

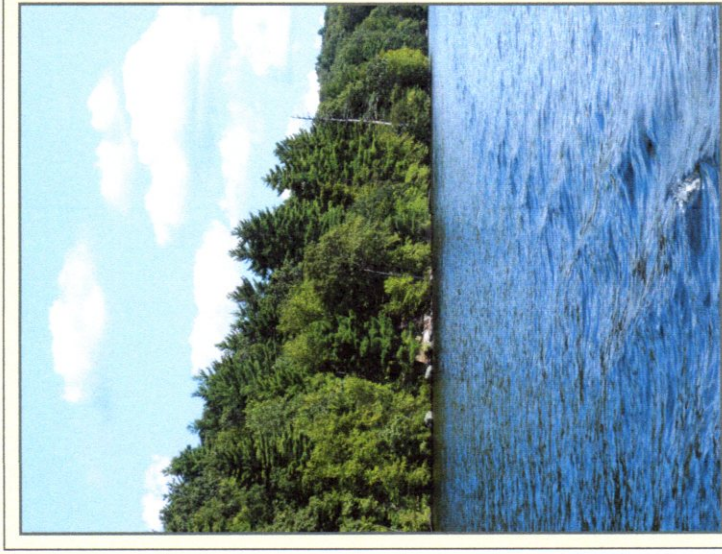
APPENDIX G

EXAMPLE PUBLICATION MATERIALS AND SOURCES



LAKE MASPENOCK HOPKINTON MA

KEEPING IT HEALTHY

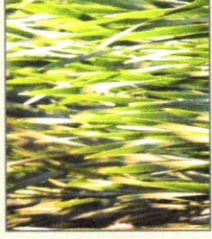


EVERYTHING IS CONNECTED

Lake Maspenock provides many forms of recreation for Hopkinton MA residents and is a peaceful, restorative place of natural beauty.

What do we need to do to be responsible stewards of this very special place?

Participate in our effort to maintain a healthy lake!



EUTROPHICATION AND AQUATIC PLANTS

Eutrophication is the natural aging process of a lake. A lake untouched by human kind may take hundreds of thousands of years to fill in with natural debris and weeds.

The term 'cultural eutrophication' refers to human involvement that hastens the death of a lake. Without thinking, we hasten this process with our daily habits by allowing:

An imbalance of plant life to thrive which reduces oxygen levels for fish and invertebrates

Boats & trailers to import non native weeds

Contaminated run off to leach into the water from auto & motor boat oil, gas, paint, car washing, cleaning compounds and chemicals

Lawn fertilizers, pesticides, soil, sand, salt & mulch to flush into the water

Septic systems to overflow

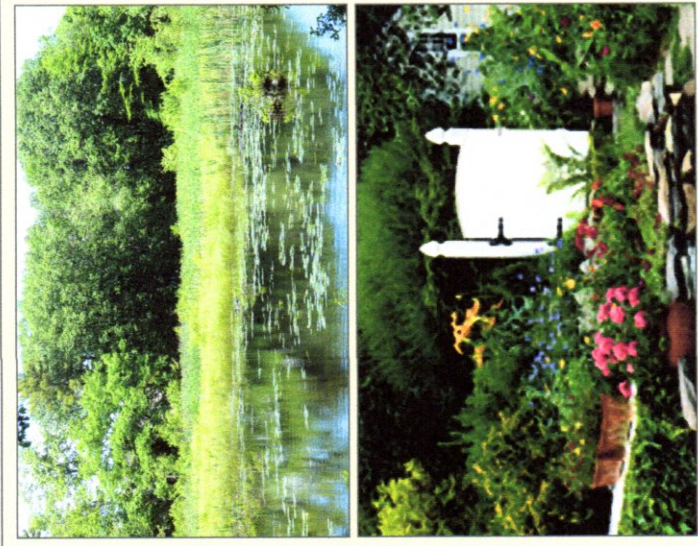
By using common sense we can slow the process of eutrophication and work to preserve the lake.

LAKE FRIENDLY LANDSCAPING

Responsible landscaping practices will promote a healthy lake.

Tips:

- Use drought resistant turf grass
- Use rain barrels for watering
- Compost your kitchen scraps for natural garden fertilizer
- Consider crushed stone driveways and walkways for more permeable surfaces
- Create 20' unmowed buffers along waterfront (great goose barrier!)
- Set lawn mowers to 2"-3" to filter water before it enters the lake
- Terrace steep banks to slow sediment and water runoff and use rip rap to clean run off
- Plant native vegetation that binds soil



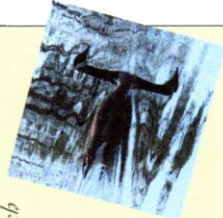


OUR WILD LIFE NEIGHBORS

One of the nicest features of living on Lake Maspenock is the wild life we enjoy all year long.

We see bald eagles, osprey, hawks and king fishers over the open water. We see bluebirds, red wing blackbirds, great blue heron, mallards and wood ducks nesting and fishing. Depicted is a pair of young raccoons testing out a kayak!

An over abundance of phosphate rich nutrients encourages growth of native cattails and large-leaf pondweed. These plants choke out the frogs, turtles and young fish. The non native purple loosestrife, milfoil and pickerelweed quickly overtake marshy areas.



We MUST protect the wild life!

Let's manage the problem with weeds!

Here on Lake Maspenock, nuisance aquatic plants need management in the northern basin and are becoming more established in the main body of water.

Excessive nuisance and invasive weed growth in the lake can be managed safely and effectively. Plants naturally die and decay adding to a rich nutrient bed on the lake bottom thereby enhancing more plant growth. Oxygen depletion from decay stresses aquatic lifeforms, invertebrates and fish. In the short term we need to effectively reduce the excessive largeleaf pondweed in order to improve recreational use of the lake for boaters, swimmers, fishermen and nature lovers. We will need your support in short and long term weed management.

The Town appointed Lake Maspenock Weed Management and Control Advisory Group facilitated public engagement and input regarding a long term comprehensive plan.

The Town of Hopkinton will need voter support for the comprehensive management plan. Your participation is needed. Be informed. Come to Advisory Group meetings and public forums. Support our DPW, Conservation Commission and Parks & Rec. Depts. in their efforts. Help inform residents and neighbors in surrounding towns of the need to protect our watershed. We need to educate ourselves and participate in the process of lake management.

Join the Lake Maspenock Preservation Assoc. community to learn more about preservation, weed management and community events.

Thank you!

www.lmpa.org

lmpa.org@verizon.net

“WE ABUSE LAND BECAUSE WE REGARD IT AS A COMMODITY BELONGING TO US. WHEN WE SEE LAND AS A COMMUNITY TO WHICH WE BELONG, WE MAY BEGIN TO USE IT WITH LOVE AND RESPECT.”

Aldo Leopold

Lake Maspenock Watershed Area provides benefits to all Hopkinton residents

- >Open for recreation all year long
- >Parks & Recreation public beach, new playground, swimming lessons and other activities
- >Boat Ramp for residents
- >A beautiful place for canoeing, kayaking, bird watching and passive enjoyment
- >Protected wetland areas home to abundant and diverse wildlife
- >Fishing grounds for bald eagles and osprey
- >Location of the Long Distance Lake Swim, Fishing Tournament, Ice Fishing Derbies, 4rth of July Boat Parade, Lake Clean Ups and other events
- >Abuts Peppercorn Hill and Hopkinton Area Land Trust hiking trails
- >Highly desirable lake front real estate

WHERE TO BUY PHOSPHATE/NITRATE FREE FERTILIZER

Weston Nurseries, Hopkinton MA

True Value Hardware, Holliston MA



HOME*A*SYST Home Assessment System

This assessment examines the special role shoreline property owners have in preventing contamination of their lake or stream. Use this publication as a supplement to the Home*A*Syst book.

Three areas are covered in this supplement:

1. Household Wastewater Management

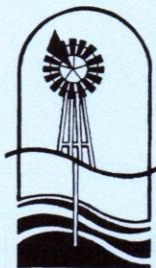
(Home*A*Syst chapter 5)

2. Lawn and Garden Care

(Home*A*Syst chapter 6)

3. Stormwater Runoff Management

(Home*A*Syst chapter 4)



WQ-52
Rep. January 2003

Michigan
Groundwater
Stewardship
Program

MICHIGAN STATE
UNIVERSITY
EXTENSION

Managing Shoreline Property to Protect Water Quality

If you live on lake or stream property, you have a special responsibility to prevent pollutants from entering the water. Since many activities on or around your property can affect water quality, you can significantly improve what happens along the shore of your property. This supplement lists some special water quality concerns for shoreline property owners and actions you can take to avoid contaminating surface and groundwater.

Why are shoreline areas vulnerable to pollution?

In contrast to areas away from the water, activities you do on shoreline property are more likely to pollute the water. Because homes are often closer together and native plants and wetlands are replaced with lawns, beaches or seawalls, pollutants coming from shoreline areas have less chance of being filtered before reaching the water.

There are several symptoms of lower water quality:

- Increased weed and algae growth due to excess nutrients. Phosphorus is the nutrient of greatest concern. Even small amounts of phosphorus can cause excessive plant and algae growth.
- Cloudy water due to sediment (soil) and algae growth.
- Poor fishing and increased numbers of stunted fish.
- Evidence of coliform bacteria in the lake (indicates the presence of human or animal waste).

Three chapters in the Home*A*Syst book warrant special attention by shoreline owners: Household Wastewater (chapter 5), Lawn and Garden Care (chapter 6), and Stormwater Runoff (chapter 4). This supplement contains special information for shoreline owners that applies to each of these Home*A*Syst chapters. Complete the Home*A*Syst evaluation, then look at the corresponding section in this supplement for more information.

The Home*A*Syst Assessment Guide (Extension Bulletin WQ-51) is available from county MSU Extension offices.

Common shoreline pollutants

- Lawn fertilizers
- Runoff from driveways, roofs and walkways
- Lawn clippings and leaves (they contain phosphorus)
- Soil from shoreline erosion
- Lawn and garden pesticides
- Oil and gas from boats
- Septic system effluent

Part 1: Household Wastewater Management in Shoreline Areas¹ (supplement to Home*A*Syst chapter 5)

If you live on shoreline property, maintaining your septic system requires more care and work than maintaining similar systems located in other places. That's because soil and water conditions make your system less efficient in treating waste, which could cause harmful pollutants to get into your lake.

Soil type and distance from the drainfield to the shore and to groundwater are important factors that determine the risk your system places on water quality. Loam and clay soils, for example, have a greater long-term ability to hold nutrients and prevent them from moving through the soil than do sandy soils. Although clay soils adsorb nutrients more readily, septic systems are more likely to clog-up and fail, causing nutrients and contaminants to bubble to the surface, eventually traveling to the shore. On the other hand, very sandy soil may allow nutrients to leach quickly to drinking water. Therefore, both very sandy and very heavy (clay) soils create higher risk for water contamination from septic system waste.

After leaving the septic tank, nutrients or biological contaminants that encounter soil saturated with water can move much greater distances - in some instances, as much as several hundred feet or more. In soil not saturated with water, biological contaminants (bacteria and viruses) are usually rendered inactive within a few feet of the drainfield. Some nutrients, on the other hand, can travel much greater distances, depending on the type of soil, the amount and concentration of waste and the age of the system.

Because septic systems on shoreline property are often close to the water and are sometimes saturated during high water periods, they are very likely to leak wastes into lakes and streams. Shoreline erosion can also shorten the distance between the septic system and the shoreline, making it more likely that liquid waste could move to surface water.

This pollution can happen even though your system appears to be working well and complies with local health department codes.

What to do

Pay special attention to the recommendations in the Household Wastewater section of the Home*A*Syst packet. Those actions are especially important in shoreline areas.

In addition, consider the following recommendations:

- **If you convert or expand your home, improve the septic system at the same time.** One of the biggest risks from septic systems occurs when seasonal homes are converted to year-round use or are expanded. Frequently, these improvements are made without updating and expanding the existing septic system. The increased load on the septic system may cause contaminants to enter your lake or stream. Remember, contamination can occur even though the septic system appears to be working fine.

¹Portions of this section adapted from MSU Extension Bulletin WQ13, Maintaining Your Septic System: Special Considerations For Shoreline Property Owners, by Dean Solomon and Eckhart Dersch, June 1987.

- **Plant a buffer strip of long-rooted plants and bushes between the drainfield and the shoreline.** These buffers can absorb some of the nutrients before they reach water. See the next section, Yard and Garden Care, for more details on how to establish a buffer.

- **Hook up to a community sewage system or alternative disposal method, if available.** For some lakes, these systems offer cost-effective, long-term solutions to water-quality problems caused by septic systems. The use of these systems is restricted by local health department codes and requires design and construction by experienced engineers and contractors.

- **If you are building a new home, construct the septic system as far away from the shoreline as possible.** This distance should be even farther than health department codes require. Those regulations are designed primarily to protect human health rather than prevent other effects, such as excessive weed growth. Try putting the septic system on the side of the house away from the lake. Also, design the system to meet your present and future needs.

Before selecting one of these alternatives, be sure that it will yield the hoped-for results. Many factors may contribute to excessive weed growth, so it is possible in some situations that wastes from septic systems may have a relatively minor impact on lake or river quality.

✓ Assessment 1 - Reducing risks from shoreline septic systems

	1. Low risk/ recommended	2. Medium risk/ potential hazard	3. High risk/ unsafe situation	Your risk
Distance of drainfield to groundwater	Water table always more than 4 feet below drainfield.	Water table sometimes less than 4 feet below drainfield.	Water table often very close to or above the drainfield.	
Distance from drainfield to shoreline	Drainfield located more than 50 feet from shore.	Drainfield located between 10 and 50 feet from shore.	Septic system located less than 10 feet from shore.	
Soil type	Loam or sandy loam soil.	Loamy sand soils.	Sand or clay soils.	
Home conversion or expansion (bedrooms or baths added)	Home has been converted from seasonal to year-round use or expanded; septic system upgraded.	Home has been converted to year-round use or expanded; septic system maintained and monitored more often.	Home converted from seasonal to year-round use or expanded without any changes to septic system.	
Presence of shoreline algae or excessive weeds	No unusual algae blooms or excessive weeds near shore.	Occasional increased algae or weeds near shore.	Frequent algae blooms or excessive weeds.	

Part 2: Yard and Garden Care (supplement to Home*A*Syst chapter 6)

Proper yard and landscape care is especially important in shoreline areas. Since the shoreline zone is the last defense against pollutants coming off the land, how you design and maintain that area can have significant impacts. On the positive side, creative landscaping in shoreline areas can greatly enhance the beauty and enjoyment of your lake while improving water quality and enhancing wildlife habitat.

Of special focus is the 30-foot-wide strip adjacent to the shoreline.

The goals of improved shoreline landscape management are to:

- Use landscape plants that minimize the need for fertilizer and chemical pest control.
- Reduce use of pesticides and fertilizers near the shore.
- Reestablish a buffer of plants, shrubs and trees near the shore.
- Reduce landscape maintenance practices that allow pollutants to wash into the water.

Landscape design

Before Michigan inland lakes and streams became popular home building sites, they were surrounded by native plants, trees and shrubs that acted as filters and held the soil in place, effectively limiting the amount of nutrients entering the water. That native vegetation also provided important habitat for wildlife. During building development these natural barriers were often removed and replaced with lawns or other vegetation. Roads and other impervious surfaces were built which increased surface runoff.

An important goal of shoreline management is to reestablish this natural buffer. Ideally, a buffer strip should be 30 feet wide or greater and made up of low maintenance (preferably native) grasses, wildflowers, perennials, shrubs and trees. Low-growing species should be closest to the water, trees and larger plants farther from shore. The perfect buffer strip is wide, continuous and dense. However, most shoreline property owners

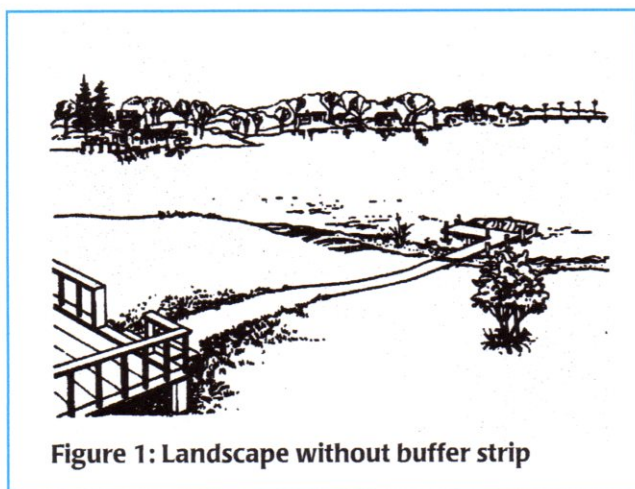


Figure 1: Landscape without buffer strip

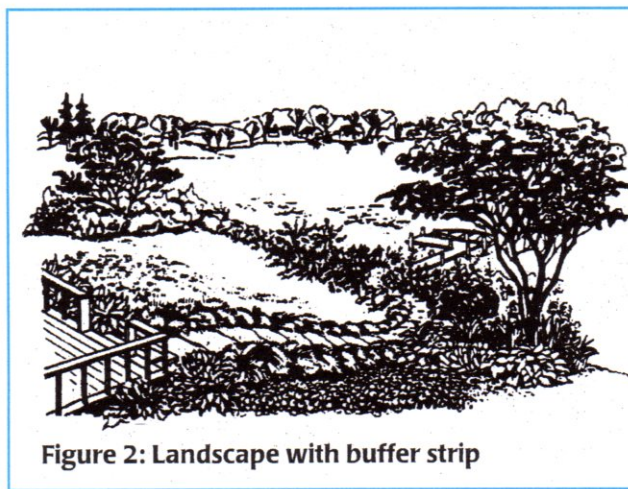


Figure 2: Landscape with buffer strip

prefer something less dense which still allows easy shoreline access and views of the water. This modified design will still provide an effective buffer (fig. 1 and 2). Even a 10-foot strip of unmowed grass along the shoreline will slow polluted runoff.

An enhanced lakeside landscape can also extend into the water. Water plants add to the beauty and uniqueness of the lakeside landscape while reestablishing the natural shoreline area.

Michigan's growing conditions are extremely variable. For specific landscape species recommendations for your area, contact your local county MSU Extension office.

Landscape maintenance

A key goal of lakeside landscape management is minimizing nutrients and chemicals entering the water. As with septic systems, the major nutrient of concern is phosphorus. It is contained in commercial fertilizer, compost and animal manure. To minimize the impact of nutrients and chemicals:

- **Use fertilizer containing no phosphorus.** The numbers on a fertilizer bag show the percent nutrients (nitrogen, phosphorus, potash) in the formulation. The middle number is always the percent of phosphorus, by weight, in the bag (e.g., 27-3-3). Zero phosphorus fertilizers are available from many local sources. When asked, many commercial lawn care companies will apply no-phosphorus fertilizer for their shoreline customers.
- **Be careful when applying fertilizer, regardless of type.** When using a broadcast spreader, take care that fertilizer is not applied too close to or directly into the water.
- **Keep compost piles and animal manure as far from the shore as possible.** Place them in a location where runoff from the piles will not flow into the water. This greater distance will also help prevent nutrients from percolating into the soil, then into lakes or streams.
- **Never burn yard waste along the shore.** The ashes contain phosphorus and can easily make their way into the lake. Always rake leaves, sticks and grass clippings away from the shore.
- **When using pesticides, read the label carefully.** Some pesticides can be harmful to aquatic life and contain warnings about application near lakes and streams. Even some commonly used household pesticides can be dangerous along the shore.
- **Don't feed wildlife near the shore.** Waste produced by wildlife, especially ducks, geese and swans, can be a significant source of nutrients to the water. Feeding wildlife adds to the problem.

✓ Assessment 2 - Reducing risks from shoreline lawn and landscape maintenance

	1. Low risk/ recommended	2. Medium risk/ potential hazard	3. High risk/ unsafe situation	Your risk
Vegetative buffer strip	Buffer strip 30 feet wide or greater of native plants and shrubs.	Buffer strip of unmowed grass, 10 feet wide.	No buffer strip, or lawn mowed to shoreline.	
Lawn fertilization	Minimum fertilization with zero phosphorus fertilizer. No fertilizer within 10 feet of shore.	Fertilization with phosphorus-containing fertilizer, but no fertilizer within 10 feet of shore.	Intensive fertilization with phosphorus-containing fertilizer.	
Fall clean-up	Raking leaves and sticks at least 30 feet away from the lake and composting.	Composting leaves and sticks at least 10 feet from shore.	Burning leaves and sticks along shore and washing ashes into the water.	

Part 3: Stormwater Management *(supplement to Home*A*Syst chapter 4)*

Water running off your property after storms contains soil, nutrients, oil, chemicals and other contaminants. Since lakes are lower than the surrounding area, they serve as collecting areas for runoff. Lakes also can be contaminated by shoreline erosion. To prevent runoff from polluting your lake, take special care to manage the water from your property and the water running through your property from other sources.

The goal of managing stormwater runoff in shoreline areas is to slow the water, filter it, and allow it to enter the lake or seep into the ground slowly. Several methods, in addition to the suggestions in the stormwater section of Home*A*Syst, will accomplish this goal:

- **Minimize the amount of impervious surfaces on your property.** These include paved areas, buildings or heavily compacted areas. The greater the percentage of your property that is impervious to water, the greater the likelihood that rain and snowmelt will carry contaminants to lakes or streams.
- **Dig small ponds in drainage ways.** These holding areas retain stormwater and allow sediment to settle before the water seeps into the ground or enters the lake.
- **Plant a dense area of wetland plants such as cattails or wetland grasses at places where runoff enters the lake.** These plants help filter the runoff.

• **Create meandering walkways made of porous paving materials.**

Straight paths, especially those with lots of side walls or steps, concentrate runoff and can cause erosion. Designing paths that follow natural contours (slope) reduces risk and creates a more visually interesting landscape. Use porous paving material such as wood decking, bricks, or interlocking stones instead of asphalt or concrete.

Seawalls constructed of wood or concrete are common methods of stabilizing shorelines. The disadvantages of these structures are that they are a hindrance to wildlife species and reptiles that use the shoreline area for feeding and shelter, detract from the beauty of the shore, and sometimes increase wave and ice damage on adjacent properties. Moreover, they may or may not effectively protect the shoreline area from erosion and ice damage.

There are some situations where seawalls are the best alternative for shoreline protection. Often, though, other methods may provide better protection and improve the shoreline environment. One alternative is to reestablish the natural slopes leading to the shore and into the lake, then stabilize the area with a plant buffer strip (see landscape design section). On more difficult sites, it may be possible to partially reestablish the original slope, then add rock rip-rap to stabilize the area. With any of these methods, it is desirable to consult an engineering company specializing in shoreline protection or your local Soil Conservation District.

A permit may be required for earth changes within 500 feet of a lake or stream. Visit www.deq.state.mi.us/sesca for a list of soil erosion permitting agencies.

✓ **Assessment 3 - Reducing risks from shoreline stormwater runoff and erosion**

	1. Low risk/ recommended	2. Medium risk/ potential hazard	3. High risk/ unsafe situation	Your risk
Walkways	Meandering walkway made of porous paving materials.	Paved walkway meandering to follow natural contours.	Paved walkway leading straight to lake without regard to slope.	
Seawalls	Shoreline with original slope and native vegetation to water's edge.	Shoreline stabilized with rock rip-rap following natural contour.	Abrupt concrete, metal or wood seawall.	
Storm runoff	Runoff filtered through wetland or vegetated area, or allowed to seep into the ground.	Runoff flows into temporary pond and allowed to drain slowly into the lake.	Runoff flows directly into lake.	

✓ Action checklist

Go back over the assessment charts in this worksheet, then review the assessment charts on corresponding sections of the Home*A*Syst book. For each medium and high risk listed, write down the improvements you plan to make. Use recommendations from this worksheet and other resources to decide on action you are likely to complete. A target date will keep you on schedule. You don't have to do everything at once, but try to eliminate the most serious risks as soon as you can. Often it helps to tackle the inexpensive actions first.

Write all high and medium risks here.	What can you do to reduce the risk?	Target date for action:

This Home*A*Syst supplement was developed by Dean Solomon, District Extension Natural Resources Agent, Michigan State University Extension.

Suggested References

Lakescaping for Wildlife and Water Quality, Minnesota Department of Natural Resources, www.minnesotasbookstore.com.

Michigan Native Plants and Seeds Source Directory, Michigan Native Plant Producers Association, www.for-wild.org/michigan/MNPPA.pdf

Minnesota Shoreline Management Resource Guide, University of Minnesota, www.shorelandmanagement.org

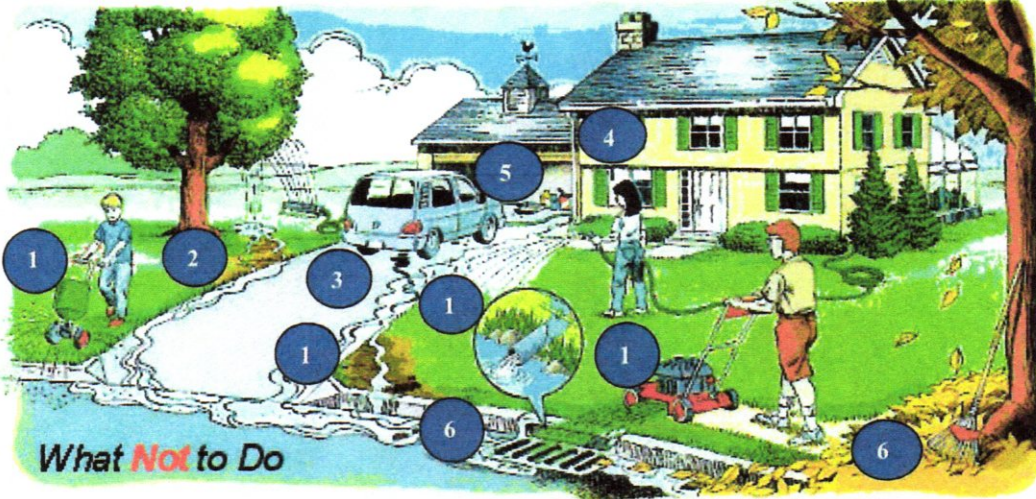
Understanding, Living With, and Controlling Shoreline Erosion, A Guidebook for Shoreline Property Owners, Tip of the Mitt Watershed Council, www.watershedcouncil.org.



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Homeowner **Don't's** and **Do's**
for Protecting Water Quality in
the Blackstone River Watershed

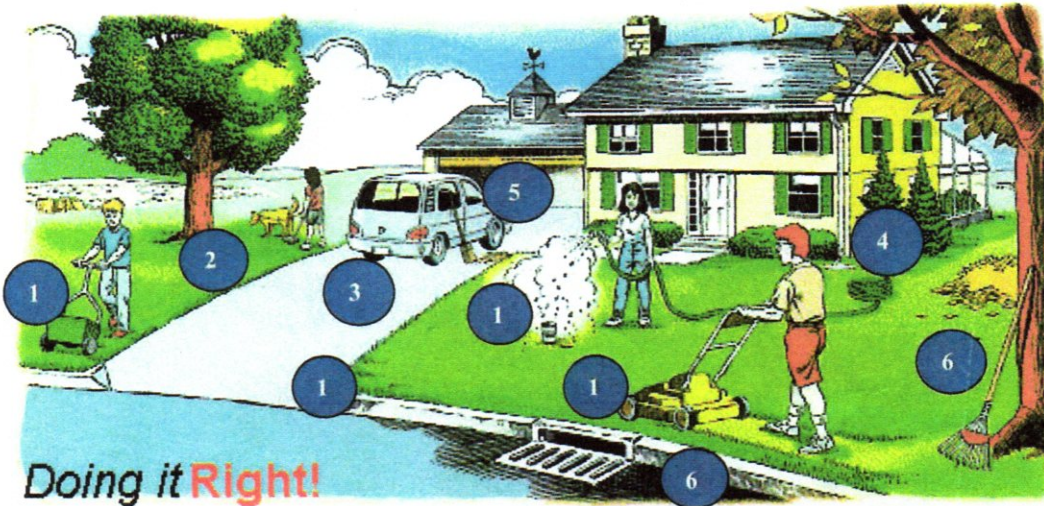


What Not to Do

What's wrong with this picture? What can this Blackstone Valley family do to reduce polluted runoff from their yard? Where do you think the runoff drains to? How can they help improve our waterways? Look on the back for some answers!

Campaign for a Fishable/Swimmable
Blackstone River by 2015
Blackstone River Coalition
www.zaptheblackstone.org

Homeowner **Don't's** and **Do's**
for Protecting Water Quality in
the Blackstone River Watershed



Doing it Right!

This family has changed their practices and are reducing their impact on water quality. They're doing it right for 1. lawn/garden care; 2. pet waste; 3. car care; 4. roof runoff; 5. toxic wastes; 6. yard waste and more! For more information visit the Blackstone River Coalition's website: www.zaptheblackstone.org, click *What We're Doing*. Graphics courtesy of <http://www.gardening.cornell.edu/lawn/almanac.htm>

Learn how you can help improve and protect water quality in the Blackstone River watershed. For a **Homeowner's Guide** contact the Blackstone River Coalition at 508-753-6087 or info@zaptheblackstone.org.



University of
Connecticut

*Cooperative Extension System
College of Agriculture and
Natural Resources*

Residential Water Quality



Lawn Fertilizer Practices to Reduce Nitrogen and Phosphorus in Runoff Water.

Tom Morris

Associate Professor Department of Plant Science

Nitrogen Fertilization and Lawn Clippings

Research results show that leaving grass clippings on the lawn can reduce nitrogen fertilizer needs by 50%. The results clearly show that only 2 pounds of nitrogen per 1000 square feet are needed for lawns if the clippings are returned. Double that amount of fertilizer, or 4 pounds of N per 1000 square feet, are needed when the clippings are removed. The rate of nitrogen can be safely reduced because grass clippings contain about 4% nitrogen by dry weight. When you remove the clippings from the lawn you remove the nitrogen recently applied as fertilizer. Save money and time: leave your clippings on the lawn. Please note: Many research studies have shown that leaving clippings on the lawn will not contribute to or create thatch.

Most times of the year it is easy to leave clippings on the lawn. Unfortunately, during the rapid growth period in May it is often difficult to mow frequently enough to make the clippings disappear. There are two solutions to excess clippings in May. First, a good mulching mower can oftentimes make the clippings disappear, but sometimes the lawn has to be re-mowed to obtain an acceptable look to the lawn. Second, the amount of growth in May can be reduced by applying no nitrogen fertilizer in April. Your first application of nitrogen, 1 pound per 1000 square feet, would be applied in mid- to late May.

Your second application of nitrogen fertilizer, 1 pound per 1000 square feet, would be in the first two weeks of October. Your annual rate of nitrogen would be 2 pounds per 1000 square feet. We recommend that you apply about 50% of the nitrogen as slow-release nitrogen. Managing your clippings and nitrogen fertilizer in this way will provide a lush green lawn, reduce your labor and expenses, and greatly reduce the chance of nitrogen loss from your lawn.

When to Apply Nitrogen Fertilizer

Apply no nitrogen fertilizer after October 15 because the lawn is starting to go dormant at this time of year. Dormant plants will not use nitrogen. Nitrogen that is not removed from the soil by the turfgrass in the fall usually will be leached to groundwater as nitrate during the winter and early spring.

Phosphorus Fertilization

Lawns that test greater than 7 pounds of extractable phosphorus on the UConn soil test report require no phosphorus fertilizer. Fertilizer that has no phosphorus in it will have a zero for the second number on the front of the fertilizer bag. Sometimes it is difficult to buy fertilizer that does not contain phosphorus. Many stores that sell fertilizer, however, can order fertilizer that contains no phosphorus if you ask for it.

If you cannot obtain a fertilizer with no phosphorus, use a fertilizer that contains a low amount of phosphorus. Fertilizers with less than 4% P_2O_5 (for example, a 30-3-3 fertilizer) are commonly available. Have your soil tested at the University of Connecticut Soil Test Lab (www.canr.uconn.edu/plsci/stlab.html) before fertilizer application. Apply the recommended amounts of limestone and fertilizer.

Cooperative Extension's residential water quality education programs are voluntary, prevention programs that train citizens and volunteers to reduce water quality risks in and around the home. We work in all major watersheds in the state in partnership with local and state agencies, organizations, and local communities to effect behavior changes through water quality protection. Programs incorporate regional and national research results from septic systems and well water, nutrient and pesticide management, and landscape management and plant selection.

You should calibrate your spreader to ensure that you are applying the correct amount of fertilizer. Follow the manufactures directions for calibration of your spreader or see UConn's fact sheet on calibration of spreaders. Calibration for application of the correct amount of fertilizer will also ensure the correct application rate of a pesticide, if the fertilizer contains a pesticide.

Applying fertilizer only where it is needed means only to the turfgrass and not onto impervious surfaces like sidewalks and driveways. Often it is impossible to spread fertilizer with a spinner spreader and not apply some to impervious surfaces. When this happens, make sure to sweep the fertilizer onto the lawn, or if you own a leaf blower, it can be used to blow the fertilizer onto the lawn.

Cardinal rule number two is the most important rule to reduce nitrogen and phosphorus concentrations in runoff water. Pesticide concentrations in runoff also will be reduced if the fertilizer contains a pesticide.

Pesticides and Reduced Fertilization

Crabgrass

You will have to make a separate application of a herbicide to control crabgrass if you follow our recommended procedure for only two applications of nitrogen. Nitrogen fertilizers containing crabgrass herbicides are normally applied in late April when forsythia is almost finished blooming. Nitrogen is not needed at this time if you are returning your clippings. Unfortunately, herbicides to control crabgrass are not normally sold as a stand-alone product. The herbicides usually are mixed with fertilizer. Most fertilizers containing crabgrass herbicides also contain nitrogen. Some stores sell a fertilizer with the analysis of 0-0-7 that contains a crabgrass herbicide. We recommend you use this product if you need to control crabgrass. If the store where you normally buy garden supplies does not carry this product, ask the store manager if it can be ordered.

Broadleaf Weed Control

If you need to control broadleaf weeds like dandelions, you can apply a 2, 4-D type of herbicide with your fertilizer in mid- to late May. Many fertilizers contain the 2, 4-D type of herbicides. Application of broadleaf herbicides like the 2, 4-D types of herbicides can damage or kill trees, shrubs and flowers. You need to be especially careful when using a spinner spreader to apply fertilizers containing broadleaf herbicides because it is extremely easy to apply the material to foundation plantings and flower beds.

Grub Control

Insecticides for controlling grubs usually are mixed with fertilizer. You can apply a preventative grub insecticide with your nitrogen application in mid- to late May. If you need to apply both a grubicide and a herbicide for broadleaf weed control in mid- to late May, one of the applications will have to be with a fertilizer that does not contain nitrogen. The fertilizer with the analysis of 0-0-7 that is sold with a herbicide to control crabgrass is also available with either a broadleaf herbicide or a grubicide. We recommend this product if you need to control both grubs and broadleaf weeds in mid- to late May.

All pesticides applied with fertilizers should be applied by following the directions on the label, which is printed on the fertilizer bag.



GREEN LAWNS
CLEAN WATERS
THE ECOLOGICAL APPROACH

Go
Green

LAWNCARE

TIP SHEET



MOW HIGH - RECYCLE CLIPPINGS

- Mow at least 3" high
- Return clippings to recycle nutrients
- Sweep or blow clippings from walks and driveways onto the lawn
- Taller grass crowds out weeds and promotes deeper roots
- Deeper roots help the lawn survive droughts



FERTILIZE IN FALL FOR BEST RESULTS

- Fall is the best time to fertilize your lawn
- Be patient in the spring - wait until May to fertilize
- Don't fertilize if the ground is frozen or saturated with water
- Don't guess, soil test for proper fertilizer recommendations



CHOOSE LAWN-TYPE FERTILIZERS

- Choose lawn fertilizers with low or no phosphorus (the middle number) and follow the directions
- Avoid using "triple" products (e.g. 12-12-12)
- Confirm spreader setting before applying



CLEAN UP - AVOID SURFACE WATER

- Maintain a **NO APPLICATION** zone near lakes, rivers, streams and storm drains
- Never discharge clippings near lakes, rivers, streams or drains
- Sweep fertilizer granules from walks and driveways onto the lawn
- Wash your spreader on the grass



WATER SMART

- Don't soak your lawn and avoid night watering
- Watering should not produce puddles; lighter, more frequent watering is best
- Brown lawns are OK; dormancy is a natural response to drought, however, some water may be necessary during an extended drought of more than a month
- Following Go Green Lawncare Tips will reduce the amount of water your lawn needs

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For more great ideas to promote your Go Green Lawncare initiative see:
www.lawncaresheet.com/tipsheet/



For more lawn tips see: WWW.TURF.MSU.EDU



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