



Stormwater

The importance of Clean Water

It rains a lot in Florida. Rain gives us life by recharging ground water and keeping our lakes full and streams running freely, while contributing to the life in our estuaries.

Florida receives 50-65 inches of rain annually – often in the form of torrential downpours that result in runoff. Stormwater runoff can create problems, often due to development and growth.

Roofs, highways, parking lots and other impervious surfaces cover what once was vegetated porous soil and keep rain water from soaking into the ground. Even small rains can create runoff and local flooding. But there is more to worry about than just stormwater volume.

Pesticides and fertilizers are added to our lawns, parks, golf courses and gardens which wash away in the next storm. The waste from animals, oil and grease from automobiles on our parking lots, roads and highways, and sediment from construction sites, also are carried off in stormwater. Nature needs our help.

Pollution from Stormwater

Some believe water pollution in Florida is caused only by what we call point sources – the discharges from sewage treatment facilities or industry. In fact, stormwater accounts for more than half of the state's water pollution. In some cases, it is almost the sole source.

Stormwater generates almost all of the sediment in Florida water and contributes nine times more oxygen demanding substances to water bodies than point sources. These are the organic and inorganic materials which use up the dissolved oxygen in the water when they decompose, especially in the summertime when hot temperatures and frequent rains combine to lower oxygen levels even more. This leads to fish kills in our rivers and lakes.



Stormwater flushes nutrients into water bodies at a rate comparable to discharged from wastewater treatment plants. Stormwater deposits 80-95 percent of the heavy metals that reach Florida waters. Lead, zinc, copper, cadmium and chromium, along with oils and grease, are flushing from highways and parking lots into rivers and lakes. Heavy metals are toxic to plankton, fish and other aquatic organisms, reducing their ability to reproduce. Stormwater carries viruses and bacteria into Florida waterways, causing the state to close them to shellfish harvesting and swimming.

Why do we need clean water? Having clean water is of primary importance for our health and economy. Clean water provides recreation and commercial opportunities, fish habitat and drinking water, while adding beauty to our landscape. All of us benefit from clean water and all of us have a role in getting and keeping our lakes, rivers, marine and ground waters clean. (Water Quality Consortium)

Clean water is important to all of us. It's up to all of us to make it happen. In recent years sources of water pollution like industrial wastes from factories have been greatly reduced. Now, more than 60 percent of water pollution comes from things like cars leaking oil, fertilizers from farms and gardens and failing septic tanks. All these sources add up to a big pollution problem. But each of us can do small things to help clean up our water too – and that adds up to a pollution solution. (Water Quality Consortium)

Protecting water quality from urban runoff: In urban and suburban areas, much of the land surface is covered by buildings and pavement, which does not allow rain to soak into the ground. Instead, most developed areas rely on storm drains to carry runoff from roofs and paved areas to nearby waterways. The runoff carries pollutants such as oil, dirt, chemicals and fertilizers directly to streams and rivers, where they seriously harm water quality. To protect surface water quality and groundwater resources, development should be designed and built to minimize increase in runoff.

How urbanized areas affect water quality: The porous and varied terrain of natural landscapes like wetlands and grasslands traps rainwater and allows it to filter slowly into the ground. Nonporous surfaces like roads, parking lots and rooftops prevent rain from soaking into the ground. Most of the rain remains above the surface where it runs off rapidly in unnaturally large amounts. Storm sewer systems concentrate runoff into smooth, straight conduits. This runoff gathers speed and erosional power as it travels underground. When this runoff leaves the storm drains and empties into a stream, its excessive volume and power blast out stream banks, damaging streamside vegetation and wiping out aquatic habitat.

These increased storm flows carry sediment loads from construction sites and other denuded surfaces and eroded stream banks. They often carry higher water temperatures from streets, rooftops and parking lots which are harmful to the health and reproduction of aquatic life. The loss of infiltrations from urbanization may also cause profound groundwater changes. Although urbanization leads to great increases in flooding during and immediately after wet weather, in many instances it results in lower stream flows during dry weather. Many native fish and other aquatic life cannot survive when these conditions prevail.

Managing urban runoff: What homeowners can do:

- To decrease polluted runoff from paved surfaces, households can develop alternatives to areas traditionally covered by impervious surfaces. Porous material for sidewalks and native vegetation and mulch can replace high maintenance grass lawns.
- Homeowners can use fertilizers sparingly and sweep driveways, sidewalks and roads instead of cleaning with a water hose. Start a compost pile for yard waste and use Integrated Pest Management to reduce dependence on harmful pesticides. Use, store and dispose of chemicals properly.
- Pick up after pets and check cars for leaks.
- Recycle motor oil and antifreeze. Use car wash facilities that do not generate runoff.
- Septic tanks should be professionally inspected and pumped every 3-5 years. Practice water conservation measures to extend the life of your septic system.

Increased Pollutant Loads:

Urbanization increase the variety and amount of pollutants carried into streams, rivers and lakes. The pollutants include:

- Sediment
- Oil, grease and toxic chemicals from motor vehicles
- Pesticides and nutrients from lawns and gardens
- Viruses, bacteria and nutrients from pet waste and failing septic systems
- Heavy metals from roof shingles, motor vehicles and other sources
- Thermal pollution from dark impervious surfaces such as streets and rooftops

These pollutants can harm fish and wildlife populations, kill native vegetation, foul up drinking water supplies and make recreational areas unsafe and unpleasant.

New development: Developers and city planners attempt to control the volume of runoff from new development by using low-impact development, structural controls and pollution prevention strategies. Low-impact development includes measures that conserve natural areas (particularly sensitive hydrologic areas like riparian buffers and infiltrable soils); reduce development impacts; and reduce site runoff rates by maximizing surface roughness, infiltrations opportunities and flow paths.

Existing development: Controlling runoff from existing urban areas is often more costly than controlling runoff from new developments. Economic efficiencies are often realized through approaches that target “hot spots” of runoff pollution or have multiple benefits such as high-efficiency street sweeping which addresses aesthetics, road safety and water quality.

Urban planners and others responsible for managing urban and suburban areas can identify and implement pollution prevention strategies and examine source control opportunities. They should seek out priority pollutant reduction opportunities, then protect natural areas that help control runoff, and finally begin ecological restoration and retrofit activities to clean up degraded water bodies.

Local governments should take lead roles in public education efforts through public signage, storm drain marking, pollution prevention outreach campaigns and partnership with citizen groups and businesses. Citizens can help prioritize the clean-up strategies, volunteer to become involved in restoration efforts and mark storm drains with approved “don’t dump” messages.

What’s the problem with... Motor Oil: Oil does not dissolve in water. It lasts a long time and sticks to everything from sand to bird feathers. Oil and other petroleum products are toxic to people, wildlife and plants. One pint of oil can make a slick larger than a football field. Oil that leaks from cars onto roads and driveways is washed into storm drains and then usually flows directly to a lake or stream. Used motor oil is the largest single source of oil pollution in our lakes, streams and rivers. Americans spill 180 million gallons of used oil annually into our waters – 16 times the amount of the Exxon Valdez oil spill.

What's the problem with ... Car Washing: There’s no problem with washing your car. It’s just how and where you do it. Most soap contains phosphates and other chemicals that harm fish and water quality. The soap and the dirt and oil washed from your car flows into nearby storm drains which run directly into our waters. Phosphates from the soap can cause excess algae to grow. Algae looks and smells bad and harms water quality. As algae decays, the process uses up oxygen in the water that fish need.

