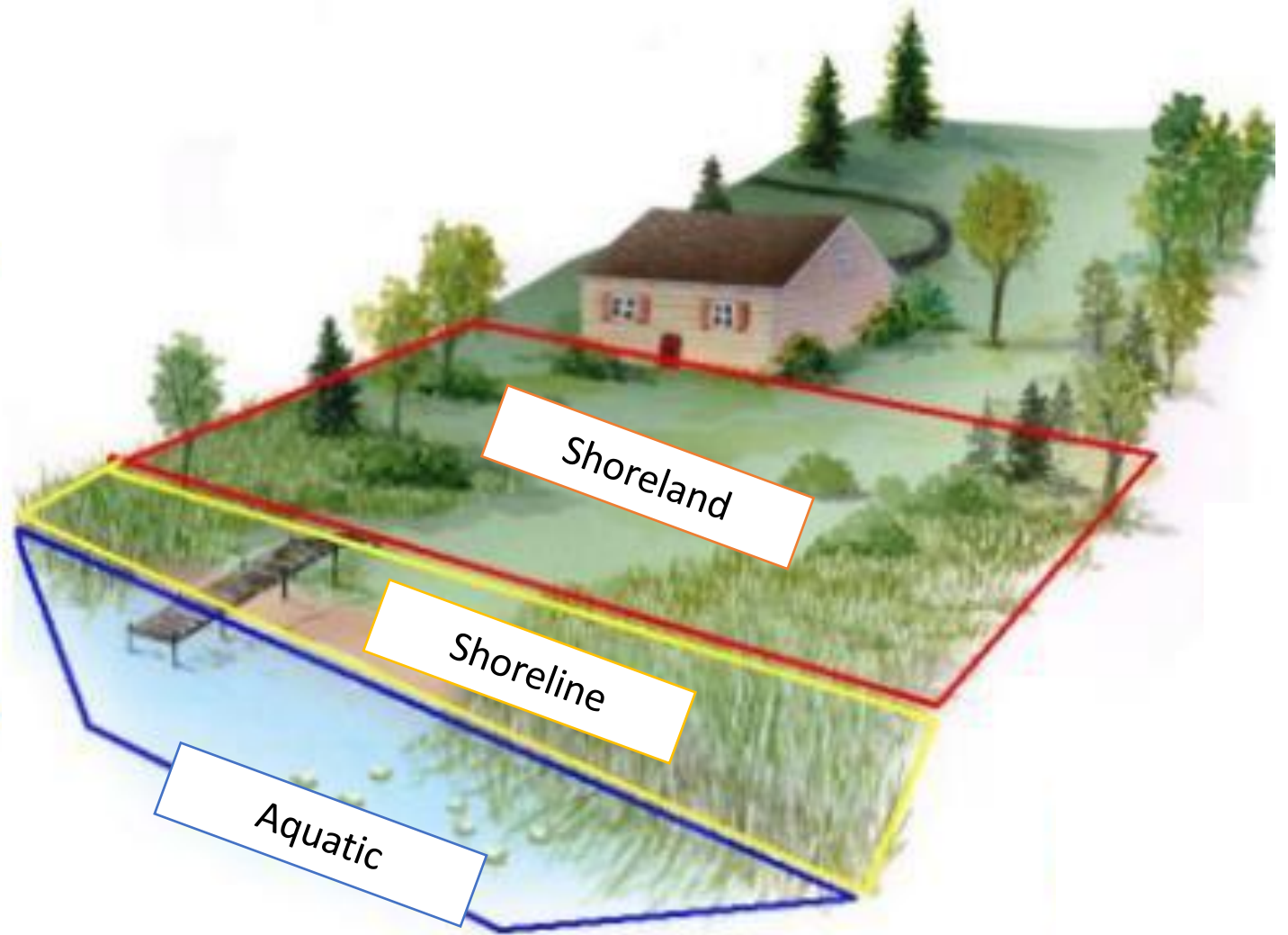
What Greater Than 50% Natural Shorelines Look Like



What Less Than 50% Natural Shorelines Look Like



Score The Shore & Score Your Shore



Evaluating Shoreline Habitats

Emergent Vegetation



Overhanging Woody Structure



Trees & Shrubs Screening



Native Buffers & Natural Ground Cover

Loafing Logs

Downed Woody Debris

Value / Function of Natural Shoreland Zone



Shoreland Vegetation

(erosion-control, water quality, wildlife habitat, high plant diversity = high wildlife diversity)

Emergent Vegetation

(water quality, erosion-control & wildlife habitat)

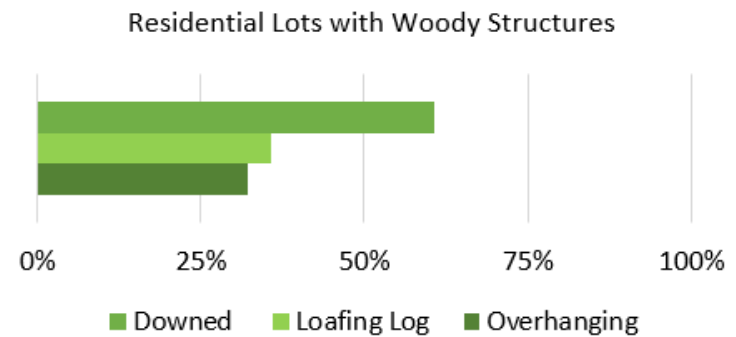
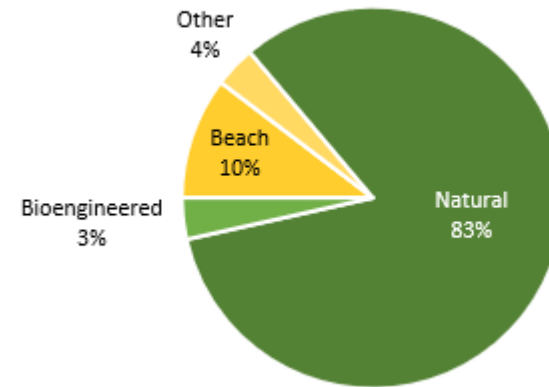
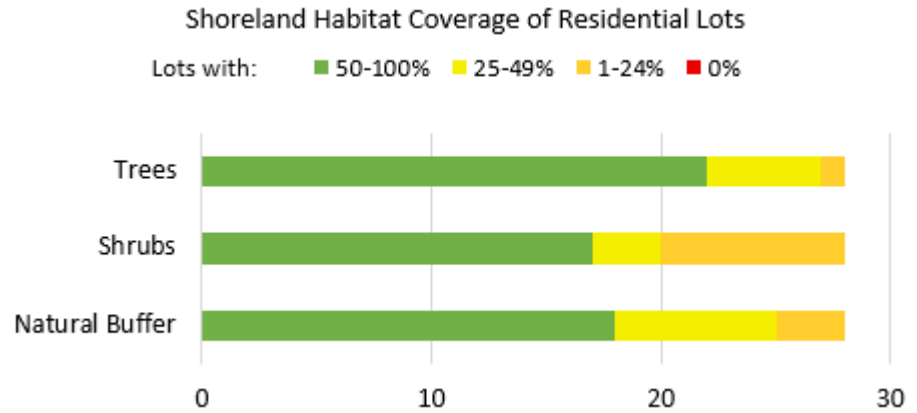
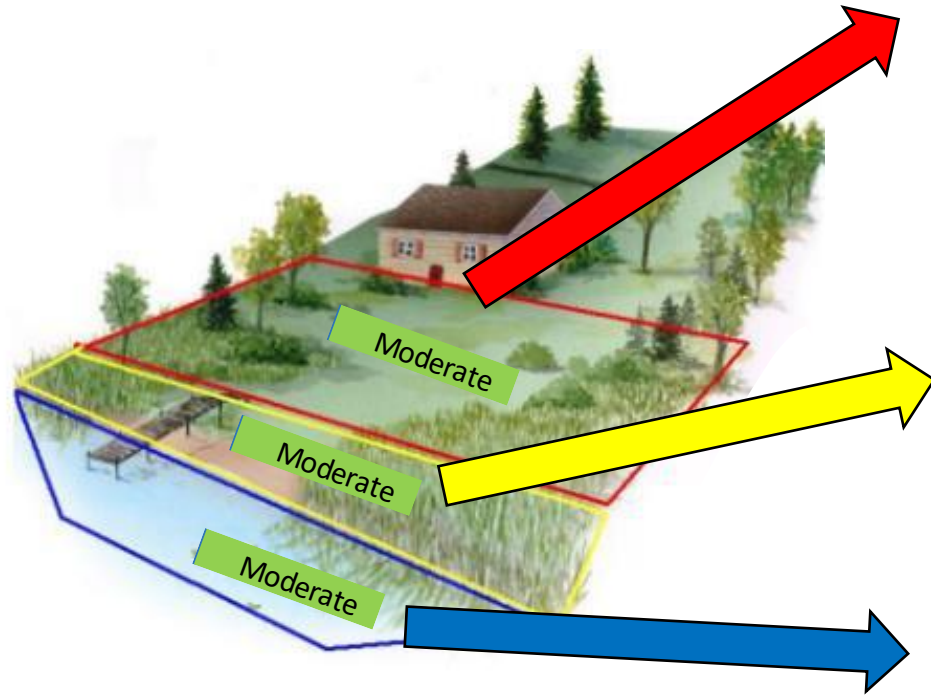
Tree Stumps

(wildlife habitat & water quality)

Drifted-in Logs & Snags

(wildlife habitat, erosion control & water quality)

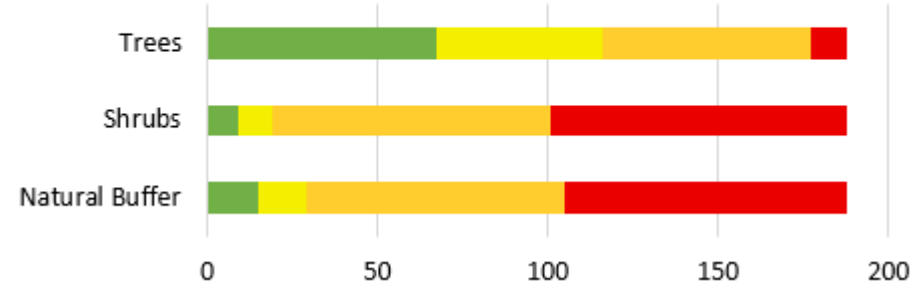
Score the Shore: Results



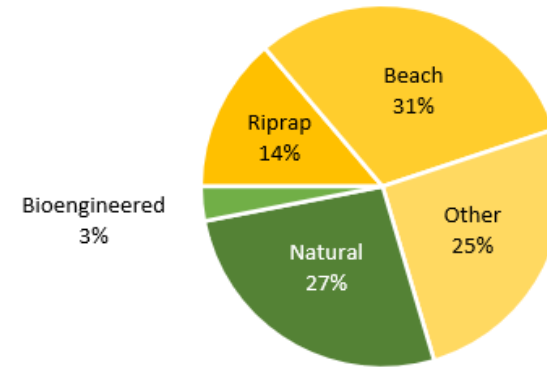
Score the Shore: Results

Shoreland Habitat Coverage of Residential Lots

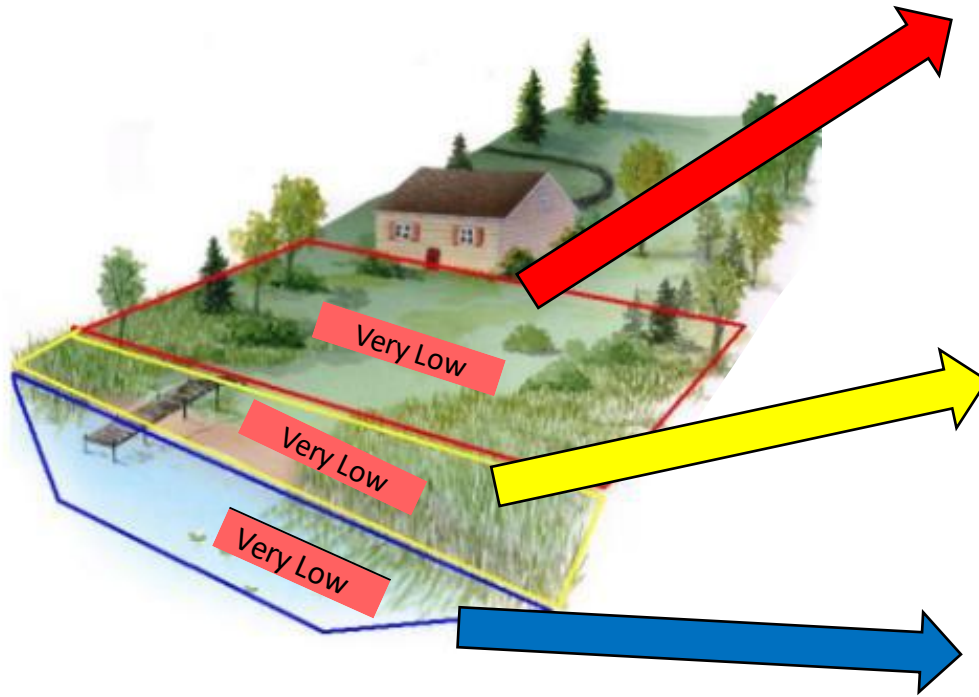
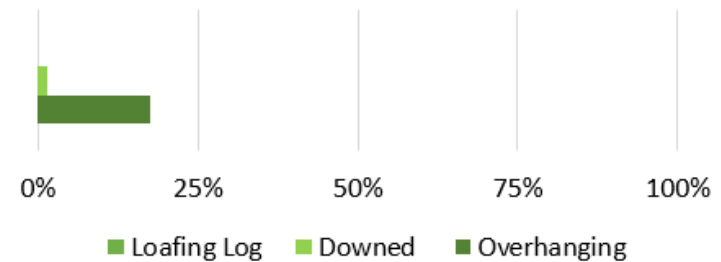
Lots with: 50-100% 25-49% 1-24% 0%



Dominant Shoreline Type of All Lots



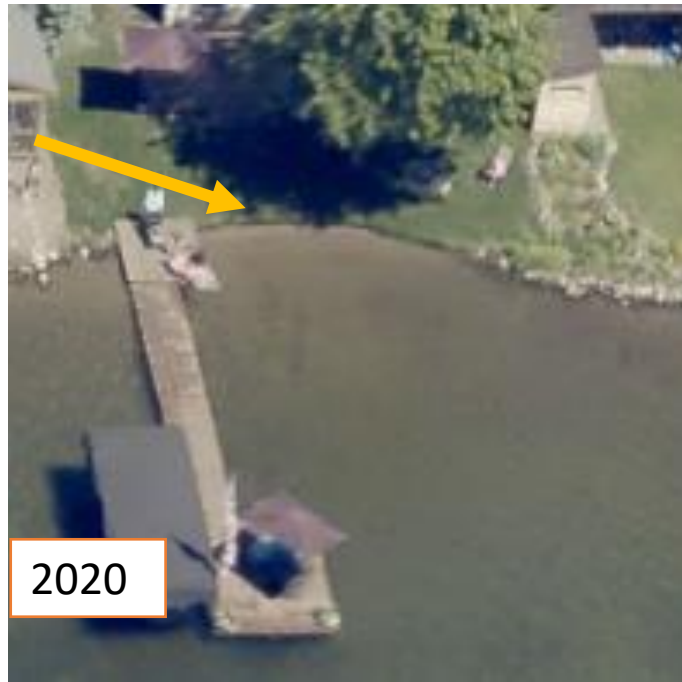
Residential Lots with Woody Structures



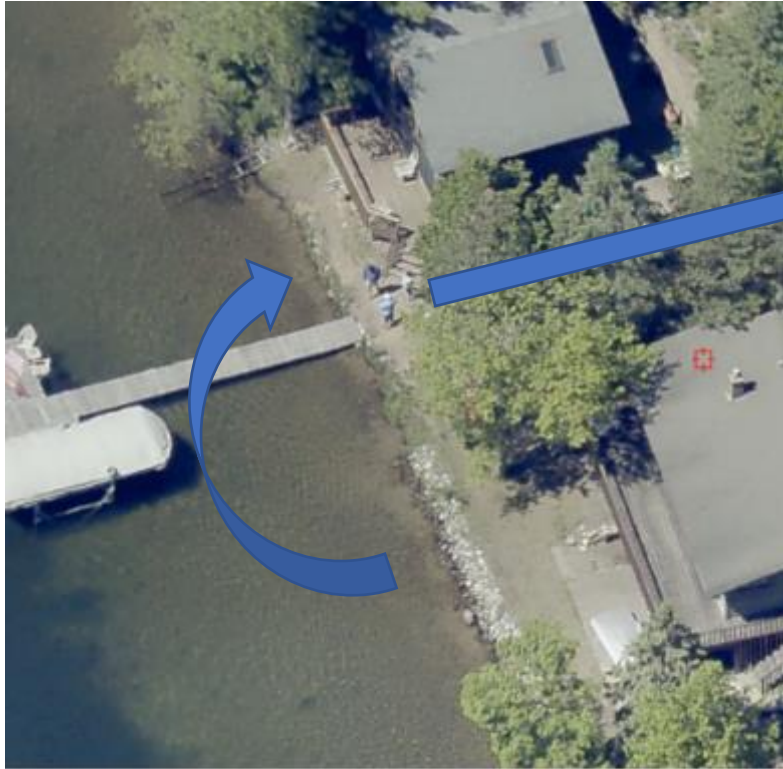
Shoreline Trends



Shoreline Trends



Lakeshore Observations



May 2020 - Jul 2020 ◀ Image 1 of 6 ▶ 05/30/2020





BEFORE



AFTER



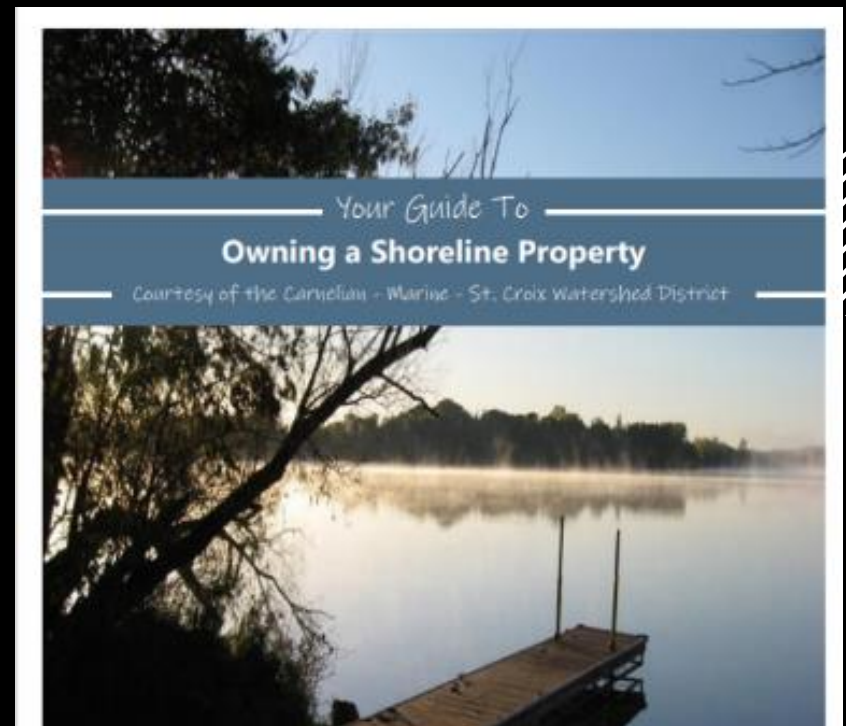
Curbing the Culture & Changing the Trend

Lakeshore Culture



Engagement 2020-2023

- 1 Shoreland landowners four-page booklet mailed in 2020
- 6 Direct mailings with shoreland articles
- 3 Direct mailed shoreland landowners post card mailings
- Welcome packets bi-annually.
- 6 Shoreland Landowner Workshops
 - <https://www.youtube.com/watch?v=kRSwe9oVKak>
 - <https://www.youtube.com/watch?v=1Z3mV64d2WQ>



Shoreline Buffer Workshop

Do you live on a lake or wetland? Learn how to care for your shoreline buffer during this free, online workshop.

During this webinar, presenters will discuss:

- Benefits of buffers and native shoreline plantings
- Buffer rules & regulations
- Establishing native species and improving buffer habitat
- Seasonal maintenance
- Controlling common invasive species (terrestrial)
- Resources & funding available to landowners to help protect lakes and wetlands

Date: Thursday April 29th
Time: 6:00 - 7:15 PM
Location: Online
Register Online: tinyurl.com/shorelines21





Construction



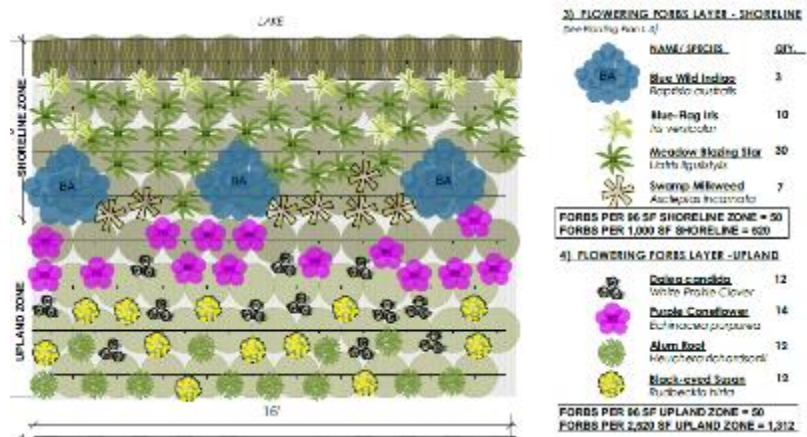
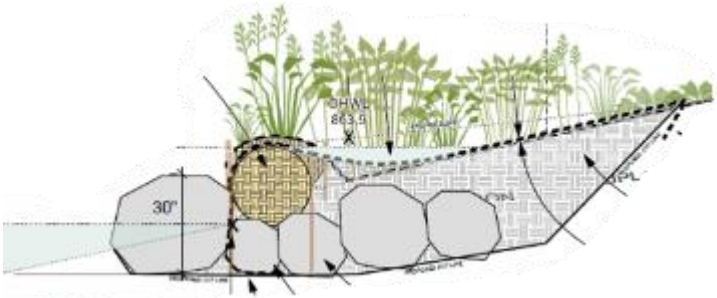
Planting



Maintenance



WATERING
WEEDING & REMOVAL



District Rule 5 (Shoreline & Streambank Alterations) Policy:

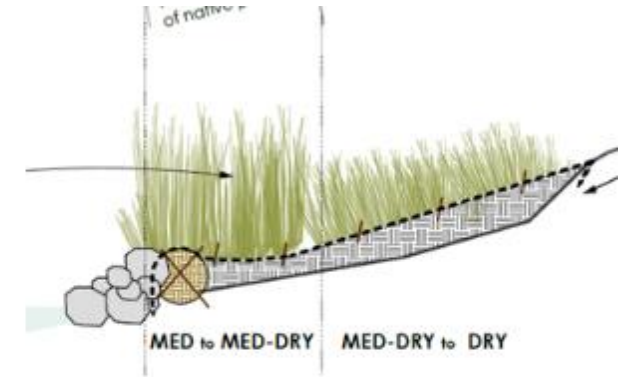
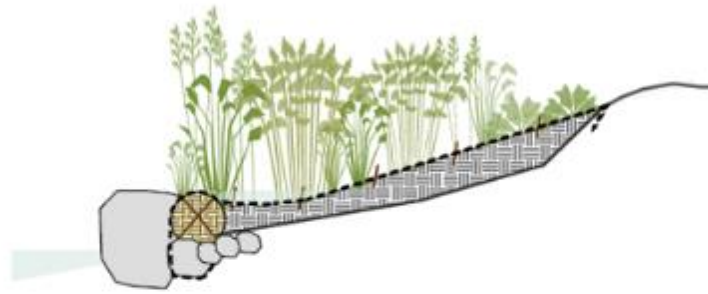
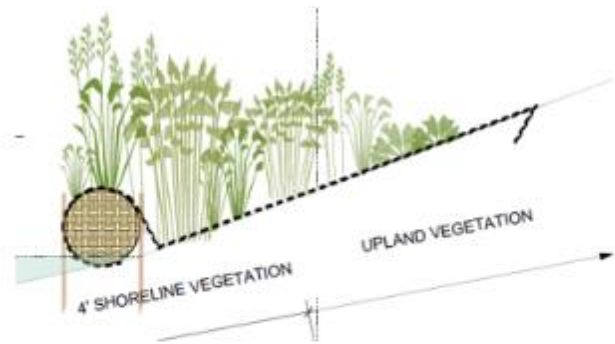
3 Policies:

1. Limit alteration of a shoreline to instances where erosion of the shoreline is occurring or likely to occur.



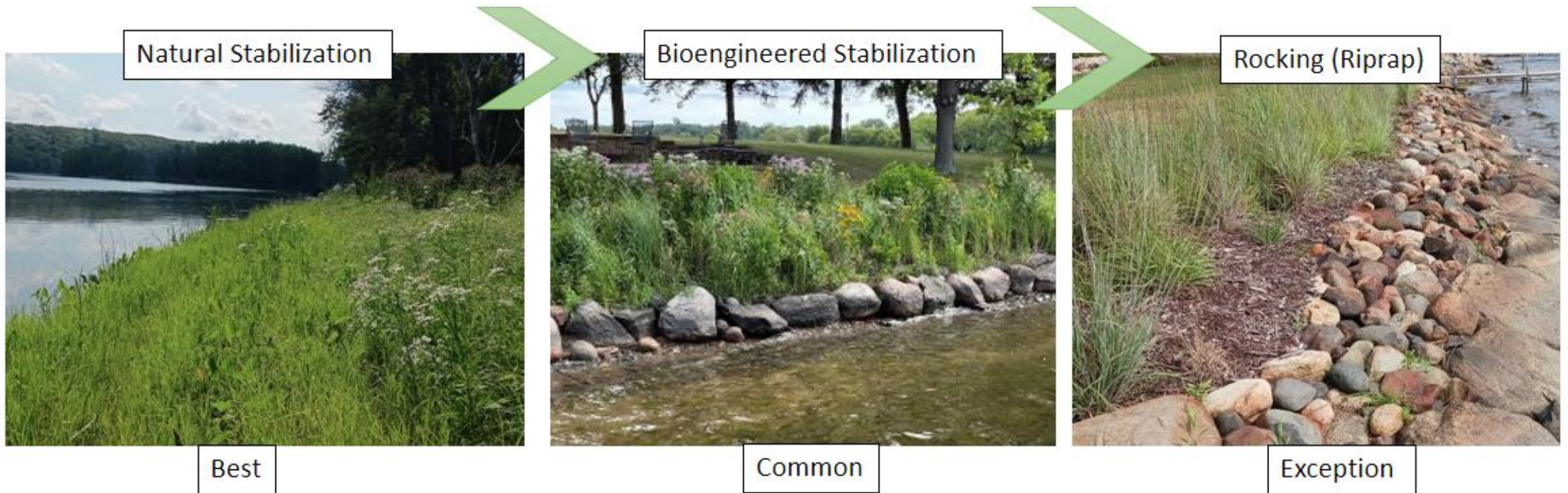
District Rule 5 (Shoreline & Streambank Alterations) Policy:

1. Limit alteration of a shoreline to instances where erosion of the shoreline is occurring or likely to occur.
2. Assure that alterations of shoreline comply with accepted engineering principles to prevent erosion; **and**



Rule 5 (Shoreline Alteration) District Policy:

1. Limit alteration of a shoreline to instances where erosion of the shoreline is occurring or likely to occur.
2. Assure that alterations of shoreline comply with accepted engineering principles to prevent erosion; **and**
3. Preserve and, wherever feasible, enhance the ecological integrity and natural appearance of shoreline.



Escalated Criteria for Stabilization

5.3 Criteria for Bioengineering. Bioengineering shall be used for shoreline and streambank restoration unless it is determined by the District that it is infeasible to repair the erosion problem using bioengineering techniques. The following criteria apply to bioengineering projects:

- 5.3.1 The resultant project shall be structurally stable. Special emphasis shall be given to the stability of the toe of slope where traditional engineering techniques may be more appropriate.
- 5.3.2 Native vegetation shall be used in all cases. Preferable species include those that form dense root systems or can be planted from cuttings.
- 5.3.3 A long-term maintenance plan is included to ensure that small erosion spots are corrected, and native plant materials are successful.
- 5.3.4 Bioengineering design shall comply with all District shoreline guidance and applicable details.

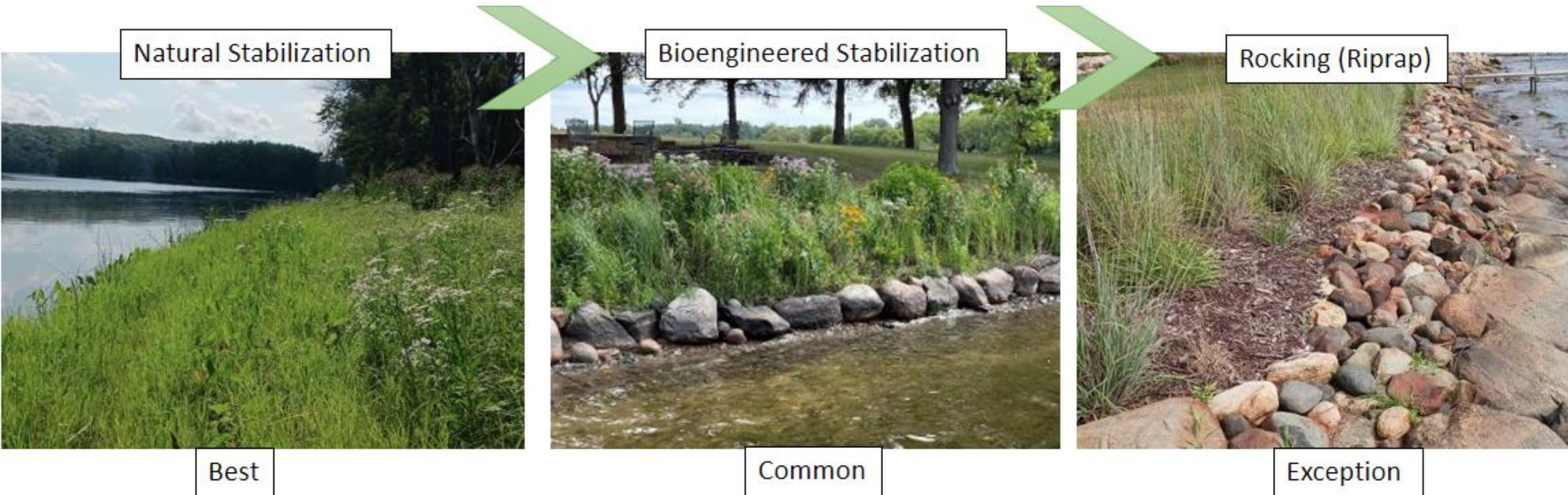
5.4 Criteria for Riprap Placement. Riprap placement is allowed only when bioengineering is determined by the District to be infeasible. Riprap placement shall comply with the following criteria:

... (9 sub-criteria)

5.5 Criteria for Retaining Walls. Retaining walls are allowed only when bioengineering and riprap are demonstrated to be infeasible. In addition to the criteria for riprap, retaining wall installation shall comply with the following criteria:

... (3 sub-criteria)

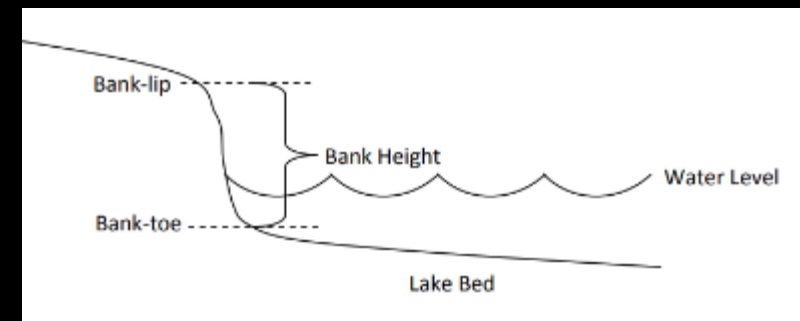
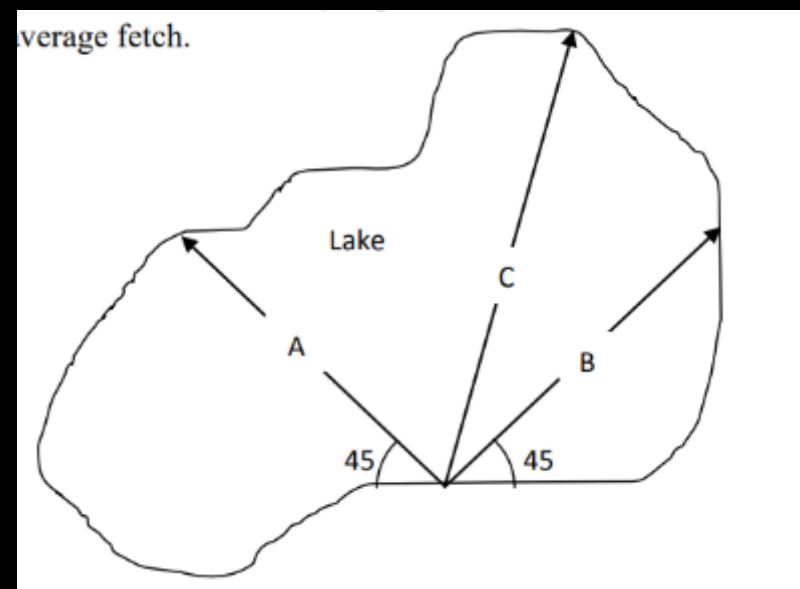
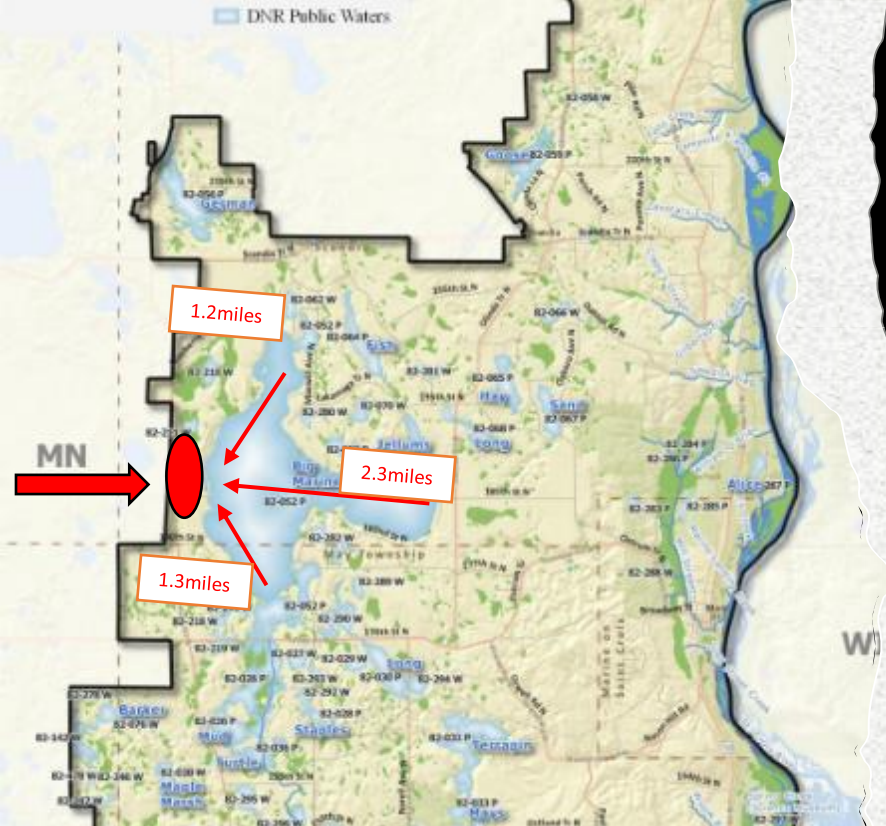
www.cmscwd.org/rules – Since 2010



Where is Riprap (or more) justified?

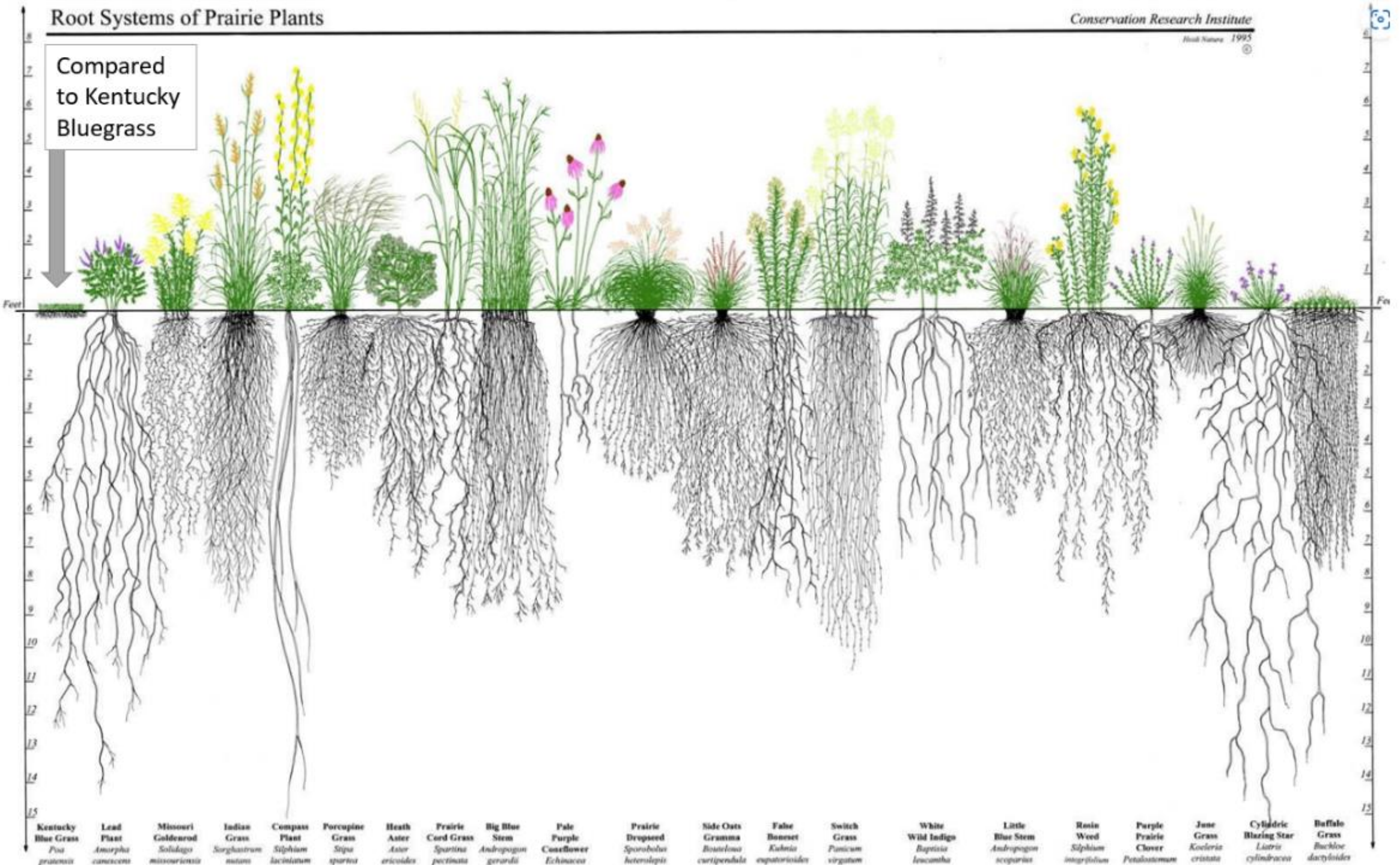
Reasoning that may meet need:

1. Fetch/Energy (~44 lots within District; 4% of all lake lots)
2. Legally Non-Conforming Structures



Root Systems of Prairie Plants

Compared to Kentucky Bluegrass



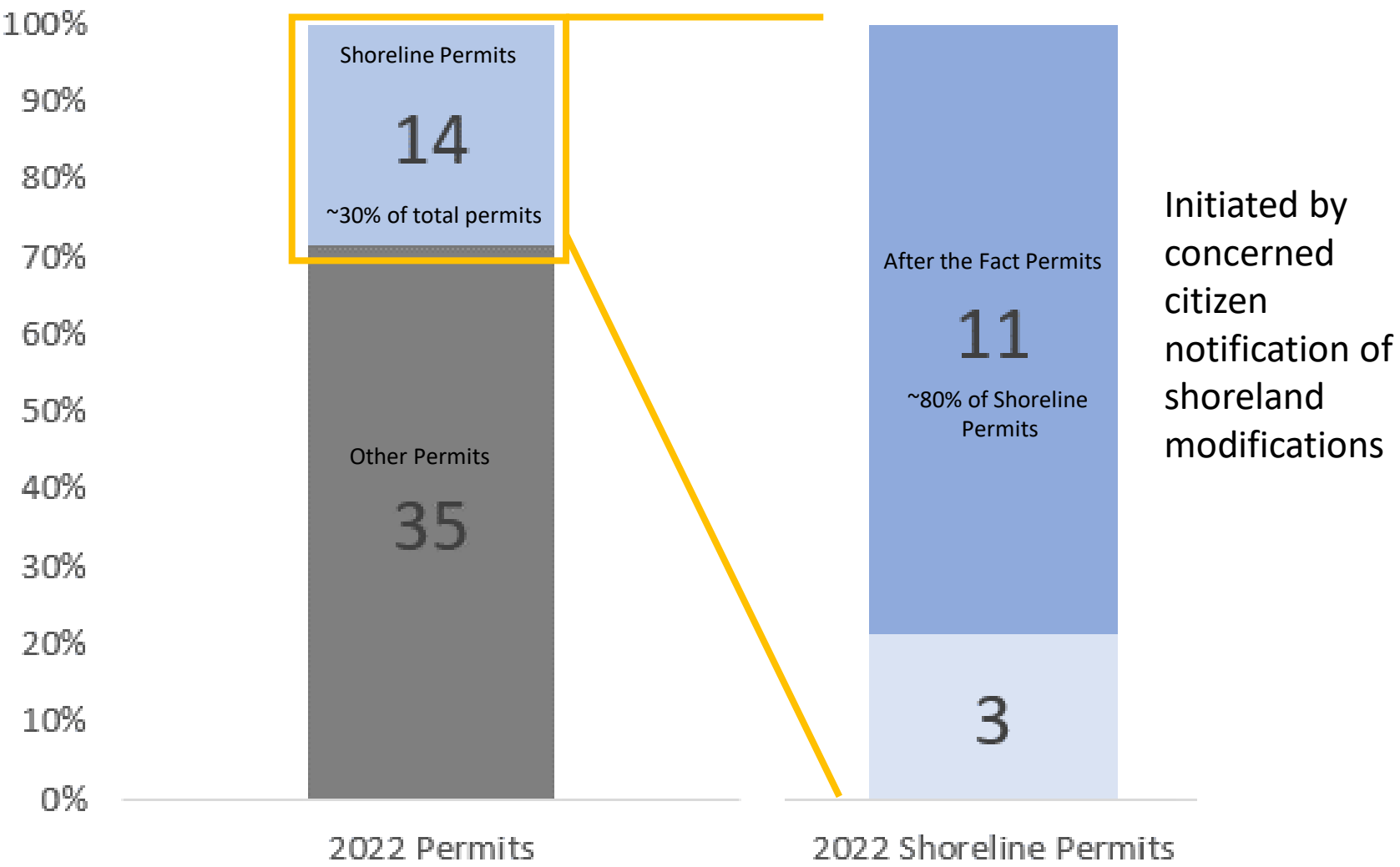
Successes



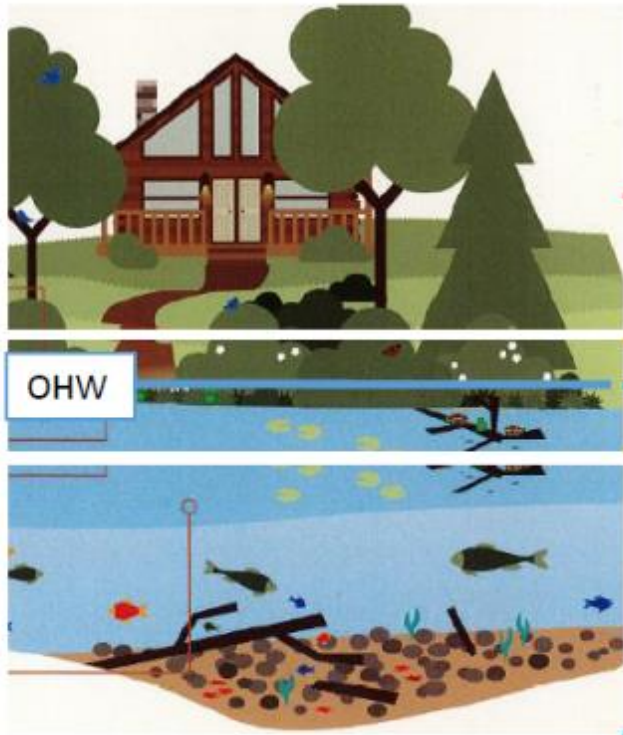
Successes



80% of Shoreline Alteration Permits were issued after work started in 2022



sTEP & Compliant Investigation and Follow Ups



Lakeshore Zones

Authorities

Shoreland

Watershed, County, City/TWP

Shoreline

Watershed, County, City/TWP, DNR

Aquatic

DNR

Entities involved in enforcement investigations
and follow up.

Shoreland Technical Evaluation Panel (sTEP)

- Actions to pursue:
- 1) Stop the Work/ Document the Conditions
 - 2) Schedule sTEP site visit.
 - 3) Provide Joint NOV

Stopping Work



Date of Notice: _____

RE: **Joint Cease and Desist Request For Unpermitted Shoreland**
Address: _____
Mailed Letter.

Dear Property Owner,

A Shoreland Technical Evaluation Panel (sTEP) comprised of the Carneli (CMSCWD), Washington County, & Minnesota Department of Natural Resources documented an unpermitted shoreland alteration where you are listed required project review and permitting prior to construction to ensure rules and ordinances. The project as completed may be required to be pursued.

Observations in relation to the land disturbance activities are described (backside). For these reasons we are requesting that you:

- Cease-and-Desist any additional work activities on the property
- Contact sTEP staff within 7 business days from the Date of Notice to obtain required permits and explore restoration options.
- Provide all required permit applications and payments within 10 business days
- Provide all required restoration plan materials within 45 days.

The sTEP is seeking your voluntary compliance and can assist in understanding restoration requirements. Failure to comply with these requests will not request seeking a reduction from After-the-Fact Permit Fees. Failure to voluntarily comply will result in escalated enforcement measures and restoration orders being issued.

Please contact Tom Langer (651-275-7452 or tom.langer@cmscwd.org), Daniel Scollan (651-430-4307 or daniel.scollan@state.mn.us), or Daniel Elder (651-430-4307 or daniel.elder@state.mn.us) to discuss permit requirements, solutions for your project that will meet Rules jurisdiction, and next steps.

Respectfully,

Tom Langer Riparian Permit Specialist CMSCWD	Daniel Elder Planner Washington County	Dan Scollan East Metro Area MnDNR
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Cc: Mike Isensee, CMSCWD Administrator; Bobbi Hummel, Town of May Clerk; Lyssa Leitner, Public Works Planner; John Gleason, Area Hydrologist

- Goals:
 - Document Conditions & Stop Work
 - Establish lines of communication
 - Allow sTEP members time to review

Site Visits

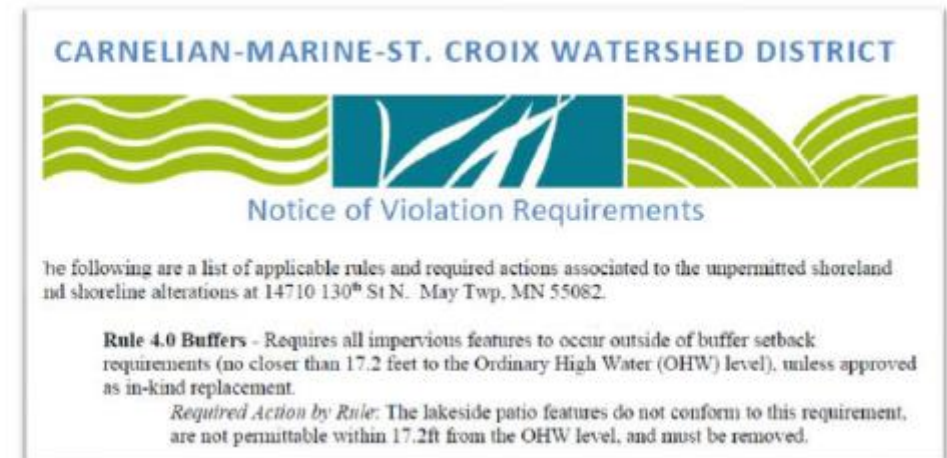
- Goals:
 - Compliance with All requirements
 - Confirm conditions & rule applicability
 - Possible Engagement Opportunity
 - Establish project lead
- Confirm Approach:
 - CMSCWD lead coordination
 - Entities can confirm violations
 - Engagement with landowners if they attend



Joint Follow Up Communications



- Goals:
 - Provide applicable rules summary
 - Provide restoration requirements
 - Propose timeline with permitting & restoration requirements
- Confirm Approach:
 - Non-letterhead Joint NOV
 - Individual applicable rule & require restoration attachments

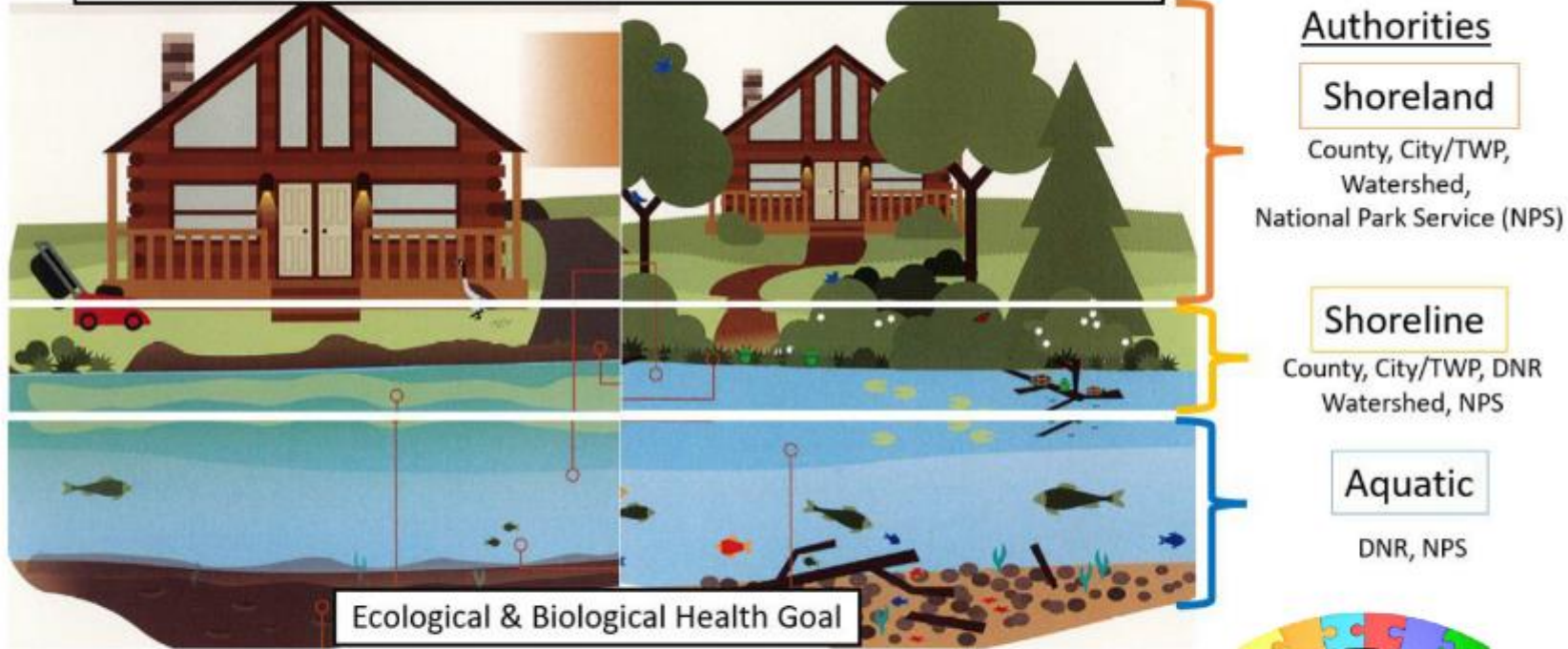


Priority Unpermitted Violations



Waterfront Management

Regulatory, Education, Engagement, & Cultural influences on Waterfronts

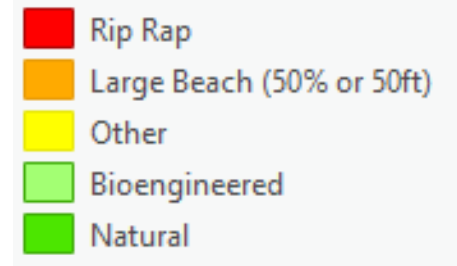
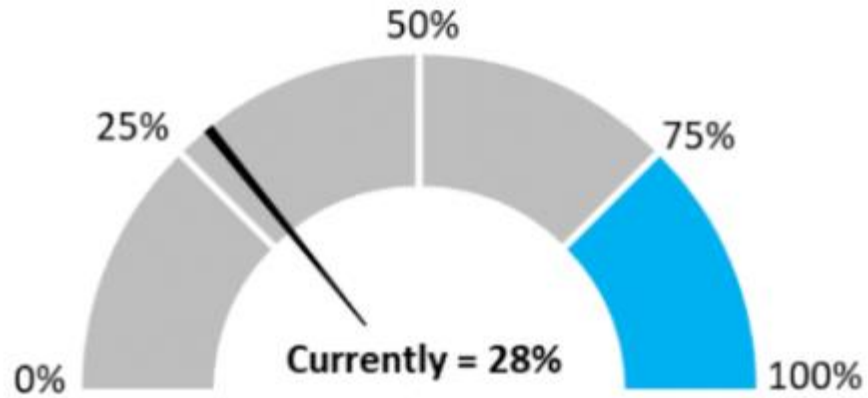


Research & Monitoring



- Authorities – multiple and overlapping. Reliant on each other. Alignment opportunities.
- Mgmt. Goal: Fishable Waters, Swimmable Waters, Natural Appearance.
- Overarching Objectives: Clarity, Consistency, Transparency, & Capacity.

Measurable Goals



Percentage of lakeshore parcel with at least 50% natural shoreline condition.

Management Plan

Engage

Can't get there without engaging landowners and providing resources.

Educate

Can't get there without willing landowners and changing the culture.

Enforce

Can't get there without upholding rules.



City of Fifty Lakes
Experiences, Questions,
Discussion