

**BRIARCLIFF MANOR
UNION FREE SCHOOL DISTRICT
45 INGHAM ROAD
BRIARCLIFF MANOR, NY 10510**

**MS4PY6 STORMWATER
PROGRAM**

**FACT SHEET # 1
JULY 2015**

**NONPOINT SOURCES OF
POLLUTION**

**FOR MORE INFORMATION CONTACT
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1. NONPOINT SOURCES OF POLLUTION

Most people are aware of point sources of pollution resulting from a piped discharge from a factory, sewage plant or industrial facility. Unlike point sources of pollution, nonpoint sources of pollution (NPS), as defined by the EPA, may be generated from many diffuse sources. NPS are caused by rainfall or snowmelt moving over and through the ground. As the stormwater runoff moves across impervious surfaces, it picks up and carries away natural and human-made pollutants, finally depositing them into lakes, rivers, wetlands, coastal waters and ground waters. Since the passage of the Clean Water Act in 1977, the United States has made tremendous advances in controlling pollution from point sources. Unfortunately, because of the varied and complex nature of NPS, reduction of these sources is more challenging than the elimination of point sources of pollution.

2. SOURCES OF STORMWATER NPS

NPS originate from variety of sources. Some of the more common NPS occur from:

- **Construction Activities**
- **Lawn and Garden Products**
- **Roads and Parking Lots**
- **Failing Septic Systems**
- **Illicit Dumping**

3. MAJOR TYPES OF POLLUTANTS

The major types of pollutants from nonpoint sources and their effects are summarized below:

Floatable Debris: consists of paper, plastic bottles, street litter, municipal garbage, tree branches as well as marine waste. Floatable debris may cause:

- **Street and Basement Flooding:** Floatable debris on land can cause storm drain

blockage, resulting in street and basement flooding

- **Beach Debris:** floatables dumped offshore may find its way inshore, causing beach debris
- **Health Hazards:** swimming in contaminated waters can lead to bacterial and viral infectious diseases
- **Health Effects from Shellfish Consumption:** shellfish growing in contaminated waters will collect even more concentrated pathogens in their digestive tracts, which can be passed to humans, if eaten uncooked or partially cooked

Sediment: which is silt, sand, dirt and gravel eroded by runoff at construction sites, usually ends up in streams and lakes. The impacts of sediments vary from site to site depending on the volume of runoff:

- **Clogged Storm Sewers:** sediment deposited in storm sewer pipes can clog the storm drains and reduces storm drain capacity
- **Cloudy Water:** sediments cause the water to become cloudy, or turbid, making it difficult for fish to see and feed properly
- **Destruction of Spawning Habitat:** many fish and aquatic insects lay their eggs on gravel beds. When sediments are deposited on the stream bottom, they cover this spawning habitat
- **Obstruction of Stream Flow:** sediment alters stream flows and obstructs waterways resulting in narrower and shallower water

- **Reduction of Photosynthesis Process:** sediments cloud the water and cover plant leaves, reducing sunlight penetration and inhibiting photosynthesis and the plant food production

Nutrients: are substances that help plants and animals grow, however excess nutrients are harmful to our environment. Two of the most common nutrients reaching our waters are nitrogen and phosphorus. These nutrients are generated from fertilizers, septic wastes, and soil, animal and human waste. Excessive nutrients often result in:

- **Algal Blooms:** nutrients stimulate the growth of algae, causing algal blooms. Algal blooms cut off sunlight to aquatic plants causing them to die
- **Fish Kills:** Decaying plant life depletes the oxygen level in the water and increase the ammonia levels, resulting in fish kills

Pathogens: are disease-causing microorganisms present in human and animal waste. Most pathogens, consisting of bacteria, viruses, protozoans, come from the discharge of untreated sewage treatment plant by-passes, sewage overflows from poorly maintained septic tanks septic systems, as well as animal and bird droppings. Health and environmental impacts caused by pathogens may include:

- **Disease Transmission:** pathogens may cause diseases such as gastroenteritis, cholera, typhoid fever, salmonella and hepatitis
- **Closure of Beaches:** beaches are monitored by the health department and are closed when the levels of pathogens exceed acceptable standards
- **Closure of Shell Fishing Grounds:** pathogen contamination also limits the use of shellfish

resources. Shellfish growing waters are usually tested for coliform levels to assure that the shellfish being harvested are safe for human consumption

4. STEPS TO CONTROL NPS

You can limit NPS by taking the following steps:

- **Construction Activities:** reduce runoff from construction sites by requiring the construction contractor to abide by best management practices adopted by the SPDES Construction Permit issued for the specific construction project
- **Lawn and Garden Products:** do not use or limit the use of fertilizers, herbicides and insecticides in your lawn and garden. Test your soil before applying fertilizers. Apply fertilizers sparingly and according to the manufacturer recommendations
- **Roads and Parking Lots:** take your car to a car wash instead of washing it in your driveway. Check your car for leaks and recycle motor oil. Sweep your driveway and recycle residual salt and sand. Use sand rather than salt to melt ice on sidewalks. Pick up floatable debris such as paper, plastic bottles, street litter, garbage and tree branches. Recycle garbage whenever possible to reduce the amount of garbage sent to the landfill

Failing Septic Systems: pump out your septic tank on a regular basis, every two or three years. Maintain records of system repairs and know the location of the septic tank components. Reduce wastewater to your septic system by installing low flow fixtures in your home. Use laundry

detergents and cleaners with low phosphate content

- **Illicit Dumping:** properly dispose of all toxic and hazardous household products and never use the storm drain for disposal of any toxic materials. Pickup after your pets. Properly dispose unused medications through the local prescription drug take-back programs and never flush your unused medications into your toilet. If no medicine take-back program is available, contact your local community hazardous waste office to determine how to dispose of most of your medicines
- **Beach Trash:** beach trash is only unsightly but can harm marine life. For example plastic bags that look like jellyfish when they float, are often mistaken for food by sea turtles. Cigarette butts are not biodegradable and the material used to make them can leach toxic chemicals into the environment
- **Green Stormwater Practices:** educate yourself on green stormwater practices and employ such practices in your home to lessen the impact of NPS on the environment. Plant ground cover, trees and shrubs on your property to stabilize erosion-prone areas. Minimize the amount of impermeable surfaces on your property by using gravel, paving blocks or other permeable materials in place of cement or blacktop for driveways and parking pads. Consider creating a rain garden on your property that will serve to retain stormwater runoff onsite
- **Stewardship:** join a civic or local environmental citizen group and adopt and implement green stormwater practices in your community