



Program of the Month: Nutrient trading

Just like people, plants and animals that live in rivers, lakes and bays need nutrients to grow. However, too many nutrients can be harmful.

The Chesapeake Bay contains excess nutrients, making it and portions of its tidal rivers "impaired" or unhealthy. This means that there are fewer fish, crabs and healthy habitats to support Virginia's fishing and tourism industries, damaging a way of life for many people.

Virginia's nutrient trading program will help reduce the amount of nutrients in wastewater that is released into the Chesapeake Bay watershed by treatment plants.

The Department of Environmental Quality is responsible for reducing nutrients, primarily nitrogen and phosphorus, from municipal wastewater treatment plants and industries within the five Virginia watersheds that supply the Bay with water.

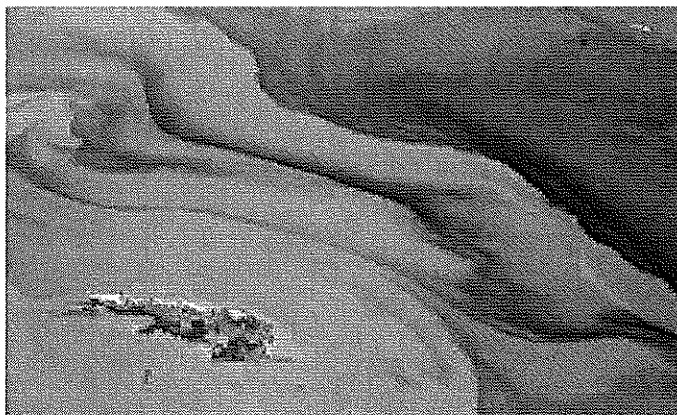
Virginia already has set limits on the amount of nutrients that can be deposited into the Bay watershed from point sources. Point sources are fixed locations (a pipe from a factory, for example) from which treated wastewater is released into rivers. The trading program will help the facilities meet these limits while reducing the costs of upgrading pollution control technology that is needed to reduce nutrient levels.

The program began with more than 120 facilities that discharge a significant amount of treated wastewater into rivers and streams. More than 90 percent of nutrients released into the Bay's watershed from point sources originate from these wastewater treatment plants and industrial facilities. State and federal regulators called these facilities "significant dischargers." The program will also include smaller plants proposing to expand and new plants that have been planned.

Each significant facility has a limit on the amount of nutrients that can be released with its wastewater, and each watershed has a limit on the amount of nutrients that it can contribute to the Bay.

When a facility reduces its nutrient discharges to below its limit, the extra reduction may be sold to other wastewater treatment plants by the pound. This extra reduction is considered "nutrient credits," measured in pounds of nutrients.

In general, nutrient trading is the transfer of "nutrient credits" to a facility from other facilities and in some cases from farmers and landowners. While the amount of nutrients released from individual facilities may vary, trading ensures that the total amount of nutrients that enters the Bay from each watershed meets



Excess nutrients can cause the growth of small plants on the water's surface called algae. Often green or brown in color (shown above), large amounts of algae can block sunlight from seagrasses, preventing their growth. As algae die and decompose, dissolved oxygen in the water decreases, making it difficult for fish and other animals to survive. Photo courtesy of Chesapeake Bay Foundation.

the overall "watershed limit".

Most wastewater treatment plants will have to install new technology to meet their nutrient limits. Construction costs could reach about \$2.1 billion between 2007 and 2010.

"Trading takes advantage of the fact that some facilities may be able to treat nitrogen and phosphorus in their wastewater in a more cost-efficient manner than others," said Kyle Winter, water quality permits manager at DEQ.

The trading system could reduce the construction costs by about \$520 million. If facilities are able to buy credits as an alternative to installing additional pollution control technologies, the demand for construction materials and services will decrease.

A facility needing to purchase nutrient credits could do so through "trading" or buying credits from other facilities within the same watershed. The Virginia Water Quality Improvement Fund will serve as a last resort source of credits. The fund will sell credits from nutrient reductions to facilities that cannot find a trading partner.

Facilities also must compensate for any additional discharge of nutrients resulting from new construction or expansion. They may do this by acquiring nutrient credits from significant dischargers or from landowners, including farmers.

Agricultural producers and other landowners would have nutrient credits available if they implemented improved pollution control practices on agricultural fields. These practices, called best management practices, could range from installing fencing to keep livestock out of streams to planting cover crops. Farmers also would benefit from more efficient agricultural practices without having to pay the full cost of implementing them.

The nutrient trading program began in January 2007, but it will take time for plants to upgrade their facilities to generate credits to sell. DEQ, the Department of Conservation and Recreation and stakeholders are also working on the details of how trading will work with farmers and other landowners.

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