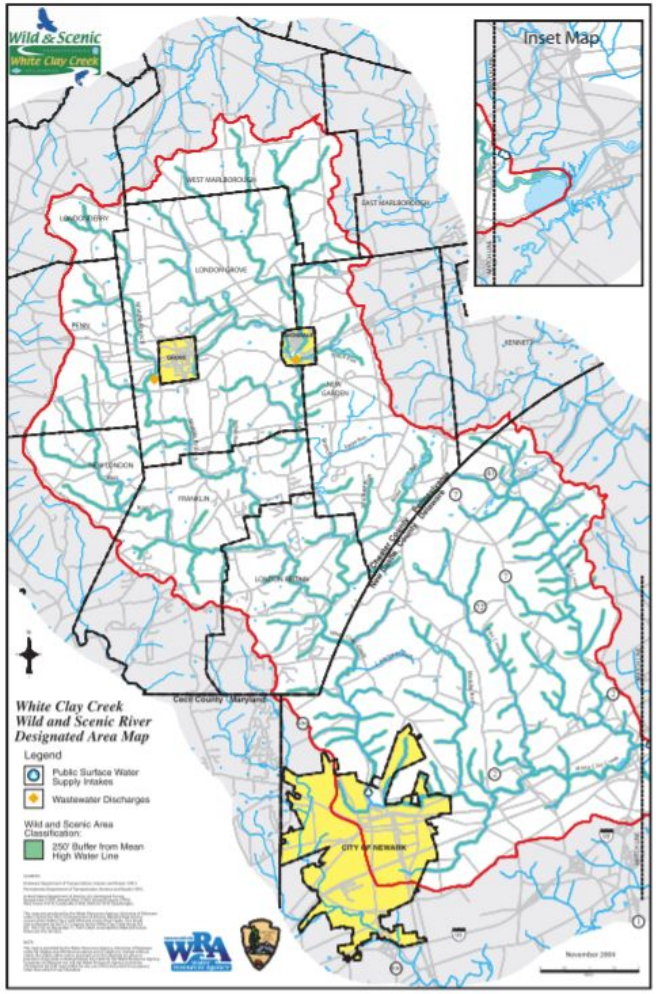
White Clay Creek Action Plan (WCCAP)

By: Holly Cobb, Sophia Talley, Abbie Pierson, Megan Bittle

Mission Statement

The White Clay Creek Action Plan (WCCAP) aims to preserve the watershed's unique and valuable natural resources (such as biodiversity of both vegetation and animal life and its use as a quality drinking water source) from human development, making actionable progress by 2030.

Map


Wild & Scenic
White Clay Creek
Inset Map
WEST MARLBOROUGH
EAST MARLBOROUGH
LONDON GROVE
KENNETT
FRANKLIN
CITY OF NEWARK
White Clay Creek
Wild and Scenic River
Designated Area Map
Legend
Public Surface Water Supply Intakes
Wastewater Discharges
Wild and Scenic Area Classification:
250' Buffer from Mean High Water Line
November 2004

Background & History

- The White Clay Creek Watershed:
  - Spans from Chester County, PA down to Newark, DE
  - Has approximately 95,000 people living within the watershed
  - Has a total mileage of nearly 200 miles
  - Was initiated as part of the National Wild and Scenic River System (NWSRS) in 2000
- Why is it important?
  - Historical significance - the watershed is home to water mills and early industry
  - Cultural significance - natural beauty and recreational value for the community to enjoy
  - Ecological significance - home to threatened and endangered species such as the bog turtle
  - Natural resource significance - a major source of drinking water for population in the surrounding area

Policies & Mandates

- Overseen by: White Clay Watershed Association, National Wild and Scenic River System, and National Park Service of Philadelphia
  - Goal: to preserve and improve watershed quality
- State of Watershed report from 2016 focuses on:
  - Threats toward open spaces with great preservation potential and increased erosion due to increase in population and human development
  - Indicators of habitat damage
  - Unsatisfactory water quality (high Nitrogen concentration and high TSS)

Problem 1: Eroding Stream Banks

- Decaying of surface by natural events or direct human activities
  - Wind, waterflow, changes in temperature and pressure, surface cracks, drying surface, etc.
- Can lead to land loss, increased TSS, decaying structure, and increased contaminants and water quality issues
- In WCC:
  - Banks with trees erosion rates: 12.5 cm/year
  - Banks without trees erosion rates: 9.9-36.1 cm/year

Problem 1 Goals & Actions

Goal 1: Decrease the erosion rates at the White Clay Creek in order to prevent more serious long term effects by planting more trees and native species.

- The overall goal is to decrease the erosion rates by 25% by 2030 by utilizing simple methods.
- Planting native species provides extra support in the bank through the roots
- More trees allow for more cover which leads to lower erosion rates

Problem 2: Decreasing Biodiversity

- Biodiversity: the variety of life within an ecosystem
- Factors such as poor water quality and habitat degradation contribute to decreasing biodiversity, potentially leading to species extinction or ecological collapse
- From the 1980s-1990s, many areas within the WCC watershed (particularly Newark) experienced a housing boom that required the clearing and development of land
- WCC watershed, in particular, struggles with:
    - Land development threatening habitats
    - A lack of funding/initiative into sampling and research endeavors

Problem 2 Goals & Actions

Goal 2: Continue efforts to preserve natural and undeveloped lands (particularly forests and streams) that serve as homes for native organisms. Support and fund efforts for regular sampling and research into wildlife populations and their preservation.

- According to the White Clay Watershed Association, 3 out of 8 ecological indicators could not be assessed because there was no available data. By 2030, integrate ecological sampling into water quality assessments already being done
- Support/fund initiatives such as Partnership for the Delaware Estuary's Freshwater Mussel Recovery Program, that targets threatened populations with organized and researched approaches (possibly using a program like the Trout Stamps program)

Problem 3: Nonpoint Pollution

- Nonpoint pollution: the culmination of pollutants from many different sources running off into the White Clay Creek
  - poses the most danger to the health of the creek because it is much harder to identify and control the source compared to point pollution
- Factors contributing to nonpoint pollution:
  - suburban sprawl
  - impervious surfaces
  - agricultural runoff
- Ultimately cause an increase in turbidity and nutrients like phosphorus and nitrogen, damaging water quality and harming the ecosystem

Problem 3 Goals & Actions

Goal 3: Implement necessary actions such as redirection and treatment of runoff, keeping livestock and agriculture away from water sources, and regulate future impervious cover to reduce nonpoint pollution

- For future planning efforts (such as the NCC 2050 plan) limit suburban sprawl and plan for more multi-use spaces
- Public land and county buildings can have more natural landscaping to prevent stormwater runoff and instead have natural filtering (partner with programs such as Catch the Rain)

Conclusion

The White Clay Creek Watershed is a great resource that needs to be preserved for the health and happiness of its inhabitants. In summary:

- Simple solutions like planting more trees and native plant species could lead to decreased erosion rates
- Prioritizing research into local ecological and animal populations can help monitor and improve biodiversity
- Redirection and treatment of runoff, keeping livestock away from water sources, and regulating future impervious cover can decrease nonpoint pollution

References

Hartup, W., Lord, B., Patoprsty, W., Woodward, M., & Woofter, S. (2015). Small-scale Solutions to Eroding Streambanks. Retrieved 2021, from https://www.dconc.gov/home/showdocument?id=23130

McCarthy, K. (2018, April/May). RIVERBANK EROSION RATES IN THE WHITE CLAY CREEK WATERSHED, PA. Retrieved 2021, from https://udspace.udel.edu/bitstream/handle/19716/23798/McCarthy_udel_0060M_13337.pdf?sequence=1&isAllowed=y

Newarkde.gov. 2021. *History of Newark | Newark, DE - Official Website*. [online] Available at: <https://newarkde.gov/56/History-of-Newark> [Accessed 16 March 2021].

National Wild and Scenic Rivers System. 2021. *White Clay Creek, Delaware, Pennsylvania*. [online] Available at: <https://rivers.gov/rivers/white-clay.php> [Accessed 3 April 2021]

National Wild and Scenic Rivers System. 2016. *White Clay Creek State of the Watershed 2016*. [online] Available at: <https://static1.squarespace.com/static/552801ede4b0f154af070737/t/56f0016d2b8dde509ab6f730/1458569584607/WhiteClayCreek_StateOfTheWatershedReport_Final_031416.pdf> [Accessed 3 April 2021]

White Clay Creek Wild & Scenic River. 2021. *Resource Management and Protection Issues — White Clay Creek Wild & Scenic River*. [online] Available at: <http://whiteclay.org/resource-management-and-protection-issues> [Accessed 16 March 2021].

“White Clay Conservation: Community Solutions to Deter Pollution (U.S. National Park Service).” *National Parks Service*, U.S. Department of the Interior, www.nps.gov/articles/000/white-clay-conservation-community-solutions-to-deter-pollution.htm.