Soil Erosion and Rainwater Runoff Harm the Chesapeake Bay

Every year, tons of topsoil leave the land and end up in streams, rivers, and the Chesapeake Bay. As we have cleared the land, paved roads, and built homes, our waterways have lost much of the natural protection that grasses, wetlands, and forests provide against rainwater runoff. When the rains come, runoff carries not only topsoil, but fertilizers, pesticides, oils, and other pollutants into the Bay system. Once in our waterways, these contaminants cloud the water, stress aquatic life, and disrupt stream habitats.

Farmers use a variety of methods to protect waterways from rainwater runoff and soil erosion. A well-planned landscape also can help prevent nutrient runoff and erosion. By following a few, simple conservation measures, homeowners can do their part to help control runoff, minimize soil erosion, and safeguard water quality.

Spot Erosion Problems

Gullies are an example of soil erosion in its most destructive form. But not all erosion problems are easy to spot. It takes a trained eye. Start by noting the way water flows in and around your lawn or garden. Does rainwater rush uselessly down driveways and walkways and into nearby storm drains? Or, does it penetrate slowly into the soil to nourish thirsty plants? Knowing where the water goes is the first step in tackling erosion problems. Here are some other important clues that may indicate soil erosion problems on your property.

- Muddy or cloudy water in the driveway, road, or gutter following rain or watering.
- Bare soil spots on lawns and along property lines, walkways, and driveways.
- Newly exposed tree roots (although some species, such as maple, grow this way naturally).
- Sudden appearance of stones or small rocks in driveways or other paved areas.
- Deposition of fine silt or soil in low-lying areas.
- Cloudy or muddy appearance of streams, rivers, or other nearby bodies of water.

Redirect Water

When rain falls on hard surfaces such as patios, walkways, and driveways, it is easily channeled into nearby storm drains, streams, and ultimately the Chesapeake Bay. Encourage water on your property to move slowly over the soil so that most of it seeps harmlessly into the ground.

- Divert rainwater from roofs, driveways, and walkways onto grass to permit gradual absorption.
- Use a concrete splash block or stones at downspout outlets to reduce soil erosion by water.
- Use grass swales—low sloping areas on your lawn—to move water from one area to another.
- Plant a rain garden (see photo left) using native plants in a low-lying area of your yard to allow stormwater to infiltrate slowly into the ground rather than running off into the nearest storm drain.
Cover the Soil

Bare soil is highly susceptible to erosion by both wind and water. Reestablish vegetation as soon as possible, whenever soil is exposed.

- Seed newly graded areas immediately after construction is completed. Grass clippings, bark mulch, straw, or other temporary covers will reduce erosion until permanent cover can be established.

- In heavy traffic areas where plants cannot be used, use permeable materials such as stone, bark mulch, landscape fabric, bricks, or flagstones.

- Protect newly planted trees and shrubs with a two to four inch layer of mulch that is no higher than the heel of your hand and extends, if possible, to the tree’s drip line. Keep mulch three or four inches away from the trunk. This will help keep the bark dry and limit hiding places for rodents that chew on bark.

- Plant windbreaks of trees or tall shrubs to reduce wind erosion and provide habitat for wildlife.

- Use compost on flower and vegetable gardens to enrich the soil. Mulch shrubs, trees, and bare soil along hedges to keep the soil covered and reduce the risk of erosion. Cover crops increase organic matter in the soil and tie up leftover nutrients. They should be tilled under at least two weeks before spring planting. Annual ryegrass, winter wheat, crimson clover, and oats are examples of cover crops that you can use.

- Plant cover crops in vegetable and flower gardens in the fall to keep the soil covered and reduce the risk of erosion. Cover crops increase organic matter in the soil and tie up leftover nutrients. They should be tilled under at least two weeks before spring planting. Annual ryegrass, winter wheat, crimson clover, winter radish, and oats are examples of cover crops that you can use.

Stabilize Slopes

If you live on a steep slope, you might want to consider constructing a terrace system on your hillside. Terraces break long slopes into shorter ones and usually follow the contour of the hill. As water makes its way down a hill, the terraces serve as small dams to intercept water and soil. Terraces can be planted with a variety of native and beneficial ground covers and plants that control erosion and don’t need much care. Here are some suggestions:

- Pachysandra procumbens
  - Alleghany Pachysandra

- Heuchera americana
  - Christmas Fern
  - Polystichum acrostichoides
  - This semi-evergreen plant tolerates dry to moist soil. Native to Maryland.

- Phlox subulata
  - Moss Phlox
  - Prefers dry to moist well-drained soil. Produces yellow flowers from May to October. Native to Maryland.

- Pachysandra procumbens
  - Alleghany Pachysandra
  - Evergreen plant that produces tiny white flowers in May and scarlet berries in the fall. Prefers moist soil. Forms a low mat six inches in height. Native to Maryland.

- Tiarella cordifolia
  - Wild Ginger
  - Prefers moist, slightly acidic soil and very shaded conditions. Spreads by rhizomes. Native to Maryland.

- Gaultheria procumbens
  - Wintergreen
  - Evergreen plant that produces tiny white flowers in May and scarlet berries in the fall. Prefers moist soil. Forms a low mat six inches in height. Native to Maryland.

- Polystichum acrostichoides
  - Christmas Fern
  - Prefers dry to moist soil. Native to Maryland.

- Chrysogonum virginianum
  - Rock Geranium
  - Prefers moist soil. Native to Maryland.

- Heuchera americana
  - Christmas Fern
  - Prefers dry to moist soil. Native to Maryland.

Choose the Right Surface

When rain falls on hard surfaces such as walkways or patios, it is readily channeled to storm drains, streams, and ultimately the Chesapeake Bay. Slow down runoff by reducing the amount of impervious hard surfaces around your home.

- Space boards on new decks to allow water to drain into the ground below.

- Use bricks, flagstones, or interlocking stones set in sand for new patios or walkways instead of impervious materials, such as concrete.

- Use gravel, crushed stone, or porous paver stones for driveways.

- Use raised beds for gardens. Build frames from wood, brick, or block to help minimize soil erosion and runoff from your garden.

Keep It Green

Design and maintain landscapes that lessen the potential for rainwater runoff and increase the value of your home.

- Plant trees, shrubs, and ground covers as a buffer around your yard and in bare areas to soak up nutrients and reduce runoff.

- Mature trees are an asset to your home, neighborhood, and the Bay. Preserve them.

- Chokecherry
  - Prunus virginiana
  - Prefers full sun to part shade. Non-invasive, low maintenance, and disease and pest resistant.

Choose a level site for a garden. If you must sow on a hill, plant vegetable rows across the slope, rather than up and down. This will help slow down rainwater runoff and reduce soil erosion.

- Select appropriate plants for your yard. When reestablishing vegetation, be certain that soil, sunlight, drainage, and moisture are adequate.

- For sunny areas, don’t select grasses that need a lot of water. Turf type fescue is both drought-resistant and pest-resistant. Visit extension.umd.edu/hgic.

- Choose native plants or select plants that are non-invasive, low maintenance, and disease and pest resistant.

Use Common Sense

Everyone can help protect our waterways from soil erosion and rainwater runoff by following a few, simple, common sense guidelines when working outdoors.

- Follow Maryland’s Lawn Fertilizer Law. Visit mda.maryland.gov/fertilizer.

- Read and follow all label directions and do not apply fertilizer within 15 feet of waterways or if heavy rain is expected.

- Don’t hose down driveways or sidewalks—it wastes water. Use a broom or blower instead.

- Recycle grass clippings by leaving them on the lawn to “grass cycle.”

- Compost or mulch leaves—never allow them to wash into roadways, where they can easily reach storm drains.

- Use kitty litter to soak up liquid spills and dispose in a tightly sealed plastic bag.

- Sweep granular spills back onto the lawn or garden.

- Wash cars on grass or gravel surfaces to prevent soapy water from reaching storm drains.

- Protect waterways—pick up after pets.