know where it goes
take simple steps to reduce STORMWATER POLLUTION

Where Does It Come From, Where Does It Go?

Fall & Winter 2008

It's Not Just Rain?

Have you ever noticed water flowing down the street when it rains? Have you ever wondered where the water flows to? Have you thought about what's *in* the water?

When it rains onto a forest or a field, some of that rain is absorbed by the ground, replenishing groundwater that is used by many for drinking water. Some of the rain is taken up by plants, and some of it simply evaporates. But very little of the rain flows over the ground.

In a more developed setting, such as our cities and towns, rain falls onto pavement, or other surfaces such as roofs, sidewalks, parking lots, and driveways that don't allow the water to be absorbed by the ground. The water that you see flowing down the street is called stormwater runoff,

Stormdrains lead directly to local waters. No filters. No treatment. Pollutants that enter stormdrains wind up in the water we drink, fish, and swim.

Why Is It A Problem?

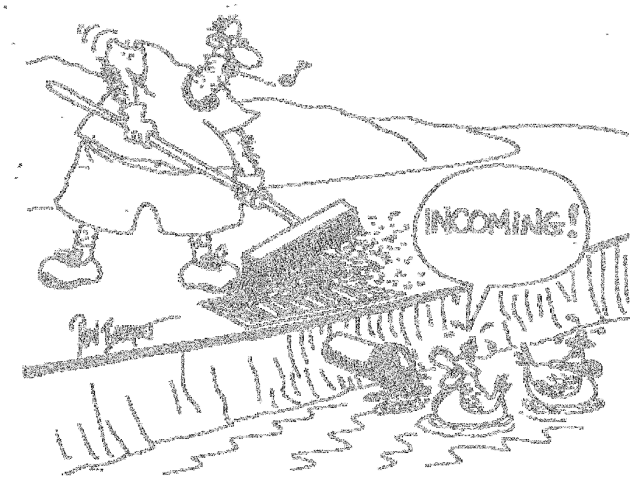
When stormwater hits the pavement, it picks up and mixes with what's there. That might include:

- oil, grease, and automotive fluids;
- fertilizer and pesticides from gardens and homes;
- bacteria from pet waste and improperly maintained septic systems;
- soil from poor construction site management;
- sand from wintertime snow removal;
- soap from car washing;
- debris and litter.

Many people assume that stormwater flows down stormdrains and then to a treatment facility. *Unfortunately, that is almost never the case.* Stormwater either flows directly into local waters or down stormdrains, which channel it into local water bodies. **The polluted runoff closes swimming beaches and fishing grounds, threatens water resources, harms natural areas, and contributes to flooding.**

Produced by RI Stormwater Solutions with support from the Rhode Island Department of Transportation and the Rhode Island Department of Environmental Management.

How Is A Storm Drain Different From a Sanitary Sewer?



Storm Drains

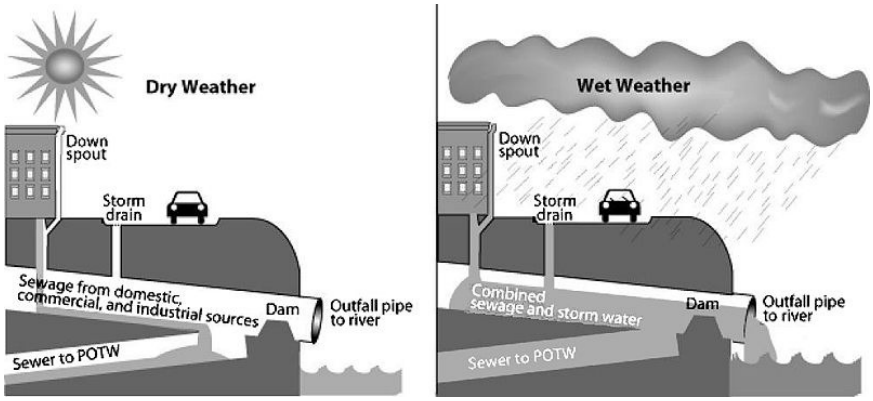
When rain water flows across pavement and down a storm drain, that water is almost always piped directly to the nearest stream, river, or bay. That water almost never goes to a treatment facility. As the graphic illustrates, most storm drains simply collect rain water and channel it away to prevent flooding, carrying polluted runoff to local water resources.

Sanitary Sewers

Sanitary sewers carry wastewater or "sewage" from homes and businesses through an entirely separate piping network below city streets. Manhole covers allow access for maintenance, but there are no open drains or grates. This wastewater flows to a municipal wastewater treatment facility where it is treated, and that treated effluent is discharged to local rivers and the Bay. Today, businesses are required to pre-treat their wastes before discharging into the system. And many wastewater treatment facilities are being upgraded to improve the quality of wastewater discharged to local waters.

Combined Sewers

The exception to the above are combined sewers, where the storm drain and sanitary sewers have a connection. These are a problem in older urban areas such as Providence and Newport, where the stormwater and wastewater lines were originally interconnected. As the graphic to the right illustrates, in dry weather, both the stormwater and the sanitary waste go to a treatment facility. With small storms, the system has enough capacity to treat both the wastewater flow and the additional stormwater. But in larger storms, the pipe overflows, resulting in discharge of mixed stormwater and untreated sewage directly into rivers and the Bay. When a "combined sewer overflow" happens, parts of Narragansett Bay are temporarily closed to shellfishing.



Currently, a CSO retrofit project is underway to correct this problem; it involves building subsurface tunnels to store and gradually treat the mixed stormwater and wastewater at the wastewater treatment facility. It is estimated that the project will reduce overflows by 40% after the completion of the first phase, and by 98% at the project's completion. However, it still will be necessary to reduce the total amount of runoff through other stormwater management practices.

For more information:

Visit the website: http://www.ristormwatersolutions.org

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