Shoreland Management: Vanishing Natural Shorelines

MN COLA
Minnesota Coalition of Lake Associations

Minnesota Lakes & Rivers

FRESHWATER

STEARNS COUNTY SOIL & WATER SWCD CONSERVATION DISTRICT

BOARD OF WATER AND SOIL RESOURCES

MINNESOTA
Department of Natural Resources

UNIVERSITY OF MINNESOTA EXTENSION

Natural Shoreline Group

Dec 6, 2022

Purpose

- *Vanishing natural shorelines*

  Paul Radomski, DNR
- *A SWCD perspective*

  Greg Berg, Stearns Co. SWCD
- *Challenges & Solutions for Counties*

  Nick Neuman, AICP, Stearns County ESD
- *Summary of other approaches to solve problem*

  Anne Sawyer, BWSR
- *Where can we go from here?*

  Jeff Forester, MN Lakes & Rivers

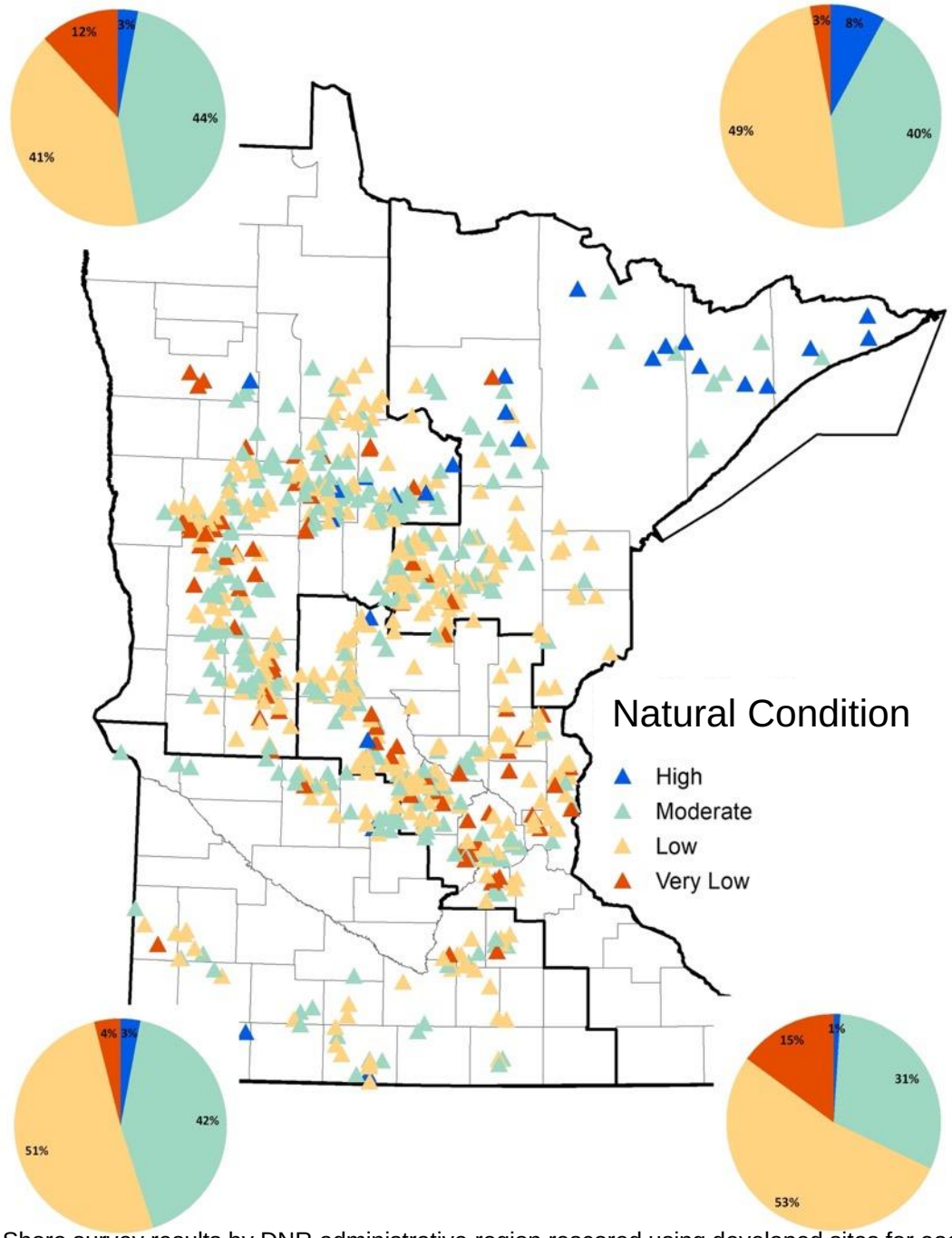
We Have a Problem

We Have a Problem

Lakeshore Buffers –

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

If we fail to protect these natural shorelands, we will lose lake water quality, and maybe even the ability to swim and recreate in our lakes



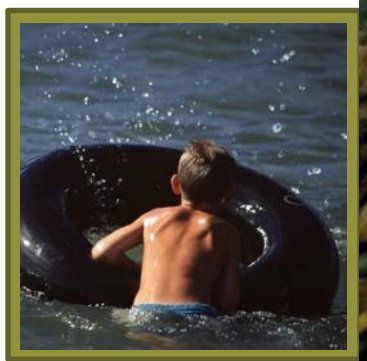
Score-the-Shore survey results by DNR administrative region rescored using developed sites for each lake.


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

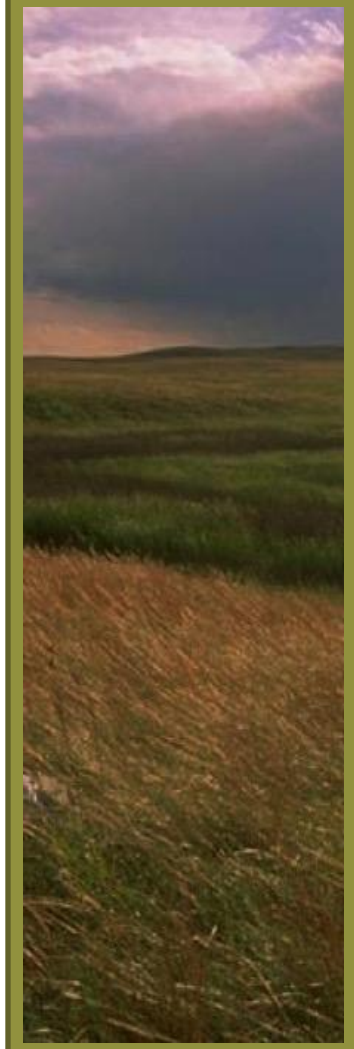
Shore

Shore


Andrea Lee Lambrecht



Eric Engbrettson

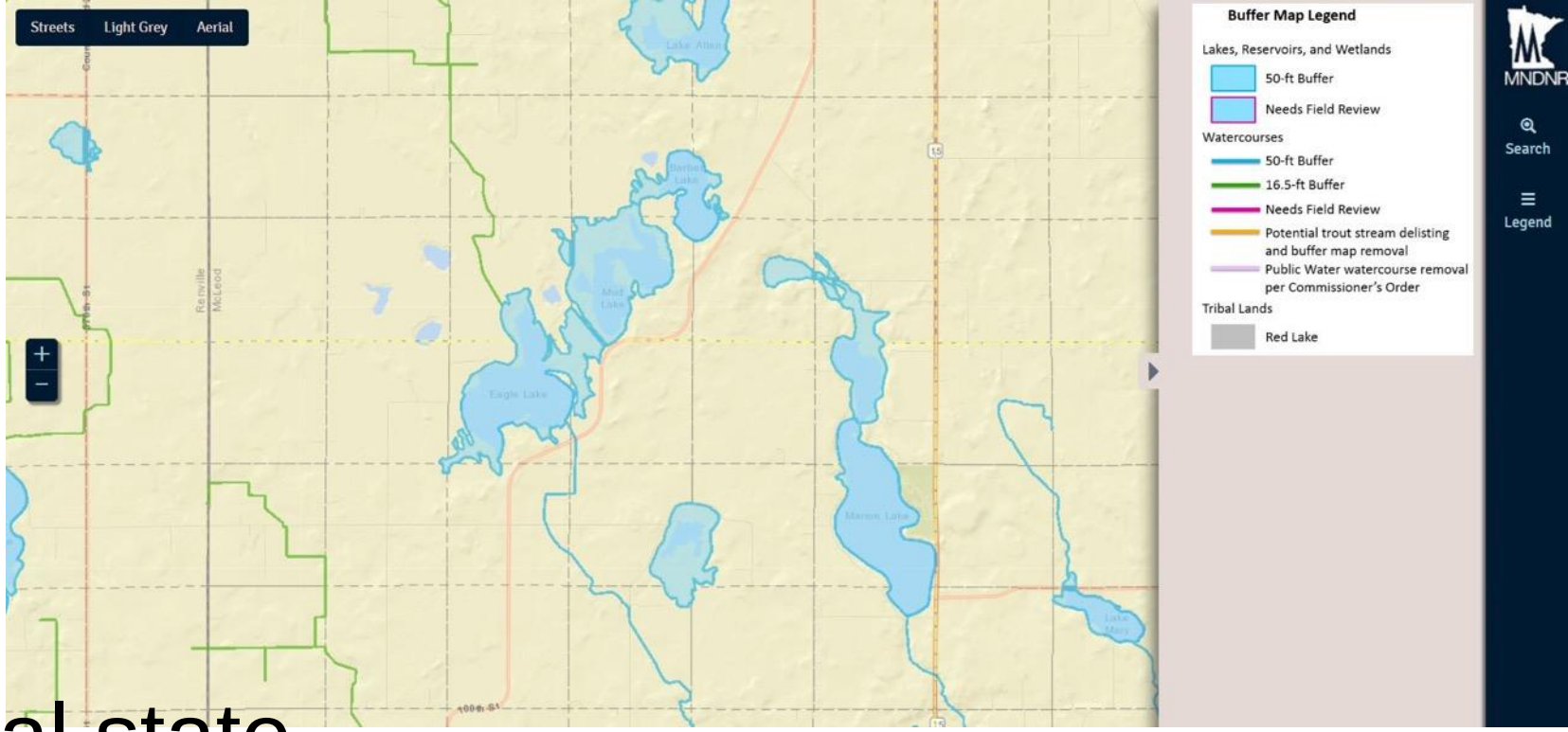


MN Buffer Law

Buffers help filter out phosphorus, nitrogen, and sediment, and are an important conservation practice for helping keep water clean. MPCA studies show that buffers are critical to protecting and restoring water quality and healthy aquatic life.

We Have a Problem

Ag Land Buffer



- Controversial
- Political Will
- Needed additional state focus and an increase in LGU capacity
- Does not protect non-ag shoreline

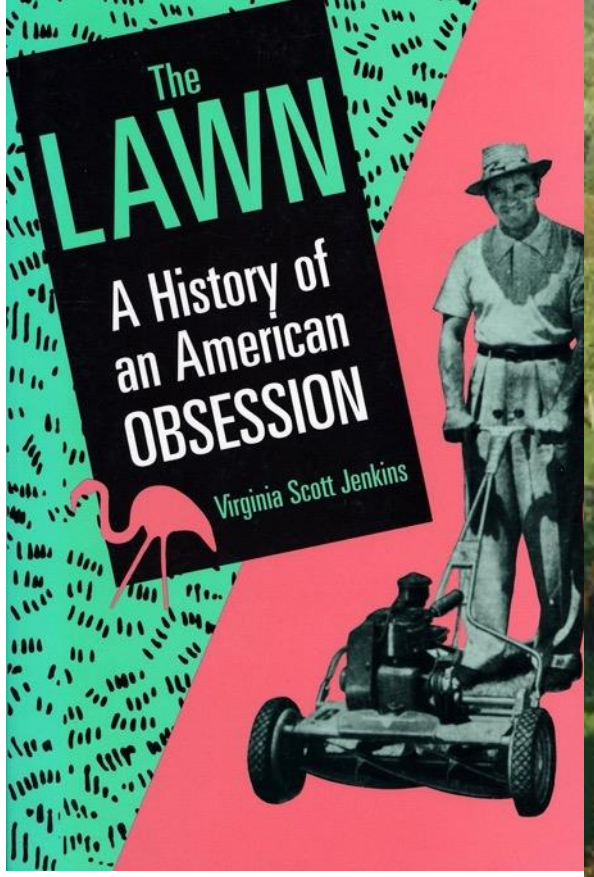
We Have a Problem

For Lakeshore (water access & rec use) - Regulations Aren't Enough or Problematic

Shoreland Management Rules (last updated in 1989; local zoning; to prevent erosion, bank slumping, & pollution; preserve aesthetics; and protect fish & wildlife habitat)

- Alterations of vegetation and topography must be controlled
- *Intensive* vegetation clearing within the shore and bluff impact zones and on steep slopes is not allowed

A top-down, rule-based approach has been inadequate -- Rules, education, and enforcement alone are not enough

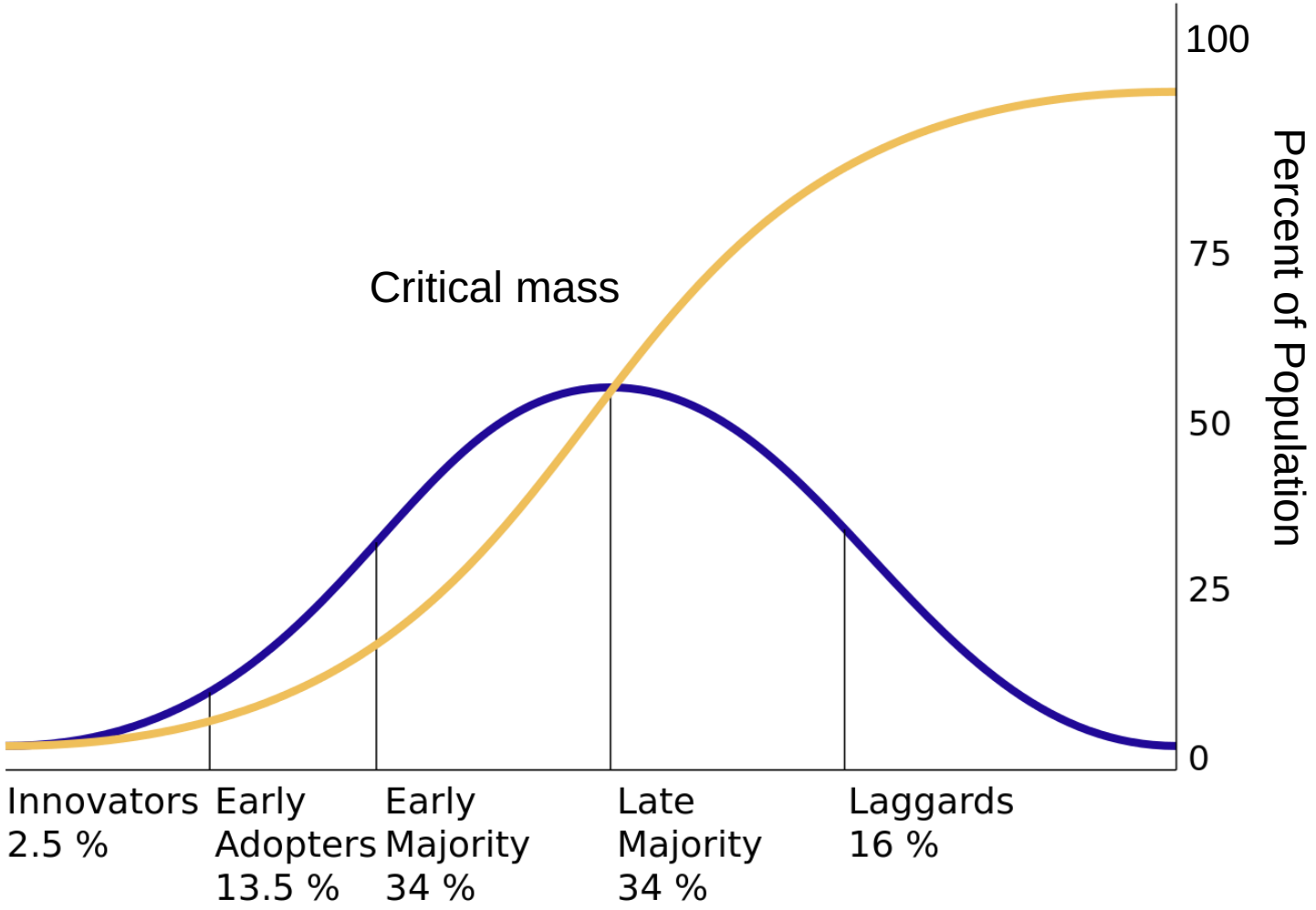

The
LAWN
A History of an American OBSESSION
Virginia Scott Jenkins

↑Lakeshore Uses Change

Lakeshore Norms Change→

Social Norm

The Idea:
There is value in shifting individual lakeshore owner behavior



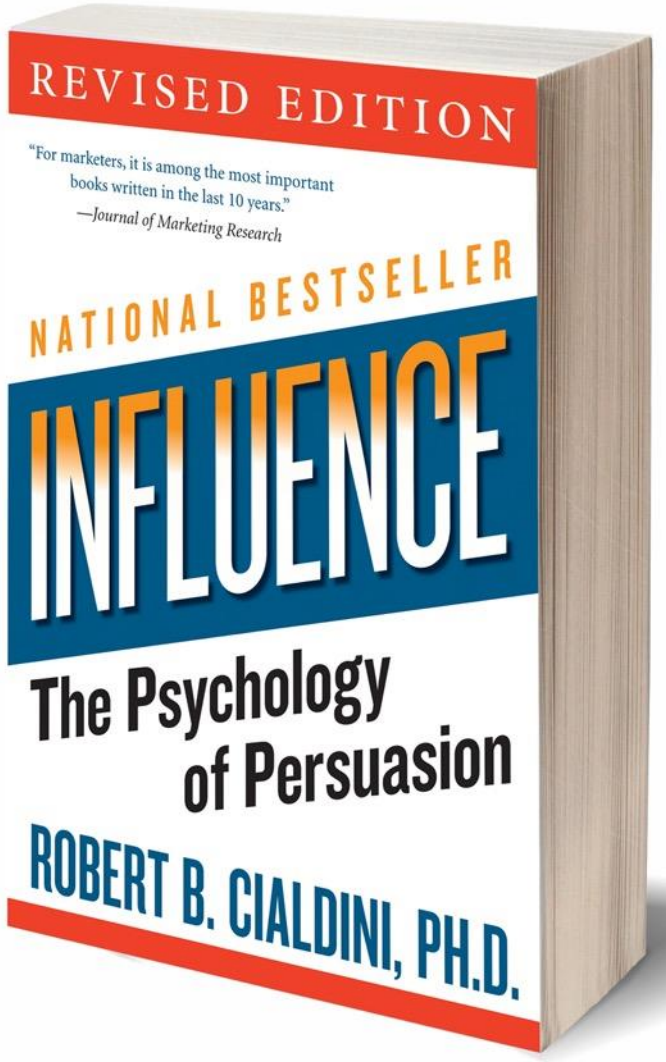
Everett Rogers, Diffusion of Innovations

Social Norm

The Idea:
There is value in shifting individual lakeshore owner behavior

Principles of Persuasion

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

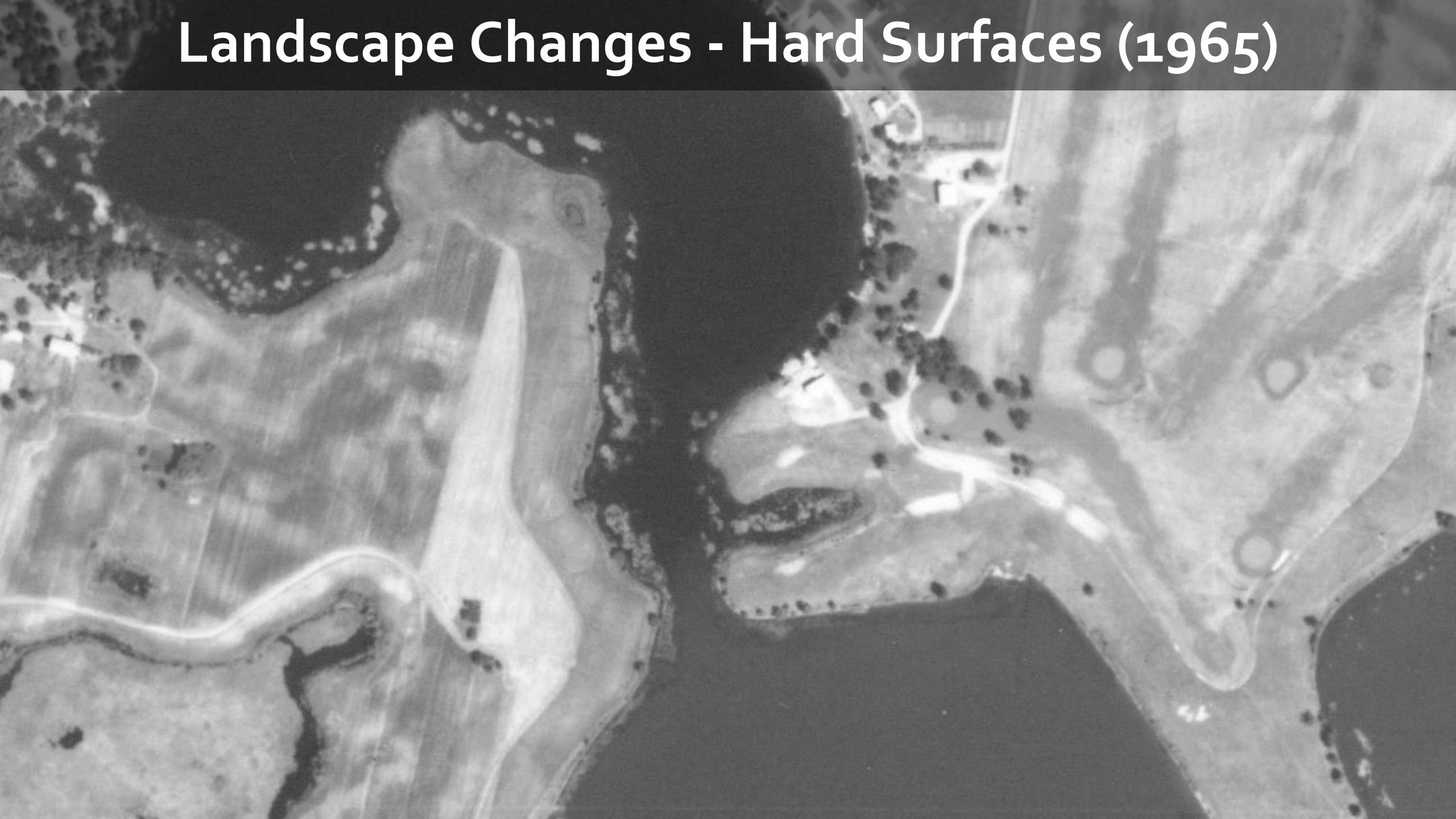


Stearns County SWCD Shoreline/Streambank Challenges

Greg Berg – Riparian Resources Specialist
320/345-6479 – greg.berg@mn.nacdnet.net

Landscape Changes - Hard Surfaces (1938)

Landscape Changes - Hard Surfaces (1965)



Landscape Changes - Hard Surfaces (2015)

Common Shoreline Management

Stearns County SWCD Shoreline/Streambank Restoration Program

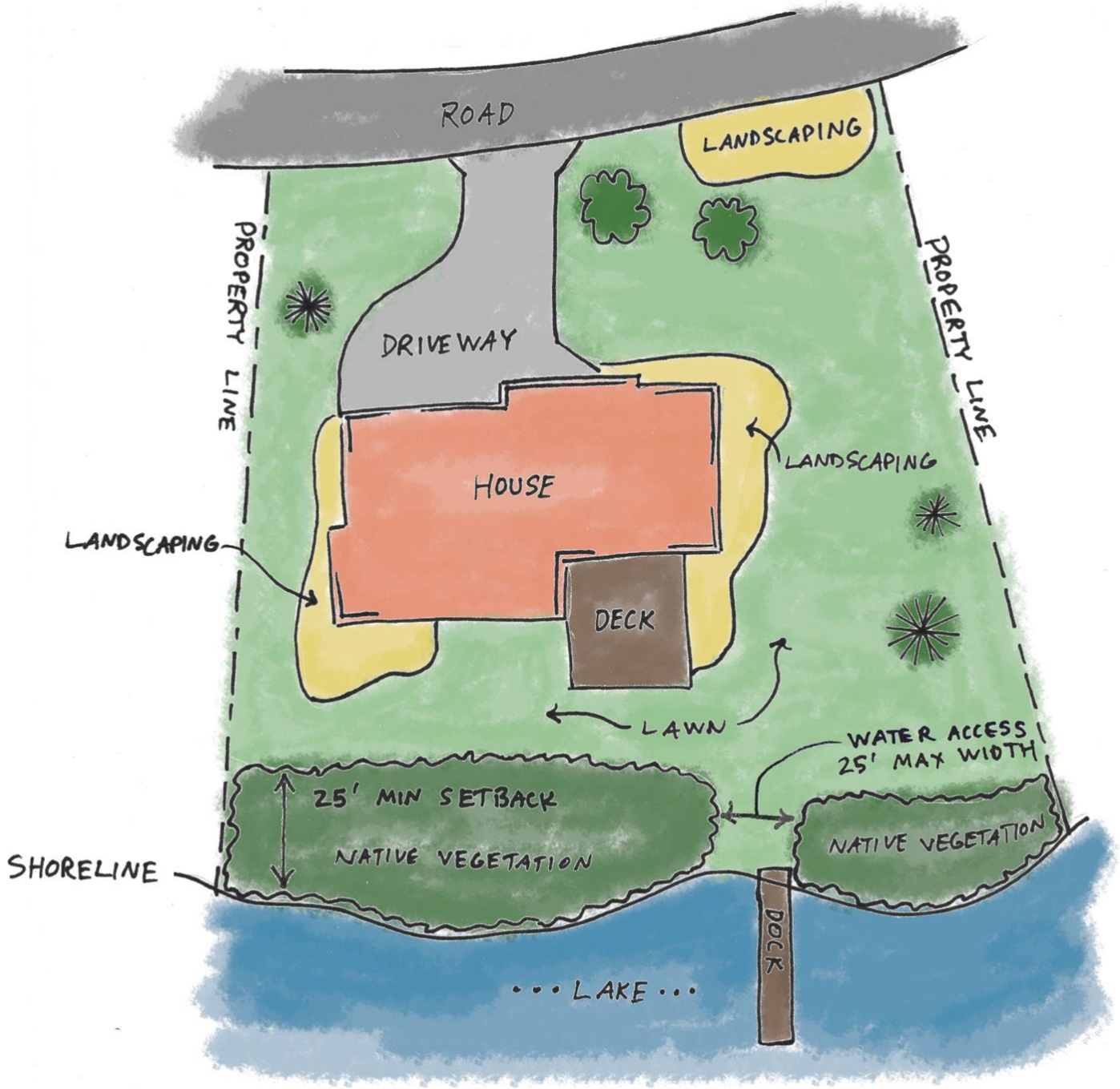
Site Selection Criteria

- Resource Concern
  - -Stabilization (erosion control)
  - -Vegetation (buffer of native vegetation)
- Habitat Connection
- Water Quality Benefits
- Landowner Motivation
  - - Landscaping vs. Restoration
  - - Does the project encompass more than 1 property

Stearns County SWCD Shoreline/Streambank Restoration Program

Obstacles (manage the property in manner that makes a difference)

- SWCD Buffer Restoration Policy
  - 75% of the shoreline to native vegetation with no more than a 25 foot traffic area
    - Public/commercial parcels can be exempted by the SWCD Board, but must adhere to the 75% of property buffer.
  - The buffer must extend at least 25 feet landward of the OHWL of the lake/stream or to the top of the nearest steep slope (12% grade or more), whichever is greater.
  - Protect the project or property long term (Stearns County Shoreland Deed Restriction) – 84 projects with perpetual protection


ROAD
LANDSCAPING
PROPERTY LINE
DRIVEWAY
PROPERTY LINE
HOUSE
LANDSCAPING
LANDSCAPING
DECK
LAWN
WATER ACCESS
25' MAX WIDTH
25' MIN SETBACK
NATIVE VEGETATION
NATIVE VEGETATION
SHORELINE
DOCK
• • • LAKE • • •

Stearns County SWCD Shoreline/Streambank Restoration Program Challenges

Project Funding

- Minimal funding sources for Shoreline Restoration
  - MN DNR Aquatic Habitat Restoration program terminated
  - Not eligible for LSOHC, LCCMR without permanent easements
  - Shoreline projects do not fit the CWF criteria

SWCD Capacity

- Additional qualified staff needed to carry out the mission
  - One on one site visits are successful
  - Incentives work to encourage landowners to implement quality projects
  - Financial investment is minimal for the benefits long term

Stearns County SWCD Shoreline/Streambank Challenges

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Natural Shorelines

Shoreland Challenges & Solutions From a Land Use & Zoning Perspective

Nick Neuman, AICP
Senior Environmental Specialist

Challenges to Preserving & Expanding Natural Shorelines

1. **Aesthetics**
2. Legacy of poor riparian alterations
3. Historically sporadic education and enforcement
4. Ongoing “enabling” policies
5. Contractor reluctance

Aesthetics

- Want to be able to “see” the lake.
- Green, mowed grass “looks nice”.
- “Don’t want weeds”.
- Leads to issues at the shoreline.

Aesthetics

Former buffers cleared by new owners

Challenges to Preserving & Expanding Natural Shorelines

1. Aesthetics
2. **Legacy of poor riparian alterations**
3. Historically sporadic education and enforcement
4. Ongoing “enabling” policies
5. Contractor reluctance

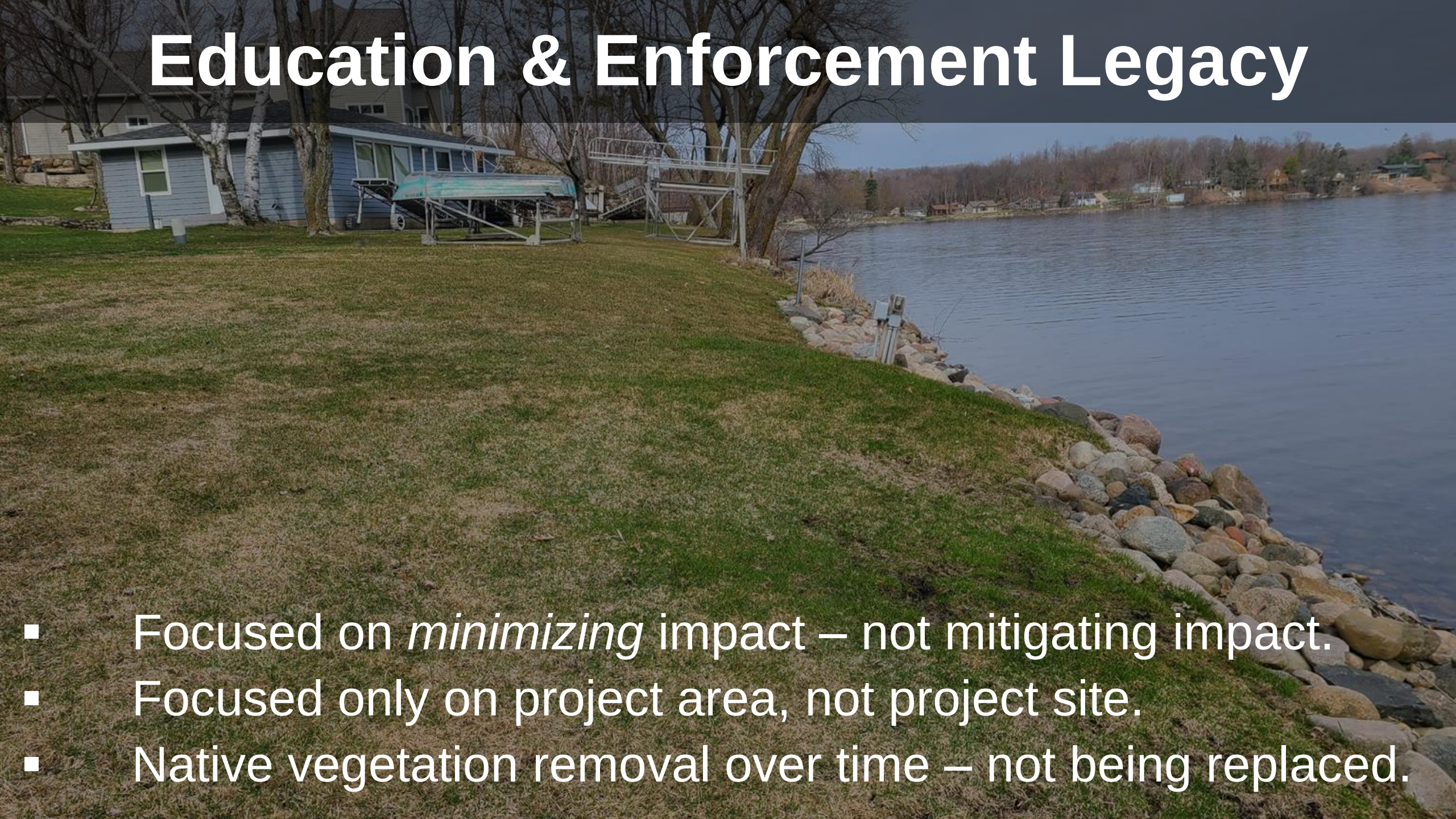
Poor Alterations Historically

- Work done pre-shoreland ordinance setting visual precedent
  - “I want what my neighbor has”
- Early permitted work – a formality, not educational

Challenges to Preserving & Expanding Natural Shorelines

1. Aesthetics
2. Legacy of poor riparian alterations
3. **Historically sporadic education & enforcement**
4. Ongoing “enabling” policies
5. Contractor reluctance

Education & Enforcement Legacy



- Focused on *minimizing* impact – not mitigating impact.
- Focused only on project area, not project site.
- Native vegetation removal over time – not being replaced.

Challenges to Preserving & Expanding Natural Shorelines

1. Aesthetics
2. Legacy of poor riparian alterations
3. Historically sporadic education and enforcement
4. **Ongoing “enabling” policies**
5. Contractor reluctance

“Enabling Policies”

- Shoreland Ordinance - Sensitive!
  - ➢ Few significant changes over time
  - ➢ Perpetuates the legacy of former alterations
  - ➢ Citizens use this to “to the right thing”
- Not exclusive to counties - DNR policy too
  - ➢ Examples
    - ○ Rock on shorelines. 200ft below OHWL = no permit

“Enabling Policies”

- “200ft riprap *below OHWL* without permit”
  - ➢ Regulatory staff may struggle determining OHWL, let alone property owners.
  - ➢ “DNR says I can do it” – rock riprap and/or sand blanket
  - ➢ Rock is not supplemented with vegetation – vegetation often removed to put in rock
  - ➢ Rock below OHWL seldom effective
  - ➢ Bank stabilization more important
    - ✓ 3:1 or flatter, vegetation, etc.

Challenges to Preserving & Expanding Natural Shorelines

1. Aesthetics
2. Legacy of poor riparian alterations
3. Historically sporadic education and enforcement
4. Ongoing “enabling” policies
5. **Contractor reluctance**

Shoreland Contractors/Landscapers

- Rock is easy and makes $
- Many not familiar with alternatives, but the field is expanding.
- Requirements will push the industry; policies of the past will safeguard the status quo.
- The “difficult” conversations are more constructive with clear expectations.
  - “Should” vs “Shall” vs “Exempt”

Creating (not finding) Solutions

1. Aesthetics

- Define expectations - what could/should the shoreline actually look like?
- Don't let the past dictate the future.

2. Legacy of Shoreland Alterations

- Site visits with property owners (LGU & DNR) to educate.

3. Historically sporadic education & enforcement

- Site visits & education with contractors & property owners.
- Follow up on permitted work.

4. Ongoing "enabling" policies

- Change/remove exemptions
  - Allow for education instead of explaining.
- No need for *more* permits. Facilitate improvement. Don't enable bad practices.

5. Shoreland Contractor Reluctance

- Practices lag - but eventually follow policy change
- Provide workshops & ongoing education. Make it a requirement!

Examples from Stearns County

1. Require native vegetation on riparian lots.

Stearns County Shoreline Site Assessment

To be completed by Stearns County Environmental Services staff during pre-application site visit.

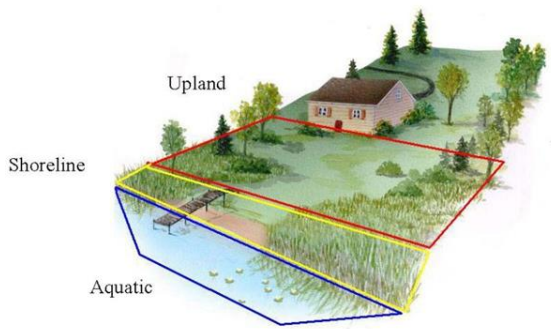
PID: _____ **Date:** _____

ES Staff: _____

Water Body Name: _____ **OHWL:** _____

Impervious Lot Coverage: _____ Note: 25% = max lot coverage. See lot calc. page.
Bluff/Steep Slope Present? _____ If yes, limitations may exist.
Floodplain Present? _____ If yes, limitations may exist.
Wetland Present? _____ If yes, limitations may exist.
Septic System Certified? Note: If SSTS is older than 5 years, cert. required if
SSTS Cert. # _____ one hasn't been completed in more than 3 years.

Step 1: Identify the zones.

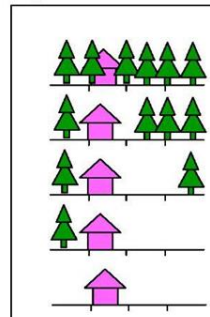


ZONE	Description	Max.	Min.	Current Score	Proposed Score
Upland Zone	house to banktop; about 2/3rds of the lot	65	19		
Shoreline Zone	banktop to water's edge; about 1/3 of the lot	35	17		

Note: If either upland or shoreline zone score is below minimum, vegetation establishment will be required as part of the project

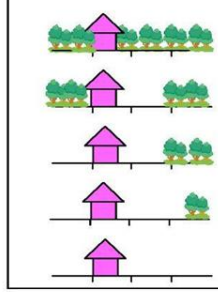
Step 2: Score the Upland Zone (select one category from each box)

Upland Tree Cover



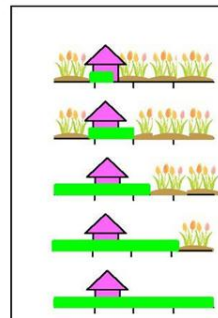
Percent of lot	Description	Points	
75-100	Trees present along at least ¾'s of lot front, hiding at least part of house from view.	25	☐
50-74	Trees cover at least ½ of lot; at least ¼ of lot has no trees; house may be fully visible	18	☐
25-49	Trees cover at least ¼ but less than ½ of lot; lot is mostly open.	13	☐
1-24	Trees cover less than ¼ of lot; only scattered yard trees present.	9	☐
0	No trees present.	0	☐

Upland – Shrub Cover



Percent of lot	Description	Points	
75-100	Shrubs present along at least ¾'s of lot front, hiding at least part of house from view.	20	☐
50-74	Shrubs cover at least ½ of lot; at least ¼ of lot has no shrub layer.	15	☐
25-49	Shrubs cover at least ¼ but less than ½ of lot; middle canopy layer mostly open.	10	☐
1-24	Shrubs cover less than ¼ of lot; only a few scattered shrubs present.	5	☐
0	No shrubs present.	0	☐

Upland Ground Cover



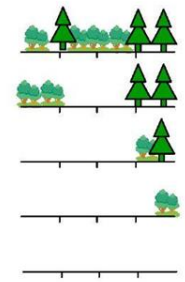
Percent of lot	Description	Points	
75-100	Unmowed plants cover at least ¾ of lot; minimal lawn &/or impervious surface.	20	☐
50-74	Unmowed plants cover at least ½ of lot; lawn &/or impervious surface covers up to ¼ lot.	15	☐
25-49	Unmowed plants cover at least ¼ but less than ½ of lot; lawn &/or impervious surface at least ½ lot.	10	☐
1-24	Unmowed plants cover less than ¼ of lot; lawn &/or impervious surface covers at least ¾ of lot.	5	☐
0	Entire lot is mowed, bare and/or impervious surface.	0	☐

Upland Score: _____
Minimum: 19

Adapted From: Score Your Shore Quick Reference. 8/2010 MnDNR Ecological and Waters Resources Division

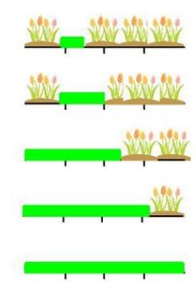
Step 3: Score the Shoreline Zone (select one category from each box)

Shoreline Tree and Shrub Cover



Percent of lot	description	points	
75-100	Trees &/or shrubs present along at least ¾'s of shoreline.	20	☐
50-74	Trees &/or shrubs cover at least ½ but less than ¾'s of shoreline.	15	☐
25-49	Trees &/or shrubs cover at least ¼ but less than ½ of shoreline.	10	☐
1-24	Trees &/or shrubs cover less than ¼ of shoreline.	5	☐
0	No trees or shrubs present along shoreline.	0	☐

Shoreline Ground Cover



Percent of lot	description	points	
75-100	Unmowed plants cover at least ¾ of shoreline; minimal lawn &/or impervious surface.	15	☐
50-74	Unmowed plants cover at least ½ of shoreline; lawn &/or impervious surface covers up to ¼ .	12	☐
25-49	Unmowed plants cover at least ¼ but less than ½ of shoreline; lawn &/or impervious covers at least ½ .	7	☐
1-24	Unmowed plants cover less than ¼ of shoreline; lawn &/or impervious surface covers at least ¾.	4	☐
0	Entire shoreline is mowed, bare and/or impervious surface.	0	☐

Shoreline Score: _____
Minimum: 17

Adapted From: Score Your Shore Quick Reference. 8/2010 MnDNR Ecological and Waters Resources Division

Examples from Stearns County

1. Require native vegetation on riparian lots.

2. Change permitted uses with negative externalities - and identify alternatives to be used. Example: Rock

Examples from Stearns County

Example: Rock

- Is rock necessary to address erosion here? No
- Where is the vegetation? Removed.
- Will piling rock along the shoreline here enhance the resource quality? It will further prevent native shoreline.

Examples from Stearns County

Example: Rock

Don’t Permit This

Permit This

Examples from Stearns County

1. Require native vegetation on riparian lots.

2. Change permitted uses with negative externalities - and identify alternatives to be used. Example: Rock

3. Make changes where it matters most.

Examples from Stearns County

Make changes where it matters most.

- Restrict alterations in the Shore Impact Zone
- Require buffers as part of the project

Don’t Permit This

Permit This

Natural Shorelines

Shoreland Challenges & Solutions From a Land Use & Zoning Perspective

Nick Neuman, AICP
Senior Environmental Specialist

Minnesota's natural shoreland efforts:

Who's involved, what's working, and what (and who) is missing

Anne Sawyer, PhD

Board Conservationist
MN Board of Water and Soil Resources (BWSR)
Previously: Extension Educator, Water Resources
University of Minnesota
anne.sawyer@state.mn.us

Image: MPCA via Flickr

Summary of Minnesota's natural shoreland efforts

Shifting roles of traditional statewide entities

LGUs, non-profits, others doing excellent work on limited scale

What (and who) is missing from this work

Examples from other states

Image: MPCA via Flickr

Statewide programs: DNR

Historically influential, but current shoreland regulations (and local ordinances that they oversee) are insufficient and problematic

Programs like “Score Your Shore” and Model Shoreland Ordinance are useful, but lack widespread adoption

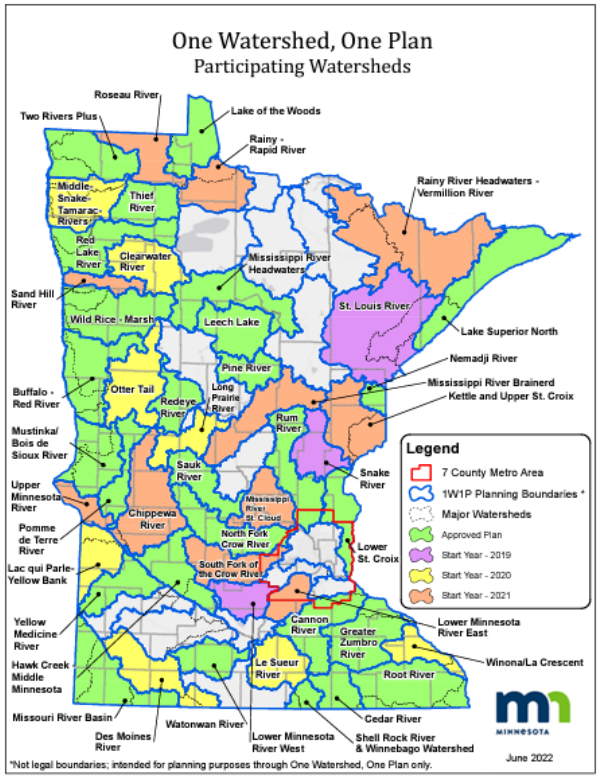
DNR capacity for engagement, outreach, education, and technical assistance has declined in recent years, e.g. loss of Aquatic Habitat Grants Program

DEPARTMENT OF NATURAL RESOURCES

Statewide programs: BWSR

Mainly involved via programs accessed and implemented by LGUs, based on local priorities (e.g. 1W1P) and funding (e.g. cost share, CWF)

Also: Wetlands, easements, training for local staff, restoration programs, native vegetation guidance



BOARD OF WATER AND SOIL RESOURCES

Statewide programs: U of MN Extension

Shoreland programming was part of Extension, e.g. Shoreland Advisors

Shifts in staff, priorities, and funding have all but eliminated this work

Now: AIS programming and MN AIS Research Center outreach

Old U of MN asset that's no longer supported

Tribal Resource Management Agencies

Tribal partners have not yet been involved with early discussions; we must work to include and learn from them.

Tribal management incorporates local ecological knowledge, culture, and values to preserve resources for future generations

Image detail is from the Minneapolis (Village of Many Lakes) & St Paul (Village along the White Cliffs) map created by artist Marlena Myles. (nativegov.org)

Non-profits and other initiatives

FRESHWATER

Built around engagement; individual and community empowerment.

Adopt-a-River (or shoreland) toolkit for locally-led cleanups; MN Water Stewards to certify and support community leaders

MINNESOTA
WATER STEWARDS
Community Leadership for Clean Water

Non-profits and other initiatives

Minnesota Lakes & Rivers

Initial focus on advocacy; also education, project grants, but wanted to do more

Lake Steward program leverages existing networks, taps into local values, and fosters behavior change via shifting social norms

Image courtesy MLR

Non-profits and other initiatives

MN COLA

Minnesota Coalition of Lake Associations

Help members preserve, protect and improve lakes and through advocacy, education, and sharing of best practices

Meetings focus on lake resiliency, including natural shorelines

Image courtesy MN COLA; Note that these talks are also available on YouTube!

Others doing good work, but not part of the discussion… yet?

Isaak Walton League

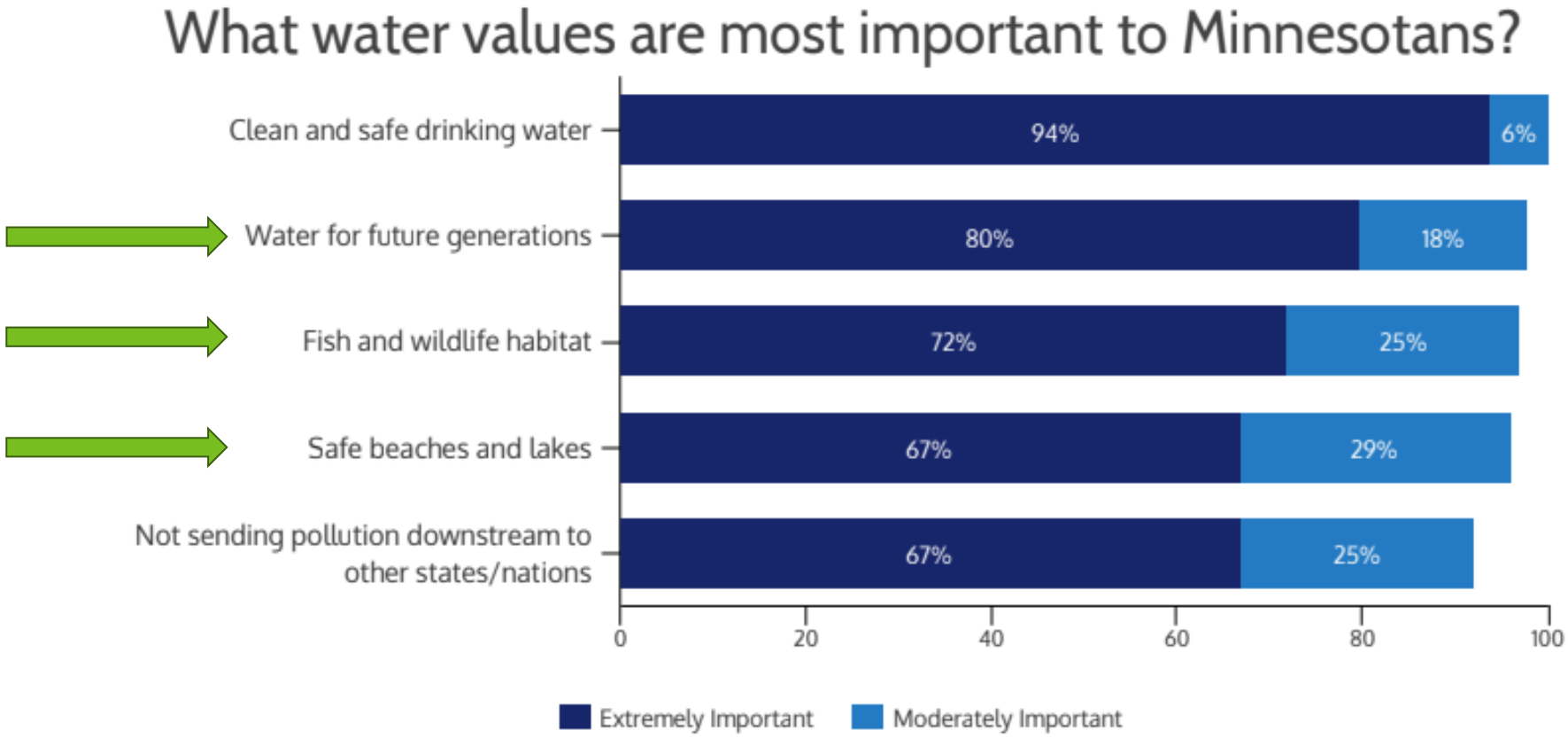
Northern Waters Land Trust

Great River Greening

Local work, e.g. Itasca Waters,
Deer Lake Association
Shoreland Initiative

And more!

Minnesotans value water; how to align behavior with values?



Davenport et al. (2019) MN Water Values project

Voluntary conservation requires more than facts and cost-share

Example: Native Shoreline Buffer Incentives (NSBI) Project Eckman et al., 2008-2012

Goal: Pilot programs to investigate different LGU engagement models and understand motivations for behavior change.

NATIVE SHORELAND BUFFER INCENTIVES (NSBI) PROJECT

FINAL REPORT- Social Research and Efficacy Outcomes

February 2012

Karlyn Eckman, University of Minnesota Water Resources Center

With

Mary Blickenderfer, University of Minnesota Extension

Steve Henry, East Otter Tail County

EAST OTTER TAIL SOIL AND WATER

ENVIRONMENT AND NATURAL RESOURCES TRUST FUND

Water Resources Center

University of Minnesota

Driven to Discover

University of Minnesota EXTENSION

Voluntary conservation requires more than facts and cost-share

Key results:

Level of resource knowledge was high

Financial incentives *are not the primary* motivator; stewardship values *are*, particularly for *their* lake

"High-touch" contact (interaction with experts) -> greater impact, but knowledge of audience is essential

Most trusted messengers are *lake associations*, also DNR, peers, followed by LGUs, Extension, others.

Why hasn't this approach taken root?

"Public resources intended to promote shoreland conservation practices may be more effective if invested in professional staff to interact directly with property owners, than if invested in cost-shares…" (Eckman et al., 2012)

Every lake and audience is different;
effective engagement requires dedication, time, and
flexibility in approach and options.

This is hard, uncomfortable, and slow work… BUT, it presents new opportunities for conservation.

A few other examples…

Broad collaboration utilizing trusted messengers

LOWER ST. CROIX WATERSHED PARTNERSHIP

COMPREHENSIVE WATERSHED MANAGEMENT PLAN

2020

One particularly important action includes hiring or contracting with an agricultural conservationist and agronomist. Voluntary agricultural conservation is significantly more effective with outreach to individual agricultural producers. This activity takes time and expertise. An agricultural conservationist and

Funding human capital for "high-touch" engagement

Priority Level A	Issue Statement
Outreach and Engagement	The success of the entire Plan implementation will largely come down to how the local partnership engages with and involves local stakeholders, from residents to policy makers.
Surface Water - Restore (SW-R)	Lakes and streams are threatened or impaired due to excess pollution including… can cau… recreati…
Surface Water Protect (SW-P)	There a… are thre… and the… high-qu…

Rum River Comprehensive Watershed Management Plan

Final Plan - April 29, 2022

MINNESOTA WATER QUALITY CERTIFIED FARM

Intensive 1:1 relationship-building; social norms

What are other states doing?

Michigan Natural Shoreline Partnership (2008)

Michigan Natural Shoreline Partnership

Collaboration of state agencies, academia, nonprofits, private industry

*Comprehensive website
*Native plant database and nursery directory
*Contractor training, certification, and directory
*Shoreland Stewards program

What are other states doing?

Wisconsin Lakes Partnership (1970s)

DNR, Extension, Non-profit

Include other lake issues (groundwater and AIS) and partners (tribal, nonprofit)

Research, volunteer monitoring, leadership development for lake groups, organizing, and more.

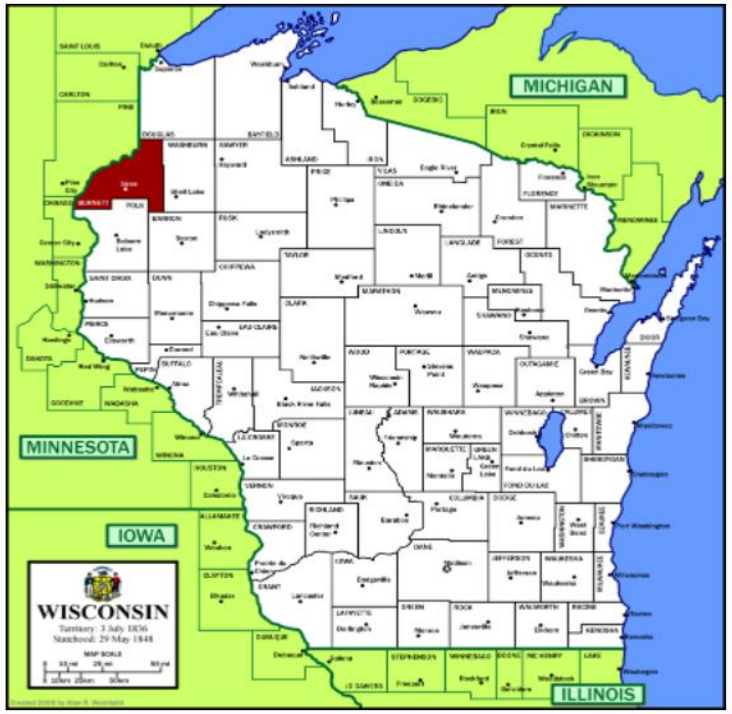
What are other states doing?

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.



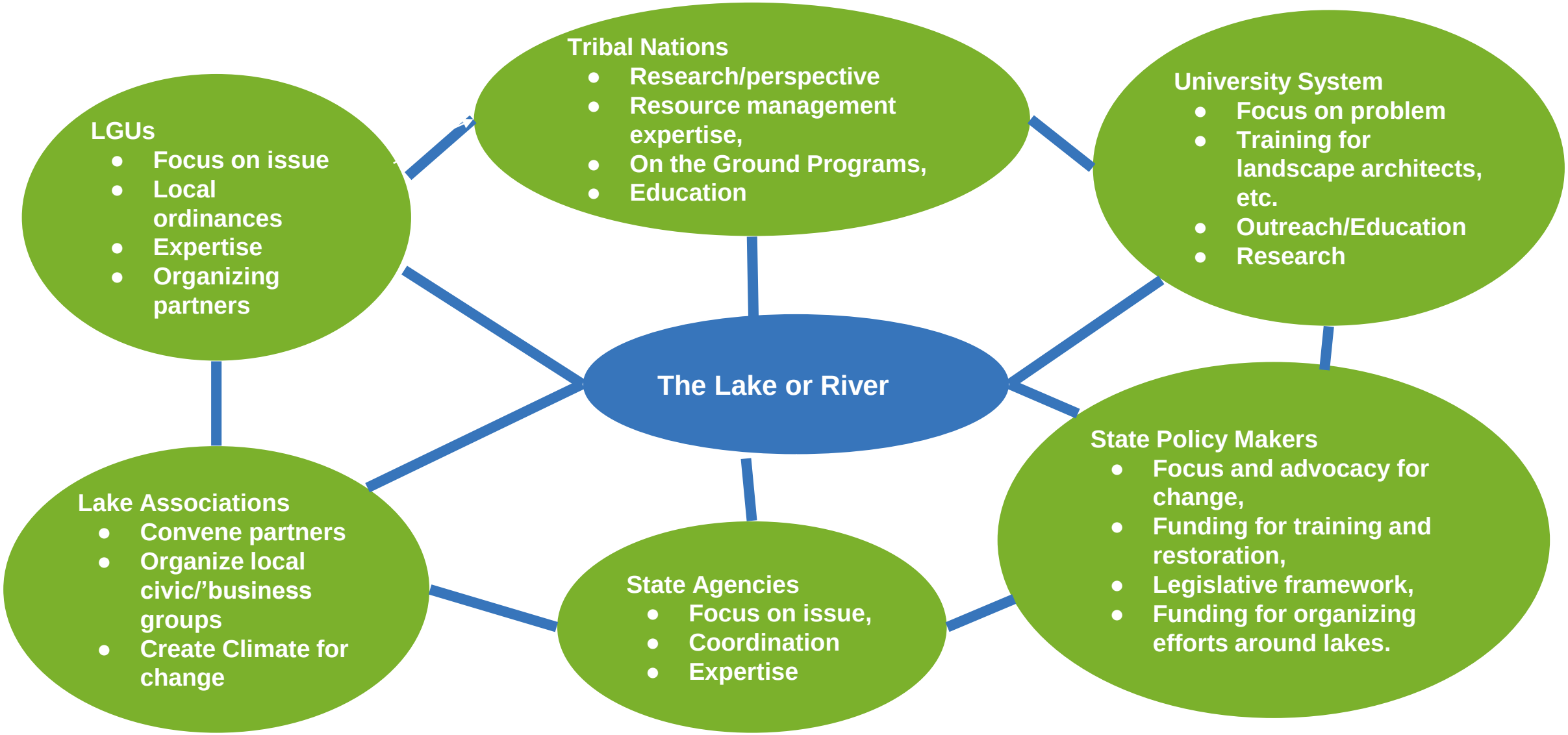
Where can we go from here?

Is there potential for **facilitated coordination** and **collective action…** and among whom?

Can we leverage **existing strengths** along with other tools, e.g. *investment in human capital*, to accelerate **local engagement** that results in **behavior change** to **protect and restore** natural shorelands?

If We Want to Improve Water, We Must Improve Land

- The problem is real & worsening
- Reclaiming shorelines is doable
- Need reset the property owner's and policy maker's mindset
- Regional "showcase" shoreline examples will help
- Much greater coordination among partners is required


Tribal Nations
Research/perspective
Resource management expertise,
On the Ground Programs,
Education
LGUs
Focus on issue
Local ordinances
Expertise
Organizing partners
University System
Focus on problem
Training for landscape architects, etc.
Outreach/Education
Research
The Lake or River
Lake Associations
Convene partners
Organize local civic/'business groups
Create Climate for change
State Agencies
Focus on issue,
Coordination
Expertise
State Policy Makers
Focus and advocacy for change,
Funding for training and restoration,
Legislative framework,
Funding for organizing efforts around lakes.

We think Engagement is Warranted!

- But what do you think?

… and HOW can the AMC help?

MN COLA
Minnesota Coalition of Lake Associations

Minnesota Lakes & Rivers

FRESHWATER

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