Guide for Homeowners

12 simple strategies for sustainable waterfronts and healthy shorelines

Shoreline properties are in demand, and the value of those properties depends on the water quality. Landowners play a crucial role in protecting and improving the water quality, which also protects the property investment for future generations.

This guide provides methods to protect the waterfront property in Jefferson County. These practices can help residents enjoy the beauty of living by the water for years to come.

Changes to our Near Shore Environment

Cottages and camps are giving way to year-round homes as more and more people want to enjoy the beauty and tranquility of living along the water. The landscape is dramatically changing due to this shift.

Cottages are being cleared for larger homes, driveways are paved, and mature trees are being removed to make way for manicured lawns and aesthetic landscapes. The cumulative effects of these changes over the years has also meant significant changes to the health of our near shore environment.

Buyers prefer clean water and will pay more to live around areas with better water quality. This guide was created to help homeowners make decisions to protect investments and sustain good water quality for years to come.

MINIMIZE RUN OFF

1. **Reduce impermeable surfaces**
2. **Limit lawn size**
3. **Use water wisely**

ELIMINATE POLLUTANTS

4. **Maintain on site waste/septic systems**
5. **Minimize erosion**
6. **Use phosphorus-free fertilizer**
7. **Be smart about lawn care**

CAPTURE & INFILTRATE

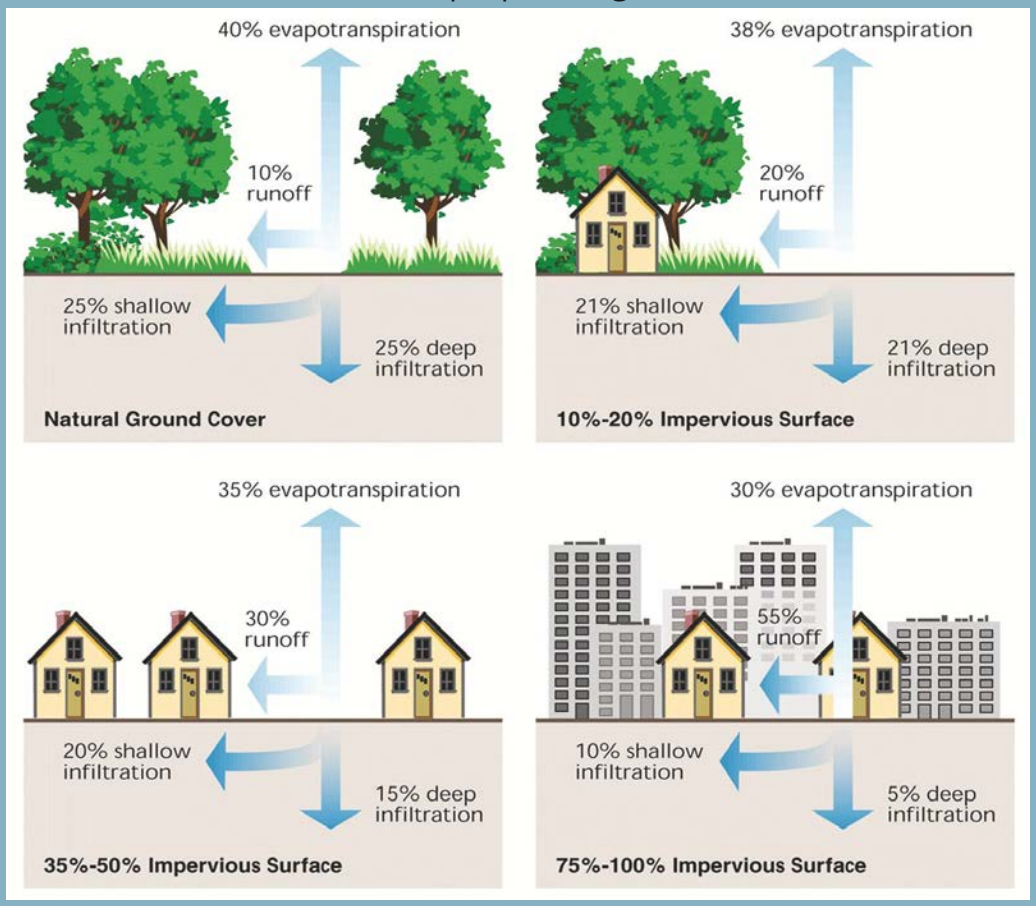
8. **Plant a rain garden**
9. **Use native plants**
10. **Install a rain barrel**
11. **Protect from invasive species**
12. **Be a water quality steward**

12 simple strategies for sustainable waterfront living & landscapes to protect water quality

Effects of Stormwater Runoff

During a rain event, water falls on natural surfaces, infiltrates into the ground, and eventually into the groundwater. Water that falls on impermeable or solid surfaces, such as roads and parking lots, does not soak into the ground. Instead, the water flows across the hardened surfaces picking up sediment, oil, and other contaminants.

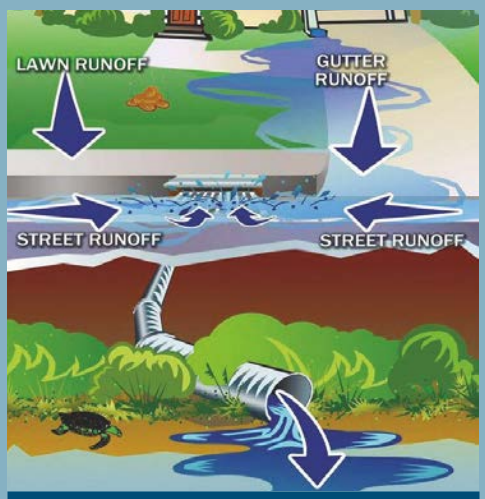
Stormwater runoff from developed areas is one of the greatest threats to water quality. It is not just a problem along roads and commercial areas; residential properties generate runoff as well.



The increase in stormwater runoff directly correlates with the velocity and amount of pollutants transported. Oils, salt, nutrients, and sediment carrying phosphorous or other chemicals are picked up by the water as it travels and deposits into nearby waterbodies. The excess nutrients can cause an increase in Harmful Algal Blooms (HABs).


Photo: NYS DEC

HABs may look like blue, green, or white spilled paint. If you suspect HAB-infested waters, stay away from the area, and complete a Suspicious Algal Bloom report from DEC's website or email photos to: **HABsInfo@dec.ny.gov**



What are the effects of stormwater runoff?

Excess nutrients can cause increases in agal blooms and excessive plant growth.

Sediments can cloud water, affecting plants, fish, and other aquatic life.

Sediments can form deltas, impeding navigation and water access, and provide an ideal habitat for invasive species.

Bacteria and pathogens can make water unsafe for drinking and swimming.

Debris, including plastic bags, can suffocate or disable aquatic life such as ducks and turtles.

Household hazardous wastes; such as motor oil and paint poison aquatic life.

Road salt from winter increases chloride levels.

Jefferson County Stormwater

Reduce Impermeable Surfaces

Minimize Runoff

Simple step #1

Impermeable surfaces do not allow water to infiltrate and soak into the ground. When water hits this type of surface, instead of soaking in, it creates runoff. The larger the impermeable surface, the greater the volume of stormwater runoff.

Make it easier for water to soak into the ground

Consider these alternatives:

Grass pavers are a form of permeable paving. A patio or driveway made of grass pavers will closely resemble a lawn. Lay stone pathways or stepping stones across the lawn instead of pouring concrete or asphalt paths.

Keep paved driveways as small as possible. Use permeable surfaces for driveways and overflow parking areas that aren't needed on a regular basis. While gravel driveways may start off permeable, over time the compaction makes them nearly as impermeable as asphalt.

Try one of the newer permeable pavement technologies. There are a variety of permeable options. Costs may increase, however, it is money well spent.

Municipalities can make a big difference!

Porous asphalt allows water to drain through the pavement surface into a stone recharge bed and infiltrate into the soils below the pavement. This conveyance is used on areas where water concentrates on a slope and can help direct the sheet flow to one path while reducing erosion along the shoulder.

Photo credit: HT Builders, Permeable Pavers

Photo credit: Wolf Paving

Photo: Common permeable pavement surface materials.
Photo credit: Eban Bean, UF/IFAS

Simple step #2

Limit Lawn Size

Minimize Runoff

Lawns absorb less rainfall than natural areas

Naturally wooded areas have multiple layers of vegetation. Rainfall hits the tallest trees in the forest (*canopy*), next smaller trees and shrubs (*understory*), then groundcover of ferns and other plants, and lastly, the ground (*forest floor*). Each layer slows the momentum and force of the storm. Think of a rooftop with and without gutters. Your yard and foundation are protected with gutters; without them deep gouges are often deep enough to twist an ankle.

Forest canopies act in much the same way, catching and slowing water's descent and controlling its erosive force. Additionally , forests have "duff," a natural barrier of leaf litter and other organic material, as well as deep roots systems which also help to hold soil in place. Allowing water to soak into the ground and be naturally filtered rather than running directly off a grass lot and into our waterways.

New construction considerations

- Grading a lot to create a lawn removes the natural topography of the land. Low spots where water collects are areas where water should be absorbed naturally.
- Plan accordingly; only create as much lawn area as needed. Avoid heavy machinery and equipment that compact soils during construction.
- When possible, establish a natural shoreline of 3 - 5' that you do not mow. The buffer strip will absorb nutrients and runoff from your lot and yard space to reduce erosion.

Simple step #3

Use Water Wisely

Minimize Runoff

Landscape with native plants for stormwater zones whenever possible

Illustration from Fiddlehead Creek Native Plant Nursery - Lake George

- Water lawns and gardens in the morning or evening when temperatures are cooler to minimize evaporation.
- Adjust sprinklers so only lawn areas are watered and not the house, sidewalk, or street.
- Install a rain sensor to an irrigation controller so the system won't run when it is raining.
- Choose shrubs and ground covers instead of turf for hard-to-water areas such as steep slopes and isolated strips.
- Spread a layer of organic mulch around plants to help retain moisture.
- Use a drip irrigation for shrubs and trees to apply water directly to the roots where needed.
- Choose drought resistant plants wherever possible.

Waste and Septic Systems

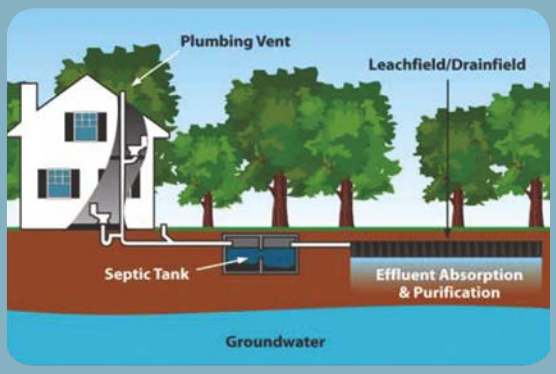
Simple step #4

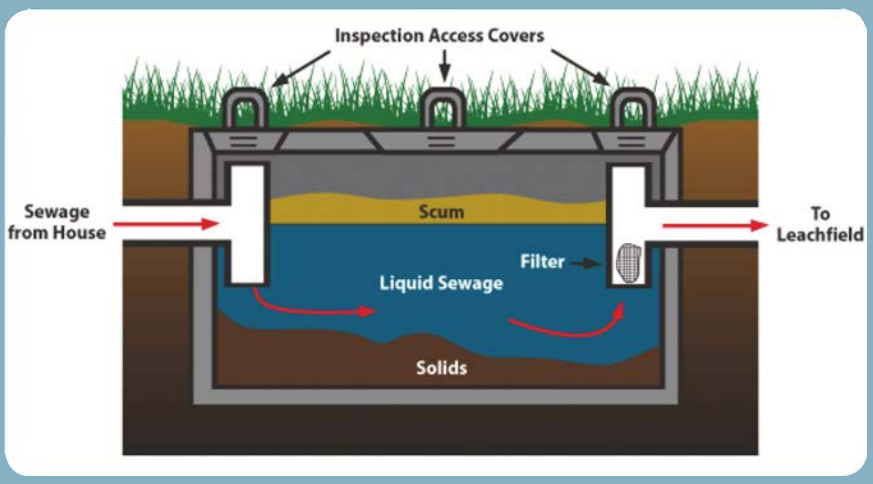
Regularly maintain onsite waste water treatment systems or septic systems, not only to protect waterbodies and nearby groundwater from being contaminated, but also to protect community health and investment in the property.

Typical pollutants found in household wastewater include nitrogen, phosphorus, and disease-causing bacteria and viruses. A properly designed, constructed, and maintained system can provide long-term, effective treatment of household wastewater. A failing system is very expensive to fix.

Watch for these signs:

- Pooling water or muddy soil around the tank or drain field or in the basement.
- Bad odors coming from area of tank.
- Toilet or sink backing up when flushing or doing laundry.
- Bright green grass over the drain field.
- If there are any of these signs, call a professional to have the septic system looked at right away.





Typical septic systems have 4 main parts:

- Pipe from the home that carries the wastewater into the tank
- Tank that holds the water long enough for the solids to settle out to the bottom and the oil and grease to float to the surface
- Drain field where the water from the tank is discharged
- Soil where the microbes provide the final treatment

Follow these Best Management Practices

1. Regularly inspect the system and pump the septic tank as necessary. It's a good idea to have the system inspected every 2-3 years. In general, it should be pumped every 3-5 years. The solids in the bottom can build up and leak into the leach field, clogging it and eventually ruining it, if not routinely pumped.

2. Don't dispose of household hazardous wastes in sinks or toilets. Avoid paints, chemicals, cleaners, gasoline, oil, or other toxic materials that could kill the good bacteria in the system. Avoid things that can clog pipes. Avoid frequent use of garbage disposals. Normal use of antibacterial products such as hand-soap is fine but excessive use might kill too many beneficial bacteria in the system. Septic additives are not needed.

3. Care for the drain field. Plant only grass or groundcover with shallow roots over or near the drain field. Deep roots could clog and damage the drain field. Don't drive or park vehicles on the drain field either. Keep roof drains, sump pump drains, and other surface water runoff away.

4. Practice water efficiency. Using less water means less water going through the septic system. This helps reduce stress on the system.

It is very important to keep a detailed record of all inspections, pumpings, permits, repairs, and all maintenance.

Simple step #5

Minimize Erosion

Soil erosion can gradually wash away top soil, or it can happen quickly in heavy rain events.

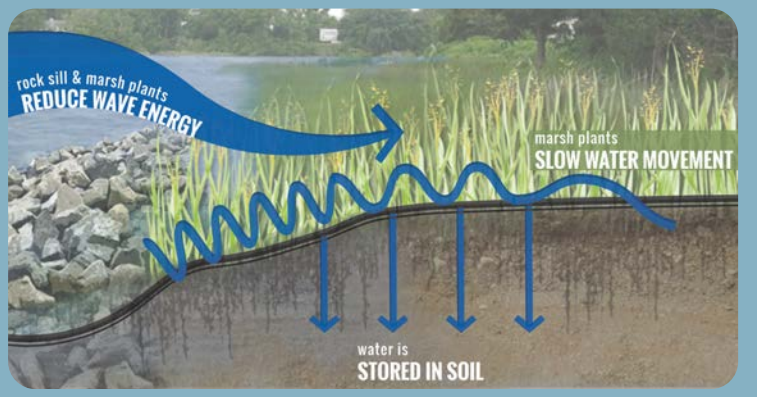
An effective erosion control plan is key before beginning any construction. Consider these factors:

- Preserve existing vegetation wherever possible to reduce erosion. Avoid parking or driving heavy machinery near trees as soil compaction can damage roots.
- Fence off the construction area to limit activity to only the necessary area of the site. This will help reduce erosion and unnecessary soil compaction of the rest of the property, and divert runoff around disturbed areas to minimize erosion.
- Build a gravel access driveway to limit compaction of the construction site and limit the mud that is tracked out to the street from vehicles leaving the site.
- Properly install a silt fence on the downhill slope of the site and around soil stock piles to contain sediment. Protect soil stock piles with straw mulch or plastic. Locate the piles away from the road or nearby water to lessen the chance of sediment being transported off-site.
- Revegetate the area as soon as possible so that there is not bare soil. Cover lawn areas with 4-6" of topsoil and then hydroseed or mulch with straw & seeds.

LIVING SHORELINES:

Nature-based approach to managing shoreline erosion that provides multiple benefits

According to the National Oceanic and Atmospheric Administration, New York has 2,652 miles of coastline. Living along the dynamic coastline means recognizing and addressing coastal risks, such as rising water levels, storm surges, flooding, and erosion.



Living shorelines incorporate natural and nature-based features. Compared to purely structural approaches, such as bulkheads and revetments, living shorelines improve habitat connectivity across the water-land interface and support natural processes.


Silt Fence

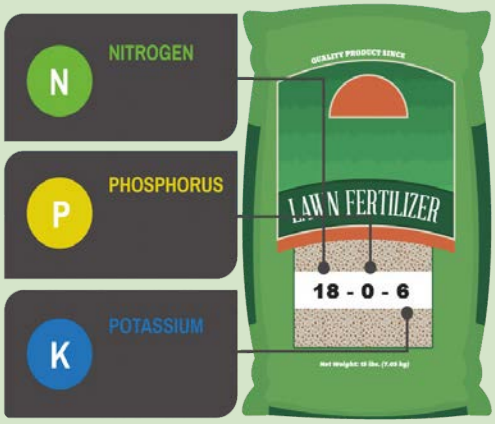
Living shorelines are not a one-size-fits-all solution. Living shoreline designs and materials must be tailored to the use of the site, current and future local site conditions, and the local ecological community. Landowners can contact Jefferson County Soil and Water Conservation District for assistance (315) 782-2749.

Living shorelines can be designed to mimic some of the functionality of natural protective features. During a small or moderate coastal storm, living shorelines can act like a buffer by reducing wave energy and storing excess water.

For more information visit NY Geographic Information Gateway: Living Shorelines
http://opdgig.dos.ny.gov/#/storyTemplate/11/1/1

Phosphorus-free Fertilizer

Simple step #6



Will phosphorus-free fertilizer keep my lawn green and healthy? YES!

Phosphorus is an essential nutrient for initial plant growth, but not necessary for mature established plants. The majority of lawns already contain the necessary amount of phosphorus for grass to grow. Nitrogen and Potassium are the "maintainers." Limiting phosphorus will help with pollution runoff into nearby waterbodies.

What do I look for?

The three numbers on fertilizer bags show the N-P-K nutrient analysis. The middle number is the phosphate (phosphorus) content.

A "zero" in the middle means it is phosphorus-free.

Establish a NO MOW Zone

Do not fertilize or mow adjacent waterways. Leaving a "Ring of Responsibility" or buffer zone strip of unmanaged grasses or natural vegetation to grow along the shoreline, or plant a wildflower garden and add a variety of ornamental grasses. This vegetation will help prevent soil erosion and will also remove and retain some of the pollutants that would otherwise enter waterbodies.

Photo : Columbia County PA Conservation District

Other benefits include:

- Offer food and shelter for local wildlife
- Filter pollutants and sediments out of the soil
- Absorb nutrients from the stormwater
- Savings in time and money for maintenance
- Deter nuisance species
- Privacy from bay users

New York State Nutrient Runoff Law

A law was enacted in 2012 that requires phosphorus-free fertilizer be used on all lawns, unless establishing a new lawn or a soil test shows that additional phosphorus is required. In addition, fertilizer cannot be applied within 20' of a waterbody unless there is a 10' vegetated area.

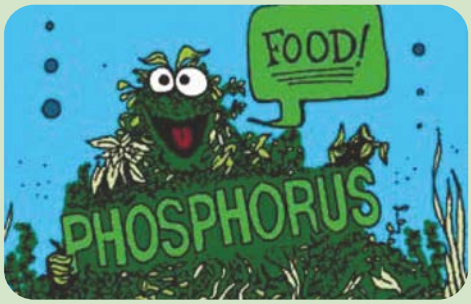
Fertilizer may be applied by a device with a spreader guard, deflector shield, or drop spreader and is applied at least 3' from surface water. Do not apply any lawn fertilizer between December 1 and April 1.

The law requires retailers to display fertilizers containing phosphorus separately from non- phosphorus fertilizers and to post an educational sign where the fertilizers with phosphorus are displayed.

The law does not apply to agricultural fertilizer or fertilizer for gardens. For more information on the Dishwater Detergent & Nutrient Runoff Law, visit *https://www.dec.ny.gov/chemical/67239.html*

Phosphorus & Water Quality

What is Phosphorus?



Phosphorus is a natural element and an essential nutrient for plant growth, but is found only in small amounts in lakes and streams. Even small increases in phosphorus can have a devastating impact on the water quality of waterbodies. Increased phosphorus can stimulate algae and excessive plant growth. Boating, fishing, and swimming can become difficult. Waterfront property values can also be negatively impacted.


Photo credit: NYS DEC

Green and Gross

Excess phosphorus can lead to an explosion of algal growth. One pound of phosphorus can produce up to 500 pounds of wet algae! Most algal are harmless, but exposure to toxins and other substances produced by Harmful Algal Blooms (HAB) can make people and animals sick.

HABs can impact drinking water, discolor water, create floating scum, and produce unpleasant odors that can reduce the recreational and ecological value of a waterway. HABs are sometimes called blue-green algal blooms even though they can be various colors. Report potential harmful algal blooms by calling NYS DEC (518) 402-8179 or complete a Suspicious Algal Bloom report form ***on.ny.gov/hab*** and submit the form with photos to ***HABsInfo@dec.ny.gov***

Simple step #7

Be Smart about Lawn Care

Mowing with clean water in mind...

Lawn care practices can have a big impact on water quality and the environment. Fertilizers, leaves, grass clippings, animal waste, and eroded soil are all sources of phosphorus. These materials are swept or washed into the street or even the nearest storm drain, where they end up in a nearby waterway.
https://www.nrdc.org/stories/more-sustainable-and-beautiful-alternatives-grass-lawn

Follow These Steps:

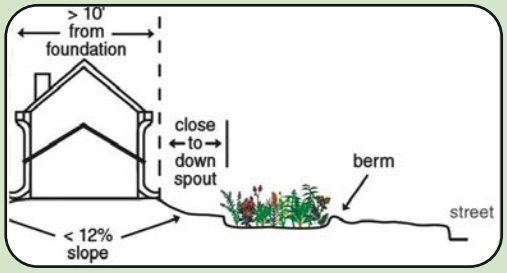
- Mow higher! Keeping grass length to 2½ – 3" is healthier for mature lawns and it means mowing less often!
- Pick up pet waste! Pet waste can contain harmful bacteria as well as phosphorus. Flush it in the toilet or place it in the garbage.
- Build healthy soil using compost and other natural amendments. Healthy soils are more resistant to disease and insect problems.
- Use pesticides sparingly, and only when necessary.

Learn about Integrated Pest Management (IPM).
http://albany.cce.cornell.edu/gardening/pests-ipm

Plant a Rain Garden

Capture & Infiltrate

Simple step #8



Help keep water clean by filtering stormwater runoff before it enters into waterbodies. Rain gardens help alleviate problems with flooding and drainage.

A rain garden is a vegetated depression that collects rainwater. This allows the rain that falls on rooftops, driveways and patios to infiltrate into the ground instead of becoming runoff.

Getting Started:

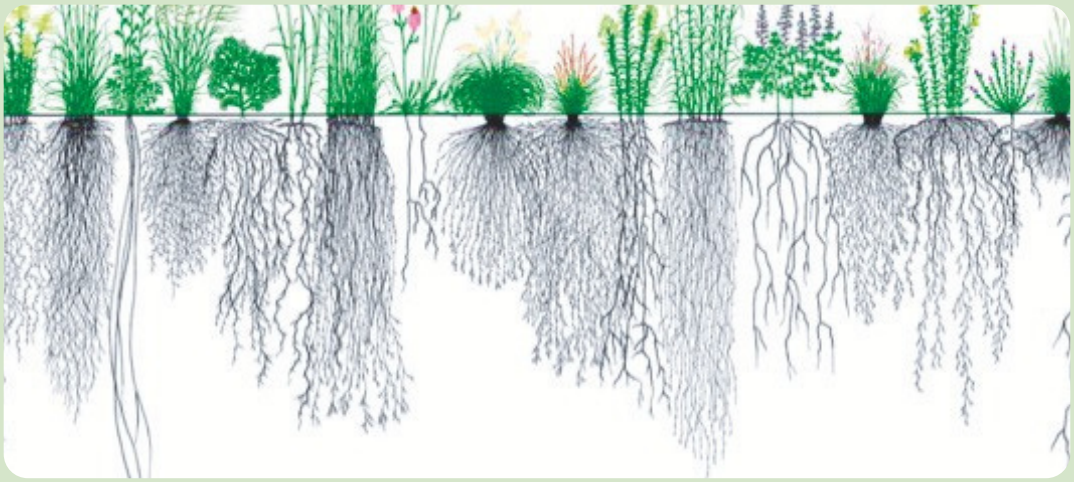
The first step is sizing and siting the rain garden. Choose a location that can direct a downspout or other source of runoff. A typical homeowner rain garden is around 100-300 square feet and 4-8 inches deep. The garden size will depend on soils, slope, and the size of the area that drains to the garden.
https://ccejefferson.org/gardening

Simple step #9

Go Native!

Capture & Infiltrate

NEW YORK STATE



The extensive roots of native plants improve the ability of the soil to infiltrate water and to resist erosion. In fact, native plants often have more biomass below the surface than above.

For example, little bluestem, a great bunch grass for the garden, only grows 2-3' tall, but can have roots up to 8' deep. For a complete native plant list by state visit ***https://plants.usda.gov/home***

Simple step #10

Install a Rain Barrel

Rain barrels are a simple way to capture and recycle the rain washing off rooftops. They are an easy way to save money and can be personalized to match property aesthetics.

Lawn and garden watering make up nearly 40% of total household water use during the summer. A rain barrel collects water and stores it for when it is needed it most—during periods of drought– to water plants, wash the car, or to top a swimming pool.

Rain barrels can provide an ample supply of free "soft water" to homeowners, containing no chlorine, lime, or calcium. The water is ideal for gardens, flower pots, and washing vehicles.

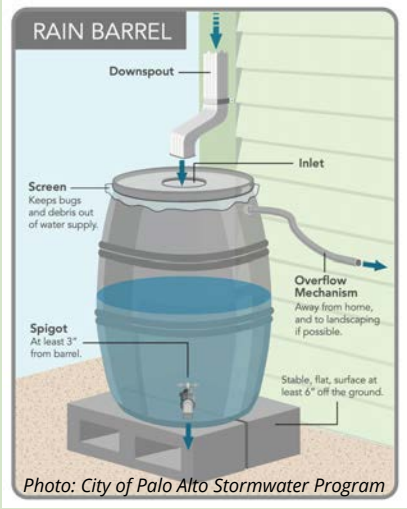


Photo: City of Palo Alto Stormwater Program

The benefits of using native plants

- Native plants come in just about every size, shape, and color. A native plant garden design can be created for interest in all 4 seasons as a theme garden.
- Help protect New York's biodiversity by providing food and habitat for birds, butterflies, and other wildlife.
- Native plants are the foundation of our natural ecosystems, without them and native insects that coexist, birds could not survive.
- Native plants have evolved in our environment over the years and have adapted to survive. They are low maintenance don't need a lot of fertilizer, pesticides or watering, ultimately saving time and money.
- The deep roots of native plants absorb and filter water more effectively than the short roots of many turf grasses and other ornamental plants, which naturally reduces stormwater runoff.

Use the guide to native plants in NYS:
http://www.dec.ny.gov/docs/lands_forests_pdf/ factnatives.pdf

Jefferson County Soil and Water has an Annual Tree and Shrub sale each spring. Orders are accepted Dec - Feb.
https://jeffersoncountyswcd.org/shop/

Jefferson County Stormwater **jcnystormwater.com**

In 2014 a coalition was formed in order to share resources and information in a cost-effective manner. Each member has been identified as a Municipal Separate Stormwater Sewer System (MS4), in an urbanized area. The group meets quarterly in order to address the requirements of the stormwater management program and the control practices within it to minimize the discharge of pollutants from the sewer systems.

Simple step #11

Prevent the Spread of Invasive Species

Capture & Infiltrate

Photo: NYS DEC

Eurasian Watermilfoil and ***Curly-leaf Pondweed*** are invasive aquatic plants that form dense, floating mats of vegetation. These mats are a nuisance to boaters, swimmers, and fishermen. ***Hydrilla*** is often confused with common native pond weed, and it can quickly spread by fragmentation. This plant has whorls of 4 to 10 serrated and spined leaves. All of these nuisance plants out-compete native plants because the floating mats crowd them out.

Exotic insects such as ***Spotted Lantern Fly*** can wipe out an entire vineyards or apple orchards. ***Asian Longhorned Beetle***, ***Emerald Ash Borer***, and ***Gypsy Moth*** can spread into new areas because they can harbor on firewood that is often moved outside of the area purchased.

Tips to stop the spread:

- Learn to identify Invasive Species and educate others.
- Check and remove all clinging plants from watercraft, gear, trailers, and other equipment after each use.
- Avoid boating, paddling, or swimming through dense plant beds.
- *Clean. Drain. Dry.* All boating, angling, and recreational gear before moving between waterways.
- *Never move firewood between areas.

DONTMOVEFIREWOOD.org

For more information visit SLELO: *https://www.sleloinvasives.org/*


Photo credit: NYS DEC
Water Chestnut foliage

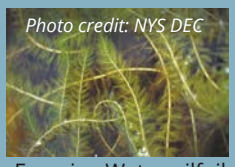


Photo credit: NYS DEC
Eurasian Watermilfoil

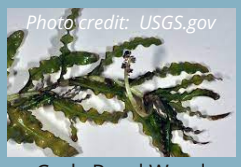


Photo credit: USGS.gov
Curly Pond Weed


Photo credit: USGS.gov
European Frog-Bit


Photo credit: NYS DEC
Hydrilla Verticillata


Photo credit: NYS DEC
Spotted Lanternfly

Capture & Infiltrate

Get Involved! Volunteer!

Simple step #12

Get involved with stakeholder groups such as:

NYS Federation of Lakes Assoc.
Indian River Lakes Conservancy
Preservation Alliance of Hyde Lake
Moon Lake Preservation Council
Save the River
SLELO PRISM

as well as other area partners committed to protecting water quality and the environment.

Be a water quality steward

Special thanks to *Wayne & Jefferson County Soil and Water Conservation Districts and the Finger Lakes - Lake Ontario Watershed Protection Alliance* for the production and printing of this guide.

Thank You

FLLOWPA