



# From My Backyard to Our Bay

A Calvert County Resident's Guide to  
Improving Our Environment and Natural Resources



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# Environmental Issues in Your Community

## Restoring the Chesapeake Bay

The Chesapeake Bay is a national treasure that desperately needs our help. Experts agree that there is only one way to restore the Chesapeake Bay, and that's "one river at a time." But the problems don't start in the rivers; they start on the land surrounding the rivers—their watersheds. You live in a watershed. We all do. The way we treat the land in our watersheds affects the health of our streams, our rivers, and ultimately the Chesapeake Bay.

### What is a Watershed?

A watershed is all the land area that drains to a given body of water.

Topography (the elevation and the contour of the land) determines where and how fast stormwater runoff will flow and eventually drain to a surface water body such as a stream, creek, or river. Every resident of Calvert County lives in a watershed that drains to the Chesapeake Bay or one of its tributaries.



WHERE TO GET HELP WITH...

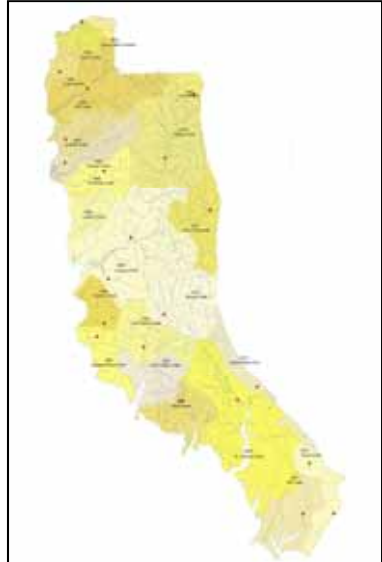
### **WATERSHED QUESTIONS**

- Patuxent Riverkeeper - [www.PaxRiverkeeper.org](http://www.PaxRiverkeeper.org)
- Calvert County Dept. of Planning and Zoning - [www.co.cal.md.us/government/departments/planning](http://www.co.cal.md.us/government/departments/planning) or 410-535-1600, ext. 2356
- Maryland Department of Natural Resources - [www.dnr.maryland.gov/waters](http://www.dnr.maryland.gov/waters)
- Maryland Tributary Strategies - [www.dnr.maryland.gov/bays](http://www.dnr.maryland.gov/bays)
- Maryland Department of the Environment - [www.mde.state.md.us](http://www.mde.state.md.us)

## Calvert County Watersheds Everything Flows to the Bay

In a watershed **everyone's** actions and attitudes affect the health of the water that flows to the Bay. Some residents are misinformed and believe that a small amount of pollution from their property will not make a difference. Others incorrectly believe that developers, farmers, and industry are the cause of all the problems. To make a positive difference, **everyone** must accept responsibility for careful land management, even a homeowner with a small backyard.

Over the last 25 years, the efforts of thousands of people and the expenditure of billions of dollars have been aimed at cleaning up the Chesapeake Bay. But the Bay is still in peril. To meet the goal of a healthy and stable Bay, all of us must do our part. Every resident in the Chesapeake Bay watershed can do something to help. But first, we must understand where the pollutants originate.



## How Do Pollutants Get Into the Water?

Bodies of water are polluted through two general sources: point sources and non-point sources. A **point source** is a concentrated discharge, like the outflow from a pipe at an industrial operation or a sewage treatment plant. A **non-point source** is stormwater runoff from non-specific sources such as parking lots, lawns, farms, and roads.

Over the last 30 years, many advances have been made in technology to reduce and control point source pollution. Point sources are easier to monitor because they come from identifiable sources.

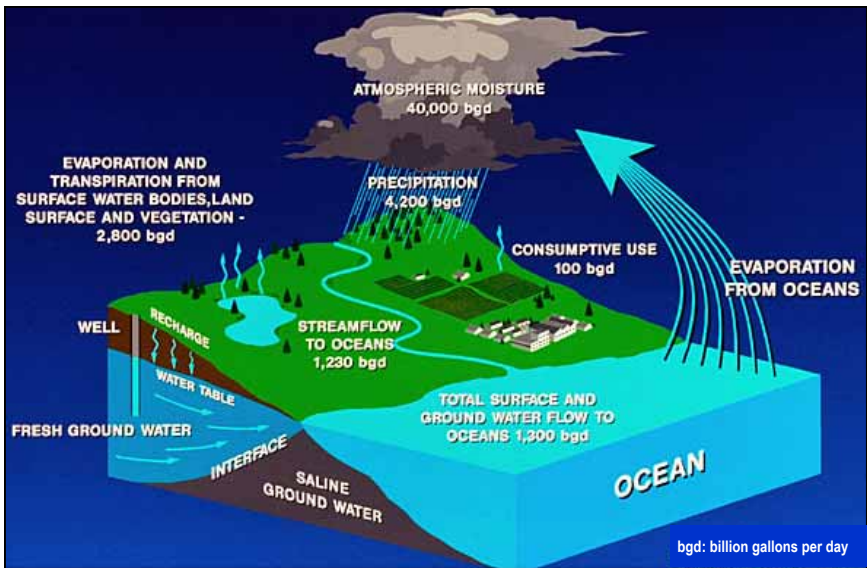
Polluted runoff from non-point sources, however, can result from stormwater flowing over large areas. In these cases, it is substantially more difficult to locate the sources and control the runoff and pollutants.

## The Hydrologic Cycle

Water is one of the most important natural resources on earth. Seventy-five percent of the earth's surface is covered by water. Most of the water, however, is seawater. Seawater becomes usable, safe for drinking, and free of harmful salt and minerals through the **hydrologic cycle**.

The hydrologic cycle begins with the sun. Energy from the sun converts water from the oceans, rivers, and land into water vapor. Air masses move the water vapor over land, where it condenses and becomes precipitation. Rain, sleet, snow, and hail are all forms of precipitation. Some precipitation evaporates while falling toward the earth. Some evaporates when it is intercepted by plants, buildings, and cars. Most of the precipitation soaks into the soil and eventually returns to rivers and oceans.

*A person can survive on one gallon of clean water a day for drinking and cooking. **The average American household uses 80 to 150 gallons of water per person, per day.*** It is important to remember that water is a natural resource. What contaminants run into our water and how we use that water each day affects the quality and availability of water for the future.





# The Chesapeake Bay is Threatened

## What's threatening the Bay?

**Nitrogen. Phosphorus. Sediment.** These are the major factors responsible for the decline of water quality in the Chesapeake Bay and its tributaries.

Nitrogen and phosphorus are nutrients. They serve as essential food for living things, but too much can be lethal to the Bay. Too many nutrients spawn the growth of algae that can be toxic to marine life, pets, and humans. When those algae die, they remove life-giving oxygen from the water and create “dead zones” where fish, oysters, clams, and crabs can't live because they can't breathe.



Sediment is soil that washes into the Bay when it rains. It clouds the water and prevents underwater grasses from growing. These grasses produce oxygen and provide a place for young fish and crabs to develop and thrive.

## So who's responsible?

**Every one of us.** Every drop of water that falls on Calvert County will make its way to the Bay or one of its tributaries. Along the way it will pick up and carry with it the things that **we** put on the ground.

## What can I do?

**From My Backyard to Our Bay** offers tips for living in harmony with the Bay. It explains how you can contribute to the health of your local watershed, maintain an environmentally-friendly lawn, and manage stormwater runoff, wells, and septic systems—all in ways that will reduce the flow of nutrients and sediment into the Bay.

## The Chesapeake Biological Laboratory

Founded in 1925, the Chesapeake Biological Laboratory has long been a national leader in fisheries, environmental chemistry and toxicology, ecosystem science and restoration ecology. Located where the Patuxent River meets the Chesapeake Bay, CBL is home to approximately 120 scientists, graduate students and staff. Over the decades, CBL has developed a national and international reputation for the quality of its research.

Research is conducted at CBL in four main areas: Fisheries, Ecology, Geochemistry and Toxicology. The fisheries group played a pivotal role in

research that led to the recovery of the striped bass, and most recently the blue crab, in the Chesapeake Bay. They conduct state-of-the-art work on habitat use by fish such as tuna, sturgeon and white perch. In addition to studying the Bay, the ecology group studies ecosystems from Calvert County to the Arctic. These studies focus on



understanding how previous changes in these ecosystems help in restoration and in forecasting how they may change in the future. Many of CBL's studies have direct applications – for example CBL scientists have considerable expertise in approaches to treating ship's ballast water to minimize introduction of exotic species. The geochemistry group studies the fate and transport of elements and chemicals throughout the environment. These studies use sophisticated instrumentation to measure trace amounts of chemicals in natural environments worldwide. Finally, the toxicology group integrates many of these disciplines to understand the harmful effects of the releases of chemicals, such as crude oil, into the environment.

The Visitor Center at CBL attracts thousands of visitors a year and is run by over 50 volunteers in the Docent Program. Visit [www.umces.edu/cbl/visitors-center-outreach](http://www.umces.edu/cbl/visitors-center-outreach) for Visitor Center hours and tour schedules. For more information contact the CBL Outreach Coordinator at 410-326-7640.



## The Critical Area

If you are fortunate enough to live within 1,000 feet of tidal waters or tidal wetlands, then you have some special obligations. Any changes to that area have such a direct and immediate impact on the Chesapeake Bay that in 1984 the Maryland legislature declared those lands the **Critical Area** and imposed special restrictions on human activities.

You need to take special precautions with your yard care—especially with fertilizer, herbicide, and pesticide application—in the Critical Area. That topic will be address later in this booklet.



**100-Foot Buffer:** Within the Critical Area, there is an even more sensitive zone: a 100-foot buffer immediately along the shorelines that serves as a transition between upland and aquatic habitats. This Critical Area Buffer, required by the Critical Area law, is measured 100 feet inland from mean high water, the landward extent of tidal wetlands, and the edge of tributary streams. Where steep slopes or particularly sensitive soils are present, the buffer may be even greater than 100 feet.

**Stop and ask!** Does this sound complicated? It can be. Any land- or vegetation-disturbing activities carried out within the Critical Area must follow specific provisions in the state-adopted Critical Area Criteria and local Critical Area Programs.

**Call First & Ask Questions**

**410-535-1600 ext 2356**

**Calvert County Dept. of Planning and Zoning**

Restrictions apply to activities such as clearing or pruning trees or brush, timber harvesting, removing vegetation, and increasing either pervious or impervious surfaces (areas that either can or can't absorb water).

Violations carry fines of up to \$10,000 per day, or may result in having to undo and/or remediate the work.

So to be safe (and to protect our Bay!), contact the Calvert County Department of Planning and Zoning at 410-535-1600 ext 2356 **before** taking any actions that will affect the Critical Area, including the 100-foot buffer, or to determine if your property falls within the Critical Area.



## Typical Violations

- Clearing or pruning trees and/or vegetation, either living or dead, in both the Critical Area and the Critical Area buffer.
- Construction of accessory structures (shed, pool, deck, etc) in the buffer.
- Disturbance of the buffer, including grading, stockpiling of construction materials, or dumping.
- Building or grading without a permit in the Critical Area.

These activities may not be violations if the property owner has proper approval from the local planning and zoning office and a building and/or grading permit is displayed on the property. If you see work that you think may be a Critical Area violation, call the Calvert County Department of Planning and Zoning at 410-535-1600 ext. 2356.

WHERE TO GET HELP WITH...

## CRITICAL AREA ISSUES

- Calvert County Dept. of Planning and Zoning - **410-535-1600 ext. 2356**
- Maryland Chesapeake Bay Critical Area Commission -  
**[www.dnr.state.md.us/criticalarea](http://www.dnr.state.md.us/criticalarea)**
- Chesapeake Bay Foundation - **410-268-8833**, *A Citizen's Guide to Maryland's Critical Areas Program* - **[www.cbf.org/document.doc?id=162](http://www.cbf.org/document.doc?id=162)**

## Streams in Your Neighborhood Need Help

Streams flowing through suburban areas need special care. As urban areas develop, natural stream channels are forced to handle a higher volume of stormwater due to the new expanses of impervious surfaces (roofs, parking lots, and streets). This destroys the natural state of the stream and causes the stream channel to increase in size. High, turbulent waters scour stream channels and undercut the banks until the tops of the stream banks cave in and are carried away, degrading the stream with tons of sediment.

Stream banks should be protected with vegetation and trees. Streamside vegetation acts as a filter for runoff flowing from upland areas and is very effective at trapping and absorbing runoff and associated pollutants. The shade from trees and shrubs whose canopies overhang the stream keeps the water cool to protect stream-dwelling organisms. Buffers also provide excellent habitat for birds and other wildlife.



Landowners should bear in mind that **any grading or significant change within the stream channel that would affect the flow or cross-section of the channel requires a state permit.** This permit is granted only if the landowner can prove that the proposed change will not negatively impact the environment or the stream's ability to convey stormwater.

The best protection for streams is a **riparian buffer**, a protected area extending beyond the stream banks that is densely planted in grasses, shrubs, and trees. Many nonprofit organizations have stream buffer cleanup projects. You can volunteer to help with these projects. Contact Calvert County Department of Planning and Zoning for more information on installing buffers.

## Creating Living Shorelines

Erosion along shorelines is a natural but relentless process. Many methods have been used to try to slow or stop the erosion process. These methods include dumping recycled materials and tires and installing bulkheads and riprap. Unfortunately, these “solutions” often cause problems by impairing the aesthetics of a shoreline and eliminating the valuable fringing wetlands and sand beaches needed to improve water quality and sustain wildlife. Shorelines are a critical part of the environment for many species of fish, turtles, shorebirds, and aquatic life.



Calvert County requires homeowners to look first at “living shorelines” to control erosion (see photo above). This technique employs materials such as native plants, stone, and sand to preserve the shoreline naturally. Unlike methods such as riprap or bulkhead, living shorelines are designed to maintain or minimize the disruption of normal coastal processes, such as movement of sediment along shorelines, and to restore or protect wetlands.

Living shorelines offer increased habitat for shorebirds, fish, mammals, reptiles, amphibians, and other aquatic organisms. Living shorelines can also increase property value. People are attracted to natural settings with aesthetic beauty and plenty of wildlife. The deep roots of marsh grasses, shrubs, and trees help to stabilize the shoreline and reduce erosion. Living shorelines help filter nitrogen and phosphorous from upland landscapes to prevent pollutants from flowing into streams and rivers.

WHERE TO GET HELP WITH...

### **STREAMS & SHORELINES**

- Calvert County Dept. of Planning and Zoning - **410-535-1600 ext. 2356**
- Calvert Soil Conservation District - **410-535-1521 ext. 3**
- Maryland Department of Natural Resources - **[www.dnr.maryland.gov/criticalarea/pdfs/Livingshorelines-FN.pdf](http://www.dnr.maryland.gov/criticalarea/pdfs/Livingshorelines-FN.pdf)**

## **Reporting Problems on Our Bay, Rivers, and Streams**

We can all be the “eyes and ears” of our local waterways. Maryland has established the Chesapeake Bay Safety and Environmental Hotline—**1-877-224-7229**—as a toll-free phone number for reporting problems on tidal waters. One call will direct you to the appropriate agency to make a report, 24 hours a day, 7 days a week. You can also voice your stewardship concerns about issues in tidal or non-tidal waters to the Patuxent Riverkeeper at 301-249-8200.

### **Use the hotline to report any of the following:**

- Fish kill or algae bloom
- Public sewer leak or overflow
- Oil or hazardous material spill
- Wetlands violation
- Floating debris that poses a hazard to navigation
- Suspicious or unusual activity
- Sediments or mud running off a construction site
- Boating accident or reckless activity
- Illegal fishing activity

**1-877-224-7229**

*It's the 911 for the Chesapeake Bay.*



**No Erosion Control at Construction Site**

## Forest Stewardship

Forestland is important to the overall health of the Chesapeake Bay. Forests provide several layers, from the canopy to the forest floor, that act as filters. They improve water quality, reduce sedimentation, remove nutrients and regulate stream flow during storms.

Maryland's 2.5 million acres of forest, most of which are privately owned, cover approximately 39% of the state's land area. Calvert County's land area is about 47% forested, and has more than 190 miles of shoreline. Wooded buffers along these shorelines are critical to improving Bay health. Acre for acre, forested lands produced the least amount of runoff and pollution. The County occupies a forest transitional zone, where the dominant tree species vary from oak/hickory to tulip poplar to sweet gum/red maple and loblolly/Virginia pine.



Forests can be harvested on a sustainable basis for materials, including structural lumber, crates, shelving and furniture, flooring, mulch, and pulp for paper. Forests can, in most cases, provide these products while also maintaining and even enhancing wildlife habitat, recreational activities, and soil conservation. Timber harvests are closely monitored by a partnership of agencies, including the Calvert Soil Conservation District, the Calvert County Department of Planning & Zoning and the Maryland Department of the Environment.

County residents with questions about woodland stewardship and management, as well as timber harvesting, should contact their local DNR forester or a consultant forester. The State of Maryland maintains a database of private Licensed Professional Foresters (LPFs), who work cooperatively with the Department of Natural Resources (DNR) Forest Service to assist landowners with implementation of timber harvests. Lists of LPFs can be found at the DNR Web site below.

WHERE TO GET HELP WITH...

### FOREST STEWARDSHIP QUESTIONS

- Maryland Dept. of Natural Resources - [www.dnr.maryland.gov/forests](http://www.dnr.maryland.gov/forests)
- Calvert Co. Forestry Board - [www.calvertforestry.org](http://www.calvertforestry.org)
- Maryland Association of Forest Conservancy District Boards – [www.marylandforestryboards.org](http://www.marylandforestryboards.org)
- University of Maryland Extension - [www.naturalresources.umd.edu](http://www.naturalresources.umd.edu)



## Land Resources & Recreation

Whether hiking, bird watching, visiting parks, kayaking, boating, sailing, fishing, or hunting, the residents of Calvert County find ample opportunities to enjoy the abundant natural beauty that surrounds them. The health of the forests and tributaries is fundamental to the overall health of our rivers and the Chesapeake Bay.

The DNR and Calvert County require that homeowners manage trees and waterfront issues on their property according to state and local law. Special considerations apply within the Critical Area (1,000 feet from the shore). Before you cut or clear, or amend your shoreline, make sure you know what is permitted.



State and county parks are available for launching boats and kayaks, swimming, fishing, bicycling, horseback riding, and hiking. Excellent hiking trails are located at Flag Ponds, American Chestnut Land Trust and Battle Creek Cypress Swamp Nature Center. Calvert Cliffs State Park permits bicycling and horseback riding.

## Hunting

Upland hunting and waterfowl hunting are quite popular in Calvert County. Trail hikers and riders should be aware of hunting areas and avoid these areas during hunting activities. Maryland laws forbid the harassment of hunters. **If you are hiking during hunting season in a park adjacent to a hunting area, be sure to wear bright colors—orange is preferred and safest.**

WHERE TO GET HELP WITH...

### NATURAL RESOURCES QUESTIONS

- Calvert County Dept. of Parks and Recreation - 410-535-1600 ext. 2225 or [www.co.cal.md.us/residents/parks/](http://www.co.cal.md.us/residents/parks/)
- Public Parkland, County and State - [www.dnr.state.md.us/PUBLICLANDS](http://www.dnr.state.md.us/PUBLICLANDS)
- Maryland Dept. Natural Resources - [www.dnr.state.md.us/huntersguide](http://www.dnr.state.md.us/huntersguide)

## Water Resources & Recreation

### Swimming

Public access to swimming can be found at Kings Landing Pool, Cove Point Pool, Calvert Cliffs State Park, Breezy Point, North Beach, and Chesapeake Beach Bayfront Park. Indoor swimming is provided to the public at the Edward T. Hall Aquatic Center, 130 Auto Drive, Prince Frederick.

### Sailing & Paddling

Calvert County has over 140 miles of shoreline, and boating opportunities exist along almost every creek and shoreline. The Patuxent River can be paddled with launches available at Kings Landing Park, Jefferson Patterson Park and Museum, and Solomons. On the Chesapeake Bay side Parkers Creek and Fishing Creek offer excellent paddling. Larger boats can be launched onto the river from Benedict or Solomons and onto the Bay from Chesapeake Beach and Breezy Point.



### Power Boating

Recreation on Calvert County's many lakes, creeks, rivers, and the Bay includes a variety of power boats. Marinas abound in almost every cove or bend in Solomons and other sites throughout the county. They provide safe harborage as well as services. For those who trailer their boats, well-maintained ramps can be found on both the bay and river. Some locations charge fees, but others are public access and free. For more information, visit the county website or visit Maryland Park Service.

### Patuxent River Water Trail Guide

[www.patuxentwatertrail.org](http://www.patuxentwatertrail.org)



## Fishing

Harvesting the bounty of the watershed provides great enjoyment for the recreational fisherman and hunter as well as a way of life for the waterman.



Responsible harvesting and safe consumption of fish, crabs, oysters, and clams requires knowledge of the health of the river as well as knowledge of regulations governing the limits on harvests. Licenses and current regulations can be purchased at local bait shops and sporting goods stores.

Consult the Maryland Department of Natural Resources Web site for current licensing requirements and the Maryland Department of the Environment for fish consumption guidelines.

### **Be sure to register with the National Saltwater Angler Registry at**

[www.countmyfish.noaa.gov/register](http://www.countmyfish.noaa.gov/register). This is a new requirement and it is free.



WHERE TO GET HELP WITH...

## **WATER RESOURCES QUESTIONS**

- Maryland Dept. of Natural Resources, Fishing Regulations – [www.dnr.state.md.us/fisheries/regulations](http://www.dnr.state.md.us/fisheries/regulations)
- Maryland Dept. of Environment, Consumption Guidelines - [www.mde.maryland.gov/programs/marylander/citizensinfocenterhome/pages/citizensinfocenter/fishandshellfish/index.aspx](http://www.mde.maryland.gov/programs/marylander/citizensinfocenterhome/pages/citizensinfocenter/fishandshellfish/index.aspx)
- Calvert County Department of Economic Development - [www.ecalvert.com/content.tourism/visitorsguide](http://www.ecalvert.com/content/tourism/visitorsguide)
- Sailing Center Chesapeake - [www.sailingcenterchesapeake.org](http://www.sailingcenterchesapeake.org)

## Oyster Aquaculture

Oysters are filter feeders—they filter the water by eating algae and microscopic animals, while constantly removing sediments from the water column and placing them onto the bottom. An adult oyster (about 3-4 inches long) filters 60 gallons of water a day. Historically, oysters could filter the entire Chesapeake Bay waters in about three and a half days. Today, at 1% of their former numbers, there aren't enough of them to filter the water. Oysters, with their ability to cleanse our bays and tidal rivers, are an essential component in the restoration of the Chesapeake Bay.

Additionally, oysters create three-dimensional habitats called reefs that attract a diverse assortment of plants and animals. Many of these animals are also filter feeders such as barnacles and shrimp. Blennies and

Skilletfish abound in the oyster reef colony feeding on the smaller filter feeders, all the time trying not to become dinner for larger fish. Mature oysters bars are excellent places to fish for perch, rockfish, speckled trout, and croakers.

Oysters grown under residential docks provide miniature oyster reef habitats. Growing oysters is an excellent way to help clean the water and, in time, enjoy eating one of the Chesapeake Bay's finest culinary treats. **Maryland residents can receive income tax credits of up to \$500 per taxpayer to offset the cost of growing oysters at home under their dock.**



## Marylanders Grow Oysters

The Marylanders Grow Oysters program is active in Calvert County within the lower Patuxent River including Back, Mill, Hellen and St. Leonard creeks. Volunteers steward baby oysters through their first vulnerable year of life by tending them in cages tied to their piers. The year-old oysters are then placed onto a sanctuary reef within the river. To learn if you can volunteer, visit: [www.oysters.maryland.gov/index.asp](http://www.oysters.maryland.gov/index.asp)

WHERE TO GET HELP WITH...

### OYSTER AQUACULTURE QUESTIONS

- Southern Maryland Oyster Cultivation Society - [www.smocs.org](http://www.smocs.org)
- Chesapeake Bay Foundation, Oyster Restoration Center - [www.cbf.org/page.aspx?pid=1063](http://www.cbf.org/page.aspx?pid=1063)
- Coastal Conservation Association - [www.ccamd.org](http://www.ccamd.org)

# Environmental Issues in Your Backyard

## Water Runoff Can Pollute

When we say *From My Backyard to Our Bay*, there are two issues we need to consider. We must first examine the amount and speed of the water that moves across the ground—your backyard. We must also consider the contaminants the water picks up as it crosses your yard on its way to the Bay or its tributaries.



Improper yard maintenance causes erosion.

In a rainstorm, some rainfall “infiltrates,” or soaks into the ground, and some runs off. Infiltrated water percolates through the soil and replenishes the groundwater that eventually supplies water to wells. Runoff can cause serious pollution problems.

For every house built, a considerable expanse of *impervious surface* is added—area that can’t absorb water. A vacant lot can absorb rainfall over its entire surface, but when roofs, sidewalks, driveways, streets, and parking lots are installed, all of the rainfall striking these surfaces runs off with very little infiltration. Runoff from residential areas can quickly pick up pollutants on its path to the nearest storm drain or stream.

The most common pollutant is sediment. Soil particles carried by the runoff make “muddy” streams. When runoff slows down enough, the sediment settles out of the water and is deposited. Pollutants such as fertilizers or pesticides can be dissolved in runoff or attached to sediment particles. Other water-borne pollutants include pathogens, fecal coliform (which could come from wild animal or pet waste), gas, oil, grease, and exhaust particulates that wash off streets and parking lots.

In suburban areas, runoff eventually flows into the storm drain system, headed for drinking water reservoirs and the Bay. It is far easier and more cost effective to solve pollution problems at the source. Once polluted runoff leaves your property, it becomes a public problem—and a much more expensive one.

## Stormwater Ponds

Suburban developments built since 1984 are required to provide permanent stormwater management practices to treat runoff and slowly release it to the nearest stream. This slow release prevents the concentrated flow that results in stream bank erosion, which can cause many thousands of tons of sediment from eroded stream banks to be moved downstream.

Stormwater ponds must be maintained if they are to do their job of protecting our tributaries. Keeping the grass cut and other maintenance tasks usually fall to homeowners' associations. Make sure your association is maintaining your stormwater pond. It protects not only the Bay, but also you and your neighbors from the expense of repairing a failed pond.



## What Can I Do to Control Runoff?

Whether or not your neighborhood has a stormwater control pond, you can do a number of things to slow down or reduce the volume of water that runs off your property and into our Bay.

The first and simplest rule of conservation is to maximize infiltration of rainfall and minimize runoff. Protecting soil with grasses, shrubs, trees, or mulch will make the soil more resistant to erosion and more likely to absorb the maximum amount of rainfall before runoff begins to occur.

WHERE TO GET HELP WITH...

### **RUNOFF, EROSION, & SOIL QUESTIONS**

- Calvert Soil Conservation District - **410-535-1521 ext. 3**
- Calvert County Dept. of Planning and Zoning - **410-535-1600 ext. 2356**
- Chesapeake Bay Foundation, *A Citizen's Guide to Erosion and Sediment Control in Maryland* - **[cbf.org/document.doc?id=160](http://cbf.org/document.doc?id=160)**
- Calvert County Dept. of Public Works - **410-535-2204**



## Rain Gardens Can Help

During a one-inch rainstorm, more than 750 gallons of water fall on 1,200 square feet (about half the space of ground covered by the average American house). All of that water moves rapidly into storm drains, saturates lawns and heads for the Bay and its tributaries.

Rain gardens are gaining popularity as a way to control stormwater runoff on residential properties. A rain garden is more than just a bed of pretty plants; properly sized and installed, it can collect and filter large quantities of water. This helps keep pollutants such as fertilizers, motor oil, and heavy metals out of our streams, and saves time and money that may otherwise be spent watering a lawn or flowers.

The difference between a traditional garden and a rain garden lies underground and in the plant selection. A rain garden is positioned slightly down slope of a gutter in order to catch the rainwater. The ground is dug to a depth of about 6 inches and refilled about halfway with a mixture of topsoil and organic material, compost, or shredded leaves and sand. If heavy clay soils are present, other techniques (such as vertical cores of gravel) may be needed. To receive more information on soils types, visit the web soil survey found at: [www.websoilsurvey.nrcs.usda.gov](http://www.websoilsurvey.nrcs.usda.gov).



Rain gardens are generally best situated in sunny locations, and the plants that thrive in them prefer full to partial sun. Plants selected for rain gardens must tolerate drought as well as periodic flooding. Luckily, many attractive native plants fit these requirements. A two- to three-inch layer of mulch keeps the plants moist and provides additional filtration.

## Tips for Planting a Rain Garden

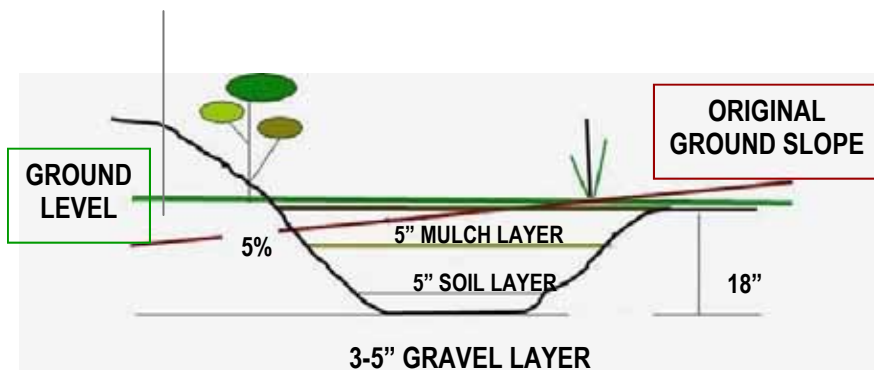
- **Pick the location:** Sunny areas where the land slopes slightly away from the house are best.
- **Determine size:** Measure the area of roof that will drain to the downspout. The garden should be about 20% of the size of the area to be drained.
- **Keep your distance:** Plant the rain garden at least 15 feet away from the house.

- **Don't fear the mosquitos:** Their larvae take seven to ten days to mature. A well-designed rain garden should drain in three days or less. It will also attract predators such as birds, toads, and dragonflies to keep bugs at bay.
- **Choose native plants with large root systems:** They are generally best suited to the rain garden environment. Not all non-native (exotic or introduced) plants are invasive. However, many plants that have been classified as "invasive" or detrimental to the environment are still available in nurseries. See the "Controlling Noxious Weeds and Invasive Plants" section for more information. As you would in any garden, if the location is central, site tallest plants in the center and plant gradually shorter ones as you work toward the edges. If you are only viewing the garden from one side, plant the tallest ones in the back. Look for varieties that provide color throughout the seasons.

View this nine-minute video

***Reduce Runoff: Slow It Down, Spread It Out, Soak It In***

[http://www.youtube.com/watch?v=huO\\_NRn34GI](http://www.youtube.com/watch?v=huO_NRn34GI)



Cross-section of a rain garden

WHERE TO GET HELP WITH...

## **RAIN GARDENS & NATIVE PLANTS**

- Rainscaping Campaign - [www.rainscaping.org](http://www.rainscaping.org)
- Adkins Arboretum - 410-634-2847 or [www.adkinsarboretum.org/native\\_plant\\_resources](http://www.adkinsarboretum.org/native_plant_resources)
- Environmental Concern (backyard wetlands) - [www.wetland.org/nursery\\_raingarden.htm](http://www.wetland.org/nursery_raingarden.htm)

## Rain Barrels

Rain barrels are an old idea that has been recycled. They temporarily store rainwater runoff from rooftops, reducing the flow of water into our streams, rivers, and the Bay.

Rain barrels are plastic drums that are connected directly to a downspout. Water is collected in the drum for later use. Rain barrel water can be used to water lawns and gardens and to wash cars. Of course, rain barrels must be emptied before the next storm to function properly, but that lets you control when and how fast the water is released.



WHERE TO GET HELP WITH...

### RAIN BARRELS

- Patuxent Riverkeeper - [www.paxriverkeeper.org](http://www.paxriverkeeper.org)
- Rainscaping Campaign - [www.rainscaping.org](http://www.rainscaping.org)

## Keeping Water Away From Your House and Basement

Drainage of surface and subsurface water is an important concern for every homeowner. Rain gardens and rain barrels are two effective ways to keep your house and basement protected from water damage. Another factor in good drainage is proper grading, so that gentle slopes convey runoff away from the house and basement, and water is not left standing against walls or causing water pressure to build up under the basement floor.

Wet basements can result from water passing through cracks in the basement walls, through the joint between the basement wall and the floor, or through the basement window well.

If you have problems, check the exterior grading to ensure that rainwater will flow away from the house. Flower beds and foundation plantings may hold water against the walls. When regrading, avoid placing soil against wood or siding. **Grading requires a county permit.** For more information, call the **Calvert County Dept. of Planning and Zoning** at 410-535-1600 ext. 2356.

Inspect all areas where downspouts from the gutters around the house discharge onto the ground. Twice a year, clean out all gutters and downspouts to prevent overflows that will drip water too close to the foundation.

Because the flow from a downspout will be forceful in a storm, make sure that the area where it drains across the ground is adequately protected with either sturdy vegetation, stone, or gravel. Usually a splash block of concrete or plastic placed directly under the downspout outfall will absorb the initial force of water



gushing from the downspout. This will help disperse the water's erosive energy and move it away from the foundation. A rain barrel may be an excellent option for managing water from your gutters.

In some settings with difficult terrain or poorly drained soils in low-lying areas, the only solution may be an underground drainage system. There are several options for creating such a system:

**Rain gardens** (see page 11) allow excess water to slowly soak into the soil.

A **dry well** is a small pit filled with crushed stone. An infiltration test must be

conducted prior to construction to determine if the dry well is appropriate to the site.



Proper gutter installation keeps water away from the foundation.

An **infiltration trench** collects and filters rainwater and then permits it to soak into the soil rather than flowing directly into the water system. The trenches are backfilled with stone aggregate and lined with filter fabric. Research

has shown that infiltration trenches can remove up to 90% of sediments, metals, coliform bacteria, and organic matter. Up to 60% of phosphorous and nitrogen can be removed by infiltration trenches.

To help prevent surface water from standing in your yard, maintain a slight slope that drains toward a swale (an earthen channel) or storm drain.

Whenever you concentrate runoff, you increase its erosive potential, so it's best to maintain a stand of sturdy vegetation in the swale to prevent a gully from forming

WHERE TO GET HELP WITH...

## **DRAINAGE PROBLEMS**

- Calvert Soil Conservation District - 410-535-1521 ext. 3 or [www.calvertsoil.org](http://www.calvertsoil.org)

# Backyard Best Management Practices

It is important to consider what else you can do to limit the number of pollutants that the water picks up on its way to the Bay.

## Keeping a Healthy Lawn

For many of us, a lush, green, weed-free lawn has come to symbolize success as homeowners or gardeners. To achieve that look, though, we probably over-apply fertilizer to encourage vigorous growth and use pesticides to control weeds, insects, and diseases.

According to the Maryland Department of Agriculture, there are more than 937,000 acres of residential lawns statewide. In 2009, more fertilizer was applied to residential



lawns than to agricultural lands. If each of us over-fertilizes our lawn by just one pound, a huge amount of excess nutrients ends up polluting groundwater, streams, rivers, reservoirs, and the Chesapeake Bay.

**Soil fertility should be tested** before seeding a new lawn and every three years for an established lawn to determine the amount of fertilizer and lime needed. Contact **Calvert County Soil Conservation District** or **University of Maryland Extension** for help with soil testing.

Before establishing a lawn, consider whether turf grass is suitable. Heavily shaded or severely sloped areas may not provide the conditions needed for turf, leading to erosion, pests, and a lack of soil nutrients.

Fertilizer-free and pesticide-free lawns are the best choice for the environment. The homeowner saves significant amounts of time and money by reducing the frequency of fertilizing and applying pesticides. Slow release and low- or no-phosphorous fertilizers are optimal to promote a healthy environment. New lawns may require some phosphorous, but require very little once established.  
**Don't over-fertilize!**



## Lawn Care Tips

- Most Calvert County lawns are cool season grasses that turn brown in summer but become green again in the fall. If fertilizer is needed, spread two or three small applications, one month apart (early September, October, and November), rather than one larger application.
- Do not apply fertilizer to frozen ground or dormant turf (especially when cool season grasses turn brown during summer months).
- Apply only the recommended amounts of fertilizer. Use no more than 1 pound of actual nitrogen per 1,000 square feet of lawn per application. Keep fertilizer off paved areas by sweeping it back onto the grass.
- Mow at an appropriate height to maintain a healthy lawn. Maintaining grass height of at least 2 ½ inches helps keep the soil cool and provides drought protection. Mowing too short may reduce root and stem development and encourage weed problems. **Proper mowing height helps to reduce weeds by as much as 50–80%.**
- Mow with a mulching blade to fertilize the lawn naturally with grass clippings. Routinely leaving grass clippings on the lawn lowers nitrogen fertilizer applications by 25% or more.
- Cool season grasses naturally go dormant in summer. Watering your lawn during the dormant season may cause undue stress to your lawn. **For a healthy lawn, do not water between July 4th and Labor Day.**
- In the spring or fall, watering slowly to wet the soil to a depth of 4–6" will prevent runoff from leaving your property. Early morning is the best time for watering. Light, frequent watering or watering in the evening can actually damage your lawn.
- **For some areas (like steep slopes and shady places), groundcover or planting islands (areas with groupings of trees, shrubs, and flowers) may be a better choice than turf grass.**

### WHERE TO GET HELP WITH...

#### LAWN CARE

- Chesapeake Bay Foundation Healthy Lawns - [www.cbf.org/document.doc?id=59](http://www.cbf.org/document.doc?id=59)
- Maryland Department of Agriculture, Lawn Care - [www.mda.state.md.us/pdf/lawncare.pdf](http://www.mda.state.md.us/pdf/lawncare.pdf)
- University of Maryland Extension, Home and Garden Information Center - [www.hgic.umd.edu/content/onlinepublications.cfm#Lawns](http://www.hgic.umd.edu/content/onlinepublications.cfm#Lawns)
- EPA, *Outdoor Air—Lawn Equipment* - [www.epa.gov/airquality/community/details/yardequip.html](http://www.epa.gov/airquality/community/details/yardequip.html)

## The “Urban Forest”

Though you may not realize it, your yard is part of the "Urban Forest." Urban forestry is the term commonly used to describe the care of individual yards, street trees and parks, as well as forest fragments like wooded parkland and unimproved lots.

The urban forest is critical to the health of the Chesapeake Bay. Deep root systems anchor trees, control erosion and take up pollutants that would otherwise enter the Bay via groundwater. Leaf canopies help reduce the erosive effect of heavy rains.

The forest floor, with its layers of twigs, leaves and understory vegetation, acts like a sponge for stormwater. Trees also provide important wildlife habitat; many animals and birds depend on trees for a place to live and for food. Trees also store carbon and intercept airborne pollutants.



Trees can contribute to energy savings, too. The shade from trees planted at a proper exposure near a home can reduce summer cooling costs by 40%.

### Plant Native Trees

Trees and shrubs native to Calvert County are good choices for adaptability to the local environment and for attracting birds and animals. Some of the most common choices are red and white oak, loblolly pine, redbud, eastern red cedar, yellow poplar, sycamore and red maple.

### Care for Your Trees

Trees would prefer not to be pruned, but pruning and thinning tree branches correctly when they're damaged can improve the health and lifespan of your urban forest. Contact a licensed tree expert for advice and assistance with these important tasks, particularly if you live in the Critical Area. Most healthy trees do not need fertilizer.

WHERE TO GET HELP WITH...

### URBAN FORESTRY

- Maryland Department of Natural Resources – [www.dnr.state.md.us/forests](http://www.dnr.state.md.us/forests)
- Calvert County Forestry Board - [www.calvertforestry.org](http://www.calvertforestry.org)
- Maryland Association of Forest Conservancy District Boards – [www.marylandforestryboards.org](http://www.marylandforestryboards.org)
- International Society of Arboriculture – [www.treesaregood.com](http://www.treesaregood.com)
- Casey Trees Washington DC - National Tree Benefit Calculator [www.treebenefits.com/calculator](http://www.treebenefits.com/calculator)

## **Controlling Noxious Weeds and Invasive Plants**

Some weeds are so persistent, destructive, and difficult to eradicate that they have been designated as noxious. Maryland has a noxious weed law that requires landowners to control Canada thistle, johnsongrass, shattercane, and multiflora rose on private property. For effective control, both the seed and the root system of these weeds must be managed by mowing, cultivating, or treating with approved herbicide. For information on identifying or controlling these plants, contact Maryland Department of Agriculture Plant Protection and Weed Management at 410-841-5920 or <http://www.mdinvasivesp.org>. A vegetation removal permit may be required. For permit information, contact the Calvert County Department of Planning and Zoning.

Plants that are not native to Maryland, outcompete native plants and quickly take over natural areas, but are not regulated noxious weeds, are called invasive plants. When invasive plants are introduced into new landscapes, they can quickly take over. Invasive plants often spread by runner-type root systems or by easily distributed seeds spread by wind, birds, and other animals. These plants can have negative effects on wildlife habitats, native plant and insect communities, and even present a threat to human health.

Many common invasive plants were introduced commercially through horticulture and are used in landscapes. Before you purchase a plant, be sure it is not a listed invasive plant. Some of these plants include Empress of princess tree, Norway maple, Sawtooth oak, Wintercreeper or creeping euonymus, Chinese and Japanese wisteria, purple loosestrife, Miscanthus (Japanese or Chinese silver grass), barberries, winged euonymus (burning bush), Bradford or callery pear, English ivy, Vinca (periwinkle), Amur honeysuckle and Japanese stilt grass. Assistance is available for the removal of many invasive species.

### **WHERE TO GET HELP WITH...**

### **INVASIVE PLANT CONTROL**

- Calvert County Dept. of Planning and Zoning - **410-535-1600 ext. 2356**
- Maryland Invasive Species Council - **410-841-5920** or **[www.mdinvasivesp.org](http://www.mdinvasivesp.org)**
- U.S. Department of Agriculture - **[www.invasivespeciesinfo.gov](http://www.invasivespeciesinfo.gov)**

## **Invasive Plants and Noxious Weeds**



**Kudzu**



**Barberry**



**Multiflora rose**



**Oriental bittersweet**



**Japanese stiltgrass**



**Miscanthus grass**



**English ivy**



**Autumn olive**



**Japanese Honeysuckle**

## Are you Bay-Wise?

Bay-Wise landscapes minimize negative impacts on our waterways by using smarter lawn management techniques and gardening practices. The Calvert County Bay-Wise program offers hands-on help with managing your landscape



by providing information, site visits, and landscape certifications. The Master Gardeners yard-stick checklist is easy to understand and follow, and the team of trained Master Gardeners can help guide you through it while offering suggestions to improve both the appearance and sustainability of your landscape.

Master Gardeners can help you learn ways to:

- Create a landscape design that will help to control stormwater runoff.
- Choose the right plant for the right place, and integrate more native plants in your landscape.
- Encourage wildlife and create a haven for birds, butterflies, and other pollinators.
- Protect the Chesapeake Bay and our local waterfront.
- Fertilize wisely to keep your plants and soil healthy.
- Water more efficiently and mow properly.
- Manage yard pests with Integrated Pest Management.
- Recycle yard wastes and mulch appropriately.



Residents who qualify will receive a **Bay-Wise certificate and sign for their yard**. Maryland Master Gardeners are volunteer educators for the University of Maryland Extension, and the Bay-Wise program is a homeowner education program that is designed to create a healthier world by following the basic principles of environmental stewardship.

**CALL NOW & SCHEDULE A VISIT**  
**301-475-4120**

*Start a Movement in Your Neighborhood...*  
*Be the First to be Certified Bay-Wise!*

## Pet Waste

Animal waste can be carried easily by rainwater, untreated, to the nearest stream or storm drain. Pet waste contains many harmful bacteria. It is important to keep these bacteria out of drinking water sources and off the lawn. Pet waste may also contain parasites. Disease-causing bacteria and parasites can be harmful to your pet and your family. In addition, pet waste acts as a fertilizer in the water system and promotes the unhealthy growth of aquatic plants, including algae. The increased abundance of aquatic plant life can rob other aquatic life of much-needed oxygen.

When walking a dog, take a biodegradable bag along. Pick up the pet waste and flush it down the toilet, where it will be properly treated, or dispose of it with your other trash. If flushing is not an option, dig a small trench in the yard and layer pet waste with leaves, grass clippings, and dirt. **Do not put pet waste down a storm drain or leave it exposed in your yard!**



WHERE TO GET HELP WITH...

### CLEANING UP PET WASTE

- PetPlace.com - [www.petplace.com/dogs/ways-to-clean-up-your-dogs-waste/page1.aspx](http://www.petplace.com/dogs/ways-to-clean-up-your-dogs-waste/page1.aspx)
- University of Maryland Extension, *Pet Waste and Water Quality* - [www.extension.umd.edu/publications/PDFs/FS703.pdf](http://www.extension.umd.edu/publications/PDFs/FS703.pdf)



## Household Best Management Practices

Instead of *From My Backyard to Our Bay*, this booklet could easily be titled *From My **Lifestyle** to Our Bay*. Earlier we mentioned ways we all can cut down on water use as a way to relieve the strain on the Bay. Many other things we all can do in our daily lives will have an effect on our Bay.

### Energy Conservation

Scientists tell us that about 25% of the excess nutrients entering the Chesapeake Bay come from air pollution that is deposited on the land and then washed into the Bay's tributaries. Where does that air pollution come from?



The great majority of air pollution comes from motor vehicles and from coal-fired power plants that produce the electricity we all use. As the demand for energy increases in the United States along with population and development, it is important for individuals to begin conserving energy. Every household and every family can help reduce energy demand and the flow of pollutants to the Bay.

## **Tips for Conserving Energy**

- Turn off the lights when leaving a room.
- Keep doors, windows, and drapes closed when running the air conditioning; keep drapes open during the day when running the heat.
- If your air conditioning unit is old, consider replacing it. A new energy-efficient model could save up to 50% on your electricity bill.
- Replace conventional heating/air conditioning units with high efficiency geothermal systems.
- Air dry dishes instead of using the drying cycle on your dishwasher.
- Clean the lint filter in the clothes dryer after every load to improve circulation.
- Consider buying a laptop for your next computer. Laptops use less energy than desktop computers.
- Plug appliances and electronics such as TVs and DVD players into power strips. When the appliance is not in use, turn off the power strip. Appliances still use energy when plugged in and not in use. Twenty percent of a typical American's electric bill is from appliances.
- Replace your conventional thermostat with a programmable thermostat. In winter, reducing your thermostat from 72 to 68 degrees for 8 hours a day (when at work) can lower your heating bill up to 10%.
- Lighting accounts for 15% of household electricity use. Fluorescent bulbs reduce energy use by 75% and last 10 times longer than incandescent bulbs. Since fluorescent bulbs contain mercury, dispose of them properly during biannual hazardous waste collection days.
- Windows account for the majority of heat loss. Consider replacing old or inefficient windows with new energy-efficient types.
- Consult your local power company for information on online or in-home energy audits.

### **WHERE TO GET HELP WITH...**

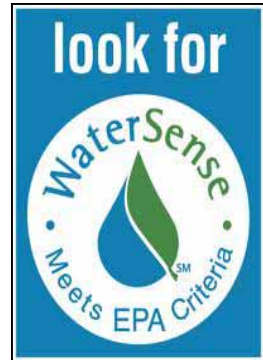
## **CONSERVING ENERGY**

- U.S. Environmental Protection Agency - [www.epa.gov/climatechange/wyecd](http://www.epa.gov/climatechange/wyecd)
- Maryland Energy Administration - **410-260-7655** or [www.energy.maryland.gov/facts.empower.html](http://www.energy.maryland.gov/facts.empower.html)
- SMECO - [www.smeco.coop/yourEnergy.aspx](http://www.smeco.coop/yourEnergy.aspx)
- BG&E - [www.bgesmartenergy.com](http://www.bgesmartenergy.com)

## Easy Ways to Save Water

As the population grows in our region, more people vie for the same sources of water, so conserving water becomes ever more critical. By adopting a few simple habits, you can help extend precious water supplies and reduce the load you place on your septic system or public sewer system.

- Repair all leaks and drips around the house. A single running toilet can waste 200 gallons of water per day.
- Turn off the faucet while you brush your teeth, shave, or lather up.
- Install low-flow fixtures on showerheads, sinks, and toilets.
- Run only full loads of dishes or laundry.
- Make your next washing machine a front loading model. (They use less water.)
- Be savvy about lawn and garden care. Add organic matter to the soil to increase water absorption.
- Mulch bare areas to conserve moisture.
- Water deeply, thoroughly, and infrequently—early morning is the best time to water.
- Install drip irrigation and/or timers to reduce water use.
- Use nozzles on outside hoses. Wash cars with a bucket of water and use the hose only to rinse.



WHERE TO GET HELP WITH...

### **WATER CONSERVATION**

- Calvert County - [www.co.cal.md.us/residents/water/water\\_conservation/](http://www.co.cal.md.us/residents/water/water_conservation/)
- Maryland Department of the Environment - 1-800-633-6101 or [www.mde.state.md.us/Programs/WaterPrograms/WaterConservation](http://www.mde.state.md.us/Programs/WaterPrograms/WaterConservation)
- USDA Natural Resources Conservation Service - [www.nrcs.usda.gov/wps/portal/nrcs/detail/national/newsroom/features/?cid=143\\_023539](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/newsroom/features/?cid=143_023539)

## Maintaining Your Vehicle

Vehicle maintenance is an important and easy way to prevent oil, heavy metals, and other toxic chemicals from reaching our drinking water and the Bay. After oil has leaked from a car onto a driveway, rainwater washes it into the street, toward the nearest storm drain, or into the yard, toward a Bay tributary. It is estimated that 180 million gallons of oil are disposed of improperly each year. **A single quart of oil can contaminate 250,000 gallons of drinking water.**

- Check your vehicle regularly for oil leaks and drips. If you find leaks or drips, fix them as quickly as possible.
- Use ground cloths or drip pans when you find leaks, while changing the oil, or when working on the engine.
- If a spill occurs while changing the oil or working on the engine, clean up the spill immediately and properly dispose of the cleanup materials.
- Collect used oil or antifreeze in containers with tight-fitting lids (plastic jugs) and recycle at any Calvert County convenience center. Do not mix waste oil or antifreeze with gasoline, solvents, or other engine fluids. The oil and antifreeze will become contaminated and will not be reusable. **Motor oil, antifreeze, transmission fluid, or other engine fluids should never be dumped onto roads, into gutters, down a storm drain or catch basin, onto the ground, or into a ditch.**
- **Have your vehicle's emissions tested in accordance with Maryland regulations. Make any needed repairs as soon as possible.**



WHERE TO GET HELP WITH...

### VEHICLE MAINTENANCE

- U.S. Environmental Protection Agency - [www.epa.gov/climatechange/wyecd/road.html](http://www.epa.gov/climatechange/wyecd/road.html)
- EPA Factsheet, *How to minimize the impact of your vehicle on the environment* - [www.epa.gov/npstbx/files/ID\\_vehiclesfactsheet.pdf](http://www.epa.gov/npstbx/files/ID_vehiclesfactsheet.pdf)

## Recycling

Recycling helps the Chesapeake Bay in several ways.

- It helps control the amount of trash and litter in the environment. Like any other pollutant, trash and litter are carried by runoff into our streams and rivers and into the Bay. Litter is not just unsightly; some trash (plastic bags and plastic 6-pack containers) may even be harmful to marine life.
- It reduces your energy consumption—and we have already talked about how energy production and use harms the Bay. Just think about all the energy that is saved when an aluminum can is recycled, as opposed to the energy used mining, transporting, and smelting to make a can from scratch! Or think of the forests that can be preserved by reusing paper products.

## Reusable Grocery Totes

Bring your own reusable tote bags on shopping excursions:

- It reduces waste by avoiding the use of plastic or paper disposable bags.
- It helps control the amount of litter in the environment and reduces energy consumption.
- You can support your favorite charity by purchasing reusable totes from them.
- It's very fashionable!
- Many retailers offer a 5¢ rebate for each bag used.



WHERE TO GET HELP WITH...

## RECYCLING

- Calvert County Dept. of Public Works, Division of Solid Waste - **410-326-0210** or **800-560-1004** or [www.co.cal.md.us/residents/waste](http://www.co.cal.md.us/residents/waste)
- Maryland Department of the Environment - **410-537-3000** or [www.mde.state.md.us/Programs/Land/RecyclingandOperationsprogram](http://www.mde.state.md.us/Programs/Land/RecyclingandOperationsprogram)

## Composting and Yard Waste

In 2003, the EPA estimated that each person in the U.S. contributes 4.5 pounds of garbage (municipal solid waste) daily. That equals 1,642 pounds of garbage per person per year! Much of this waste is organic and could degrade naturally if composted, saving space in landfills and reducing greenhouse gases.

Composted organic material, sometimes called “black gold” by gardeners, adds structure and a host of essential nutrients to your soil, reducing the need for watering and enhancing the vitality of lawns, gardens and houseplants. Start reaping these benefits by setting up a backyard compost pile.



### Tips for Composting

- There are many different ways to compost: the bin system, tumblers, trench, sheet, and even vermicomposting (using worms to break down material). Some methods are simpler than others.
- You should mix equal parts of brown ingredients (dry leaves, straw, sawdust, shredded newspaper) with green ingredients (grass clippings, weeds, kitchen fruit and vegetable scraps). Decomposition is fastest when the pile is slightly moist, so add water as needed.
- Do not add pet waste, grease, meat, or dairy products to a compost pile. These items may attract pests and do not compost well.

### WHERE TO GET HELP WITH...

## COMPOSTING

- Calvert County Dept. of Public Works, Division of Solid Waste - **410-326-0210** or **800-560-1004**
- U.S. Environmental Protection Agency - **800-438-474** or **215-814-5000** or **[www.epa.gov/epawaste/conserve/rrr/composting](http://www.epa.gov/epawaste/conserve/rrr/composting)**
- University of Maryland Extension, Home and Garden Information Center - **[www.hgic.umd.edu/\\_media/documents/hg35\\_002.pdf](http://www.hgic.umd.edu/_media/documents/hg35_002.pdf)**
- U.S. Composting Council - **631-737-4931** or **[www.compostingcouncil.org](http://www.compostingcouncil.org)**



## Getting Rid of Household Hazardous Waste

The average household contains between three and 10 gallons of materials that are hazardous to human health or to the environment. The improper disposal of household hazardous wastes can cause problems for the entire community. Wastes can be explosive or highly flammable. Sewers have exploded and garbage trucks have burned because people have carelessly discarded flammable or reactive wastes.



Household hazardous wastes can leak from landfills and contaminate groundwater and surface water, or can enter the air we breathe through emissions from landfills and incinerators. Some wastes are poisonous to humans or wildlife, while others can cause cancer, birth defects, or other serious medical problems.

It is important to learn about the products you use in your home, garden, and workshop, and how to dispose of them when they are no longer needed. Use the County's hazardous waste recycling and disposal facilities to dispose of hazardous waste.

To reduce the amount of hazardous material you use, find less hazardous substitutes, do not buy more than you need, and follow the directions on the packaging. To prevent leaks, store your waste materials in their original containers until you can take them for disposal.

WHERE TO GET HELP WITH...

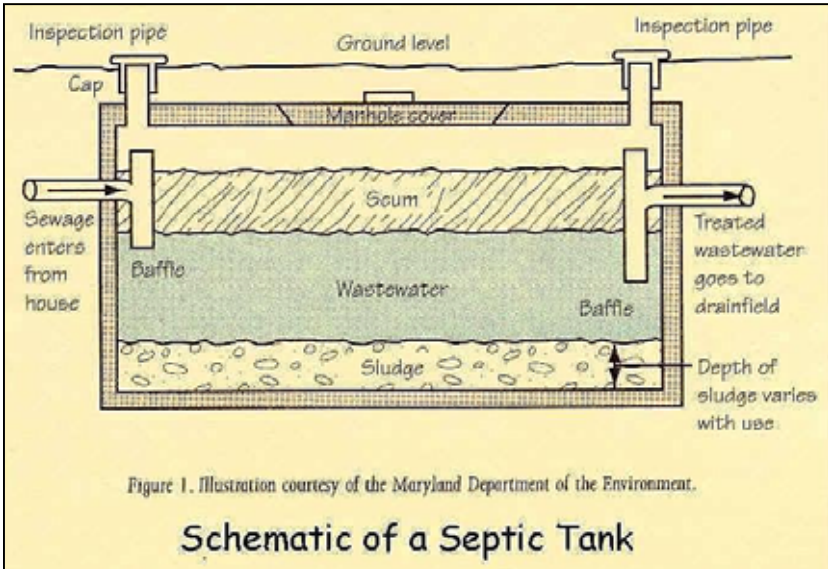
### **HAZARDOUS WASTE**

- Calvert County Dept. of Public Works, Division of Solid Waste - **410-326-0210** or **800-560-1004** or **[www.co.cal.md.us/residents/waste/hazard](http://www.co.cal.md.us/residents/waste/hazard)**
- U.S. Environmental Protection Agency - **800-438-2474** or **215-814-5000** or **[www.epa.gov/epawaste/hazard](http://www.epa.gov/epawaste/hazard)**

# Country Living

## Taking Care of Your Septic (Wastewater) System

In areas without public sewer service, household wastewater (from the bathroom, kitchen, and laundry) is treated by individual septic systems. A septic system has two major components: a septic tank and a drain field. Wastewater sewage flows from the house to the septic tank, which retains wastewater long enough for the heavy solids to settle to the bottom. A solid pipe leads from the septic tank to a distribution box, where the untreated wastewater is channeled to the drain field—one or more perforated pipes set in trenches of gravel. Here the water slowly infiltrates into the underlying soil. Dissolved or suspended wastes and bacteria in the water are trapped or absorbed by soil particles or decomposed by microorganisms.



These microorganisms perform the only treatment of the water before it percolates into the groundwater. Under normal conditions, the microorganisms perform well, unless very toxic materials overwhelm the septic system. Microorganism performance can also be diminished if the drain field becomes saturated with stormwater.

**Best Available Technology (BAT)** for septic systems is an advanced onsite sewage treatment system that will greatly reduce the amount of nitrogen emitted from a septic system. **BAT units** combine settling of solids, extended aeration, and recirculation to produce a greatly reduced amount of nitrogen in the effluent. The typical traditional household septic system produces 24.7 pounds of nitrogen per year. BAT systems can cut that load in half.

## **Tips for Septic System Care**

- **Tanks generally need to be pumped out every 2 to 3 years**, depending on use, the size of the tank, and the number of people in the house. If the tank gets too full, sludge particles will flush out of the tank and clog the drain lines. The EPA recommends tanks be pumped before sludge and scum accumulations exceed 30% of the tank volume.
- **Do not add starter enzymes or yeast to your system.** Additives have not been scientifically proven to improve the performance of your system.
- **Do not pour fats and oils, chlorine bleach, solvents, chemicals, pesticides, paint thinner, or auto products down the drain.** These substances can kill the bacteria that make the system function.
- **Do not put trash in the toilet** such as paper towels, tissues, cigarette butts, wipes (even the 'septic-safe' wipes!), disposable diapers, sanitary napkins, tampons, or condoms. These items do not break down quickly and can fill the septic tank.
- **Direct downspout discharges and runoff** away from the septic field to avoid saturating the drain field area with excess water.
- **Do not overload the system**—this is the primary cause of system failures. Early morning and bedtime are peak use times in the bathroom. Run dishwashers and washing machines at other times of the day. Try not to do more than one load of laundry each day.
- **Dense grass cover and other shallow-rooted plants are beneficial over a drain field.** However, do not plant trees near a drain field because large plant roots can clog or break the pipes.

- **Avoid compacting the soil over a drain field** to ensure proper percolation of effluent.
- **Using a garbage disposal can double the amount of solids in the tank.** Instead, consider composting organic matter. See the “Composting” section for tips.
- **Look into getting a BAT unit for your septic system.** BAT systems may be more expensive than traditional septic systems, but they are made more affordable through grant money available from the Bay Restoration Fund. Contact Maryland Department of the Environment at [www.mde.state.md.us/Water/BayRestorationFund/OnsiteDisposalSystems](http://www.mde.state.md.us/Water/BayRestorationFund/OnsiteDisposalSystems) for more information on Bay Restoration Fund grant assistance.



Best Available Technology (BAT) septic system during instillation

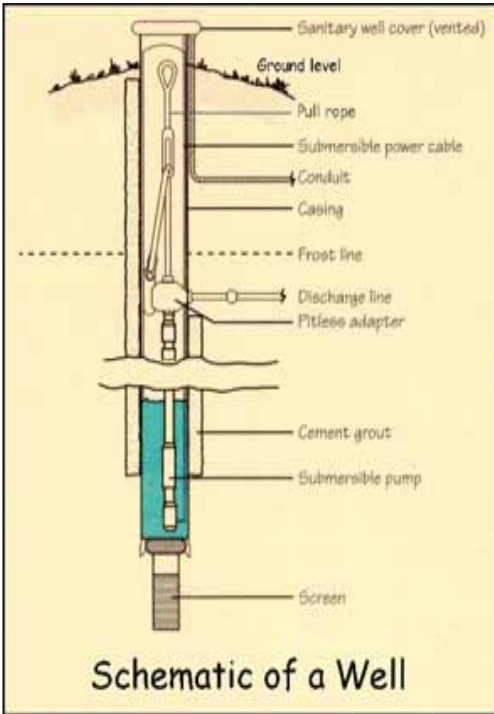
#### WHERE TO GET HELP WITH...

### SEPTIC SYSTEM ISSUES

- Calvert County Health Department, Environmental Health Services - [www.calverthealth.org/community/environmentalhealthservices](http://www.calverthealth.org/community/environmentalhealthservices)
- Bay Restoration Fund - [www.mde.state.md.us/Water/BayRestorationFund/OnsiteDisposalSystems](http://www.mde.state.md.us/Water/BayRestorationFund/OnsiteDisposalSystems)

## Living on Well Water

If you have a home well, you are responsible for maintaining the safety and quality of your drinking water. When your well system is suitably located,



correctly installed, properly maintained, and regularly tested, you should have few problems with water quality.

Residential wells are replenished by rainwater that falls many miles away from the location of the well. Even so, the way you and your neighbors use the landscape can be an important factor in the quality of your water supply.

Be alert to possible sources of well water contamination, such as runoff from large paved areas, faulty septic systems, leaking underground fuel tanks, landfills, industrial spills or discharges, and inappropriate use of animal wastes, fertilizers,

and pesticides.

### Tips for Safeguarding Well Water

- Test your water supply **once a year** for bacteria and nitrates. Consider seasonal testing if one sample shows elevated levels of contaminants. Prolonged periods of heavy rain can flush contaminants into groundwater.
- Test your water any time you notice unusual odors, colors, or cloudiness or if you note an interrupted supply, such as pumping air or sediment.

WHERE TO GET HELP WITH...

### WELL WATER PROBLEMS

- Calvert County Health Department, Environmental Health Services - [www.calverthealth.org/community/environmentalhealthservices](http://www.calverthealth.org/community/environmentalhealthservices)

## Sights, Sounds, and Smells of Farming

**Agriculture is encouraged in Calvert County, and the County has a Right-to-Farm Ordinance.** As a resident of a largely rural county, you may see, hear, and smell things that are quite different from an urban or suburban area. Many residences have been built in sight of, and perhaps downwind of, farmers' fields. Farmers sometimes receive complaints from their new neighbors about routine agricultural operations, dust, noise, and smells.

Farming is an occupation and a tradition that is often handed down from one generation to the next. Agriculture is the foundation of rural communities, and farmers expect and hope to live peacefully with their neighbors. Although in some cases farmers may be able to accommodate requests to modify their operations, the interface between agricultural and residential neighbors requires some cooperation and understanding on both sides to keep peace in the community.



Most farming operations use herbicides and pesticides to control weeds and insects. The Maryland Department of Agriculture requires a Pesticide Applicator's License to perform this work. Training and passing an exam are required before a license is issued. Modern pesticides are approved for use by the U.S. Environmental Protection Agency (EPA) after years of testing. Newer generation pesticides are used in very small quantities and are more environmentally friendly.

A big part of farming involves working with conditions that people can't control, especially the weather. As soon as the soil warms up and dries out enough to plant, farmers must get their crops in the ground to take advantage of the maximum number of days in the growing season. Harvesting is a particularly critical time, and farmers work every available hour until the crops are harvested from the fields and processed. Part of the urgency is that crops can be seriously devalued or completely ruined if they get wet during harvest time.



Also during this time, harvesting equipment and wagons may need to use the highway to get from fields to barns. Be patient when slow-moving farm equipment is on the road—that could be the producer of your dinner up ahead!

When the farm is a livestock or dairy operation, the efficient and environmentally safe disposal of manure is a major consideration.

Whenever possible, farmers use manure as organic fertilizer on crop fields, reducing their need for commercial fertilizer,

which is both an economic and environmental benefit. Manure is usually stored in a facility that will protect it from runoff, and therefore prevent it from being washed from the barnyard into streams. The facility provides storage, but eventually the manure is spread on the fields. Manure handling involves odors, but under normal conditions the odor from manure spreading quickly dissipates.



Photo by: Margo Shrieves

If there are problems with new neighbors, especially those who have never lived in a rural area before, it is critical to address problems in a cooperative manner with an attitude that might allow changes on both sides for a peaceful solution. In some cases, a friendly visit to the farm to learn more about the operation can eliminate many misunderstandings.

WHERE TO GET HELP WITH...

## **AGRICULTURAL QUESTIONS**

- Calvert Soil Conservation District - **410-535-1521 ext. 3** or **[www.calvertsoil.org](http://www.calvertsoil.org)**
- Maryland Department of Agriculture - **[www.mda.state.md.us](http://www.mda.state.md.us)**
- University of Maryland Extension, Home and Garden Information Center - **[www.hgic.umd.edu/](http://www.hgic.umd.edu/)**
- University of Maryland Extension, Calvert Office - **410-535-3662** or **[www.calvert.umd.edu](http://www.calvert.umd.edu)**

## Want to do more? Volunteer

Visit Volunteer Southern Maryland at [vsmd.csmd.edu](http://vsmd.csmd.edu)  
to find local non-profit organizations where  
you can volunteer.



## Calvert County Citizen Green Team

The Calvert County Citizens' Green Team works to promote sustainable lifestyles by identifying and sharing innovative green technologies, hosting a Calvert County Green Expo and encouraging environmental stewardship among county citizens in their homes, workplaces and communities.



**The following partners aided in the  
development of this booklet.**

Calvert County Citizens' Green Team  
Calvert County Dept of Economic Development  
Calvert County Dept. of Planning and Zoning  
Calvert County Dept of Public Works  
Calvert Soil Conservation District  
Cove Point Natural Heritage Trust  
Patuxent Riverkeeper

# Board of County Commissioners



*The 2010-2014 Board of County Commissioners, from left, are Steven R. Weems, Evan K. Slaughenhaupt Jr, Gerald W. "Jerry" Clark, Pat Nutter and Susan Shaw.*

Environmental stewardship has long been a hallmark of life in Calvert County. Since the first settlers arrived, the county's fertile land and teeming waterways have provided sustenance, economic vitality and recreational opportunities. Calvert County has been at the forefront of land preservation and resource conservation through goals embodied in its Comprehensive Plan. We know green. We are committed to respecting and protecting our environmental resources in order to build a sustainable future.



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