

# Itasca County Shoreland Guide to Lake Stewardship

---



2018



Photo by Mary Shideler

The *Itasca County Shoreland Guide to Lake Stewardship* was produced in collaboration with Itasca Waters, Itasca County Environmental Services Dept., Itasca County Soil and Water Conservation District and the MN DNR.

Funding for this project was provided by: Itasca Waters, Itasca County Environmental Services Dept., Itasca County Soil and Water Conservation District’s 1,000 Lakes and Rivers Fund, Itasca County AIS Program, Itasca Coalition of Lake Associations, Deer Lake Association and RMB Labs.

A special thank you is extended to the Blandin Foundation for their continued support and to Cass County Environmental Services and the Leech Lake Area Watershed Foundation for permission to revise the Cass County Shoreland Homeowner’s Guide.

**Production Credits:**

**Revised Content:** Itasca Waters

**Design:** Ann Flaws, Evergreen Graphic Design

**Printing:** Range Printing, 2018

**Cover Photographer:** Karen Oothoudt

**Other Photographers:** Mary Shideler, [marythekayaklady.com](http://marythekayaklady.com); Prairie Restorations, Inc. Bill Marshall

## Table of Contents

Introduction..... 1

Watersheds: Keeping Our Lakes Healthy..... 2

Curb Pollution: Reduce Phosphorus and Other Pollutants..... 3

Curb Pollution: Manage Waste Properly ..... 5

Curb Pollution: Inspect and Maintain Your Septic System ..... 6

Reduce Runoff: It Doesn’t Go Away ..... 8

Reduce Runoff: Preserve or Restore Natural Shoreline ..... 10

Reduce Runoff: Curb Erosion ..... 14

Reduce Runoff: Capture and Cleanse Runoff-Manage Rainwater..... 16

Working Around Wetlands ..... 19

Stop the Spread of Aquatic Invasive Species (AIS) ..... 20

Watershed Stewardship: Beyond the Shoreland Zone ..... 23

Watershed Stewardship: Forest Management & Land Conservation.... 24

Watershed Stewardship: Itasca Waters & ICOLA..... 25

What Can I Do On My Shoreland Property?

What Permits Are Required? ..... 26

Itasca County Shoreland Permit Requirements ..... 28

Itasca County Shoreland Checklist & Important Resources..... 29

Frequent Contact Information: Itasca County..... Back Cover

### Top Concerns of Minnesota Lake Associations

*(Minnesota’s Lake Associations: Who they are and what they do. Ibrahim, Marko, Bjertness, Zabel on behalf of MN Lakes and Rivers Advocates, 9/25/2017)*

- Presence and prevention of AIS
- Overall water quality
- Runoff control
- Weed/aquatic plants
- Shoreline development
- Lake water level
- Declining fisheries fishing pressure
- Boat traffic/safety
- Tax pressure
- Septic system runoff
- Winter safety

**This guide can also be found online at [itascawaters.org](http://itascawaters.org).**

**References:**

- <sup>1</sup> *Shoreland Property: a guide to environmentally sound ownership*; 2002; Southeast Wisconsin Fox River Basin Partnership Team, University of Wisconsin-Extension and Wisconsin Department of Natural Resources.
- <sup>2</sup> Rain Barrel Fact Sheet, Crow Wing County Extension, 2007.



Printed on 10% post-consumer recycled fiber content.

# Itasca County Shoreland Guide to Lake Stewardship

## Introduction

Itasca County has some of the most pristine and highest quality lakes in Minnesota. Living by the water provides a special opportunity to participate in water-related activities. Whether observing wildlife in its natural habitat or enjoying a beautiful lake sunset, we can experience the feeling of serenity and sense of well-being that accompanies being close to water and nature.

There are over a thousand lakes and 2,630 miles of lakeshore in Itasca County. These lakes and shorelines not only provide personal enjoyment, they also draw visitors from around the country. Those coming to Itasca County come to enjoy its beauty and recreational opportunities. As a result, Itasca County's quality of life is enhanced and its residents experience a stronger community foundation and economic stability.

Owning shoreland property comes with certain riparian (near the water) rights and privileges. These include the right to: put a dock in the lake at navigable depth; to take water for domestic and agricultural purposes; and to fish, boat, and swim. But these rights must be exercised in compliance with state and local rules and regulations. Rules are put in place for our health and safety and that of our adjacent lakes and streams.



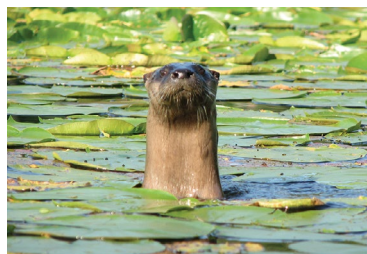
Photo by Mary Shideler

With the enjoyment of our lakes comes the responsibility to protect, improve, and enhance the quality of these waters for ourselves and future generations. Water is a public resource for all of us to enjoy. As a shoreland owner or one who occasionally uses our county's waterways, we must all practice **STEWARDSHIP**...taking on the personal responsibility to manage our life, property, and our county resources in a way that watches out and protects the rights of others to fully enjoy this amazing ecosystem of water, plants, animals, and humans.

## It's Up to Us

This *Itasca County Shoreland Guide to Lake Stewardship* provides basic information about good lake stewardship. You will learn ways of managing your property that will protect water quality by: (1) **curbing pollution** at the source and (2) **reducing, capturing, and cleansing runoff** before pollutants reach the lake. Included in this guide is information on how to prevent the spread of aquatic invasive species (AIS) that can impair recreational enjoyment and impact water quality. Specific local and state rules and regulations related to shoreland living and development will also be covered.

Practicing these ideas will ensure healthy lakes and will protect shoreland property investments. The result will be continued enjoyment of our lakes while preserving their ecological integrity.



Three photos by Mary Shideler

**“A lake is the landscape’s most beautiful and expressive feature. It is earth’s eye; looking into which the beholder measures the depth of his own nature.”**

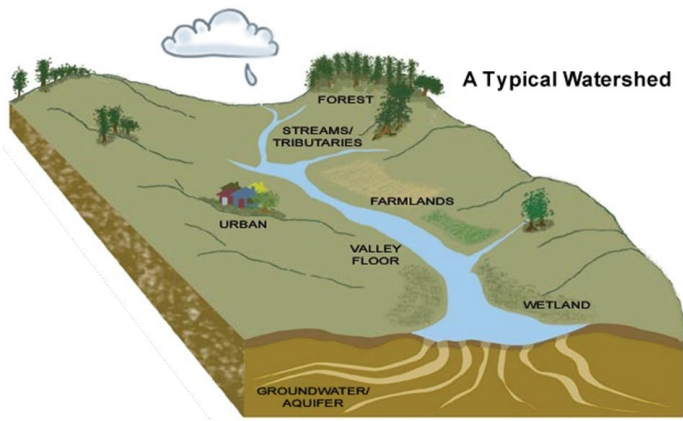
**~Henry David Thoreau  
in Walden**

# Watersheds: Keeping Our Lakes Healthy

What is a watershed? A lake is part of a larger landscape, the watershed. **Water quality is primarily dependent upon what happens on the land surrounding the lake and within the lake's watershed.**

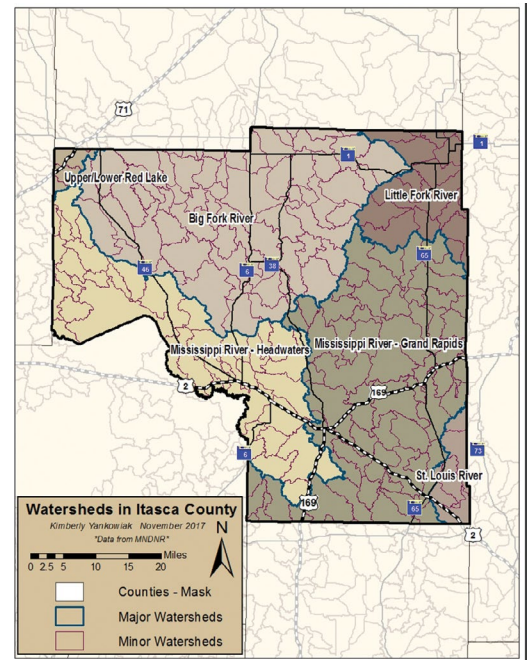
A watershed is an area of land in which all the precipitation falling within it flows to a certain point, usually a receiving waterbody such as a river, lake, stream or wetland.

A lake's water quality is determined by whether any water runoff from the land carries pollutants into the lake.



**We all live in a watershed.** Each lake has its own watershed or land that directly influences what goes into the lake. Each lake watershed is part of a larger watershed where activity on the land can influence water quality. **A healthy lake depends on a healthy watershed.**

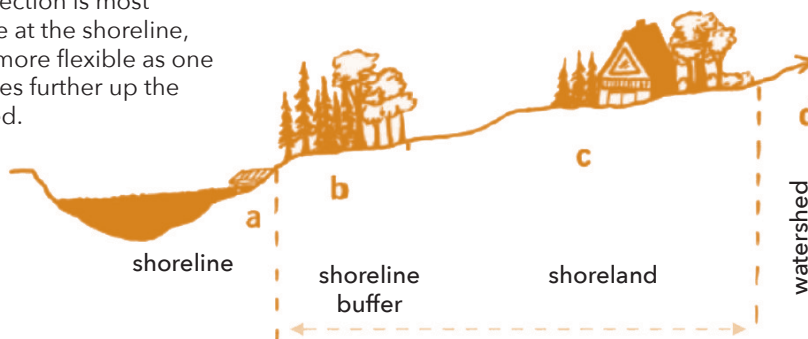
Itasca County is unique hydrologically as its six major watersheds drain in three directions: north to Hudson Bay, east to Lake Superior and ultimately the Atlantic Ocean, and south to the Gulf of Mexico. Each of our six watersheds is made up of minor watersheds. Itasca County has 201 minor watersheds.



## Your Lake's First Line of Defense

While land activity in the watershed can contribute to lake pollution, there are four major zones that can protect the lake. The immediate shoreland zone is the lake's first line of defense. What you and your neighbors do or don't do on your shoreland property can have a significant impact on the quality of the lake. Managing water quality means appropriately managing the land use around the lake to reduce the amount of pollution that enters the lake.

The four-zone approach to lake protection is most restrictive at the shoreline, and it is more flexible as one progresses further up the watershed.



### The Four Zones:

- a) The shoreline interface of land and water;
- b) The shoreline buffer zone is the distance from the shoreline to the setback for the building envelope. The setback distance is determined by the classification of the lake (i.e. a general development lake is 75 feet; a recreational development lake is 100 feet; and a natural environment lake in Itasca County is 100-200 feet depending on the specific lake);
- c) The shoreland zone is 1,000 feet from the lake or 500 feet from a river or stream;
- d) The lake's watershed is the greater drainage area to the lake.

## Curb Pollution: Reduce Phosphorus and Other Pollutants

**Nitrogen, potash, and phosphorus are the essential nutrients necessary for plant growth.** Phosphorus is the key nutrient needed for aquatic plant and algae growth. When excessive phosphorus reaches the lake it fuels the overgrowth of aquatic plants and algae, the growth of microscopic organisms that give water a greenish tinge, and can cause blue-green scums along the shore. Excessive plant and algae growth decreases water clarity, interferes with the recreational use of the lake, and diminishes oxygen for fish.

Natural rainfall contains some phosphorus, which increases when the rain hits a surface and picks up dirt.

We can't control rainfall, but we can control our own shoreland practices that may contribute to excess phosphorus in the lake. Excessive phosphorus and other harmful pollutants can get into lakes from shoreland properties in a number of ways, including:

- excessive fertilizer application;
- decomposition of leaves and other plant material;
- erosion of soil, which has phosphorus particles attached to it;
- improper human and pet waste management, both of which contain high amounts of phosphorus; and
- the use of household products high in phosphorus and/or toxic chemicals.



*The average one-acre lawn can potentially yield about one pound of phosphorus to the lake every year. One pound of phosphorus can feed the growth of over 500 pounds of algae.*

### Apply Fertilizer Sparingly. Use Zero-Phosphorus Lawn Fertilizer—It's the Law in Minnesota

By law since 2005, Minnesota homeowners cannot use fertilizers containing phosphorus. There are exemptions for new lawns or when a soil test indicates a need for phosphorus. In much of Itasca County, soils are naturally high in phosphorus so lawns generally don't need extra phosphorus.

When shopping for fertilizer, buy a brand that has a middle number zero i.e. 22-0-15. The law did not prohibit retailers from selling phosphorous fertilizers, and even though most retailers primarily sell zero phosphorus fertilizers, it is our responsibility to comply with the law. In Itasca County, fertilizer application is discouraged in the shoreland buffer zone.

A good way to dispose of left over phosphorus fertilizer is to use it in a garden.

Other herbicide and pesticide precautions to follow:

- Eliminate the use of fertilizers near water or wetlands.
- Before fertilizing your lawn, aerate it first and see if that improves its health.
- Use the minimum amount needed to replenish the soil and apply at the right time of year, usually spring and early fall. Water lightly after fertilizing to ensure absorption by the roots before a heavy rainfall.
- Sweep fertilizer that has spilled on the driveway and other hard surfaces back onto the lawn to prevent runoff.



**Managing water quality means appropriately managing the land use around the lake and within the watershed to reduce the amount of pollution that enters the lake.**

# Curb Pollution: Reduce Phosphorus and Other Pollutants

## Use Herbicides and Pesticides Sparingly, or Not at All

- Keep lawns healthy to avoid the need for herbicide applications.
- When necessary, use the least toxic and most degradable herbicide and follow directions carefully.
- Use corn gluten meal, a byproduct of the corn milling process, as a natural pre-emergent herbicide that stops the root growth of germinating plants. If you can't find it in major retail stores, ask them to carry it.
- Remove dandelions and other unwanted plants from your lawn using hand tools instead of chemical applications. If you feel you must use a herbicide for control, do not apply it to the whole lawn. Instead, use an applicator which allows you to direct a small spray towards each unwanted plant.
- Identify the pest and learn about the best way to control it. There are many methods of control other than pesticides such as integrated pest management.
- When using pesticides outside your house, on the lawn and in the garden, follow the label's instructions. Prevent spillage where watering or rain can percolate the fertilizer into the groundwater or wash it into the lake with runoff.

## Do Not Dump Yard and Aquatic Plant Waste Near the Lake

Grass clippings, leaves, and aquatic plant materials that wash up on shore all contain phosphorus, which is released when the plant material decomposes.

To prevent phosphorus from getting into the lake:

- Use a mulching lawn mower and leave grass clippings on the lawn as natural fertilizer.
- Collect and compost leaves and clippings, or haul them away from the lake to a disposal site. Keep out of wetlands.
- Leave a strip of taller grass along the lake to catch windblown leaves and debris.
- Do not burn leaves near the lake. It destroys the organic matter releasing the phosphorus, which could then be washed into the lake.
- Remove washed up or harvested aquatic plant materials away from the shore, compost, or use as mulch in the garden.

## Locate Fire Pits Away from the Shore and Dispose of Ash

The leftover ash from burning wood is very high in phosphorus. If the fire pit is located near the lake, rain can wash the ashes into the lake.

- Locate the fire pit at least 50 feet away from the lake.
- Remove ashes from the fire pit to prevent the phosphorus-loaded ashes from being blown or washed into the lake. Hint: Ashes make a great garden soil amendment.

## Pick Up Pet Waste

Improper disposal of pet waste not only jeopardizes water quality, but your health as well. Pet waste contains phosphorus and may contain disease-causing organisms which, if washed into the water, can make it unsafe for swimming. Pick up pet waste in the yard or near the shore and dispose of it properly.

## Seal Abandoned Wells

An unused water well—abandoned well—provides a direct route for pollutants to reach groundwater, your primary drinking water source and interconnection to the lake. Sealing the abandoned well is a safeguard against unwanted pollution. It must be done by a licensed groundwater professional. Financial assistance may be available for sealing an abandoned well. Contact Itasca County SWCD for more information.

## Practice Low-Impact Boating

To reduce the pollution impact of motorized watercraft on the lake:

- When fueling the boat, take precautions to avoid overfilling the fuel tank. If you do spill, wipe it up with a rag and do not hose into the water.
- Boat slowly and do not power load boats at accesses. Motors stir up sediments that can release nutrients and toxic mercury. A 50-horsepower motor operated full throttle can stir the water column and sediment from the bottom in water as deep as 15 feet.
- Keep your motor well-tuned; use four-cycle motors.

**Never use fertilizers, pesticides, or herbicides near the lake. Runoff can carry these products into the lake and harm fish, plants, and other wildlife and accelerate the growth of unwanted aquatic plants and algae.**

# Curb Pollution: Manage Waste Properly

## Don't Burn Garbage

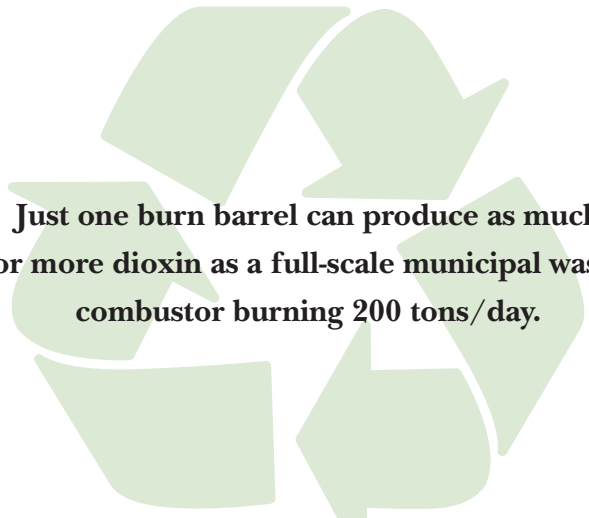
Burning household garbage in burn barrels, wood stoves, and fire pits creates pollution that's dangerous to human health and contaminates the air, water, and soil. **It's against the law in Minnesota.**



Garbage today contains a lot of plastics; paper treated with chemicals, coatings, and ink; and many other chemicals. Backyard burning is a low-temperature fire that receives very little oxygen and produces lots of smoke. Under these conditions, a variety of toxic substances are produced and released primarily into the air close to ground level where they are easily inhaled—with no pollution controls! Dioxin, a potent human carcinogen, is the major health risk posed by residential garbage burning. U.S. EPA research shows that burn barrels are the #1 source of dioxin in the U.S. Instead of burning garbage, dispose of it properly.

### REDUCE, REUSE, RECYCLE

**REDUCE** the amount of waste you create by buying non-disposable products with less packaging.  
**REUSE** the durable packaging you get (wash out the sour cream container and use it to store leftovers).  
**RECYCLE** all the materials you can, like cardboard, newspapers, plastic grocery bags, cans, and bottles.



**Just one burn barrel can produce as much or more dioxin as a full-scale municipal waste combustor burning 200 tons/day.**

## Properly Dispose of Household Hazardous Waste

Household hazardous waste (HHW), such as paints, cleaners, garden chemicals, automotive products, and aerosol cans should be disposed of properly to protect the environment.



Dumping on the ground or down the drain can contaminate ground and surface waters and/or impair septic systems.

Beware of any products that have labels including the words: flammable, toxic, corrosive, or reactive. Read product labels carefully and buy the least hazardous products, use according to package directions, and store in a safe place away from heat, flames, and cold temperatures. See the back cover for HHW disposal options in Itasca County.

## Itasca County Medication Disposal



## Safely Dispose of Unwanted/Expired Medications

The disposal of expired or unwanted prescription or over-the-counter medications from households have traditionally been flushed down the toilet or drain. This has been demonstrated to cause adverse effects to fish and aquatic wildlife when these medications get into water systems.

The Itasca County Sheriff's Office provides a disposal box for any unneeded over-the-counter medications, prescriptions, or narcotic drugs used by family members or pets. A box is located at the Itasca County Sheriff's Office at 440 1st Ave. NE, Grand Rapids. Items may be dropped off between 8 am and 4:30 pm, Monday through Friday. For medications placed in the box, leave the name of the medication on the container and black out your name and any identifying information. These items are not accepted: syringes, needles or sharps, biohazardous waste, cancer treatment drugs, and radioactive medications. For more information call 218-326-3477.

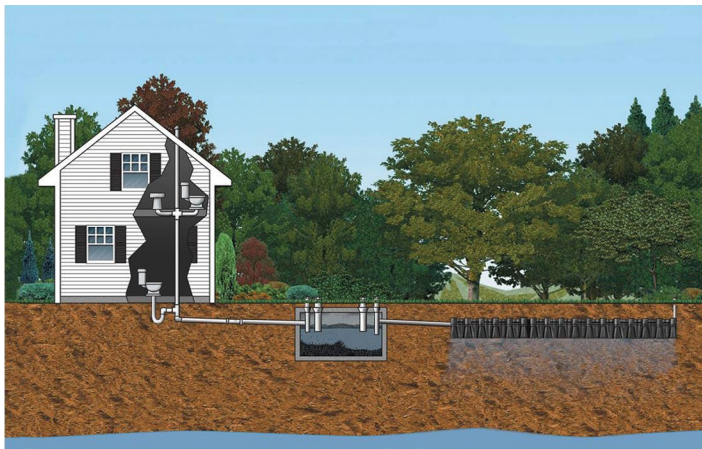
# Curb Pollution: Inspect and Maintain Your Septic System

Most homes in shoreland areas rely on Subsurface Sewage Treatment Systems (SSTS), commonly known as the septic system. Your septic system, if designed, installed, and maintained properly, will effectively treat wastewater before it is returned to the environment, will protect public health and will prevent pollution of a nearby lake or river.

## Understand How Your Septic System Works

Understanding your system is essential to proper operation and maintenance. The basic components of most systems are:

- The **Septic Tank** receives the wastewater from the household plumbing. In the tank, the solids are separated from the liquid. Here, naturally-occurring bacteria decomposes food particles and human waste and the remaining solids settle to the bottom until they are pumped out on a regular basis. The tank has an inspection pipe for monitoring the tank and a manhole for access when pumped. The size of the tank is based on the home's potential water use and types of appliances installed. When the capacity of the tank is reached the excess liquid flows, or is pumped, into the drain field.
- The **Soil Treatment System** (drain field) is typically a network of perforated pipes surrounded by small rocks and soil. The liquid contains pathogens (disease-causing organisms), nutrients such as phosphorus and nitrates, and fine solids. It is cleansed naturally by bacteria as it percolates down through the soil. The design of the treatment system (trench, mound, etc.) is based on the soil conditions on the property. For proper treatment, at least three feet of unsaturated soil is needed for the wastewater to percolate through. The correct type of system needed for your property will be determined by a state licensed septic designer. Where gravity flow is not enough to move the liquids from the tank to the soil treatment system, pumps or lift stations are common—this is typical with mound systems.



## What Causes a Septic System to Fail?

**Septic system failure is most commonly the result of:**

- Improper maintenance;
- Overuse of water in the home; and/or
- Improper design or installation of the system.

When your system, or a neighbor's system fails, untreated wastewater could come in contact with people, causing a public health hazard, or enter the groundwater and eventually add pollutants to the lake that can contribute to increased algae and plant growth.

**What are the signs of a failing system?**

- Sewage backup into the house or slow toilet flushing.
- Frozen pipes or soil treatment areas.
- System alarms sounding.
- Wet and/or black areas around a septic mound.
- Algal blooms and excessive plant growth in the water near shore.
- Sewage odors indoors or outdoors.
- Water or sewage surfacing in the yard or a nearby low spot.
- High levels of nitrates or coliform bacteria in well water tests.

**If you have a problem:**

- Contact Itasca County Environmental Services for advice and/or check their website for a list of licensed septic inspectors.
- If the drain field or household pipes are not clogged, have the system pumped for both solids and liquids as a temporary measure.
- If there is surface pooling of wastewater, fence off the area to prevent contact with humans or pets.

## Properly Operate and Maintain Your System

Proper operation and maintenance will extend the life of your system for many years and prevent costly repairs.

### Pump the Tank Regularly

Have a licensed professional pump the solids (floating scum and sludge) that have accumulated from the septic tank every one to three years—the more use, the more often pumping is needed. Make sure they pump through the manhole. Garbage disposal use is not recommended with septic systems. Pump annually if you are using a disposal. Failure to remove the solids can cause them to enter the drain field, which can result in expensive repair or replacement. There is a list of septic system installers, designers, and similar available through the Environmental Services office.



# Curb Pollution: Inspect and Maintain Your Septic System

## Practice Water Conservation

Too much water flowing into the tank will cause the tank to back up and lead to ineffective treatment of wastewater. To prevent this:

- Repair all leaky faucets, fixtures, and appliances.
- Install water-conserving fixtures and appliances (especially toilets and shower heads).
- Do not empty roof drains and sump pump water into the septic system.
- Wash only full loads of clothing and dishes, and spread out water use for laundry, dishes, and showers throughout the day and week. Consider front loading machines that use less water.
- Reduce the length of showers and the number of toilet flushings, especially during high use periods.
- Reroute water softener discharge water out of the septic system.
- Do not hook floor drains or drain tile into the septic system.

## Limit What Goes Down the Drain

- Do not put household cleaners, paints, solvents, medications, and other chemicals down the drain.
- Limit the use of antibacterial products. As the name suggests, they can reduce the amount of working bacteria in the septic tank.
- Use only the recommended amounts of liquid non-phosphorus detergents and cleaners.
- Prevent food particles, grease, lint, coffee grounds, plastics and other non-degradable solids from getting into the system.
- Use single-ply toilet paper for the best decomposition.

## Do Not Use System Additives

It is not necessary to use starters, feeders, cleaners, or other septic system additives (i.e. Rid-X, Septic Cleanse, etc.) to enhance the performance of your system. If your system is properly maintained and operated, it will operate at maximum performance with the use of naturally occurring bacteria.

## Protect Your Drain field

Compacting or obstructing the soil over the treatment area can cause malfunctioning of the drain field. To protect it:

- Keep heavy vehicles off the drain field.
- Maintain vegetative cover, but do not plant trees or shrubs on the drain field because the roots may penetrate and clog the distribution system.
- Mow the area, but do not fertilize or water.
- Reroute roof drains and drain tile away from the drain field.

## Protect Your System from Freezing in Winter

Common causes of septic system freezing during the winter can be lack of snow cover, extreme cold, compacted snow, irregular use of the system, leaking plumbing fixtures, pipes not draining properly, or a waterlogged system.

To prevent freezing, follow these general guidelines:

- Fix any leaking plumbing or appliances prior to winter.
- In the fall, leave the grass longer over the tank and drain field for better insulation.
- Add a layer of hay or straw mulch (8-12 inches) over the pipes, tank, and soil treatment area.
- Keep ATVs and snowmobiles off the drain field.
- Spread hot water use (laundry, showers, dishwasher) out over the day and week. If you'll be gone for extended periods, consider having someone stop by to run hot water regularly.
- High-efficiency furnaces, water softeners, and iron filters have the potential to cause problems in the winter because of slow and/or periodic discharges of water.
- Talk with a professional before installing heat tapes or tank heaters.

## What to Do If the System Freezes?

Unplug your pump and call a septic system professional. Do not add antifreeze, additives, or continuously run water to try to thaw the system.

## Itasca County Requirements

**Who regulates?** The design, inspection, and installation of septic systems (SSTS) are regulated by Itasca County and must be done by professionals licensed by the state. Lists of licensed professionals and permits for septic system installation can be obtained from the Itasca County Environmental Services Department.

A list of licensed septic contractors is available at <https://cf.pca.state.mn.us/programs/ssts/index.cfm>.

**What records are required?** All septic systems must have a Certificate of Compliance indicating they meet the Itasca County SSTS requirements, sometimes referred to as "up-to-code." A certificate is good for five years from the date of original installation and must be renewed every three years thereafter.

**When are inspections required?** If applying for a building permit for new construction or bedroom addition, a compliant septic system is required. If a certificate is not currently on record or it is not current, an inspection of the septic system will be required. If the system is found to be noncompliant, modification or replacement of the system may be necessary before a building permit is issued.

**What about property transfers?** A Certificate of Compliance is required on any property with a septic system. If the system is not compliant, it must be brought into compliance, or an agreement must be filed to update/escrow for later compliance.

**Call the Itasca County ESD for questions about septic system requirements.** Low-interest septic loans may be available for systems posing an imminent health threat.

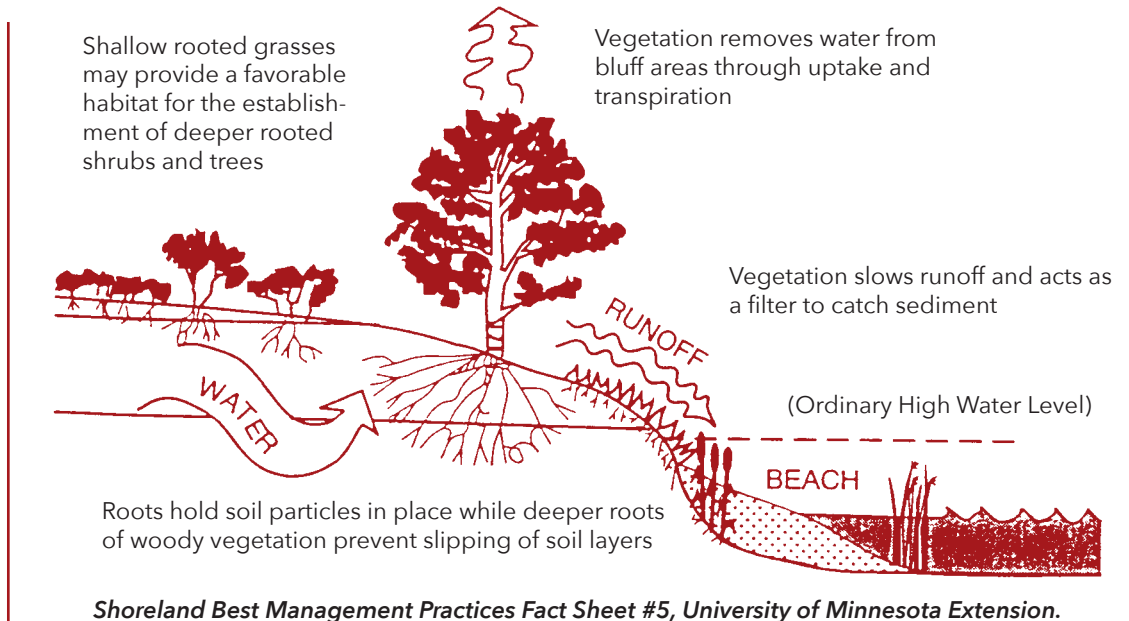
# Reduce Runoff: It Doesn't Go Away

## What is Runoff?

Snow melt or rainwater that does not soak into the ground and instead runs off hard surfaces such as roofs, driveways, sidewalks, or compacted soils and steep slopes is called runoff or stormwater. When runoff reaches the lake, it can carry with it nutrients, eroded soil sediments, toxic materials, bacteria, and other pollutants that can be detrimental to water quality, fish and wildlife. **Reducing runoff decreases the pollutants that can eventually reach the lake.**

Managing stormwater (rainwater) on your property so it soaks into the ground (infiltrates) rather than running off is the best way to reduce runoff and filter out pollutants before they reach the lake. Impervious surfaces (hard or paved-over areas) do not allow the absorption of water. Green space, such as gardens, trees, shrubs, or landscaping allows water to infiltrate slowly down into the soil and roots.

**Managing stormwater on your property is the best way to reduce runoff and pollutants before they reach the lake.**



## Practice Good Lawn Management

### Reduce the Amount of Lawn

Bringing the suburban lawn mentality to the lake has also brought more opportunities to degrade the quality of our lakes. Limit the amount of lawn and keep as much natural vegetation as possible, or replant natural vegetation—especially near the lake. Not only will you reduce runoff, you'll reduce the amount of yard work freeing you up to recreate instead.

### Maintain a Healthy Lawn to Absorb More Water

- Mow to a height of two to three inches; mow when dry to prevent clumping. Taller grass provides shade for better root growth, which helps with water absorption.
- Consider replacing some of the grass in your lawn area with clover, native grasses, or other ground covers that don't need watering.
- If watering is necessary, water deeply but infrequently to encourage deep root growth. Water with lake water. (Hint: use the nutrients in the lake to make a healthy lawn instead of frequent fertilizer applications.) Water in the morning, not mid-day or evening.
- In hot weather, allow lawn grasses to go dormant so they require less water and nutrient intake for survival. Water 1/4 to 1/2 inch every two or three weeks to keep crowns from dehydrating beyond the point of recovery.

**If we love our lakes we have to change our ideas about what is a good lawn at the lake.**

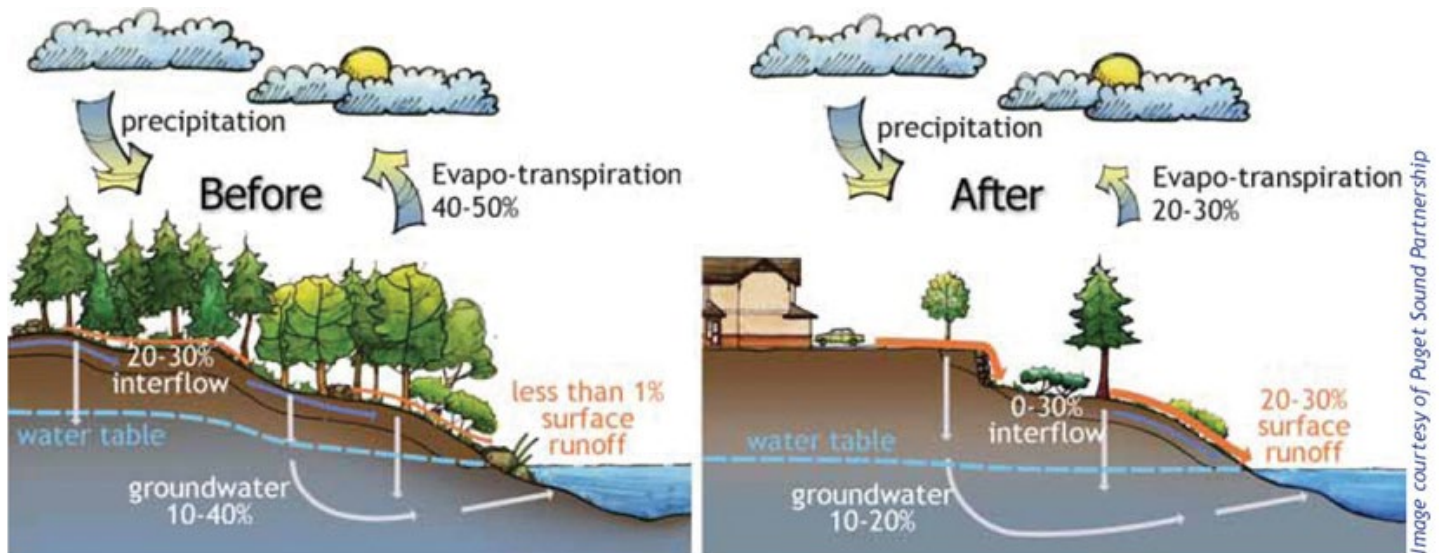
**Manicured lawns take more chemicals and work to maintain and do not provide good habitat for wildlife that share the shoreland with us.**

# Reduce Runoff: It Doesn't Go Away

## Maintain Natural Vegetation

Natural vegetation will naturally reduce runoff by holding back the water providing time for it to soak into the ground.

- When clearing your lot, minimize the removal of wooded areas, trees, and low growing shrubs. Their removal causes more rain to fall directly on the ground instead of landing on leaves and branches.
- Grading large areas of land removes the natural depressions of land where water can pond and soak in.
- Carefully landscape your yard near roads, driveways, and along the shoreline to direct runoff away from the lake.



When there is precipitation, water will evaporate, run off the land, or soak (infiltrate) into the ground. The amount of vegetative cover on the ground will significantly impact the amount of runoff and infiltration. Notice in the “Before” graphic the natural vegetation holds back the runoff and provides time for it to soak into the ground.

## Reduce Hard Surfaces, Like Roofs and Driveways

Since impervious surfaces cannot absorb water, reducing the amount of impervious surfaces on your lot will reduce the volume of runoff.

- When considering additions, decide if the extra space is really necessary. Could you build up instead of out to reduce the roof size?
- Minimize the amount of paved surfaces, such as driveways and sidewalks. Locate driveways, sidewalks, stairways, and footpaths away from steep slopes.
- If you're installing a new patio or rebuilding a sidewalk or walkway, use bricks, interlocking pavers, or flat stones set in sand instead of concrete. Consider using pervious pavers, where water runs through it, and pervious asphalt for driveways.
- Use mulch to absorb water and cover well worn paths that may be compacted and act like asphalt.

Itasca County limits the amount of impervious surfaces on shoreland parcels; contact Itasca County Environmental Services for more information.

## Make Friends with the Ice Ridge

Ice ridges are formed by the pushing action of the lake's winter ice sheet against the shore and can be more pronounced in years when there is less insulating snow cover. Unless the ice ridge is impeding your use of the lake or access to your dock area, consider making friends with the ice ridge and leaving it alone. They are natural beneficial lakeshore features that have been forming for thousands of years. Natural berms protect the lake from runoff. Nutrients collect on the landward side of the mound producing fertile soil where trees and plants thrive and provide root systems that hold soil in place. They provide a natural form of shoreline protection. If you want to remove an ice ridge, contact Itasca County Environmental Services before beginning work. A permit will be needed.

The Wisconsin DNR calculated runoff volume from an undeveloped shoreland lot compared to a large lake home (approximately 4,000 square feet of impervious surfaces) on a lot entirely converted to lawn. They found up to a:

- 500% increase in runoff volume,
- a 700% increase in phosphorus washing into the lake, and
- a 900% increase in sediment flowing to the lake on the large home lot.<sup>1</sup>

# Reduce Runoff: Preserve or Restore Natural Shoreline Vegetation

Scientific research shows the way we treat our shorelines affects lake water quality, fish, and wildlife habitat. **To protect and improve our lakes, we need to improve our shorelines.** The best way we can do that is by adding or keeping a buffer strip of natural vegetation along the shore. Buffer strips of native wildflowers, grasses, trees, and shrubs protect water quality and provide habitat for fish and wildlife.

If you have lawn to the water's edge, lawn behind riprap, steep slopes, or little vegetation near the shore, consider a natural shoreland landscaping project to restore the native vegetation by creating a shoreland buffer zone—an area of native vegetation along the water's edge.

## Rethinking How our Shorelands Should Look

Creating and maintaining a natural buffer zone along your shore does not mean your property has to look messy, but it may mean you have to rethink what your shoreland should look like. Lawn-to-lake shorelines are no longer ecologically smart. Creating or keeping a native shoreline buffer reduces the amount of nutrients entering the lake and provides better wildlife habitat. For example, a 20-foot buffer strip along the lake can trap about 80% of the phosphorus runoff and about 90% of the sediment pollutants.



This house-to-the-lake lawn on the left was labor intensive to maintain. Fertilizer and grass clippings may have added nutrients to the lake leading to weed and algae growth. A shallow-rooted lawn (turfgrass) has minimal ability to filter nutrients and sediment entering from rainwater runoff and is ineffective at allowing infiltration of water into the soil. The shallow roots leave subsurface runoff untreated while native plant roots intercept and withdraw the nutrients and water.

On the right, this same property with the addition of native vegetation, creates a shoreland buffer which will protect the shoreline, maintain the natural landscape, prevent erosion, and filter out boat noise. Low growing plants can be planted that will not impede lakeviews. Using ornamental grasses, perennials, and smaller woody plants will significantly reduce and filter runoff while restoring natural beauty to the shore.



## Benefits of a Shoreland Buffer

1. **Enhances water quality.** A good buffer protects your lake, stream, or wetland by slowing runoff and allowing it to soak into the ground.
2. **Stabilizes shorelines.** Buffers prevent fluctuating water levels, moving ice, flooding, surface runoff, and wave action from eroding your shoreline.
3. **Provides fish and wildlife habitat.** The shoreline buffer

provides habitat for fish and cover for birds, butterflies, turtles, and other wildlife.

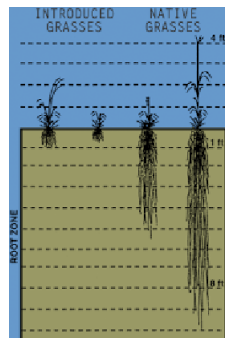


4. **Enhances aesthetics.** Natural buffers beautify your yard with a variety of colorful wildflowers, creating a natural privacy screen.
5. **Increases property value.** A high quality buffer is an asset that can add resale value.
6. **Limits nuisance bugs and wildlife.** A native plant buffer creates a natural barrier to Canada geese.

# Reduce Runoff: Preserve or Restore Natural Shoreline Vegetation

## Buffer the Lake From Runoff

One of the greatest benefits of establishing native vegetation is the deep root systems that stabilize the shore from erosion and ice damage. The roots loosen soil allowing rain to soak into the ground instead of running off into the lake.



*Native plants are more effective at stabilizing soils and banks because their roots are longer (3-5 feet) and more dense than typical Kentucky bluegrass (2-3 inches). They hold the soil particles together to prevent erosion and reduce ice damage.*

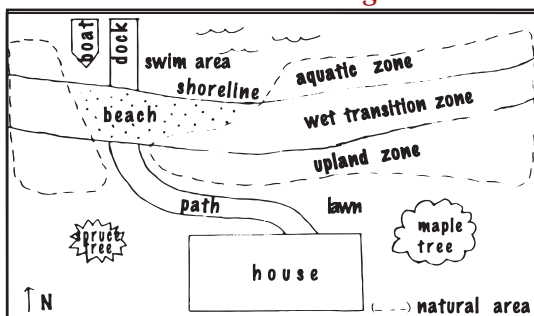
## What is a Shoreland Buffer?

A shoreland buffer is an unmowed strip of native vegetation that extends both lakeward and landward from the water's edge. A buffer zone of native plants extending 25-50 feet landward from the shore is preferable, but even adding a buffer as narrow as 10-15 feet can restore many functions critical to the health of the lake that may have been eliminated previously by sod, hard structures, or mowing. **When it comes to shoreland buffers, wider is more beneficial.**

A shoreland buffer consists of:

- the shallow **aquatic zone** of emergent, submerged, and floating leaf aquatic plants. This zone provides food and shelter for ducks, songbirds, frogs and other amphibians, and fish. The taller plants, like bulrushes, sedges, and cattails can reduce the energy from wave action which minimizes erosion and helps maintain water quality.
- the **wetland transition zone** of waterloving plants that bind the lake bed to the upland soils.
- the **upland zone** of native trees, shrubs, grasses, and wildflowers. This slows rainwater as it flows overland, allowing sediment to filter into the soil, absorbs water and nutrients, and breaks down pollutants.

### Plan a natural area along the shore



Source: University of Minnesota Extension Service, 2005; Item #08308

## Getting Started Creating a Shoreland Buffer

There are a number of ways to create a shoreland buffer depending on the characteristics of the shoreland and the desires of the property owner. Some decisions in creating a buffer are easy, such as: "How tall do you want the plants to be?" Others are more complicated, like: "What is your soil type and holding capacity?"

The Itasca County SWCD can assist you with technical help and a planting plan for your shoreland buffer. Stop by Itasca County SWCD at 1889 US-2, Grand Rapids or call 218-326-0017.



Native Shoreland Buffer

Photo courtesy of Prairie Restorations, Inc.

**Resource professionals recommend that you maintain a shoreland buffer along 75% of the shoreline frontage.**

Here are some options to help you decide how you want to establish a shoreland buffer.

## Don't Mow, Let It Grow

A simple, no-cost way to start restoring your shoreland is to stop mowing the width of the desired buffer strip. Turf grasses will grow 12-24 inches before going to seed, after which native plant seeds in the soil will germinate and begin to appear. Note the types of native plants and wildflowers growing on natural shorelands around your lake. That will give you an idea of what is likely to appear and what is suitable for growing in your area. While the buffer is getting established, you may need to weed out nuisance species or add native plants for diversity. Remember, perennial native plants take three to five years before becoming apparent.

# Reduce Runoff: Preserve or Restore Natural Shoreline Vegetation

## Buffer the Lake from Runoff

### Restore Your Shoreline

Local nurseries and garden centers are starting to carry more native plant stock and can recommend the best plants for your site. Plants used should be native to this region of Minnesota. Don't buy plants from a mail order catalog grown in another part of the country and expect them to grow. The DNR website, [dnr.state.mn.us/gardens/nativeplants/suppliers.html](http://dnr.state.mn.us/gardens/nativeplants/suppliers.html), has a list of native plant suppliers and landscapers. Consult DNR Shoreland Restoration Specialists or the Itasca County SWCD for resources and fact sheets on designing your project, selecting plants, preparing the site, and planting.



### Hire a Professional

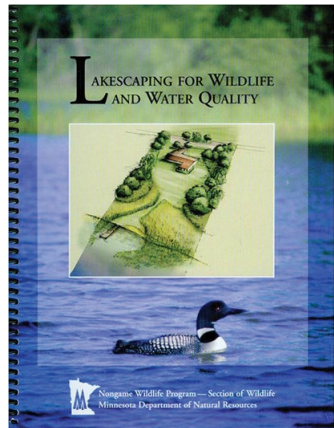
Shoreland restoration is a rapidly growing field among landscape professionals. Ask for recommendations from other property owners who have completed revegetation projects. If your site has a steep slope or other unusual characteristics, getting professional assistance will be important for your project's success.

## Maintaining Your Restored Shoreland

A shoreland restored with native vegetation should maintain itself once it is established. Apply mulch to new planting beds to prevent soil erosion, hold moisture in the soil, and control weeds. You may need to water and weed the first season, but once the plants are established, they will be able to outcompete most weeds. Native species should never be fertilized because they are adapted to the nutrient levels found in local soils. Fertilizers and pesticides applied to areas near shore can be a threat to aquatic life and water quality. Plants left standing in fall and winter provide seeds and shelter for wildlife, protect the soil from wind erosion, and capture windblown leaves and debris.



Photo by Mary Shideler



The book *Lakescaping for Wildlife and Water Quality* and the DNR's *Restore Your Shore* are two highly recommended resources to get you started. They are available in bookstores and online through Minnesota's Bookstore at [mnbookstore.com](http://mnbookstore.com)

The *Restore Your Shore* is also online at [dnr.state.mn.us/rys/index.html](http://dnr.state.mn.us/rys/index.html).



Photo by Jim Gustafson



Photo by Mary Shideler

# Reduce Runoff: Preserve or Restore Natural Shoreline Vegetation

## Protect the Aquatic Zone

The aquatic zone is a vital part of the shoreland buffer. Emergent vegetation helps purify the lake by removing contaminants and calming the water, which allows suspended soil particles to settle to the lake bottom. They provide shelter and spawning areas for fish and other wildlife and add oxygen back into the water. If submerged aquatic plants are interfering with swimming, clear by hand only what is needed to provide a small swimming area. Leave other submerged plants in place. Any chemical treatment of aquatic plants or the destruction of cattails, bulrushes, or wild rice will require a permit from the local DNR Fisheries office.



As part of your project, you may want to plant more aquatic vegetation. This will require a permit from the DNR, but generally a permit fee is waived because this activity is encouraged. Once planted, it may be necessary to install wave break structures to protect young plants from wave damage until their roots are established.

Learn to identify aquatic invasive species, such as curly-leaf pondweed, Eurasian watermilfoil or purple loosestrife and report any suspect plants to the DNR. These invasive species can replace native plants that are vital to the lake ecosystem, and they create recreational nuisances and impact water quality.

## Protect New Shoreland Plantings



*Coconut coir fiber logs providing a wave break for new plantings.*

After installing new plantings along the shoreland to prevent erosion, a temporary wave-break device may be needed to protect the new plantings along the shoreline until they are well rooted. Devices often made of natural materials are placed in the water ahead of the planting to break boat and wind created waves. Leaving wave breaking devices through one growing season is usually sufficient. If the shoreline is a naturally protected site, a wave breaking device may not be needed. A DNR permit is required to build and maintain wave breaking devices until they can be removed.

Coconut coir fiber logs or brush bundles are the least expensive yet effective wave breakers. The coconut logs are made of biodegradable fiber and are easy to install. They can be anchored offshore or laid directly against the shore. Brush bundles are constructed by using live or dead branches up to 1 inch in diameter. Bundled tightly with twine or wire, they are staked in place along the shore with wood stakes and secured to one another with twine or wire. The MN DNR website is a good source of information for purchasing and installing these and other wave breaking devices to protect plantings and reduce erosion ([dnr.state.mn.us/rys/st/erosioncontrol.html](http://dnr.state.mn.us/rys/st/erosioncontrol.html)).



### Leave Fallen Trees and Branches Alone

Unless they are interfering with your recreational access, leave fallen trees and branches in the water. They provide critical habitat for the aquatic organisms fish and other aquatic life feed upon, cover for small fish from predators, and serve as sunning and roosting areas for turtles, kingfishers and other interesting wildlife. The fish and wildlife will appreciate you.

### Common Plants for Shoreland Buffers

These plants are commonly used in creating shoreland buffers or are found naturally along shorelines. There are a wide variety of other sedges and plants native to Minnesota that can also be used.

#### Aquatic Zone

Bulrush  
Pickerelweed  
Water shield  
White and yellow water lily  
Arrowhead  
Bur-reed

#### Wet Transition Zone

Marsh marigold  
Swamp milkweed  
Blue flag iris  
Canada bluejoint grass  
Blue vervain  
Sedges

#### Upland Zone

Wild rose  
Canada anemone  
Little Bluestem  
Wild bergamot  
Black-eyed susan  
Red-osier dogwood  
High bush cranberry

## Reduce Runoff: Curb Erosion

Rainwater runoff or waves lapping at the banks of your shore can erode the shoreline, silt up the water, wash away sand blankets, and impair fish spawning areas. When soil washes into the lake, it carries with it phosphorus, which can cause an increased growth of aquatic plants and algae. Sediment builds up in the lake increasing turbidity after rain events. These events interfere with normal lake functions and impact fish and wildlife habitat. The results of these events are water quality degradation. **Curbing the erosion of soil into the lake will reduce pollutants reaching the lake.**

Shorelines can erode through many processes. Natural causes of erosion include currents, waves, ice, and rain. Many human activities may significantly increase the rate of erosion. Some common causes of erosion include:

- removal of natural vegetation for property development, both on shore and in the lake, or creation of beaches;
- improper installation of erosion control structures, such as retaining walls;
- increased wave action from watercraft traveling close to the shore;
- dredging, filling, or construction on or near the shoreline;
- trampling of banks by human, animal, or vehicle traffic;
- inadequate protection against stormwater runoff from roofs, driveways, streets, and other paved or hard surfaces.

### Signs of a Serious Erosion Problem

- large area of bare soil on a steep, high shoreline bank;
- noticeable recession of the shoreline over a period of time;
- large patches of muddy water near a lakeshore, or unusually muddy streams during periods of high water or following a rainstorm;
- excessive deposits of sand or other sediments on the streambed, or very wide, shallow areas in a stream.



*Erosion may be accelerated by activities such as boat wakes or high waves during storms. Each year erosion causes the loss of valuable shorefront property. Contrast the eroded shoreline lacking vegetation (foreground of photo) with the well-vegetated, uneroded shoreline in the distance.*

**Neither riprap nor retaining walls will prevent ice ridges from forming because rock cannot withstand the up to 30,000 pounds of ice pressure per square foot.**

### How Can Shoreline Erosion Be Controlled?

**If your shoreland is eroding away, stabilizing the shoreland will be necessary to reduce erosion.**

Each shoreland situation is different. You are encouraged to consult with shoreland landscaping professionals, the DNR Ecological and Water Resources, or the Itasca County Soil and Water Conservation District to determine the best solution for your shoreline erosion situation.

**Riprap, stone, retaining walls, or turf grass might seem like good solutions for stabilizing erosion, but they are not usually the best choice.** Riprap deflects wave energy back toward the lake causing previously sandy areas to erode to gravel or cobblestones. Water can undercut retaining walls and turf grasses. Riprap and non-native grasses do not reduce chemical runoff that can pollute water and cause unsightly algal blooms. These choices can negatively impact the lake by creating an unnatural barrier between upland areas and the shoreland environment. This destroys vegetative transition areas and eliminates critical habitat for many species.

Retaining walls deflect wave energy back to the lake instead of diffusing it. This can undercut the base of the wall and cause increased erosion at the ends making the water more turbid. Neither riprap nor retaining walls will prevent ice ridges from forming because rock cannot withstand the up to 30,000 pounds of ice pressure per square foot.



# Reduce Runoff: Curb Erosion

## Preventing Erosion

Some basic preventive actions include:

- Preserve existing rock and vegetation that naturally occur along the shoreline.
- Stop mowing a strip of land near the shoreline or restore a shoreland buffer of native vegetation.
- Prevent impervious surface (i.e. roofs, driveways, etc.) runoff from flowing to the shoreline, steep slopes, and bluff areas.
- Avoid construction within 100 feet of the shoreline, steep slopes or bluffs.
- Protect natural berms pushed up by ice action along lakeshores. Berms prevent excessive surface runoff and trap sand.
- Limit the amount of foot traffic and other recreational activities in erosion prone areas. Regardless of preventive measures, the right combination of conditions, such as high water level, violent windstorms, drastic ice movement, and certain shoreline configurations, may result in serious shoreline erosion.

## Preventing Erosion on Steep Slopes and Bluff Areas

The erosion potential on steep slopes and bluffs can be reduced by:

- Diverting water away from steep slopes by rerouting drainpipes and gutters. If diverting water away from the bluff is impractical, it should be routed through a non-perforated plastic drain pipe that empties into rock drainage at the bottom of the bluff.
- If a walkway to the shore is needed, follow the natural contours of the slope and go across or around the slope. Use steps when a walkway must go directly up and down a slope. Minimize destruction of natural vegetation during construction.
- Keep moisture and nutrient absorbing natural vegetation on steep slopes by limiting clearing and grading.
- Replant vegetation on barren slopes.
- Create a view corridor through the trees by selectively pruning while maintaining natural vegetation, trees, and shrubs.

## Shoreland Alterations are Regulated

In Itasca County, any dirt moving in the Shore Impact Zone (SIZ) requires a permit. Intensive vegetation clearing within bluff impact zones and on steep slopes is not allowed. In the Shore Impact Zone 1, no trees or shrubs can be removed except to accommodate placement of stairways, landings, or access paths.

- The Shore Impact Zone 1 (SIZ 1) is the distance from the ordinary high water level to one half the structure setback. This varies according to lake classification. For general development lakes this would be 37.5 feet; recreational development lakes would be 50 feet; and 50 to 100 feet on a natural environment lake, depending on the specific lake classification.
- The Shore Impact Zone 2 (SIZ 2) is the distance from the SIZ 1 to the structure setback.
- The Bluff Impact Zone includes the bluff itself and an area within 30 feet from the top and the bottom of the bluff .

**Naturalizing your shoreline or maintaining the natural shoreland vegetation is the most important way to reduce shoreland erosion.**



*On steep bluffs, selectively prune trees to create a view corridor of the lake. Keep the vegetative undergrowth to stabilize the soil on the bluff.*

# Reduce Runoff: Capture and Cleanse Runoff-Manage Your Rainwater

The best way of managing rainwater (stormwater) is to get the water into the ground near where it falls. This prevents runoff from making its way to nearby waterbodies and carrying with it pollutants, chemicals, soils laden with nutrients and other materials that can impact water quality, aquatic life, and wildlife. Learn to view rainwater as a resource. This approach to stormwater management is called **Low Impact Development (LID)**.

This new way of thinking about rainwater mimics the natural water cycle and predevelopment patterns on a property, keeping the drop of water as close to where it fell in the watershed so it can soak into the ground. This principle gets closer to a natural cycle of 50% infiltration and 10% runoff that is achieved with vegetated shorelands.

## Key Low Impact Development Concepts Include:

- **Conserve:** preserve native trees, vegetation, and soils, and maintain natural drainage patterns.
- **Control at the source:** minimize runoff volume at the source by collecting or directing it to vegetated areas where it can infiltrate (soak into) the ground slowly.
- **Customized Site Design:** each home or commercial/industrial site can help protect the watershed through the appropriate combination of LID techniques.
- **Pollution Prevention and Maintenance:** reduce pollutant loads to waterbodies and increase efficiency and longevity of infrastructure with proper and timely maintenance.

LID uses techniques that **infiltrate, filter, store, evaporate, and detain** runoff close to its source. These include the use of infiltration basins, rain gardens, rain barrels, grassy swales, and general reduction of the amount of impervious pavement. In addition, LID also emphasizes protecting natural areas important for water transport and filtering, such as wetlands, streams, and vegetation buffers near water. Remember, every part of your lot is part of a larger watershed. **The degree to which water is properly managed at the lot scale is the degree to which habitat and water quality degradation can be minimized to the adjacent lake or river, or other waterbodies in the watershed, and groundwater can be recharged.**

## When Building or Altering the Landscape:

Any new development or alteration of the landscape should have site design and planning that takes the natural vegetation and drainage patterns into consideration.

- Minimize grading and clearing. Carefully assess the property and its natural drainage patterns before designing the house and its placement on the lot.
- Keep wetlands and as much native vegetation as possible. Wetlands filter out nutrients and native trees provide shade, filter and soak up water, and are habitats for birds and wildlife.
- Slope paved surfaces toward vegetated low areas allowing water to soak in.
- Landscape with rain gardens to hold runoff on the lot, to filter rainwater and recharge groundwater.
- Retain rooftop runoff in a rain barrel for lawn and garden watering. Your garden will love the natural nutrients.
- Reduce impervious surfaces. When building, construct smaller houses or building footprints; build up rather than out. Minimize the amount of driveway, roof area, and sidewalks. For patios and walkways, use permeable pavers or interlocking pavers or flat stones set in sand instead of concrete.



Photo by Mary Shideler

**Low Impact Development (LID) gets water into the ground near where it falls:**  
**Infiltration • Rain gardens • Less impervious surface • Pollution prevention**

# Reduce Runoff: Capture and Cleanse Runoff-Manage Your Rainwater

## Allow Water to Settle Into the Soil-Not Run Off Into the Lake

The fewer impervious surfaces there are for rainwater to collect and run off the less likely there will be erosion and runoff into the lake. The key to solving this problem is to stop water from running off your property so it can soak into the ground. You can capture rainwater and allow it to be cleansed through natural soil processes.

The best way to do this is to divert rainwater off roofs, driveways, walkways, and other hard surfaces into rain barrels or to the lawn. Or, create a rain garden designed to capture and cleanse the rainwater naturally.



**How much rain do I need to fill a 50-gallon barrel?** For every inch of rain that falls on one square foot of your roof, you can collect just over half a gallon of rainwater.

Example: 100 square feet of roof could collect 60 gallons of rainwater during a 1-inch rain event.<sup>2</sup>

Sixty-five (65) percent of all annual rain events are one inch or more.

To collect twice the volume from the same downspout, connect the overflow hose from the first rain barrel to a second rain barrel.



## Divert Rainwater off Roofs and Driveways

Paved driveways and roofs of buildings comprise most of the impervious surfaces on a lot. Redirect rainwater flow from downspouts, roof gutters, and driveways onto lawns or into a rain garden where it will have time to naturally infiltrate into the ground. Or, capture the water in a rain barrel, where it can be used later for watering.

## Install a Rain Barrel

A rain barrel is any type of container used to catch water flowing from a downspout and store it for later use.

The rain barrel is placed underneath a shortened downspout diverting the roof runoff into the barrel. The rain barrel has a spigot to dispense the stored water for use in watering flower gardens, house plants, and lawns. Rainwater is naturally high in phosphorus. It's a natural way to fertilize.

Humans and pets should not drink the stored water, nor should it be used on food products. A screen should be installed on the barrel to keep mosquitoes and debris from entering. Mosquitoes cannot breed if the barrel is drained weekly.

Rain barrels need to be drained regularly during spring and summer months to reduce algae growth. During winter months, take your barrel out of operation by simply turning it upside down at the same location or storing it elsewhere. Rain barrels can be purchased at garden centers, ordered online from garden catalogs, or you can make your own. Search online for instructions.

# Reduce Runoff: Capture and Cleanse Runoff-Manage Your Rainwater

## Plant a Rain Garden

A rain garden is just what it sounds like, a garden to soak up rain water. It is a recessed planting bed, shaped like a saucer or shallow bowl, and it is designed to collect runoff from driveways, roofs, and other hard surfaces. The collected water is absorbed into the ground instead of running into the lake.

Rain gardens are planted with hardy, water loving, native perennial plants that have deep roots, which along with the soil, work to provide a filter system to catch pollutants such as phosphorus, oil, mercury, and other heavy metals.

Rain gardens capture runoff containing nutrients, which are subsequently absorbed by the rain garden plants. During a rainfall, the highest concentration of pollutants occurs in the first inch, or first flush of the storm, and those pollutants are then retained in the rain garden. Rain gardens are designed so any water collected will be absorbed into the ground within a few hours of the rain ending.

To be effective, rain gardens must be properly designed for the right shape and size to accommodate runoff from the amount of roof, driveway, and other hard surfaces on your property as well as your soil conditions. For proper design, it is recommended you consult the Itasca County SWCD or a landscape professional. Remember to always call the Gopher State One Call at 800- 252-1166 before digging to prevent cutting into an electrical line or cable.



Photo courtesy of Prairie Restorations, Inc.

### Suggested Rain Gardening Plants:

- Butterfly Weed
- Smooth Blue Aster
- Common Yarrow
- Stiff goldenrod
- Little Blue Stem
- Beaked Sedge
- Bush Honeysuckle
- Pagoda Dogwood
- Downy Arrowwood

### Rain Garden Tips:

- Don't worry about mosquitoes. Most rain gardens should not hold water long enough for mosquitoes to reproduce.
- When first planted, hand weed biweekly until native plants are established.
- Don't fertilize near the rain garden, it will stimulate weed competition without benefiting the native plants.

Source: Taylor Creek Restoration Nurseries

### Additional Resources about Minnesota Rain Gardens:

[prairieresto.com/plants\\_rainwater.shtml](http://prairieresto.com/plants_rainwater.shtml)

[blue-thumb.org/raingardens/](http://blue-thumb.org/raingardens/)

[nracs.usda.gov/Internet/FSE\\_DOCUMENTS/nracs142p2\\_023098.pdf](http://nracs.usda.gov/Internet/FSE_DOCUMENTS/nracs142p2_023098.pdf)



# Working Around Wetlands

## What are Wetlands?

Wetlands are a vital transitional link between land and water. Some are wet, swampy, marshy areas, yet other types of wetlands may be dry most of the year and support trees and shrubs. Generally, a wetland is an area that is mostly wet soil, is saturated with water either above or just below the surface, and is covered with plants that have adapted to wet conditions.

### Wetlands have extremely valuable benefits, including:

- Water quality protection: Wetlands filter and absorb polluted surface water runoff before it enters groundwater, lakes, and rivers.
- Flood control and groundwater recharge: Wetlands serve as holding areas for water, slowing flood damage and soil erosion during heavy rainfalls.
- Fish and wildlife habitat: Wetlands provide homes, nesting areas, and feeding areas for wildlife. Wetlands along shorelines are especially important due to the habitat and food sources they provide for aquatic insects and amphibians.
- Reducing shoreline erosion: Wetlands, and the deep rooted plants growing in them, protect shorelines from the forces of wave action that can erode the shoreline.

## Who Has Permit Authority?

Despite all their benefits, in the past, wetlands were considered nuisances and were drained or filled in along shoreline areas by development.

In 1991, the Minnesota Wetland Conservation Act (WCA) was passed to stop the loss of wetlands. To accomplish this, anyone proposing to drain, fill, or excavate in wetland areas must first try to avoid disturbing the wetland; second, try to minimize the impact on the wetland; and finally, mitigate, or replace the square footage of wetland loss. Some exemptions to the law may apply in certain situations. Generally, wetlands in shoreland areas are given extra protection due to the benefits they provide lakes.

If access to the lake is limited due to the presence of wetlands along the shoreline, boardwalks and docking is encouraged. The Itasca County SWCD can provide assistance in helping you determine if wetlands are on your property and what permits may be needed. Work that is done below the ordinary high water level (OHW) in lakes, rivers, or public waters will require a permit from the DNR Public Waters Work Permit Program.

**Statewide, Minnesota has lost over 50% of its pre-statehood wetlands and has about 9 million acres of wetlands remaining. Let's protect what we have left.**

**There are 772,642 acres of wetlands in Itasca County; about 38% of total county land area.**

**Contact Itasca County SWCD at 218-326-0017 for permit information and requirements when working around wetlands.**



Four photos by Mary Shideler

# Stop the Spread of Aquatic Invasive Species (AIS)

Aquatic Invasive Species (AIS) are plants and animals brought to our waters either accidentally or intentionally that are not native and spread aggressively forcing out native plants and animals. Such introductions usually occur through human activities and often are spread through boating activity. They can cause great environmental and economic harm to our lakes.

## How Do They Harm the Lake?

Aquatic invasive plants, like Eurasian watermilfoil, curlyleaf pondweed, purple loosestrife and starry stonewort replace native aquatic plants important for fish and wildlife and interfere with lake recreation. Aquatic invasive animals, like zebra mussels and spiny waterfleas, interrupt the natural food chain in the lake impacting fish and other wildlife.

## Common AIS in Minnesota Lakes:



**Eurasian watermilfoil**  
(*Myriophyllum spicatum*)

Eurasian watermilfoil (EWM) is now in lakes, rivers, streams, and wetlands statewide. It forms dense mats that interfere with boating and swimming. The plant has delicate feather like leaves arranged in whorls

(circles) of 3-5 around the stem; leaves are limp out of the water. Each leaf has 12-21 leaflet pairs. Northern watermilfoil is a native look alike but it has only 7-10 leaflet pairs. Herbicide-resistant hybrid forms of watermilfoil are now being found in Minnesota lakes.



**Curlyleaf pondweed**  
(*Potamogeton crispus*)

Curlyleaf pondweed forms aquatic plant mats that can shade out native plants and impede recreation. The plant has stiff, wavy leaves with fine-toothed edges that are 1/2 inch wide and 2-3 inches long, arranged alternately around the stem. When it dies back in midsummer it

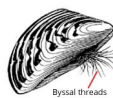
releases nutrients, which can cause summer algal blooms.



**Zebra mussels**  
(*Dreissena polymorpha*)

Zebra mussels filter water and take the plankton out of the water that young fish rely on for food. Initially, upon infestation, the filtering makes the water clearer,

but eventually they damage the lake ecosystem and can impact fish populations. Their sharp edges impede swimming. They are yellowish-brown mussels, up to 2 inches long, have light and dark stripes on the "D" shaped shells. They use byssal threads to attach to all hard surfaces making them easy to transport, and they are very difficult to remove. It is the only freshwater mussel that can attach to objects. One female zebra mussel can produce up to 1 million eggs in one year. Over 310 lakes, rivers, streams, and wetlands in Minnesota are currently listed as infested with zebra mussels.



**Spiny waterflea**  
(*Bythotrephes longimanus*)

**Fishhook waterflea**  
(*Cercopagis pengoi*)

Spiny waterflea is a tiny crustacean (< 1/2 inch) that competes with small fish for food and fouls up fishing gear with gelatin-like clumps of waterfleas. It has 1-4 barbs on the tail and is difficult to distinguish without magnification.

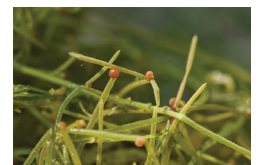
The spiny and fishhook water fleas are planktivores. Unlike other zooplankton that feed primarily on planktonic algae, these water fleas feed on other zooplankton, like daphnia, which is also the preferred food of juvenile fish. Although very small in size spiny waterfleas can have a big impact on a waterbody. They reproduce very rapidly and can establish a large population in a short time. One spiny water flea can eat 20 organisms in a day.



**Starry stonewort**  
(*Nitellopsis obtusa*)

This is a large plant-like algae that can form dense mats in lakes and ponds. This species is native to Europe and Asia, first being discovered in the St. Lawrence River in 1978. Little is known about the effects of starry stonewort and its biology.

Since Minnesota's first discovery of starry stonewort in Lake Koronis/Stearns County in 2015 and in several lakes in Beltrami, Cass, and Itasca County in 2016, the urgency of identifying new infestations has moved to the forefront for 2017. It resembles our native charophyte (green algae) species and is easily mistaken to be chara, a common green algae growing in shallow water. Native stoneworts and musk-grass are both commonly found in Minnesota waters. A unique identifying feature of starry stonewort is the small, white bulbils that can mature to a star shape. Typically these aren't apparent until late July/August or later in the summer. It is from these "starry" bulbils the grass-like fronds emerge.



**Purple loosestrife**  
(*Lythrum salicaria*)

A hardy perennial which can degrade wetlands and diminish the value of wildlife habitat. 3-7' spike with small purple flowers. Downy, smooth-edged leaves usually paired, opposite. Mature plants have many stems that grow from a root crown.

**For help in species identification, call the Itasca County AIS Hotline at 218-256-4243 or call the DNR Northeast Region AIS specialist at 218-328-8821.**

# Stop the Spread of Aquatic Invasive Species (AIS) Take Personal Responsibility

## Clean, Drain, Dry Know the Law—Pull the Plug

### To Stop the Spread of AIS

**REMOVE** visible plants, animals, and mud from the boat, trailer and other boating equipment (anchors, centerboards, rollers, axles). On jet skis, clean out all water intakes and other parts before transporting.

**DRAIN** water from your boat, motor, live well, and bait containers before leaving the water access. You must remove the drain plug and leave it removed prior to leaving any water access and while transporting the boat.

**DISPOSE** of unwanted bait in the trash. Never release live bait. When cleaning off fishing lines while fishing, collect plant fragments in a bucket and dispose of onshore.

**SPRAY, RINSE, DRY** boats and recreational equipment before transporting to another water body. Spray/rinse with high pressure and/or hot tap water (above 140 degrees F); locate the nearest boat decontamination station in Itasca County. This is critical when leaving any zebra mussel infested waters. It is recommended that you dry your equipment for at least 5 hot, sunny days, preferably, depending on temperature and humidity. Between 60 - 80 degrees F air temperature, the optimum drying time is 14 days; above 80 degrees air temperature, 7 days.

### To locate boat decontamination stations:

- Call the **Itasca County AIS Hotline at 218-256-4243.**
- Ask an **access inspector** where the nearest boat decontamination station is located in Itasca or adjacent counties.

### In Minnesota it is unlawful to:

- **Transport** aquatic plants, ruffe, round goby, zebra mussel, or any other prohibited invasive species on any road.
- **Leave** any body of water before removing drain plugs and draining all water related equipment (including live wells and bait containers). Note: to keep unused bait, drain and replace with tap or spring water.
- **Launch** a watercraft with aquatic plants, zebra mussels or any prohibited invasive species attached.

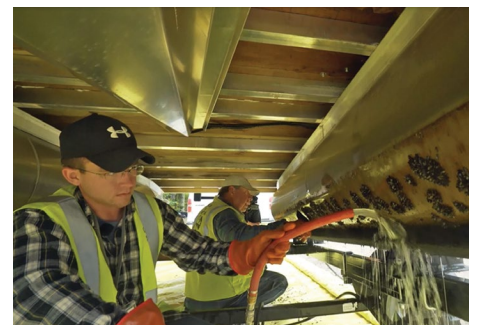
- **Harvest** bait (minnows, frogs, crayfish, or other wild animals) from designated infested waters.

### Know what waters are infested in Itasca County; check lake accesses for DNR infested waters signs.

A complete list of infested waters can be found at [dnr.state.mn.us/invasives/ais/infested.html](http://dnr.state.mn.us/invasives/ais/infested.html) or call the **Itasca AIS Hotline at 218-256-4243.**



**STOP AQUATIC HITCHHIKERS!™**  
✓ Clean ✓ Drain ✓ Dry



# Stop the Spread of Aquatic Invasive Species (AIS)

## What You Need to Know

- **If you hire a business to install or remove your boat, dock, lift, or other water-related equipment**, make sure they have completed AIS training and are on the DNR's list of **Permitted Service Providers**. Lake service providers that have completed DNR training and obtained their service provider permit will have a permit sticker in the lower driver's corner of their vehicle's windshield. They have attended training on AIS laws and many have experience identifying and removing aquatic invasive species. Ask the business if they are permitted before you hire.
- **If you plan to move a dock, lift, or other water equipment from one lake or river to another**, all visible zebra mussels, faucet snails, and aquatic plants must be removed whether they are dead or alive. According to Minnesota law, the equipment must be free of AIS and dried for 21 days before it can be placed in another waterbody.
- **When removing water-related equipment for the winter**, it is legal to take the equipment out of infested waters – even if it has zebra mussels or other prohibited invasive species attached – and place it on the adjacent shoreline property. Boat lifts, docks, swim rafts, weed rollers, irrigation equipment, or pumps can be removed from infested waters and placed on the shore without a permit. However, if you personally want to transport a boat, dock, lift, or swim platform from infested waters to another location for storage or repair, you must have a DNR authorization form to move it legally to the new location. You can download, fill out, and sign the form, which is valid for only one day and one-way transport. Carry it with you during transportation of the boat, equipment, or plants. Forms can be found at: [dnr.state.mn.us/invasives/ais\\_transport.html](https://dnr.state.mn.us/invasives/ais_transport.html)
- **When removing boats for winter storage**, there are two important things to know:
  - 1) It is illegal to transport any watercraft with zebra mussels, faucet snails, or other prohibited invasive species attached away from a water access or other shoreland property, even if you intend to put it in storage for the winter.
  - 2) To transport watercraft at the end of the season, the DNR has developed a special one-way pass, or authorization form. The form allows boaters to move watercraft to another location to clean off invasive species, and once cleaned, to store it for the winter. See same website as above for form.
- **Know your favorite waters!** Get to know what is on the shore and in shallow lake bottom of your favorite water spots, be it the local beach or your own property's lakeshore. Look and learn what is "normal" for those areas. Keep an eye out for something new or that looks out of place. If you see anything new or out of place, call the **Itasca County AIS Hotline at 218-256-4243** and we will come out to identify it. The best way to remove AIS from our waters is to find it early before it has had a chance to spread.



*Pokegama Lake Boat Inspection*

**For more information on Aquatic Invasive Species and what you can do to stop the spread see: [dnr.state.mn.us/invasives/aquatic/index.html](https://dnr.state.mn.us/invasives/aquatic/index.html) or call the Itasca County AIS Coordinator at 218-256-4243.**

**Also see Itasca AIS website at: [ItascaAIS.Info](https://ItascaAIS.Info).**





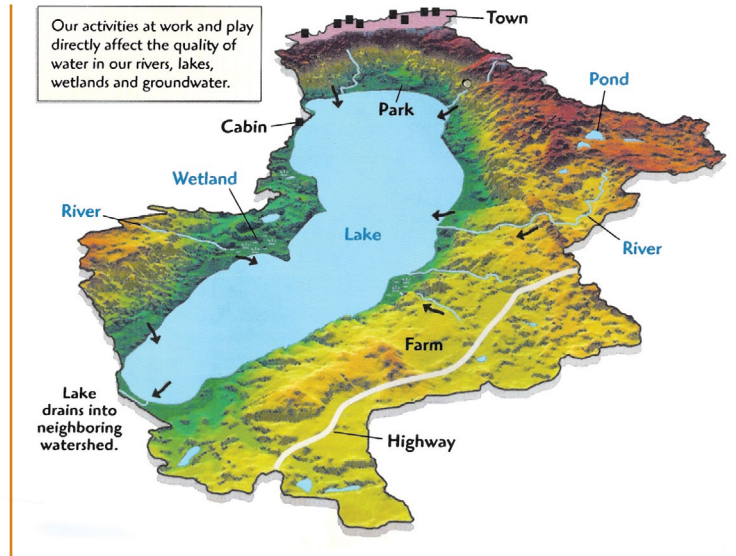
## Watershed Stewardship: Beyond the Shoreland Zone

A lake's water quality is impacted not only by what happens in the immediate shoreland zone of the lake, but also by the activities on the land within the lake's watershed. Each lake has its own watershed or land that directly influences what goes into the lake. Each lake's watershed is part of a larger minor watershed (201 total in Itasca County). Minor watersheds are included in major watersheds. Minnesota has 80 major watersheds; six major watersheds are included in Itasca County (see page 2).

### A healthy lake depends on a healthy watershed.

A lake's water quality is impacted by its watershed's runoff from the land into the lake. Nutrients such as nitrogen and phosphorus; and pollutants carried by the water such as gas, oil, pesticides, and other chemicals will impact water quality. Since water moves downstream in a watershed, any activity on the land or in the water that affects water quality or quantity at one location can change the characteristics of the watershed at downstream locations. **This means everyone who lives or works in a watershed needs to take measures to protect watershed health.**

With the natural hydrologic cycle, precipitation is either absorbed into the ground (infiltrates) or runs off the landscape to a river, stream, or lake—the focal point of the watershed. Some water will evaporate. Problems with water quality occurs when development alters the natural water cycle. Trees cleared for development no longer intercept rainfall. More impervious surfaces from construction, buildings, parking lots, etc. no longer allow the rainwater to infiltrate into the ground. This increases the amount of runoff and limits the amount of water that naturally recharges groundwater—your drinking water resource. Clearing forests for commercial agriculture not only increases runoff but the additional chemicals applied to the new agricultural land increases the pollution carried with the runoff.



**Controlling stormwater pollution and runoff throughout the watershed will help reduce impacts to water quality.** It is a challenge controlling pollution sources since pollution can come from many locations across the landscape and can also be associated with weather events—something we cannot control.

Following the guidelines in this *Shoreland Guide* is the first step in controlling stormwater pollution within the lake's watershed.

- Encourage and respect land use controls that are designed to minimize runoff.
- Keep forests as forest.
- Speak up and act.



Adapted From: Maine NEMO

Sources of runoff from land activity within the watershed include: logging and farming; forest, wetland, grassland, and agriculture; residential and urban impervious areas; septic and wastewater treatment facilities; shoreline erosion; commercial and industrial activity; and construction.

**Controlling stormwater pollution requires everyone's actions—from homeowner to business owner; to local, state, and federal governments.**

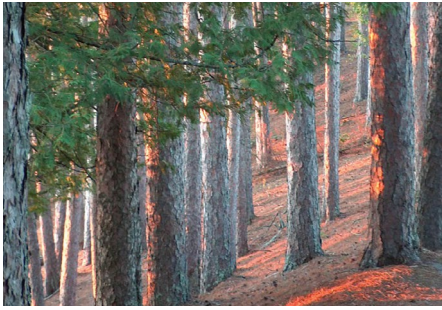


Photo by Mary Shudeler

*Itasca County administers just under 300,000 acres of tax-forfeited land, most of which is open to the public for hunting, fishing, hiking, camping, and other forms of dispersed recreation.*

## Private Forest Management

### Financial Incentive Options for the Private Forest Landowner

1. The SFIA (Sustainable Forestry Incentive Act) Program is a per acre annual cash payment for sustainably managed forested lands.
2. The 2C tax classification provides a reduction in property taxes on acres enrolled.

Both programs require a private forestry management plan for your land that is prepared by a forestry consultant and approved by the DNR.

### Land Conservation Options

Conservation easements can range from donated easements, which may have tax benefits (income, estate, or property) to easements where the landowner is paid a predetermined portion of the land's value for the development rights that are given up.

**For more information on private forestry management programs and conservation easements, contact:**

**Itasca County SWCD**  
**218-326-0017**  
**[itascaswcd.org](http://itascaswcd.org)**

# Watershed Stewardship

## Private Forest Management

Itasca County has an abundance of high quality forests in private, county, state, and federal ownership. Healthy forests are important for healthy waters. Their roots hold soil in place reducing erosion. They serve as natural sponges collecting and filtering nutrients and pollutants from rainwater, and they slow down and cool the flow of water before reaching a lake, river, or stream. It is widely accepted that if a watershed can maintain 75% of its land in natural forest cover, the surface waters within the watershed can also maintain high water quality.

Local, state, and federal governments manage their forest lands in Itasca County for productivity, sustainability, and enhanced forest integrity. This ultimately benefits water quality. For the private forest landowner, good forest management can also be a gain for water quality as well as fish and wildlife habitat and can contribute to the landowner's financial well-being. See side bar for private forest financial incentive programs.

## Land Conservation

Limiting development of privately owned shorelands or forested lands is another stewardship option to protect water quality. Land conservation tools are available to preserve land in its natural state for the continued enjoyment of family and future generations, plus the protection of fish and wildlife habitat. These tools will permanently limit development and preserve the land's natural features as a living legacy. Options include:

1. **Donate or sell private land to a public entity or qualified non-profit conservation organization.** They will manage the land in perpetuity for aquatic and wildlife habitat protection and public use and enjoyment. If land value is donated, an IRS charitable tax deduction may be available based on the donated conservation value.
2. **Place a conservation easement on your property.** A conservation easement prohibits or limits future development on the land. The easement is a legally binding agreement between a qualified entity that holds the easement (government entity or non-profit conservation organization) and the landowner. The easement permanently limits the use and development of the land in order to preserve the land's natural features and conservation value. The landowner determines the terms of the easement and still retains ownership and use of the land. There are different conservation easement programs available; see the side bar for assistance.



*Conservation easements limit development on the land to help protect water quality and habitat values while still allowing the landowner to enjoy the land.*

# Watershed Stewardship

## Itasca Waters - [itascawaters.org](http://itascawaters.org)

**"Team Up for Clean Waters!"** This is the mission of Itasca Waters, a group of volunteers teaming up with other organizations and concerned citizens with the goal of maintaining Itasca County's abundant clean waters and quality habitats. By protecting our six major watersheds, our health and enjoyment of this area is protected as well as our economy.



Formed in 2006 by a group of water quality advocates who wished to preserve Itasca County's beautiful lakes, its first focus was collecting water samples from previously unsampled lakes. Assistance and incentives to preserve and restore native shoreland buffers were shared with lakeshore owners. By 2011, known as Itasca Water Legacy Partnership (IWLP) and incorporated as a 501c3, the number of projects expanded. \$1.5 million in grants for water quality projects resulted in the establishment of a certified water quality testing lab at Itasca Community College, educating lakeside homeowners about healthy shorelines, bringing septic systems up to code, and controlling infestations of purple loosestrife. In 2014, grants from the DNR and Itasca County were applied to the region's first AIS program. A yearly Youth Water Summit for all Itasca County fifth graders, adult water summits, and water related events are part of the educational initiative.

In 2017, this water advocacy group decided to simplify its name and became Itasca Waters, although the legal name remains IWLP. Our shoreline initiative emphasizes helping lake owners improve their shorelines and ways to keep lakes healthy through information about buffer zones, native plants, rain gardens, controlling runoff and other topics. Check out our new website at [itascawaters.org](http://itascawaters.org).

Itasca Waters values:

- **Water** and its positive impact on our lives and economy
- **Balance** by encouraging diverse sustainable use, protection, recovery and enjoyment
- **Science and Data** as decisions need to be based on the scientific process
- **Collaboration** and teaming up for clean waters
- **Behavior** and using best management practices to influence behavior
- **Early Focus** to keep our water systems healthy

## Itasca Coalition of Lake Associations (ICOLA)

*Our mission is to protect and improve the quality of lakes and waterways in Itasca County*

ICOLA serves as an umbrella organization where lake associations can exchange information, share ideas and give advice for solving problems. Since 1995, this 501c3 non-profit organization has served the people of Itasca County who are interested in the welfare of our lakes and watersheds.

**ICOLA's objectives are to:**

- Promote the protection and stewardship of lakes, rivers, shorelands and watersheds;
- Provide information about water quality initiatives, aquatic invasive species, environmental issues and laws and regulations affecting lakes and lake shores;
- Provide support to members of ICOLA by exchanging information, sharing ideas, and giving advice for solving problems;
- Provide educational opportunities that promote protection and stewardship of lakes;
- Encourage public officials to develop and implement comprehensive plans at the county, township and municipal levels;
- Monitor and participate in governmental administration of lakes, rivers, and shorelands and;
- Encourage landowners and stakeholders to form lake associations.

For more information on ICOLA, please visit [itascaCOLA.org](http://itascaCOLA.org).



**Only if we all share in taking care of our water resources... will future generations enjoy clean lakes and rivers in Itasca County.**



Photo by Bill Marshall

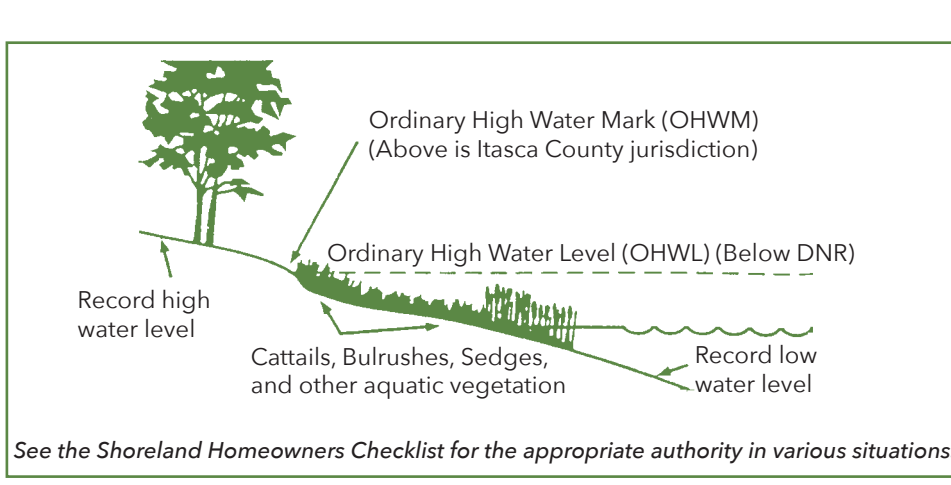
# What Can I Do On My Shoreland Property? What Permits are Required?

An important stewardship responsibility is knowing what you can and cannot do in the water and on adjacent shorelands and understanding local and state regulations.

## Who Has Regulatory Authority in the Shoreland Zone?

The shoreland zone in Itasca County is defined as the land within 1,000 feet of a lake or 500 feet of a river plus the near shore waters.

- For any actions in the water or on the land below the **ordinary high water level (OHWL)** of a public water (lakes, rivers, streams, wetlands), check with the appropriate Minnesota Department of Natural Resources (DNR) office for permits that may be required.
- For any actions on the land above the OHWL (the upland areas of your property) and within the shoreland zone, contact the Itasca County Environmental Services office. If located within the boundaries of a city, contact city offices.



**Any activity that disturbs land, plant or animal life, or chemicals applied to the water, is regulated so the quality of the environment is not compromised.**

**How do I know where the ordinary high water level (OHWL) is?** For lakes and wetlands, the OHWL is the highest water level that has been maintained for a sufficient period of time to leave evidence on the landscape; it is not necessarily the highest place the water has been. It is commonly that point where the natural vegetation changes from predominately aquatic to predominantly terrestrial.

The OHWL is a reference elevation that defines the DNR's regulatory authority, and it is used by Itasca County to determine their regulatory zone and appropriate setbacks for buildings.

If there is a question about the OHWL on your property, contact the DNR Ecological and Water Resources or check with Itasca County Environmental Services.

## Commonly Asked Questions about Shoreland Activities:

### What are the requirements for installing a retaining wall or riprap for erosion control?

A DNR public waters work permit is required to build a retaining wall along your shoreline if the structure is proposed below the OHWL. If above the OHWL, a permit is required by Itasca County for a retaining wall. In general, retaining walls are discouraged, particularly on relatively undeveloped lakes. Planting vegetation for erosion control is preferred. If riprap (course stones, boulders, or rock placed against the bank or shore) is used, a permit is required by Itasca County. If the riprap being installed is over 200 lineal feet, the DNR also needs to review the plans. Refer to the DNR Shoreland Alteration Fact Sheet ([dnr.state.mn.us/publications/waters/shoreline\\_alteration.html](http://dnr.state.mn.us/publications/waters/shoreline_alteration.html)) for more specifics on design. Contact Itasca County Environmental Services for assistance.

**Do I need a permit for a sand blanket or beach development?** Everyone wants a nice sandy beach area, but trying to create a sandy beach where it has not existed naturally is usually not very successful. Before making your decision, be aware that wave action can erode the beach, and sand will migrate down shore, possibly damaging fish and wildlife habitat. If the lake bottom is soft, the sand will only sink into the muck and disappear. Sand blankets cannot be applied over bulrush and cattails; vegetation will constantly emerge.

Before installing a sand blanket below the OHWL, contact the DNR Ecological and Water Resources office for installation and possible permit requirements. Refer to the DNR Shoreland Alteration Fact Sheet for specifications. A permit will be needed from Itasca County Environmental Services if you are installing a sand blanket above the OHWL.

**What rules apply to docks?** Docks are privately owned structures, which are allowed to be placed in public waters of the state to provide access to the use of the water. Dock rules are established by the DNR to prevent the deterioration of the lake's ecosystem from excessive or inappropriate dock placement. Local governments have the authority to regulate docks-Itasca County currently defers to state rules.

In choosing the right dock and boat lift configuration for your property, it is important to keep in mind that a dock is private property placed on a public resource that can detrimentally impact the lake. They may shade out important aquatic plants and cause fragmentation and destruction of important emergent and submerged aquatic vegetation that provides habitat where fish spawn, feed, grow, and find shelter from predators. Keep dockage appropriately balanced between reasonable access and resource protection. Do not use docks for activities that are better intended for land, such as barbecues and porches.

No DNR permit is needed to install, construct, or reconstruct a dock on shoreline if:

- The dock, not including the watercraft lift or canopy, is not wider than 8 feet and is not combined with other structures that create a larger structure.
- The dock is no longer than is necessary to reach navigable water depth, is not a safety hazard, does not close off access for others to the lake, allows for free flow of water under it, and is not intended for use as a marina.

A DNR general permit allows for a modest platform at the lake end of the dock under the following circumstances: 1) a single temporary platform up to 120 square feet measured separately from the access dock, or; 2) 170 square feet including the area of the adjacent access dock. The access dock must be 5 feet or less in width and is located on a lake with a classification of General Development or Recreational Development. If a dock exceeds these conditions, a DNR Waters permit will be required. For more information, see "Dock Rules" in the Resource Section on page 29.

**Can I control aquatic plants in front of my shoreline?** The removal or destruction of aquatic plants is a regulated activity under the DNR's Aquatic Plant Management Program. Aquatic plants are a valuable part of the lake system. They stabilize bottom sediments, protect water clarity, prevent shoreline erosion, and provide fish habitat.

You are encouraged to keep destruction of aquatic plants to a minimum. Unless aquatic plants are interfering with lake access, swimming, or other water recreation activities, they should be left alone. If you are seeing unusually high plant growth where it has not previously occurred, look for possible sources of phosphorus getting into the lake from your property that might be fueling this growth, such as excessive runoff, a septic system, or shoreland erosion.

If management is desired, consider managing plants only in the swimming area. It is not necessary to have the entire shoreline devoid of submerged aquatic plants.

**For management, you need to know:**

- No emergent plants can be destroyed (bulrushes, cattails, wild rice) unless authorized by a DNR permit.
- Submerged vegetation can be manually controlled (hand cutting or pulling) in an area not exceeding 2,500 square feet or wider than 50 feet along the shore or half the width of your property, whichever is smaller; more than that requires a permit.
- Cut or pulled vegetation must be removed from the water and the cleared area must remain in the same place from year to year.

**A permit from DNR Fisheries is needed to:**

- Use any chemicals or automated mechanical devices (such as the Crary WeedRoller, Beachgroomer or Lake Sweeper).
- Use copper sulfate for swimmers itch control.
- Remove floating leaf vegetation in an area larger than a channel 15 feet wide to open water.
- Remove or relocate a bog of any size that is free floating or lodged elsewhere than its original location.
- Plant native aquatic plants below the OHWL as part of a shoreline restoration project. This activity is encouraged and there is generally no permit charge.

**These activities are not allowed in any circumstances:**

- Excavating the lake bottom for aquatic plant control or using lake-bottom barriers to destroy or prevent the growth of aquatic plants.
- Removing vegetation within posted fish-spawning areas.
- Removing aquatic plants from an undeveloped shoreline.
- Removing aquatic plants where they do not interfere with swimming, boating, or other recreation.

**If you see violations of these or any other permit requirements,** contact Itasca County Services if the violation is above the OHWL, or your DNR Conservation Officer if it is below the OHWL.

# Itasca County Shoreland Permit Requirements

The following general requirements apply to work done in the shoreland areas. For shoreland properties within municipal boundaries, check with the Grand Rapids Planning and Zoning office for permit requirements. For all other areas of Itasca County, contact the **Itasca County Environmental Services Department at 218-327-2857**.

## Boat Houses

New boat house size is restricted to 250 sq. ft. or less, must be at least 10' from the OHWL, and must be screened 50% from lakeview. Existing non-conforming boat houses can be maintained or replaced with no changes in size, location, or use. Building permit required.

## Building Permits for New Construction, Remodeling, Decks, Garages, etc:

Permits will be required for accessory structures. A permit is required for a deck. For new residential construction, check with the Itasca County ESD for specific parcel requirements.

## Construction in Bluff Zones

A bluff is an embankment within 1,000 ft. of a lake that rises 25 ft. or more above the water and has an average grade of 30% or more going towards the water. A bluff impact zone is land lying within 20 ft. of a bluff's top. All structures, except stairways and landings, must be set back 30 ft. from the top of a bluff.

## Dirt Moving in the Shoreland Zone

Any dirt moving, including ice ridge manipulation, in the Shore Impact Zone (SIZ) requires a permit. Contact the ESD for specific requirements for historic ice ridges. Movement of more than 10 cubic yards of soil requires a shoreline alteration permit. Movement of more than 50 cubic yards outside the SIZ requires a permit. Contact ESD for specific requirements in SIZ 1 & 2.

## Docks and Beaches

Docks must meet DNR requirements and a 10 ft. setback from the nearest lot line. They must not block access to open water for adjacent properties and shall be placed within permitted alteration areas. New beaches on residential shoreland lots shall not exceed 15 ft. in width and shall be incorporated in the lake access area. Berms shall be placed landward of all beaches to prevent erosion from runoff. If removal of aquatic vegetation is required, contact the DNR.

## Non-Conforming Lots and Uses

A variance may be required for projects on non-conforming lots. Some non-conforming lots recorded before 1972 may be buildable without a variance. Check with ESD. Shoreline buffer establishment is required in conjunction with most shoreline variance approvals.

## Septic Systems

See page 7 for Itasca County regulations. Low interest loans may be available for non-compliant systems posing an imminent threat. Call the Itasca County ESD, 218-327-2857 for further questions.

## Vegetation Alterations

Naturally dead or diseased trees may be removed in Shore Impact Zones 1 & 2. Keep as much vegetation as possible to minimize runoff. Removal of aquatic vegetation requires a DNR permit. Call DNR Fisheries, 218-328-8831. See page 27 in this Guide for aquatic plant management.

## Wetland

Wetlands are protected by the State Wetland Conservation Act (WCA) and in most cases draining or filling of wetlands is prohibited. Work in any wetland must be undertaken in accordance with the WCA. Contact the Soil and Water Conservation District (SWCD) at 218-326-0017 for further information.

## Before purchasing your property

Ask these questions and/or check with the Itasca County Environmental Services Department:

- Do all of the structures meet the setbacks?
- Does the parcel meet other building requirements for the lot?
- Have all existing structures on the property been built with a permit?
- Is the septic system in compliance with Itasca County regulations?

---

For additional information on Itasca County Land Use Ordinances and Permit Requirements, see the Land Use Ordinance on the County Website. Contact the Itasca County Environmental Services Office (218-327-2857) or check their website at: [co.itasca.mn.us](http://co.itasca.mn.us).

# Itasca County Shoreland Checklist

## Contact Itasca County Environmental Services before:

- Buying, clearing, or developing shoreland property.
- Building a new structure, remodeling or adding on to an existing structure.
- Installing a septic system.
- Building a boardwalk, raised path to the lake, or anything that does not meet setback requirements.
- Building or repairing any accessory structure near the shore (boat house, gazebo, storage locker).
- Building stairways, landings, or clearing access paths in bluff areas.
- Any kind of dirt moving, shoreland alterations, or changing the appearance of your shoreland building setback zone (shoreland impact zone) or near shore area by clearing, cutting, planting, grading, or filling.
- Installing a sand blanket above the ordinary high water level.
- Installing any form of riprap or installing a retaining wall.

## Contact the Itasca Soil and Water Conservation District for:

- Soils information for your property.
- Draining, excavating, or filling a wetland anywhere in Itasca County.
- Assistance with shoreland buffers and vegetation protection.
- Technical assistance for erosion control practices.
- Information on sealing abandoned wells.
- Cost share programs for installing conservation practices on your property.
- Technical and financial assistance with private forest management plans.

## Contact the Minnesota Department of Natural Resources before:

- Removing emergent vegetation (cattails, bulrushes, wild rice).
- Using chemicals to control aquatic vegetation.
- Altering a lake bed.
- Conducting work done below the ordinary high water level (OHWL).
- Disturbing land below the ordinary high water level.

## Important Resources

### Aquatic Invasive Species:

Itasca County AIS Program: [co.itasca.mn.us/562/Aquatic-Invasive-Species](http://co.itasca.mn.us/562/Aquatic-Invasive-Species)  
Minnesota DNR: [dnr.state.mn.us/invasives/aquatic/index.html](http://dnr.state.mn.us/invasives/aquatic/index.html)  
University of Minnesota Sea Grant: [seagrant.umn.edu/ais/](http://seagrant.umn.edu/ais/)  
Wildlife Forever: [CleanDrainDry.org](http://CleanDrainDry.org)  
Protect Our Waters: [protectyourwaters.net](http://protectyourwaters.net)

**Aquatic Plant Management:** [dnr.state.mn.us/shorelandmgmt/apg/permits.html](http://dnr.state.mn.us/shorelandmgmt/apg/permits.html)

**DNR Water Permits Requirements:** [dnr.state.mn.us/permits/water/answers.html#ohwl](http://dnr.state.mn.us/permits/water/answers.html#ohwl)

**Dock Rules:** [files.dnr.state.mn.us/publications/waters/shoreline\\_alterations\\_water\\_access.pdf](http://files.dnr.state.mn.us/publications/waters/shoreline_alterations_water_access.pdf)

**Erosion Control for Home Builders:** [clean-water.uwex.edu/pubs/pdf/erosion.pdf](http://clean-water.uwex.edu/pubs/pdf/erosion.pdf)

**General Shoreland Homeowner Information:** [shorelandmanagement.org](http://shorelandmanagement.org)

### Rain Barrels/Gardens:

Constructing a rain barrel: [shorelandmanagement.org/quick/easypdf/rain\\_barrel\\_const.pdf](http://shorelandmanagement.org/quick/easypdf/rain_barrel_const.pdf)  
Rain Garden: A How-To Manual: [dnr.wi.gov/topic/shorelandzoning/documents/rgmanual.pdf](http://dnr.wi.gov/topic/shorelandzoning/documents/rgmanual.pdf)

**Septic System Owners Guide:** [septic.umn.edu/septic-system-owners/owners-guide](http://septic.umn.edu/septic-system-owners/owners-guide) or call the Onsite Hotline with questions at 800-322-8642.

### Shoreland Alteration Fact Sheets

(Docks, Rip Rap, Sand Blankets, Ice Ridges) [dnr.state.mn.us/publications/waters/shoreline\\_alteration.html](http://dnr.state.mn.us/publications/waters/shoreline_alteration.html)

### Shoreland Landscaping:

The Water's Edge: [files.dnr.state.mn.us/assistance/backyard/shorelandmgmt/savewateredge.pdf](http://files.dnr.state.mn.us/assistance/backyard/shorelandmgmt/savewateredge.pdf)  
Lakescaping and Shoreland Restoration: [dnr.state.mn.us/lakescaping/index.html](http://dnr.state.mn.us/lakescaping/index.html)  
Restore Your Shore: [dnr.state.mn.us/rys/index.html](http://dnr.state.mn.us/rys/index.html)

Living Shore Video/DVD: A 17-minute video showing the importance of leaving a natural buffer zone on the shore; check with your county Extension Office for a loaner copy.

*Lakescaping for Wildlife and Water Quality:* available at Minnesota's Bookstore, <https://www.mnbookstore.com/lakescaping-for-wildlife-310.html>

# Itasca County Frequent Contact Information

[co.itasca.mn.us](http://co.itasca.mn.us)

Itasca County Environmental Services (ESD) 218-327-2857

Soil and Water Conservation District (SWCD) 218-326-0017

[itascaswcd.org](http://itascaswcd.org)

## Aquatic Invasive Species (AIS)

Itasca County AIS hotline 218-256-4243

[coordinator@itascaAIS.info](mailto:coordinator@itascaAIS.info)

[itascaAIS.info](http://itascaAIS.info)

DNR Northeast Region AIS specialist 218-328-8821

[dnr.state.mn.us/invasives/aquatic/index](http://dnr.state.mn.us/invasives/aquatic/index)

## Composting (grass and leaves only)

218-326-7480

## Conservation Easements for Lands and Lakeshore

Itasca SWCD 218-326-0017

MN Land Trust 218-365-8663

## Drinking Water/Wells, Lake Water

MN Dept. of Health, St. Paul 800-383-9808

Bemidji 218-308-2100

## Water Testing Kits:

Itasca County ESD 218-327-2857

RMB Labs 888-200-5270

## Lakes Monitoring Programs:

MPCA Citizen Monitoring Program 651-757-2874

RMB Lab Monitoring Program 218-232-2304

## Land Information

Itasca County Assessor 218-327-2861

Itasca County Land Commissioners 218-327-2855

## Law Enforcement 911

Itasca County Sheriff 218-326-3477

Conservation Officers 888-646-6367

## Permits

*Aquatic Plant Management*

DNR Regional Fisheries 218-328-8831

*Public Waters Work*

DNR Ecological & Water Resources 218-328-8823

*Shoreland Alteration*

Itasca County ESD 218-327-2857

SWCD 218-326-0017

Mississippi Headwaters Board 218-824-1189

*Wetlands*

SWCD 218-326-0017

## Private Forest Land Assistance

DNR Forestry 218-246-8343

Itasca SWCD 218-326-0017

University of MN Extension-Itasca 218-327-7486

## Sewage Treatment Systems

Itasca County ESD 218-327-2857

University of MN Extension-Itasca 218-327-7486

## Shoreland Best Management Practices

SWCD 218-326-0017

## Solid Waste Management

Household garbage, demolition material, household hazardous waste, recycling:

Itasca County Transfer Station

29959 E. Bass Lake Rd. Cohasset, MN

Itasca County ESD 218-327-2857

## Stormwater Management

Erosion and Sediment Control, Prevention, BMP

Minnesota Pollution Control Agency 800-657-3864

[pca.state.mn.us](http://pca.state.mn.us)

Itasca SWCD 218-326-0017



Photo by Karen Oothout



Photo by Karen Oothout

