

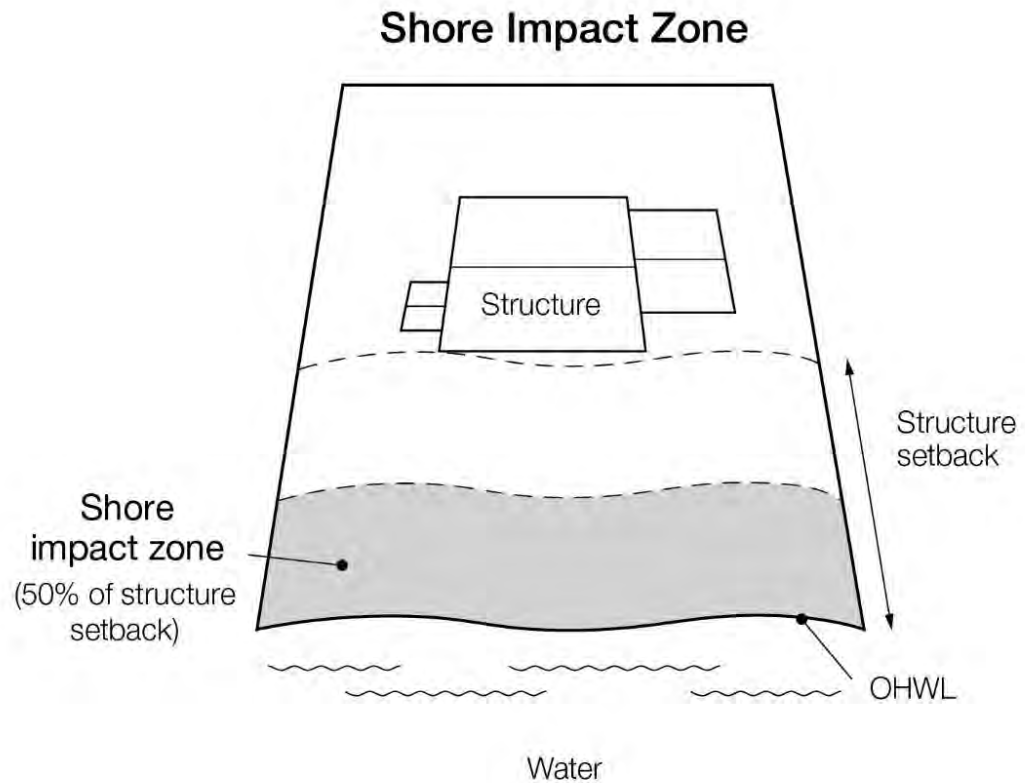


Shoreland Vegetation Standards

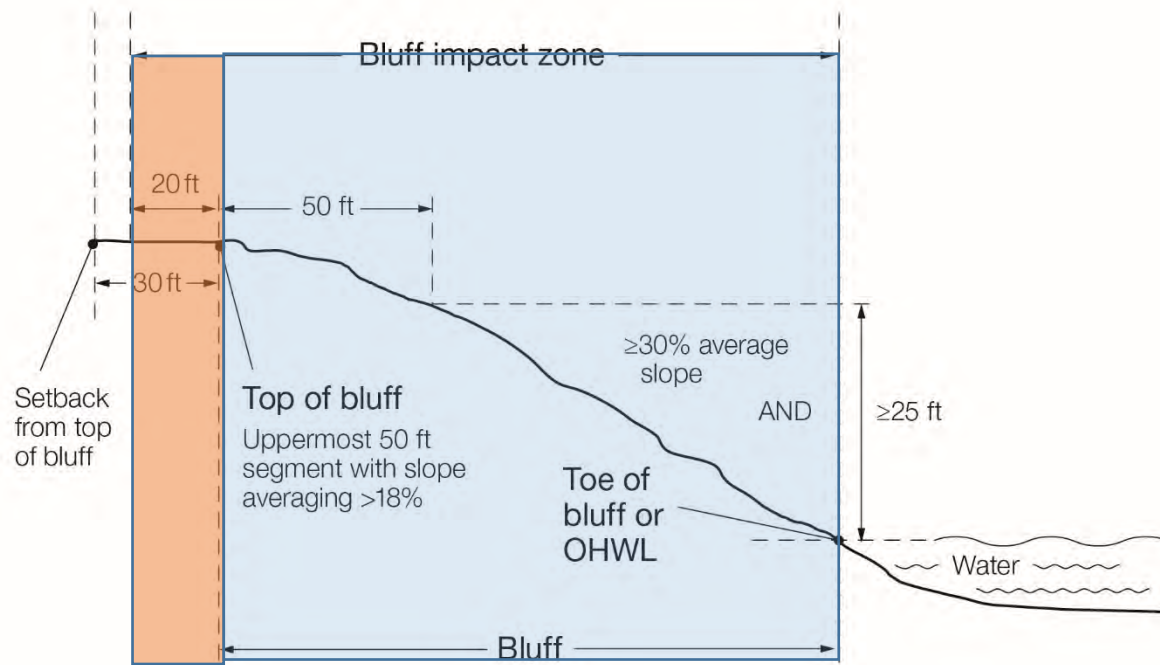
Dan Petrik, Lake & River Shoreland Program Manager

Shore Impact Zone

50% of Structure Setback



Bluff Impact Zone



Vegetation Management

- Intensive clearing in the SIZ, BIZ, and steep slopes is not allowed.
- Limited clearing is allowed for:
 - Stairways, access paths
 - Beaches
 - Picnic areas
 - Water-oriented accessory structures
 - Views





MINNESOTA NATURAL SHORELINE PARTNERSHIP

Non-profit organizational leaders &
local/state government natural resource
professionals

Working together to identify & create
opportunities to restore and protect natural
shoreslines

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

**The Natural Shoreline Partnership's
Statement of Purpose**

July 2023





MINNESOTA NATURAL SHORELINE PARTNERSHIP

Goals:

- Consistent communications on value of natural shorelines
- Technical training for landscape contractors
- Building environment for local–state policy initiatives
- Education & outreach
- Develop leadership network
- Share resources (funding, staff, knowledge) through partnerships

Participants:

- UMN–Extension
- BWSR
- DNR
- Stearns County SWCD
- MN Lakes & Rivers
- MN COLA
- Freshwater Society
- Itasca County SWCD
- Blue Thumb
- Comfort Lake–Forest Lake WD
- Northern Waters Trust
- Lower St. Croix Watershed Partnership



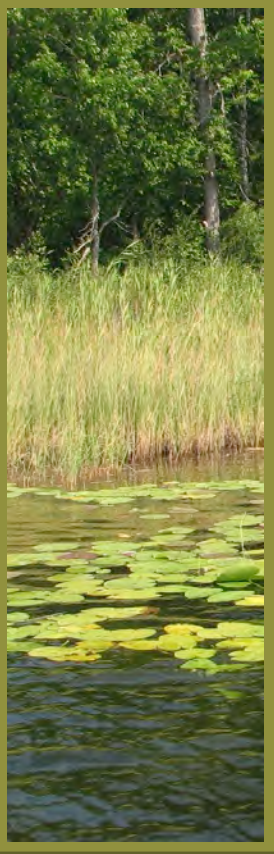
Natural Shoreline

Paul J. Radomski
May 15, 2024
DNR – Lake Ecology Unit



Consequences of Vanishing Natural Shorelines

- ❑ Poor water quality
- ❑ Erosion
- ❑ Loss of fish & wildlife habitat



We Have a Problem



Assessing MN's Shorelines: Score-The-Shore

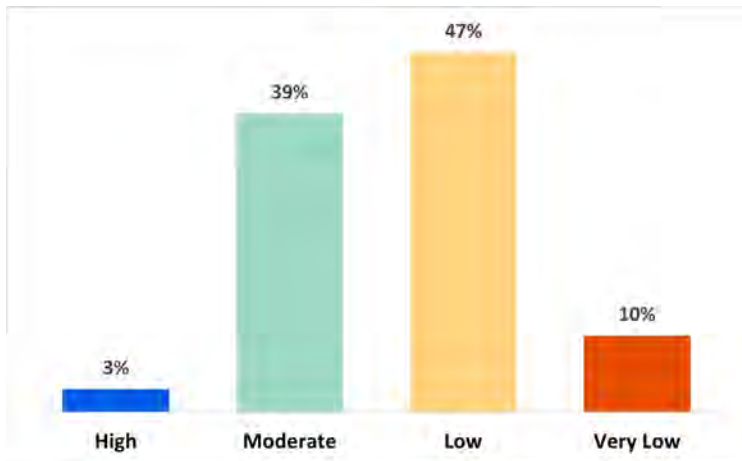
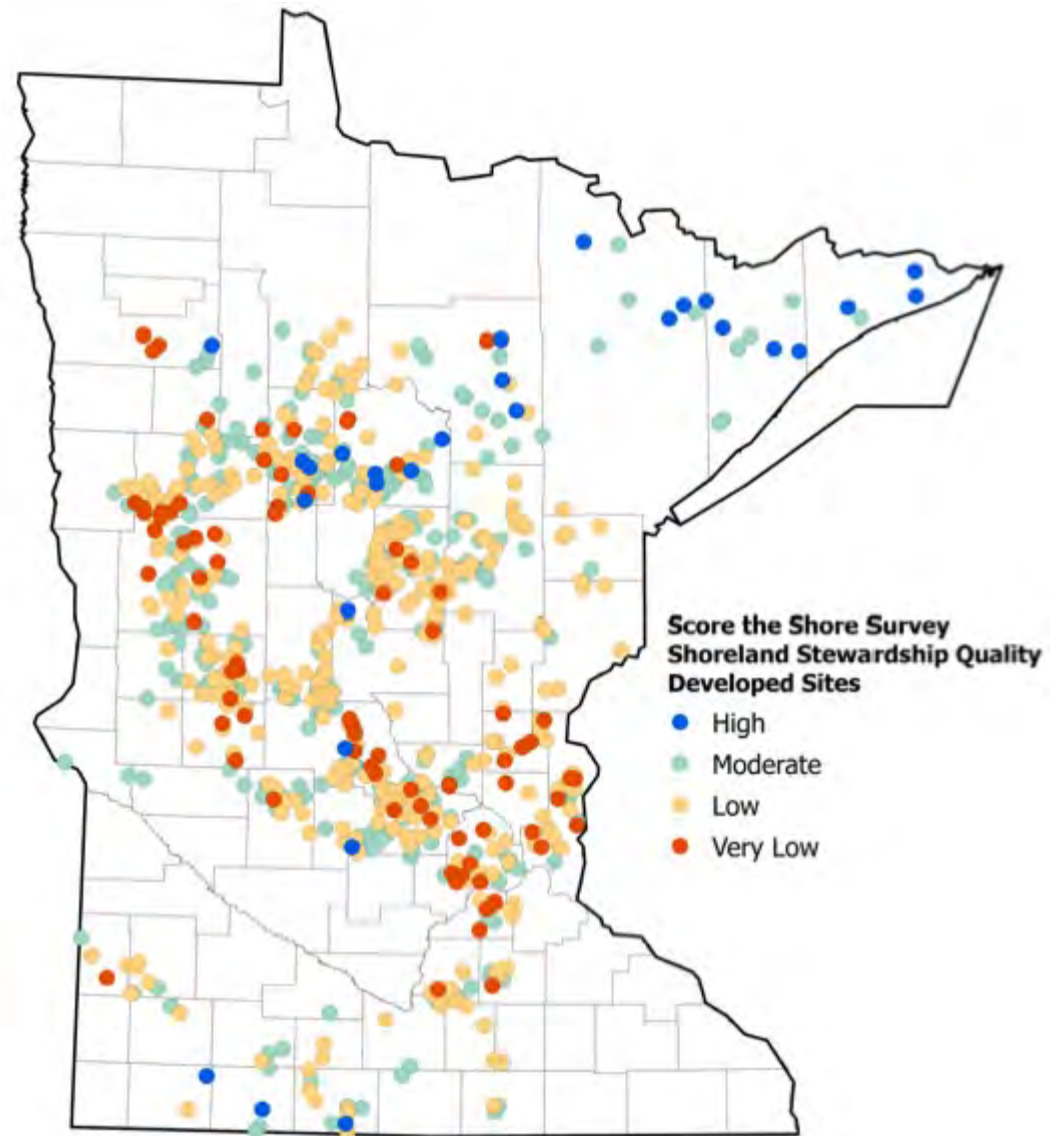
Objectives:

- Determine the lakewide lakeshore habitat score
- Monitor trends in lakeshore habitat

Survey Design:

- Boat-based
- Rapid assessment (most lakes take 1 day to survey)
- Systematical random site selection, with the number of sites and spacing of sites based on shoreline length
- At each site 100 feet of shore is assessed
- DNR biologists conduct survey

Score The Shore Results (data up to 2023)



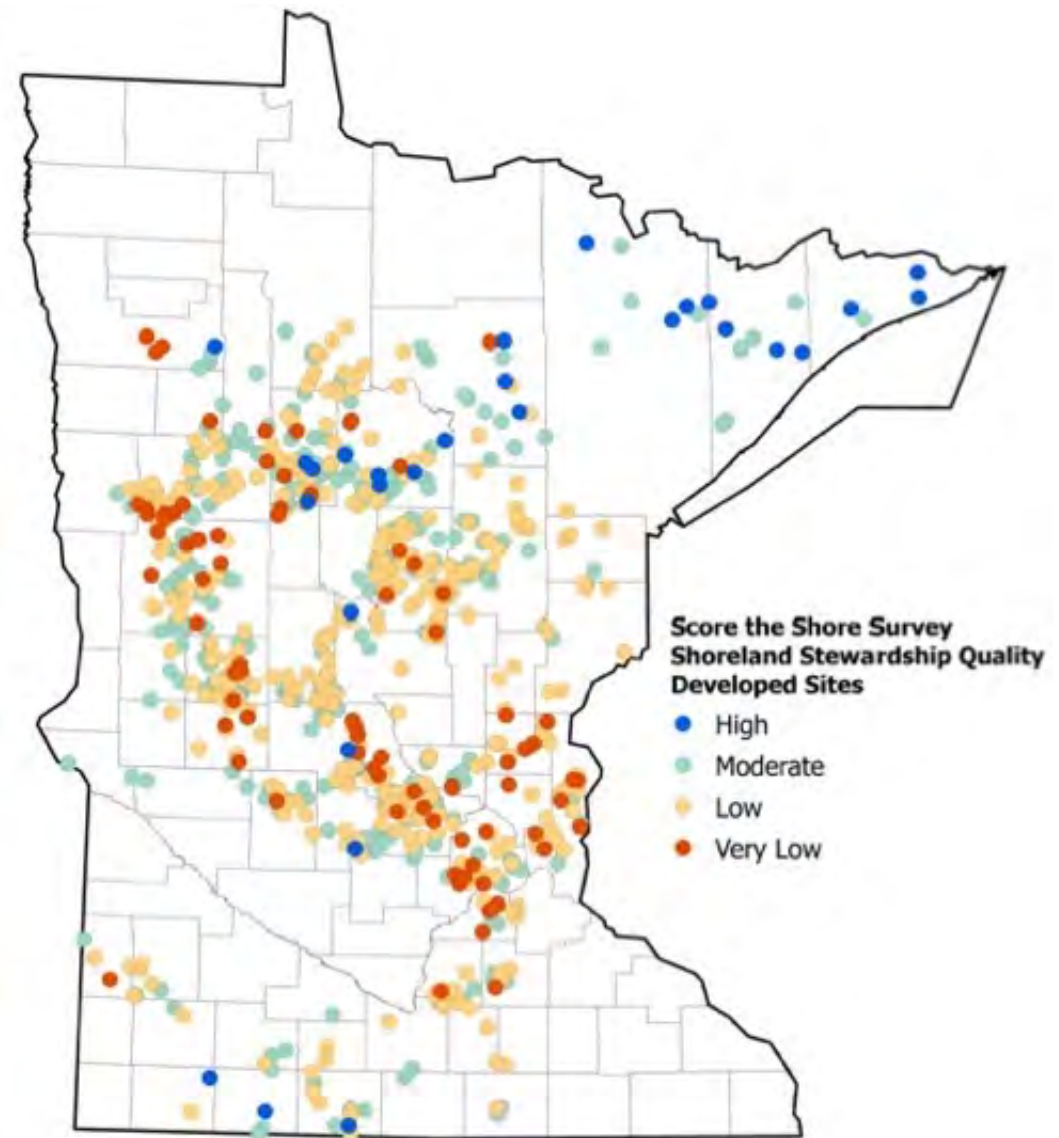
Lakeshore Buffers –

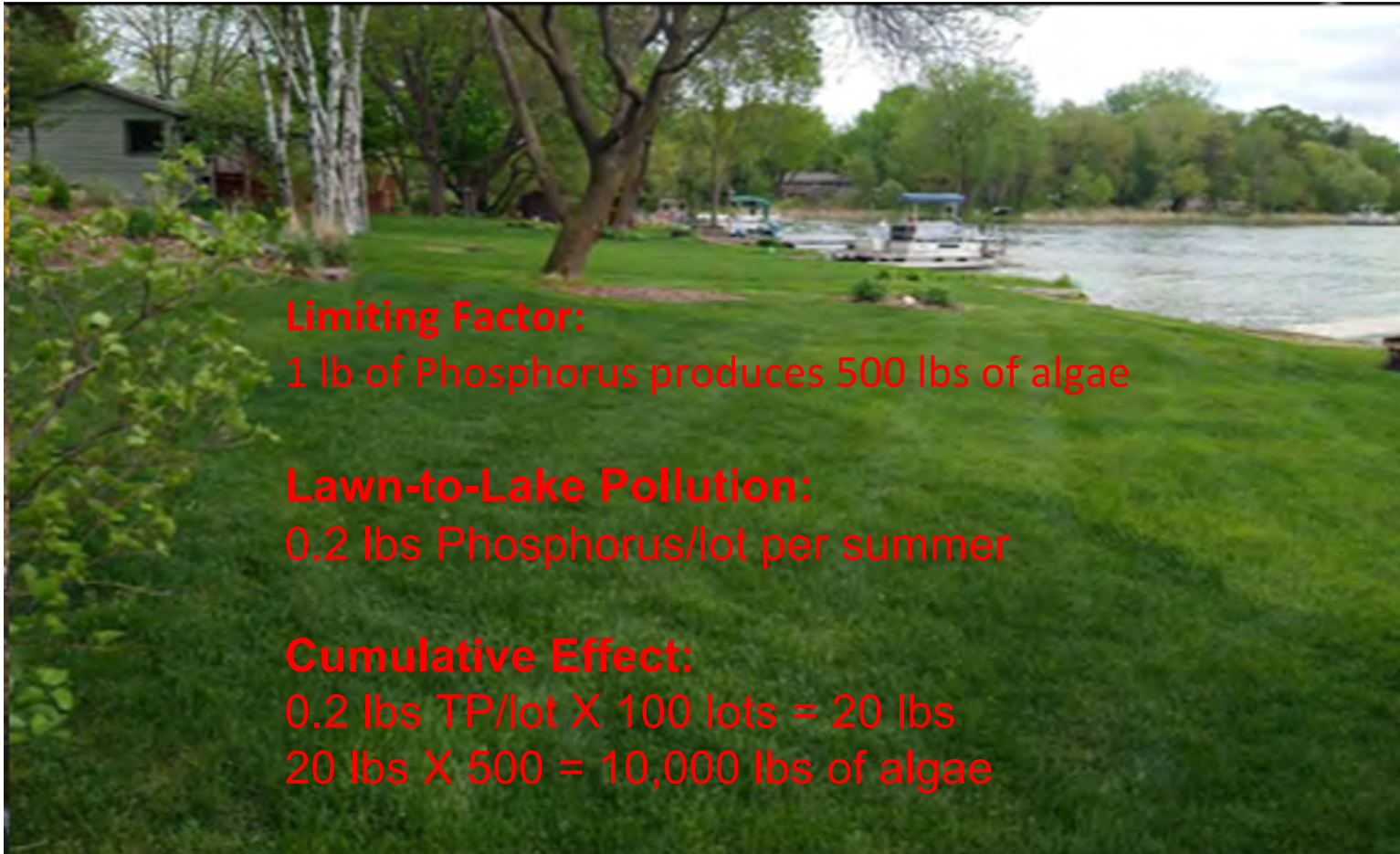
We've lost 40-50% of
our natural lakeshores

1-2% loss per decade

See the **Minnesota Natural
Shoreline Partnership's**
report:

*Minnesota's Vanishing
Natural Shorelines*





Limiting Factor:

1 lb of Phosphorus produces 500 lbs of algae

Lawn-to-Lake Pollution:

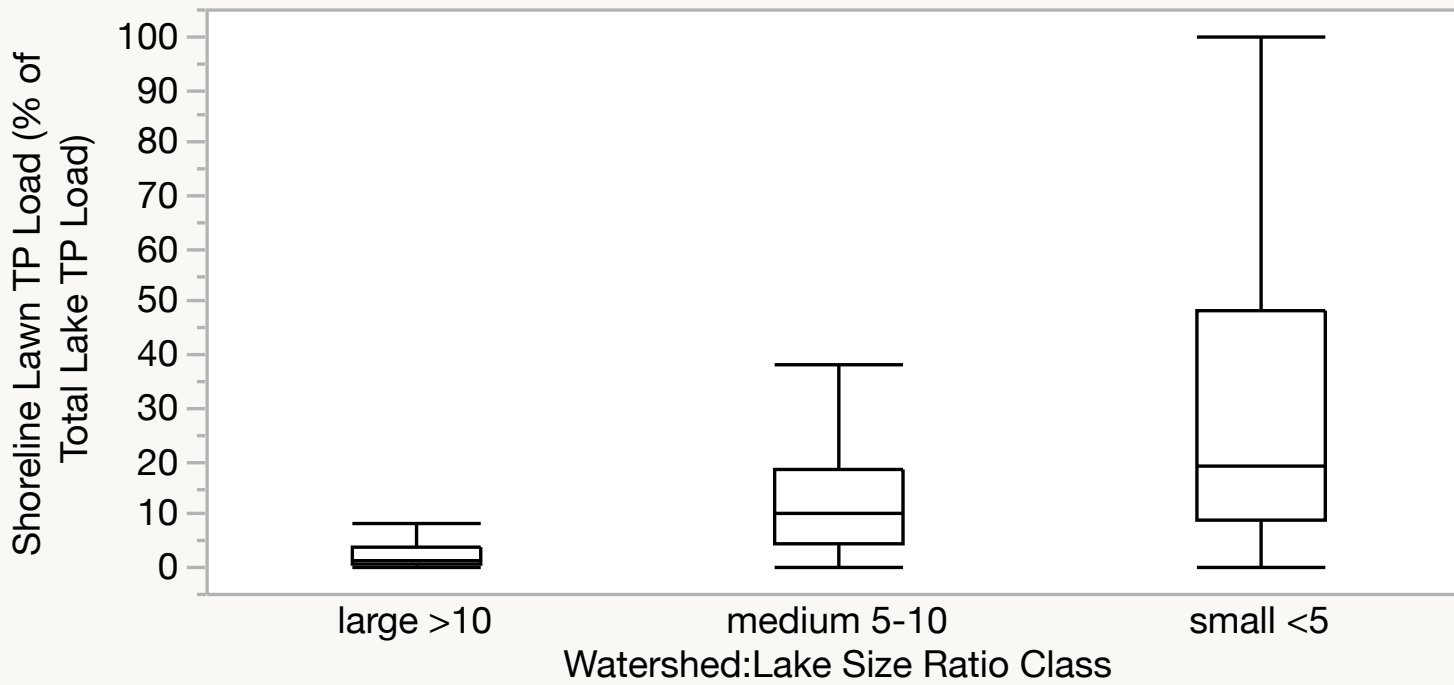
0.2 lbs Phosphorus/lot per summer

Cumulative Effect:

0.2 lbs TP/lot X 100 lots = 20 lbs

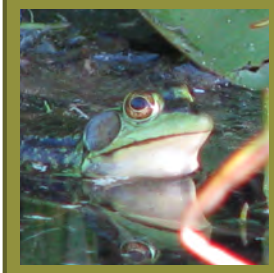
20 lbs X 500 = 10,000 lbs of algae





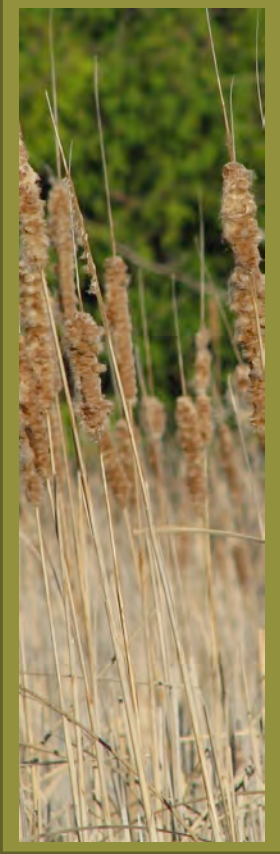
We Have a Problem





Woodford and Meyer. Impact of lakeshore development on green frog abundance. *Biological Conservation*

Loss of Bird Habitat




Loons are more likely to nest away from shoreline development. They seek areas with low fetch, low littoral slope, and high plant richness

Radomski et al. Common loon (*Gavia immer*) nesting habitat models for north-central Minnesota lakes. *Waterbirds*

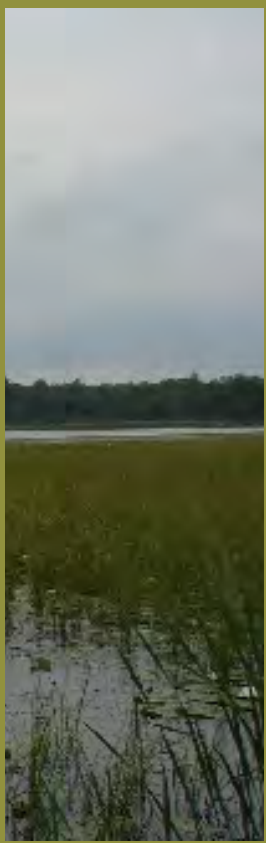


Lindsay et al. Influence of lakeshore development on breeding bird communities in a mixed northern forest. *Biological Conservation*





Less emergent and floating-leaf
vegetation along developed,
lawn-down-to-the-lake shores



Radomski and Goeman. Consequences of human lakeshore development on emergent and floating-leaf vegetation. North American Journal of Fisheries Management

Radomski. Historical changes in abundance of floating-leaf and emergent vegetation in Minnesota lakes. North American Journal of Fisheries Management

Bill Lindner

Crappie were likely to nest in areas away from development



Reed and Pereira. Relationship between shoreline development and nest site selection by black crappie and largemouth bass. North American Journal of Fisheries Management

Eric Engbretson



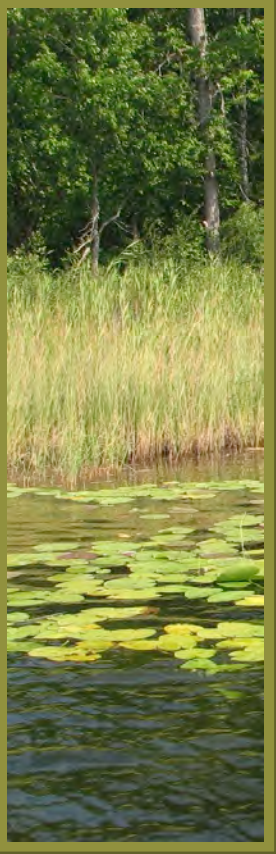
Shore





Actions

- ❑ Standards and ordinance
- ❑ Education
- ❑ Shift social norm



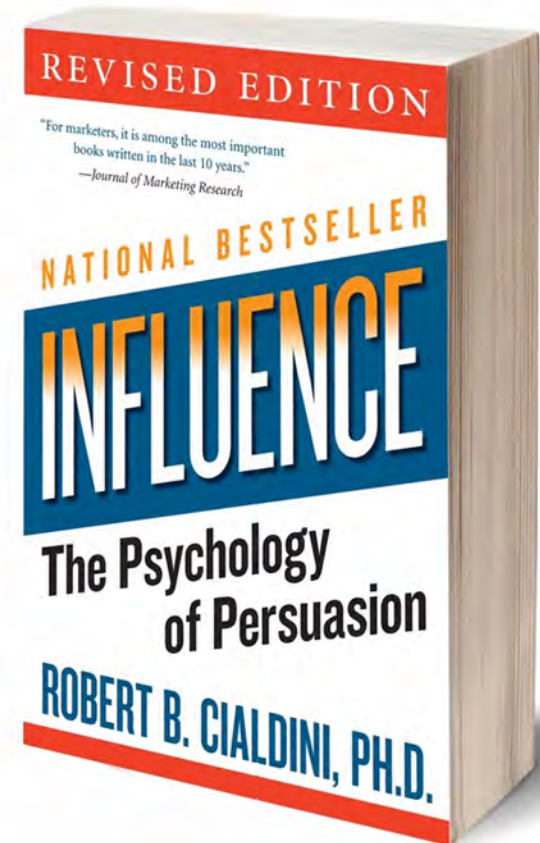
Shift the Social Norm

Principles of Persuasion

- Like the messenger
- Commitment
- Reciprocity
- Authority
- Normalize the good behavior

The Idea:

There is value in shifting individual lakeshore owner behavior



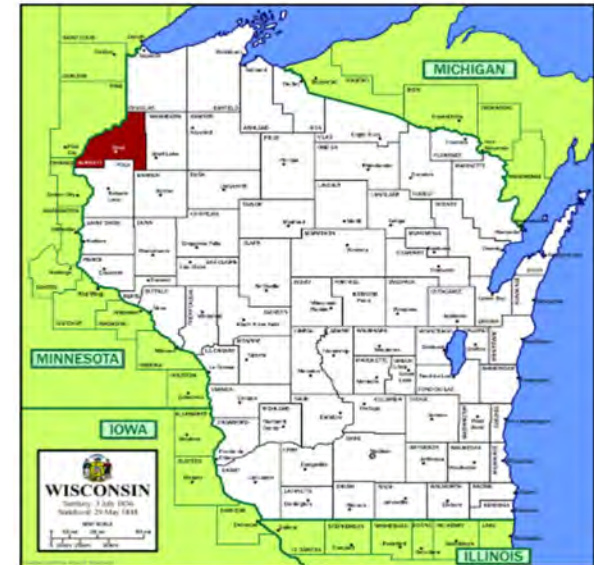
What are other counties doing?

Burnett County (WI) Shoreline Incentives Program (SIP) (2000)

“Reward” for following 35’ vegetative buffer regulation, in property covenant.

Technical and financial assistance, shoreline incentives and signage, education/outreach (esp. new landowners).

Have preserved 53 miles of shoreline on 779 parcels.



What are other counties doing?

Stearns County (MN) Shoreland Contractor Licensing (Land Use and Zoning Ordinance)

Annual license required for excavating
landscaping, grading or hauling fill within the
shoreland area

Training requirement: Attend County
sponsored shoreland workshop within 2 years

Bond required to ensure shoreland ordinance
compliance





Lake Steward Program

- Designed for Lake Association use to encourage shoreline restoration projects
- Educate about sustainable land management as it relates to water quality
- Awards are given for healthy, native shorelands

Lily Carr lily@mnlakesandrivers.org

<https://mnlakesandrivers.org/lake-associations/lake-association-programs/lake-steward/>

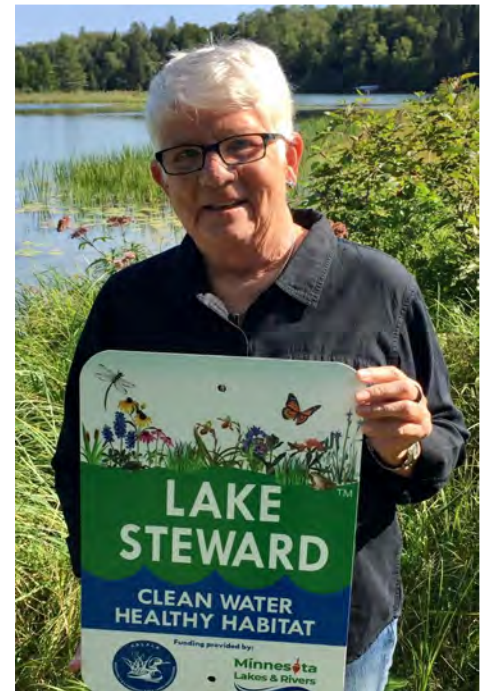


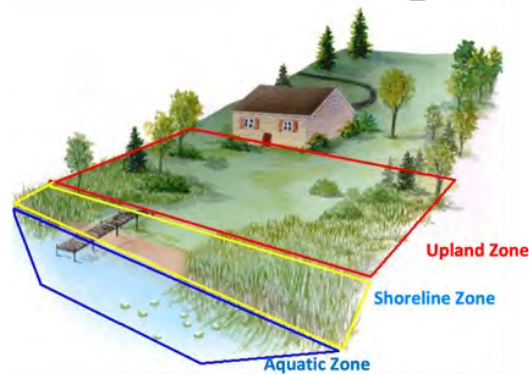
Image courtesy MLR



Lake Steward Survey App

- Neighbors assessing neighbors
- Restoration/Protection recommendations
- Awards given to quality lakeshores

Lily Carr lily@mnlakesandrivers.org



Lake Steward Property Evaluation

Basic Information

Surveyor*

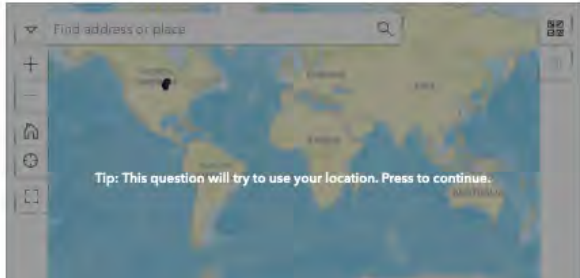
Lake*

County for Lake*

Lake Association*
If not on the list, select "Other" and enter in the next line

Survey Ticket Number
2023-09-11 14:16

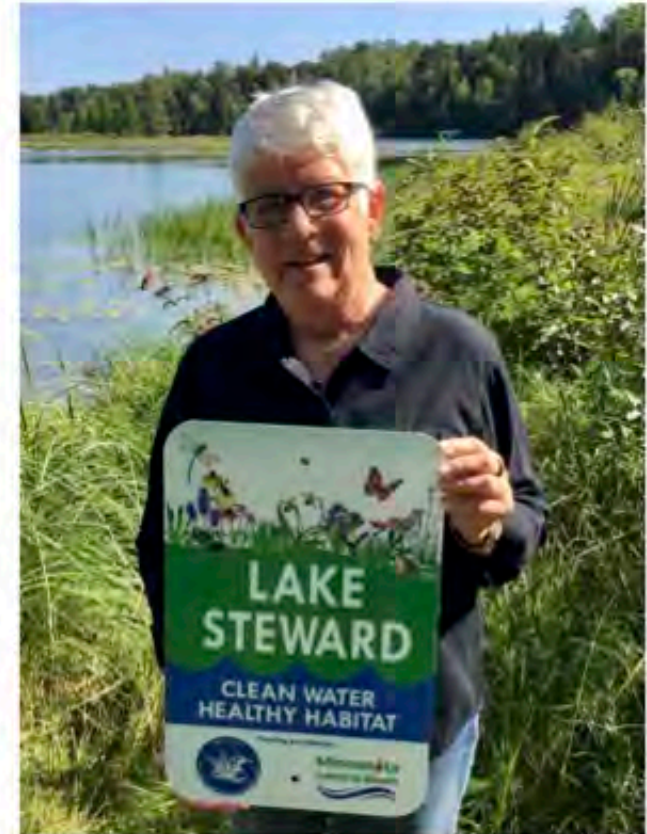
Shore Location*
When at site and location services available, press the target icon. Alternatively, press the map icon to enter address or place the blue flag at location. You may have to touch/click the check mark to save location.



Resources Available



- Initial focus on advocacy, education, project grants
- Lake Steward Program
 - Leverages existing networks
 - Taps into local values
 - Fosters behavior change via shifting social norms



Lily Carr lily@mnlakesandrivers.org

Lake Tools Designed for LGUs - MN Geo

- **Lakes of Phosphorus Sensitivity Significance (LPSS)**

- *TP sensitivity, TP loading estimates & load reduction goals (pounds of TP/year)*

- **Lake Benefit:Cost Assessment (LBCA)**

- *Ranking lakes on return on investment (ROI)*

- **Lakes of Biological Significance (LOBS)**

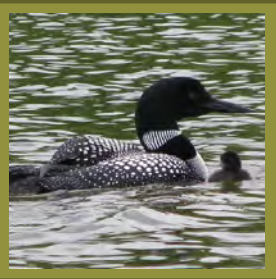
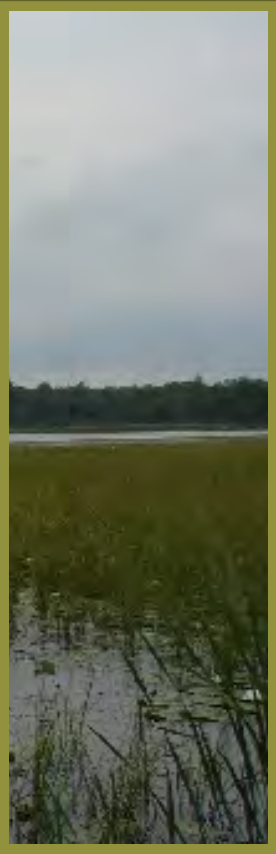
- *List of lakes with high-quality biological communities*

- **Watershed Health Assessment Framework for Lakes**

- <https://arcgis.dnr.state.mn.us/ewr/whaflakes/>

- **Sensitive Lakeshore Assessment**

- **IDs unique or critical habitat for north-central MN lakes (>500 acres)**





Thank you

Paul J. Radomski



Loon Management

Minnesota Loon Restoration Project

Jayden Jech | Loon Specialist



Loon Information

Minnesota's Loon Population

Minnesota's population, estimated at 12,000 adults (2% of the North American population) is the highest in the continental US.

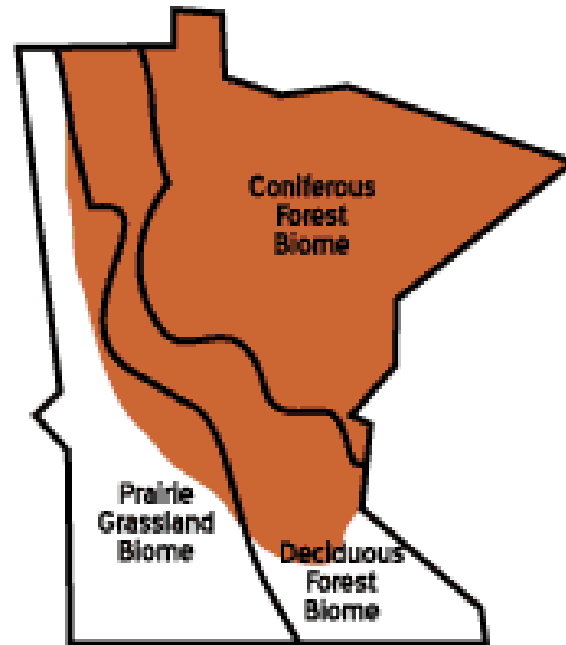
MN loon populations are mostly stable, yet we are beginning to see declines in juvenile loons in some parts of the state.



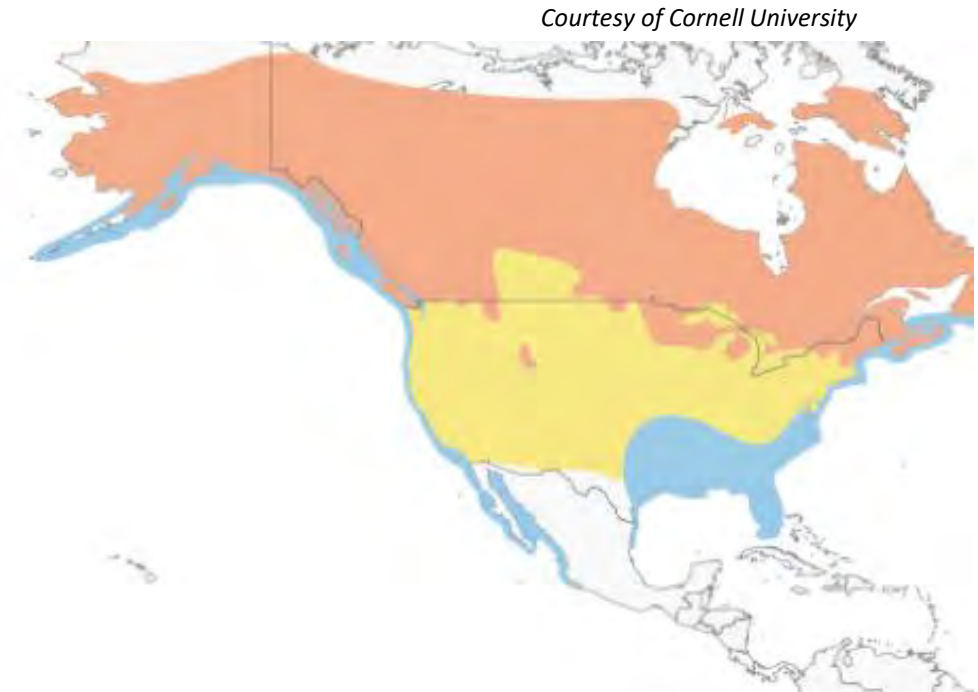
Where do loons live throughout the year?

Loons breed, nest, and raise their young in northern and central Minnesota in addition to Canada, Michigan, Wisconsin, Maine, Vermont, New Hampshire, etc.

In late fall loons migrate from Minnesota to the gulf of Mexico or Florida.



Common Loon



Year-round
Breeding

Migration
Non-Breeding

What are the habitat requirements of loons?

When in Minnesota for the breeding season, Loons favor:

- Clear deep lakes of at least 60 acres, preferably a cluster of such lakes
- Abundant small forage fish, especially cisco
- Irregular shorelines with coves, quiet bays, floating bog mats, and numerous islands
- Hidden, quiet, and protected nesting sites, often close to a bank and with a steep drop-off



What are the primary threats to loon population?

Shoreline development



What are the primary threats to loon population?

Shoreline development

Poor water quality



What are the primary threats to loon population?

Shoreline development

Poor water quality

Lead and mercury ingestion



Photo credit: MPCA

What are the primary threats to loon population?

Shoreline development

Poor water quality

Lead and mercury ingestion

Human disturbance on lakes



What are the primary threats to loon population?

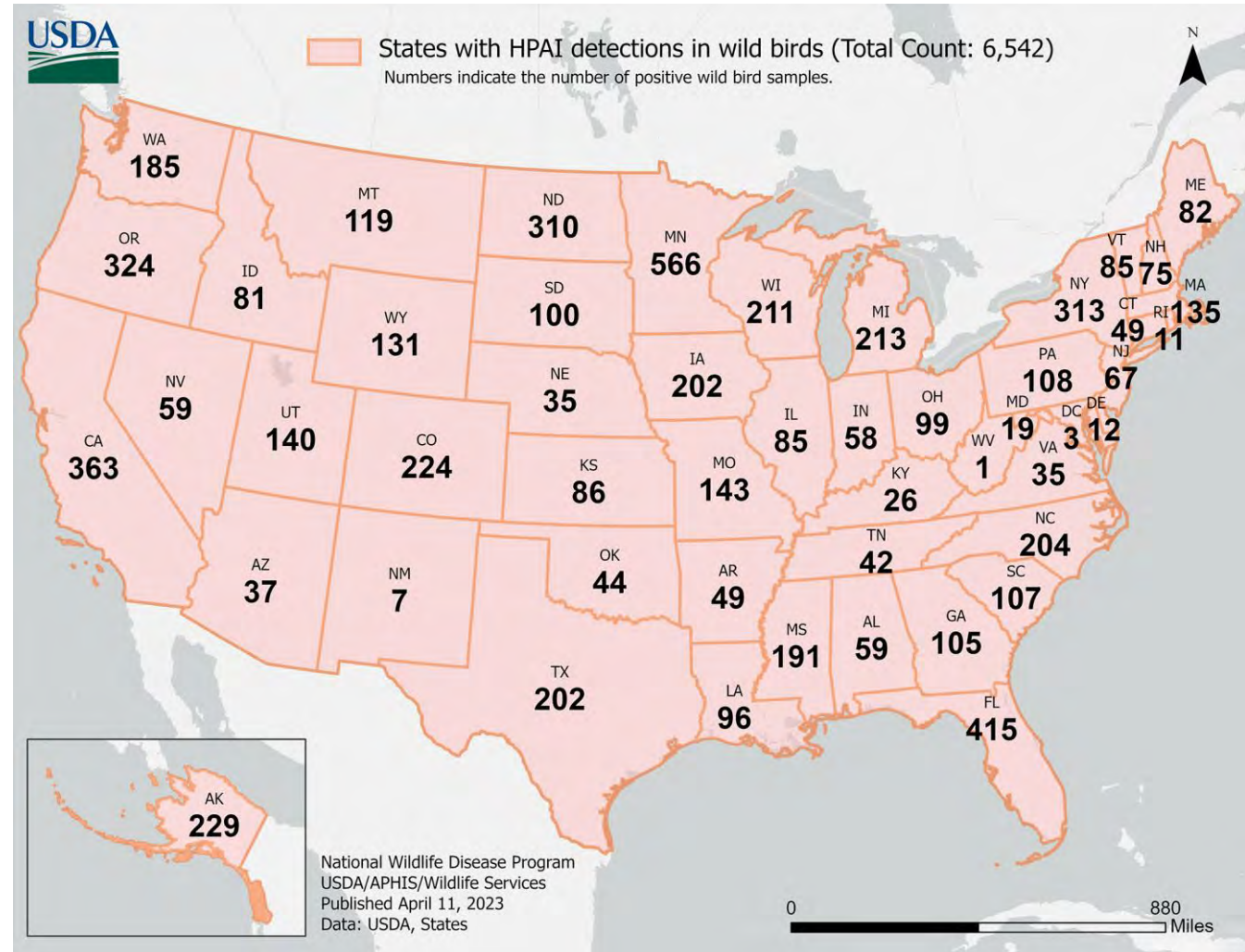
Shoreline development

Poor water quality

Lead and mercury ingestion

Human disturbance on lakes

Disasters and disease outbreaks





Minnesota Loon Restoration Project

Project Background

- 2010 Deepwater Horizons Oil Spill
- Open Ocean Trustee Implementation Group
- In 2019, \$4.8 million awarded to MN DNR Loon Restoration Project
 - Protect lakeshore habitat
 - Enhance loon productivity



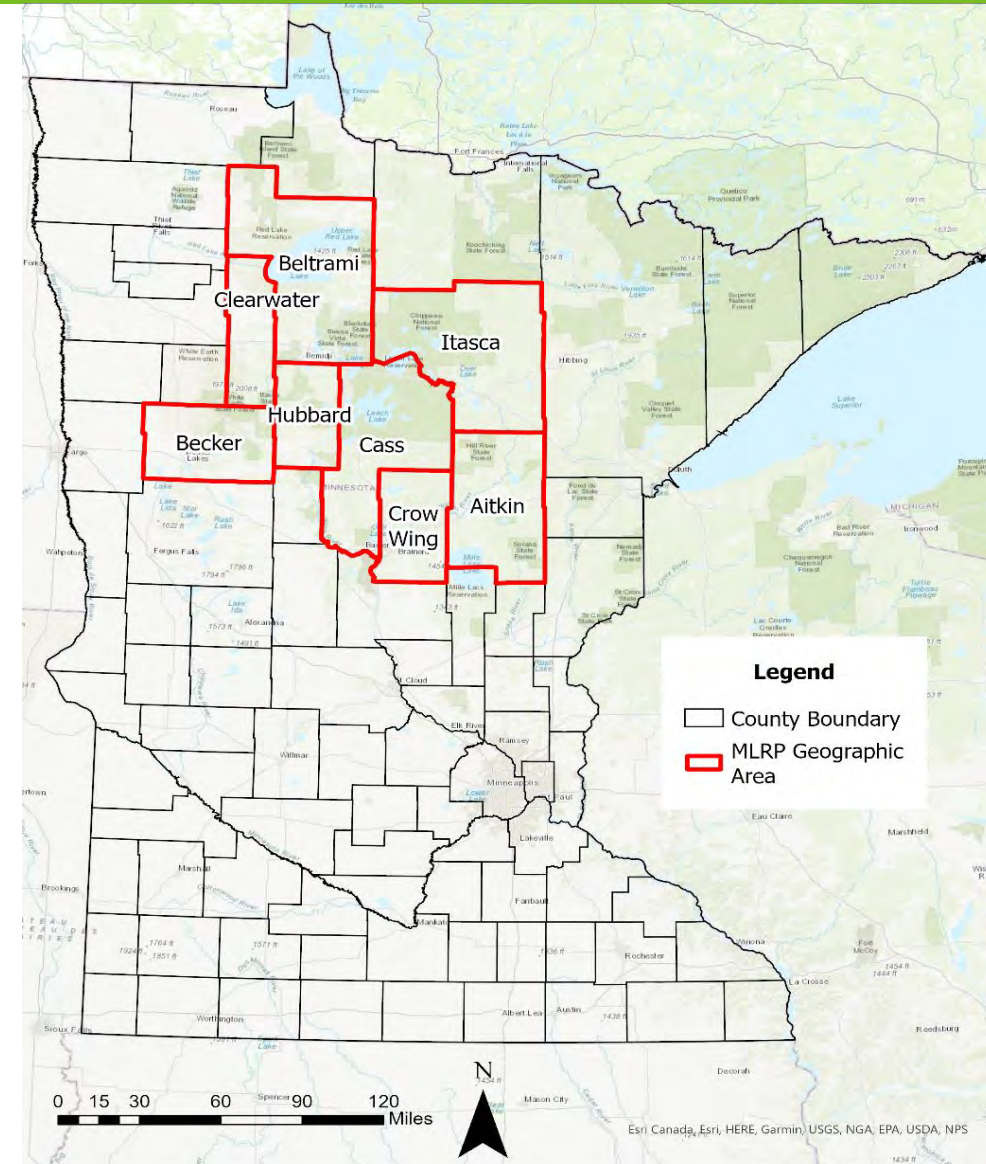
Project Focus Area

The MN Loon Restoration Project focus on eight northern counties.

Becker, Clearwater, Beltrami, Hubbard, Cass, Crow Wing, Itasca, and Aitkin

This Focus Area was chosen due to a:

- High potential to sustain quality loon habitat, and
- Confidence that conservation efforts in this area will make a difference.



Objectives of the MN Loon Restoration Project



Objective 1
Acquire loon habitat.



Objective 2
Augment natural nesting with artificial nesting platforms (ANPs) in targeted locations.



Objective 3
Promote stewardship of lakes with loons by engaging community members in the Loon-Friendly Lake Registry Program.



Objective 4
Participate in joint monitoring of project implementation and outcomes.

Permission from USGS

Loon-Friendly Lake Management Plans

What happens with a Loon Friendly Lake Management Plan?

- Document history of loons on the lake.
- Consider changes to the lake in last 10 years.
- Look at barriers to loon success such as human disturbances or predation.
- Connect with MPCA Get the Lead Out! Program.
- Recommend voluntary actions to improve lake conditions.



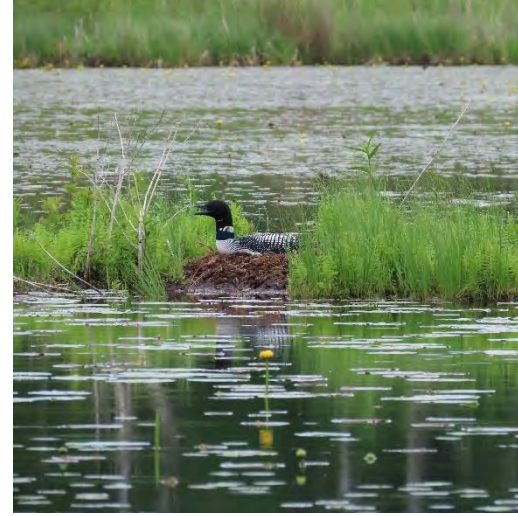


Loon Management

Loon Protections and Listing

- Migratory Bird Treaty Act (1918)
 - “Prohibits the take (including killing, capturing, selling, trading, and transport) of protected migratory bird species without prior authorization by the U.S. Fish and Wildlife Service” (USFWS).
 - “Under MBTA it is illegal to destroy a nest that has eggs or chicks in it” (USFWS).
- Species of Greatest Conservation Need (Minnesota)
 - “Population rare, declining, or vulnerable to decline and are below levels desirable to ensure their long-term health and stability” (MN DNR).

Examples of Loon Nesting Areas



Loon nesting habitat and location may vary year to year.

Locations which are highly supportive of loon nesting

Radomski and Carlson (2019)

- Islands
- Extensive shallow water nearshore
 - Example: Littoral slope averages less than 4% and is difficult to boat near shore.
 - High amounts of emergent vegetation
- Short Fetch
 - Fetch generally less than ½ mile.
 - Shoreline not exposed to large waves
 - Shallow bays or coves
 - Peninsula that reduces prevailing winds
 - Nearshore wetland



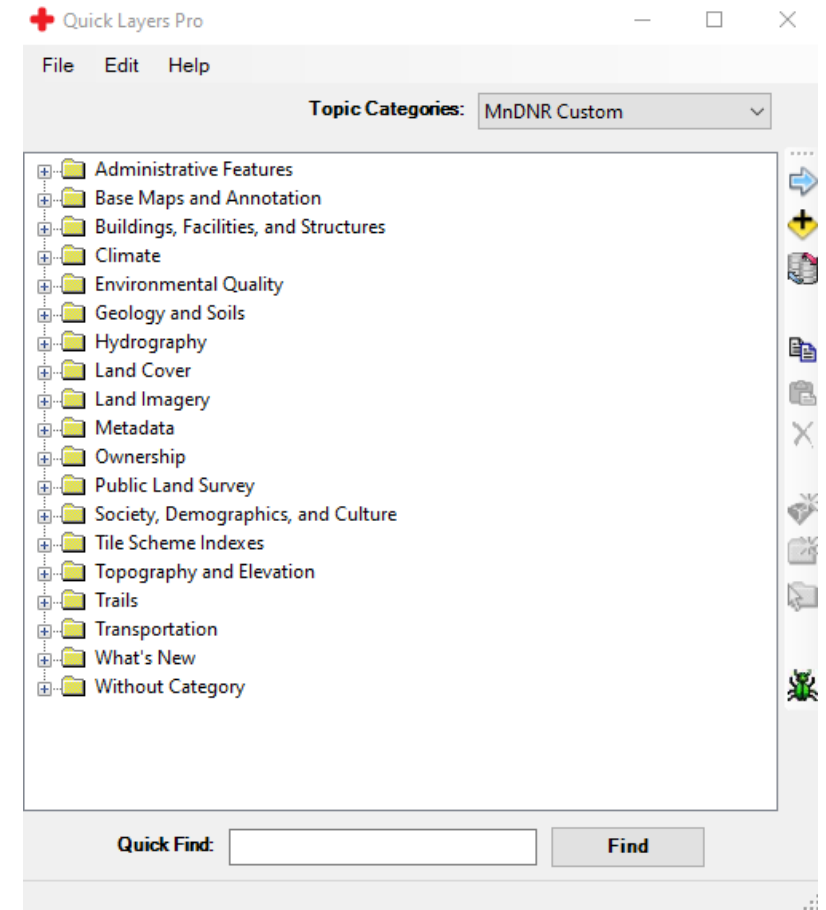
MN DNR Sensitive Lakeshore Assessment

- Science-based criteria to identify sensitive shoreland parcels
 - Wetland data
 - Hydric soil data
 - Aquatic vegetation distribution and abundance
 - High-priority animal species distribution and abundance
- Sensitive shoreline typically aligns with high value loon nesting habitat
- Development and alteration may have significant impact to species of concern

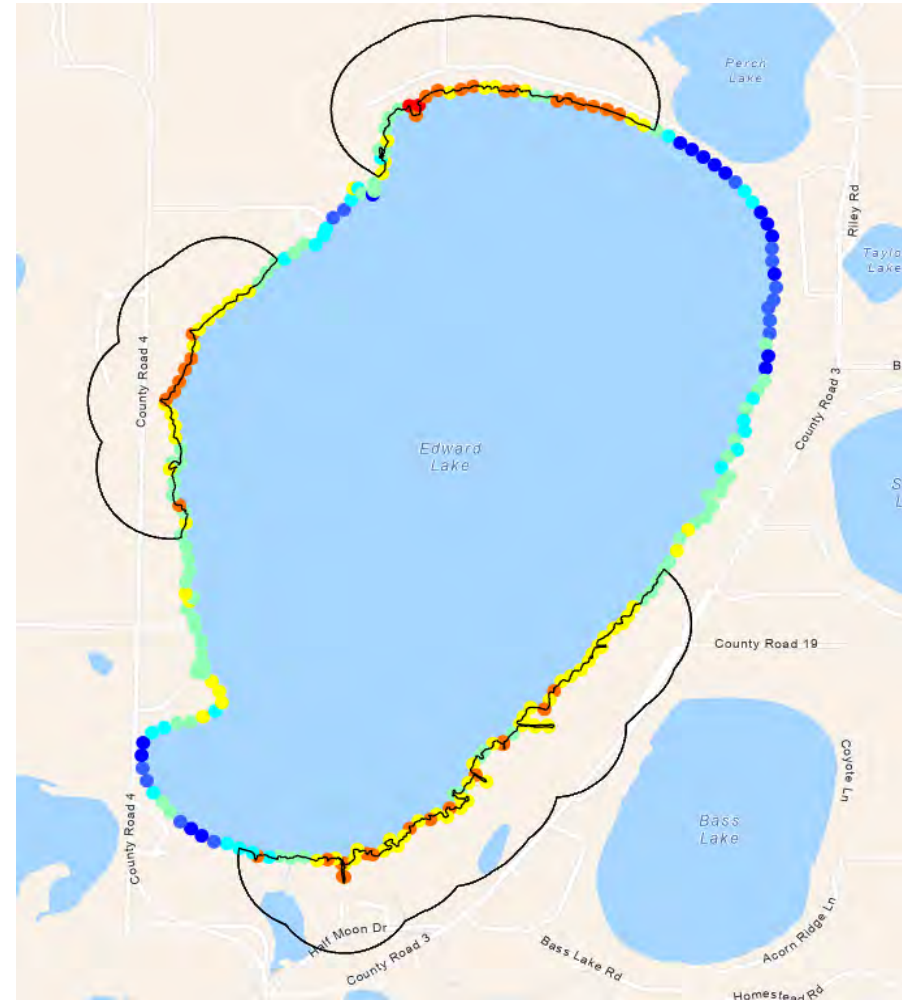
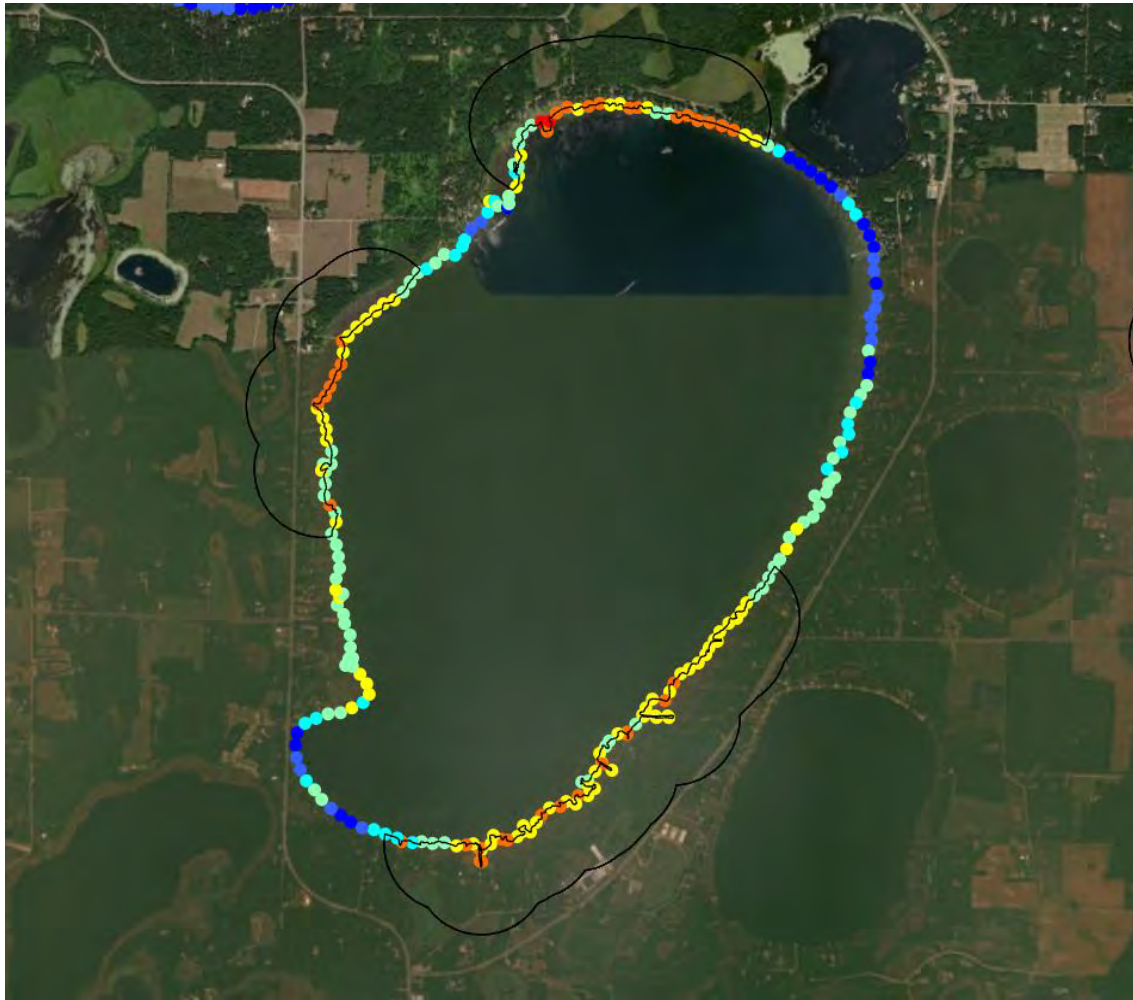


Sensitive Shoreline in MN DNR Quick Layers

- MN DNR GIS tool to identify sensitive lake areas
- Available for lakes greater than 500 acres
- Highly sensitive shoreline
 - Polygon feature representing sensitive areas of lakeshore
 - ¼ mile buffer area
- Sensitivity Index
 - Point feature representing scores
 - Lake specific and not to be compared between lakes



Example of Quick Layers Sensitive Lakeshore



Reducing Impact to Sensitive Shoreline

- More protective zoning in sensitive shoreline areas
- Focus on habitat and wetland connectivity
- Reduced alteration of sensitive shoreline areas
- Reduce alteration of natural shoreline (e.g. rip-rap)
- Contact Loon / Nongame Wildlife Specialists



Enhancing Loon Habitat

- Maintaining natural shorelines
- Shoreline restoration
- “Loon Nesting Area” signage
- Sharing educational material
 - “Be Loon Aware” Brochure
 - Get the Lead Out!



Thank you!

Jayden Jech

Loon Specialist

Jayden.Jech@state.mn.us

(218) 203-4326

Nongame Wildlife Specialists

Gaea Crozier – Grand Rapids

Gaea.E.Crozier@state.mn.us

Spencer Rettler – Bemidji

Spencer.Rettler@state.mn.us

Amy Westmark – Fergus Falls

Amy.Westmark@state.mn.us

VACANT - Brainerd

CASS COUNTY
ENVIRONMENTAL
SERVICE & SWCD
PARTNERSHIP



COOPERATIVE

- MERGED OFFICES IN 1999
 - SERVICE AGREEMENT ESTABLISHING ROLES
 - LIAISON COMMITTEE MEETS ANNUALLY TO UPDATE AND REVIEW
-





SERVICE AGREEMENT OVERVIEW

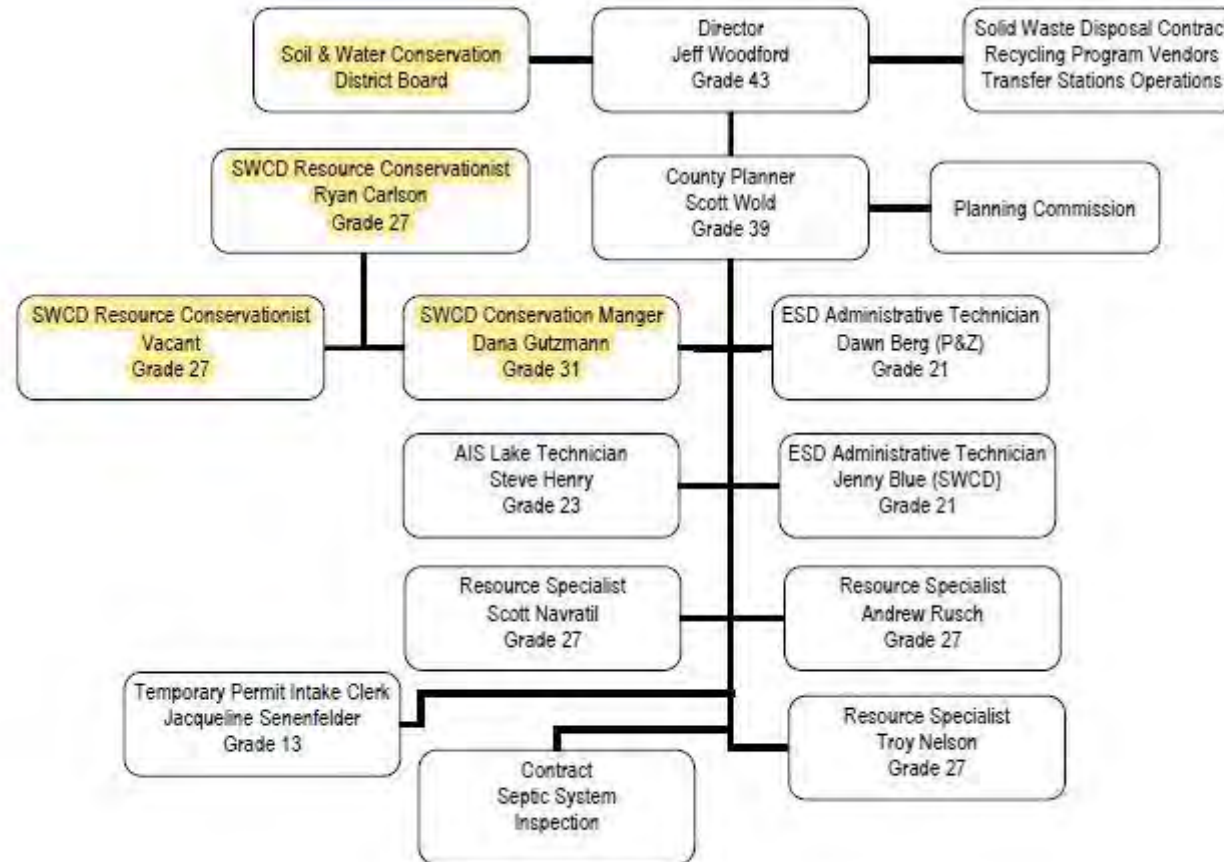
- * The County will provide personnel, equipment, office space, and other functions necessary to accomplish SWCD duties.
 - *The SWCD shall be tasked with soil and water duties, SWCD Comprehensive Plan, AIS Prevention Aid funding, and WCA enforcement.
 - *Specifies budget and hiring authorities, liabilities, and reporting details.
-

STRUCTURAL ORGANIZATION

Environmental Services

Our mission is to deliver quality public services to the citizens in an effective, professional, and efficient manner.

Web services: www.casscountymn.gov



HOW IT STARTED, WHERE IT'S GOING

- Traditionally allocated grant funds toward larger restoration projects.
- Increasing focus on education and outreach, as well as voluntary private land conservation projects.
- County Resource Specialists consult with SWCD technicians on shoreline concerns and restorations.



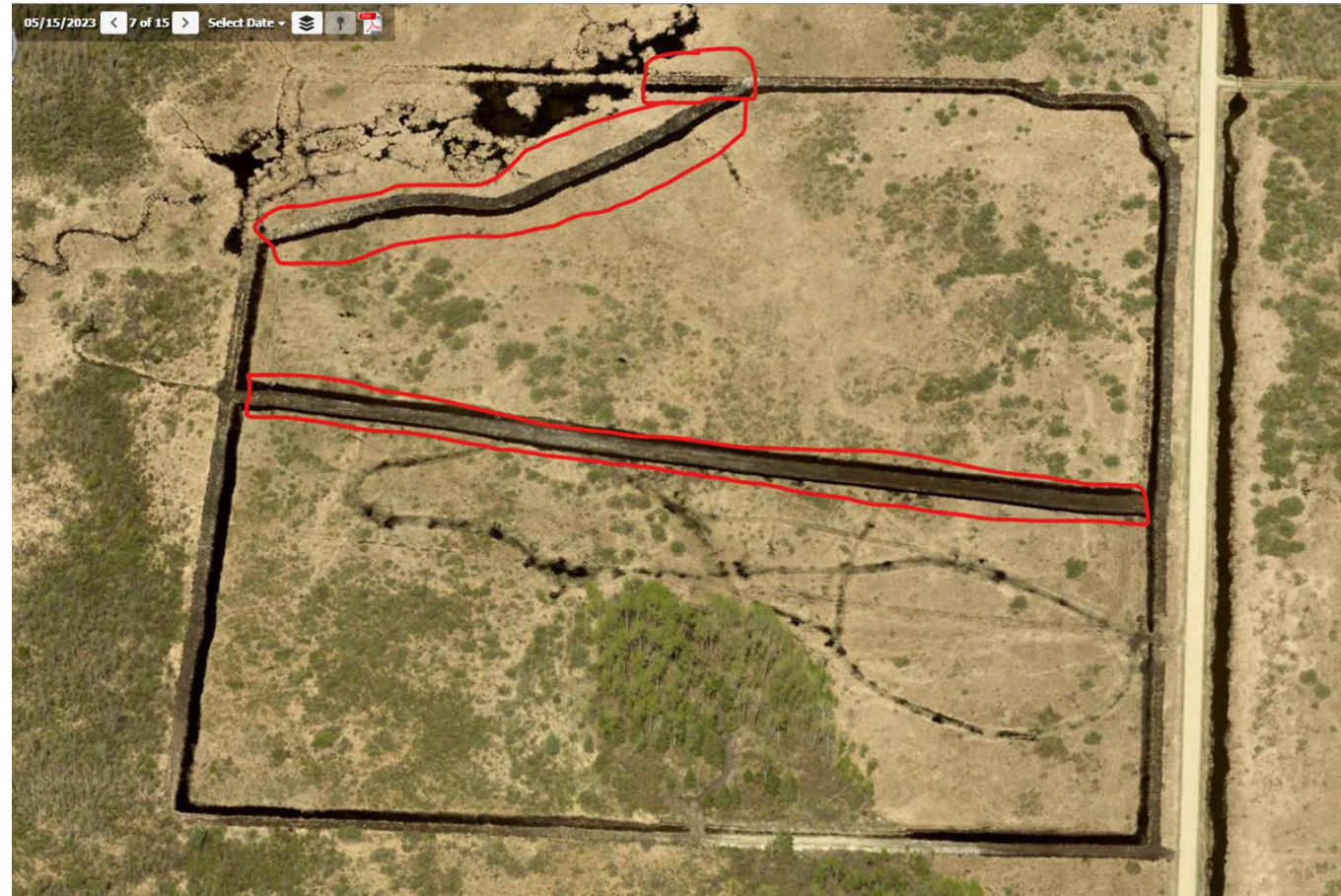
DESIGNING AND ADOPTING REGULATIONS – ORDINANCE COLLABORATION

Review and input from P&Z along with SWCD
Personnel



WETLAND CONSERVATION ACT

- Cass County participates with a Resource Specialist on the technical evaluation panel (TEP).
- Cass County Resource Specialists have wetland training to assist in identifying possible violations and identify potential wetlands before issuing zoning permits



VIOLATION CORRECTION

Team effort in:

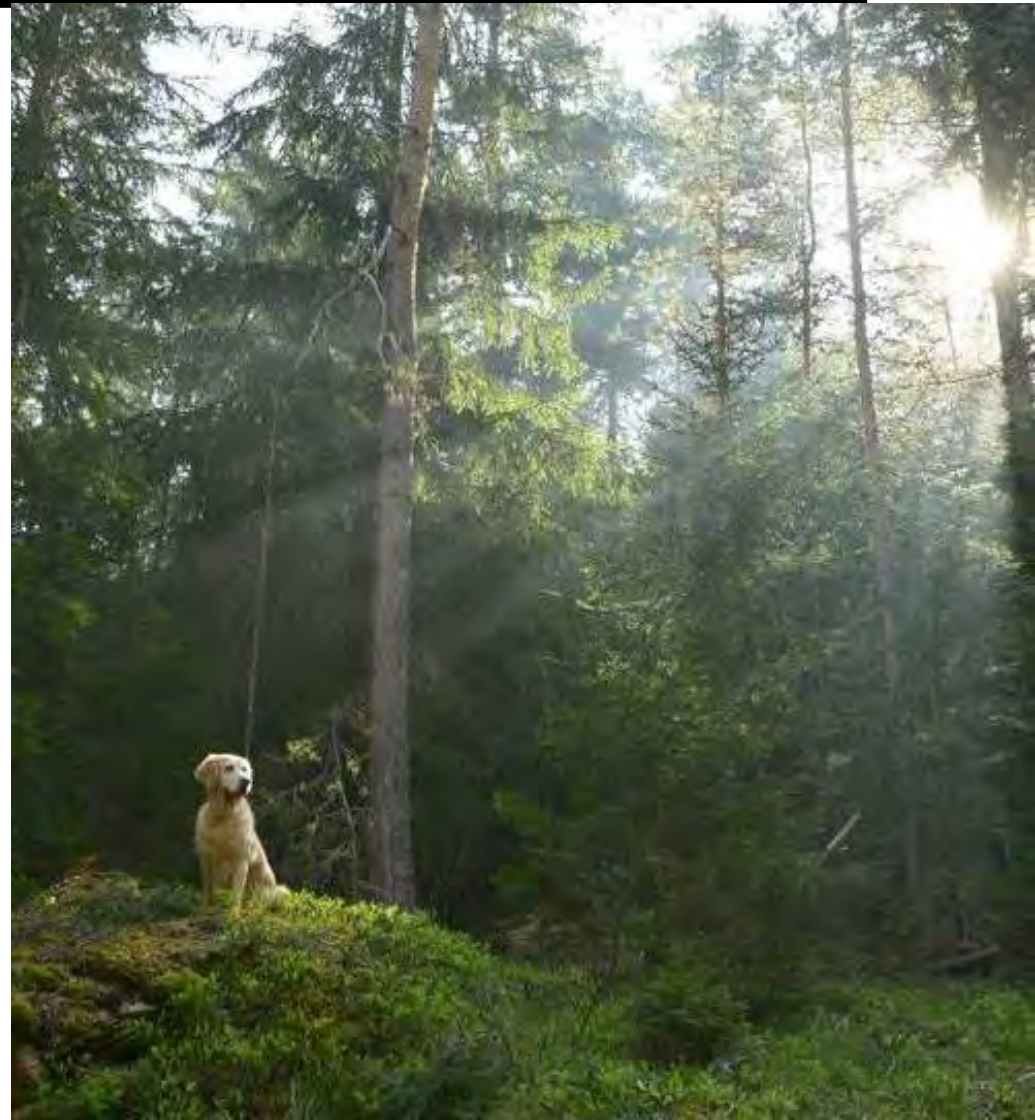
Shoreland Degradation Correction

Wetland violation correction



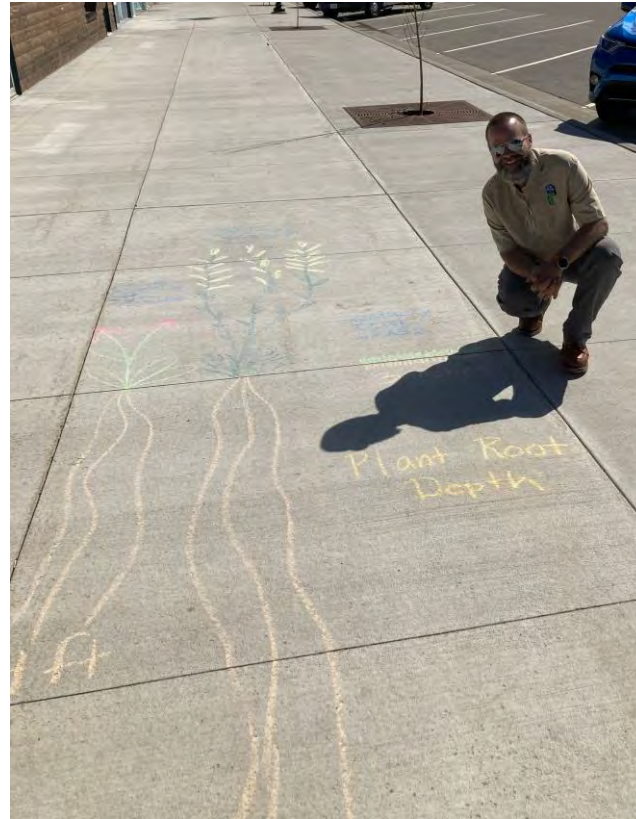
GROWTH STRATEGY

- **More follow-up on variance conditions**
 - **i.e. shoreland buffer conditions**
 - **No-mow areas**
 - **Stormwater management plans**



MARKETING AND PROMOTING NATURAL SHORELINES

- Financial incentives
- Outreach Events
- Consult with private property owners



Bees N' Brews
A Shoreline Pollinator Event

RENDZVOUS FOR A CAUSE

As part of Rendezvous Brewing's "Rendezvous for a Cause" initiative, 20% of beer sales will be donated to the Association of Cass County Lakes. This donation will support the spring tour organized by the association, allowing members to visit shoreline projects that have been completed using native plants.

No RSVP required. Just show up ready for a little buzzzzzz!

MAY 5th 1:00 - 3:00 pm
Rendezvous Brewing
112 First Street South
Hackensack, MN 56452

Join the Cass Soil and Water District team in planting shoreline plant species native to Minnesota, which you can take home to grow along your shoreline. These plants not only mitigate erosion and capture nutrients but also foster habitats for pollinators and enhance the aesthetic appeal of your shoreline. Rendezvous brewing is partnering with us for this event. As part of the event, Rendezvous Brewing is excited to offer their "Sunny Dream" beer brewed with local honey from Hackensack and Longville-some of the bees pollinate the local hops Rendezvous Brewing used this past fall. The honey is considered a wildflower honey, most of the bees obtained the nectar from local basswood trees. Sunny Dream has a hint of citrus that provides a crisp, light beer that has its honey taste on the back end of a sip. A Beer perfect for spring!

As part of the event you can:

- Learn about how to create a Native Pollinator habitat on your shoreline property
- Plant native shoreline seeds to bring home and incorporate into your shoreline
- See photos of local native shoreline plantings
- Buy a local beer from Rendezvous Brewery that was brewed using local Hackensack/Longville honey
- Learn about services that Cass SWCD offers to local residents to help develop pollinator habitats

CASS SWCD **CLEAN WATER LAND & LEGACY ENVIRONMENT**

THANK YOU



CMSCWD & City of Scandia: Lakeshore Collaboration

Tom Langer, CMSCWD - Riparian Specialist
Kyle Morell, Scandia - City Administrator
TJ Hofer, Bolten & Menk – City Planner

DNR LGU Forum
May 15, 2024



Located in NE Washington County



Scandia

- 3 Watershed Districts
- 14 Lakes + 6 miles of St. Croix Scenic Riverway
- 4 Staff
- ~4,000 residents in 40 Sq Miles

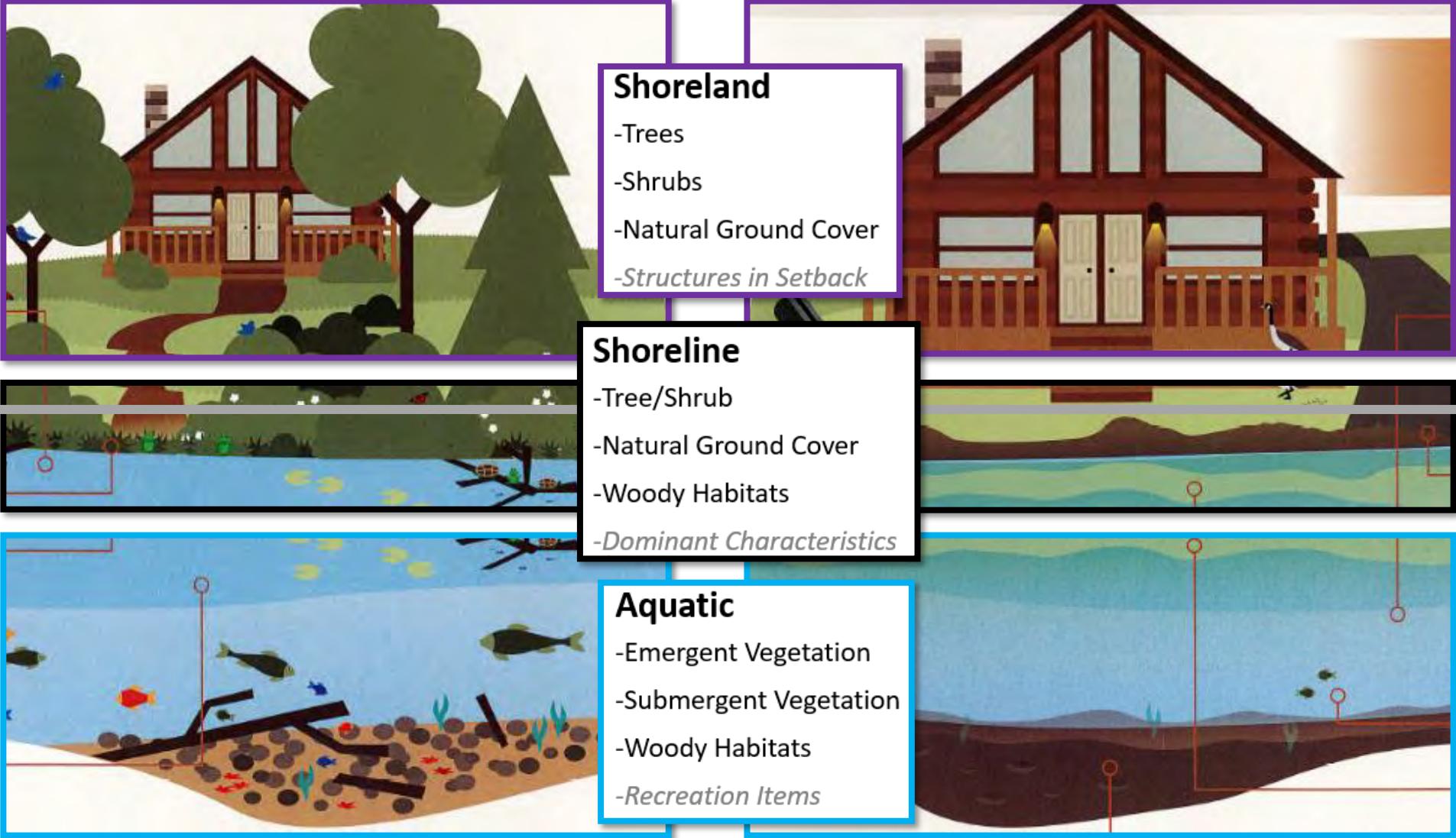
Carnelian-Marine-St. Croix WD



- 6 LGUs
- 21 Lakes + 19 miles of St. Croix Scenic Riverway
- 2 Staff
- ~8,000 residents in 81 Sq Miles

Lakeshore Evaluation Method

DNR's Score The Shore Protocol (adapted)



OHWL

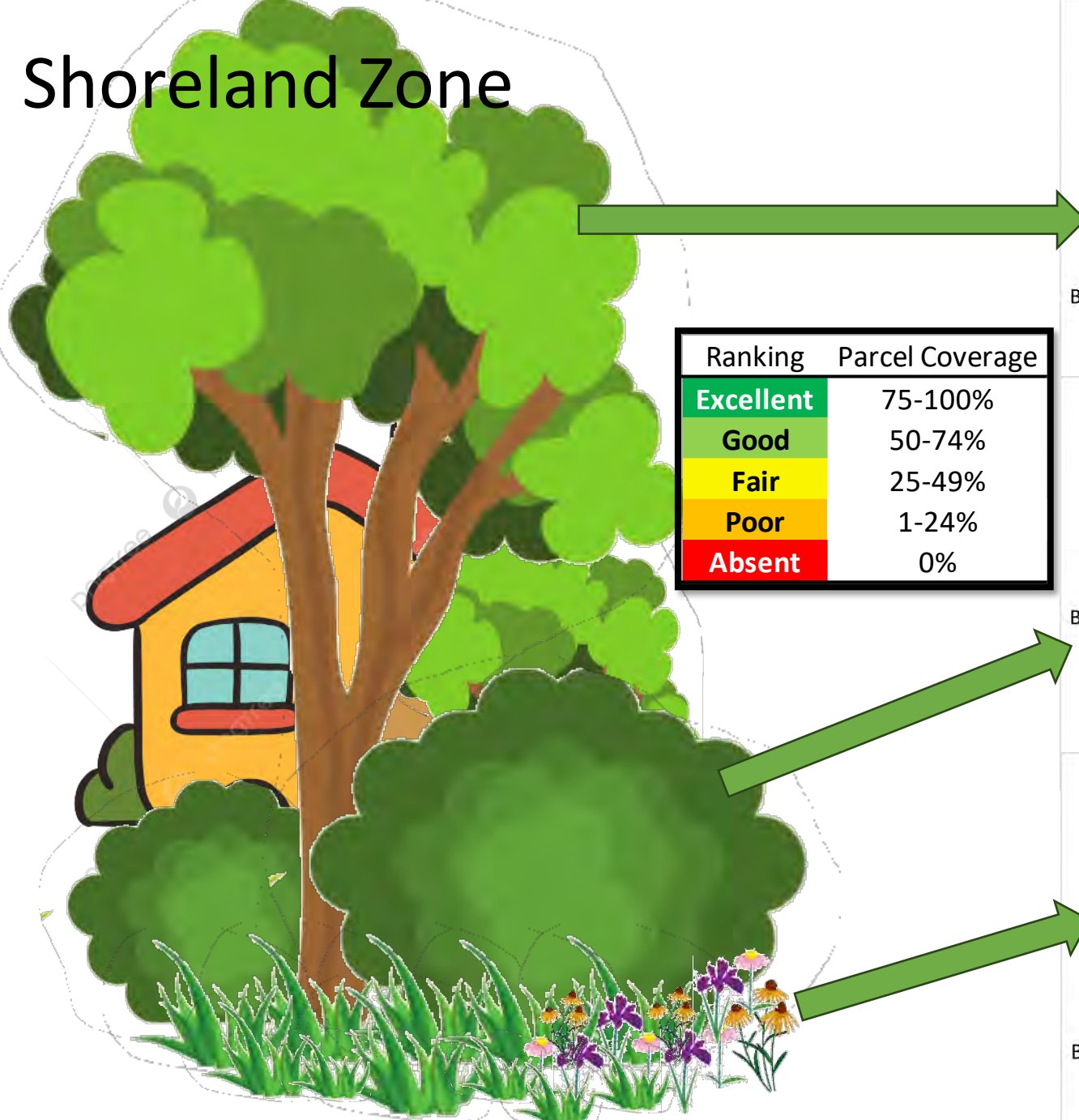
Shoreland
-Trees
-Shrubs
-Natural Ground Cover
-Structures in Setback

Shoreline
-Tree/Shrub
-Natural Ground Cover
-Woody Habitats
-Dominant Characteristics

Aquatic
-Emergent Vegetation
-Submergent Vegetation
-Woody Habitats
-Recreation Items

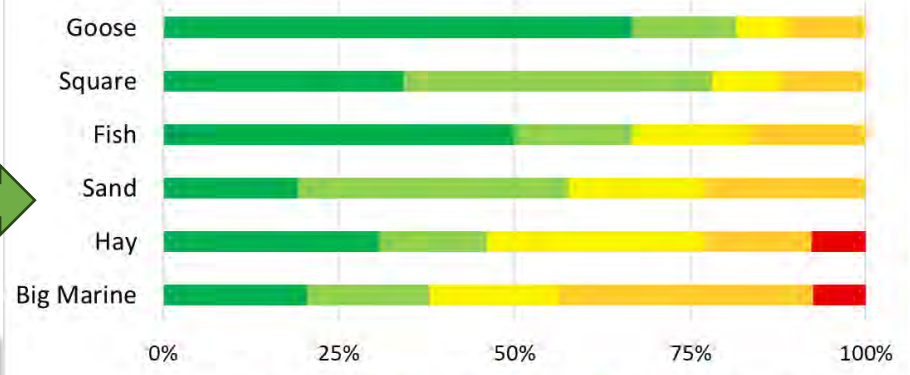
High Moderate Low Very Low

Shoreland Zone

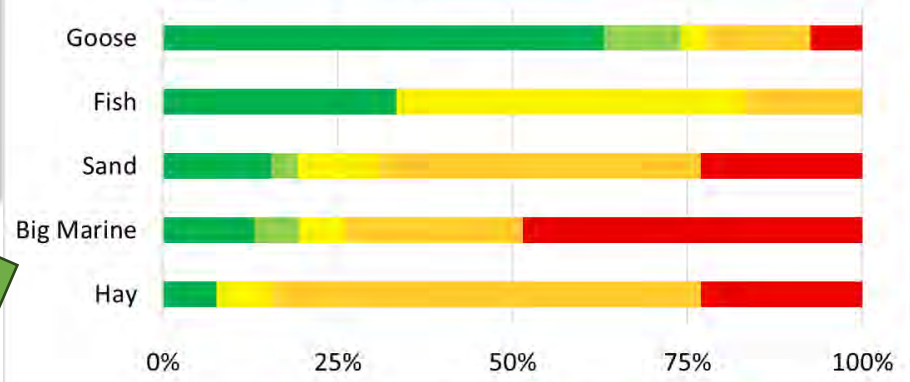


Ranking	Parcel Coverage
Excellent	75-100%
Good	50-74%
Fair	25-49%
Poor	1-24%
Absent	0%

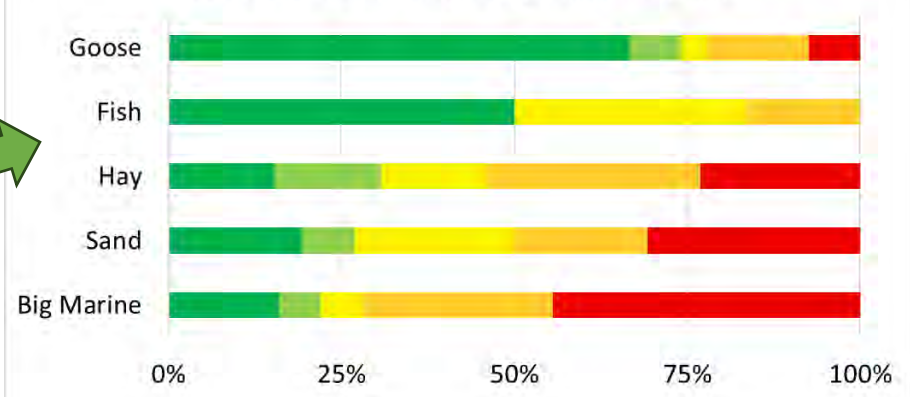
Shoreland Tree Coverage (Residential Parcels)



Shoreland Shrub Coverage (Residential Parcels)



Natural Ground Coverage (Residential Parcels)



50% natural with screening



50%(+) natural without screening



Unnatural no screening



Ranking	Parcel Coverage
Excellent	75-100%
Good	50-74%
Fair	25-49%
Poor	1-24%
Absent	0%

Concerning Pattern: Development & Redevelopment



2019

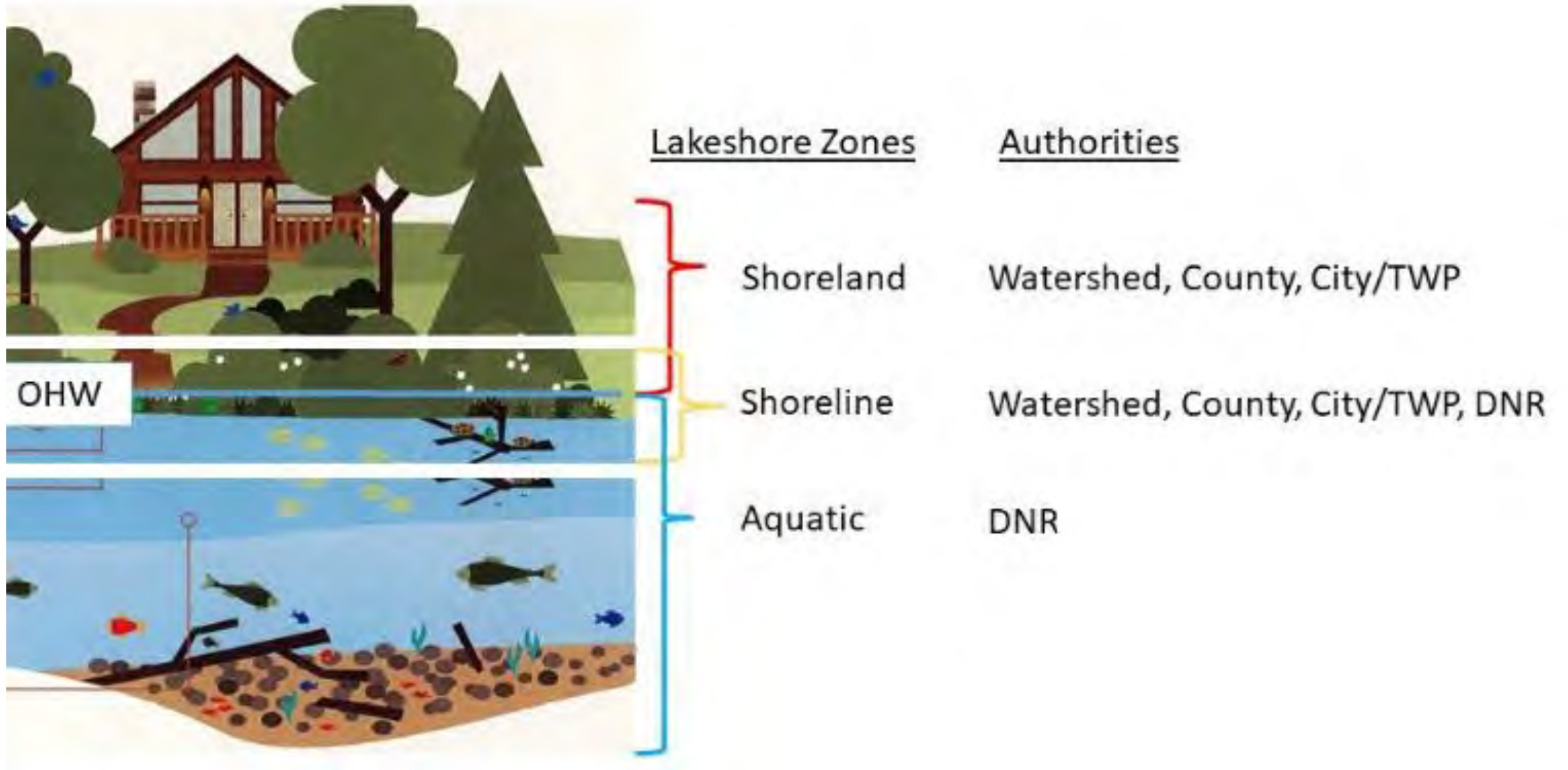


2020

2022

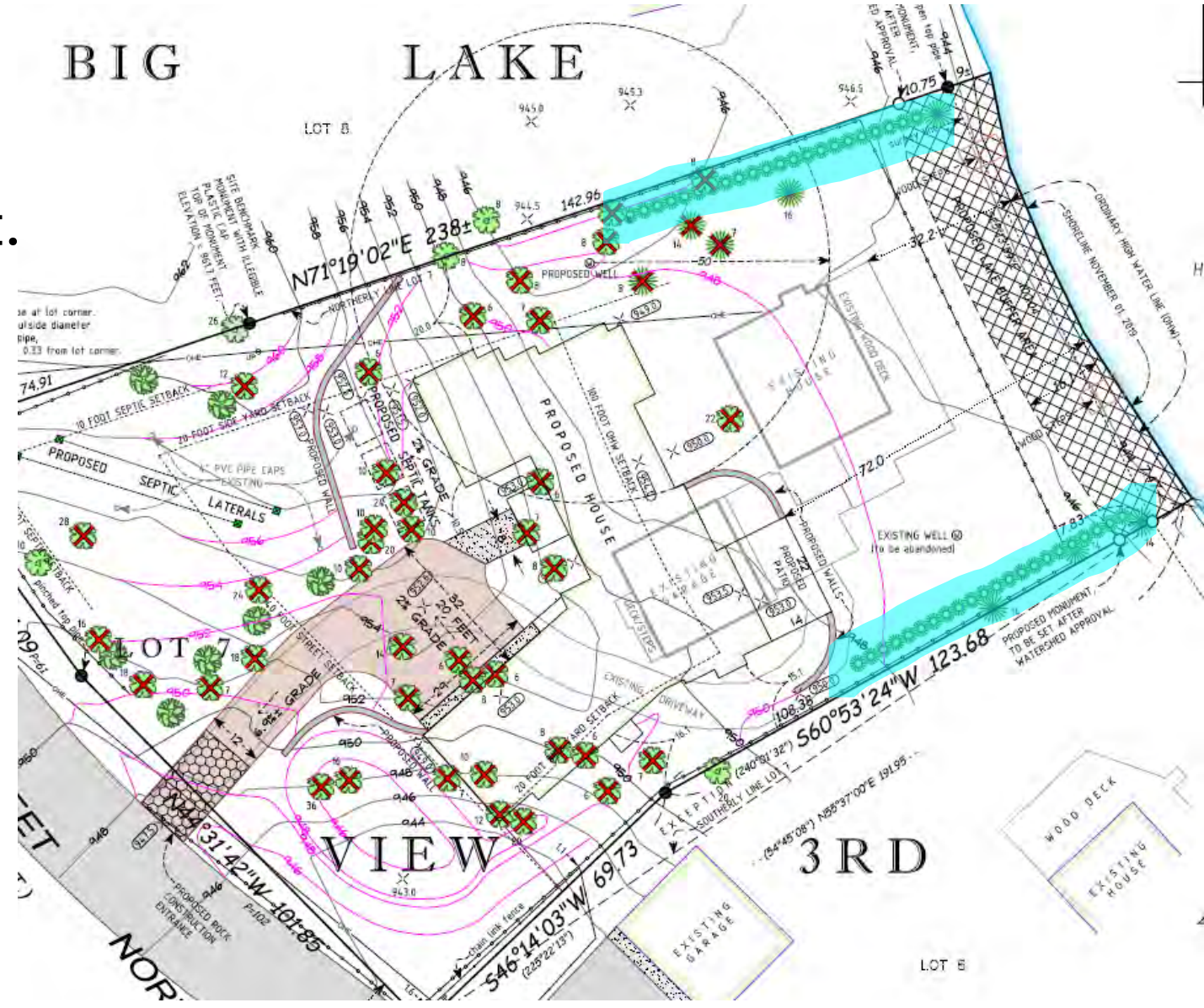


Multiple and Overlapping Jurisdictions



Project Example #1

- Tear-down rebuild.
- 40+ tree removal.
- Permit required 1:1 replacement.
- Replacement was nonnative hedge row along property line.
- Current rules didn't clarify.



Opportunities with Variances Approvals

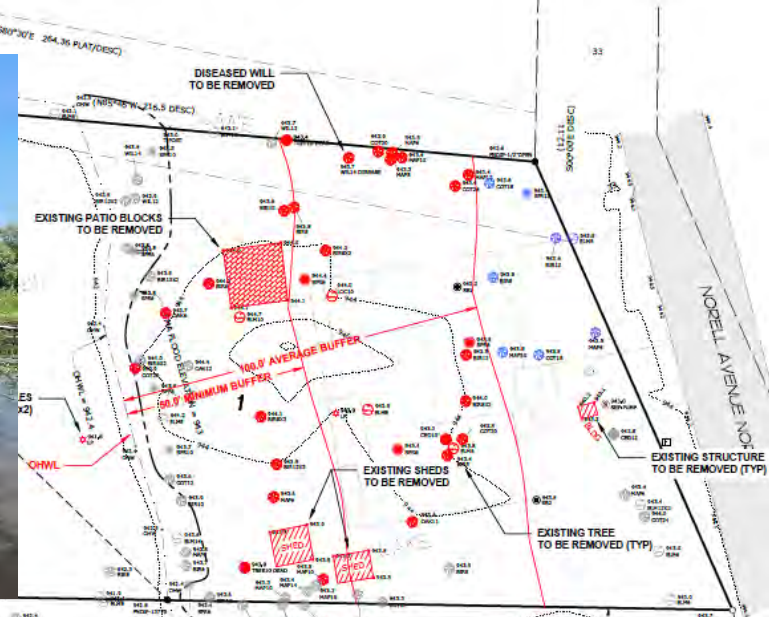
- Variance relevant to Water Resources:
 - Impervious surface limits.
 - Setbacks from OHWL/ wetland boundary.
- Deny or Approve (with conditions).
 - Conditions that minimize impacts.
 - Conditions that mitigate impacts.
 - Conditions that document pre/ post alterations.

The City finds that the uncontrolled use of shorelands of the City affects the public health, safety, and general welfare by contributing to pollution of public waters and potentially decreasing property, public, and natural resource values. It is the intent and purpose of these regulations to:

- (1) Designate suitable land use districts of each public water body.
- (2) Regulate the placement of sanitary and waste treatment facilities on lots.
- (3) Regulate the area of a lot and the length of water frontage suitable for building sites.
- (4) Regulate the alteration of shorelands of public waters.
- (5) Regulate alterations of the natural vegetation and the natural topography along shorelands.
- (6) Conserve natural resources and maintain a high standard of environmental quality.
- (7) Preserve and enhance the quality of surface waters.
- (8) Preserve the economic, natural, and environmental values of shorelands.
- (9) Provide for the utilization of water and related land resources.
- (10) Maintain water quality, reduce flooding and erosion, and provide sources of food and habitat for a variety of fish and wildlife.

Project Example #2

- New Single-Family Res.
- 40+ tree removal
- Permit required 1:1 replacement.
- Replacement will be in manner that facilitates screening/habitat.
- Clarifications were added during variance approval process.



Opportunities with Rule Updates...

Connecting it to what people want (& resource needs).

- **Access/View Corridor:**
 - People want to see and access the lake.
- **Recreational Corridor:**
 - People want to be between the home and lake.
- **Structure Safety:**
 - People want to limit tree damage to homes.
- **Natural Habitat Corridors:**
 - People want to see the biology and the 'Up North feel'
- **Structure Screening:**
 - People don't want to see other people's stuff.

City amended language related to variances, vegetation screening, tree replacement, dead/diseased/dying trees replacements.



Project Example #3

- Landowner contacted CMSCWD about cutting down dead trees.
- CMSCWD coordinate/ confirmed approvals with City & DNR.
- Outcome:
 - Removed trees will become 'loafing logs' and 'fish sticks'
 - Removed trees will be replaced.





CMSCWD & City of Scandia: Lakeshore Collaboration

Tom Langer, CMSCWD - Riparian Specialist
Kyle Morell, Scandia - City Administrator
TJ Hofer, Bolten & Menk – City Planner

DNR LGU Forum
May 15, 2024