

Atmosphere

The Chesapeake Bay is rich in the nutrients nitrogen and phosphorus. As much as 25% of the total nitrogen entering the bay is estimated to be deposited from the atmosphere.

Point Sources

Sewage effluent that is piped directly into a waterway is an example of point source pollution. While this wastewater is treated before it is released, some pollutants usually remain.

Surface Runoff

Heavy rains increase soil erosion and the volume of runoff to the Chesapeake Bay and its tributaries. Farms can contribute significant amounts of nutrients if crops are over-fertilized or if piles of chicken manure get wet. The nutrients wash into nearby streams and eventually reach the bay.

What is a Watershed?

It's the area of land that drains into a particular water body or stream. The Delaware portion of the Chesapeake Bay encompasses about 769 square miles of land that drains to the bay.

How Excess Nutrients Reach the Bay

As this graphic illustrates, the Chesapeake Bay receives inputs of the nutrients nitrogen and phosphorus from a variety of sources. While these nutrients are essential for plant and animal growth, when excess amounts enter the bay, water quality can deteriorate. The nutrients accelerate the growth of aquatic plants, reducing the amount of oxygen available in the water for fish and shellfish. Nutrient contamination of ground water is of critical concern since ground water supplies 100% of the drinking water in the Delaware portion of the Basin.

Private Wells

Ground water supplies all of the drinking water in the Delaware portion of the Chesapeake Bay Basin. One major concern is when wells become contaminated with nitrogen at levels that exceed the drinking water standard. High levels of nitrates in drinking water can cause "blue baby syndrome," a disorder of infants and young children caused by inadequate oxygenation of the blood.

Septic Systems

Discharges from septic systems contribute significant amounts of nutrients to the Chesapeake Bay. Many older homes in the Basin have substandard sewage disposal systems.

How Water Travels Through Aquifers

Rainfall percolates through the soil and travels through aquifers to discharge areas, such as streams and agricultural drainage ditches. This ground water moves very slowly through the tiny spaces in the soil. Typically, water in the water-table aquifer moves no more than 2 feet per day. The *water-table* aquifer is the uppermost layer of soil through which water and nutrients easily travel. The confining unit is a layer made of clay and silt that separates aquifers. Clay impedes the downward movement of water, trapping it in the aquifers. The aquifer is a layer of sandy soil and gravel through which water flows.

