

What is **stormwater pollution**?

How does it affect us, our creeks and San Francisco Bay?

Have you seen stormwater pollution?

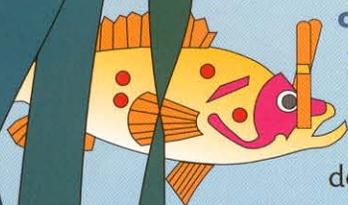
Many stormwater pollutants are invisible. However, if you have noticed either an oily sheen on water flowing off paved surfaces and in creeks, or litter and sediment left behind by receding waters after a storm, you have seen some of the visual examples of stormwater pollution.

How do pollutants get in our local waterways?

Water from rainfall, garden hoses and sprinklers washes over the landscape (yards, driveways, streets, parking lots, etc.), picks up materials such as motor oil, pet waste, dirt, and pesticides and carries them into storm drains. From there, the contaminated water flows **without** treatment into local creeks and the Bay.

This flyer describes environmental effects of pollutants in stormwater and steps you can take to prevent stormwater pollution. Every day activities such as driving to work, gardening, walking the dog or washing the car can contribute to stormwater pollution. Each of us can reduce stormwater pollution by making small changes in the way we live and work.

Stormwater pollution, often referred to as non-point source pollution, is the rain water runoff that becomes polluted as it runs over land. It is the leading cause of water quality problems in our local creeks and San Francisco Bay.



The benefits to preventing stormwater pollution include: minimizing health risks, avoiding costly clean-ups, and enhancing the local environment.

MERCURY

Sources of Pollution

• A significant source of mercury is the improper disposal of household items. Household items containing mercury include: fluorescent lamps, thermometers, thermostats, automatic light switches in vehicles and appliances, button batteries and even some children's toys.



Environmental Effects

• Mercury is a toxic heavy metal that can accumulate in fish, birds, and mammals that eat other animals with lower amounts of mercury in their body; this is a process known as bioaccumulation.

• Recent studies have shown high levels of mercury bioaccumulation in some fish in San Francisco Bay. This has prompted the California Department of Health Services to advise people to limit their consumption of fish from the Bay. (see www.oehha.ca.gov).

What YOU Can Do...

• Recycle mercury containing items or dispose of them at a Household Hazardous Waste (HHW) facility (see back of brochure).

• Use mercury free products (i.e. digital thermometers).

PATHOGENS

(disease causing bacteria and viruses)

Sources of Pollution

• Pathogens from cattle manure, pet waste, ill-kept stables, broken sewer lines and poorly maintained septic tanks get washed into local creeks and ultimately in the Bay.

Environmental Effects

• High levels of disease causing bacteria and viruses make waters unsafe for fishing, swimming and other recreational uses. In recent years, windsurfers, kayakers and swimmers have seen several closures of Bay beaches due to unsafe levels of bacteria in the water.

• Excessive levels of pathogens can give swimmers and other recreational users sore throats, rashes, nausea and diarrhea.

What YOU Can Do...

• Pick up after your pet. Dispose of the waste in the trash or flush it down the toilet.

• Keep cooking fats, oils and grease out of the sewer system, as fats, oils and grease clog your pipes and cause sewage overflows.

• Regularly inspect and pump your septic tank.



PESTICIDES & FERTILIZERS

Sources of Pollution

• Water from rain and sprinklers wash fertilizers and pesticides from our lawns and gardens into storm drains.

Environmental Effects of Pesticides

• Pesticides not only kill unwanted pests, but they also kill the good bugs and harm aquatic organisms.

• When pesticides eliminate beneficial insects, pests are free to multiply without natural predators.

Environmental Effects of Fertilizers

• Fertilizers are a source of nutrients; too many nutrients in our local waterways promote excessive aquatic plant and algae growth.

• Too many aquatic weeds and algae can reduce oxygen in the water, leading to death of fish and other aquatic organisms. They also are aesthetically unpleasing, cause bad odor and make water unsuitable for recreational use.



What YOU Can Do...

• Avoid the use of pesticides. Learn about Integrated Pest Management (IPM) – the least toxic method to control pests (see back for more information).

• Never apply pesticides and fertilizers when rain is forecasted. Do not overwater your yard after pesticide and fertilizer application.

SOAPS & DETERGENTS

Sources of Pollution

• The use of soaps and detergents to wash vehicles on paved surfaces or to clean driveways, side-walks and parking lots, contributes large quantities of soapy water to local creeks.



Environmental Effects

• Soaps and detergents, even those that are biodegradable, are toxic to fish at extremely low concentrations. Some contain phosphate, a nutrient that can promote excessive aquatic plant and algae growth.

■ What YOU Can Do...

- Wash the car on your lawn or even better, take it to a commercial car wash.
- Dispose of soapy water down the sink or toilet.



OIL & GREASE

Sources of Pollution

• A lot of oil and grease leaks from cars. Oil pollution is highest from parking lots, streets and service stations.

Environmental Effects

- Oil and grease can kill waterfowl by breaking down the natural waterproofing of feathers. This allows cold water to reach the skin causing hypothermia.
- Oil and grease are also toxic to fish and other aquatic life at low concentrations. They are made up of hydrocarbons, which can accumulate in organisms. Studies have linked hydrocarbons to tumors and parasites in striped bass.

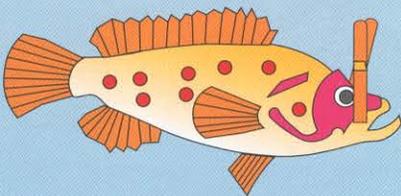
■ What YOU Can Do...

- Maintain your car regularly to keep it free from leaks.
- Recycle motor oil at a Household Hazardous Waste facility (see back for more information).

SEDIMENTS (DIRT)

Sources of Pollution

- Major sources of sediment in our local creeks include land-disturbing activities such as: construction and landscape remodeling (i.e., replacing turf, shrubs, trees, etc.) and soil erosion caused by water flowing over bare ground.
- The paving of land increases the amount of stormwater runoff and increases erosion of creek channels, which adds additional sediment to waterways.



Environmental Effects

- When dirt is washed into creeks, it can suffocate fish by clogging their gills, which blocks the supply of oxygen and can smother fish eggs.
- Dirt also increases the turbidity of water, reducing the amount of sunlight available to aquatic organisms.

■ What YOU Can Do...

- Keep dirt out of gutter and storm drains. Trap and redistribute the dirt when remodeling your driveway or landscape.
- Vegetate bare spots in the garden by applying mulch or planting trees, shrubs and groundcover.
- Use permeable material such as: ungrouted pavers for patios, walkways and driveways.



LITTER

Sources of Pollution

• Trash such as plastic bags, cups, candy wrappers and cigarette butts get swept up by rainwater and end up floating in local creeks and the Bay.

Environmental Effects

• Litter pollutes our community, decreases property values and can be hazardous to humans and wildlife.

■ What YOU Can Do...

- Always dispose of your trash in a proper receptacle.
- Never throw anything from your car windows. Carry a litter bag in your car.
- Always clean up your site after a picnic or any other activities.



STORMWATER POLLUTION



**Alameda Countywide
Clean Water Program**
A Consortium of Local Agencies
www.cleanwaterprogram.org

ADDITIONAL RESOURCES

- For more information on **stormwater pollution prevention** visit **ACCWP's** website at www.cleanwaterprogram.org or call (510) 670-5543.
- To find out where you can dispose of **mercury containing items, motor oil, pesticides and other hazardous products** contact the Alameda County Household Hazardous Waste at (800) 606-6606 or visit their website at www.stopwaste.org. For additional information call 1-800-CLEANUP (1-800-253-2687) or visit www.1800cleanup.org and go to the Household Hazardous Waste section.
- For more information on **safety guidelines for eating seafood** visit www.oehha.ca.gov and go to the Pesticide section and look for Fish and Water Quality.
- To learn more about **Integrated Pest Management (IPM)** visit www.ourwaterourworld.org

State and Federal agencies have mandated a reduction of stormwater pollution. Municipalities throughout Alameda County, as the Alameda Countywide Clean Water Program (ACCWP), are committed to eliminating pollutants discharged to our local creeks and San Francisco Bay.



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