

Storm drains are a huge source of water pollution in the United States. Few people know that washing dirt and pollutants off driveways, over-fertilizing their lawns, and dumping debris directly into storm drains helps to pollute local waterways and ocean areas.



Storm Drains and Water Pollution

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Photo by David Peters

Fast Facts

- > In older urban areas, when the sewers become overloaded due to heavy rain, sewage is sometimes mixed with storm drain water and discharged directly into the nearest waterway, without going to a treatment plant first. These combined sewer overflows can make waterways and ocean beaches unsafe for swimming.
- > Fertilizers, pesticides, street litter, sediment, automotive fluids, and pet waste can pollute water hundreds of miles downstream from their source. The drainage watershed of the Chesapeake Bay, for example, covers 64,000 miles, and pollutants may travel to the Bay from as far away as Cooperstown, New York, or from farms in rural Pennsylvania.
- > A single quart of oil can contaminate two million gallons of drinking water, or create an oil slick that covers eight acres.
- > About 22,000 bodies of water in the United States are considered "impaired" by the Environmental Protection Agency (EPA) due to pollution.

What are Storm Drains?

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As rainwater flows off roofs, the ground, sidewalks, and streets to storm drains, it picks up pollutants such as street litter, pet waste, automotive oil, antifreeze, and lawn and garden chemicals such as fertilizers and pesticides. Whereas household wastewater is typically sent to water treatment plants before being discharged into local waterways, rainwater, and the pollutants it picks up on its way to the storm drain, is dumped untreated, directly into the nearest stream, river, bay, or ocean.



Photo courtesy of NOAA

A culvert empties into the ocean.

Nonpoint Source Pollution

Nonpoint Source Pollution

There are two categories of water pollution: **point source** and **nonpoint source**. Point source pollution can be traced back to a specific source, or point, like a city's water treatment plant, a combined sewer outfall, or an industrial wastewater discharge pipe.

Nonpoint source pollution, or polluted runoff, originates from many different places. After landing on the ground, rainwater flows toward the nearest body of water and continues downstream until it reaches the ocean. Along the way, rainwater picks up sediment, trash, and other pollutants. In many communities, storm drains collect this nonpoint source pollution and carry it to local waterways.

Nonpoint source pollution includes: **fertilizers** and **pesticides** from agricultural areas, golf courses, lawns, and gardens; **oil, grease,** and **antifreeze** washed from roads, parking lots, and driveways; **sediments** from construction sites, forestry, mining operations, and agriculture; **paint, cleaners,** and **other household chemicals** dumped down storm drains or spilled on the ground; **litter** and **debris** thrown or blown onto streets and sidewalks; and **excess manure** from animal feedlots and farms.

The Clean Water Act, passed in 1972, has done a good job of controlling pollution from point sources. But until recently, nonpoint source pollution was largely uncontrolled. The Act requires cities with populations greater than 100,000 to obtain a permit for their stormwater discharge systems, and to demonstrate that those systems operate cleanly and efficiently. In 1999, the National Pollutant Discharge Elimination System was expanded to include all cities and towns with populations under 100,000.

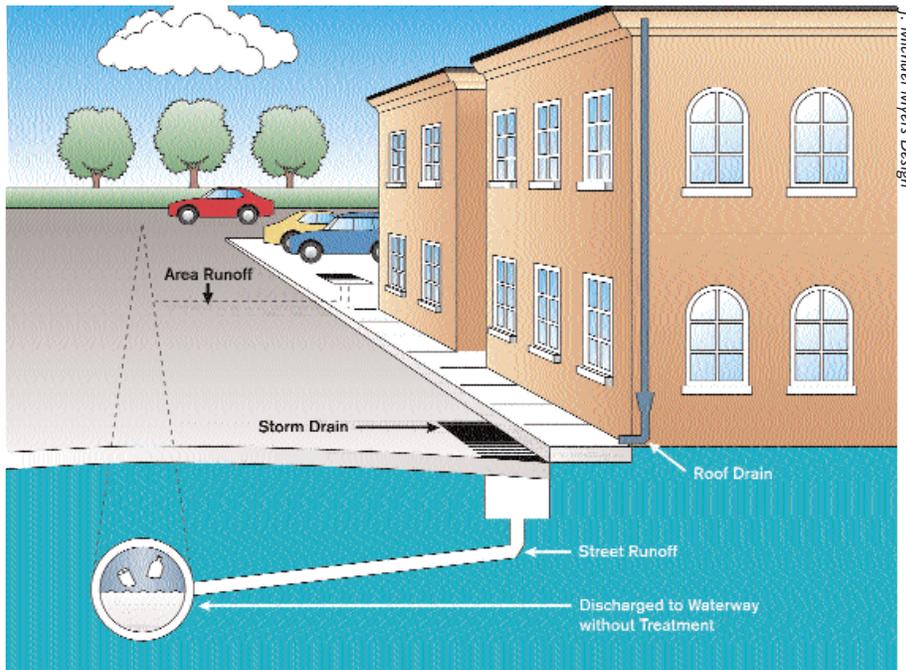
Common Pollutants and Their Impacts

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Toxics, such as oil, antifreeze, and pesticides reaching our waterways and coastal areas can kill fish and other wildlife, and even inhibit their ability to reproduce. Some toxics can remain in stream, bay, and ocean sediments for generations.

Fertilizer contains large amounts of nitrogen and phosphorous, which can cause harmful algal blooms in waterways and the ocean that rob water of oxygen and light—both of which are essential to supporting life. Nitrogen carried down the Mississippi from midwestern farms, for example, has caused a “dead zone” in the Gulf of Mexico that is the size of Massachusetts. No fish or plants can survive in such an environment.

Debris and litter is more than an eyesore—it is dangerous to humans and to wildlife. Plastic strapping and six-pack holders can strangle or entangle wildlife. Many birds are indiscriminate eaters, and they can ingest small pieces of plastic and other debris, which can eventually kill them. Scientists estimate that more than one million birds and 100,000 marine mammals and sea turtles die each year as a result of entanglement in, or ingestion of, marine debris.¹



Polluted runoff from a variety of sources—roofs, streets, parking lots, and lawns—enters storm drains and is discharged untreated into local waterways.

What Individuals Can Do

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In General

- > NEVER dispose of anything down a storm drain!
- > Never throw trash on the street, and pick up street litter when you find it.
- > Clean up after pets. Discard their wastes in trash cans.

Fertilizers and Pesticides

- > Use fertilizers sparingly, if at all, and never apply fertilizers before a rainstorm.
- > Instead of using pesticides, weed by hand, and create habitat to attract birds and insects that eat garden pests.

Household Hazardous Wastes

- > Use less toxic alternatives, such as milk-based paints, natural cleaners, and pest repellents.
- > Buy only as much paint and other chemicals as you need, and be careful not to spill them on the ground.
- > Do not discard hazardous wastes, including paint, with the regular trash. Contact your local solid waste authority for approved hazardous waste disposal locations.

Automotive Wastes and Pollutants

- > Keep your car properly maintained so that it doesn't leak oil or other toxic fluids.
- > Clean up spilled antifreeze, brake fluid, oil, and grease with absorbent materials. Do not hose them into the street or driveway.
- > Put used oil and antifreeze in separate containers—*never* mix oil and antifreeze—and take them to a local service station to be recycled.
- > Wash your car on the grass, which can help to filter out pollutants before they reach local streams.

What Communities Can Do

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- > Stencilling local storm drains with conservation messages reminds people of the cause-and-effect link between their actions and polluted water hundreds of miles away.
- > Citizens' groups and municipalities can encourage medium-sized landowners, such as golf courses and parks, to decrease pesticide and fertilizer use.

What Government Can Do

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- > The U.S. Congress should reauthorize the Clean Water Act to include funds for cities to upgrade their stormwater treatment systems.
- > EPA should better regulate nonpoint source pollution, including concentrated animal feeding operations.
- > EPA should develop a program that combines incentives and regulations to encourage nonpoint source polluters to reduce their pollution.
- > EPA should develop regulations to encourage private property owners and farmers to employ best-management practices that reduce nutrient pollution.
- > Municipalities should make sure they comply with the EPA's National Pollutant Discharge Elimination System permit program, and improve their stormwater and sewer systems to reduce polluted water discharges.

For More Information

Log on to our website at
www.oceanconservancy.org

The Ocean Conservancy in Action

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The Ocean Conservancy is fighting every day for a strong and effective Clean Water Act. We are working to stop proposed rollbacks of the areas covered by the Clean Water Act, to secure federal funding for sewage projects, to persuade EPA to address sanitary sewer overflows, and reviewing proposed rules to change how pollution is measured in all bodies of water.

Every September, The Conservancy's International Coastal Cleanup engages hundreds of thousands of volunteers worldwide to clean debris from local beaches, reefs, and waterways. To learn how you can participate, call 1-800-BEACH (in the U.S.) or visit our website at www.coastalcleanup.org for more information.

Our Good Mate Program educates boaters and marina operators about ways to keep pollution out of the water. Call The Ocean Conservancy at 757-496-0920 or email us at goodmate@oceanconservancyva.org to find out more.

With support from EPA, our Storm Drain Sentries program engages people throughout the U.S. to educate themselves and others about the hazards of nonpoint source pollution. Program participants stencil local storm drains with conservation messages, reminding people of the cause-and-effect link between their actions and polluted water. Call The Ocean Conservancy at 757-496-0920 or email us at: stormdrain@oceanconservancyva.org for information on how your group can participate.

Endnotes

¹ Sea Life Surveys Research, www.sealifesurveys.co.uk/research.cfm.