



Department of
Environmental
Conservation

Data Deep Dive: Exploring Statewide & Chesapeake Bay Resources

Upper Susquehanna Watershed Forum
Binghamton University
Cassandra Davis, Research Scientist

10/2/2025

Chesapeake Bay Program

New York's Connection to the Chesapeake Bay

- Susquehanna and Chemung Rivers are the headwaters of the Chesapeake Bay
 - Otsego Lake, Cooperstown NY is 444 river miles to the mouth of the Susquehanna River
 - ~9.7% of the watershed
 - ~3.7% of the population
- Regional Partnership to Restore the Bay
 - Chesapeake Bay Program
 - Signatories include seven jurisdictions (Six states and D.C.), EPA, and Chesapeake Bay Commission



Chesapeake Tree Canopy Network and Riparian Forest Buffer Network

- Maintained by Chesapeake Bay Program, Alliance for the Chesapeake Bay, and USDA Forest Service
- Resources
 - Best Practices
 - Understand Your Canopy
 - Fact Sheets by County and Municipality
 - Community Spotlights and Success Stories
 - Funding
 - Outreach Strategies
- Newsletters



<https://chesapeaketrees.net/>



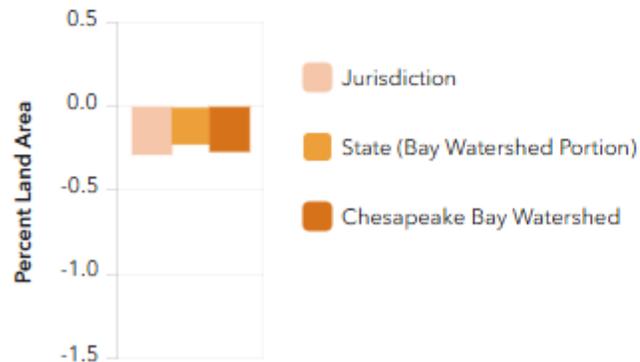
<https://chesapeakeforestbuffers.net/>

Broome County, NY

Net Tree Cover Change on Developed/Developing Lands:
-1,101.08 acres (-0.28% land area)

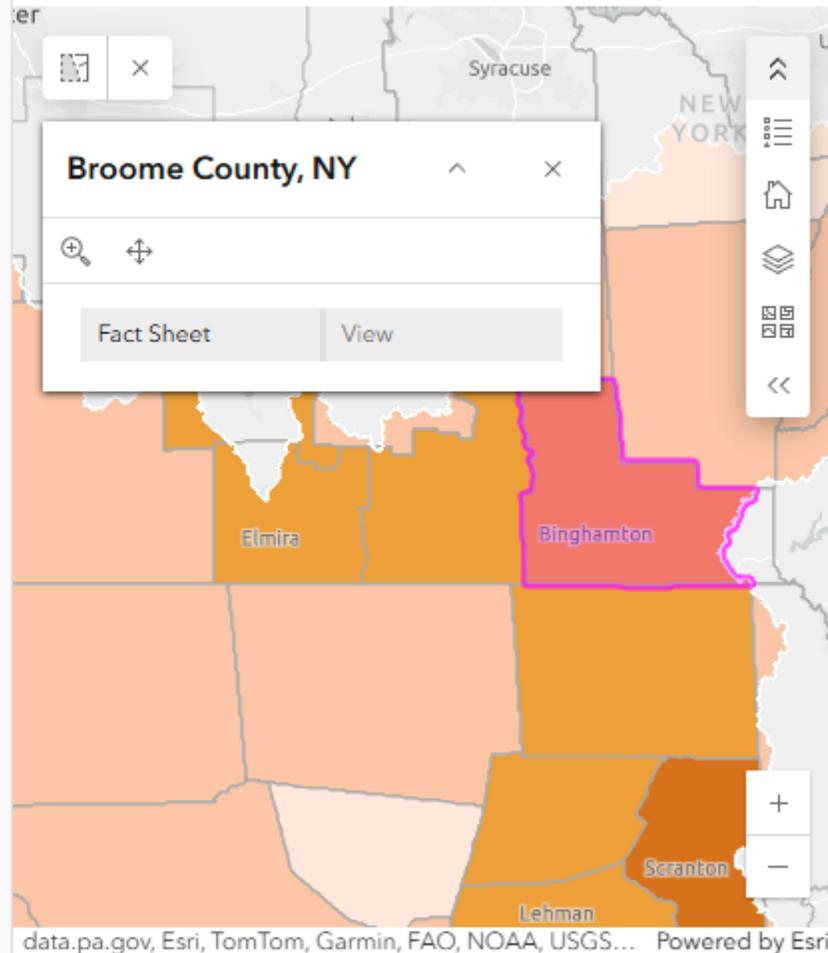
Within the Chesapeake Bay Watershed

Net Tree Cover Change: How Does Your Jurisdiction Compare?



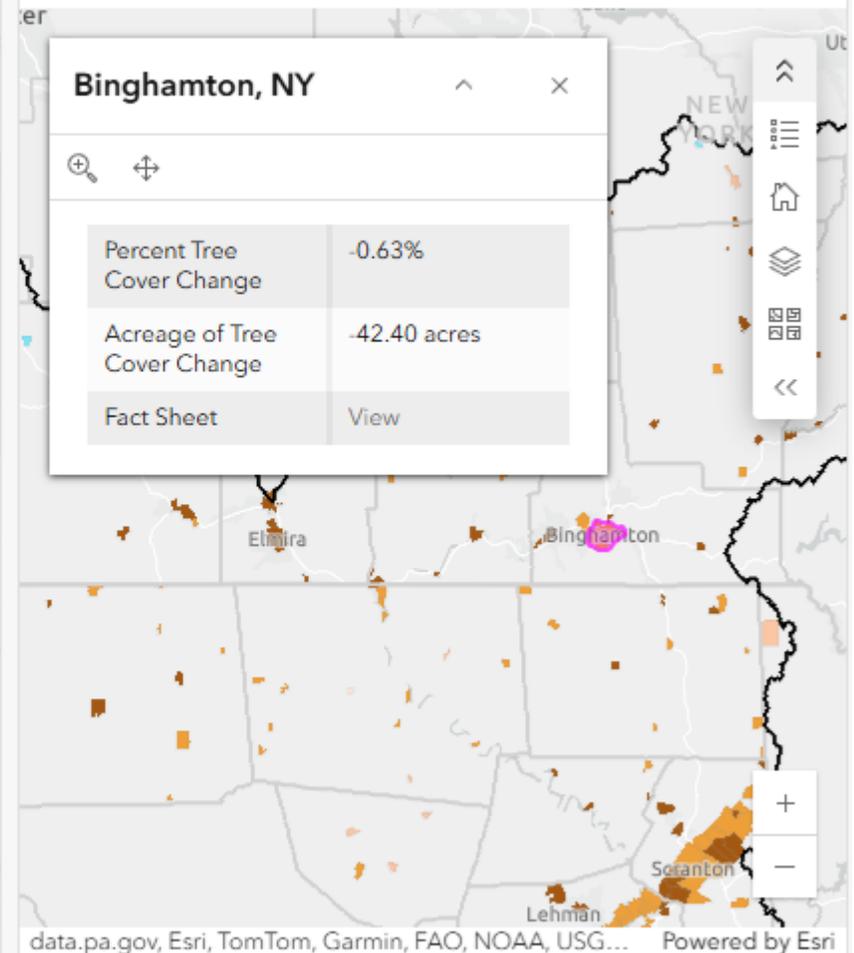
County Net Tree Cover Change

Click county to view and download fact sheet



Municipal Net Tree Cover Change

Click municipality to view and download fact sheet



Tree Cover Status & Change FOR BINGHAMTON, NY 2013-2022 BROOME COUNTY

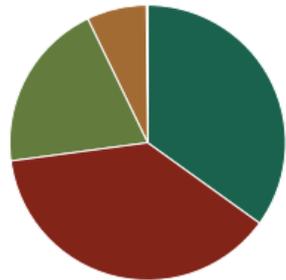
35% Total percent of land with Tree Cover

\$1.8 million Annual benefits provided by Tree Cover (in reduced air pollution, stormwater, & carbon dioxide)

-42 Acres Net loss of Tree Cover on developed lands, 2013 to 2022

What is the land use/land cover breakdown in your community?

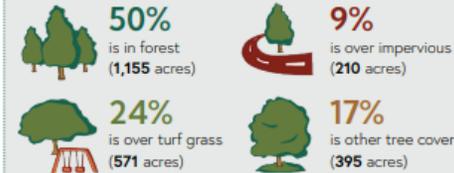
6,724 ACRES OF LAND AREA IN BINGHAMTON



1. Tree cover includes all trees occurring on all land uses, such as individual trees found over turf, impervious, agricultural, wetlands, or other lands. It also includes areas of "forest," defined in this dataset as patches of tree cover 1 acre or greater, with a minimum patch width of 36 meters.
2. Other includes a mixture of non-treed land uses not captured in the main pie chart categories. See the [Data Guide](#) for detailed definitions of "other" and all the land use categories as well as accuracy statistics.

Land use/land cover statistics were generated based on 2022 imagery using the 2024 edition of the [Chesapeake Bay Land Use and Land Cover Database](#).

Where does tree cover occur in your community?



What are some benefits of tree cover in your community?

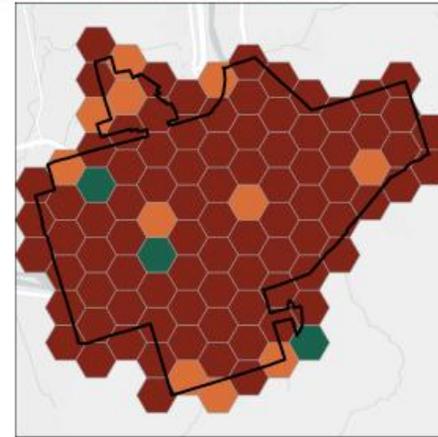
Total Air Pollution Removal Value
104,000 lbs removed annually
\$255,000 saved annually
Total air pollution removal includes CO, NO₂, O₃, SO₂, and Particulate Matter (PM2.5, PM10).

Gallons of Reduced Stormwater Runoff Value
45.1 million gallons reduced annually
\$403,000 saved annually

Carbon Sequestered Value
2,000 tons removed annually
\$1.1 million saved annually

Calculated based on 2021 tree cover data using: landscape.itreetools.org

How is tree cover changing on developed and developing lands?



Legend:
■ > 0.1 Acres Net Tree Cover loss
■ Minimal Tree Cover Change (± 0.1 Acres)
■ > 0.1 Acres Net Tree Cover gain

*Hexagons that are >90% water are not shown on the map.

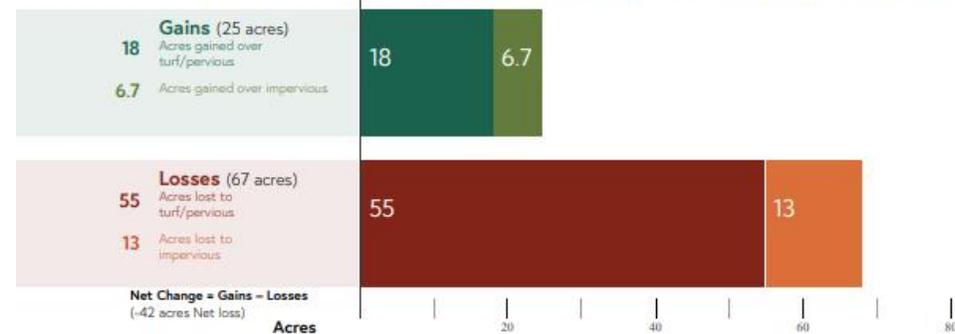
Understanding how your tree cover changes over time can inform the sustainable management of forests and community trees. The map to the left shows where your community has lost and gained tree cover from 2013 to 2022, focusing on land that is already or newly developed.

Tree cover can be lost quickly due to human activities (e.g., construction) or natural events (e.g., severe weather).

Tree cover can be gradually increased through tree planting and natural regrowth, but these gains may take 10-15 years to be detected in high resolution imagery.

Since mature, healthy trees provide significantly greater community benefits than newly planted trees, it is important to both preserve existing tree cover and seek opportunities to grow new trees and forests. Local land use planning, ordinances, and tree programs play a critical role!

Tree Cover Change on developed/developing lands (2013-2022)



Learn More: **Chesapeake Tree Canopy Network**
Links to municipal and county fact sheets, user guides, map viewers, datasets, and more

Capitalizing on the Benefits of Trees
A slideshow for local leaders featuring tree benefits, case studies, and resources

State Urban and Community Forestry Assistance
(Gloria VanDuyne, New York Website)



CHESAPEAKETREES.NET
PUBLISHED JULY 2025

Chesapeake Stormwater Network

<https://chesapeakestormwater.org/>

- Non-profit organization
- Recorded webinars on urban stormwater restoration practices
- Newsletter
- Chesapeake Urban Stormwater Professionals Training Program
 - Free, begins Spring 2026



CHESAPEAKE URBAN STORMWATER PROFESSIONALS

CUSP

CUSP is a free professional training program from the Chesapeake Stormwater Network. This online program introduces the basic impacts of stormwater runoff and how they can be mitigated by watershed restoration practices and municipal stormwater programs.

LEARN YOUR WAY:

- ✓ Attend live webinars, or view the recordings in your own time
- ✓ Extend your learning with additional key resources
- ✓ Interaction with peers and experts

PROGRAM BENEFITS:

- ✓ Advance your career & grow your network
- ✓ CEUs and PDHs offered
- ✓ Gain both foundational knowledge and up to date best practices

REGISTRATION
July 9th - August 25th

Course begins: August 27th,
completion requirements due by mid December

NEW
In-person Career Symposium
in Baltimore

FREE

To register and learn more:
<https://chesapeakestormwater.net>



Chesapeake Conservancy – Chesapeake Conservation Center

- Non-profit organization
- Open Data
 - 1-meter land use/land cover data (includes 19 full counties in NY's portion of the watershed)
 - Hyper-resolution hydrography
 - Wetland mapping - publication
 - Solar Mapping & Predicting – publication



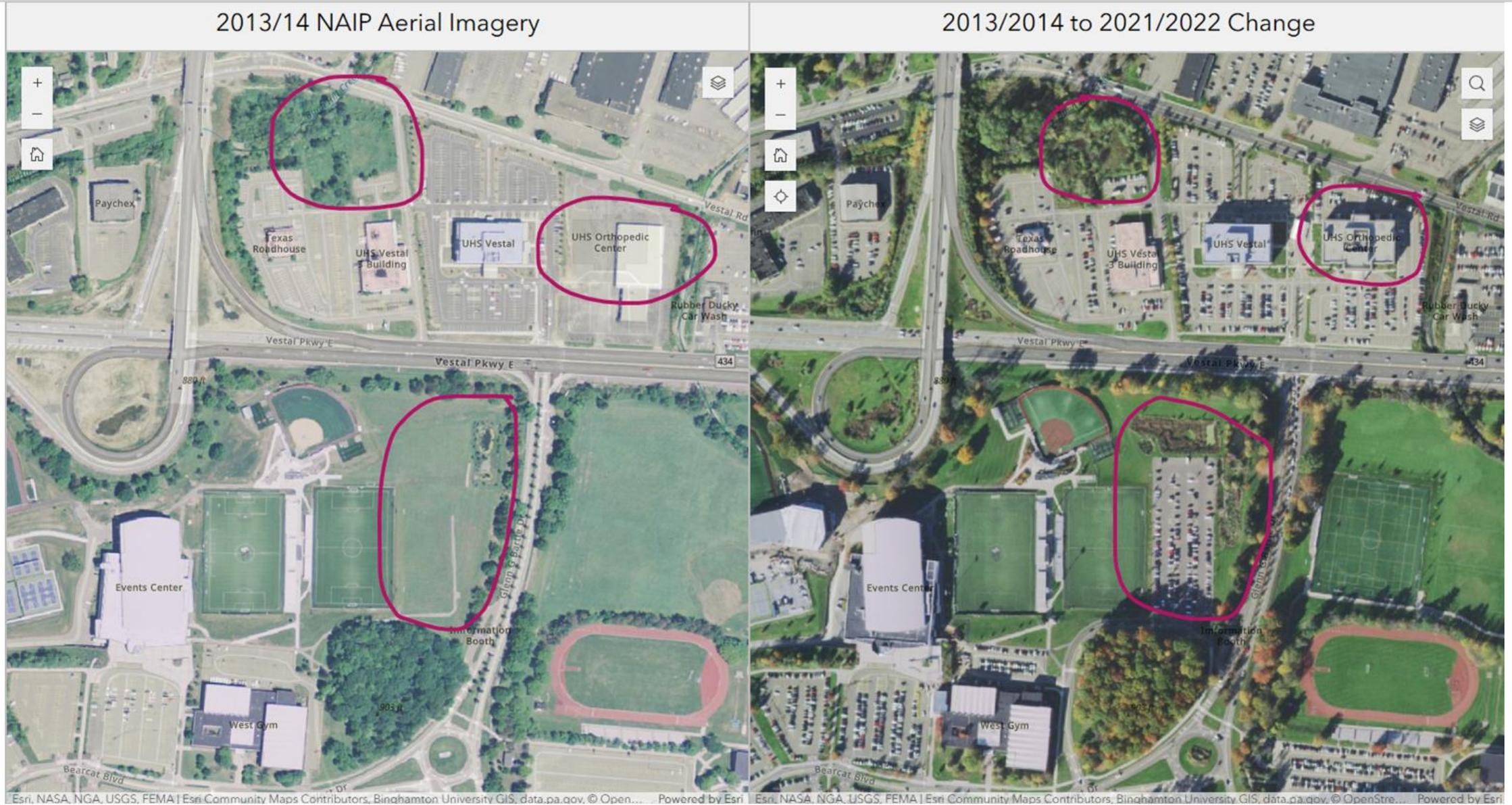
1-Meter Land Use Data

- Aerial Imagery, LiDAR elevation data and machine learning to produce 1-meter resolution land cover maps
- Land Use – 56 classes (now including solar)
- Land Cover - 11 unique land cover types
- Land Use/Cover Change product for 2013/14, 2017/18, 2021/22
- 95% accurate and land use change is 77% accurate

<https://www.chesapeakeconservancy.org/projects/cb-p-land-use-land-cover-data-project>

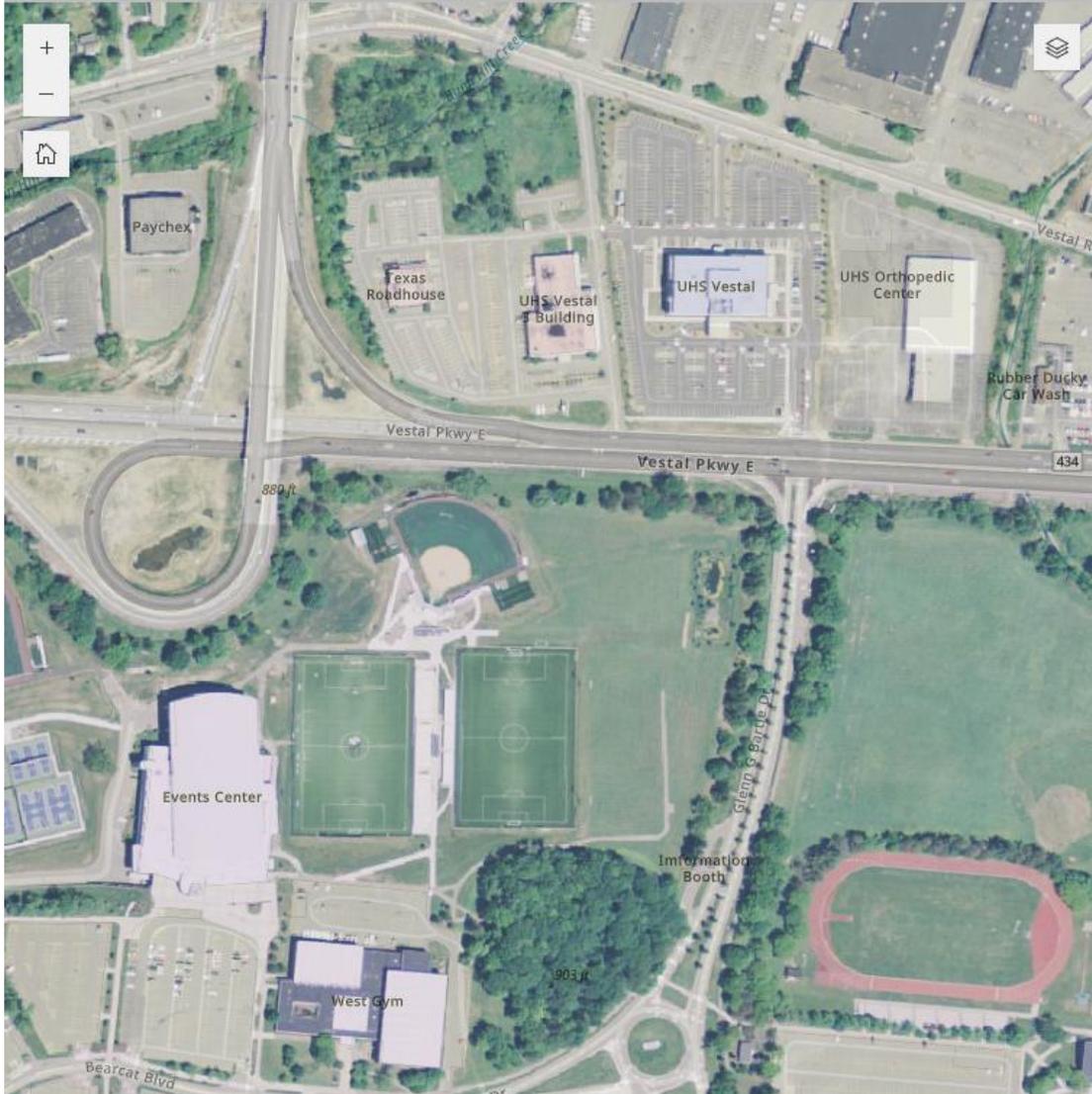


1- Meter Land Use Data Change Product Example

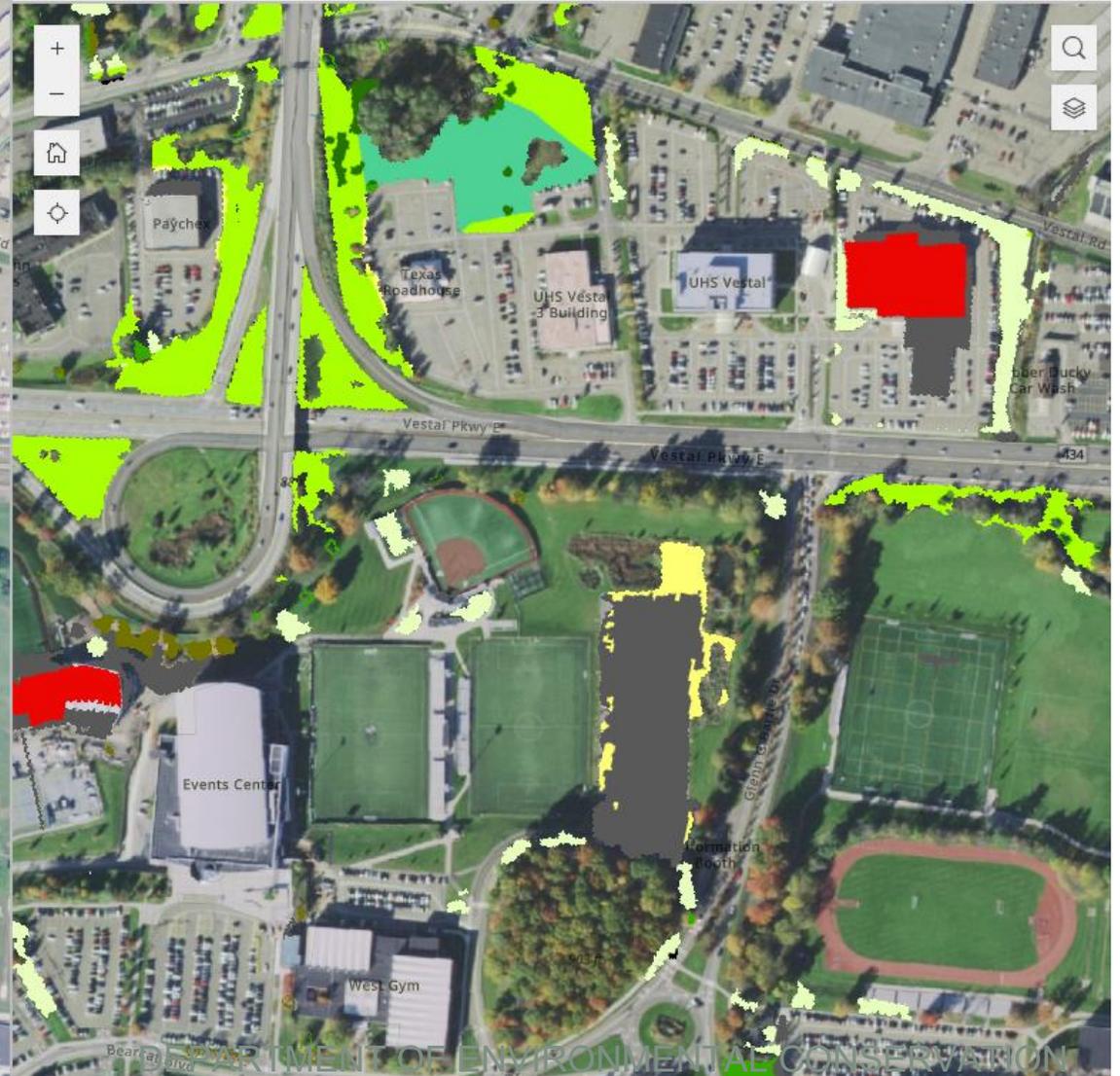


1- Meter Land Use Data Change Product Example

2013/14 NAIP Aerial Imagery



2013/2014 to 2021/2022 Change

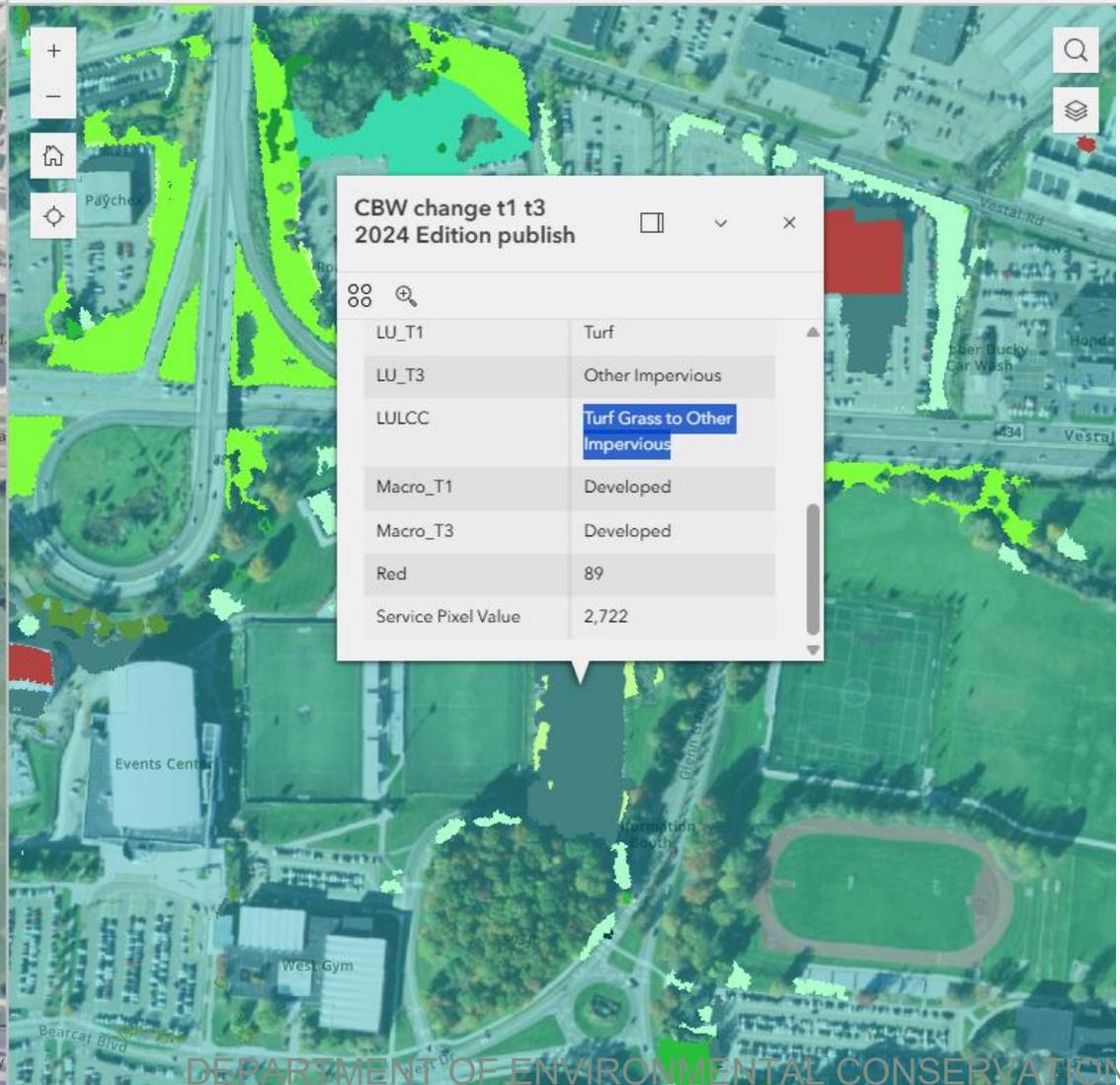


1- Meter Land Use Data Change Product Example

2013/14 NAIP Aerial Imagery



2013/2014 to 2021/2022 Change



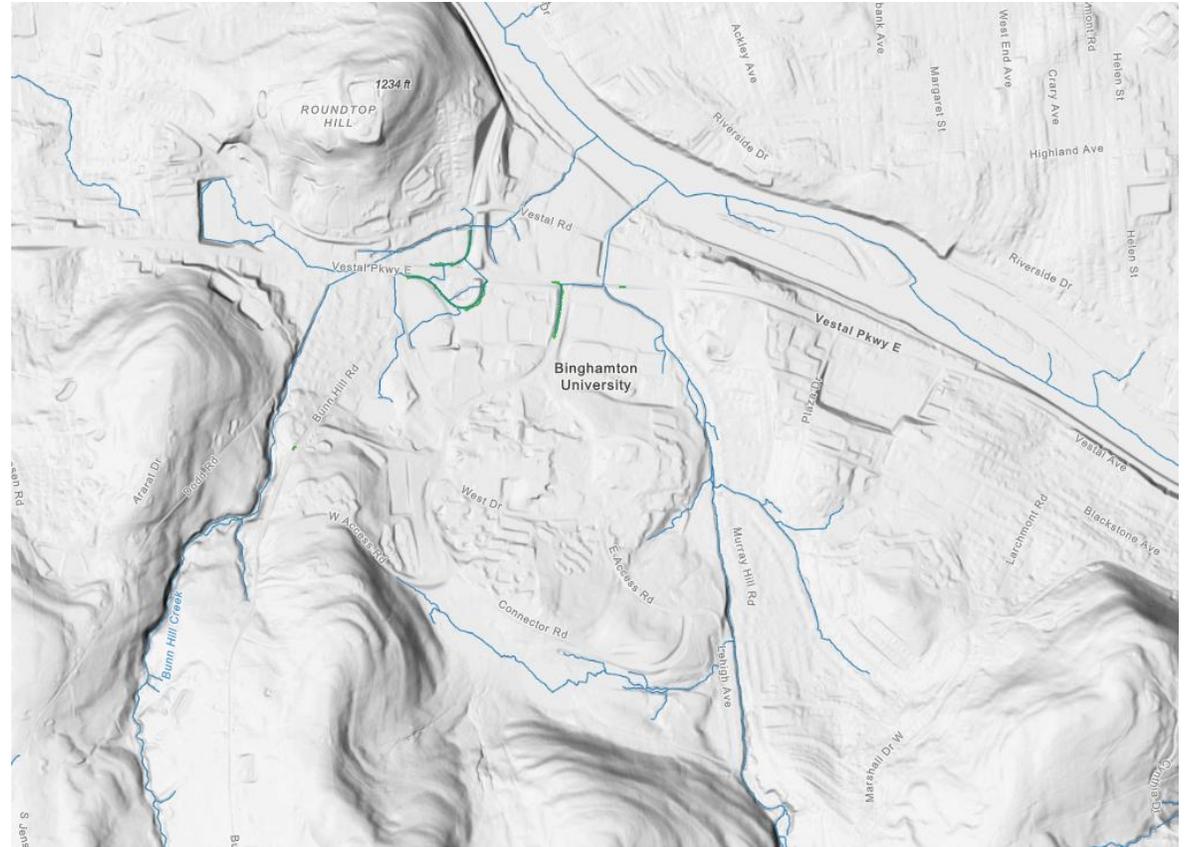
Hyper-Resolution Hydrography Database

Maps over twice the amount of NHDPlus Flowlines and identifies agricultural and roadside ditches

Uses:

- LiDAR elevation models
- Geomorphic Interpretation
- Advanced tracing

<https://www.usgs.gov/data/chesapeake-bay-hyper-resolution-hydrography-database>



Hyper-Resolution Hydrography Database

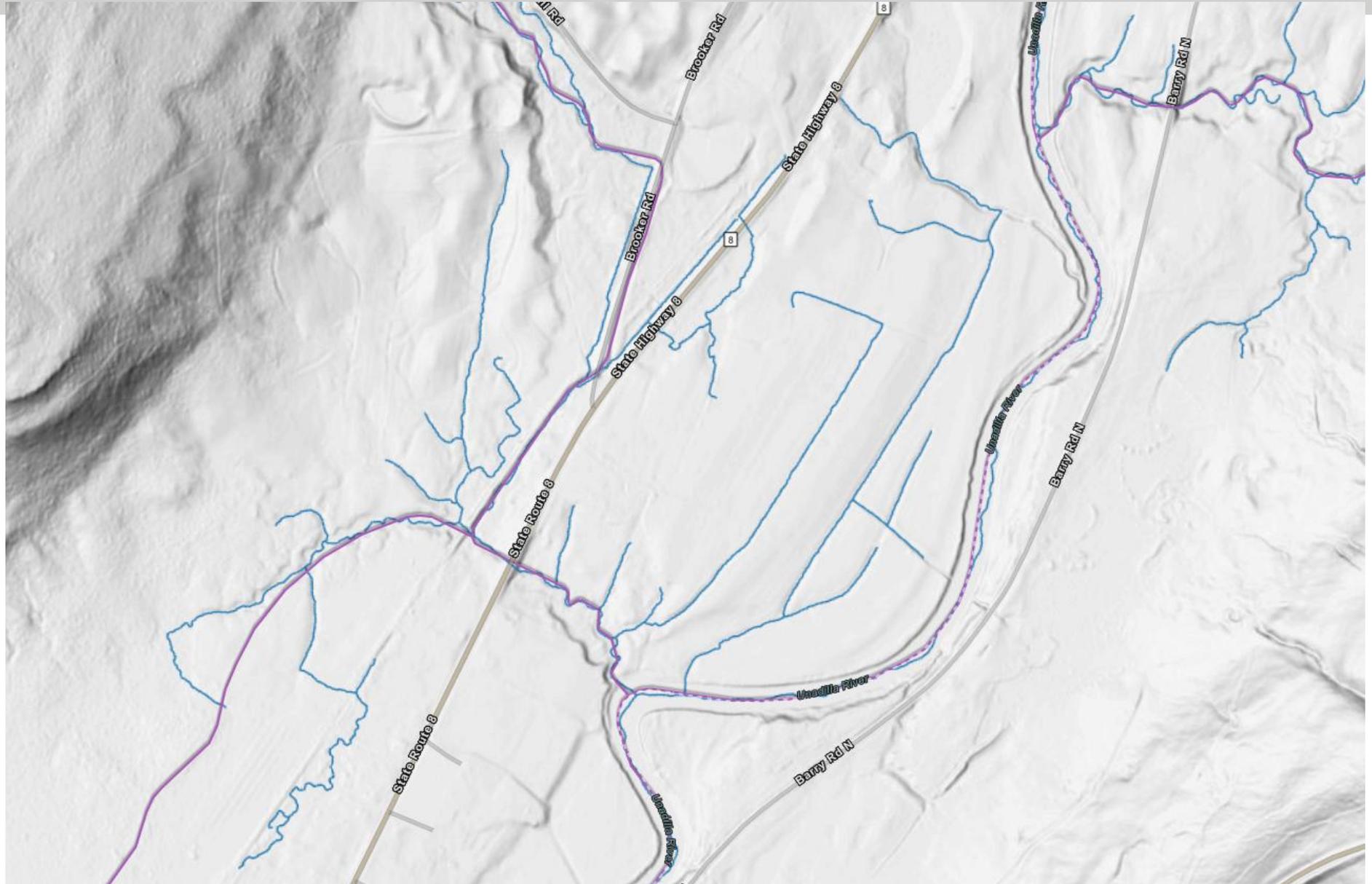
NHDPlus High
Resolution Flowlines



Hyper-Resolution Hydrography Database

NHDPlus High Resolution Flowlines

Hyper Resolution Hydrography Steam Centerline



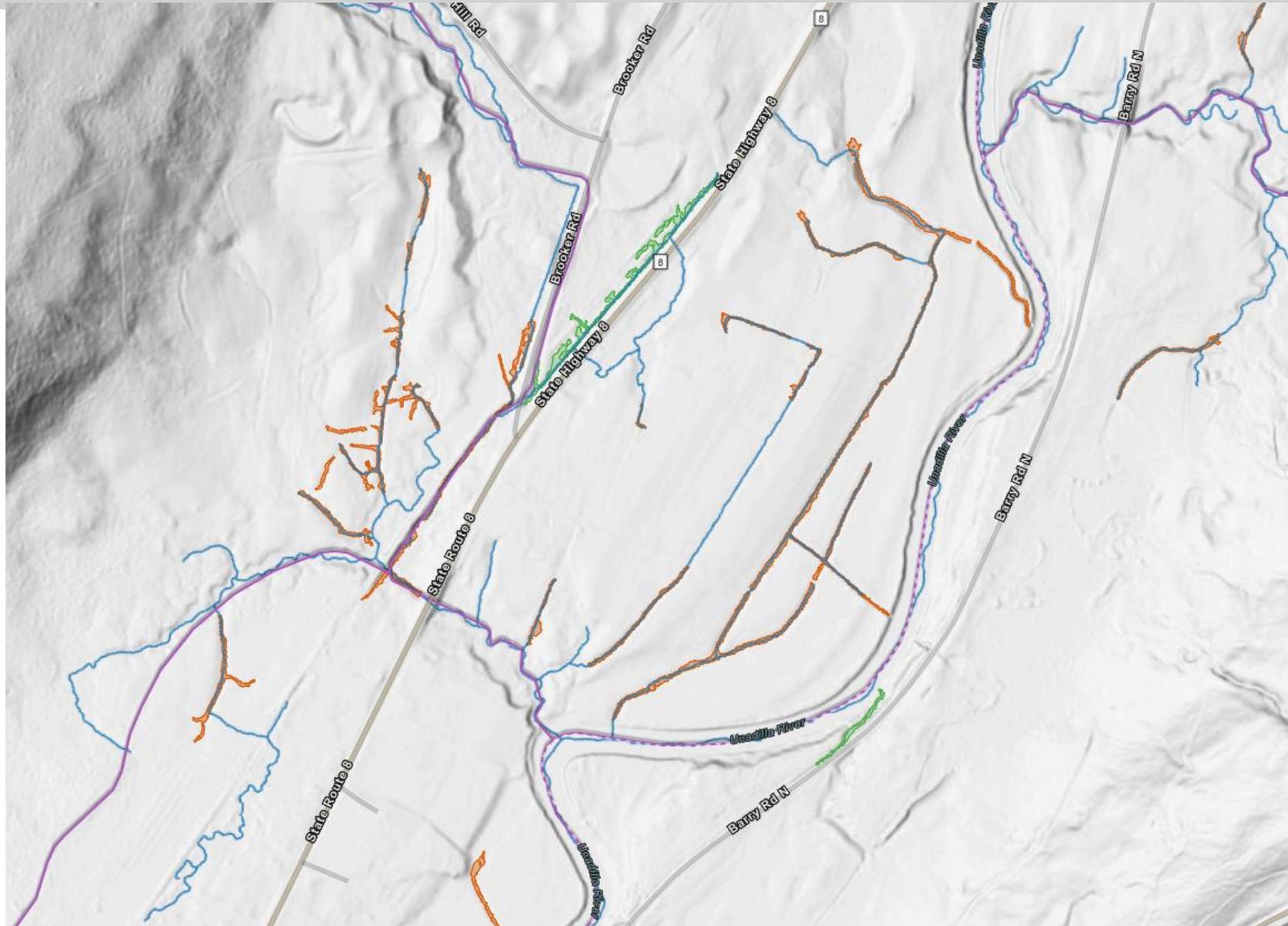
Hyper-Resolution Hydrography Database

NHDPlus High Resolution Flowlines

Hyper Resolution Hydrography Steam Centerline

Agricultural Ditches

Roadside Ditches



Hyper-Resolution Hydrography Database

NHDPlus High Resolution Flowlines

Hyper Resolution Hydrography Steam Centerline

Agricultural Ditches

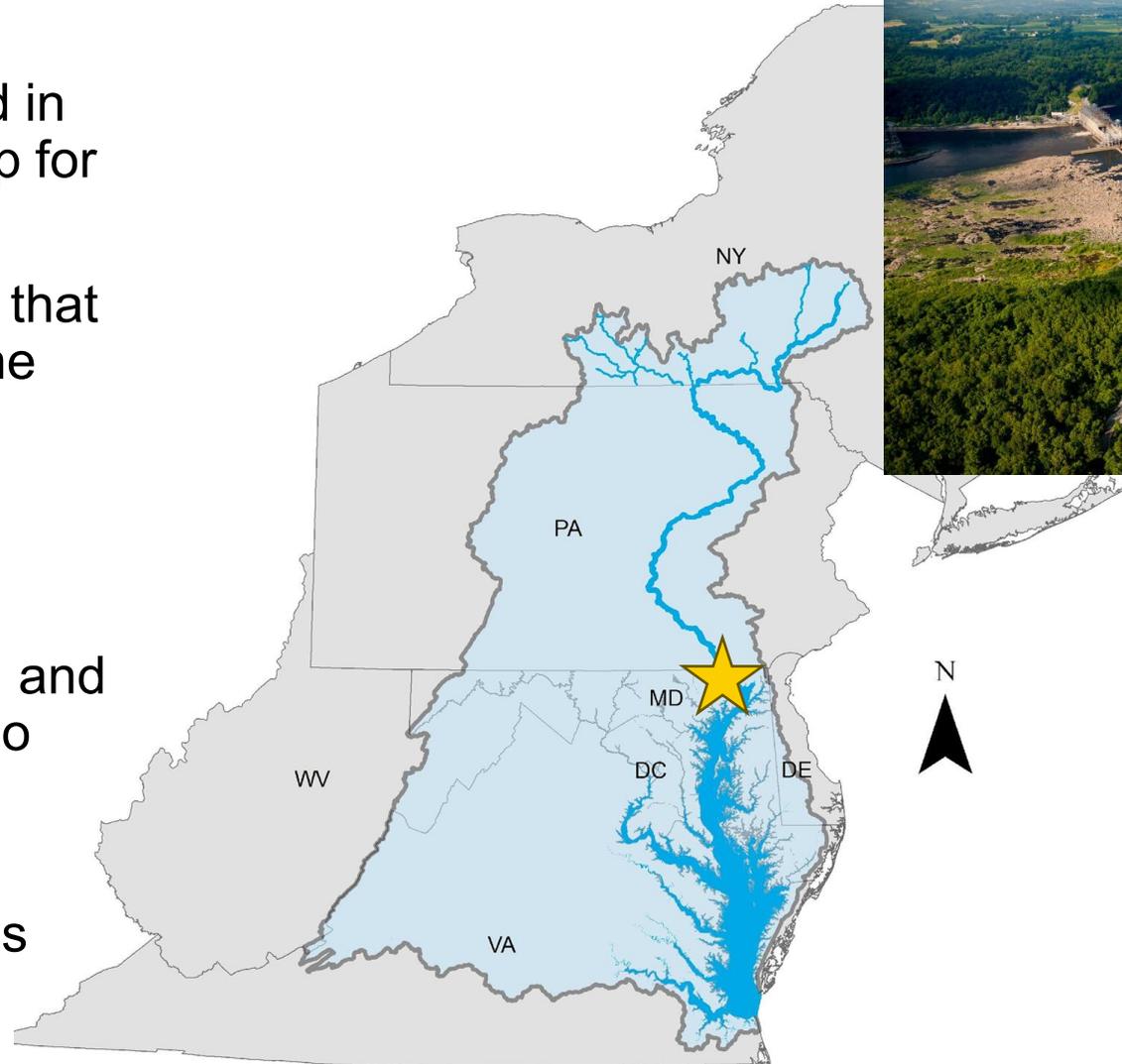
Roadside Ditches



Conowingo Watershed Implementation Plan BMP Viewer

The Conowingo Dam

- Since construction completed in 1928, the dam acted as a trap for nutrients and sediment
- Recent studies have showed that the reservoir no longer has the long-term ability to store sediment and associated nutrients
- A Watershed Implementation Plan was created for NY, PA, and MD to address the Conowingo Dam loads
- Chesapeake Conservancy created a tool to identify areas where projects could be implemented



Conowingo Watershed Implementation Plan BMP Viewer



Conowingo Watershed Implementation Plan BMP Viewer



[DECinfo Locator](#) is an interactive map that lets you access DEC documents and public data about the environmental quality of specific sites in New York State, as well as outdoor recreation information.

Environmental Quality

- Permits and Registrations
- Environmental Cleanup
- Environmental Monitoring –
 - Waterbody Inventory/Priority Waterbodies List Factsheets
 - Aquatic Biological Monitoring
 - Lake Monitoring Reports
 - Harmful Algal Bloom Reports
- Public Involvement
- Environmentally Sensitive Areas
- Legal Information

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

DECinfo Locator

Base Map: Topographical [Help](#)

Search

Tools

DEC Information Layers

Environmental Quality Outdoor Activity

Permits and Registrations

- Inactive Solid Waste Landfills
- Household Hazardous Waste Collection Facilities
- Recyclables Handling and Recovery Facilities
- Vehicle Dismantling Facilities
- Scrap Metal Processors
- Waste Tire Handling and Recovery Facilities
- Wastewater Facilities (SPDES)
- Combined Sewer Overflow (CSO) Outfalls
- Multi-Sector General Permits (MSGP)

Environmental Cleanup

Environmental Monitoring

Public Involvement

Environmentally Sensitive Areas

Legal Information

Reference Layers

- County Boundaries

[Get printable legend](#)

Wastewater Facility (SPDES) (1 of 2)

Facility Name: BINGHAMTON JOHNSON CITY STP
SPDES Permit: NY0024414
Receiving Waterbody: SUSQUEHANNA R
Document Folder contains permits, reports and, when applicable, draft permits for this facility

[Zoom to](#)

Active Layers

Permits and Registrations

- Municipal Separate Storm Sewer System (MS4) Automatically Designated
- MS4 Additionally Designated Area (Criterion 3)
- Wastewater Facilities (SPDES)
- Combined Sewer Overflow (CSO) Outfalls

Reference Layers

- County Boundaries

[Get printable legend](#)

42.155, -76.125

DECinfo Locator

Base Map: Topographical [Help](#)

Search

Tools

DEC Information Layers

Environmental Quality Outdoor Activity

Permits and Registrations

Environmental Cleanup

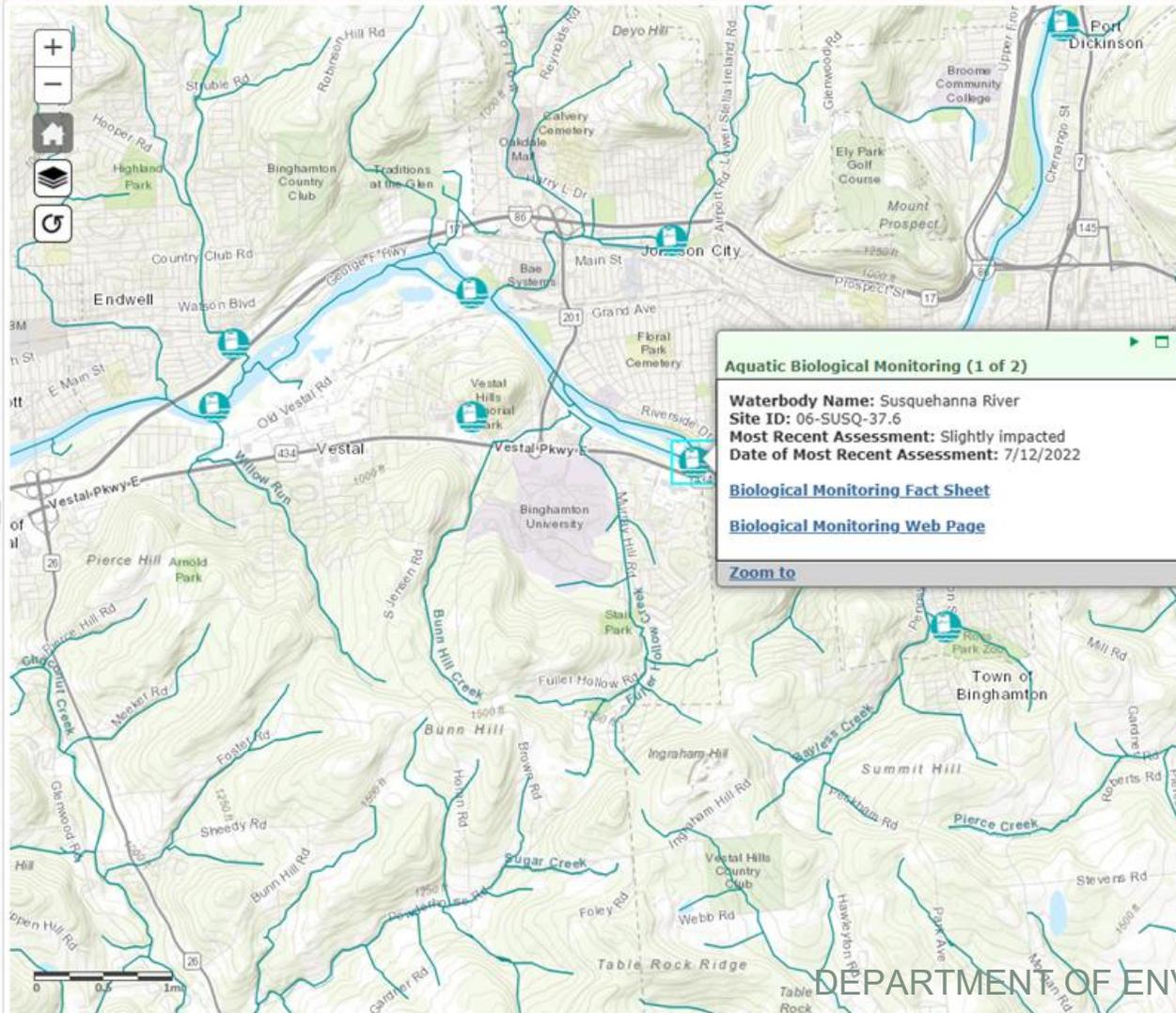
Environmental Monitoring

- Air Quality Monitoring Sites
 - Community Air Quality Reports
 - Lake Monitoring Reports
 - Aquatic Biological Monitoring
 - Aquatic Toxicity Monitoring
 - Harmful Algal Bloom Reports
- (This layer is active from late May through October)

- Current Harmful Algal Bloom Reports
- Archived Harmful Algal Bloom Reports

- Public Involvement
- Environmentally Sensitive Areas
- Legal Information

Reference Layers



Aquatic Biological Monitoring (1 of 2)

Waterbody Name: Susquehanna River
Site ID: 06-SUSQ-37.6
Most Recent Assessment: Slightly impacted
Date of Most Recent Assessment: 7/12/2022

[Biological Monitoring Fact Sheet](#)
[Biological Monitoring Web Page](#)

[Zoom to](#)

SUSQUEHANNA RIVER, LOWER, MAIN STEM (SEGMENT ID 0603-0002)

[Waterbody Segment Assessment Factsheet](#)

Factsheet Update: March 24, 2025
 Integrated Reporting Cycle: 2022
 NYSDEC CALM: 2021

IMPAIRED SEGMENT

Introduction

This fact sheet contains the most recent water quality assessment information for this waterbody segment. The assessment is based on water quality data that meet the quality assurance requirements of NYSDEC's Division of Water (DOW). An outline of the process used to assess the quality of New York State waters is described in the NYSDEC's Consolidated Assessment and Listing Methodology (CALM).

WATERBODY INFORMATION

- Water Index Number: SR (portion 4)
- Segment Classification: A
- Waterbody Type: River/Stream
- Size: 16.3 Miles
- Drainage Basin: Susquehanna River
- Hydrologic Unit Code: 0205010302
- County: Broome
- Segment Description: From ross corners to binghamton

Assessment of Best Use

Background

New York State waterbodies are classified to reflect their best use(s), and the assessment of a waterbody is based on the ability of waters to support those uses. This section lists whether this waterbody segment supports its best use(s).

Best Use	Use Assessment	Use Assessment Confirmation	Pollutant(s) Cause(s)	303(d) Year	Integrated Reporting Category
Fishing	Impaired	Confirmed	Mercury	2007	IR4*
Secondary Contact Recreation	Impaired	Unconfirmed	Mercury	N/A	IR3
Primary Contact Recreation	Impaired	Unconfirmed	Mercury	N/A	IR3

Division of Water Monitoring Data Portal

<https://dec.ny.gov/environmental-protection/water/water-quality/monitoring/water-quality-data>

The screenshot displays the Division of Water Monitoring Data Portal interface. At the top left, the New York State Department of Environmental Conservation logo is visible. The main header reads "Division of Water Monitoring Data Portal". A search bar at the top left contains the text "Find a waterbody". The map shows a topographic view of the Catskill/Delaware region in New York, with numerous monitoring sites marked by red triangles (River or Stream) and blue circles (Lake). A map legend in the bottom left corner identifies these symbols. On the right side, there is a "Query Data" panel with a "Query Data" tab and an "Add Map Elements" button. Below the tab, there is a "Query Data" section with instructions: "Apply the Filters or use the Select Map Features tool below to query data." and "Queries will update the map and data tables simultaneously." The "Geographic Filters" section includes a "Major Basin" filter (set to "2 Selected"), a "County" filter (disabled), and a "DEC Region" filter (disabled). Other filter categories like "Waterbody Filters", "Data Availability Filters", and "Select Map Features" are also visible.

Remaining Interactive Maps

<https://dec.ny.gov/maps/interactive-maps>

- NYSHABS Mapper
- Environmental Resource Mapper
- New York Nature Explorer
- Stormwater Interactive Map
- Division of Water Sampling Locations
- [Division of Water Grants Data Portal](#)
 - All Water Quality Grant Program and Nonpoint Source Planning Grant