BUILD A BETTER BUFFER

Keep or plant gardens as a buffer at the base of hills, in ditches, and along the road and water's edge to slow runoff, filter pollutants from water, and provide food, cover and breeding habitat for native species.

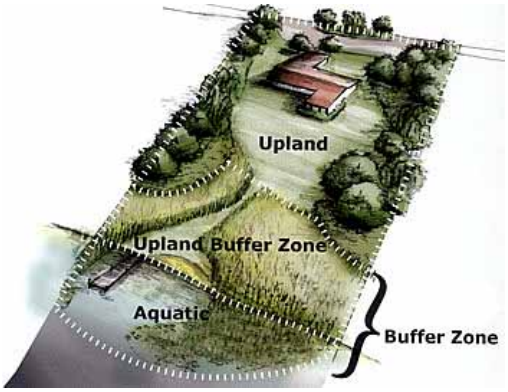
The Problem

Grass mowed to the water's edge provides a conduit for pollutants to enter waterways. The lack of deeper root systems in turf grass and removal of the natural shoreline can lead to erosion at the water's edge. Compromised or missing buffers can increase the effects of polluted runoff, reduce the quality of our water, and decrease property values.

The Solution

Buffers are the single most effective protection for our water resources – plus they provide priceless recreational and aesthetic value. Buffers are a low-tech, high-performance option for stormwater management and resource protection that you can do in your own backyard.

Start Simple: To create a shoreline buffer, you have two choices: a) let the shoreline grow back naturally or b) plant native plants. The easiest thing to do is to do nothing! Just let the area regenerate. This means no mowing, spraying or fertilizing. Stop mowing to the water's edge and allow a strip of grass, called a no-mow zone, to grow between the yard and the road, shoreline or streambank. Native plant seeds that have been dormant in the soil will germinate and valuable native plants will start to grow on their own. Be patient! In the first year your buffer will probably look like a messy, unkempt area. By year two, you should have shrubs and trees starting to grow. Then wildlife will start to appear.



Buffer It: Maintain a buffer of taller vegetation (preferably native plant species) around the perimeter of your property, especially adjacent to waterways, to slow runoff, to filter pollutants from runoff exiting your property, and to prevent erosion along the shoreline or streambank. You should aim to have at least 50 to 75% of your property edge buffered. The depth of your buffer depends on topography, hydrology and soil, vegetation, and stormwater impacts. However, at least the first 50 feet should be covered with native vegetation.

A good buffer should have several vegetation layers and a variety of plants to maximize the benefits of each type. Include ground cover, shrubs and taller trees – catching water at all levels, providing varied habitat and shade, and allowing for deep root systems stabilize soils and to absorb and filter water and nutrients.

Did you know?
A 100-foot buffer removes 60% or more of pollutants (although in clay soils this may not happen within 500 feet).

The duff layer is the accumulated leaves, pine needles, and other plant matter on the forest floor. This layer acts like a sponge, to absorb water, trap sediment, and prevent erosion. Duff is a host to microorganisms that break down plant material and recycle nutrients.

Continuity Counts: If you need to clear a path to the water through the buffer for recreational purposes, create curves in the path to ensure stormwater doesn't have a straight run to the water. Cut as small a path as possible through your buffer to access your waterfront. This will save both money and time that otherwise would be spent on maintaining your lawn!

Go Native: Native plants have extensive root systems that cut down watering needs, help infiltrate water back into the ground, minimize soil erosion, filter pollutants from runoff before leaving your property, and provide vital habitat for native species. Landscaping with native plants is economical because they are adapted to local soil and climate conditions and once established will require less watering and fertilizing. Native plants also naturally resist pests and diseases, eliminating the need for harmful pesticides. Plant a diversity of native plant species for optimum wildlife habitat. For a complete list of Maine native plants, go to www.umext.maine.edu/onlinepubs/htmpubs/2500.htm. For a list of Maine nurseries and garden centers offering native plants, see http://www.umext.maine.edu/onlinepubs/htmpubs/2502.htm#Maine_Nurseries or http://www.yardscaping.org/sources.htm

Did you know?
Invasion by exotic plants is second only to habitat destruction as the greatest threat to the natural ecosystems of the US.

For more information about Maine native plants, see Bulletin #2502, "Native Plants: A Maine Source List" at http://www.umext.maine.edu/onlinepubs/htmpubs/2502.htm.

Know Your Stuff: Be aware of Maine's most common invasive plants and the most appropriate methods to control or eliminate them. Make sure you don't start pulling out areas infested with invasive plant species— invasives have root systems and leaves and are doing some "buffer" functions. You'll need to replace them with equally or better functioning plant materials.

- Asiatic Bittersweet
- Common and Glossy Buckthorn
- Common Reed (Phragmites australis)
- Eurasian Milfoil
- Garlic Mustard
- Japanese Knotweed
- Multiflora/Rambler Rose
- Purple Loosestrife

The Maine Invasive Plants fact sheet series are available online at http://www.maine.gov/doc/nrimc/mnap/features/invsheets.htm. See also "Mistaken Identity? Native Plants and Their Lookalikes" at http://www.nybg.org/files/scientists/rnaczi/Mistaken_Identity_Final.pdf.

Know Your State & Local Regulations

Since buffers are among the very best means for protecting rivers and streams, state and local authorities protect buffers in several ways. There are specific Federal, State and local laws for protecting water - including location and maintenance of septic systems, determining setbacks from surface waters, and about cutting in and modifying the shoreland zone. Your property may also be subject to further Maine DEP and Town of Kittery or Eliot restrictions if you live in a development or planned neighborhood. Visit the DEP site for more information (www.state.me.us/dep).

For more information on using vegetation to protect water quality and planting and maintaining buffers, visit http://www.pwd.org/pdf/water_resources/conservation%20fact%20sheets/PLANTING%20and%20MAINTAINING%20BUFFERS.pdf.

PROTECT KITTERY WATERS

Spruce Creek Watershed Improvement Project
Town of Kittery, Maine
200 Rogers Road Extension
Kittery, Maine 03904
www.protectkitterywaters.org

CARE FOR YOUR LAWN AND THE CREEK

Keeping a lush, weed-free lawn is almost always costly, labor-intensive and potentially damaging to the environment. Lawns provide little or no habitat or shade for native animals, and the root systems are too shallow to help stabilize soils or provide adequate filtration.

The Problem

A healthy lawn resists disease, drought damage, and weeds. While many lawns benefit from some extra nutrients once a year, fertilizing more often can harm your lawn and contribute to water quality problems. Excess fertilizers can run off when it rains, causing aquatic plants to go on growth and blooming binges. This robs the water of oxygen needed by aquatic organisms.

Did you know?
Turf grass is the single largest irrigated crop in the United States (3 times more than corn).

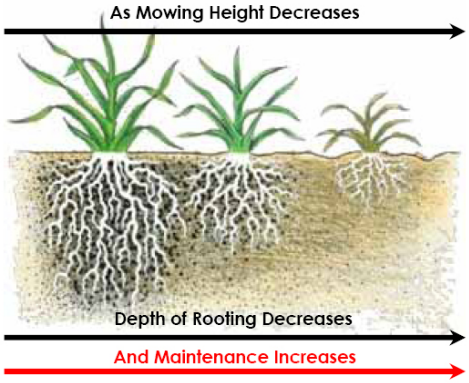
The Solution

Proper fertilizing, mowing and watering practices will result in a high-quality turf that protects water quality by reducing storm water runoff, minimizing soil erosion and improving water infiltration into the soil.

Reduce the amount of yard that is planted in grass.
Try native ground covers that need less maintenance and provide a more interesting landscape.

Mow high and let lie.

- Cutting just the top third of the grass will help shade out weeds.
- Mulch grass clippings back onto the lawn where they'll quickly break down and provide free nutrients and organic matter to the soil and help it to retain moisture.
- Avoid mowing directly to the edge of lakes and streams. Grass clippings can get into the water and add excess nutrients as they break down. Having turf grass directly at the edge of a lake or stream also can exacerbate erosion problems. Long grass or other vegetation at the water's edge will help to filter pollutants in runoff, prevent erosion and improve habitat for wildlife.



- Keep mower blades sharp—dull blades will tear the grass blade which provides opportunities for turf diseases.
- Sweep excess grass clippings off hard or paved surfaces and back onto the lawn to prevent them from getting washed into waterways.

Did you know?
A poorly maintained gasoline lawnmower pollutes as much in one hour as a car driven for 348 miles.

Try aerating and de-thatching the lawn periodically to discourage weed growth and improve water absorption. The fall is a great time to aerate given soil conditions at that time of year.

Mow the right way at the right time of day. Mow in early evening, after the heat of the day, and before the dew settles. Lawns should be cut down to 2 inches twice a year – in the fall to prevent snow mold and in early spring to help stimulate growth and green up.

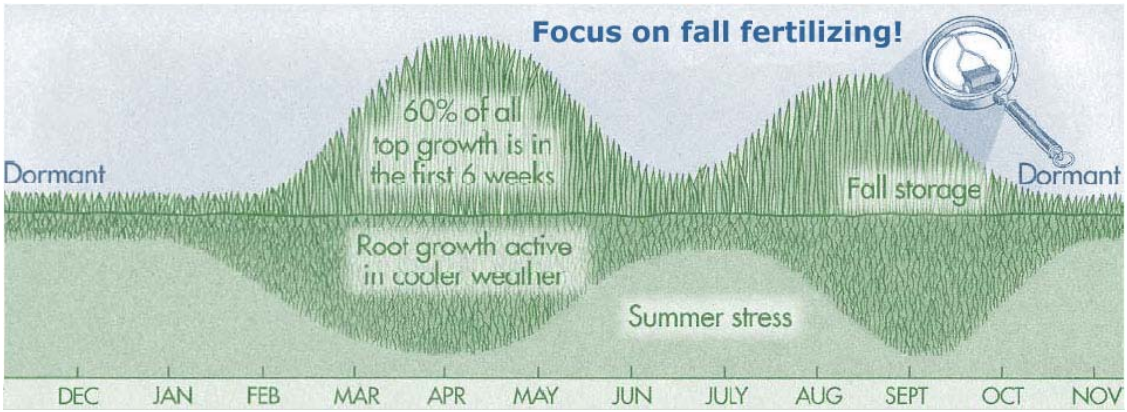
Varying the mowing pattern every time you mow prevents soil compaction. This will keep your soil and grass healthier.

Do a soil test.
You don't know what your lawn needs without one! Most soils tested throughout the seacoast show that high levels of phosphorus are already present in the soil. Soil testing should be performed about every 2-3 years, or at any site where the topsoil has been disturbed and landscape renovation is under way. The University of Maine Cooperative Extension provides soil testing for only $12/test. You can order soil sample kits online at www.umext.maine.edu.

Did you know?
Only 10-20% of lawn owners use soil tests to determine fertilizer application, and as a result, 52% of lawns are over-fertilized.

Use less (or no) fertilizers.
Unless you have a soil test that identifies a need for phosphorus and potassium, all you need is nitrogen. Lawns older than 10 years need only clippings to keep them "fertilized".

If fertilization is necessary, start with 1/3 of the amount recommended on the bag label, monitor the lawn, and apply more only if the lawn needs it. Look for 10-0-0 on the bag. Use organic slow-release fertilizers with the right nutrients to improve soil health and fertility. Slow-release of the nutrients ensures you're only feeding your lawn – not our streams, rivers and groundwater. Only apply once a year (preferably in the fall). Accept a few weeds, especially clover, which improves the soil.



Consider not watering, letting your lawn go dormant in the summer. Not only will you save water, but think of all the time you'll save by not having to mow during the hottest months! Be careful not to over-water the lawn because this wastes water, promotes runoff, and makes your lawn prone to disease.

Limit or full eliminate the use of pesticides.

Did you know?
It is estimated the average American spends 40 hours every year mowing their lawn.

- Practice Integrated Pest Management (IPM). This approach utilizes a system of strategies to keep pests, including insects, weeds and diseases to acceptable levels (since you can't realistically eliminate all pests). Fundamental to IPM is the concept of "Know what the problem is before you apply pesticides." To learn more visit http://pronewengland.org/INFO/PROInfoIPM.htm.
- Make sure that you pick a product that matches your specific pest problem and apply it according to the label's instructions.
- Limit pesticide use by spot-treating problem areas rather than using blanket treatments.
- Keep products off of hard or paved surfaces, such as driveways and sidewalks.

Fore more tips on yard and lawn care, visit http://cumberlandswcd.org/yardscape/factsheets.htm.

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PREVENT EROSION

Soil erosion costs Maine homeowners millions of dollars a year. Soil loss not only causes damage to roads and property but eventually finds its way to a lake, pond, river or stream. It contributes to the phosphorus load and can result in algae blooms. In addition, silt removal from roadside ditches and storm drains is required, costing taxpayers money. Soil is a valuable resource on the land, but when washed into streams, lakes, and estuaries it is Maine's biggest water quality problem.

The Problem

Believe it or not, the biggest threat to Maine's water quality is plain old dirt, washing into our rivers, lakes and streams... from our lawns, roads, driveways and construction sites.

Wherever you see bare soil, you're seeing water pollution just waiting to happen. Because without vegetation, dirt washes away every time it rains. And it ends up in our rivers, lakes and streams. Dirt clogs waterways and destroys fishes' gills. It also carries oil, fertilizer, pesticides and other chemicals that contaminate the water and lead to shallower streams and scummy green lakes.

Many fish and aquatic insects lay their eggs in gravel beds. The sediments that are deposited in the stream cover up these areas, sometimes even entombing young fish and eggs.

The sediment may also destroy a stream's natural 'riffle and pool' pattern and can make a stream shallower. When streams become wider and more shallow, flooding problems can increase. The shallow water is heated more efficiently by the sun, causing water temperatures to rise and then cold water fish, such as trout, are replaced by warm water fish.

Sediments cloud the water and cover plant leaves, reducing sunlight penetration and inhibiting photosynthesis (plant food production). Sediment accumulations also harm duck populations by filling in their wetland habitats.

The Solution

Erosion process can be accelerated or slowed by the practices you adopt, and sediment going into the creek is a pollutant. What can you do? A few simple things are a great start.

Go natural!
Utilize natural materials, such as wildflowers, grasses and shrubs, to stabilize shorelines, streambanks, and road edges. Stabilizing these areas with living plant materials is called "bioengineering" and improves wildlife and aquatic habitat.

Did you know?
In the USA, soil is eroding at about seventeen times the rate at which it forms.

Buffer it.
Try to catch soil before it reaches the road or the water. Plant shrubs and trees to create a buffer between your property and the water to filter out pollutants. You can divert the water running off driveways, roads and gardens into a stable vegetated area where the dirt can get trapped. The best idea is to plant a ribbon of trees and shrubs, referred to as a vegetated buffer, downslope of places like your home to capture soil and pollutants before they reach a roadway or waterway.

Cover your bald spots.
Especially on slopes and at the waters' edge. Seed and mulch any bare soil on your land as quickly as possible with an appropriate vegetative cover, such as sod or seed. Be sure to mulch the area

with straw or other appropriate cover to prevent erosion until the seeds germinate. Keeping soil undercover - covered by grass, shrubs and trees - means the rain doesn't have a chance to get at it and move it.

If you've got erosion issues near your home – along a roof edge or near a downspout – consider installing an infiltration or dripline trench and dry wells. For fact sheets with detailed instructions, diagrams and color photos about installation and maintenance, visit http://www.maine.gov/dep/blwq/docwatershed/materials.htm.

Less is more.
Minimize disturbance to ground cover when doing any type of land clearing work. Avoid mass-grading large areas which will allow more disturbed soil to be exposed and vulnerable to erosion from runoff after it rains or when snow melts. At the waterfront, leave as many aquatic plants in place as possible—they will hold bottom sediments in place and protect the shoreline from the erosive forces of wind and ice action.

Grab it.
Rain barrels provide an innovative way to capture rainwater from your roof, and store it for later use. Water collected from rain barrels can be used to water lawns, gardens, and indoor plants. You can lower your water bill, conserve well water in the dry season, and reduce erosion and polluted runoff.

Keep it legal.
Obtain required permits and install necessary soil erosion controls. Any earth-changing activity that will impact more than one acre of land, or is within 500 feet of a lake, stream or wetland requires a soil erosion control permit. For more information on Maine's Erosion and Sedimentation Control law, visit http://www.maine.gov/dep/blwq/docstand/stormwater/erosion.htm.

Don't be stumped.
Incorporate large woody debris, such as stumps, logs and tree trunks, as a management option for streambanks and shorelines. Woody debris provides essential aquatic habitat and stabilizes shorelines and streambanks from erosion.

Mulch It.
Spread mulch, such as compost, wood chips, shredded leaves, or shredded bark around trees and plants. Mulch helps to retain moisture in the soil by reducing evaporation. It also cuts down on weeds and moderates the temperature of the soil.

Did you know?
Each year rainstorms and snowmelt wash tons of dirt off the land around Maine.

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GARDEN SMART

Can anything be more satisfying than a fertile carpet of green grass? How about a healthy landscape that features less lawn and beautiful plantings—all grown without the excessive use of pesticides, fertilizers, and water!

The Problem

In some cases, invasive nonnative plants have displaced native plants, thereby degrading the integrity and diversity of our native plant communities. We've all witnessed the spread of purple loosestrife in our wetlands, where it has established large colonies and displaced native plants. Other invasive nonnative plants in Maine include multiflora rose, common and glossy buckthorns, shrubby honeysuckles, Asiatic bittersweet, Japanese knotweed, and Japanese barberry.

Dumping yard waste or plant materials can create blockages to natural or man-made waterways. Excess vegetation can trap sediments and block the streambed, causing flooding. Dumped yard waste spreads invasive species, which can pose a threat to existing native vegetation and reduce the diversity of natural systems. Decomposing vegetation and excess nutrients reduce the oxygen available in streams for fish and aquatic life.

The Solution

There are many ways to garden smarter. Here are just a few.

Landscape with native plants where possible.

Nearly 1500 species of native plants are part of what makes Maine a unique place. Native plants—also called indigenous plants—are those that either originated here, or arrived without human intervention. Native plants form the historical basis of our landscape, provide food and habitat for animals, and serve as natural sources of food, fiber, and other products. You can bring these beauties into your yard for a garden that attracts wildlife, needs less watering, weeding and care, and best of all, requires virtually no herbicides or pesticides.

Did you know?
You can encourage beneficial insects by planting flowers that provide nectar and pollen.

Native plants have extensive root systems that cut down watering needs, help infiltrate water back into the ground, minimize soil erosion, filter pollutants from runoff before leaving your property, and provide vital habitat for native species. Landscaping with native plants is economical because they are adapted to local soil and climate conditions and once established will require less watering and fertilizing. Native plants also naturally resist pests and diseases, eliminating the need for harmful pesticides. Plant a diversity of native plant species for optimum wildlife habitat.

For a complete list of Maine native plants, go to www.umext.maine.edu/onlinepubs/htmpubs/2500.htm. For a list of Maine nurseries and garden centers offering native plants, see http://www.umext.maine.edu/onlinepubs/htmpubs/2502.htm#Maine_Nurseries or http://www.yardscaping.org/sources.htm

For more information about Maine native plants, see Bulletin #2502, "Native Plants: A Maine Source List" at http://www.umext.maine.edu/onlinepubs/htmpubs/2502.htm.

Additional tips when choosing plants for your garden:

- Incorporating a diversity of plants into your landscape will naturally inhibit disease and pests, and greatly improves habitat for wildlife. Try using a variety of native plant species—they attract beneficial insects that will keep away pests.
- Make watering efficient by grouping plants with similar watering needs and using drip irrigation.

- Take time and get to know your landscape/garden before making decisions about changes.
- Choose plants appropriate for the soil/sun conditions in your yard and choose pest resistant varieties.

Keep trash, debris, fall leaves, and lawn clippings away from ditches, streams, and the water's edge.
Collect or mulch leaves soon after they fall to ensure that they don't get carried into lakes and streams through storm drains or by getting blown directly into the water. Leaves add excess nutrients and use up valuable oxygen in the water as they decompose. Rather than spend the extra time and energy raking leaves into compost bags or to the street for curbside pickup, mulch the leaves into your lawn—it's free fertilizer and adds organic matter to the soil!

Compost
Composting yard refuse turns leaves and grass clippings into rich organic fertilizer and mulch. Not only is this an environmentally sound thing to do, but it will provide you with an ongoing supply of free, high quality, soil-enhancing material for the garden.

Tips on Composting
- Locate your bin in a semi-shaded area of the garden. The material in the bin will get hot as it decomposes, but after the hot stage you want earthworms to colonise the compost. A bin in the sun may always be too hot for earthworms.
- Use a variety of materials such as food scraps, crushed eggshells, lawn clippings, leaves, soft prunings, animal manure, seaweed.
- Don't put weeds with seed heads and invasive plants that strike easily from stem tissue in the bin or heap.
- Chop up everything as small as you can. Run the mower over leaves and put prunings through a mulcher or chop them. This greatly increases the rate of decomposition.
- Keep the mixture moist - too wet and there will not be enough air, too dry and decomposition will slow down dramatically.
- Get air into the mixture by turning it over regularly.
- Don't include meat and fats in your composting materials, and also avoid citrus skins and onions which earthworms hate.

Compost yard waste away from streams and the shoreline.
Properly site your compost piles away from the water's edge to eliminate the chance of runoff from these piles contributing excess nutrients to the water. Don't burn yard waste adjacent to waterways—the ash contains phosphorus which can degrade water quality.

For more information on composting visit http://www.umext.maine.edu/onlinepubs/htmpubs/1143.htm. One "traditional" composter that seems to work well is the Bosmere (http://www.amazon.com/Bosmere-Compost-11-Cubic-Capacity-K767/dp/B001D4OS0U). For odor-free scrap collection, try the Gaiam compost bucket - http://www.amazon.com/Gaiam-Kitchen-Compost-Bucket-Large/dp/B0009LD3Y0. An "alternative" composter to consider is the Cone - http://www.peoplepoweredmachines.com/greencone/. These composters are odor-free and require no turning or air flow. You can purchase two – let the first fill up, then start filling the second and by the time the second is full the first has beautiful compost. Of course, you can also build your own compost bin – visit http://www.edf.org/article.cfm?ContentID=2030 to learn more.

BUILD A RAIN GARDEN

Rain gardens are a new tool in our efforts to keep Maine's waters clean and part of a new way of thinking about stormwater issues. Their use doesn't involve a lot of centralized planning. They don't require much space, can fit into oddball shapes, and can readily be added to existing buildings. They look nice, and you don't need to be an engineer to build one.

The Problem

When rain falls faster than the ground can absorb it, it runs off into storm drains along with any contaminants in its path, such as oil and grease, de-icing salts, heavy metals, pesticides, and bacteria from trash and animal waste.

Structures like rooftops, driveways, roads, and parking lots alter the "water cycle" on homes and business properties. These hard surfaces reduce the amount of rain or snow melt that soaks into the ground. Instead, that water is immediately converted to stormwater runoff. The runoff can pick up pollutants such as eroded soil, lawn fertilizer, oils and gas from leaky vehicles, pet waste, etc., as it flows downhill to a nearby river or lake. Also the quantity increases and the volume of runoff is much larger and it flows more quickly than on a vegetated surface, which can cause more erosion and damage aquatic habitats.

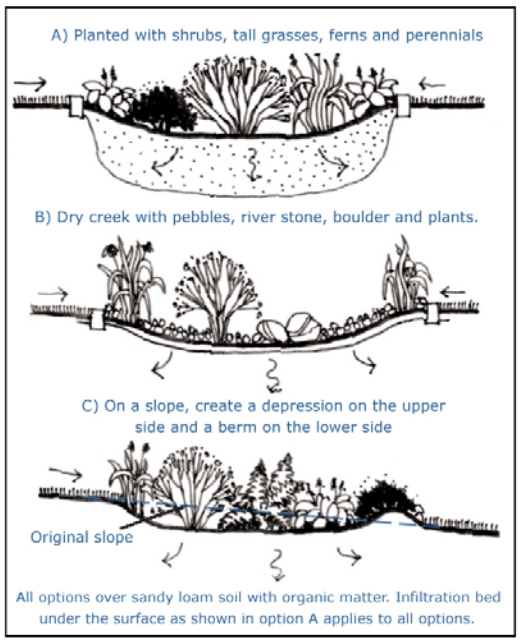
The Solution

Every little bit of rainwater that you can keep on your property helps! We can all help minimize the problem of storm water runoff by planting rain gardens—6- to 12-inch-deep depressions filled with native plants. Rain gardens can capture hundreds of gallons of rainwater, filtering out up to 90 percent of pollutants while allowing the water to drain deep enough into the soil to help recharge groundwater supplies.

Did you know?
Rain gardens can effectively trap and retain up to 99% of common pollutants in storm runoff.

These gardens can be very attractive and blend into the yard landscape. Rain gardens are often located in existing or created depressions on property, so that stormwater will be collected and slowly soak into the ground.

Whether you undertake this project on your own or with a landscaper, here are some factors to consider when planning a rain garden.



Location. Site your rain garden where rain and snowmelt collect or run off—near downspouts or gutters, below a slope, or along sidewalks and driveways. However, avoid planting a rain garden within 10 feet of your home's foundation, within a septic system's drainage field, or above buried utility lines. The garden should be bowl-shaped, with the lowest point of the garden no more than 6" below the surrounding land. The sides should be gently sloping towards the center to prevent sudden drop-offs that could lead to erosion problems or walking hazards.

Size. The square footage of your rain garden should generally be about 20 percent that of the area draining into it. For example, if your roof covers 800 square

feet, a rain garden designed to collect all of the roof's runoff should cover 160 square feet. Rain gardens for single-family homes will typically range from 150 to 300 square feet, but even a smaller one will help reduce water pollution problems. To capture runoff most efficiently, a rain garden should be longer than it is wide, and aligned perpendicular to the slope.

Materials. Rain gardens use layers of different materials to help maximize drainage. The bottom layer typically features an "underdrain" (e.g., a piece of perforated PVC pipe) pointed toward an existing storm drain and covered with gravel. The next layer is the planting medium, which should be a mix of about 20 percent compost, 50 percent sand, and 30 percent topsoil. A final layer of mulch helps prevent weeds and removes metals from runoff.

Plant choice. Whenever possible, plant native species. Native plants are best because they establish deeper roots (which help the soil hold water), can withstand the local climate, need minimal care, and attract local butterfly and bird populations. Natives are hardy and you don't risk bringing in more invasive species to Maine. For more information, see *Gardening to Conserve Maine's Landscape: Plants to Use and Plants to Avoid*, which is available on the web at www.umext.maine.edu/publications/homegarden.htm.

Rain gardens can be placed in sunny or shady regions of your lawn, but plants should be chosen accordingly, with the lowest point planted with wet tolerant species, the sides closest to the center planted with moist tolerant species, and the edges of the rain garden should be planted with subxeric (moist to dry) or xeric (dry) tolerant plants. It is also important to check the permeability of your soil. Sandy soils only need compost added, but clay soils should be replaced with a mix (50-60% sand, 20-30% topsoil, 20-30% compost). After construction of the garden is complete, the entire area should be covered with a thick layer of mulch, preferably Erosion Control Mix.

Did you know?
Rain gardens act as mosquito cemeteries because the rain water drains quickly and leaves the mosquito eggs high and dry.

If your rain garden is near a street treated with salt in the winter, ask your local nursery for salt-tolerant plants.

Maintenance. Overall, once plants mature, the maintenance of a rain garden is very low. Watering is important during the first growing season, and some weeding is necessary after planting. As the garden matures, some of the perennials may need to be divided if plantings become too crowded.

For more information, please see "Adding a Rain Garden to Your Landscape" at http://www.umext.maine.edu/onlinepubs/pdfpubs/2702.pdf or "How to Install a Raingarden" at http://www.cwp.org/Resource_Library/Center_Docs/Residential/rainbarrelgarden.pdf (page 2).

PROTECT KITTERY WATERS

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CATCH THE RAIN WITH A RAIN BARREL

Rain barrels provide an innovative way to capture rainwater from your roof, and store it for later use.

The Problem

Structures like rooftops, driveways, roads, and parking lots alter the "water cycle" on homes and business properties. These hard surfaces reduce the amount of rain or snow melt that soaks into the ground. Instead, that water is immediately converted to stormwater runoff. The runoff can pick up pollutants such as eroded soil, lawn fertilizer, oils and gas from leaky vehicles, pet waste, etc., as it flows downhill to a nearby river or lake. Also the quantity increases and the volume of runoff is much larger and it flows more quickly than on a vegetated surface, which can cause more erosion and damage aquatic habitats.

The Solution

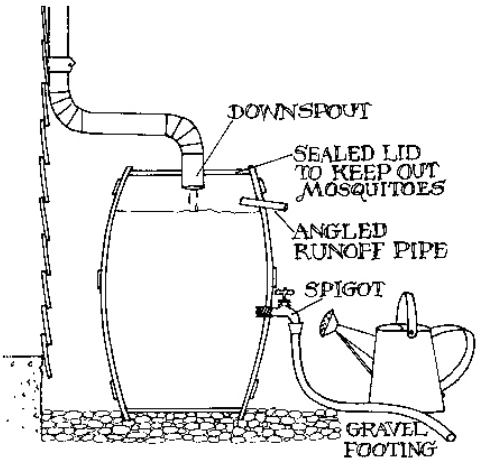
Water collected from rain barrels can be used to water lawns, gardens, and indoor plants. This water would otherwise run off your roof or through downspouts and become stormwater, picking up pollutants on its way to a storm drain, stream, or lake. You can lower your water bill, conserve well water in the dry season, and reduce polluted stormwater runoff.

Did you know?
For every inch of rain that falls on a roof of 1,000 square feet, you can collect 600 gallons of rainwater.

Installation

A rain barrel must be placed on a level surface. If you have gutters, place the rain barrel beneath the downspout so the water flows onto the screen on top of the barrel. You may need to have your downspout cut to an appropriate height above your rain barrel.

If you do not have gutters, find a location where water concentrates from your roof and place the rain barrel where it will capture this steady stream of water during rain storms. Elevate your rain barrel by placing it on cinder blocks or a sturdy wooden frame. Raising the barrel allows the barrel to drain properly, and you to easily fit a watering can underneath the spout, or attach a hose so you can recover the rainwater you have collected. Soaker hoses can also be attached to the rain barrel to slowly release water into gardens and recharge groundwater.



Materials

Rain barrels are available in many sizes and styles, and range in price from $80 to over $200. Contact your local hardware store, garden center, or nursery. You can also order rain barrels on-line from SkyJuice New England http://www.skyjuice.us located in York, Maine.

Building your own rain barrel is the least expensive option. For information visit: http://www.cwp.org/Resource_Library/Center_Docs/Residential/rainbarrelgarden.pdf.

Finally, you can simply use an open barrel to collect rainwater. Keep in mind that you should use the water within two weeks because the development of a mosquito from egg to adult takes 10 to 14 days.

Maintenance

Gutters and downspouts should be clean of debris. Leaves and pine needles can clog gutters and prevent water from reaching the rain barrel. Check the screen on the rain barrel after each storm event and remove leaves or pollen. Rain barrels should be drained and stored before freezing weather sets in to

prevent ice and freeze damage. They can be stored outside if they are turned upside down and the faucet is covered. Be sure to put something heavy on your rain barrel so it doesn't roll away. You can store them inside a garage or other protected area.

Customize your barrel.
Rain barrels may be painted any way you wish… a wine barrel.. a fish tank.. an elephant? A good base paint might be Krylon's new "Fusion" spray paint, which has been specially formulated to bond well with plastic. Spray a clear coat on the barrel first, then paint your decoration with any waterproof paint, and finish with a final clear coat to protect.

Increase your capacity of rainwater storage.
Connect more than one barrel together at each downspout. Remember to raise your barrels off the ground by placing them on cement or wooden blocks to ease access to the faucet.

Manage heavy rains.
It is essential to consider impact of heavy winter rains on your drainage system. An overfull rain barrel has the potential to erode your home's foundation. In all cases your rain barrel should have an overflow spigot near the top on the side. Management ideas include:

- Connect a hose to the overflow spigot and direct this away from your foundation, a minimum of 2 feet for a crawlspace, and 6 feet for basements.
- Disconnect the rain barrel from the downspout.
- Leave the outlet faucet open and set a splash block under it. Now the rain barrel is an extension of the downspout drainage system. Remember to close the faucet when you desire to fill the rain barrel.

Whatever you solution, design the overflow system to encourage infiltration of the water into the ground.

Free clean water.
Rainwater is free "soft water"! It contains no chlorine, lime or calcium. Because it tends to have fewer sediments and dissolved salts than municipal water, rain water is ideal for watering plants. The water in the barrels is at ambient temperature and will not shock the plants like cold well water or municipal water. It is excellent for washing the windows, car, and other household cleaning.

Did you know?
The chemicals and hard water from many of our municipal water systems can produce an imbalance in the soil of your garden.

Other Roof Runoff Solutions

Consider these other methods of dealing with roof runoff and erosion issues:

- Managing roof runoff on homes without gutters by using dripline trenches: http://www.pwd.org/pdf/water_resources/conservation%20fact%20sheets/dripline_trench.pdf
- Drywells: http://www.pwd.org/pdf/water_resources/conservation%20fact%20sheets/dry_wells.pdf
- Managing runoff from rooftops and paved areas with infiltration trenches: http://www.pwd.org/pdf/water_resources/conservation%20fact%20sheets/infiltration_trench.pdf

PROTECT KITTERY WATERS

Spruce Creek Watershed Improvement Project
Town of Kittery, Maine
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www.protectkitterywaters.org

MINIMIZE RUNOFF

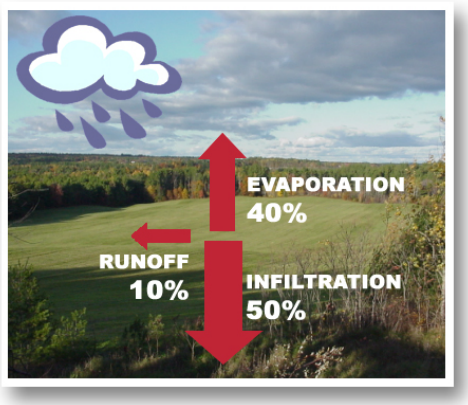
Many activities we conduct near the waterfront, in our lawns and gardens and around our home, impact water quality. This is even more critical to riparian homeowners because runoff doesn't have far to travel before reaching the water. We can prevent water pollution by being aware that our actions DO impact water quality. We can all make a difference by practicing Healthy Habits for Clean Water.

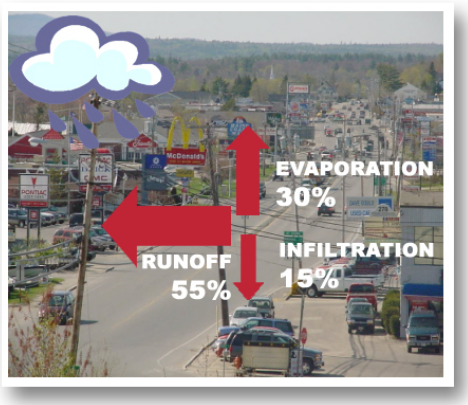
The Problem

Excessive aquatic plant growth and algal blooms, decreased water clarity, low stream flows and flashy flows, degraded habitat and shoreline erosion – all these are a result of increased and more polluted runoff from all of our homes.

We've removed the natural "sponge" function of the land around us by creating surfaces that water can't penetrate (driveways, sidewalks, rooftops and even yards). Since the water can longer infiltrate into the ground, it is forced to move along – often times carrying with it harmful chemicals and soil.

Natural Cover **75-100% Impervious Surface**





The Solution

Address runoff before it leaves your property. Better yet, keep water on your property for use in areas such as your garden.

Direct downspouts toward plant beds and grass and away from hard surfaces.

Redirect downspouts away from hard, paved surfaces into vegetated areas, such as a rain garden, or into a rain barrel for later use in the garden. Simply angling the water away from your driveway and into the garden prevents all that water from rushing away – and gives you a great source of water for your gardens.

Did you know?

The average house has at least 5,000 square feet of impervious surface (rooftops, driveways, walkways, and decks.

Use a rain barrel to collect rooftop rain and provide free water for your lawns and gardens.

Rain barrels provide an innovative way to capture rainwater from your roof, and store it for later use. Water collected from rain barrels can be used to water lawns, gardens, and indoor plants. You can lower your water bill, conserve well water in the dry season, and reduce erosion and polluted runoff.

By using the rainwater on your gardens you are helping to replenish your groundwater and benefit our water supply. A one-inch rainfall on a 1,000

square foot roof yields 562 gallons of water. Five rainy days can provide 275 gallons of free water. Collected rainfall is especially valuable during droughts or dry conditions. It contains more nutrients and fewer salts than tap water, so it's great for plants. For more information and to order your recycled food-grade rain barrel, visit www.skyjuice.us.

Create rain gardens to capture and slow down runoff.
Rain gardens are growing in popularity because they look great and filter pollutants out of runoff allowing clean water to infiltrate and replenish groundwater supplies.

A rain garden resembles a regular perennial garden in many ways. It is designed with deep-rooted plants that come back year after year; it is pretty to look at; it often has lovely flowers, grasses, trees and shrubs. Rain Gardens have a ponding area, but they are not ponds. They often are planted with wetland plants, but they are not wetlands (although you can design a rain garden that mimics a wetland).

There is a bowl-shaped dip in the garden, which holds the rain while it soaks into the soil. The garden bed is prepared or sometimes replaced to a depth of two feet in order to de-compact the soils and make the garden able to absorb water.

Did you know?
Rain gardens can potentially absorb hundreds of gallons of rain that would otherwise wash pollution down the street and into the nearest waterway.

For more information on adding a raingarden to your landscape, see http://www.umext.maine.edu/onlinepubs/pdfpubs/2702.pdf.

Where possible, reduce paved surfaces by using gravel, bricks, or interlocking blocks around my home.
Alternative pavers are surfaces that can replace asphalt and concrete and can be used for driveways, parking lots, and walkways and create less storm-water runoff. Consider replacing a portion of your driveway or some of your walkways with surfaces that allow some of the rain water to soak in.

FYI: Asphalt tends to cost between 50¢ and $1 per square foot of installed pavement. Grass and gravel pavers can range from $1.50 up to about $5.75 per square foot of installed pavement. Porous concrete can cost from $2.00 up to about $6.50, per square foot of installed pavement. Interlocking Concrete Paver Blocks: interlocking concrete pavers range in price from $5.00 to about $10.00 per square foot of installed pavement. For more information on various driveway and walkway surface options, visit http://www.paversearch.com/permeable-pavers-costs.htm.

Other Runoff Solutions

Consider these other methods of dealing with excess water runoff and erosion issues:

- Managing roof runoff on homes without gutters dripline trenches: http://www.pwd.org/pdf/water_resources/conservation%20fact%20sheets/dripline_trench.pdf
- Using drywells: http://www.pwd.org/pdf/water_resources/conservation%20fact%20sheets/dry_wells.pdf
- Managing runoff from rooftops and paved areas with infiltration trenches: http://www.pwd.org/pdf/water_resources/conservation%20fact%20sheets/infiltration_trench.pdf
- Controlling erosion on steep paths with infiltration steps: http://www.pwd.org/pdf/water_resources/conservation%20fact%20sheets/infiltration_steps.pdf
- Diverting water off paths and trails with waterbars: http://www.pwd.org/pdf/water_resources/conservation%20fact%20sheets/waterbar.pdf

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PICK UP AFTER YOUR PETS

Pet waste left in our yards and communities can have many adverse effects on the environment, as it is full of harmful bacteria and excess nutrients.

The Problem

At least half of all surface-water pollution in the country comes from contaminated runoff. Pet waste contributes to the pollution that is transported by runoff every time it rains. Animal waste is a serious water quality problem that is often overlooked. While there have always been animals, it was not until humans and their pets and farm animals concentrated populations along waterways that animal waste became a problem. Waste from dogs, cats, horses and waterfowl may contain disease-causing organisms that are harmful to both humans and animals. Animal waste also contains nutrients that encourage weed and algae growth in lakes and streams.

Did you know?
Pet waste contributes between 20 to 30 percent of the water pollution in America.

Untreated fecal matter can be a source of harmful bacteria and nutrients. Pet waste carries disease causing organisms such as Giardia and Salmonella which can make water unsafe for drinking or swimming. Just as we don't want human sewage in our water, it is important to prevent pet sewage from being carried into our waterways. When pet waste is washed into lakes, streams or coastal waters it carries nutrients that stimulate growth of nuisance weeds and algae. Overly fertile water becomes cloudy and green—unattractive for swimming, boating and fishing. Also, as the waste and the algae decay, oxygen is depleted, which can lead to fish kills. Also, ammonia can be released, further endangering Maine's fish population. Perhaps most importantly, pet waste can carry diseases that make water unsafe for swimming or drinking.

While it may not seem like a big deal if one more cat or dog contributes some waste to the neighborhood environment, think of how many pets are in our community. Animal waste may not be the biggest or most toxic pollutant going into our waters, but it is one of those little problems that can lead to serious environmental and health problems.

The Solution

Managing pet waste properly is something that everyone can easily do to make a positive difference in the quality of our surface waters. The job of cleaning up after your pet can be as simple as taking a plastic bag or "pooper scooper" along on your next walk. Kittery and Eliot have "pooper scooper" laws that govern pet wastecleanup. Any waste left by the animal must be cleaned up immediately. What should you do with the waste you pick up? Here are some options

Scoop the poop, bag it, and place it in the trash.
Scooping your pooch's poop isn't just a courtesy for those walking behind you; it is also the healthy and environmentally sound thing to do. This is the preferred disposal method. From a surface water perspective it removes the pollution source from surface water contact and contains it in a landfill situation where discharges are monitored and containment levels are known. Landfills are designed to safely handle substances such as dog waste, cat litter, and dirty diapers. For biodegradable bags see http://www.lowimpactliving.com/products/Pet-Care/Doggie-Doo-Bags/343.

Did you know?
A day's waste from 1 large dog can contain 7.8 billion fecal coliform bacteria.

Flush it. Maybe.
For those residences on septic systems, flushing pet waste can potentially exceed the design capacity of the septic system. High volumes of hair and ash, not normally found in human waste, can interfere with septic system functions and clog drain fields.

If you are on a municipal sewer system and you can stand the yuck-factor, flushing is a highly desirable method of disposal. Most people, especially those with large or multiple dogs, are not comfortable with the notion of bringing outdoor pet waste indoors to flush it. If you can handle it, go wild!

Bury it. Maybe.
Dig a hole or trench that is
• about 5 inches deep,
• away from vegetable gardens, and
• away from any lake, stream, ditch, well or the water's edge.
Microorganisms in the top layer of soil will break down the waste and release nutrients to fertilize nearby plants.

To protect yourself and your family from disease, keep pet waste away from vegetable gardens and water supplies. Don't add pet waste to your compost pile. The pile won't get hot enough to kill disease organisms in pet waste. Landfills are designed to safely handle substances such as dog waste, cat litter, and dirty diapers. Yards are not.

Did you know?
Cryptosporidium, Leptospira, Salmonella, and E. coli can survive for months in feces or soil. Roundworms can survive for four years in soil.

Use a doggie septic system. Maybe.
If you have a location that will ensure that the effluent will remain safely away from water or vegetable gardens, you can consider a commercially produced pet waste digester, such as the Doggie Dooley (http://www.composters.com/pet-waste-products/doggie-dooley-pet-waste-digester-system_149_12.php). Please note however, that some experts claim these are no better than burial, since they essentially function like broken septic systems. Manufacturer literature indicates that they do not function properly where water tables are high, in low temperatures, and in some soil types common to our area. Manufacturer literature also cites reduced performance when used with dog foods containing high ash levels, which are common in many low-cost dog foods. Even assuming these devices function as designed, there is little if any evidence that they treat waste sufficiently to meet desired standards. Remember, pet waste is sewage just like human waste; using such a device to treat an equivalent amount of human waste is prohibited by law.

Did you know?
More than 990 dogs live in Kittery, producing waste equivalent to 250 people. More than 310 pounds of dog waste are dropped in Kittery backyards every day!

Never hose pet waste down storm drains.
Don't place bagged or un-bagged pet waste in a storm drain or hose pet waste towards storm drains as they drain directly to a stream, river, lake or other waterbody.

Kitties count too.
Improperly disposed cat waste and used kitty litter can also cause water quality problems. Encourage cats to use a litter box. Many cats won't use a dirty box, so make time each day to scoop the poop. Then empty it into the trash.

Many conventional kitty litter brands on the market are full of unpleasant chemicals that you (and your cat!) can breathe in when you disturb the litter. Consider using natural litter - just put the litter right into the trash. It will begin to biodegrade from there. For example: http://www.forotherlivingthings.com/green-tea-leaves-clumping-cat-litter-10-liter-bag-aprox-6-lbs-p-523.html.

For more information on pet waste and water quality, visit http://mainehealthybeaches.org/assets/pdfs/Pet_Waste_&_Water_Qualtiy.pdf.

PROTECT KITTERY WATERS

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MAINTAIN YOUR SEPTIC SYSTEM

Regular pumping is the single most important maintenance requirement of a septic system.

The Problem

Poorly located or neglected septic systems can pose a serious threat of nutrient and bacterial pollution to local waterways. A neglected system can also cost homeowners a lot of money. If a septic system is not regularly pumped and maintained, it can result in a total failure of the system. Septic system failure is an expensive proposition as it means that the entire system must be replaced at a cost of thousands of dollars! Play it safe for water quality and your pocketbook by taking care of your septic system.

Nitrogen loading from failing septic systems can adversely affect Maine's coastal ecosystems. When too much nitrogen gets into the water, it disturbs the natural balance by allowing too much algae (microscopic plants) to grow. The algae cloud the water and block vital sunlight to underwater plants. When the algae die and decay, they use up much of the oxygen needed by fish and shellfish, often killing them. Special "denitrifying" septic systems designed to reduce nitrogen loading to nearby coastal waters are available.

The Solution

When properly used and maintained, septic systems are a safe and efficient way of dealing with household wastewater.

Many homeowners are under the misconception that a septic system, once installed, will work forever without maintenance. This is not true! Most septic systems, even with maintenance, will work effectively for only an average of 15 to 25 years.

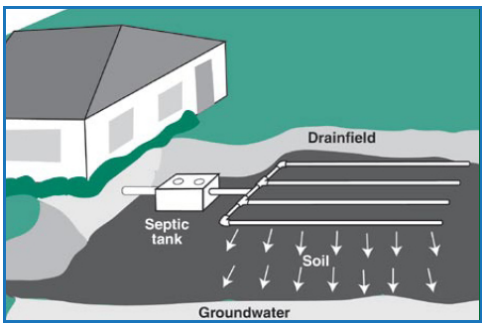
Did you know?

Foam on the water is not always a sign of a failed septic system. Natural foam has an earthy or fishy aroma. Detergent foam has a perfume scent.

To help protect against premature failure, the homeowner can follow a few simple procedures. These procedures help reduce sludge build-up, reduce water use, eliminate toxic waste, keep the system's bacteria working and protect the leaching system.

DO Checklist

- Inspect your tank for signs of sludge buildup and make sure the baffles are in working order.
- Pump your tank as needed (every 2-3 years). Regular septic tank pumping and inspection will prolong the life of your septic system. A septic system costs less than $300 to pump but $12,000 or more to replace and can affect the resale of your property.
- Mark your septic system so you can protect it from vehicles and encroaching trees and shrubs.
- Conserve water; install water-saving devices, such as front-loading washers and low-flow faucets and shower heads to reduce volume of wastewater.



- Use biodegradable soaps and minimize toxic household products - such as drain cleaner and anti-bacterial soaps - which can kill the beneficial organisms that keep the system running well.
- Contact a site evaluator if your septic system shows signs of failure; contact your local plumbing inspector if you see evidence of other malfunctioning septic systems.
- Plant shrubs, trees and grasses downhill from your system to act as a sponge. Keep small trees and shrubs at least 10' away from your leach field and large trees at least 20' away. The root systems could interfere with the infrastructure which can lead to premature system failures. Plant only grass over and near your septic system.
- Spread out your laundry loads to even out your water use and to avoid flushing your system.

- Point downspouts away from the drainfield.
- Dispose of non-degradable items such as fat, grease and oil, hair, tampons and disposable diapers in the trash. These materials will not break down and can cause clogging and premature failure of your system.

DON'T Checklist

- Don't use a garbage disposal—it adds 50% more solids to your system.
- Don't pour automotive oil, cooking oil or grease down the drain.
- Don't drive or park vehicles over the septic system or leach field. Doing so can compact the soil in your drainfield or damage the pipes, tank or other septic system components.
- Don't plant bushes or trees over the leach field.
- Don't use too much water, especially during rainy seasons when the ground is saturated.
- Don't pour paint or paint thinner down the drain.
- Don't use drain cleaners and other toxic chemical products.
- Don't use chemical or biological septic system cleaners, which can plug up the leach fields and ruin your system. Supplements and additives do not improve operation of your system. Some may actually harm your system by causing solids to be carried into the drainfield, which causes premature clogging. In addition, supplements containing organic solvents can cause groundwater contamination.
- Don't flush feminine hygiene products, cat liter, disposable diapers or other non-biodegradable products into your system.
- Don't flush medicines, particularly antibiotics.
- Don't use products labeled "antibacterial."

Did you know?

For clogged drains:

- Use a plunger or mechanical snake.
- Or pour one handful of baking soda and 1/2 cup of white vinegar down the drainpipe, and cover tightly for one minute. Repeat process as needed.
- Or pour 1/2 cup salt and 1/2 cup baking soda down the drain, followed by six cups of boiling water. Let sit for several hours or overnight, then flush with water.

What to Do if Your System Fails

Call the Maine Department of Health Engineering, at 289-5672. They may refer you to your local plumbing inspector or a licensed site evaluator.

Help is on the way.

The Maine Department of Environmental Protection's Small Community Grant Program provides grants to help replace malfunctioning septic systems. Grants can be used to fund from 25% to 100% of the design and construction costs. Individual families may qualify for the grant program if their federal taxable income for the previous year was $40,000 or less. Commercial establishments may qualify if their gross profit for the previous year was $100,000 or less. A sliding-scale grant percentage applies depending on the amount of income or profit. Contact Kittery (439-1633) or Eliot town offices (439-1817) for more info.

PROTECT KITTERY WATERS

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REMOVE THE TOXICS

Many household products contain hazardous ingredients which, if not properly handled, may end up in our waterways. We can limit our impact by reducing or eliminating the most toxic products and choosing alternatives that are less harmful.

The Problem

Many people think products offered for sale on the grocery shelf are safe. Not true! Many household products contain hazardous ingredients. Common cleaning products, hobby supplies, and drain cleaners contain a host of chemicals we don't want in our waterways.

Cleaners, stains, varnishes, pesticides, fertilizers, herbicides, automotive batteries, antifreeze, brake fluids, motor oil and filters, aerosols, household batteries, oil and latex paints, and solvents are a few of the common household products that are hazardous wastes. When these substances are not stored and disposed of properly they are a health risk to humans and the environment. Exposure to hazardous wastes can have short-term and long-term effects ranging from temporary dizziness to cancer.

Excess nutrients, chemicals and pathogens degrade water quality and harm wildlife, aquatic and human life. Organic matter, such as leaves and grass, animal waste and harmful chemicals in runoff or seepage can get into our groundwater from spills or improper disposal.

Did you know?
American households throw away more than 14 million pounds of hazardous waste each year.

The Solution

When choosing a product, take a moment to read the label. Key words alert us to the hazardous nature of many products. "Caution," "Warning" and "Danger" signify potential hazards to human health and the environment. Choose the least toxic alternative, and if you must use a hazardous product, make sure it is used up or disposed of properly when you are through. Follow directions carefully and read warning labels on all products. Even small amounts of these materials in the surface water can threaten fish, waterfowl, insects, household pets, and humans.

Reduce or eliminate the use of chemicals where possible by using non toxic or less toxic products. Buy only the amounts needed and use product as instructed on the label.

Try making your own cleaning compounds – it worked for Grandma, and saves money, too! Use one or more of these alternative cleaning products:

- **All purpose cleaner:** mix a cup of vinegar in a pail of water. Use for floors and surfaces.
- **Window cleaner:** Mix one part vinegar to four parts water in a spray bottle.
- **Bathtub and sink cleaner:** Sprinkle baking soda, scrub, and rinse.
- **Toilet cleaner:** mix 1/2 cup borax with 1 gallon warm water. Pour into toilet bowl, then scrub with toilet brush. Or use baking soda and vinegar or a non-chlorinated scouring powder.
- **Laundry soap:** Use a phosphate-free soap.
- **Carpet spot cleaner:** Apply club soda immediately, blot dry, then repeat. Or sprinkle with cornmeal and cornstarch and vacuum after 30 minutes.
- **Drain cleaner:** pour 1/2 cup baking soda down the drain, followed by 2 cups vinegar. Cover with a pot lid for 10 minutes. Then pour 2 quarts of boiling water down. (You may have to repeat these steps, but it works!)
- **Furniture/wood polish:** Rub furniture with 1 tablespoon of lemon oil mixed in one pint of mineral oil.
- **Oven cleaner:** mix 2 teaspoons borax and 2 tablespoons liquid soap in a spray bottle of warm water. Spray in warm oven. Let stand for 20 minutes, then wipe clean.
- **Ant control:** Pour a line of cream of tartar, red chili powder,

Did you know?
Our homes produce up to 20% of all toxic pollution in municipal sewage.

paprika, or dried peppermint leaves at point of entry.

- **Flea control:** Give pets nutritional yeast, garlic tablets, or vitamin B as preventatives; prepare herbal baths with fennel, rue or rosemary to repel fleas.
- **Deodorizers:** Use an open box of baking soda in your refrigerator or closets; for rooms, simmer cinnamon and cloves in water or place potpourri (herbs or dried flowers treated with scented oils) in open dishes.
- **Chlorine bleach:** Use oxygen bleaches, borax or OxyClean as a safer alternative.

Properly Store and Dispose

Properly store unused hazardous items in a cool, dry area away from children, pets and the water. Store materials in a safe, dry place were they will not leak into the environment or be washed into surface waters when it rains. Keep products in their original container, or ensure they are properly labeled if placed in another container.

Manage household hazardous waste, such as left over latex paint, by giving it to a neighbor, or donating it to a non profit organization. Dispose of left over hazardous household products by taking them to the transfer station (aka "the dump"). The Town of Eliot holds an annual hazardous waste day – check with the Town Hall for more information. The Town of Kittery Transfer Station accepts hazardous waste all year long. See http://www.kittery.org/Pages/KitteryME_DPW/RecoveryFees.pdf for more information and fees.

Never dump items such as used motor oil, cleaners, paint or other hazardous materials down a storm drain, on the ground, or into your septic system. Storm drains lead directly to our waterways. Materials dumped on the ground or washed into septic systems could seep into soils and contaminate the groundwater supply.

Did you know?
150 chemicals found in the home are connected to allergies, birth defects, cancer and psychological disorders.

Recycle

- **Motor oil:** Both Eliot and Kittery's Transfer Stations accept used motor oil.
- **Antifreeze:** Some local garages recycle antifreeze. Also, you can reuse antifreeze; strain it through a pair of nylons and mix with fresh antifreeze. Do not leave outside to evaporate. Antifreeze tastes sweet to children and animals but is highly toxic! Disposal in a septic system or sewer system may kill the bacteria that make these systems function properly.
- **Old gasoline:** Some local garages accept old gasoline. You can also mix one part old gas with five parts fresh gas and use normally.
- **All other materials:** If the substance has not become unusable, share it with friends or family.
- **Computers and televisions:** http://www.maine.gov/dep/rwm/recycle/computerrecy.htm
- **Rechargeable batteries:** http://www.maine.gov/dep/rwm/recycle/nicad.htm
- **Thermostats:** http://www.maine.gov/dep/rwm/mercury/hgthermo.htm

Kittery Transfer Station information: http://www.kittery.org/Pages/KitteryME_DPW/Recyclinglist.pdf
Eliot Transfer Station information: http://www.eliotmaine.org/RecyclingHomePage.html

Report All Hazardous Waste Spills

To report a hazardous waste spill, call the Maine Department of Environmental Protection 24-hour at 800-452-4664. For oil spills, call the Maine DEP at 800-482-0777. You can call these numbers for any problem that requires immediate attention. Fore more information on spills, visit http://www.maine.gov/dep/rwm/emergspillresp/faqs.htm.

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STOP USING OPTICAL BRIGHTENERS

For years, laundry detergent companies have been fighting to win the title of "brightest whites and colors." In order to make your fabrics appear cleaner and brighter, many popular companies use what are known as "optical brighteners" in their detergent formulas. But what exactly are optical brighteners? How do they work, and what environmental repercussions can stem from their use?

What are optical brighteners?

Optical brighteners, also called brightening agents, fluorescent bleaches, and optical whiteners, are chemicals designed to help fabrics appear to be cleaner, brightening colors and lessening the natural yellowing of fabric over time. Some examples of optical brighteners are coumarins, naphthotriazolylstilbenes, benzoxazolyl, benzimidazoyl, naphthylimide, and diaminostilbene disulfonates. These ingredients are often shown on the labels of laundry detergents, but often are omitted.

How do optical brighteners work?

You may recall your mother or grandmother using a product called "bluing" in her laundry to make whites appear brighter. Bluing agents remove yellow light to lessen the yellow tinge, but optical brighteners act differently. These agents absorb ultraviolet light and emit it back as visible blue light. This blue light masks any yellowing that may be present in the treated material and makes it seem brighter and whiter than it would otherwise naturally appear to the eye. Your clothes are no cleaner than they would be if you used a detergent without brightening agents, but they appear to be.

Optical brighteners are not effective unless they remain on the fabric after washing. Clothes washed in detergents containing these agents will have a chemical residue left behind on the fabric. This is why line-dried clothing often feels stiff unless fluffed in the dryer. Clothing laundered in detergent without optical whiteners will feel soft right off the line.

Can optical brighteners affect my family's health?

In terms of human health, exposure to optical brighteners, which remain on laundry by design, can cause eye irritations and skin reactions in sensitive individuals. Many times, skin rashes commonly blamed on fragrance and dyes are actually caused by optical brighteners, so these detergents should not be used by individuals with sensitive skin. Brightening agents bind irreversibly to the skin, and while this has not been shown to negatively affect health, it has also not been proven safe. There is simply not enough information available to determine whether these brighteners are safe to use over long periods of time.

What are the environmental ramifications of using optical brighteners?

Optical brighteners are less than benign from an environmental perspective. Optical whiteners contain chemicals that can be toxic to fish and other animal and plant life. Many have also been shown to cause mutations in bacteria. In addition, these chemicals are very slow to biodegrade into their less harmful component parts, so pollution remains in waste water for long periods of time. This means that once they are introduced into local waterways via household wastewater, they will remain there as pollutants for some time, negatively affecting water quality and animal and plant life.

Which detergents contain optical brighteners, and which ones don't?

Many of the most popular laundry detergents contain some form of optical brighteners, and while this fact is often apparent on the label, this is not always the case. Some detergents containing optical brighteners include All liquid, Arm & Hammer liquid, Dreft, Gain, Purex, and Tide.

A good rule of thumb is that if a detergent claims to be biodegradable, it probably does not contain optical brightening agents. A few of the popular detergents that do not contain these chemicals are All powder, Allens Naturally, Cheer (all versions), Seventh Generation, and Woolite.

Seventh Generation Natural Laundry Detergent (Liquid or Powder)

Features and Benefits

- Non-toxic & biodegradable
- Hypo-allergenic
- Free of phosphates & optical brighteners
- Safe for septic & greywater systems
- Not tested on animals
- Kosher-certified

Available Sizes

- 2X Concentrate Liquid - 32 oz. 20 loads, 50 oz. 32 loads, or 100 oz. 64 loads
- Powder - 48 oz. 18 loads or 112 oz. 42 loads

Available Varieties

- Free & Clear
- White Flower & Bergamot Citrus
- Blue Eucalyptus & Lavender (liquid only)

Where can I buy watershed-friendly detergents?

The following are Seventh Generation retailers. Call to confirm availability. Visit the Seventh Generation website at http://www.seventhgeneration.com/coupons for a $1 off coupon.

Golden Harvest
47 State Rd
Kittery, ME 03904
(207) 439-2113

Peppercorn Natural
43 S. Main Street
Plymouth, NH 03264
(603) 536-3395

Hannaford
800 Islington St
Portsmouth, NH 03801-4272
(603) 436-6669

Rising Tide Health Foods
6165 State Road
Kittery, ME 03904
(207) 439-8898

Hannaford
5 Hannaford Dr
York, ME 03909-1667
(207) 363-5357

Hannaford
630 Lafayette Rd
Hampton, NH 03842-3348
(603) 926-9808

Portsmouth Health Foods
151 Congress Street
Portsmouth, NH 03801
(603) 436-1722

Philbricks Fresh Market
77 Lafayette Plaza
Portsmouth, NH 03801
(603) 964-8394

Hannaford
833 Central Ave
Dover, NH 03820-2506
(603) 749-9232

Source: http://www.associatedcontent.com/article/259584/optical_brighteners_are_your_clothes.html?cat=46

PROTECT KITTERY WATERS

Spruce Creek Watershed Improvement Project
Town of Kittery, Maine
200 Rogers Road Extension
Kittery, Maine 03904
www.protectkitterywaters.org