

Stormwater Currents



A Publication
of the Town of
Narragansett

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Rarely has a town been more beholden to water. Water shapes our territory, from the Pettaquamscutt to the Bay that shares our name. Our waters and our fisherfolk provide some of the world's finest seafood, enriching our economy and our table. Mists from the Bay roll over the land providing moisture and warmth. . . . conditions nurturing for all living and growing things. Our estuaries shelter young fish and shellfish, and provide harbor for migrating birds. Our aquifers provide delicious, safe drinking water. Our town is destination for people from throughout the world who travel here to enjoy our stunning beaches and stone cliffs, sculpted by water.

Our present and future depend upon our protecting our water quantity and quality. All of us need to be involved. In these pages, we'll provide you with tools and, hopefully, some inspiration.

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URI Students Part of Pollution Solution

This past September, the Town teamed up with the RI Stormwater Solutions campaign, URI students, Save the Bay and Surfriders' RI Chapter to educate the public about our stormdrain system. On Saturday, September 20th, the students attached "Don't Dump, Drains to Bay" labels to stormdrains around Narragansett.

Vanessa Venturini, who coordinated and supervised the event under the auspices of URI Cooperative Extension, reported that students simultaneously participated in the International Coastal Cleanup, an event held worldwide to clean litter on beaches, locally sponsored by RI Audubon. The students recorded types and amounts of trash they picked up near the storm drains. Vanessa says, "A great part of this particular event was that we educated so many people walk-

ing by about the connection between the litter and other pollution and water and beach quality."

The main objective of holding these events is so that people can understand that the litter, pesticides, fertilizers, oil from cars, etc. that wash into the streets and then stormdrains empty out at the nearest waterbody. "Polluted stormwater closes beaches and fishing grounds, threatens water resources, and harms natural areas," adds Vanessa. The marking event not only educated the students who took part and the passers-by, but will continue to educate folks as they walk by the stormdrains and read the labels.

For more information on how to reduce water pollution, or to volunteer for future marking events, visit www.RIStormwaterSolutions.org.



Photo courtesy of URI Cooperative Extension

THIS ORGANIC YARD

Protect the health of your family and the environment, and still have a lovely lawn, by going organic. It's easier than most people think.

When the Town of Narragansett decided to drastically reduce their use of chemicals, their lawns and playing fields were already established. The Parks & Recreation Department now uses very few chemical inputs, virtually no herbicides or insecticides. Their organic inputs and practices have increased the health and durability of all their greenways.

Soil is not simply a plant medium, but a living, breathing organism. Beneath our feet, this ecosystem converts complex organic compounds into plant food and continually improves its own structure and health. Organic treatments increase soil's ability to hold water and air, so roots drink heartily, but don't drown. Organic nutrients leach from soil more slowly than synthetics, so are better at protecting our waterways.

Healthy soil means healthy plants, less susceptibility to disease and pests, and less maintenance. Here are some easy steps and resources.

Basic Practices:

Get your soil tested. It's easy and inexpensive. Find out how at: <http://www.uri.edu/ce/factsheets/sheets/soiltest.html>.

Put those grass clippings to work.

The best organic fertilizer for grass is, you guessed it, grass! Cut off only 1/3rd of the blade at a time, don't mow when it's wet, and you can leave the clippings on the lawn even without a mulching lawn mower. As with any lawn input, keep it on the grass, and out of storm drains and waterways.

Mow high. Barry Fontaine, Director of Parks & Recreation, reports that they mow grass to 2.5 inches, but increase to 3 to 3.5 inches during dry weather or water bans. Longer blades shade themselves so less moisture evaporates. Grass tends to grow deeper roots if the blades are

taller, which means that plants can reach down for water when the top soil layers are dry.

Reduce thatch: If your thatch is over 1" thick, NOFA (Northeast Organic Farming Association) suggests mechanically de-thatching using a vertical slicing machine, which can be rented inexpensively. (<http://www.organiclandcare.net/files/NOFA%20Standards.pdf>)

Barry Fontaine shares a successful technique: night crawlers. "The use of the night crawlers has been an eye-opener for me," he says, "allowing us to free up staff time that would have been used for mechanically aerating and de-thatching." Barry's crew puts down night crawlers in the evening. The worms aerate and fertilize, processing soil through their bodies. After a rain, birds come in to feast on the worms that have come to the surface. Their pecking further aerates the soil, reduces thatch, and helps control pests.

Water smart. Deep but infrequent watering encourages roots to penetrate more deeply. Water in the mornings. Evening watering encourages fungal disease. An established lawn will only need an inch of any kind of water per week.

Tolerate diversity. If it's pretty and blends in, leave it. Sometimes a patch of "wildings" adds interest. The author left a patch of bird-seeded sedum that grew into a beautiful chartreuse swatch, perfectly framing a perennial border. Free landscaping! Or, mow high to shade out weeds and weed seeds. Use corn gluten meal (see below) before weeds emerge, and vinegar after they do. (Vinegar's effectiveness at: <http://www.ars.usda.gov/is/pr/2002/020515.htm>) The Master Gardeners are a great source of information at: <http://www.urimga.org/>, or 1-800-448-1011.



Keep pests within limits.

A healthy lawn tends to keep pests in balance. Integrated Pest Management (IPM) uses understanding of the life cycles of pests and their interaction with the environment to craft a more effective and environmentally sensitive approach.

IPM uses targeted pesticides only when other approaches fail. More IPM information at: <http://www.ipm.ucdavis.edu/PMG/menu.homegarden.html>. Or, take free, online short-courses such as "Pest Identification-Weeds" and "Turfgrass IPM" from the University of Connecticut at: <http://www.hort.uconn.edu/ipm/>.

Control grubs. Grubs are usually the white crescent-shaped larval stage of Japanese beetles. Healthy grass can tolerate up to 10 grubs beneath each square inch. But, if your grub population is out of control, big, irregular patches of your lawn can die, or feel spongy underfoot. As with all pests, proper identification is essential before you treat, and Master Gardeners can help. An effective treatment is milky disease (milky spore). Apply it around forsythia time, again in the fall, and then once the following spring. As each infected grub dies, the beneficial disease is released into the soil. Though it can take 3 to 5 years for complete control, this treatment is reported to last at least a decade, and affects only grubs.

If you fertilize, use organics. (approximate % of nitrogen, phosphorus, potassium) *Corn gluten meal (10-0-0)* provides slow release nitrogen and substances that inhibit a seed's tiny feeder roots so they can't get established. They only inhibit sprouting seeds, so use the meal on established plants and your lawn. This natural herbicide is harmless to beneficial insects, soil organisms, pond/ stream life, pets, and your children.

Bone meal (1-11-0) aids cell and seed formation, cell division, and root growth.

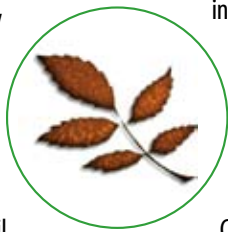
Fish emulsion (5-1-1) is partially decomposed finely pulverized fish. The strong odor dissipates in a day or two.



Seaweed Extracts (9-2-7) are an especially good source of trace elements.

Manures: Nutrient concentrations vary widely, depending on the animal. Although concentrations are lower than in manufactured fertilizers, manures improve soil structure and increase water holding capacity. Use composted manure only. Blend with soil for initial preparation. For topdressing, spread no more than 1 cubic yard for 1,000 square feet (1/4" to 1/3" deep). Sweep it off the blades and down into the turf with a push broom. Water lightly.

Invite your lawn to tea. Fill a large barrel 2/3rds full of rainwater, shovel in a few scoops of composted manure, and let it sit, stirring a couple of times, for a week or more. Dunk a watering can in and use the "tea" on the lawn. (If you use a sprayer, use a filter so it doesn't clog.) Add a new scoop of manure every month or so, and work the dregs into your garden in the fall.



Your own compost: Turn your garbage from waste to resource. RI Resource Recovery Corporation sells inexpensive and unobtrusive bins for \$40 each. Email David Bordieri, David@rirc.org or call 942-1430 x256 for information on how to get one. Master Gardeners also give fun courses on composting.

Vermicompost: The Worm Ladies of Charlestown (www.angoraandworms.com) can help you set up a small worm composting bin right in your kitchen. It won't smell a bit while those worms digest your kitchen scraps. The resulting worm castings are huge in nutrient value.

Organic compost: You can buy organic compost by the yard, and even get it delivered. Find sources by web-searching: organic compost RI.

Fertilize only the lawn. Any kind of fertilizer can have adverse effects on waterways. RI Rivers Council says, "Even a modest increase in phosphorous can trigger . . . algal blooms . . . and create unlivable con-

ditions for certain fish, invertebrates, and other creatures." So, please, sweep it up and put it back on the lawn. Also, more is not better. Use only the recommended amount, at needed times.

What about cost? Organic lawn care is generally less expensive than conventional in the long run. As the soil gets healthier, it will feed your grass itself. Healthy soil and healthy plants tend to have less pests, so you'll need less herbicide and insecticide. Cost in time can also be reduced. Compost top-dressing needs to be done very infrequently, and grass clippings are free, and easier to leave than to rake up. Organic inputs can often be purchased at farm/feed stores in bulk, for less.

Going organic is getting to know and care for the "nature" of your lawn, which can be a pleasurable adventure. As your yard's health increases, it will need less "healthcare," from you and from the store. Enjoy!

Reducing Runoff in the Pier Area

Typical pollutants carried in rainwater, and to our waterways, from parking lots include heavy metals/hydrocarbons from roofing materials and vehicles, and fecal coliform bacteria from bird droppings/other animals.

Treating the problem can be:

1. Minimizing the amount of pollutants available to stormwater ("source reduction"),
2. Treatment at the end of the pipe, just before the runoff enters a waterbody (Examples: structures at Circuit Drive and Mettatuxet Beach), and
3. Tracing stormwater's route from start to finish, looking for opportunities to interrupt the flow path. Small practices that blend into the landscape can treat small amounts of runoff and, at the same time, reduce flash flooding and increase groundwater recharge.

Narragansett has taken to heart improving water quality by reducing the amount of stormwater runoff entering the storm drain from Town facilities. At the Ouida Street pump station, the Town recently installed an infiltration chamber to capture runoff from the roof.

The Town would, also, like to replace the asphalt in the Town Beach parking lots with permeable paving, allowing water to infiltrate rather than run off. A grant proposal was submitted to RIDEM to help defray the additional costs, which would include replacing the subsoil and using a special permeable asphalt mix.



Installed infiltration chamber

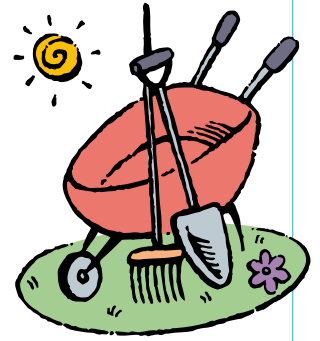
Mutt Mitt Dispensers

In its commitment to reduce fecal coliform in Narragansett's waterways, the Town has installed more mutt mitts to encourage pet owners to scoop pet waste. As Kris Stuart, Stormwater Specialist for SRICD, says, "Aside from the obvious yuck factor, all the water quality studies show the presence of fecal coliform bacteria, and dog waste is a major culprit." In addition to the dispensers at Mettatuxet Beach and on Circuit Drive, two more are now on the seawall and 2 more in Jerusalem. The Town is now seeking funding to install 10 more dispensers, submitting a grant application to DEM in September. The results are anxiously awaited! Public works employees have noted that some people with good intentions have been picking up dog poop and neatly dropping into the catch basins, wrapped in plastic bags! Unfortunately, this defeats the purpose, shortening the trip to our waterbodies, and further insuring that swimming and fishing will be at risk in our town.



FAMILY FUN

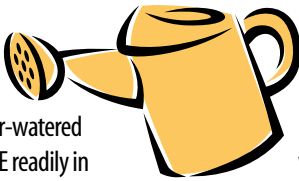
Let's Look At The Lawn



Water is finite. Here in Rhode Island, surrounded by it, we are lulled into thinking that water is in endless supply. Yet, as water supplies diminish, water is now being termed "the next oil."

Worldwide, and in the US, water wars are being fought as large corporations to small towns vie for control of water supplies. Take the following quiz to learn more about what you can do.

- 1** A healthy lawn needs:
 A. 1" per week
 B. 2" per week
 C. 5" per week



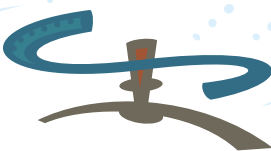
A. 1" per week: An over-watered lawn will dry out MORE readily in dry conditions. Over-watering stresses grass, lowering its resistance to disease and insects. Use an inexpensive rain gauge and water once a week, only when the lawn has not had 1" from rain.

- 2** In summer, water use increases in Narragansett by how much?
 A. 24%
 B. 56%
 C. 78%

C. This past summer, water use increased a whopping 78%. Even with the weekend and odd/even water ban!

- 3** Once a sprinkler system is installed, you're locked into its capabilities.
 A. True
 B. False

B. False: Adjusting your time clock during weather events is easy. Insure even watering by placing shallow empty cans in different areas of your lawn while sprinkling, and comparing the amount of water in each. This and a visual inspection will tell you where your system needs adjusting. You can retrofit with a rain shut-off device and/or a soil moisture sensor. Rain shut-off devices are inexpensive and easy to install yourself. Soil moisture controls



are more pricey (\$250 should buy an adequate system) but require a competent do-it-yourselfer or professional. But, once installed, system maintenance will be minimal. (Learn more at: www.h2ouse.org.)

- 4** Installing rain barrels is an efficient, effective substitute for using drinking water on lawns and gardens.
 A. True
 B. False

B. True: Forty-nine inches of rain falls on Narragansett each year. An average house is around 2330 square feet, spread out over two floors, with 34,251 gallons of water sheeting off the roof every year. The EPA says that the average lawn uses 10,000 gallons of water over and above the rain that falls on it. So, link up a string of rain barrels, and water for free!

- 5** All grass is created equal.
 A. True
 B. False

B. False: Kentucky bluegrass, the kind you almost always get with lawn sod, uses lots of water, requires high nitrogen, does poorly in shade, and spreads aggressively. Fescues, on the other hand, use much less water and nitrogen, grow better in shade (especially the fine fescues) and tall varieties bunch, while creeping red fescue spreads. There are now even seed mixes called "no mow" which grow 5"-6" tall and lean over, forming a gently waving surface. (Type "no mow lawn" into your search engine for information and sources.) There are also lawns with more than grass. See "This Organic Yard" for more on this.

- 6** A lawn will use less water than an equivalent garden area.
 A. True
 B. False
 C. It depends . . .

C. It depends, mostly on what is in your garden and lawn. Most grasses are really thirsty. In contrast, gardens, especially those with local and/or drought tolerant plants, may never need watering. Woodland generally doesn't need watering. Trees and shrubs will shade the ground and mulch themselves, decreas-

ing evaporation. They develop deep root systems that travel down to where the water is. They filter pollutants from stormwater. Trees/shrubs also have the added benefit of wind breaking (warmer in winter) and shading (cooler in summer).

- 7** Lawns need regular watering to stay healthy.
 A. True
 B. False
 C. It depends . . .

C. It Depends. If you crave an ever-green expanse, then, yes, it will need watering. In some savvy circles, however, "Brown is the new Green." Most lawns, allowed to go dormant, will bounce back, as you will notice in the fall or after a rain when lawns once again green up. Generally, grasses will survive, if they get any water over a month's time. Consider allowing your lawn to go dormant during dry seasons. And save the drinking water for, well, drinking.

- 8** Longer grass needs more water.
 A. True
 B. False

B. False. If your lawn mower is not on its highest setting, your lawn's probably too short. Longer grass shades itself, and will need less water. Leave your grass between 2½" and 3" long.

- 9** All fertilizers, conventional or organic, do the same thing for your lawn.
 A. True
 B. False

B. False. All nitrogen will boost blade growth, but organic fertilizers have many more elements that promote healthy lawns. If you use manure, compost or grass clippings, you add organic matter to the soil. Organic matter lightens the soil so air and water travel to roots more easily, decreasing run-off. Organic matter increases the soil's water-holding capacity; roots stay moist longer between rain events. Too much of any fertilizer can leach into groundwater or run off, yet organic fertilizer is generally safer because it releases nutrients more slowly.

STORMWATER YOU CAN MAKE A DIFFERENCE

by Mark Bullinger, Executive Director, Salt Ponds Coalition

Stormwater runoff occurs when heavy rains or snowmelt sheet over the surface of the ground rather than sinking in. Along the way, the runoff picks up contaminants that are common around houses. Around the home, woods, which are very good at soaking up water, are often replaced with impermeable surfaces such as driveways, patios, and roofs, and less permeable surfaces, such as lawns. These tend to promote more runoff.

During heavy weather or fast snowmelts, the large volume of surface water can overwhelm the ability of the soil to take it in. Whether the soil is saturated, frozen, or rock hard from extended heat, stormwater on the move will flow downhill into a storm basin or small stream and then on towards the lowest elevation in our area – sea level.

Water running off a drive can carry petrol products, and yard runoff carries fertilizers, weed killers and waste from dogs and/or wild animals like deer, rabbits, and geese. All of these compounds wash into the wetlands. Petrol products are obviously bad and organic wastes are high in nitrates, which will cause murky green water if they build up in the salt pond. Animal waste in the pond also results in high bacterial levels, which can cause human illness.

Roofs represent a lot of square feet of water collection, which is then concentrated through downspouts. All that water flowing over a narrow area quickly overwhelms the soil's ability to absorb water, resulting in extra water flowing across the yard.

So... what to do?

- The easiest step is to stop applying fertilizer and weed killers to your yard, and to clean up after pets that use the great outdoors to relieve themselves. A separate article in this issue is focused on pond-friendly yard care.

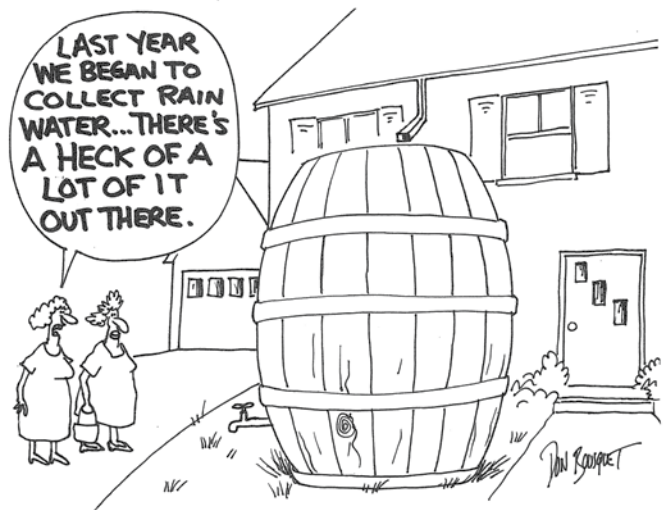
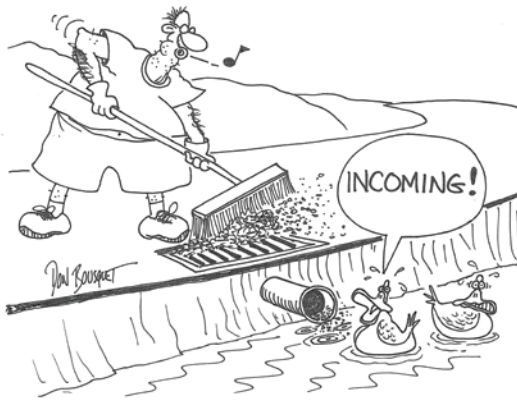
- If you live right on a waterbody or a wetland, maintain a barrier of wild vegetation. This will discourage geese from congregating and will help slow the flow of surface water, allowing it to infiltrate into the ground. Coastal Resources Management Council (CRMC) encourages buffers, but might require you consult with them before installing one. They also have a listing of recommended plants on their website.

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- Install a rain garden to catch concentrated runoff from driveways, drain pipes, or downspouts. A rain garden is a constructed depression lined with sand, crushed stone and some topsoil and planted with flowers and grasses, such as irises, that can thrive when their feet are alternately wet and dry. The rain garden can be an attractive landscape feature

and it retains surges of water, allowing it more time to infiltrate so that the soil can help filter out contaminants.

- A drywell or ground water regeneration device is also a good way to handle stormwater. It is a buried concrete tank that collects water and gradually leaches it into the ground.
- Install a rain barrel to catch roof run-off and water gardens and shrubs.
- Driveways constructed of permeable surfaces such as crushed stone or shells allow water to infiltrate. Paving stones with space between the stones also let water through and can be used for the full drive, or as a strip across a pitched drive to catch runoff.
- Vegetated swales are also a useful feature, which can channel water and treat it at the same time. Swales utilize grasses, reeds and flowering plants to slow down flow, infiltrate more water, and take up nutrients through the roots.



Stormwater Currents

A publication of the Town of Narragansett, Stormwater Currents is issued annually and distributed to all households throughout Town as part of the Phase II stormwater program. The Engineering Department oversees content, and can be reached with questions at 401-782-0637. Please ask for John Lawless, Project Engineer. The newsletter was produced for the Town by the Southern Rhode Island Conservation District.

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