2011

Minimizing Stormwater Pollution (Fact Sheet)

Casco Bay Estuary Partnership

Casco Bay Estuary Partnership Priority Area Factsheet #1:

Minimizing stormwater pollution

FACTSHEET

The work of the Casco Bay Estuary Partnership is guided by the *Casco Bay Plan*, which identifies five priorities for watershed protection:

1. ***Minimize pollution loading from stormwater and combined sewer overflows***
2. *Open and protect shellfish beds and swimming beaches*
3. *Protect and restore habitat*
4. *Reduce toxic pollution*
5. *Promote responsible stewardship*

Water that flows along the ground after a rainfall (or during snowmelt) is known as stormwater runoff. As it crosses roofs, roads, and parking lots, stormwater picks up pollutants like oil, pesticides, bacteria, sediments, and heavy metals. These pollutants are washed into the storm sewers, streams, and rivers that eventually drain into Casco Bay. Polluted runoff can contaminate drinking water, degrade water quality, impair fish and wildlife habitat, and reduce biological diversity.

Most contaminants in stormwater in the Casco Bay watershed come from nonpoint sources such as oil leaking from cars, fertilizers and pesticides from yards, failing septic systems, pet waste, and fuel spills from recreational boats. Those seemingly small sources add up to significant water quality problems in urban streams throughout the watershed.

Impervious surfaces

In developed parts of the watershed, impervious surfaces such as roads, parking lots, rooftops, and compacted soils increase the volume of stormwater runoff by preventing rain water from seeping into the soil. Instead, these surfaces direct pollutant-laden runoff into stormwater drainage systems, which drain to Casco Bay. High stormwater volumes can also increase flooding, erode stream channels, and reduce groundwater recharge.

Impervious surfaces cover an estimated six percent of the Casco Bay watershed, a total of nearly 58 square miles. The highest levels occur in subwatersheds close to the coast, including the Back Cove watershed (52 percent) and the Fore River watershed (34 percent), both in Portland. The lowest levels are found in the upper Sebago Lake watershed, which remains largely forested.

Impervious surfaces like roads and driveways channel pollutants into stormwater systems that discharge into the rivers and streams. Above, oil enters a storm drain.

Combined sewer overflows (CSOs)

When a community's sanitary waste and stormwater runoff flow in the same underground pipes, the system is called a combined sewer. During heavy rainfall, stormwater can overwhelm the capacity of such sewers or of sewage treatment plants, causing discharge of untreated sewage mixed with stormwater into Casco Bay waters. Such discharges are called combined sewer overflows (CSOs), and they result in the introduction of millions of gallons of polluted water to rivers and the Bay annually. Pathogens from CSOs can lead to human health threats and closure of beaches and shellfish beds.

Several communities in the watershed have combined sewer systems, though much work has been done over the past two decades to reduce both the number and volume of CSO discharge events.

Combined sewer overflows (CSOs) discharge a mix of stormwater and untreated sewage during wet weather. The CSO outfall pictured above empties into Portland's Back Cove.

CBEP's efforts to stem stormwater pollution

The Casco Bay Estuary Partnership works through a range of initiatives to minimize pollution loading from stormwater. Its efforts include catalyzing regional stormwater management, promoting low-impact development techniques, educating the public about stormwater pollution, and supporting subwatershed management planning.

Collaborative Stormwater Management

CBEP actively supports and participates in the Casco Bay Interlocal Stormwater Working Group (ISWG), which includes 14 municipalities within the watershed. ISWG works collaboratively to address stormwater pollution. By taking a watershed-wide approach, ISWG can both maximize limited financial and staff resources and work on a geographic scale appropriate to managing stormwater.

Low-Impact Development

CBEP has provided technical assistance, training, and funding to promote the use of low-impact development (LID) techniques. LID can take the form of best management practices or physical structures designed to reduce the volume and flow of stormwater runoff from a developed site.

By approximating the natural hydrology of a site, LID helps reduce the impacts that stormwater has on receiving water bodies, both in terms of water *quality* (reducing pollution), and water *quantity* (reducing flooding). Examples of LID projects funded by CBEP include the installation of porous pavement, rain gardens, green roofs, and tree box filters.

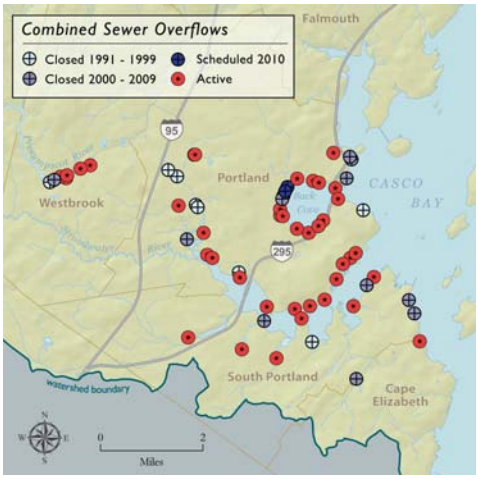
Counterclockwise from top: CBEP has funded low impact development demonstration projects, including a green roof at East End School in Portland and a rain garden at the Freeport Community Center. Pervious pavement is another LID technique becoming increasingly common throughout the watershed.

Education

Because the majority of polluted stormwater comes from diffuse, nonpoint sources, public education is a critical component of stormwater management. The Partnership continues to support a statewide stormwater education campaign, "Think Blue, Clean Water Begins with You," which is complemented by the YardScaping program, a social marketing-based educational initiative to encourage homeowners to reduce pesticide and fertilizer use.

Additional stormwater-related educational programs that CEBP supports include the Maine Children's Water Festival, the Maine Envirothon competition, and watershed education programs through the Cumberland County Soil and Water Conservation District.

The "Think Blue" campaign is a statewide stormwater education effort.



Over the past two decades, both the number of CSO outfalls and the volume of discharges have decreased.

Nearly a third of the Long Creek watershed is covered by impervious surfaces like roofs and parking lots. To combat stormwater pollution in the Creek, CBEP helped develop a watershed management plan.

The New Meadows River Watershed Partnership is exploring the feasibility of removing causeways that restrict tidal flow and impair water quality in the river.

Monitoring CSO Abatement

Combined sewer overflows are discharges of stormwater and untreated sewage during heavy rain or snowmelt, when flow exceeds wastewater treatment plants' capacity. Four communities in the Casco Bay watershed have active CSOs - Portland, South Portland, Westbrook, and Cape Elizabeth.

Over the last two decades, the number of CSO outfalls across the watershed has dropped from 80 in 1990 to 45 at the end of 2009. During that time, South Portland eliminated half its CSO locations and Yarmouth eliminated its single outfall. Portland and Westbrook have been making progress toward CSO abatement as well. Several CSOs in Portland are slated to be eliminated, which will bring the total number of CSO discharge points in the watershed to 38. CBEP continues to monitor progress toward CSO abatement.

Subwatershed Planning & Management

CBEP supports the development of management plans for subwatersheds within the Casco Bay watershed. Locally developed and implemented, these subwatershed plans build capacity for addressing the unique social, economic, and ecological conditions of each region and are used by resource managers, elected officials, landowners, and developers. Plan implementation is underway in the Presumpscot River, New Meadows River, and Long Creek watersheds.

Success stories

Developing an Innovative Plan to Clean Up Long Creek

Home to the Maine Mall and its associated commercial development, the Long Creek watershed is 28 percent covered by impervious surfaces. Long Creek has consistently failed to meet state water quality standards and is designated by the state as an "urban impaired stream," one of more than 30 in Maine. A diverse group of stakeholders – including commercial property owners, four local town governments, and CBEP – came together to develop a watershed management plan aimed at cleaning up the creek. The innovative plan takes a proactive, collaborative approach to restoring water quality and habitat, and it will be funded and implemented through a unique public-private partnership, The Long Creek Watershed Management District.

Convening a Coalition to Restore the New Meadows River

The New Meadows Watershed Partnership, which includes municipalities, nonprofit organizations, state and federal agencies, academic representatives, students, and citizens, works to improve water quality in the New Meadows watershed. The NMWP is studying the effects of tidal restriction in the New Meadows "Lake" (actually a saltwater embayment, tidally restricted by causeways).

Stormwater strategies

CBEP established the following goal and objectives to reduce stormwater pollution in the Casco Bay watershed.

Goal: Minimize the loading of pathogens, toxics, nutrients, and sediments from stormwater and combined sewer overflows to Casco Bay

Objectives:

1. Provide training in stormwater best management practices to appropriate target audiences
2. Promote subwatershed management, planning, implementation, and evaluation
3. Monitor progress of combined sewer overflow reduction plans in Portland, South Portland, and Westbrook
4. Assist the Interlocal Stormwater Working Group and municipalities with meeting requirements in Maine's Stormwater Management Law and the federally mandated Maine Pollutant Discharge Elimination System (MEPDES) Stormwater Program
5. Promote the use of vegetated buffers and other low impact development technologies to reduce stormwater runoff

Partners

As with all of CBEP's efforts, collaboration is critical to its stormwater efforts. The Partnership works with the cities of Portland, South Portland and Westbrook, the Cumberland County Soil and Water Conservation District, the Interlocal Stormwater Working Group, Maine Nonpoint Education for Municipal Officials (NEMO), and the Presumpscot River Watershed Coalition, among others.

For more information

For more information about CBEP's grants and technical assistance programs, visit the website, or call 780-4820.

How You Can Help

Small actions can add up to a big stormwater problem in Casco Bay — but each of us can do small things to improve the health of our waters, too. Try some of these ideas in your home and yard:

- Direct rainwater from your gutters into a rain barrel or rain garden
- Plant shrubs and trees to absorb rainwater
- Keep your vehicles tuned up and repair oil leaks quickly
- Wash your car on the lawn, not the driveway
- Limit the use of yard fertilizers and pesticides
- Use non-toxic household cleaners whenever possible, and properly use, store, and dispose of all household chemicals like oil and paint thinners
- Limit your household water use
- Clean litter from the street in front of your home, to prevent stormdrains from clogging

Protecting & restoring the ecological integrity of the Casco Bay watershed

Casco Bay Estuary Partnership

The Casco Bay Estuary Partnership works to preserve the ecological integrity of Casco Bay and to ensure compatible human uses of the Bay's resources, through public stewardship and effective management.

Casco Bay Estuary Partnership · Muskie School of Public Service · University of Southern Maine
PO Box 9300 · Portland, ME 04104-9300 · 207.780.4820 (phone) · 207.228.8460 (fax) · www.cascobayestuary.org