

Neshaminy Creek Environmental Control (NCEC)



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Mission Statement

The NCEC's mission is to restore and protect the Neshaminy Creek watershed by increasing wildlife habitat by 20%, reduce flooding by 30%, and accomplish fishable and swimmable water quality standards throughout the watershed by the year 2040.

History

The Neshaminy Creek is a 40.7 mile-long stream that runs through all of Bucks County, Pennsylvania. This stream begins in the borough of Chalfont and flows southeast toward Bristol Township and Bensalem Township into the Delaware River. Running mostly through suburban areas to the north of Philadelphia, a few sections of rural and semi-rural terrain and forested areas remain. Neshaminy Creek also runs through through two state parks, Tyler State Park and Neshaminy State Park.

The Leni Lenape first named this stream to translate to "the place where we drink twice." The Neshaminy Creek was the first stream in Bucks County to have been crossed by ferries and bridges.

The Neshaminy Creek was the first stream in Bucks County to be crossed by bridges and ferries. The creek was used for early transportation and shipping needs. Because of the frequency of transportation, it was declared a public highway on March 9, 1771. Over the years, the creek has been target to many historical floods. Two of the largest floods were in 1833 and 1865. Both flood destroyed bridges and the flood in 1865 destroyed a dam. During the flood of 1865, the flow was so great it reached the shore line of New Jersey and deposited debris across the Delaware River, blocking transportation along the river.

Problems Within the Neshaminy Creek Watershed

Pollution

Pollution within the Neshaminy Creek watershed has increased over the years because more property within the area is being developed. This is leading to more impervious surface area where soil and vegetation used to reside. Typically, the vegetation and soil have an opportunity to slow the runoff and use excess nutrients before it enters Neshaminy Creek. Coupled with agricultural runoff, this presents higher nutrient loads in the stormwater runoff that is entering the stream. Also, there are there are approximately 15 municipal wastewater discharge points and sewer lines running along the creek, which also contribute to the overall water quality.

Flooding

Increased urbanization and impervious surface cover poses another threat to the watershed, which is an increased risk of flooding. Water running over impervious surfaces cannot infiltrate into the soil and it can move faster over impervious surfaces, such as concrete and asphalt, than it can over grass. These factors increase the volume of water reaching the creek in less time, posing a significant flood risk to the areas surrounding Neshaminy Creek.

Lack of Habitat

Natural areas that provide habitat to native species are disappearing, disrupting the ecological cycle. The acquisition of land and natural resources within the watershed for development has reduced the watershed's ability to protect stream banks, handle nutrient loads and house native species. Decreased canopy cover also hinders the watershed's ability to moderate stream temperature.

Goals

1. *Protect and improve the water quality in the Neshaminy Creek Watershed in an effort to improve recreational opportunities, wildlife habitat and sources of drinking water.*

Significantly reduce the amount of Nitrogen and phosphorous concentrations by monitoring and controlling the 15 wastewater discharge point along the creek. Collect and analyze lakes and streams samples for nitrogen and phosphorus. Conduct periodically (annual) reports on the overall water quality of streams. In order to reach a State-Specific Water Quality standard regulated by EPA, control nitrogen and phosphorus concentrations in the watershed is mandatory.

Since, there are multiple sources of potential contamination inputs, sources control are needed. Potential sources in this case are: agricultural activities, stormwater precipitation flow, wastewater inflow, fossil fuel emission from local industrial factories.

2. *Reduce impacts from flooding on economic, historic and natural resources.*

Improve the way stormwater is managed in the watershed to reduce flooding, protect stream base. Purchase flood prone properties for conversion to public open space. Ensure proper management of acquired land through property management plans. Support local departments staff person to address property management.

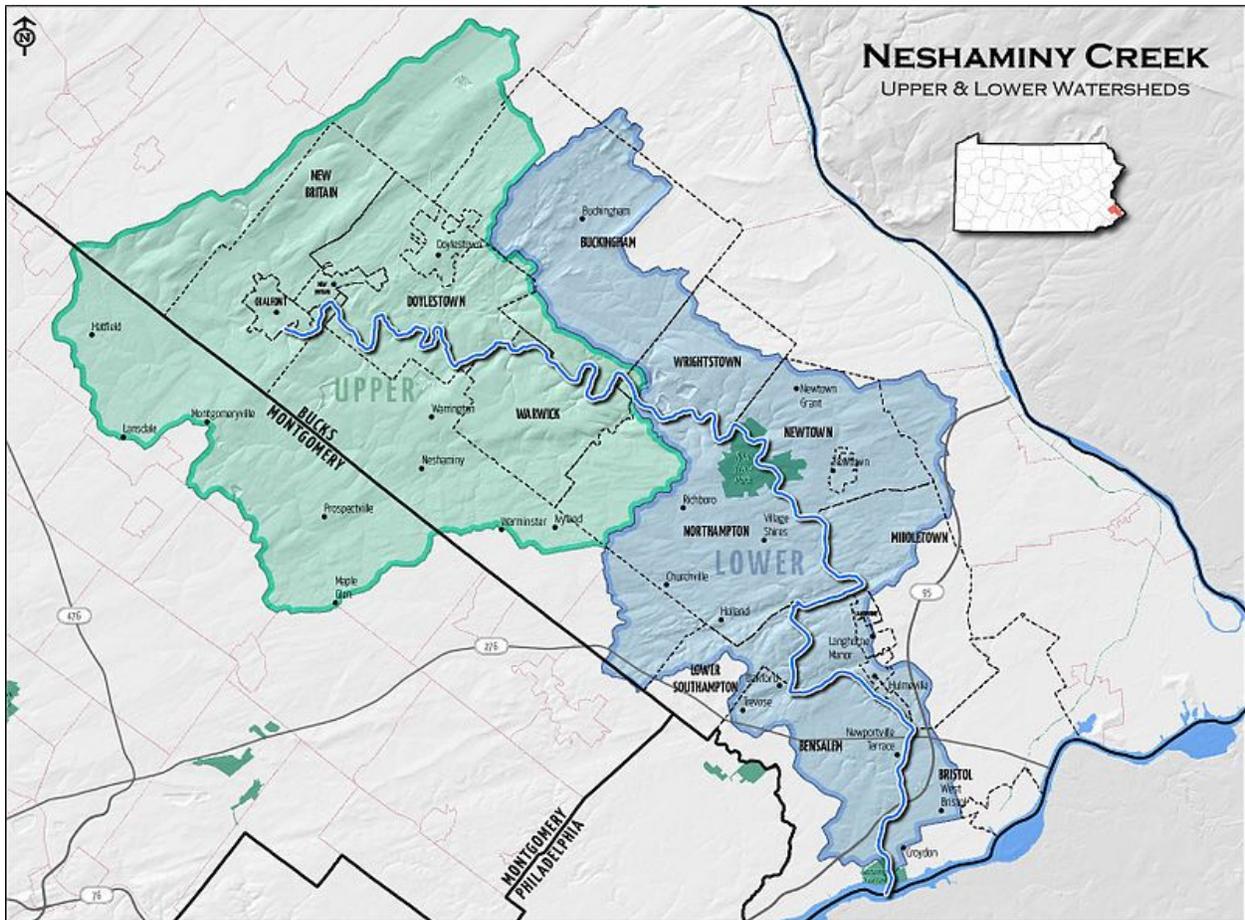
3. *Increase areas of natural wildlife habitat for the region.*

Reforestation stream corridors and preserved open space. Inventory of wildlife, especially in wetlands – protect nesting sites. Establish wildlife nature preserves. Reforest municipal lands.

Regulations/Ordinances

- Regulate to reduce local agriculture activities (especially farms use animal manure and fertilizer)
- Regulate wastewater inputs by local households and facilities
- Regulate industrial water emissions of the 15 sites along the creek.
- Regulate constructions to meet Expansion of the 100 year floodplain

GIS Watershed Inventory



Conclusions/Recommendations

Pollution, flooding and a lack of habitat are major the issues the Neshaminy Creek watershed is facing. These issues are having an adverse effect on overall watershed health and water quality in the area. A majority of these problems are caused by the urbanization of the area and discharge of waste into the creek. To remedy these issues we are proposing stricter control over the development in the area, an expansion of the 100 year floodplain and long term monitoring of the effluent discharged into the creek, as well as, upstream nutrient loads. Long term monitoring of discharge points along Neshaminy Creek will give data on what potential pollutants and nutrient loads are entering the creek. Data from upstream locations and tributaries of the creek are important for establishing where major point sources of pollution exist. Stormwater caused by the urbanization of the area should be addressed with stormwater mitigation techniques such as the installation of swales or retention ponds during construction. 100% of increased runoff volume from impervious surface on site should be accounted for in the stormwater mitigation plans for the property within the watershed. Lastly, expanding the 100 year floodplain would prevent development from reaching to close to the stream and protect people from the flood prone areas. This would allow the habitat within this floodplain to grow and add to the canopy cover of the creek. Allowing stream temperatures to be better regulated, preventing bank erosion and providing habitat to the native species of the watershed.

References:

Heritage Conservancy. *Little Neshaminy Creek River Conservation Plan* . DCNR, Mar. 2012, www.heritageconservancy.org/wp-content/uploads/2012/03/085_l-nesh-plan.pdf.

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