Protecting Your Waterfront Investment

10 Shoreland Stewardship Practices

Healthy watersheds make healthy lakes and higher property values

The quality of our lakes and streams is ultimately a reflection of how we take care of our land.

A watershed is the land area that drains to a lake or stream. Waterfront property owners, inland residents, recreational users, agricultural producers, and other businesses all can play a positive role in maintaining and improving the water quality of our lakes and streams.

How will shoreland stewardship practices affect your pocketbook?

Studies in the Midwest have found that when all other factors were equal, properties on lakes with clearer water commanded significantly higher property prices.[1] Similarly, higher property values were found on lakes without the invasive plant Eurasion watermilfoil.[2] What you and your neighbors do to sustain or improve water quality will improve resale potential. On the other hand, if water quality is degraded, lower property values could result.

This publication was developed for people who live on a waterfront lot or plan to buy one. It describes a menu of opportunities to protect your property investment.

See the endnotes for this publication at

uwsp.edu/cnr-ap/clue/Pages/publications-resources/water.aspx

Photo by Suzanne Wade

STEP 1

Build far from the shore

Photo by KBJR-TV

Locate all new buildings, additions, and septic systems far from the shore to ensure they will be on stable ground over the long term.

In recent years we've had increased flooding and high water levels along rivers, inland lakes, and the Great Lakes. Building, rebuilding, or expanding buildings close to the shore could be a very poor investment due to changing water levels, collapsing banks, and rivers that move to new locations over time. The current statewide shore setback for homes, garages, and sheds of 75 feet (or sometimes less) may place a building in danger over the long term along some shorelines. Septic systems should also be located far from the water so they do not collapse into the lake or stream. If you own a structure close to the water, consider purchasing flood insurance.

Additional Information:

Flood Prevention: Steps That Can Save Your Life and Property
dnr.wisconsin.gov/emergency/flood.html

Resilient Practices for Great Lakes Shorelines
sewicoastalresilience.org/resilience-resources/develop-educational-resources-on-resilient-practices/

STEP 2

Minimize the hard surfaces on your property

Runoff from hard (impervious) surfaces like rooftops and driveways carries sediments, nutrients, and other pollutants into lakes and streams leading to cloudier water and lower property values.

Impervious surfaces reduce or eliminate the populations of many fish, including walleye, bass, northern pike, perch, and crappies, due to the following reasons:

- More nutrients (phosphorus and nitrogen) promote excessive growth of algae and aquatic plants. When the plants and algae die and decompose, they use up oxygen, which fish need to survive.
- More sediments and algae growth make it difficult for some predator species that hunt by sight to find their food.
- More sediments cover spawning beds of fish, such as smallmouth bass and walleye.

Walleye

Impervious surfaces can reduce walleye reproduction by causing soil erosion. When eroded soil covers spawning grounds, the spaces between the rocks and gravel become blanketed with silt. This can quickly cause walleye eggs to die because of inadequate water flow and not enough oxygen.[3]

Photo by Eric Engbretson

Additional Information:

Impervious Surfaces: How They Impact Fish, Wildlife and Waterfront Property Values
uwsp.edu/cnr-ap/clue/Documents/ImperviousSurface-5-2019-NoRecycle.pdf

Impacts of Impervious Surfaces on Fish, Wildlife and Waterfront Property Values Video
youtube.com/watch?v=UPjPnaGNB1c&feature=youtu.be

Photo by Bluestone Tree

Fence areas to protect trees and keep natural shorelines intact.

STEP 3

Minimize erosion during construction

During construction is **the** time that soil, with its algae-feeding nutrients, washes into a nearby lake or stream. When you're planning a construction project, follow these steps to protect the lake:

- ***Minimize hard surfaces because they increase runoff and erosion.***
  Think small. Minimize the driveway length. Buildings and driveways that cover less area will have less of an impact on the water quality of your lake and its fishery. Consider porous paving materials.
- ***Develop an erosion control plan using the additional information below.***
- ***Limit clearing and grading, especially on slopes that drain to the shoreline.***
- ***Fence the area to be cleared to limit construction damage.***
  This approach greatly reduces tree damage, soil compaction, erosion, and the sediment and phosphorus delivered to the lake.[4]
- ***Divert runoff around disturbed areas to minimize erosion.***
- ***After construction, establish vegetation right away.***
  The less time bare soil is exposed, the less soil will wash into the lake.

Additional Information:

Controlling Runoff and Erosion from Your Property: A Guide for Landowners
burnettcounty.com/DocumentView.aspx?DID=119

Erosion Control for Home Builders
go.wisc.edu/4d6ksq

STEP 4

Minimize fertilizer use

Only add fertilizer if a soil test shows your soils are short on nutrients—most lawns aren't. If your soil is short on nutrients, avoid fertilizers that contain phosphorus. Remember, it's phosphorus that accelerates algae growth in our lakes and streams. Most lawns and gardens already contain adequate—and often excessive—amounts of phosphorus. Based on a study of 236 lawns sampled in Dane County, the average available soil phosphorus concentration was approximately four times higher than the amount needed to maintain a healthy lawn.[5]

Phosphorus is an essential nutrient for plants. However, when too much phosphorus makes its way into our lakes and streams, it promotes the rapid growth of excess plants and algae and decreases water clarity, often turning lakes green. Decaying algae also depletes oxygen in the water so that fish can no longer thrive. Human activities contribute a great deal to the amount of phosphorus that enters a lake or stream.

If you follow the instructions on a bag of fertilizer containing phosphorus, you may be adding over 50 pounds of phosphorus to a half-acre lot each year.[6]

When you're fertilizing the lawn, remember—you're not just fertilizing the lawn.

Photo courtesy of Washington State Department of Ecology, King County, and the cities of Bellevue, Seattle, and Tacoma

Photo by Robert Korth

It's the law!

You cannot apply fertilizer containing phosphorus to lawns in Wisconsin unless you qualify for an exemption.[8]

Weed and feed products in stores, and those used by some lawn care companies, contain fertilizer plus pesticides. It is unknown whether many commonly used lawn and garden pesticides cause cancer.[9]

Additional Information:

Lawn & Garden Fertilizers
go.wisc.edu/q89pt2

Sampling Lawn and Garden Soils For Analysis
go.wisc.edu/8mr64m

STEP 5

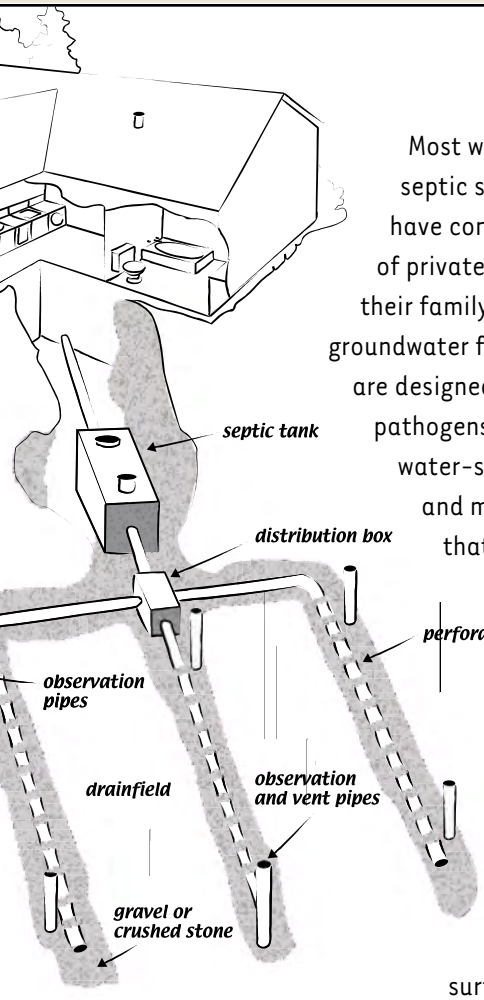
Inspect and maintain your septic system regularly

- ***Pump or inspect your septic system once every three years.*** Just like owning a car, there is maintenance, inspection, and service required for septic systems in order to prevent premature failure. Inspection and pumping costs ($150–$250) are minor compared to the cost of installing a new system ($7,000–$18,000). Hire a licensed pumper, plumber, or plumbing inspector.

- ***Divert surface water away from the drain field.***
- ***Avoid driving or parking on the drain field to prevent compaction of the soil.***
- ***Keep the roots of trees and shrubs away from the drain field pipes to avoid obstructed drain lines.***
- ***When a replacement system is needed, consider aerobic digesters, recirculating sand filters*** and other effluent filtration systems that may do a better job of treating wastes and may be designed to remove nutrients and other contaminants.
- ***Avoid putting any of the following materials down the drain or toilet because they may clog the drain field:*** Flushable wipes, cooking grease, oils, coffee grounds, cigarettes, facial tissues, paper towels, sanitary napkins, tampons, or disposable diapers.
- ***Avoid using a garbage disposal.*** Compost your vegetable scraps instead.
- ***Conserve water.*** Use low-flow toilets, faucets, and showerheads to reduce the volume of water the system must filter and absorb.

Additional Information:

SepticSmart Homeowners
epa.gov/septic/septicsmart-homeowners



Most waterfront homeowners in Wisconsin utilize a septic system, although some densely developed lakes have converted to public sanitary sewer systems. Owners of private septic systems have a responsibility to protect their family's health as well as to protect the surface and groundwater from contamination. Properly functioning systems are designed to remove most disease-causing human pathogens but generally are NOT designed to remove or treat water-soluble nutrients or pollutants.[10] The more water and material that goes into your septic system, the more that comes out into your drain field. Wisconsin research on septic systems located in sandy soils has found that both phosphorus and nitrate migrate underground over 150 feet from drain fields. If these nutrients seep underground into the lake, aquatic plant growth and algae blooms are likely results.

Malfunctioning systems are especially harmful. Effluent from failed systems can result in direct contamination of well or surface water and could cause serious human health risks. Reasons for septic system failure may include advanced age, overloading, poor site placement, and/or poor maintenance.

Evidence of a malfunctioning septic system

- Sewage backing up in the basement or drains
- Ponded water or wet areas over the drain field
- Bright green grass over the drain field
- A dense stand of aquatic plants along only your shoreland area
- Sewage odors
- Bacteria or nitrate in nearby well water
- Biodegradable dye flushed through your system is detectable in the lake

STEP 6

Reduce use of hazardous chemicals and safely dispose of them

Reduce your use of hazardous chemicals like those shown below. If these chemicals are applied to the ground, they can end up in our drinking water, lakes, and streams. To dispose of these chemicals safely, contact your county land and water conservation department. You can find their contact information at **wisconsinlandwater.org** or in the phonebook.

Photo by Paul Skawinski

In recent years we've learned that many insecticides used for mosquito control are highly toxic to bees, monarch butterflies, fireflies, and other pollinators.[11] Minimize use of pesticides for pollinator health. If you have a lawn service or are considering getting one, get a list of the chemicals they use and look them up. If you are considering purchasing or using a pesticide, read the label section titled "Environmental Hazards" to learn if the pesticide is toxic to pollinators, fish, or wildlife. You can find pesticide information at **npic.orst.edu**

If you wouldn't drink it, don't dump it!

Additional Information:

Wisconsin Pollinators: Bees, Butterflies, and Their Conservation
pollinators.wisc.edu/

Make Your Yard Bee-Friendly
mda.state.mn.us/sites/default/files/2019-12/beefriendlyyard.pdf

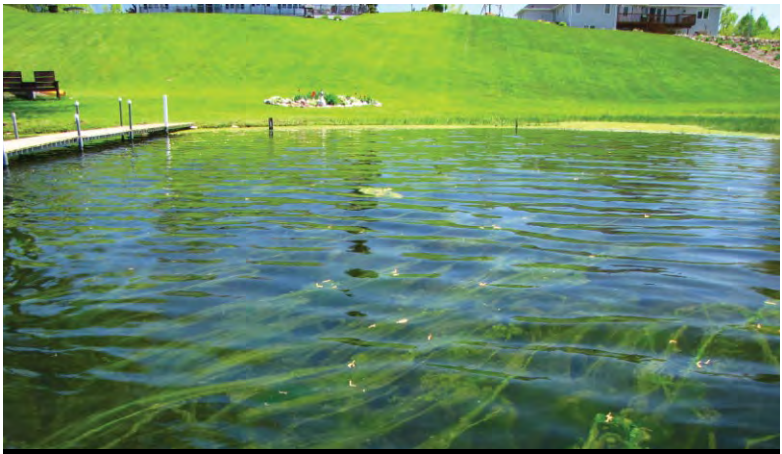
Lawn & Garden Pesticides
go.wisc.edu/je7glq

STEP 7

Protect your natural areas

Natural shorelands contain a lush mixture of native grasses, flowers, shrubs, and trees that help to reduce and filter polluted runoff and provide important habitat for songbirds and other animals on the land and in the water. In contrast, lawns provide habitat for geese and create much more runoff that carries sediments, nutrients, and other pollutants into your lake.[12]

Consider expanding the natural areas on your waterfront lot and in the water (see Step 8 for ideas). The trees, shrubs, and plants not only create privacy for both the homeowner and the lake user but may also act as a noise buffer. Larger natural areas provide more benefits; however, any amount of natural area is better than none.



More lawn = more runoff, murkier water, less habitat

More natural areas = clearer water, more wildlife habitat

Photos by Paul Skawinski

STEP 8

Restore your shoreland buffer and in-water habitat

- ***If you have native vegetation along your shoreline***, consider yourself and the local wildlife fortunate. A mature native buffer represents many years of nature at work and discourages undesirable, nonnative plants and animals while attracting songbirds, butterflies, turtles, and frogs.

- ***If you have lawn to the water's edge***, a simple, no-cost way to get started in restoring your shoreland is to stop mowing next to the water. Seeds in the soil will germinate and valuable native plants will begin to reappear.

- ***If you have lawn to the water's edge and would like to play a more active role in restoring your shoreland***, you can replant native trees, shrubs, grasses, and wildflowers to attract songbirds and butterflies. The main area where water runs off your property is the best location to start planting to improve water quality. You can create a natural, appealing waterfront landscape while eliminating expensive and time-consuming lawn care. The publication *Protecting and Restoring Shorelands* will help you think about what benefits you want from your buffer and the size needed to achieve these. Contact your county land and water conservation department listed at **wisconsinlandwater.org** for help in designing a natural shoreland and finding native plants. They may also have funding to help restore your shoreland.

  Larger areas of natural shoreline provide more benefits; however, any amount of natural shoreline is better than none.

Healthy, diverse shorelands provide some of the most effective protection for the lakes and streams of Wisconsin.

- ***Leave fallen trees and branches in the water.*** When trees and branches fall in the water, they form critical habitat for tiny aquatic organisms that feed bluegills, young game fish, turtles, crayfish, and other critters. Smallmouth and largemouth bass build their nests near fallen trees.[13] When game fish first hatch from their eggs, they are less than an inch long and need the trees and plants in the water for shelter to survive. Water plants are important—they are like a grocery store for fish and frogs because so many aquatic insects live on them.

Additional Information:

The Water's Edge: Helping Fish and Wildlife on Your Waterfront Property
go.wisc.edu/kgj678

Protecting and Restoring Shorelands
go.wisc.edu/5w89u8

Healthy Lakes & Rivers Best Practices
See "350 ft^2 native plantings" for plant lists in different soil types.
healthylakeswi.com/best-practices/

A Second Life for Trees in Lakes: As Useful in Water as They Were on Land
uwsp.edu/cnr-ap/clue/Documents/Water/TreesShoreline.pdf

Illustration by Justin Sipiorski

STEP 9

Install an infiltration area

A rock infiltration area is an excavated pit or trench filled with rock that provides space for runoff to soak into the ground slowly. It is appropriate for sandy to loamy soils only, not clay! Rain gardens are a better option to infiltrate water in clay soils.

Photos by Bill Giese

STEP 10

Build a rain garden

Rain Gardens: A Guide for Homeowners and Landscapers provides easy-to-follow instructions to create a rain garden, including guidance on size, location, and maintenance.

Rain barrels can be helpful for watering plants but typically hold much less water than an infiltration area or a rain garden.

Direct downspouts into your rain garden, natural areas, lawn, or rain barrels, not onto hard surfaces.

Additional Information:

Healthy Lakes & Rivers Best Practices
See "Rock Infiltration" and "Rain Garden" sections for guidance.
healthylakeswi.com/best-practices/

Rain Gardens: A Guide For Homeowners and Landscapers
dnr.wisconsin.gov/topic/Stormwater/raingarden

Photo by Paul Skawinski

Rain Gardens
a beautiful solution to water pollution

How does a rain garden work?

Rain gardens are just what they sound like—areas that soak up rain water during wet times and serve as a beautiful garden all the time. They are landscaped areas planted with wildflowers and other native vegetation to replace areas of lawn. The gardens fill with a few inches of water and allow the water to slowly filter into the ground.[14] The plants in the rain garden act as filters for the rain water, helping to slow the runoff and allowing it to soak into the ground rather than flowing into storm sewers, ditches, or drainage ways on the way to lakes and streams. Keeping rain on your property, where it naturally belongs, will help solve some of our water pollution problems.

In addition to the benefits they provide to our water supply, rain gardens also provide wildlife habitat for birds, butterflies, and dragonflies.

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