

Rain Gardens Matter

Simple Steps for the Cape Cod Homeowner

by Rachel Walman



Did you know that based on the Association to Preserve Cape Cod (APCC's) State of the Water Report many of our waterbodies have poor water quality? Do you understand how polluted stormwater runoff affects your favorite pond or embayment? We have reached out to a few Cape Cod experts to help tell the story about why rain gardens matter.

But first, the problem. Polluted stormwater runoff is one of the culprits in the Cape's declining water health. This includes the runoff that comes off your roof and driveway when it rains, picking up dirt, fertilizer, soaps, oils, metals, and even animal waste along the way. In addition to creating water quality issues, when your runoff joins up with your neighborhood's runoff, it can cause flooding and erosion, damage infrastructure, destroy aquatic habitats, and close shellfishing areas and beaches. Yikes. But there is something simple you can do to help reduce your impact and beautify your yard at the same time—build a rain garden.

Horsley Witten Group (HW) is a local environmental and planning firm that tackles water quality issues throughout New England and beyond. Here in their own backyard, they have worked closely with municipalities and non-profit organizations like APCC and Barnstable Clean Water Coalition (BCWC) on stormwater and wastewater projects to improve our waters. While much of their work involves complex plans and engineering designs, public education and outreach are extremely important to them, and they often incorporate workshops and hands-on trainings into their projects as well as their free time. This passion to reach more people led Michelle West, a Senior Water Resources Engineer

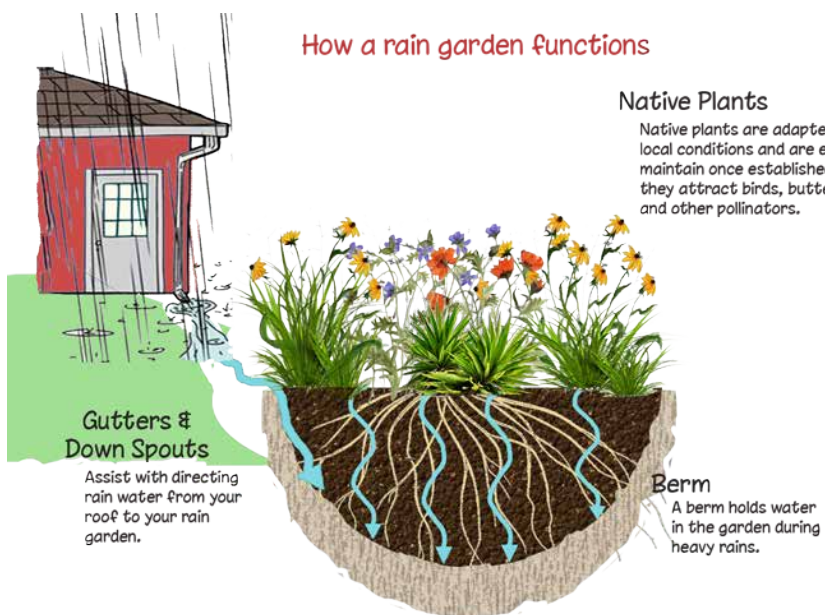
THE PROBLEM

Most of the Cape's coastal embayments and many freshwater ponds and lakes are suffering from water pollution due to excess nutrients and harmful bacteria, among other pollutants (APCC, *State of the Waters Cape Cod 2021*). Stormwater runoff is one way these pollutants get to our waterbodies.

at HW, to the development of a step-by-step guide to help homeowners tackle a rain garden project by themselves. She spoke with us recently to illustrate better the benefits of these landscaping features.

“Rain gardens are very shallow planted depressions in the yard, designed to capture runoff from the roof or driveway when it rains. Instead of flowing out to the street, the runoff will slowly soak into the ground,” explains West. Rain gardens can be created quite simply, without bringing in a team of experts or requiring a large excavator, although that might save some back aches from all the shoveling.

A common misconception people have about rain gardens is that they are water features, and could become a mosquito nuisance or a safety issue. “It's important for people to understand that a rain garden is not, and should not be, a pond,” West adds. “The runoff should soak into the ground within a day of a rain event, so it will be ready to handle the water from the next storm. If your rain garden has standing water for days at a time, it needs some troubleshooting.” Her guide outlines some common problems to look out



APCC Rain Barrel



Cotuit Library, Water Marker



Cotuit Library Rain Garden Workshop (Photo: Gerald Beetham for APCC)



APCC Rain Garden



Christmas Fern



Bowman's Root



Common Dog Violet

for when sizing and siting the rain garden, including making sure to avoid an area that is often wet to start with. A perpetual soggy area may indicate poor soils, high groundwater, and/or an area that used to be and still wants to be a wetland. Luckily, here on Cape Cod, the soil tends to be quite sandy, and rain gardens are often highly successful.

What type of plants would work well in a rain garden? “Since the rain garden is not meant to be wet all the time, wetland plants wouldn’t do well there,” says West. “The best plants are those that thrive in both dry and wet conditions. While we always encourage people to plant native species, specifically those that attract pollinators, you don’t need to—you can use ornamental plants as long as they suited for the site, and most importantly, not invasive species.”

Grasses and flowers that are acclimated to natural conditions on the Cape and suited for your site will thrive without heavy maintenance. “At most sites, rain gardens require pretty minimal maintenance, and really only require the amount of time that a homeowner wants to put into them,” continues West. “Since excess nutrients are one of the causes of our water quality issues, you want to avoid fertilizing your rain garden. Luckily, since native plants have adapted to the region’s soils, they don’t need those additional nutrients to thrive.” Watering should be minimal as well. “Many of our native plants, grasses and flowers have long roots, which are able to reach much deeper than typical lawn grass. Once these plants become fully established in your garden, they can reach down to groundwater and often make it through

COTUIT LIBRARY PLANT LIST

Scientific Name	Common Name
<i>Anemone canadensis</i>	Windflower
<i>Astilbe chinensis</i> ‘Visions’	Astilbe
<i>Aster novae-angliae</i>	New England Aster
<i>Carex amphibola</i>	Creek Sedge
<i>Eupatorium dubium</i> ‘Little Joe’	Little Joe Pye Weed
<i>Gaultheria procumbens</i>	Tea Berry: Wintergreen
<i>Iris versicolor</i>	Blue Flag
<i>Polystichum arcostichoides</i>	Christmas Fern
<i>Porteranthus trifoliatus</i> (<i>Gillenia Trifoliata</i>)	Bowman’s Root
<i>Viola raviniana v. purpurea</i> (<i>labradorica</i>)	Common Dog Violet
<i>Waldsteinia fragarioides</i>	Barren Strawberry

HELPFUL TERMS

Stormwater runoff is created when rain falls on hard surfaces that prevent it from soaking into the ground. These hard surfaces are also called “impervious” and include roads, driveways, sidewalks, patios, and rooftops.

A **rain garden** is a depressed area in the landscape that collects stormwater runoff from a roof, driveway or street and allows it to soak into the ground. Planted with grasses and flowering perennials, rain gardens can be a cost effective and beautiful way to reduce runoff from your property. *More complex rain gardens with underground drainage systems and amended soils are often referred to as **bioretention**.

Green Stormwater Infrastructure are nature-based solutions to stormwater issues, often using soil and vegetation to clean and reduce runoff to our downstream water resources. Examples include rain gardens, bioretention, swales, stormwater wetlands, green roofs, and pervious pavement.

epa.gov



APCC Rain Garden

the problem. Remember, these actions at only one house may not make a huge difference, but the cumulative impact of an entire neighborhood initiative really does make a difference.”

In addition to these types of undertakings, HW has worked on similar local projects that people can visit themselves to learn more. “We’ve enjoyed working throughout the Cape and Islands over the years, but one of our recent water-related projects has been especially exciting, focusing on improving water quality in the Three Bays watershed* in Barnstable,” West shares. “Working for the APCC and with the Town of Barnstable, as well as other local nonprofits, we have been looking for opportunities to capture and clean runoff before it reaches the Three Bays.” Over the past five years, HW has designed and constructed nine different ‘green stormwater infrastructure’ practices that mimic nature to improve water quality. “One of these sites is the Cotuit Library,” West explains. “Similar to a rain garden, this more engineered ‘bioretention’ captures and cleans the runoff from the parking lot. It works in a similar way by filtering water with soil and plants to naturally remove various pollutants.” This project not only helps keep polluted runoff out of the nearby Cotuit Bay, but it’s also designed to educate those who come to explore it. “It’s an interactive site,” says West. “There are boulders, logs, and steppingstones that crisscross through the area. We want people to come into the bioretention, to experience it, not just look at it. There is also an educational sign there that explains what it is and how it works.”

For more resources to build and maintain your rain garden, as well as extensive lists of the best plants and flowers to incorporate, visit Horsley Witten Group and the Association to Preserve Cape Cod’s websites. Get out there, and good luck! 🏡

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**3 Bays Watershed: Funding from EPA SE NE Program watershed grants with Restore Americas Estuaries and MA CZM*

even long periods of drought,” says West. However, if you happen to be starting your rain garden this summer, West does recommend watering as needed through the fall, until the plants become established. “Weeding and pruning are not actually necessary for the rain garden to function properly,” she shares. “In fact, leaving the dry stalks and seed heads over winter is great for many animal species, including birds and insects who use them for food and shelter. But if homeowners don’t want their yard to look too wild and natural, they can certainly weed and prune as much as they would like.”

What else can homeowners do to improve water quality? In addition to a rain garden, adding a rain barrel to one or more of your downspouts can be a great benefit as well. These barrels capture the runoff from a roof to be used by homeowners for a myriad of purposes—one of which, of course, is providing free water for your garden. Rain barrels can be ordered online from APCC. Another simple action is to reduce your lawns. “A manicured lawn not only adds to water quality issues, it also does not support a healthy ecosystem,” West emphasizes. “If homeowners could replace even a portion of their lawns with deep-rooted, native plants, and reduce or eliminate widespread fertilizer, pesticide, and herbicide use, it would go a long way to addressing