

<p>BRIARCLIFF MANOR UNION FREE SCHOOL DISTRICT 45 INGHAM ROAD BRIARCLIFF MANOR, NY 10510</p>	<p>1. WATER QUALITY IMPACTS OF EXCESS NUTRIENTS IN OUR WATERS Excess nutrients in our streams, lakes and ponds, as well as our drinking water reservoirs, can cause algae overgrowth and eutrophication, with serious impacts to the environment and public health. The main compounds associated with nutrient loading are nitrogen and phosphorus.</p>
<p>MS4PY13 STORMWATER PROGRAM</p>	<p>2. MAIN CAUSES OF EXCESSIVE NUTRIENTS</p>
<p>FACT SHEET #5 OCTOBER 2022</p>	<p>There are several causes for excessive nutrients:</p>
<p>ENVIRONMENTAL IMPACTS OF NUTRIENT LOADING ON OUR WATER QUALITY</p>	<p>Agriculture: The nitrogen and phosphorus in animal manure and chemical fertilizers are necessary to grow crops. However, when these nutrients are not fully utilized by plants they can be lost from the farm fields and negatively impact air and downstream water quality.</p>
<p>FOR MORE INFORMATION, CONTACT YOUR STORMWATER COORDINATOR: ANTHONY BAUSO AT: 914-432-8134 OR AT abauso@briarcliffschools.org</p>	<p>Stormwater: When precipitation falls on our cities and towns it runs across hard surfaces and carries pollutants, including nitrogen and phosphorus, into local waterways.</p> <p>Wastewater: Our sewer and septic systems are responsible for treating large quantities of waste, and these systems do not always operate properly or remove enough nitrogen and phosphorus before discharging into waterways.</p> <p>In and Around the Home: Fertilizers, yard and pet waste and certain soaps and detergents contain nitrogen and phosphorus, and can contribute to nutrient pollution if not properly used or disposed. The amount of hard surfaces and type of landscaping can also increase the runoff of nitrogen and phosphorus during wet weather.</p>

3. ALGAL BLOOMS

Algal blooms most frequently occur in nutrient-rich waters, particularly during the hot summer months. Most algae are harmless and are an important part of the food chain. Algae are naturally present in slow moving streams, lakes, coastal waters and ponds. Some, algae blooms, such as Blue-Green algae, can cause serious impacts to the environment and public health. Algae blooms can cause the following:

- **Oxygen Depletion:** Heavy mats of algae deplete the water of oxygen that fish need to survive
- **Recreational Use Impacts:** Algae overgrowth makes recreational water use unpleasant and potentially harmful
- **Depletion of Sunlight:** Heavy mats of algae deplete sunlight that underwater plants and microorganisms need to survive
- **Drinking Water Impacts:** Algae growth may cause carcinogens to form in drinking water during chlorination

Because it is hard to tell harmful algae blooms, the NYSDEC recommends you avoid contact with any waters covered by floating scums and discolored waters. It is not easy to tell if a bloom will produce toxins harmful to human health or animals.

Laboratory analysis of the water sample is required to confirm the presence of toxins from harmful algae blooms.

Some algae can produce toxins that can be harmful to people and animals. These are collectively called harmful algal blooms (HAB). Blue-green algae are HABs because they contain cyanobacteria that may produce toxins harmful to human health or animals. Large populations of blue-green algae may produce toxins high enough to prevent those using the water for drinking or recreational use. Blue-green algae blooms have the appearance of spilled green paint or pea soup. Typically, the blooms are blue-green in color, but they also can be yellow, red, or brown.

People and pets should avoid contact with the water that is discolored or has algae scums on the surface.

Drinking, accidentally swallowing or swimming in water affected by a harmful algal bloom can cause serious health problems including:

- **Allergic Reactions:** Symptoms include nausea, vomiting, diarrhea, skin or throat irritation as well as breathing difficulties
- **Liver and Nervous System Disorders:** Toxins can affect the liver and nervous systems when water is consumed in sufficient quantities

4. NITROGEN

Nitrogen is essential for plant growth and is a natural component of animal waste and can be produced by bacteria. While a certain amount of nitrogen in the ecosystem is natural and necessary, excessive amounts of nitrogen can cause algae blooms in local surface waters and increase nitrates in drinking water sources.

Reduce Nitrogen Impacts

Appropriate application of fertilizer can reduce nitrogen in surface waters and drinking waters.

- Do not apply fertilizer from December 1 to April 1, as lawn is dormant during the winter season
- Do not apply fertilizer on sidewalks, driveways or other impervious surfaces. If fertilizer spills onto these surfaces, you must sweep it up to prevent it from washing into drains or waterways. Do not hose it off.
- Do not apply fertilizer within 20 feet of any water body.

Nitrates in Drinking Water

Too much nitrogen, as nitrate, in drinking water can be harmful to young infants or young livestock. Excessive nitrate can result in restriction of oxygen transport in the bloodstream. Infants under the age of 4 months lack the enzyme necessary to correct this condition

5. PHOSPHORUS

Phosphorus is carried to ponds, rivers lakes and streams by stormwater runoff. Phosphorus-impaired waters can negatively impair recreation and tourism activity. Treating drinking water from phosphorus effects can be costly.

In order to reduce Phosphorus use the NYS Dishwasher Detergent and Nutrient Runoff Law went into effect on August 14, 2010.

- **Phosphorus Restrictions:** Under this law phosphorus-containing dishwasher detergents for household and commercial use is prohibited. NYS had previously banned phosphorus in laundry detergents.

Beginning on January 1, 2012, New York State Law went into effect, restricting the use of lawn fertilizers:

- **Phosphorus Restrictions:** Under the law, use of fertilizer that contains up to 0.67% phosphorus is not restricted. Fertilizer containing more than 0.67% phosphorus can only be used if a new lawn is being established or a soil test indicates it is necessary
- **Look for the Zero:** Before buying fertilizer, check the fertilizer bag for a set of three numbers showing the percentage of nitrogen (N) phosphorus (P) and potassium (K). Buy a bag with “0” in the middle