

The Inland Bays Pollution Control Strategy!

Fall 2008

The Inland Bays Pollution Control Strategy (PCS) is a set of voluntary and regulatory actions designed to reduce the amount of pollution reaching the Inland Bays from the watershed (Figure 1). The PCS focuses on pollution caused by the activities of people and includes fertilizer (nutrients - nitrogen and phosphorus) and sediment (dirt). The amounts of these pollutants reaching the Inland Bays have increased in the past several decades as a result of modern agricultural and land development practices and the overall increase in the number of people living in the area. Signs that such pollution is having a detrimental effect on the ability of people to enjoy the Inland Bays to the fullest extent include large amounts of nuisance algae, low dissolved oxygen, fishkills, and high bacteria levels.



Figure 1. The Inland Bays and their drainage areas.

Since we all contribute to the sources of pollution, we all need to act to improve water quality. The PCS actions focus on four main areas of pollution: agriculture, urban land use, stormwater, and wastewater. DNREC has promulgated a regulation that addresses several of these areas.

The Regulation

The actions to reduce fertilizer and sediment pollution to the Inland Bays include (a) setting aside vegetated land (buffers) along ditches, streams, ponds, and bays, (b) managing stormwater

from newly developed land so that it is filtered within a collection area rather than running off directly into the bays and (c) maintaining and improving the performance of septic systems.

Buffers: Buffers along primary and secondary water features (defined below) must be established as land is developed (Figure 2). Buffers are NOT required on existing developed lands or lands being used for agriculture. Buffers must be 100 feet wide on primary waters and 60 feet wide on secondary waters. Buffer width can be reduced if combined with other pollution reduction actions. Buffers will exist in community open space and will be managed by homeowners' associations. DNREC encourages planting buffers with trees and other native plants.



- Primary Water Feature** - State-regulated wetlands, tidal and permanent waters
- Secondary Water Feature** - Seasonal waters
- Secondary Water Feature** - Ditches that flow within or next to forests

Figure 2. Map of water features to be buffered. Buffer soils and plants trap and take up pollutants in runoff and groundwater.

Stormwater Controls: When land is developed, stormwater plans must include criteria to manage stormwater for nutrients. Developers can accomplish this using one of several methods.

If water features are present:

- Establish a 100-ft buffer on primary waters and a 60-ft buffer on secondary waters;
- Establish a 50-ft buffer on primary waters and a 30-ft buffer on secondary waters in combination with other pollution reduction actions.

If water features are not present, utilize one or more pollution reduction actions that reduce nutrients and sediment in stormwater runoff.

Pollution reduction actions for stormwater include:

- Vegetated stormwater collection areas that trap and take up nutrients and sediment;
- Stormwater collection areas that allow water to soak back into the ground to reduce the amount of runoff reaching waterways;
- Preserved and created forested areas that treat rainwater, groundwater, and runoff.



Figure 3. Development creates impervious surfaces that increase stormwater runoff, which carries nutrients, sediment, and other pollutants to waters.

Septic Systems: The amounts of bacteria, nitrogen, and phosphorus are high in septic system wastewater. When septic systems are not built or maintained properly, bacteria and nutrients leach into groundwater and eventually reach the Inland Bays. These pollutants contribute to the signs of degradation discussed above and may also contaminate wells that are used for drinking water. The regulation addresses three topic areas related to septic systems: general provisions, an inspection program, and performance standards.

General Provisions: An example item from this section of the regulation is the prohibition of cesspools and seepage pits, which are simple disposal systems that discharge untreated wastewater into groundwaters.

Inspection Program: In order to ensure that systems are functioning properly, properties being sold that use a septic system must have it pumped out and inspected prior to completion of sale. Several documents to prove the system is in good working order can be submitted to satisfy this requirement.

Performance Standards: Septic systems must achieve a specified level of performance, which depends on system size, location, and age. New and replacement individual systems which typically serve

single family residences) must achieve Performance Standard Nitrogen 3 (PSN₃). This requirement goes into effect January 2009 for sites close to tidal waters and wetlands (Figure 4) and in the rest of the watershed in 2015.

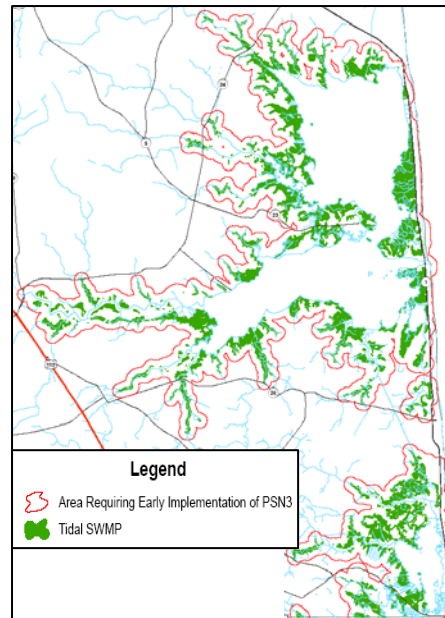


Figure 4. Areas requiring early implementation of PSN₃ (20 milligrams per liter of nitrogen in wastewater leaving the drainfield or 50% reduction compared to wastewater entering the septic tank from the building).

Agriculture - Voluntary

The agricultural community has made significant efforts in recent years to minimize nutrient pollution by requiring nutrient management plans and encouraging the use of pollution reduction actions. Since pollution reduction actions on agricultural lands have proven to be cost effective, the PCS calls for increased implementation of several voluntary practices. These include manure relocation, cover crops, water control structures, buffers, and wetland restoration.



Figure 5. Many pollution reduction actions exist to reduce nutrients from agricultural operations.

For additional information, visit <http://www.wr.dnrec.delaware.gov/> or contact DNREC's Watershed Assessment Section at 302-739-9939.