



# A Citizen's Guide to Understanding Stormwater

**Stormwater runoff occurs when precipitation from rain flows over the ground. Impervious surfaces like driveways, sidewalks and streets prevent stormwater from naturally soaking into the ground.**

## Stormwater runoff is a problem due to pollution

Polluted stormwater runoff can have adverse effects on plants, fish, animals and people.

- Sediment can cloud the water and make it difficult or impossible for aquatic plants to grow. Sediment also can destroy aquatic habitats.
- Excess nutrients can cause algae blooms. When algae die, they sink to the bottom and decompose. This process removes oxygen from the water. Fish and other aquatic organisms can't exist in water with low dissolved oxygen levels.
- Bacteria and other pathogens can wash into swimming areas and create health hazards, often making beach closure necessary.
- Debris like plastic bags, six-pack rings, bottles and cigarette butts can wash into water bodies and can choke, suffocate or kill aquatic life.

## There are solutions

At your home or business, recycle or properly dispose of household products containing chemicals, such as insecticides, pesticides, paints, solvents, used motor oil and other auto fluids. NEVER pour them onto the ground or into storm drains.

**LAWN CARE:** Excess fertilizers and pesticides used on lawns wash off and pollute the environment. Yard clippings and leaves can wash into storm drains and contribute nutrients and organic matter to streams.

To avoid pollution of our delicate eco-system:

- Don't overwater your lawn. Consider using a soaker hose instead of a sprinkler.
- Use pesticides and fertilizers sparingly. When use is necessary, use only in the recommended amounts. Use organic mulch or safer pest control methods whenever possible.
- Compost or mulch yard waste. Don't leave it in the street or sweep it into storm drains.
- Cover piles of dirt/mulch being used in landscaping projects.

## Permeable Pavement

Traditional concrete and asphalt don't allow water to soak into the ground instead these surfaces rely on storm drains to divert unwanted water. Permeable pavement systems allow rain and snowmelt to soak through, decreasing stormwater runoff.

**Rain Barrels:** You can collect rain water from rooftops in mosquito proof containers, then the water can be used later on lawn and garden areas.



**Rainy Gardens and Grassy Swales:** Specially designed areas planted with native plants can provide natural places for rainwater to collect and soak into the ground. Rain from rooftop areas or paved areas can be diverted rather than going into storm drains.

**Vegetated Filter Strips:** Filter strips are areas of native grass or plants created along roadways or streams. They trap the pollutants stormwater picks up as it flows across driveways and streams.

**Septic Systems:** Leaking and poorly maintained septic systems release nutrients and pathogens (bacteria and viruses) that can be picked up by stormwater and discharged into nearby water bodies. Pathogens can cause public health problems and environmental concerns.

*Make sure to do the following:*

- Inspect your system every three years.
- Pump your tank as necessary (every three to five years).
- Don't dispose of household hazardous waste in sinks or toilets.



**Auto Care:** Washing your car and degreasing auto parts at home can send detergents and other contaminants through the storm sewer system. Dumping automotive fluids into storm drains has the same result as dumping materials directly into a body of water.

*The following tips can help:*

- Use a commercial car wash that treats or recycles its wastewater, or wash your car on your yard so the water infiltrates into the ground.
- Repair leaks and dispose of used auto fluids and batteries at designated drop-off or recycling locations.

**Commercial:** Dirt, oil, and debris that collect in parking lots and paved areas can be washed into the storm sewer system and eventually enter local water bodies.

- Sweep up litter/debris from sidewalks, driveways and parking lots, especially around storm drains.
- Cover grease storage and dumpsters and keep them clean to avoid leaks.
- Report any chemical spill to the local hazardous cleanup team. They will know the best way to keep spills from harming the environment.

**Construction:** Erosion controls that are not maintained can cause excessive amounts of sediment and debris to be carried into stormwater systems. Construction vehicles can leak fuel, oil and other harmful fluids which can be picked up by stormwater and deposited into local water.

*Make sure to do the following:*

- Divert stormwater away from disturbed or exposed areas of the construction site.
- Install silt fences, vehicle mud removal areas, vegetative cover and other sediment/erosion controls and properly maintain them, especially after rainstorms.
- Prevent soil erosion by minimizing disturbed areas during construction projects, and seed and mulch bare areas as soon as possible.

**Agriculture:** Lack of vegetation on stream banks can lead to erosion. Overgrazed pastures can also contribute excessive amounts of sediment to local water bodies. Excess fertilizers and pesticides can poison aquatic animals and lead to destructive algae blooms. Livestock in streams can contaminate waterways with bacteria, making it unsafe for humans.

- Keep livestock away from stream banks and provide them a water source away from water bodies.
- Store and apply manure away from water bodies.
- Vegetate riparian areas along waterways.
- Rotate animal grazing to prevent soil erosion in fields.



**Stop Pointless Personal Pollution (PPP):** If you leave trash on the street, at the beach, in a park, or just don't put it in a trash can, it becomes litter. Each piece damages our environment. Although the litter you drop might seem small, if everyone drops one piece the problem soon multiplies into an environmental disaster. Litter does not stay still but is often blown or washed into our stormwater drains, where it lands in our creeks, rivers, wetlands, estuaries and the sea. PPP is pollution washed into water bodies by rain or irrigation water and is a result of common daily activities.

*Examples of these type of pollutants include:*

- Bacterial and excessive nutrients leaking from septic tanks;
- Pesticides, fertilizers, and weed killers;
- Sand dirt from erosion;
- Oil and grease from automobiles;
- Litter and yard clippings;
- Pet and livestock wastes.

### How to STOP PPP

- NEVER drain used motor oil into storm drains. Remember all drains lead to the ocean!
- Compost leaves, grass and all clippings. Use as mulch and NEVER rake into roadways or storm drains.
- Use garden and lawn chemicals wisely. Follow package directions and NEVER apply if rain is forecasted.
- Store products safely. Keep toxic products in their original containers, closed and clearly marked.

**Dangerous Pools:** Chlorine is used to keep swimming pools clean because it kills everything, which makes it especially dangerous to eco-systems. Draining swimming pools directly into stormwater drains, or allowing a pool to overflow in heavy rain could have horrible affects on local creek, wetland, river or estuary.

*If you need to drain your pool:*

- Leave it for three to five days which allows chlorine to dissipate safely from the water.
- NEVER drain chlorine pool directly into storm-water drains.

