# 2018 Smyrna Watershed

## Wetland Health Report Card

B-

## About the Watershed

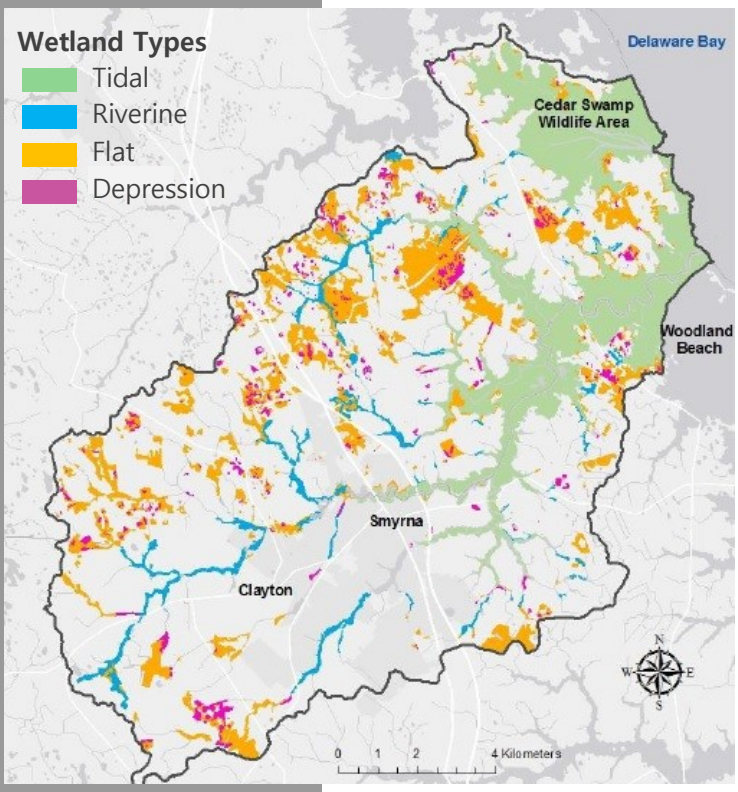
The Smyrna River watershed encompasses 71 square miles and is composed of three sub-watersheds: Smyrna River, Duck Creek, and Cedar Swamp-Delaware Bay. It is located partially in Kent County and partially in New Castle County. The watershed is within the Delaware Bay and Estuary Basin, so all of its waters drain into the Delaware Bay.

Land cover in this watershed is dominated by agriculture and wetlands. Of these wetlands, nearly half are saltwater, and the other half are freshwater. These wetlands are beneficial resources for both people and wildlife.

Unfortunately, approximately 32% of historic wetland area in this watershed has been lost to conversion to development and agriculture. Based on field data, wetlands in the Smyrna River watershed received an overall condition grade of B-, indicating that these wetlands are functioning slightly below their full potential. This also presents an opportunity for improvements through stewardship, conservation, and restoration.

*A spotted turtle in a depression wetland.*

# How Are Wetlands Graded?




There are many different types of wetlands in Delaware, and to accurately grade their health, they are broken into two categories based on how they receive their water supply: tidal wetlands and non-tidal wetlands.

Tidal wetlands, have water moving in and out of them in cycles based on the moon's gravitational pull (the tides), and the Mid-Atlantic Tidal Wetland Rapid Assessment Method (MidTRAM) is used to grade them. The tidal wetlands that are assessed are called estuarine, or saltwater, wetlands. Non-tidal wetlands are all freshwater and most commonly include riverine, flat and depression wetlands. They receive their water from rain, snow and underground springs. The Delaware Rapid Assessment Procedure (DERAP) is used to grade them.

In both methods, biologists look for and tally living and non-living stressors (also called environmental indicators) that keep a wetland from functioning properly. **Throughout the Smyrna River watershed, a total of 122 sites were assessed and graded in 2014 and 2015.**

## *Environmental Indicators of Wetland Health*

The invasive Japanese stiltgrass plant

### Wetland Habitat

Habitat indicators that cause a wetland's grade to decline include: forest harvesting, mowing, farming or grazing of the land, invasive species, and roads through the wetland.

*The most common stressor to habitat in this watershed was the presence of invasive plant species such as: Japanese stiltgrass, Japanese honeysuckle, common reed, multiflora rose, narrowleaf cattail, and reed canary grass.*

A riverine wetland that has been channelized (straightened).

### Wetland Hydrology

Changes to water movement can cause a wetland's grade to decline. Indicators include: ditching, stream alterations, dams, stormwater inputs, and filling or excavation.

*The most common stressors to hydrology in this watershed were the excavation, filling, and ditching of wetlands to remove water. On the plus side, tidal wetlands lacked man-made ditches, which is unusual in Delaware.*

In this aerial view, the wetland assessment area is represented by the green circle, and the buffer is represented by the yellow circle.

### Buffer

A buffer is a zone of land just outside of the wetland that has the ability to protect a wetland from disturbances occurring in the surrounding upland landscape.

*The most common stressors in the buffer area in this watershed were human related, and included the presence of development, agriculture, and roads.*

# Grade by Wetland Type

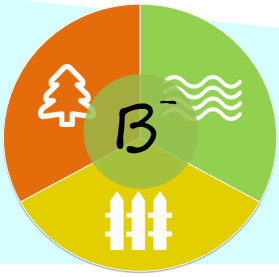
**Wetland Health Scale:**

Excellent | Good | Fair | Poor | Very Poor

## Tidal Wetlands - Brackish or Saltwater

Tidal wetlands are regularly flooded by the tides, and are some of the most productive ecosystems on earth, supplying habitat for important fisheries. They provide protection for coastal populations by reducing flooding and storm damage.

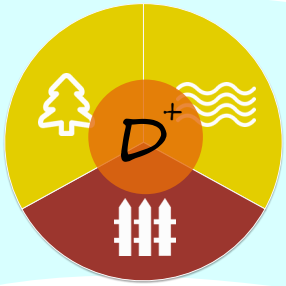
***Common Problems:*** *Invasive plants, declining marsh stability and thickness of plant growth, human disturbance in the buffer, and barriers to wetland landward migration*



## Riverine Wetlands

Riverine wetlands occur along streams or rivers and provide storage for floodwaters and groundwater. The water that moves into these wetlands is cleaned before it moves downstream. They form valuable habitat for wildlife.

***Common Problems:*** *Invasive plants, stream alterations, fill or excavation, and agriculture and development in the buffer*



## Flat Wetlands

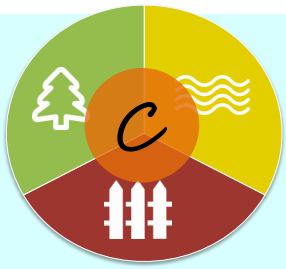
Flat wetlands are typically located at the upper reaches of the watershed. They are seasonally wet and often appear dry on the surface. They absorb precipitation and filter water slowly into streams, rivers and groundwaters.

***Common Problems:*** *Invasive plants, fill or excavation, ditching, and agriculture, mowing, and roads in the buffer*

## Depression Wetlands

Depressions are isolated shallow pools of water that occur in low lying areas. They are seasonally wet and provide critical habitat for amphibians.

***Common Problems:*** *Invasive plants, fill or excavation, microtopographic alterations, and development, agriculture, and roads in the buffer*



## Did You Know?

In order for an area to be considered a wetland it must meet three criteria: **water at or near the surface** for some part of the year, **hydric soils** (soils that are filled with water), and **plants** that have adapted to living in wet environments.

# *The Smyrna Watershed's Wetlands Need Your Help!*

*Consider supporting Delaware's valuable natural resources by..*

Managing invasive species on your property by removing and replacing them with Delaware natives. Allow native plants to grow and thrive alongside wetlands, rivers and streams for cleaner water and erosion protection. For a list of Delaware's invasive plant species please visit: *delawareinvasives.net*

Adding nature-based landscaping designs and green infrastructure on your property to control erosion and water runoff and improve water quality. Consider installing rain gardens or rain barrels in your yard, living shorelines in tidal areas, or planting trees in open areas. For more information on these practices and possible funding sources, please visit *de.gov/greeninfrastructureprimer*.

Protecting and maintaining buffers around your wetlands. Buffers are natural planted strips along wetlands that can help wetlands stay in good health. They trap sediments and excess nutrients and filter pollutants before they reach wetlands. For more information about buffers, please visit *de.gov/buffers*.

Preserving or restoring wetlands on your land. Over half of the wetlands in this watershed are privately owned. This means we need your help in maintaining and improving our wetlands and the natural benefits they provide. To find out about restoration options, please visit *de.gov/wetlandrestoration*.

Supporting better wetland protection by contacting your local decision makers. Activities in non-tidal wetlands are not regulated by the State of Delaware, and every additional wetland filled or destroyed leads to less clean water, fewer wildlife habitats, and less flood protection for us all. *de.gov/wetlandprotectionguidebook*

## *More Information*

Please visit *de.gov/delawarewetlands* to view the entire report and learn more about the assessment methods.

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