

BE A LEAF HERO

HELP KEEP OUR WATERWAYS CLEAN

TIP #1

KEEP FALLEN LEAVES OUT OF STREETS.

Leaf litter leaches nutrients into stormwater runoff and contributes to pollution in our waters.



Visit stormwater.capecodcommission.org for more tips.

BE A LEAF HERO

HELP KEEP OUR WATERWAYS CLEAN

TIP #2

CLEAR STORM DRAINS OF DEBRIS.

Leaf litter and yard debris plug storm drains and increase flooding issues.



Visit stormwater.capecodcommission.org for more tips.

BE A LEAF HERO

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TIP #3

DON'T DUMP IN DITCHES OR STREAMS.

Decaying leaf litter releases excess nutrients causing eutrophication and algal blooms.



Visit stormwater.capecodcommission.org for more tips.

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TIP #4

COMPOST LEAVES & YARD CLIPPINGS.

Reduce added chemicals in your yard and garden by creating a natural fertilizer with composted leaves.



Visit stormwater.capecodcommission.org for more tips.

Top 10 Ways to Be a Good Septic Owner

- Have your system inspected every three years by a qualified professional or according to your state/local health department's recommendations
- Have your septic tank pumped, when necessary, generally every three to five years
- Avoid pouring harsh products (e.g., oils, grease, chemicals, paint, medications) down the drain
- Discard non-degradable products in the trash (e.g., floss, disposable wipes, cat litter) instead of flushing them
- Keep cars and heavy vehicles parked away from the drainfield and tank
- Follow the system manufacturer's directions when using septic tank cleaners and additives
- Repair leaks and use water efficient fixtures to avoid overloading the system
- Maintain plants and vegetation near the system to ensure roots do not block drains
- Use soaps and detergents that are low-suds, biodegradable, and low- or phosphate-free
- Prevent system freezing during cold weather by inspecting and insulating vulnerable system parts (e.g., the inspection pipe and soil treatment area)



It's Up to You!

During every rainstorm, pollutants left on parking lots, driveways, roads and yards are washed down storm drains that flow into natural waterways. Your community is working with citizens and businesses to clean-up stormwater runoff and improve the health of our lakes, ponds, streams, and wetlands.

Homeowners can do their part in improving the health of our waterways by adopting the swimming pool discharge practices listed within this brochure.

It's the Law

Sending pollutant-laden runoff down the storm drain is not only bad for the health of our waterways, it's illegal. State and federal laws prohibit the discharge of pollutants into surface water, stormwater, and groundwater.

Report Pollution

If you notice illegal dumping, or see, hear about, or even suspect activity that you believe is against the law and placing people's health or natural resources at risk, contact the Stormwater Coordinator in your Town immediately. Visit the Stormwater Management webpage for additional information.

Many pool owners drain their swimming pools to reduce maintenance and potential damage from freezing during the winter. Please follow the pollution prevention practices listed in this brochure when draining your swimming pool or hot tub to ensure you have done your part to keep all of our waterways clean and healthy.



Wachusett Reservoir Watershed
Department of Conservation and Recreation
Division of Water Supply Protection
180 Beaman Street
West Boylston, MA 01583
(508) 792-7806
www.mass.gov/dcr/watersupply.htm
March 2011

dcr
Massachusetts



Swimming Pools and Surface Water Quality

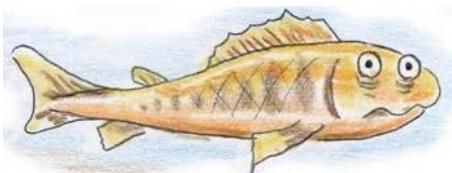


Best Practices Guide for Swimming Pool Owners

Pollutants that enter most storm drains ultimately end up in local ponds, streams, or wetlands. It could even reach a drinking water supply.

Swimming pools are a major source of chlorinated water discharged into storm drainage systems.

Chlorinated water discharged directly to surface waters or via storm drains has an adverse effect on local water quality.



Chlorinated water from swimming pools that has been discharged into a storm drain, street or gutter ends up in a stream or river where it produces by-products that are highly toxic and carcinogenic to fish and other wildlife.

These by-products then can combine with other organic materials to form extremely toxic organic chemicals.

Best Practices

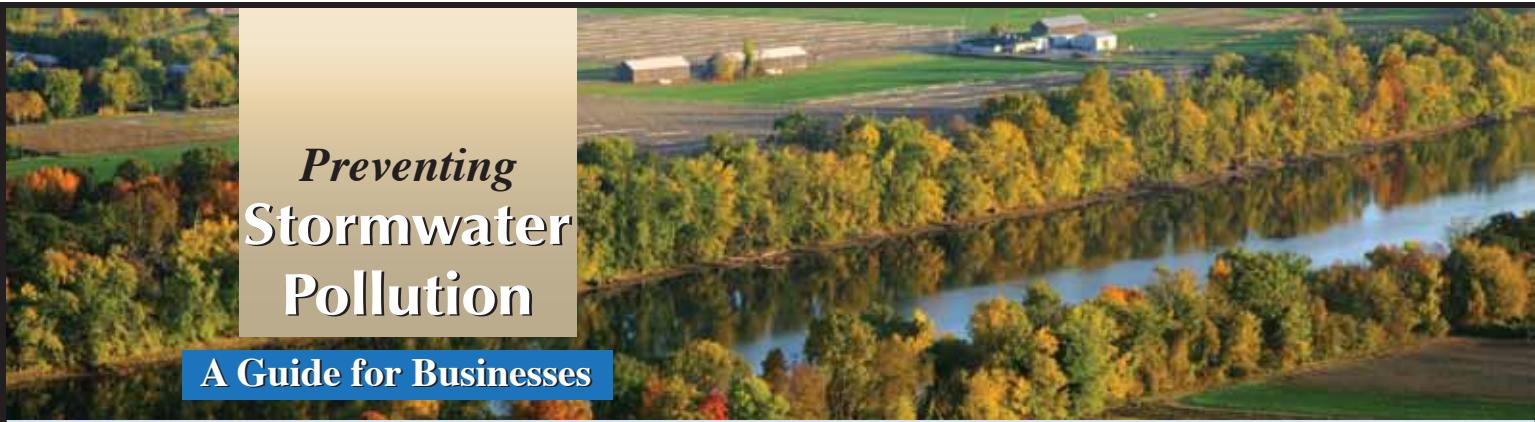
Never drain pool or hot tub water directly into a body of water (lake, stream, wetland). The best option is to discharge chlorinated water over landscaping when the following provisions are met:

- Shut off the chlorination system or stop adding chlorine several days before draining pool water. Chlorine levels in discharge and filter backwash should be lowered.
- Make sure the pH level is between 6.5 and 8.5, the normal pH range of surface and ground waters.
- If your pool contains algae or a black film, collect the algae and flush down the toilet. Do not put it in a stream, lake, or river because algae is a potential pollutant.
- If your pool is cleaned through an acid cleaning or by water pressure, make sure pH levels are normal before draining the water. Filter out any paint chips that may break away.
- Direct pool water and backwash over grassy or landscaped areas to help filter discharge before it reaches a storm drain. Drain pool water where it will not flow directly into a street, gutter, or someone else's property.

More Pollution Control Practices

- Store pool chemicals safely, where they will not be subjected to rain events.
- Use fertilizers and pesticides sparingly or not at all.
- Landscape your yard with bushes, trees, and mulched beds to produce less runoff.
- Do not dump yard waste in streams.
- Inspect and repair your septic system regularly.
- Wash cars on a grassy area with phosphorus-free detergents or use a car wash that recycles wash water.
- Sweep sidewalks and driveways and dispose of sweepings in the trash.
- Pick up pet waste and cat litter and dispose of in the trash.
- Fix any vehicle leaks.





Preventing Stormwater Pollution

A Guide for Businesses

There is a big difference between a sanitary sewer and a storm drain.

The **sewer system** takes all wastewater from toilets, sinks and showers to a wastewater treatment facility, where the water is treated before it is discharged to a water body.

The **storm drain system**, on the other hand, collects rainwater from city streets and urban areas to prevent flooding. Unfortunately, chemicals, oil, trash and other debris that have been spilled accidentally or intentionally can also enter the storm drain system. The water from storm drains typically flows untreated to a nearby stream, river or other water body, causing water pollution.



Storm Drain / Catch Basin



Storm Drain Outfall

Stormwater Pollution causes erosion, habitat degradation, and poor water quality, impacting commercial and recreational fishing, swimming, and boating.

Dumping waste onto the street is a large contributor of water pollution in the country and it is against the law.

Your business can help protect the Connecticut River and other local water resources by adopting Best Management Practices (BMPs) – simple, inexpensive and environmentally friendly ways to prevent water pollution.



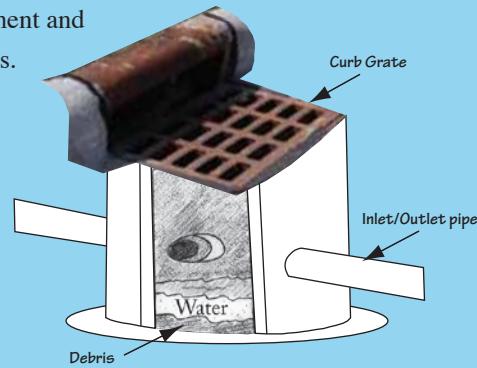
In most communities, dumping waste into the storm drain is punishable by fines.

Only Rain Down the Drain

- Never dispose of any wastewater down the storm drain. Use the sewer or local recycling center.
- Sweep up trash instead of using a hose.
- Use non-toxic products for cleaning. Make your own general purpose cleaner with vinegar and baking soda: http://www.eartheeasy.com/live_nontoxic_solutions.htm
- Maintain a clean and orderly work environment - keep your property free of trash, oil, grease, etc. Soak up leaks and spills from vehicles and machinery with an absorbent material such as kitty litter or sand and dispose of properly.
- Stencil storm drain inlets and catch basins with a “No Dumping” message and inspect and maintain them regularly.
- Train employees on good housekeeping practices and pollution prevention.
- Carpool with co-workers and make sure vehicles are maintained to avoid leaks.
- Wash your vehicles at a car wash that recycles water (ask your car wash if they do), or wash on a lawn so the soapy water does not flow directly to the storm drain.

In the Fall

- Do not rake leaves into catch basins or storm drains.
- Consider chopping up leaves and using them as mulch for planting beds and around shrubs.
- When using fall fertilizers, use as sparingly as possible following the manufacturer’s instructions. Do not apply fertilizers between November and April.
- Remove all trash and debris from catch basin or storm drain.
- ***Clean Your Catch Basin!*** Inspect your catch basin and, if needed, remove sediment and leaves.



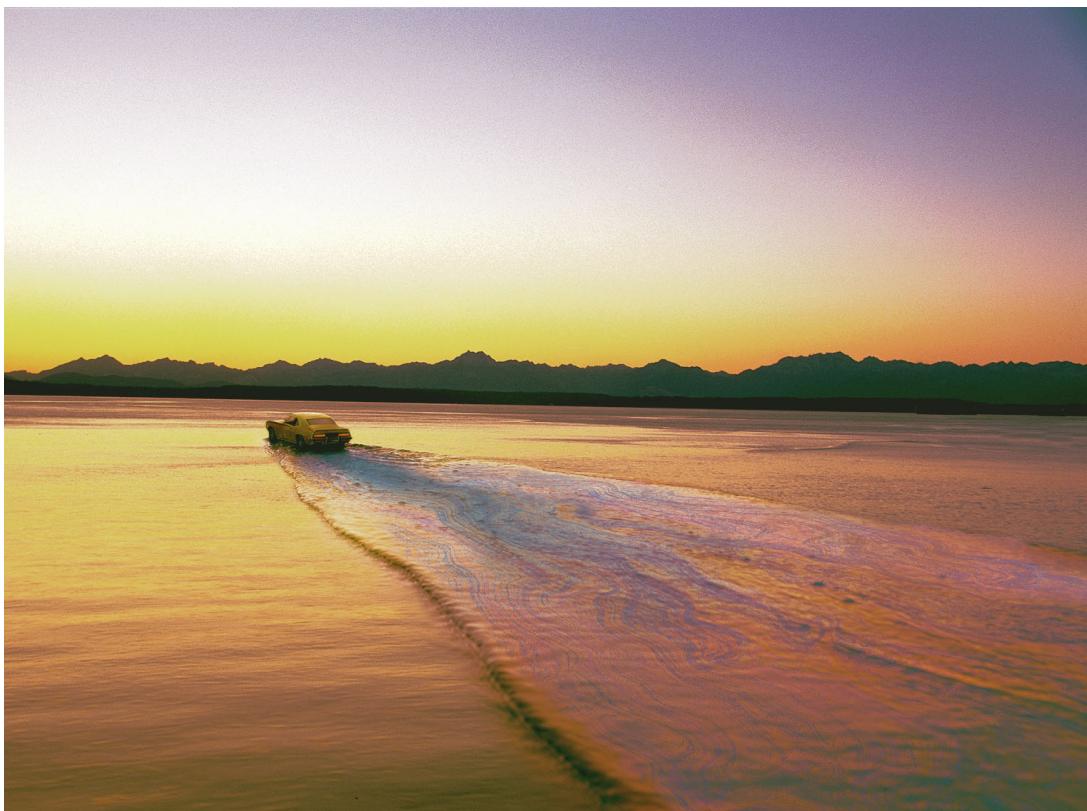
In the Winter

- Use sand and salt to protect against icy conditions, but use only what is needed. Consider sweeping up sand between storms and reusing it.
- If you use de-icing agents, follow the manufacturer’s instructions and use as sparingly as possible.
- Do not sweep sand into the street or into storm drains.
- Do not store or dump snow or sand into or near streams.
- Store snow on land where contaminants and debris can be gradually released, contained or collected. Pile snow on grass areas or other porous surfaces where there is at least 30 inches of soil, and as far away from storm drains as possible.

Spring and Summer

- Avoid or minimize use of pesticides, herbicides, and fertilizers. Seek alternative pest control methods. However, when used, follow manufacturer instructions and keep out of drainage paths.
- Choose native plants and grasses. They require less water, fertilizer and pesticides.
- Compost or recycle yard waste when possible.
- After the last snow, be sure to ***Sweep in the Spring!*** Remove sand and other debris.
- ***Clean Your Catch Basin!*** Remove winter sand from basin sumps.

When your car leaks oil on the street, *Remember* it's not *just* leaking oil on the street.



Leaking oil goes from car to street. Then it gets washed from the street into the storm drain and into our lakes, rivers, and streams. Now imagine the number of cars in the area and you can imagine the amount of oil that finds its way from leaky gaskets into our water. So please, fix oil leaks.



The Massachusetts Department of Environmental Protection, One Winter Street, Boston, MA 02108

Clean water is important to all of us.

It's up to all of us to make it happen. In recent years, sources of water pollution like industrial wastes from factories have been greatly reduced. Now, more than 60 percent of water pollution comes from things like cars leaking oil, fertilizers from farms and gardens, and failing septic tanks. All these sources add up to a big pollution problem. But each of us can do small things to help clean up our water too—and that adds up to a pollution solution!

Why do we need clean water?

Having clean water is of primary importance for our health and economy. Clean water provides recreation, commercial opportunities, fish habitat, drinking water, and adds beauty to our landscape. All of us benefit from clean water—and all of us have a role in getting and keeping our lakes, rivers, streams, marine, and ground waters clean.

What's the problem with motor oil?

Oil doesn't dissolve in water. It lasts a long time and sticks to everything from beach sand to bird feathers. Oil and petroleum products are toxic to people, wildlife, and plants. One quart of motor oil can pollute 250,000 gallons of water, and one gallon of gasoline can pollute 750,000 gallons of water! Oil that leaks from our cars onto roads and driveways is washed into storm drains, and then usually flows directly into a lake or stream. Used motor oil is the largest single source of oil pollution in lakes, streams, and rivers. Americans spill 180 million gallons of used oil each year into the nation's waters. This is 16 times the amount spilled by the Exxon Valdez in Alaska!

Clean Water Tips:

How can you fertilize and help keep our waters clean?

Check for oil leaks from your vehicle regularly and fix them promptly!

Never dispose of oil or other engine fluids down the storm drain, on the ground, or into a ditch. Recycle used motor oil. For more information on recycling, contact the closest DEP regional office.

Buy recycled oil to use in your car.

Use ground cloths or drip pans beneath your vehicle if you have leaks or are doing engine work. Clean up spills!

To find out more about the impacts of nonpoint source pollution and what you can do to prevent it, call the numbers listed below.



617/727-5114



617/626-1540



617/626-1250



617/626-1700



617/918-1111



617/292-5500



617/626-1395



617/626-1000

**When you wash your car in the
driveway,
Remember
you're not *just* washing your car in the
driveway.**



All the soap, scum, and oily grit runs along the curb. Then into a storm drain and directly into our lakes, rivers, and streams. And that causes pollution which is unhealthy for everyone. So how do you avoid this whole mess? Easy! Wash your car on the grass or gravel instead of the street. Or better yet, take it to a car wash where the water gets treated or recycled.



The Massachusetts Department of Environmental Protection One Winter Street Boston, MA 02108

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What's the problem with car washing?

There's no problem with washing your car. It's just how and where you do it. The average driveway car wash uses a total of 116 gallons of water! Most commercial car washes use 60 percent less water in the entire washing process than a simple home wash uses just to rinse off a car. Most soap contains phosphates and other chemicals that harm fish and water quality. The soap, together with the dirt and oil washed from your car, flows into nearby storm drains which run directly into lakes, rivers, or marine waters. The phosphates from the soap can cause excess algae to grow. Algae look bad, smell bad, and harm water quality. As algae decays, it uses up oxygen in the water that fish and other wildlife need.

Clean Water Tips: How can you wash your car and help keep our waters clean?

Use soap sparingly. Use a hose nozzle with a trigger to save water.

Pour your bucket of soapy water down the sink when you're done, not in the street. Or wash your car on a grassy area so the ground can filter the water naturally.

Best of all, take your car to a commercial car wash, especially if you plan to clean the engine or the bottom of your car. Most car washes reuse wash water several times before sending it to the sewer system for treatment.

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617/626-1000

What About Thatch?

Don't worry about grass clippings contributing to thatch problems. Turf experts nationwide agree that clippings do not produce thatch because they are 80% water and decompose quickly. Rather, thatch is the accumulation of dead roots and stems and is most often caused by over fertilizing and over watering. A thatch layer of more than 1/2" should be removed as a matter of healthy lawn maintenance.

Other uses for clippings

Compost clippings at home: Clippings are an excellent source of nitrogen for your compost pile. No more than 1/3 of the pile should be fresh clippings. Mix thoroughly with "brown" materials such as leaves or straw and turn the pile regularly to keep it well oxygenated and to prevent odors.

Use clippings as mulch: Apply dried grass clippings directly on the soil about 1 inch thick to reduce weeds, moderate soil temperature, and control soil spattering, erosion, run-off and evaporation. Avoid mulching with clippings which have been recently treated with herbicides. This can harm your plants. As a precaution, mulch with clippings from herbicide treated lawns only after two lawn mowings.

Incorporate clippings into garden soil: Mixing fresh grass clippings into the garden adds nutrients and organic matter which improves the texture and moisture retention properties of the soil. A two inch layer of grass can be turned into the soil to a depth of 6" about once a month.

Alternative Landscapes

Consider planting ground covers such as English ivy, pachysandra, and periwinkle; increasing shrub beds; or growing a wild-flower meadow as alternatives to turf grass. They look beautiful, don't need mowing and will help reduce lawn maintenance and yard waste!

**For More Information,
Please Write To:**

Massachusetts Department of
Environmental Protection
Recycling Program
One Winter St.
Boston, MA 02108

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1993

Massachusetts Department of
Environmental Protection
Recycling Program
One Winter Street
Boston, MA 02108

Don't Trash Grass !



DON'T TRASH GRASS!

Save Time and Money! Reduce Waste!

Did you know that a 1/2 acre lawn in New England produces over 3 tons or nearly 260 bags of grass clippings each year? Think of all the time, money and effort it would take to bag all those clippings. Why go through all that hassle when it's really not necessary?

You can have a healthy green lawn by leaving grass clippings where they fall! It's simple...grass clippings left on the lawn will decompose and act as a natural organic fertilizer. This allows you to reduce the amount of additional commercial fertilizer you need to apply. Your lawn will still be healthy and green because each time you mow, you will be returning valuable nutrients to the soil!

The key word is "less"...less fertilizer, less water, less work, and best of all, less waste! Recycling clippings back into the lawn requires less effort than disposing of them as waste. No one has to handle the clippings - not you, not your lawn care professional and not the waste management crew. You can reduce your mowing time by nearly 40% by not bagging, and spend less money on fertilizer and trash bags. And by not trashing grass, you'll be doing your part for the environment by reducing waste!

If you follow these "Don't Trash Grass" mowing, fertilizing and watering guidelines, not only will you have a healthy lawn, but you'll never have to bag grass clippings again!

Mowing Techniques & Tips

- Any mower can recycle grass clippings. Simply remove the grass catcher! Ask your lawn mower dealer if a special safety plug or adapter kit is needed to convert your mower into a "recycling" mower. You can also have a mulching blade installed
- Keep your grass mowed to 2" - 3" tall.
- Do not remove more than 1/3 of the grass blade in any single mowing. For example, if your lawn is kept at 2" tall, it should not be allowed to grow higher than 3" before it is mowed again.
- Mow when the grass is dry.
- Keep your mower blade sharp because dull mowers tear the grass blade, injuring the plant, and create a brownish cast to the turf.
- If the grass gets just a bit too high, simply mow over the clippings a second time to further shred and scatter them.
- If excessive growth occurs between mowings, raise the mower height, mow and then gradually lower it over a span of several mowings. This will help prevent shock to the plants.
- When it's time to replace your mower, consider buying a mulching, recycling, or a non-polluting reel mower. All of these do a good job of shredding and scattering grass clippings.

Fertilizer Application

Proper fertilizer application is important. And remember, when it comes to fertilizer, **more is not better!** Research shows that most grasses require only **modest levels of nitrogen** for good color and controlled growth. Too much fertilizer will make your lawn grow faster, resulting in more mowing and more clippings!

Apply fertilizer to your lawn in late April and again in September. If a third treatment is needed, apply in late May. Apply only 1/2 pound of nitrogen per 1000 square feet of lawn at each application. To figure this out, simply divide 100 by twice the percentage of nitrogen (N) in the fertilizer. This will give you the application rate in pounds of fertilizer per 1000 square feet of lawn. For example:

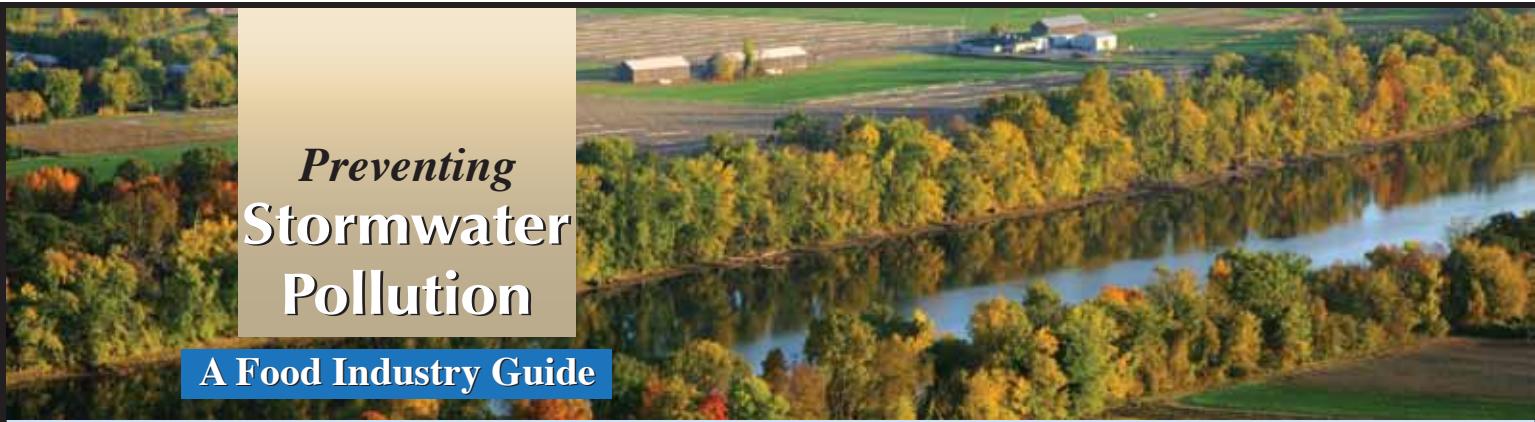
Fertilizer N-P-K rating (%)	Divide 100 by twice the % of Nitrogen (N)	Pounds of fertilizer to use per 1000 sq. ft.
12-4-8	100 divided by 24	=4.1 lbs
16-8-8	100 divided by 32	=3.1 lbs
20-5-10	100 divided by 40	=2.5 lbs
10-10-10	100 divided by 20	=5.0 lbs

For slower, more uniform growth, choose fertilizers containing sources of self-release nitrogen such as methylene urea, ureaformaldehyde, sulfur coated urea, or IBDU. The bag may also read "water insoluble nitrogen" or "slow release nitrogen". All are acceptable and will increase the amount of time the grass can use the nutrient.

Watering Practices

New England has a high precipitation rate, so turf grasses here don't have to be watered to survive. Lawns may turn brown and dormant during periods of drought, but will turn green rapidly when moisture in the soil is replaced. **Remember, the more you water your lawn, the faster it's going to grow and the more you will have to mow it!**

- Conserve resources by not watering unless the grass really needs it. Let Mother Nature water your lawn!
- If you choose to water, 1 inch of water is adequate to wet the soil to a depth of 4"-6". Place an empty can under the sprinkler to measure when an inch has been applied. If water begins to run off the lawn before an inch is applied, turn off the water and let it soak in for an hour or so, then resume watering until 1" is applied.
- Water deeply and less frequently to encourage deep root growth. Light, frequent watering encourages shallow roots and may lead to increased disease and stress injury.
- The best time to water is in the morning because less water is lost through evaporation and transpiration.
- Avoid watering during mid-day and try not to water in the evenings since a lawn that remains damp during the night is more prone to disease.



Preventing Stormwater Pollution

A Food Industry Guide

There is a big difference between a sanitary sewer and a storm drain.

The **sewer system** takes all wastewater from toilets, sinks and showers to a wastewater treatment facility, where the water is treated before it is discharged to a water body.

The **storm drain system**, on the other hand, collects rainwater from city streets and urban areas to prevent flooding. Unfortunately, chemicals, oil, trash and other debris that have been spilled accidentally or intentionally can also enter the storm drain system. The water from storm drains typically flows untreated to a nearby stream, river or other water body, causing water pollution.



Storm Drain / Catch Basin



Storm Drain Outfall

Stormwater Pollution causes erosion, habitat degradation, and poor water quality, impacting commercial and recreational fishing, swimming, and boating.

Dumping waste onto the street is a large contributor of water pollution in the country and it is against the law.

Your business can help protect the Connecticut River and other local water resources by adopting Best Management Practices (BMPs) – simple, inexpensive and environmentally friendly ways to prevent water pollution.



In most communities, dumping waste into the storm drain is punishable by fines.

Sources of Pollution

- Dumpster and loading dock area maintenance
- Equipment cleaning
- Grease handling and disposal
- Landscaping and grounds maintenance

Pollutants Include

- Bacteria
- Organic materials (food wastes)
- Trash
- Oil and grease
- Toxic chemicals (cleaning products, disinfectants)

Only Rain Down the Drain

- Make sure all pipes inside the business are connected to the sewer system, not the storm drain system.
- Label all drains within the facility boundary as sewer or storm drain, and explain to employees the difference between the sewer and storm drain system.
- Use dry methods for spill cleanups.
- Pour rinse water into drains connected to the sewer, not the storm drain system.
- Never clean equipment outside where water may flow to an unprotected storm drain.
- If floor mats are too big to clean indoors, contract with a mat cleaning service or clean in an area that drains to the sewer.
- For outside eating areas:
 - Sweep or vacuum daily.
 - Cover storm drain before wet cleaning, such as pressure washing.
 - Collect washwater and dispose of in a sewer, not a storm drain.
- Keep dumpster areas clean and prevent liquid leaking.
- Don't hose out dumpsters. Call your solid waste hauler when your dumpster is leaking or in need of cleaning or repair.

Manage Grease Waste

- Install a grease trap or interceptor.
- Clean grease trap regularly.
- Make sure grease bins are tightly closed and on level ground.
- Recycle grease and oil. Do not contaminate the recyclable oils and grease in the tallow bin with the waste grease from the grease trap or grease interceptor.
- Keep grease that is stored outside contained under a roof.
- Contract with a grease hauler to regularly service and empty your grease waste.

Prevent Toxic Waste Pollution

- Use non-toxic cleaners. Purchase commercially available alternatives or make your own cleaning solutions. www.eartheeasy.com/live_nontoxic_solutions.htm.
- Dispose of detergents and toxic waste properly, including used cleaners and rags (soaked with solvents or conventional floor cleaners).

Clean Up Spills

- Stockpile spill cleanup materials where they will be readily available.
- Spot clean leaks and drips routinely.
- Clean leaks, drips and spills with as little water as possible. Use rags for small spills, a damp mop for general cleanup, and dry absorbent material for larger spills.
- Remove the absorbent materials and dispose of properly.
- Keep the spill from entering streets, gutters and storm drains.
- Do not use bleach or disinfectants if there is a possibility the rinse water could flow to streets, gutters, or storm drains.

Train Employees

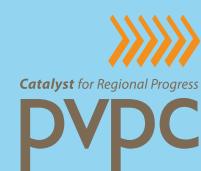
- Train employees on proper spill containment and cleanup procedures.
- Train all new employees and conduct annual refresher training.
- Use a training log to document training.

For More Information CheckOut...

What's Cookin? Eating and Drinking Establishments: Stormwater Best Management Practices

www.projectcleanwater.org/pdf/food_guide-final.pdf

For more information on preventing stormwater pollution log onto www.ThinkBlueMA.org



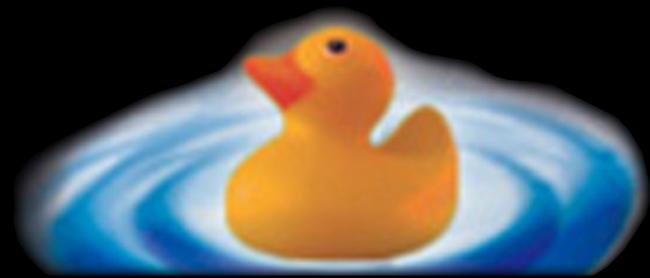


**THINK MORE IS BETTER?
TELL THAT TO THE FISH.**

**THINK AGAIN.
THINK BLUE.**

When you fertilize too much, right before heavy rains, or onto pavement, it can flow into rivers, lakes and ponds, harming plants and animals.

Help keep our waters blue...use less fertilizer, use it at the right time, and keep it on your lawn.



www.ThinkBlueMA.org

Get wise about leaf litter. Consider your options.

1. Mulch leaves in place with your lawn mower to put valuable nutrients back into your soil.
2. Gather leaves and other “yard waste” into a compost pile, let overwinter and decompose, and then use as fertilizer next growing season.
3. Offer your leaves to a neighbor who may be able to use them for composting.
4. Check in with your city or town hall to find out how to properly dispose of leaves locally.

(Some local resources are listed on reverse side.)



Did you know?

The combination of rainfall with leaves on our driveways, sidewalks, streets, and parking lots can produce stormflows into local rivers, streams, and lakes that are loaded with nutrients. Proper use or disposal of leaves will help to avoid these contaminated flows.

Connecticut River Stormwater Committee

