

Spare that Shrub!

Do Your Part to Control Runoff and Erosion

Wind, waves, and rain are as much a fact of Cape life as summer sunshine. When rain hits the Cape, it either sinks into the ground or runs over land fast, picking up pollutants and soil before draining into Chatham's many inland ponds, streams and coastal estuaries. Meanwhile, ocean waves and tides are eroding coastal banks and beaches. **The best way to control both rain runoff and shoreline erosion is to make use of natural vegetation.**



Stormwater runoff damages the Cape's freshwater ponds and coastal estuaries by negatively impacting water quality. As runoff is swept toward wetlands and waterways, it carries a wide variety of pollutants such as heavy metals, paints, oils, grease, nutrients from lawn fertilizers, detergents, animal waste, and litter. Unchecked stormwater can also erode the land and carry soil sediments that can smother natural vegetation.

On natural landscapes, most rain infiltrates, soaks slowly into the ground and gradually drains through groundwater to nearby surface waters. During this gradual journey, there is time for uptake of many pollutants. But as more land is cleared for development, and more solid surfaces are built, such as roofs, roads, parking areas, and driveways, more of the water is collected by stormwater systems which often drain directly into ponds and the estuaries of coastal waters, with no chance for pollutant removal.

Dealing with Surface Runoff

The Power of Plants and Shrubs

We can't control the wind and rain but we can minimize the damage caused by runoff and erosion by taking advantage of the land's natural vegetation. Native species of shrubs, trees, and some grasses slow down runoff, hold soil particles in place, help maintain the soil's capacity to absorb water, and, along the shoreline, absorb wave energy. The roots of plants also help filter pollutants from the water before it enters freshwater or marine ecosystems.

Natural wetlands such as salt marshes, swamps, and bogs are especially good at slowing down the flow of runoff and filtering pollutants from the water passing through them, thereby protecting groundwater which we depend upon for drinking water on the Cape.

Our coastal wetlands also defend against flooding and storm damage. The marshes surrounding the ponds and bays act as sponges to absorb and contain floodwaters and buffer upland areas from waves. This is why it is essential to preserve the region's wetlands.

At home, you can help runoff absorption by decreasing the size of your lawn and paved surfaces, and adding more native plants and shrubs. Seek out professional advice on what you can do to contain runoff on your own property or properly treat stormwater on your private roadway. Support town efforts to control road runoff by installing catch basins or other stormwater structures that detain and filter the water before it enters the ponds or groundwater.



Tips for decreasing household surface runoff problems:



Where impermeable surfaces are already in place, divert rain from the paved surfaces onto grass or into vegetation to allow gradual absorption.



Preserve established trees and shrubs and plant new ones to encourage excess rainwater to filter slowly into the soil. Plant and maintain a vegetated buffer strip at the top of steep slopes and along water bodies in consultation with the Conservation Commission



Install gravel trenches along driveways to collect water and allow it to filter into the soil.



When removing unhealthy trees, leave the stump and roots in place to hold the soil.

Pick up litter and animal waste, and keep your car in good shape to avoid leaks.



Minimize the creation of new impervious surfaces. Use special paving stones instead of concrete, groundcover instead of grass, gravel and pervious pavement instead of standard asphalt. The classic Cape Cod driveway features crushed quahog shells.



Avoid using chemical fertilizers, but if you feel you must, use slow-release fertilizers with low nitrogen, low phosphate content and follow directions as stated on the package for proper application rate.



Minimize lawn areas and plant more native plants. Native species require less maintenance because they are adapted to Cape soils and conditions and are pest resistant and drought tolerant, thereby reducing the need for fertilizer and pesticide use.



Don't throw yard debris, grass clippings or Christmas trees over banks or onto dunes or beaches; they smother the natural vegetation that holds the soil in place, can introduce invasive species into natural areas, and contribute to excess nutrients or yard chemicals. Chatham has a composting program at the Transfer Station where you can dump yard debris where it will be recycled into mulch which in turn is made available free to residents.

If you build a new home, ask your builder to leave as much of the original vegetation as possible on site. Before the start of construction make sure that strawbales and silt fences are installed around the work site to contain sediment and control erosion.

Alternatives to Asphalt and Concrete



Around properties, many hard surfaces, or impervious surfaces are used such as asphalt, cement, etc. when softer surfaces are preferable to protect our water quality. There are many paving surfaces that provide the durability of concrete while allowing rainwater to soak into the ground. Bricks and flat stones, for instance, make an attractive, durable driveway and, if placed on well-drained soil or on a sand or gravel bed, allow rainwater to filter into the ground.

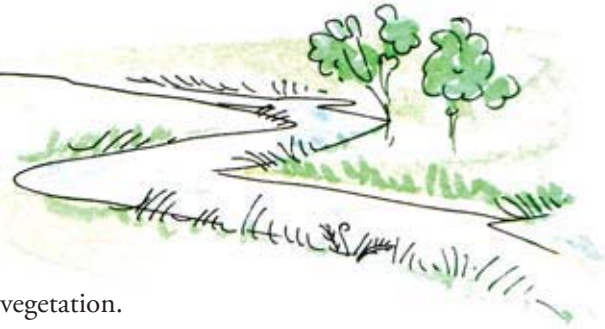
Wood decks, usually installed for their functional good looks, can also serve as a form of porous pavement. Redwood and cedar, for example, are as durable as most other paving surfaces. The space between the deck boards allows rainwater to drain directly onto the soil surface and soak into the ground. Maintaining a distance between the soil surface and the decking will minimize the risk of wood rot.

Other new porous materials are also becoming available.



Pond and Streamside Erosion

Creeks and streams, like Muddy Creek, Frost Fish Creek and the stream leading to Taylor's Pond form the network which drains into our estuaries. They carry runoff from lawns, fields, roads and parking lots that contain pollutants and soil particles. Sediments from runoff and from eroding stream and pond banks can smother aquatic life, clog fish gills and cut off the light needed by underwater plants. We can manage the quantity and quality of water entering our estuaries by using the natural vegetation.



Vegetation is vital to both the stability of the shoreline and the health of the water body. Trees and low bushes, as well as large snags and other natural structures, protect the banks from severe erosion. They also make great habitats for many fish species and help regulate water temperatures by providing shade.

If you live on a pond or stream, always avoid large-scale removal of natural ground covers. As much as possible, leave the banks and channels in their natural unaltered condition. Besides, it's illegal to do so under both state and local wetlands protection regulations without prior review and approval by the Chatham Conservation Commission. It's better to maintain a buffer of natural vegetation, as wide as possible along the top of the bank or pond shores.

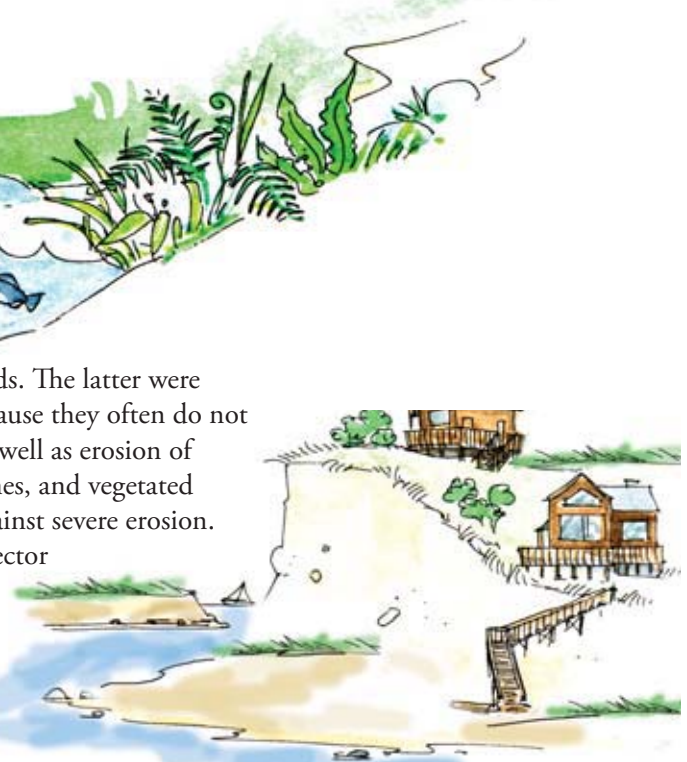
Before you start any work near a wetland or water body, you must call the Conservation Commission for a determination of whether the property is subject to wetland regulations. You will also be able to obtain information about how to best protect water quality.

Even the smallest stream, creek, or ditch is important!

Controlling Waterfront Erosion

Coastal erosion caused by wind and wave energy is a natural geological process and is the primary source of sand and cobble for our beaches, dunes, and barrier beaches. However, we can inadvertently accelerate this process by clearing shorefront areas, altering marshes, and building too close to the shoreline.

For controlling coastal erosion, scientists recommend natural vegetative solutions over hard structures like sea walls, jetties, and rock bulkheads. The latter were built to protect against erosion but often have the opposite effect because they often do not reduce wave energy and can result in erosion of the beach in front as well as erosion of adjacent properties. Natural structures like salt marshes, beaches, dunes, and vegetated banks are more efficient in dissipating wave action and protecting against severe erosion. When enjoying the beach, look for dune grass. It is the primary protector of our beaches.



 *When water and land wrestle, the water always wins.*

 *Walking over coastal dunes or sliding down coastal bluffs accelerates erosion.*

The key to limiting runoff and erosion is using the right types of plants. Plants with strong root systems help stabilize banks while salt-tolerant plants work best on dunes. Only a few plants can thrive on the coast and each one has its place in the shoreline environment. These are some plants that help both absorb surface runoff and stabilize coastal banks: *Beach Plum*, *Bayberry*, *Highbush/Lowbush Blueberry*, *Seaside Goldenrod*, *Winterberry*, *Bearberry*, etc.

What else can we do?



- Contact the Chatham Conservation Commission for help in permitting and designing a shoreline vegetation plan.
- Join your neighborhood pond association.
- Ask Chatham Town Selectmen and Highway Superintendent these questions: “Is it possible to use less asphalt, more pervious surfaces?” “Why not let that roadside vegetation grow to reduce runoff rate and filter pollutants rather than cut it down?”

Cape Cod Neighbor



Plankton: The Ocean's Pasturage

Plankton may be small, but they are mighty. Little known and nearly invisible, these exquisite organisms exist in astounding numbers and are the foundation of life in our waters. Plant plankton (phytoplankton) produce the lion's share of the Earth's oxygen. Phytoplankton is eaten by animal plankton (zooplankton), which in turn is eaten by many other animals in the food web. Finfish, shellfish, and crustaceans begin their lives as plankton. Without plankton, our water ecosystems would collapse. Viva plankton!

Cape Cod Neighbor

Blue Crab: Beautiful Swimmers

The scientific name of the blue crab, *Callinectes sapidus*, means beautiful swimmer. This name comes from its two paddlelike back appendages that help the blue crab glide gracefully through the water. A common denizen of our shallow estuaries, it prefers brackish waters to open bays. Cape Cod is at the northernmost edge of the blue crab's East Coast habitat.

