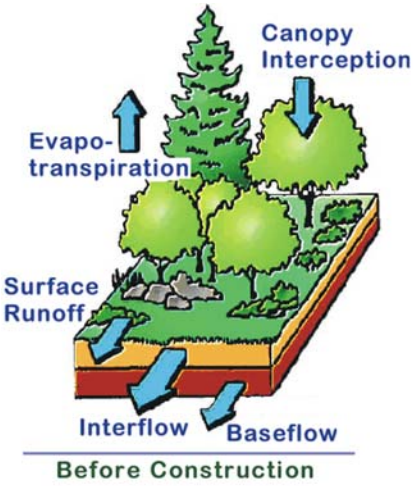
MARYLAND
Department of the Environment

FACTS ABOUT...

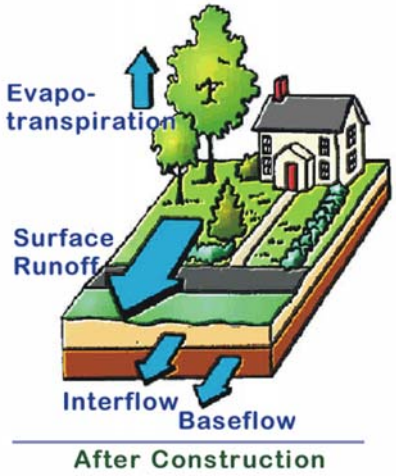
Stormwater Conservation in Your Backyard

Urban development has a great impact on the quality of Maryland's waters. During the initial clearing and grading of a site, trees, meadow grasses, and crops that intercept and absorb rainfall removed and natural depressions that temporarily pond water are graded to a uniform slope. Cleared and graded sites erode, are severely compacted, and can no longer prevent rainfall from being rapidly converted into runoff.

The situation worsens after construction, as rooftops, roads, parking lots, driveways and impervious surfaces no longer allow rainfall to soak into the ground. Consequently, most rainfall directly converts to runoff. The increase in runoff can be too much for natural drainage systems to handle. As a result, the natural drainage system is altered using curb and gutter, enclosed storm drains, or concrete-lined channels to rapidly and efficiently collect runoff and convey it away. The stormwater runoff is subsequently discharged to downstream waters such as streams, reservoirs, lakes or estuaries.



Water quality is affected by the accumulation of trash, oil and rubber from cars, fertilizers and pesticides applied to lawns, sediment from bare or poorly vegetated ground and other pollutants entering streams, rivers and ultimately, the Chesapeake Bay. Inflow of sediment can cloud water, blocking sunlight from submerged plants. Sediment also settles to the bottom of streams, clogging the gravel beds used by fish for laying eggs. Nutrients, such as phosphorus and nitrogen, from fertilizers enter the water and promote unusually rapid algae growth. As this algae dies, its decomposition depletes oxygen needed by fish, shellfish, and other aquatic life for survival.



These are all examples of **nonpoint source pollution**, one of the major contributors to the degradation of quality in Maryland's waterways. Stormwater management practices help control nonpoint source pollution through the use of nonstructural and/or structural techniques intercept runoff from developed areas, filter and treat this runoff, and then discharge it a controlled rate. The overriding factor that governs the quantity of stormwater runoff is the amount of impervious surfaces located on your property (e.g., driveways, rooftops, sidewalks, etc.) Stormwater quality, however, is governed by the accumulation of pollutants on the entire surface area, regardless whether it is grassed or paved. As the use of chemicals around the home such as fertilizers, pesticides, engine oils, deicing materials, and similar products increases, the more degraded the stormwater runoff from your property will be. While the effect of one property on the quality and quantity of stormwater runoff may seem insignificant, the cumulative impact from hundreds of thousands of yards across the State continues to be destructive to our water quality.

These Activities Will Minimize Stormwater Runoff from Your Property:

Limit the amount of impervious surfaces in your landscape. Use permeable paving surfaces such as wood decks, bricks, and concrete lattice to allow water to soak into the ground. Where possible, direct runoff from impervious surfaces across vegetated areas.

Allow "thick" vegetation or "buffer strips" to grow alongside waterways to filter and slow runoff and soak up pollutants.

Trees, shrubs, and groundcover absorb up to fourteen times more rainwater than a grass lawn and they don't require fertilizer. For more information on environmentally friendly planting and "*Bayscaping*", contact the Maryland Department of Natural Resources or the Alliance for the Chesapeake Bay.

Building a Rain Barrel:

A rain barrel is a small-scale conservation practice that collects and stores rooftop runoff for future use to water lawns and gardens. It is estimated that during summer months, nearly 40% of household water is used for lawn and garden watering. Using a rain barrel may save the average homeowner up to 1,300 gallons of water during peak summer months. This not only helps reduce stormwater runoff, but also conserves drinking water resources.

Ready-made rain barrels are available from an assortment of companies. However, constructing a rain barrel from readily available materials is an affordable and equally effective alternative. To build a rain barrel, you will need the following materials:

- 45 to 55 gallon "food grade" barrel or trash can
- Two - ½" or ¾" PVC to ¾" Pipe male adapters
- ¾" NPT female to garden hose brass faucet (sill cock)
- ¾" Pipe to ½" or ¾" i.d. hose adapter
- 4" floor drain or atrium grate
- 6" inspection port (for access if the barrel top is non-removable)
- 12" by 12" window screen
- Waterproof sealant
- Miscellaneous fasteners (e.g., stainless steel sheet metal screws)

PVC to Male Pipe thread adapters

Brass faucet

Hose adapter

STEP 1:

- Using the appropriate tools (e.g., jigsaw, keyhole saw, drywall saw) cut holes in the top of the barrel for the inspection port and the floor drain or atrium grate.
- Drill or cut a hole towards the bottom of the barrel (approx. 1 to 1½" above bottom) to fit a PVC to pipe adapter
- Drill or cut a hole towards the top of the barrel (approx. 1 to 1½" from top) to fit a PVC to pipe adapter

STEP 2:

- Insert the PVC to pipe adapters into the two holes from the inside of the barrel.
- Thread the brass faucet onto the bottom pipe adapter. Apply waterproof sealant, tighten, and then fasten the faucet to the barrel using two stainless steel sheet metal screws (preferably two #10 x ½" Pan Head Screws)
- Thread the hose adapter onto the upper pipe adapter. Apply waterproof sealant and tighten.

STEP 3:

- Fit the inspection port into its hole in the barrel lid and fasten with the appropriate stainless sheet metal screws (e.g., #8 x ½" Flat Head Sheet Metal Screws)
- Place the slotted drain or atrium grate into its hole in the barrel lid. Wrapping the fine mesh window screen on either the inside or outside of the drain will provide filtering of debris and prevent mosquitoes from entering the rain barrel.
- Realign or reconfigure the existing downspout as needed to direct runoff into the barrel.

Stormwater Management in Your Backyard

Successful stormwater management is achieved by controlling the quantity and quality of runoff from your property. The overriding condition, which governs stormwater runoff quantity, is the amount of hard, impervious surface located on your property (driveways, sidewalks, roofs, carports, etc.) Reduce these hard, impenetrable surface areas and you can reduce problems associated with excess stormwater runoff.

Residential "Rain Garden"

Stormwater quality, however, is governed by the accumulation of pollutants on the entire surface area of your property, regardless of whether it is grassed or paved.

The greater your use of chemicals around the home such as fertilizers, pesticides, engine oils, deicing materials, etc., the more degraded the stormwater runoff from your property will be. Although your effect on stormwater quantity and quality may seem inconsequential, the cumulative impact of runoff from hundreds of thousands of yards across the State has been destructive to Maryland's streams, rivers, and the Chesapeake Bay. Below you will find numerous tips for reducing the quantity and improving the quality of runoff from your backyard.

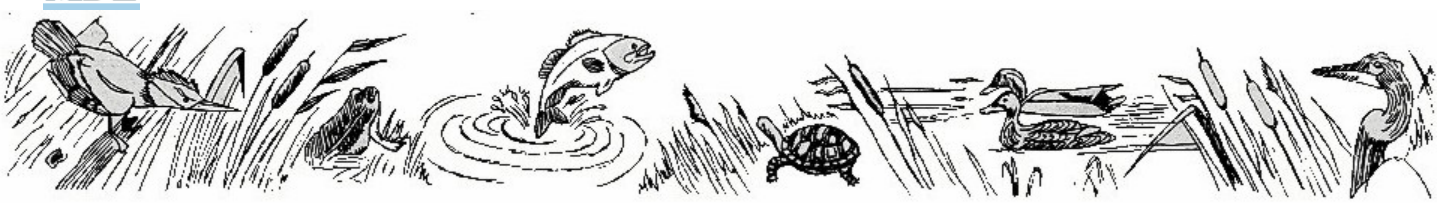
These Activities Will Minimize Stormwater Runoff from Your Property

- ✓ Limit the amount of impervious surfaces in your landscape. Instead, use permeable paving surfaces such as wood decks, bricks, and concrete lattice to allow for water to soak into the ground.
- ✓ Allow "thick" vegetation or "buffer strips" to grow alongside waterways to slow runoff and soak up pollutants.

These Activities Will Reduce Fertilizer, Pesticide, and Sediment Runoff

- ✓ Use natural alternatives to chemical fertilizers and pesticides. If you must use them, test your soil to determine the appropriate amount. For more information call the Maryland Cooperative Extension Service at 1-800-342-2507 0r visit their website at www.agnr.umd/users/hgil/
- ✓ If a lawn care company services your lawn, make certain it is not applying "blanket" applications of fertilizer and pesticides. Ask if they have conducted soil tests and a pest analysis to determine appropriate applications.
- ✓ Resod or reseed bare patches in your lawn as soon as possible to avoid erosion.

For more information on nonpoint source pollution and stormwater management, please call the Maryland Department of the Environment, Water Management Administration at (410) 537-3543.

MDE

Maryland Department of the Environment, 1800 Washington Blvd., Baltimore, MD 21230 | 410-537-3000 | www.mde.state.md.us
Larry Hogan, Governor | Boyd K. Rutherford, Lt. Governor | Ben Grumbles, Secretary