Stormwater and Your Health

Most of us know that when it rains, water may run off of our lawns, driveways and sidewalks and enters onto the street or road where it will combine with more rain water.

From here, the rain water may enter into storm catch basins or roadside ditches before eventually entering into a local freshwater brook, river, lake or into the ocean.

Growing concern about stormwater and its effect on both environmental health and human health is increasing due to our knowledge of contaminants that are contained in stormwater. In fact, the pollutants carried in stormwater are now one of the leading causes of water quality problems in the world.

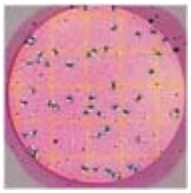
Each drop of rain that falls on our buildings, roads, driveways and yards can transport various pollutants and release contaminants to the environment through stormwater systems by first entering into catch basins in your community. Everything from automobile oils, fuels and fluids to pesticides, food waste, trash and debris including animal waste and discarded hypodermic needles may enter into the catch basin or storm drain of our communities and be carried by stormwater into our rivers lakes and ocean.

Catch basins may be a significant source of pollutants during the first “flush” of a rain storm. These devices are installed at the point where stormwater enters the storm sewer system for the purpose of removing grit and course debris from storm water runoff. Catch basins form standing pools of water where collected material, leaves, litter and other organic matter can undergo decomposition and result in water quality

which may approach that of untreated sewage. This polluted water may then enter freshwater bodies such as rivers, lakes and the ocean during the first flush of a storm.

As the summer months approach us, many residents and visitors will want to enjoy the benefits of swimming, boating, fishing and other activities in our rivers, lakes and ocean. It is important that we are aware of potential health risks that certain activities such as swimming near stormwater outfalls after rainstorms may pose.

Illness such as ear, eye, and skin infections as well as gastro-intestinal infections may occur if we swim, drink or have contact with water that is contaminated by urban runoff. One of the major concerns of polluted runoff and the cause of these ailments is microorganisms. These include bacteria, protozoa and viruses. Most microorganisms are beneficial and are non-harmful to humans and may be referred to as antigenic. The microorganisms that cause diseases are called pathogenic.



Bacteria are very small; it would take about 7000 individuals together to measure a centimetre in length. Bacteria can be found in large numbers in raw sewage, wastewater effluents and in natural waters. Some well known diseases that are caused by pathogenic bacteria include cholera, dysentery, and typhoid fever.

Viruses are even smaller than bacteria and need sophisticated equipment such as an electron microscope to observe. Many viruses are associated with feces, from both animal and human sources. Viruses can survive for extended periods of time in natural environments such as rivers and lakes. Many are not destroyed by municipal sewage treatment plant processes. As such, they pose a significant public health concern. Those that cause illness in humans and are found in surface water include Norwalk-type virus, hepatitis A, rotavirus and adenovirus.

Protozoans are typically large single celled organisms and are found mainly in aquatic environments. These organisms if ingested may cause gastrointestinal disease, dysentery and ulcerations of the liver and intestines.

Many of these microorganisms have entered our waters from wastewater treatment plant effluents, private outfalls, malfunctioning septic systems, boats, combined sewer overflows as well as land and road runoff. Also, wildlife, domestic animals and birds contribute to the microorganism population of our waterways.

While many of our local rivers and lakes will have increased levels of microbiological and chemical contamination after rainstorms, it is important to know that ongoing testing shows that these freshwater bodies may always have the potential to be contaminated and as such, pose a real risk to human health. Never consider that rivers and lakes are safe for swimming, drinking or other uses as the potential for water borne illness is always present.

How may we protect ourselves?

The best way to protect ourselves is to avoid contact with known or

suspected polluted waterways. Avoid swimming or playing in waters near stormwater outfalls and delay entering rivers and lakes for at least a day or so after a heavy rainstorm.

We may also contribute to the health and well being of our ourselves and our environment by insuring that **Only rain goes down the storm drain** (PDF, 495 KB) .

A message from Robert Strang, MD, MHSc, FRCPC, Medical Officer of Health, Nova Scotia Department of Health and HRM's Pollution Prevention Office.

Should you have any questions or comments, please direct inquiries to the Pollution Prevention Office.

Last Updated: Monday, November 21, 2005 at 02:54 PM