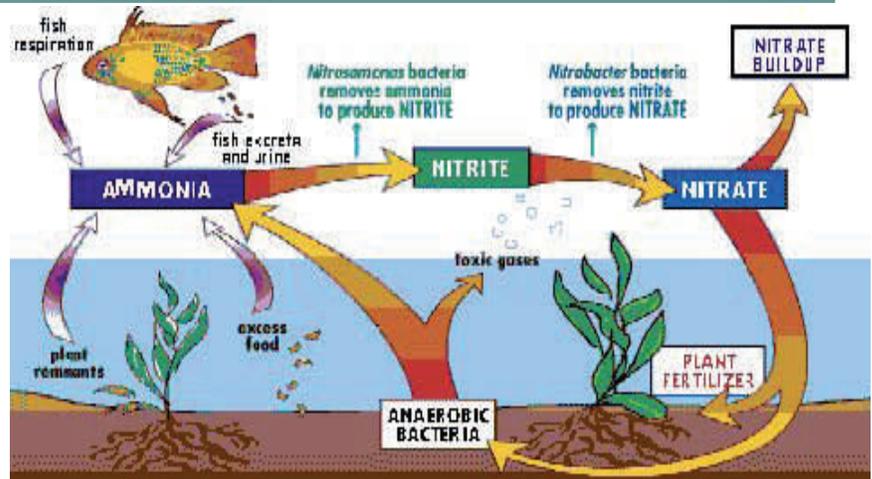




# Greater Stockport Creek Watershed

## Fact Sheet- NITRATES what are they? Where do they come from?

NITRATE IS A CHEMICAL THAT DISSOLVES IN WATER IN A SIMILAR MANNER AS TABLE SALT. IT IS COLORLESS, ODORLESS AND TASTELESS WHEN DISSOLVED IN WATER.



### Where do Nitrates come from?

There are numerous sources for nitrates that are found in groundwater. The largest sources are septic tank wastewater, fertilizers (organic and chemical), decomposition of organic matter, and atmospheric nitrogen that is transformed to nitrate by bacteria found in soil.

### Why Measure Nitrate?

Nitrates are an essential nutrient and found naturally in unpolluted streams and ponds due to the process of plant and animal growth and decay. However, excess nitrates can cause great increases in plant growth and adversely affect the health of aquatic animals and humans.

### What are some of the Effects?

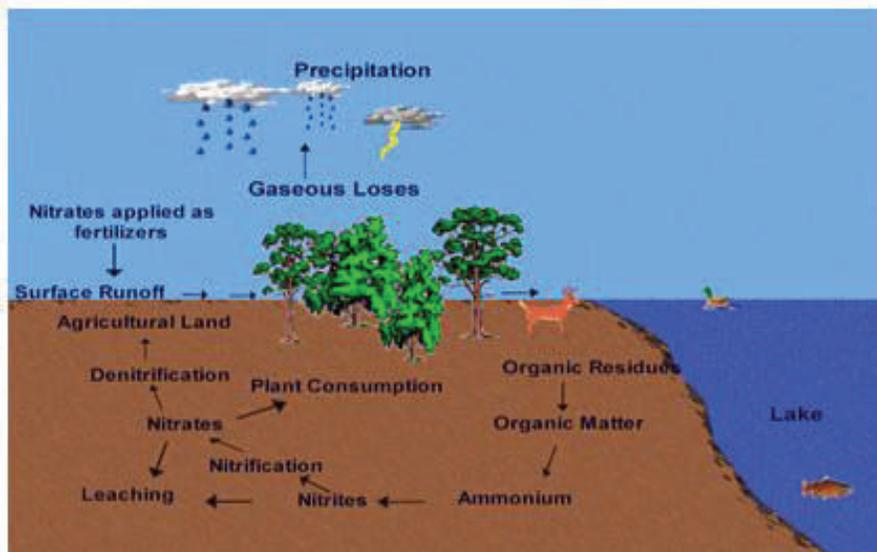
Some effects include: low dissolved oxygen, higher water temperatures, changes in habitat. Excess nitrates in our drinking water can result in health impacts for humans such as blood poisoning in infants, hypertension in children, and gastric cancers in adults. Infants risk contracting a condition that is similar to carbon monoxide poisoning; this is also called "blue baby syndrome."

### How are Nitrates Measured?

Nitrate is measured in milligrams per liter (mg/L). In contrast to freshwater, nitrogen is generally the primary limiting nutrient in the seaward portions of estuarine systems. Here, nitrogen levels control the rate of primary production. If the system is supplied with high levels of nitrogen, algal blooms will occur.

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Nitrate concentrations are generally highest in shallow groundwater. The concentrations decrease at deeper levels and generally disappear to trace amounts below a clay layer. Private wells that are used for drinking water supplies that are below a clay layer may have casings that have deteriorated over time, and so let nitrate-rich water seep to lower levels. Groundwater studies indicate that nitrates tend to migrate from water of higher

## KEY POINTS ABOUT NITRATES

### 1. How nitrates get into groundwater:

Nitrates only move through soil when dissolved in water. Rain, irrigation and septic tank liquid waste help transport nitrates downward toward groundwater.

### 2. How nitrates can be removed from the soil before reaching the groundwater:

Nitrates are partially removed from soil in two ways. If the nitrates are located within the root zone of growing plants, some removal can be accomplished by the plant. As the dissolved nitrates move through unsaturated soil, they are partially removed by attraction to soil particles.

### 3. Levels of nitrates:

Typical natural levels for freshwater are < 1 mg/L.

Recommend level for trout: <0.06 mg/L.

Sewage treatment plant effluent: ~30 mg/L.

### 5. New York State DEC Water Quality Standards for New York State River Classifications:

Class A: 10 mg/L

Classes B, C, D: "None that will result in growths of algae, weeds, and slime that will impair uses."

*Due to the potential threat of elevated nitrate levels, efforts should be made to eliminate abandoned dug wells in shallow groundwater as a source of water supply.*

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