



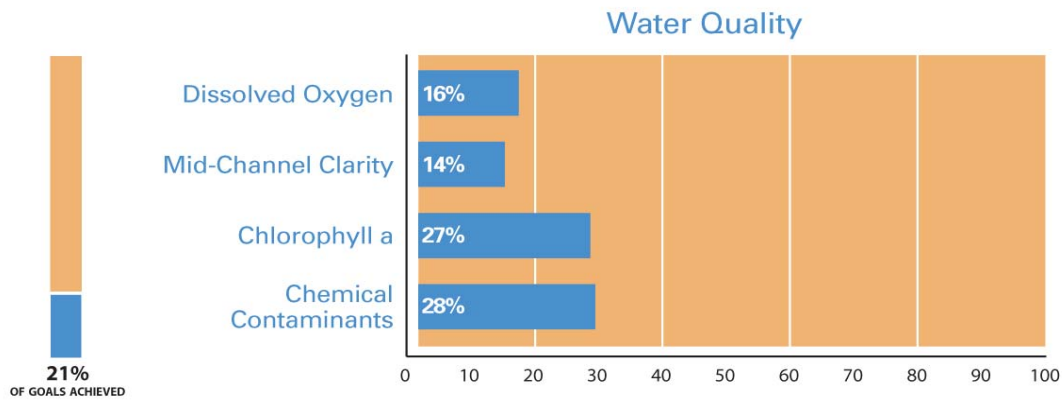
# Fact Sheet

## Chesapeake Bay Water Quality



Water quality is a critical measure of the Chesapeake Bay’s health. For the Bay to be healthy and productive, the water must be safe for people and must support aquatic life, such as fish, crabs and oysters. The water should be fairly clear, have enough oxygen, contain the proper amount of algae and be free from chemical contamination.

Excess nitrogen, phosphorus and sediment lead to murky water and algae blooms, which block sunlight from reaching bay grasses and create low levels of oxygen for aquatic life. In 2008, water quality was again very poor, meeting only 21 percent of the goals established in the Chesapeake 2000 Agreement.



### Sources of Pollution

Currently the Bay and its rivers receive too much nitrogen, phosphorus and sediment for the ecosystem to remain healthy. The main sources of these pollutants are agriculture, urban and suburban runoff, wastewater, and atmospheric deposition.

#### *Agriculture*

Agriculture covers about 25 percent of the watershed, representing the largest intensively managed land use. There are an estimated 87,000 farms covering about 8.5 million acres. Agriculture is the number one source of nutrient and sediment pollution to the Bay. While significant efforts and progress have been made, improperly applied fertilizers and pesticides still flow into creeks, streams and rivers, which carry excess nitrogen, phosphorus and chemicals into the Chesapeake Bay. Tilling cropland and irrigating fields can cause major erosion. Additionally, the nutrients and bacteria found in animal manure can seep into groundwater and run off into waterways.

#### *Urban and Suburban Lands*

Human development, ranging from small subdivisions to large cities, is a major source of pollution for the Chesapeake. There are about 17 million people living in the Chesapeake Bay watershed. In fact, because of the region’s continued population growth and related construction, runoff from urban and suburban lands is the one source of pollution that is

increasing. These areas are covered by impervious surfaces (such as roads, rooftops and parking lots) that do not let water penetrate. As a result, water runs off into waterways instead of filtering into the ground. This runoff carries pollutants including lawn fertilizer, pet waste, chemicals and trash.

### ***Wastewater***

There is a tremendous volume of sewage that must be treated in the watershed. The pollution reduction technologies used in the past by the 483 major municipal and industrial wastewater treatment plants did not remove enough pollution, particularly nitrogen and phosphorus. Upgrading these facilities is now underway so they can remove more pollution from the water, but this effort will take time and is very expensive. As population in the Bay watershed increases, there will be a need for additional wastewater treatment to keep wastewater loads from increasing. Loads from septic systems, which release nitrogen that can eventually end up in the water, are also increasing.

### ***Air Pollution***

When pollution is released into the air, it eventually falls onto land and water. Even larger than the Chesapeake Bay's watershed is the Bay's "airshed," which is defined as the area containing the air emission sources contributing 75 percent of the nitrogen deposited from the air to the Bay and its watershed. Defined in this manner, the Chesapeake airshed is about 570,000 square miles, or seven times the size of the watershed. Nitrogen and chemical contaminants (such as mercury and PCBs) from air pollution contribute to poor water quality in the region. Air pollution is generated by a variety of sources, including power plants, industrial facilities, farming operations and automobiles and other gas-powered vehicles. About 21-28 percent of nitrogen loading to the Bay comes from non-agricultural atmospheric deposition, more than from all municipal and industrial wastewater treatment plants.

(Last Updated: 10/19/09)