

Save the Sound®

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Connecticut Fund for the Environment

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Our access to safe beaches and seafood is in jeopardy if cities and towns in the Long Island Sound watershed don't get a handle on the stormwater problem. This is one pollution problem we can't blame on someone else. We all add to stormwater through the ways we work, live and travel. But, that also means everyone can make a real contribution to solving this threat to our environment.

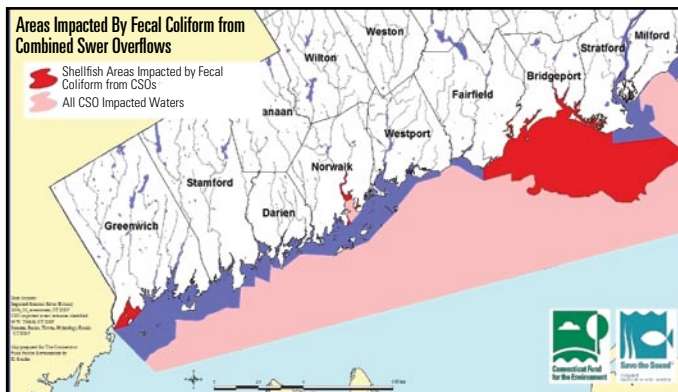


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When It Rains, Pollution Pours Saving our Beaches, Fisheries and Long Island Sound from Stormwater

A special bulletin on an urgent pollution problem

Stormwater refers to all the rainwater that washes over roofs, roads, parking lots and other hardened surfaces. Stormwater picks up grit, petrochemicals, and nitrogen from fertilizers and delivers them to our waterways. In some cities, stormwater flows into sanitary sewer systems. In those communities the heavy rain mixes with sewage and is either diverted to nearby waterways or overwhelms the treatment plants, causing raw sewage releases. Stormwater run-off and sewer overflows are the leading causes of beach closings and shellfish bans.



Stormwater causes sewer overflows that threaten beaches, shellfish areas and the long-term health of Long Island Sound

Stormwater: a building problem

Modern development replaces nature's sponge with a waterproof drain board. A single square foot of impervious surface sheds more than half a gallon of water in a 1-inch rainfall. A single house can throw off 1,000 gallons in a big storm.

And the amount of waterproof surface in developed areas is increasing rapidly. Since 1970, the average home size in American has gone from about 1,500 square feet to more than 2,200 square feet, with larger garages and driveways to handle more cars. Conventional commercial development also drives our stormwater problem. An average WalMart occupies 11 acres, enough hard surface to generate almost 300,000 gallons of stormwater in a 1-inch rainfall.

Every square foot of this new hard surface adds to the risk of stormwater flooding and pollution in your community. Ecological

Stormwater's pollution stew poses big hazards to Long Island Sound, even when it is kept separate from sewage systems. Nitrogen from fertilizer can also combine with warm summer waters to promote sudden algae blooms. When the algae dies, it can quickly suck oxygen from the water, forcing wildlife to flee or die.

Stormwater becomes a big problem when too much of it gathers in one place and flows to our waterways. The good news is that the earth's natural systems do a pretty good job of dispersing rainfall. The bad news is that modern development practices seem designed to thwart this natural flood and pollution prevention.

Like a huge sponge, the natural landscape absorbs huge amounts of water. As the illustration (see reverse) shows, a typical natural landscape captures and recycles 90 percent of rainfall into the earth or air. As the rest runs over the earth's surface, it may be soaked up by drier soils or evaporate. Water that isn't taken up sooner or later enters a stream, a pond or the sea. It may contain sediments or biological contaminants from animal waste, but most runoff can be relatively harmless when naturally filtered.



The oily, trash-laden stormwater that goes down this drain costs you plenty. The parking lot owner now pays nothing for creating this problem

damage has been shown to begin when 10 percent of a watershed is made impervious. At 25 percent the damage to water quality and habitat becomes severe.

Stormwater from Connecticut, Westchester, and Long Island is a leading cause of low oxygen in Long Island Sound. It gets worse with each new roof and parking lot.

Impermeable – not inevitable

We've literally built stormwater pollution into the designs of our homes, workplaces and transportation infrastructure. Those designs assume that sending stormwater somewhere else solves the problem. In truth, it only sends the costs downstream. Eventually other individuals, whole industries, particularly commercial fishing and tourism, and taxpayers pay the passalong costs of flooding, centralized pollution treatment and economic damage.

But recent innovations in Chicago, Portland, OR, Vancouver, Philadelphia and other cities prove we can un-build the stormwater problem. "Green infrastructure," such as green roofs, planted catchment areas along roads and parking lots and the use of paving materials that absorb rather than shed water all help give stormwater time to be filtered by on-site soil and vegetation.

Green infrastructure has other benefits, as well. Reducing the amount of reflective surface cools cities. A greener landscape improves quality of life and property values. Efficient use of rainwater for plants reduces water bills and with fewer pipes and plants to build, taxpayers get a break.

Green, clean and cost-effective

Save the Sound will be working with pilot cities to test the use of stormwater authorities to help pay for stormwater pollution control. We will also help them identify lower-cost "green infrastructure" help them identify lower-cost "green infrastructure" opportunities to control stormwater. Here are some of the proven ways to capture and divert stormwater close to where it hits the ground, heading off pollution at the source and helping cities and towns avoid big infrastructure costs.

Green roofs – Rooftop gardens can reduce downspout flows to a trickle while cooling your home or office – and even your whole city, if enough buildings use them.

Rain harvesting – Routing existing downspouts to cisterns or rain barrels for use in outdoor irrigation can reduce water consumption by up to 25 percent.

Permeable paving – Interlocking concrete blocks, hollow blocks and even specially formulated asphalts let water filter into the earth while still providing durable firm surfaces for roads, parking lots and walkways.

Vegetated swales – planted edges along sidewalks, buildings, streets and parking lots can capture runoff and provide a greener, cooler environment.

Riparian buffers – Keeping river and stream banks planted and free of hard surfaces provides powerful protection for the waters which ultimately reach Long Island Sound beaches and shellfish beds.

Rain Gardens – Routing home downspouts into gardens depressed about 6" below grade can hold a 1-inch rain up to four hours, cleaning the water and reducing the burden on your neighborhood storm drains. Learn how to make one with a free guide from the University of Connecticut Cooperative Extension (available at: www.cag.uconn.edu/ces/sustainability/landscape/05-rain_gardens.html).



University of Connecticut

Learn to build a home raingarden with the free guide Raingardens in Connecticut.

Learn More On The Web

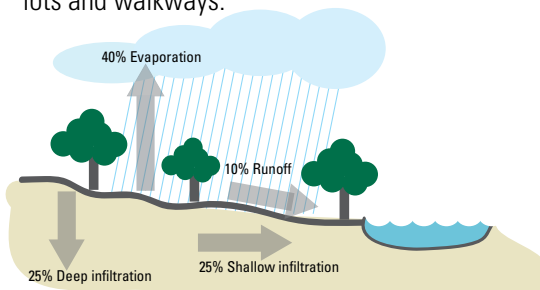
U.S. EPA: Nonpoint Source Pollution:

<http://www.epa.gov/owow/nps>

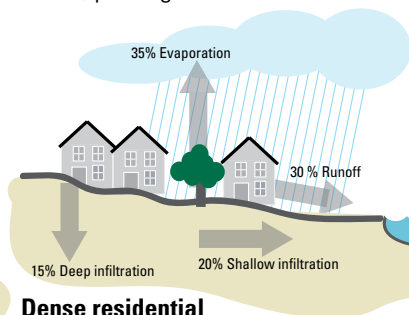
Long Island Sound Study:

<http://www.longislandsoundstudy.net/runoff/>

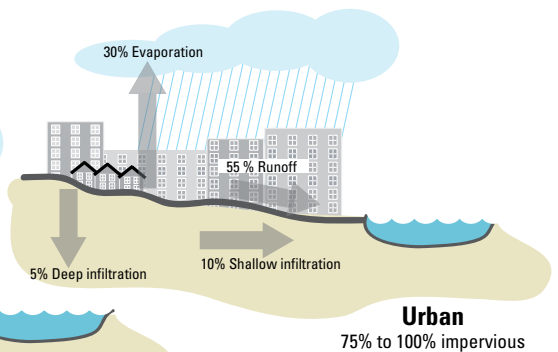
University of Connecticut; Center for Land Use Education And Research (CLEAR): <http://clear.uconn.edu/>



Natural landscape



Dense residential
35% to 50% impervious



Urban
75% to 100% impervious

How much stormwater? Stormwater flows multiply as suburban development replaces forest cover.