

# NUTRIENT POLLUTION IN WATER

## EUTROPHICATION & HYPOXIA

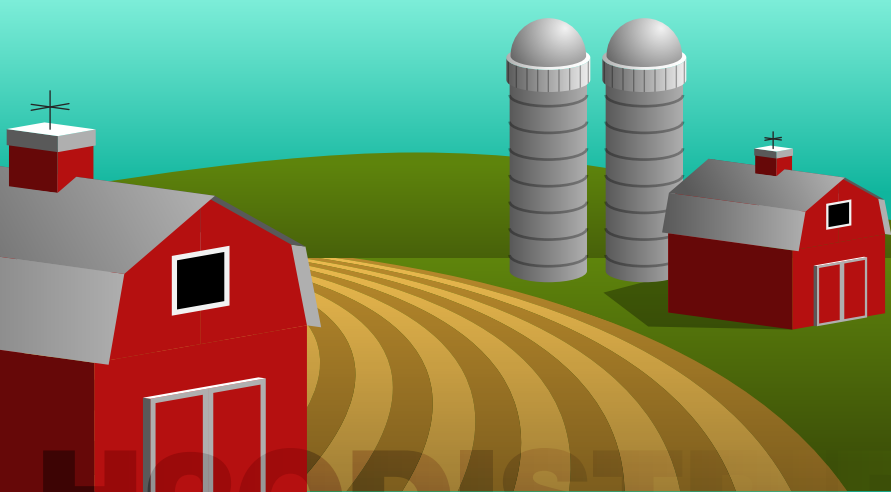
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Nutrient pollution affects air and water around the country. The impacts of nutrient pollution are found in all types of water bodies. Pollutants often enter upstream waters like creeks and streams and then flow into larger water bodies like lakes, rivers and bays. Excess nitrogen and phosphorus can also travel thousands of miles to coastal areas where the effects of the pollution are felt in the form of massive dead zones, such as those in the Gulf of Mexico and Chesapeake Bay. More than 100,000 miles of rivers and streams, close to 2.5 million acres of lakes, reservoirs and

ponds, and more than 800 square miles of bays and estuaries in the United States have poor water quality because of nitrogen and phosphorus pollution.

Additionally, nutrients can soak into groundwater, which provides drinking water to millions of Americans. And urban areas across the country have hazy skies and air quality problems related to airborne nitrogen pollution.

-Environmental Protection Agency (EPA)



Animal manure, excess fertilizer applied to crops and fields, and soil erosion make agriculture one of the largest sources of nitrogen and phosphorus pollution in the country.

## Agriculture

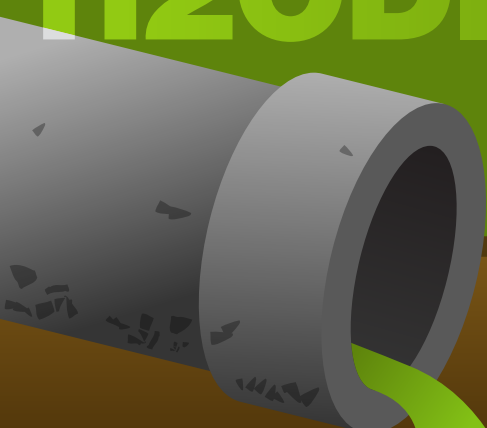
When precipitation falls on our cities and towns, it runs across hard surfaces - like rooftops, sidewalks and roads - and carries pollutants, including nitrogen and phosphorus, into local waterways.

## Stormwater



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.

## Wastewater



Electric power generation, industry, transportation and agriculture have increased the amount of nitrogen in the air through use of fossil fuels.

## Fossil Fuels



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 of. The amount of hard surfaces and type of landscaping can also increase the runoff of nitrogen and phosphorus during wet weather.

## Around Home



# HEALTH & EFFECTS

### Human Health Effects

Nutrient pollution and harmful algal blooms create toxins and compounds that are dangerous for your health. There are several ways that people (and pets) can be exposed to these compounds.

### Direct Exposure to Toxic Algae

Drinking water can be a source of exposure to chemicals caused by nutrient pollution. Drinking, accidentally swallowing or swimming in water affected by a harmful algal bloom can cause serious health problems including:

- Rashes
- Stomach or liver illness
- Respiratory problems
- Neurological effects

### Nitrates in Drinking Water

Nitrate, a compound found in fertilizer, often contaminates drinking water in agricultural areas. Infants who drink water too high in nitrates can become seriously ill and even die. Symptoms include shortness of breath and blue-tinted skin, a condition known as blue baby syndrome.

A 2010 report on nutrients in ground and surface water by the U.S. Geological Survey found that nitrates were too high in 64 percent of shallow monitoring wells in agricultural and urban areas.

### Byproducts of Water Treatment

Stormwater runoff carries nutrients directly into rivers, lakes and reservoirs which serve as sources of drinking water for many people. When disinfectants used to treat drinking water react with toxic algae, harmful chemicals called dioxins can be created. These byproducts have been linked to reproductive and developmental health risks and even cancer.