

<p>PUTNAM VALLEY CENTRAL SCHOOL DISTRICT 146 PEEKSKILL HOLLOW ROAD PUTNAM VALEY, NY 10579</p>	<p>1. WHAT ARE ALGAE BLOOMS? An algae bloom consists of cyanobacteria (blue-green algae) that manifests itself in fresh water. Algae are photosynthetic microorganisms that are found mostly in standing fresh water, such as lakes, wetland and reservoirs. Algae vary from small, single-celled forms to complex multi-cellular forms. Their frequency, duration and intensity are increased by warmer weather and excess nutrients in the water. Some blooms can produce toxins harmful to people and animals. These are referred to as “Harmful Algae Blooms”.</p>
<p>MS4PY8 STORMWATER PROGRAM</p>	
<p>FACT SHEET #4 OCTOBER 2017</p>	
<p>STORMWATER RUNOFF AND ALGAE BLOOMS</p>	<p>2. WHAT ARE CONCERNS OF HARMFUL ALGAE BLOOMS (HAB)? Health concerns from HAB vary depending on the type of exposure and the amounts and types of toxins present.</p>
<p>FOR MORE INFORMATION, CONTACT YOUR STORMWATER COORDINATOR:</p> <p>PATRICK BELLINO AT: 845-528-8143 OR AT pbellino@pvcsd.org</p>	<ul style="list-style-type: none"> • Skin and Eye Irritation: Contact with HAB from swimming in waters with HAB can cause skin and eye irritation • Gastrointestinal Problems: Ingesting small amounts of water with HAB can cause gastrointestinal problems, including liver and/or neurological problems according to USEPA reports • Asthma-Like Symptoms: Reportedly, inhaling water spray with algae can cause asthma-like symptoms • Small Children: Small children are more susceptible to the effects of toxins than adults • Pets: Pet deaths from ingesting water with HAB have occurred. Dogs can get very ill and even die from licking algae off of their fur. Rinse dogs immediately if they come into contact with an algae bloom

3. PRECAUTIONS AGAINST HABs

If you see water that appears to have an algae bloom, do not come in contact with the water.

The following precautions should be taken if in contact with algae blooms:

- **Never Drink Untreated Surface Water:** Never drink untreated surface water, whether or not algae blooms are present. Untreated water may contain other bacteria, parasites or viruses, as well as cyanotoxins that could cause illness if consumed. Treating water by boiling does not get rid of toxins present
- **Seek Medical Attention Immediately:** Seek medical attention immediately if symptoms such as vomiting, nausea, diarrhea, skin, eye or throat irritation, allergic reactions or breathing difficulties occur after contact with HAB
- **Promptly Report any HAB to Your Health Department:** If you suspect that you have seen a HAB, or you and your family has been in contact with a bloom, please promptly report the bloom to NYSDEC as well your local health department. If possible attach digital photos to show extent and location of the suspected bloom (HABsInfo@dec.ny.gov)

4. THE KEY CAUSES OF ALGAE BLOOMS?

Sunlight and excess nutrients in the water, help algae grow faster. Phosphorus and

nitrogen are the two key nutrients that promote algae growth. These nutrients are found in human and animal waste and in fertilizers. Sources that can promote large amounts of nutrients to water bodies are:

- **Leaking Septic and Sewer Systems:** Leaking septic and sewer systems introduce significant amounts of nutrients such as phosphorus and nitrogen, which are the two main nutrients that promote algae growth
- **Fertilizers:** Fertilizers include the two main nutrients; phosphorus and nitrogen that promote algae growth
- **Animal and Pet Waste:** Animal and pet waste also contain phosphorus and nitrogen, which are the two main nutrients that promote algae growth

5. ENVIRONMENTAL IMPACTS OF ALGAE BLOOMS?

Environmental impacts of algal blooms include:

- **Blocking of Sunlight:** Algae blooms block vital sunlight from reaching beneficial underwater plants that provide food and a place for fish to live and grow
- **Reduced Levels of Oxygen:** Decomposition of dying algae can reduce levels of dissolved oxygen in the water leading to fish kills.
- **Algal Toxins:** Algal toxins can cause fish kills directly by clogging fish gills
- **Accumulation of Foam and Shoreline Scums:** Decomposition of algal blooms frequently cause unappealing odors and the accumulation of unsightly foam and shoreline scums

6. RE-DEFINING STORMWATER MANAGEMENT

Stormwater management is an issue of great importance to algae control. You can help by reducing the two main nutrients, phosphorus and nitrogen by reducing stormwater runoff.

- **Onsite Stormwater Treatment:** In the past, conventional wisdom for stormwater management held that water was problem to solve rather than a valuable resource to conserve. Traditionally, the primary objective of stormwater management was to export runoff from where it falls, instead of beneficially storing and using the resource. In nature, by contrast, stormwater is dispersed across the landscape, reducing runoff volumes and the release rate while simultaneously cleaning water through the natural filtration process.
- **Utilizing Green Stormwater Management Techniques:** Alternative stormwater practices such as rain gardens, the use of pervious pavements and vegetative filter strips can help reduce the release of key nutrients that promote algae growth

7. HOW CAN YOU HELP?

You can play an important role in reducing nutrient pollution. Each of us can reduce nutrient pollution by adopting the following practices:

- **Reduce Fertilizers in Your Lawns:** Use fertilizers only after you have tested your soils and only when your lawns show a nutrient deficiency
- **Application of Fertilizers:** Avoid using fertilizers just prior to a rain
- **Control Pet Waste Discharge:** Pick up pet waste. Pet waste contribute significant amounts of phosphorus and nitrogen that promote algae growth
- **Septic Systems:** Properly maintain septic systems by having your septic tank routinely pumped and cleaned
- **Vegetative Buffer Zones Around Water Bodies:** Plant or maintain vegetative buffer zones around the water's edge. This will filter stormwater pollutants and also reduce geese population
- **Vehicle Washing:** The best action is to take your vehicles to a commercial car wash, especially if you plan to clean the engine and the bottom of the car. If you have to wash your car at your property, observe the following steps:
 - Locate the nearest stormwater catch basin and do not allow the wash water to enter the drain
 - Use soap sparingly and try to use non-phosphorus detergents.
 - Wash cars on gravel, grass or another permeable surface, so that the ground can filter the wash water naturally.
 - Use a hose that has high pressure and low volume.

REMEMBER THE KEY TWO NUTRIENTS THAT PROMOTE ALGAE GROWTH ARE PHOSPHORUS AND NITROGEN.