

Black River Initiative Progress Report: 2010-2020

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NEW YORK STATE TUG HILL COMMISSION

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This paper was prepared in cooperation with the New York State Department of Environmental Conservation Great Lakes Program.



The Black River Initiative is a multi-pronged approach to promote partnerships and protect and improve water quality, recreational opportunities, and communities along the Black River. The Black River Watershed Management Plan (2010), Black River 9-element Plan (2016), Black River Blueway Trail Plan (2007), and Black River Trail Scenic Byway Corridor Management Plan (2012) provide the foundation to advance existing efforts and new projects that enhance and improve all aspects of the Black River. NYSDEC's Great Lakes Program, NYSDEC Region 6, and Tug Hill Commission staff have supported this initiative, in part through funding from the Environmental Protection Fund, under Article 14 of the Environmental Conservation Law (Ocean and Great Lakes Ecosystem Conservation Act).

Above: Hikers on Bald Mountain enjoying the view of Fourth Lake in Herkimer County.

Right: Volunteers participate in the Black River Trash Bash in Lewis County.



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Black River at Marble St. Boat Launch in Watertown

Photo: Emily Sheridan, NYS Department of Environmental Conservation

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Introduction

The Black River Initiative is a multi-pronged approach to protect and improve water quality, recreational opportunities, and communities along the Black River. The Black River Watershed Management Plan (2010), Black River 9-element Plan (2016), Black River Blueway Trail Plan (2007), and Black River Trail Scenic Byway Corridor Management Plan (2012) provide the foundation to advance existing efforts and new projects that enhance and improve all aspects of the Black River. This report reviews the past 10 years of progress (from 2010 through 2020) made by partners through the Black River Initiative, connects with stakeholders, and promotes collaborative, ecosystem-based management efforts to advance recommendations. For more information, visit:

www.tughill.org/projects/black-river-projects/watershed-initiative/



The purpose of this report is to evaluate progress of watershed management plan implementation within the Black River Initiative to determine adaptive management opportunities, identify gaps, and determine next steps needed, including engagement, project implementation, and capacity needs.

Black River Watershed Background

The Black River Watershed covers a 1.2-million-acre area of land and drains to Lake Ontario, spanning five counties in the North Country. It includes headwaters in the Western Adirondacks (including Stillwater Reservoir, Fulton Chain of Lakes, and North Lake). The Mohawks and Algonquins used the area for hunting and trapping before European settlement, and the French were early colonizers of the region, profiting from hydropower, farming, and forest products.

Today, areas of urban development include the city of Watertown, and villages of Black River, Copenhagen, Lowville, Old Forge, Port Leyden, Lyons Falls, Constableville, Forestport and Boonville. The population in 2010 was 438,616, with projections to decline to 416,145 by 2020.

Water uses that watershed management plans aim to sustain and protect include drinking water, swimming, boating, fishing, and aquatic life. Land use, industrial discharges, urban growth, hydromodification, climate change, failing septic systems, untreated wastewater, stormwater, and flooding are all threats to these important water resources. The goals and recommendations of the Black River Watershed Management Plan and the Black River 9-element Plan are to implement actions that will sustain these resources against these threats.



Photo: Aerial view of Black River in West Carthage by Mickey Dietrich, Tug Hill Commission.

Progress Under the Black River Watershed Management Plan

Recommendations from the 2010 DOS Black River Watershed Management Plan (DOS plan) included:

1. Intermunicipal coordination.
2. Work with landowners, farmers, and communities to implement water quality best management practices.
3. Provide technical expertise to communities and municipalities to ensure conservation practices are implemented.
4. Build on educational programs to increase awareness of water quality issues in the watershed.
5. Continue to monitor and eradicate invasive species.
6. Maintain onsite septic systems.
7. Restore and/or maintain riparian buffers.
8. Keep new development out of floodplains.
9. Minimize impervious surface cover.
10. Incorporate effective stormwater and erosion control practices.
11. Minimize forest fragmentation and encourage forest easements.
12. Enhance recreation opportunities and quality of life in the watershed.

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a. Progress implementing recommendations within the DOS plan:

There have been at least 72 actions, totaling \$35,812,470 that have been completed, underway, or ongoing, that partners, organizations, and local communities have implemented or initiated towards achieving the recommendations of the watershed management plan. In addition to achieving shared goals for the Black river watershed, these projects have helped create jobs and contributed to the overall economy of the region.

1. Intermunicipal coordination – Seven actions were advanced to achieve this recommendation, as follows:

- Communities in the watershed participated in the Development Authority of the North Country's [Fort Drum Joint Land Use Study](#), completed in 2018.
- The Jefferson County Stormwater Coalition was established in 2014, to meet new permitting requirements for urbanized areas under the municipal separate stormwater sewer system program. The eight municipalities and Jefferson County Soil and Water Conservation District (SWCD) developed a website, jcnystormwater.com/.
- In May of 2010, 14 towns and 11 villages spanning the five counties within the Black River Watershed signed an Intermunicipal Coordinating Organization (ICO) Memorandum of Understanding (MOU), agreeing to coordinate to implement recommendations of the Black River Watershed Management Plan.
- Lewis County is currently working on a new [Agricultural and Farmland Protection Plan](#), anticipated to be completed in 2021. The county's current [Agricultural Enhancement Plan](#) dates from 2004.
- Oneida County updated their [Agricultural and Farmland Protection Plan](#) in 2017.
- Herkimer County is currently working on an update to their [Agricultural and Farmland Protection Plan](#), originally completed in 2000.
- In 2016, an updated [Jefferson County Agricultural and Farmland Protection Plan](#) was completed, to coordinate among 876 farms within the county, and organizations that can assist with land use planning and conservation practices, including the Soil and Water Conservation District, Cornell Cooperative Extension, and the Tug Hill Commission.

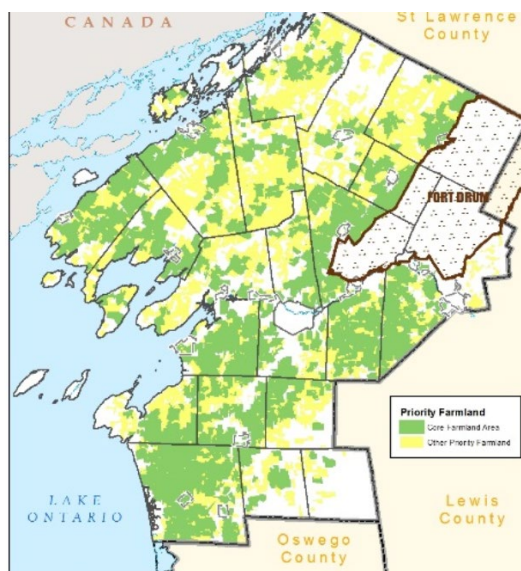


Image: Map from Jefferson County Agricultural and Farmland Protection Plan, with priority farmland areas in green.

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2. Work with landowners, farmers, and communities to implement water quality best management practices – To achieve this recommendation, partners worked to advance the following 23 actions, that leveraged over \$14,603,132, and advanced ongoing actions within existing capacity, as follows:

- Tug Hill Commission has organized an annual Black River Trash Bash every fall from 2010 through 2019, engaging over 400 volunteers and removing 5,767 pounds of trash from the river and its shorelines.
- The village of Lyons Falls and Lewis County were awarded [NYS DOS Brownfield Opportunity Areas](#) funding and implementation grants, totaling \$1,590,000, and adopted zoning in 2017: naturallylewis.com/news/lyons-falls-mill-project-then-and-now. The BOA cleanup and restoration has been underway since 2014, with recent successful funding applications for implementing the final phase of the mill restoration in 2017. Final work on the project will conclude in summer of 2020, with pavement restoration along Center Street.
- A Port Leyden Sewer Study was funded by a DEC/EFC Engineering Planning Grant in 2013. The study led to [groundbreaking in 2017](#) on updating the village's wastewater infrastructure. The village was able to get a \$600,000 grant from the state's Homes and Community Renewal Community Development Block Grant ([HCR CDBG](#)) to help fund the project.
- The town of Lowville and village of Lyons Falls completed Asset Management mini-grants, to improve their wastewater treatment: efc.syr.edu/syracuse-efc-projects/mini-grants/rural-asset-management-inventory-development-mini-grants/.
- Lewis County Soil and Water Conservation District worked with agricultural landowners to implement \$3,581,495 in agricultural best management practices,
- NYSDEC and the NYEFC awarded Water Quality Improvement Project (WQIP) grants and Water Infrastructure Improvement grants, totaling \$12,413,132, to upgrade wastewater treatment infrastructure in several watershed communities, including the city of Watertown, village of Dexter, town of Champion, village of Carthage, and village of Deferiet. Additional details on these projects is provided in section IV of this report.
- Communities worked with NYSDEC and the US Environmental Protection Agency (USEPA) to implement remediation/cleanup projects at Superfund and brownfield sites from 2010-2020. Information about projects are available from the DECinfo Locator, www.dec.ny.gov/pubs/109457.html. Progress made on remediation includes:
 - Watertown Engine St Superfund site – cleanup work began in 2019.
 - NY Air Brake Superfund site (Kelsey Creek) – additional cleanup work and site restoration work was completed in 2016.
 - Ogilvie Foods Brownfield cleanup- In 2011, an underground fuel storage tank was removed, and building foundations and concrete debris were removed from the site in 2014. Low level contamination is being managed using soil cover and institutional controls.
 - Black River PCB's Superfund site at West Carthage – A Public Health Assessment was completed in 2019.
 - Sewell's Island/Black Clawson Remediation and Environmental Restoration – Remediation of contaminated soil and capping was completed in 2019, and

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10 acres of the property can be redeveloped for commercial use under the record of decision.

- Town of Wilna/USEPA Crown Cleaners Remediation – Removal of buildings and injections to treat contaminated groundwater were completed in 2019, with plans to redevelop the USEPA superfund site into a park:
www.nny360.com/news/jeffersoncounty/work-continues-on-cleanup-of-crown-cleaners-superfund-site/article_e6820f7b-0895-559a-8c22-3e333944520e.html.

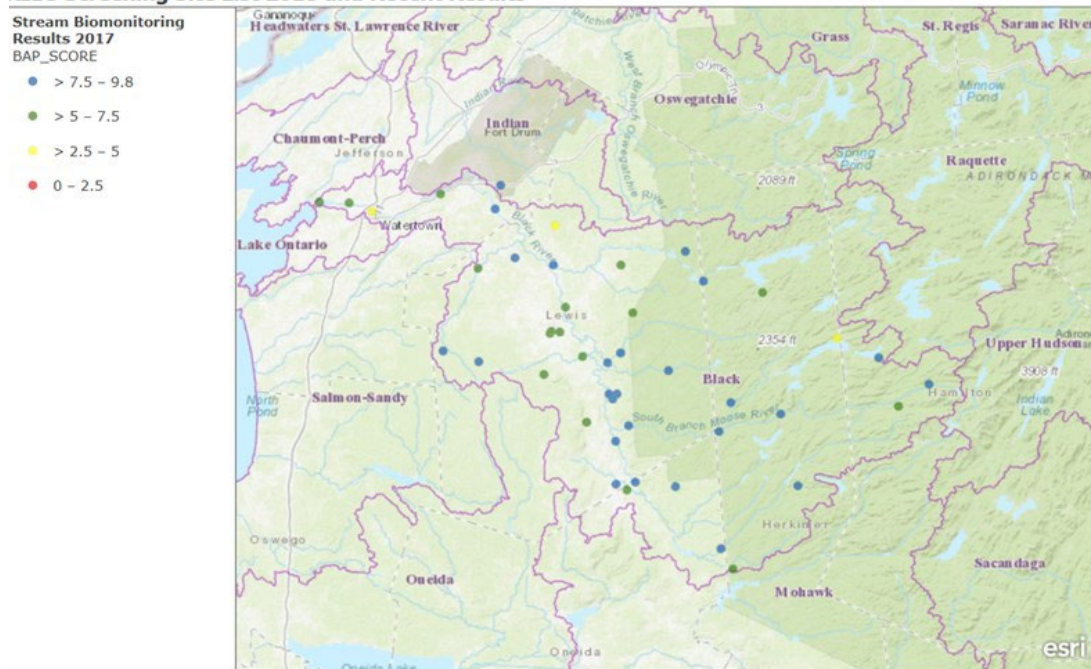


Remediation at Engine St. in Watertown underway. Photo by Emily Sheridan

- NYSDEC Division of Water works with communities and landowners to protect and improve water quality through the following programs:
 - NYSDEC worked with communities and stakeholders in the watershed to develop the Black river Watershed 9-element Plan for reducing phosphorus, nitrogen, and sediment loading. Practices implemented within this plan are evaluated in section IV of this report.
 - Division of Water regulation of Concentrated Animal Feeding Operations.
 - State Pollution Discharge Elimination System regulations.
 - Sewage Pollution Right to Know Law tracks discharges of untreated sewage into the Black River during wet weather:
www.dec.ny.gov/chemical/101187.html.
 - Long Term Control Plan implementation for combined sewer overflows.
 - Water quality monitoring in the watershed helps communities understand impacts from land use. Biomonitoring in the Black River watershed in 2018 shows improved biological assessment profile conditions in Kelsey Creek and Mill Creek, as compared to previous assessments in 2007.
www.dec.ny.gov/chemical/8459.html.

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RIBS Screening Site List 2018 and Recent Results

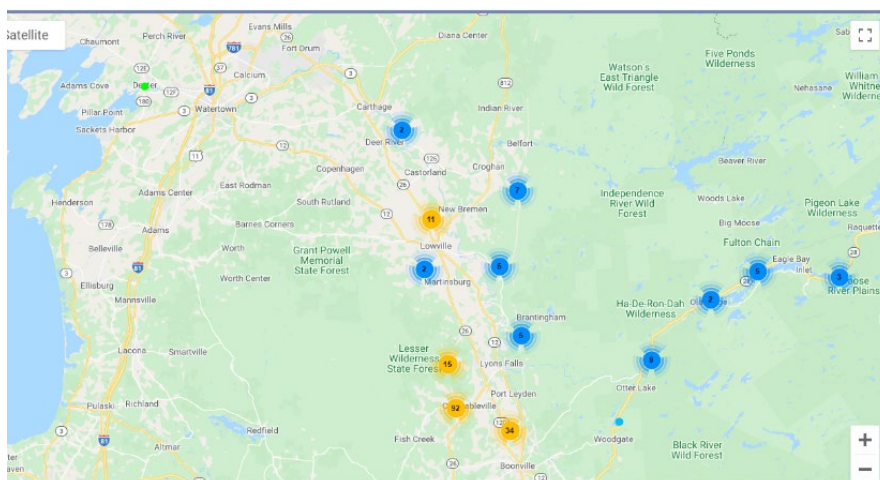


USGS TNM – National Hydrography Dataset. Data Refreshed September, 2018. | Esri. © OpenStreetMap contributors. HERE. Garmin. FAO. USGS. NGA.

Map of monitoring locations and results in the watershed, where blue indicates good water quality.

- 3. Provide technical expertise to communities and municipalities to ensure conservation practices are implemented.** The following 6 actions are examples of implementing this recommendation:
- Tug Hill Commission has provided expertise to communities and municipalities to implement conservation practices, apply to funding programs, and build on educational programs to increase awareness of water quality issues, as follows:
 - Hosts an annual Local Government Conference that engages hundreds of government officials in the watershed,
 - Hosts an annual Black River Watershed Conference that has been held since 2011 to engage and educate municipalities, stakeholders, and the public.
 - Publishes an annual Black River Initiative newsletter, developed in coordination with stakeholders and shared to highlight progress and coordinate efforts of the plans' implementation.
 - The Development Authority of the North Country completed digital mapping that can be accessed to inform local development, using the Regional Map Viewer at: maps.dancgis.org/ima/
 - Jefferson County SWCD has provided annual sediment and erosion control training for municipalities and contractors in Jefferson County.
 - Jefferson and Lewis County SWCD's have completed culvert assessments using the North Atlantic Aquatic Connectivity Collaborative protocols to identify culverts that prevent fish passage and cause flooding, that can be enhanced. More information and access to assessments is available at: www.streamcontinuity.org.

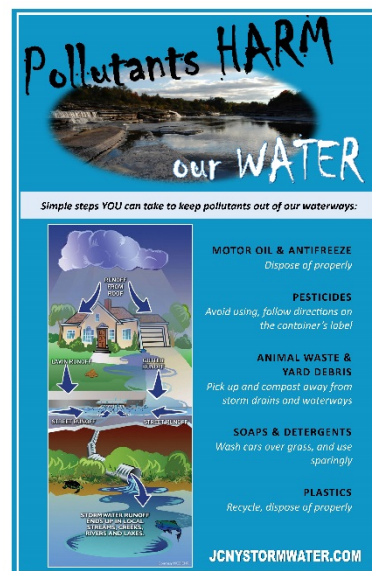
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Road-stream crossing assessments completed in the Black River Watershed

4. **Build on educational programs to increase awareness of water quality issues in the watershed.** The following 4 initiatives have been ongoing toward achieving this recommendation:

- NY's Great Lakes Ecosystem Education Exchange has provided professional development opportunities and resources for teachers and educators in the Black River Watershed, and teachers from Watertown and Carthage have been involved. Online education resources can be accessed at: <https://seagrant.sunysb.edu/gleee>
- Outreach at Jefferson Community College during Earth Week in 2017, 2018, and 2019 provided students and staff with an opportunity to learn about and get involved with the Black River Initiative. In 2020, this outreach was continued virtually.
- The Jefferson County Stormwater Coalition has developed outreach materials to promote community awareness of stormwater and water quality issues, and actions to prevent pollution.
- The Tug Hill Commission and NYSDEC Great Lakes Program has worked with Jefferson Community College to educate students about water quality issues, and the interdisciplinary SCI 199 course to coordinate water quality monitoring by students with NYSDEC and stakeholder water quality monitoring needs.



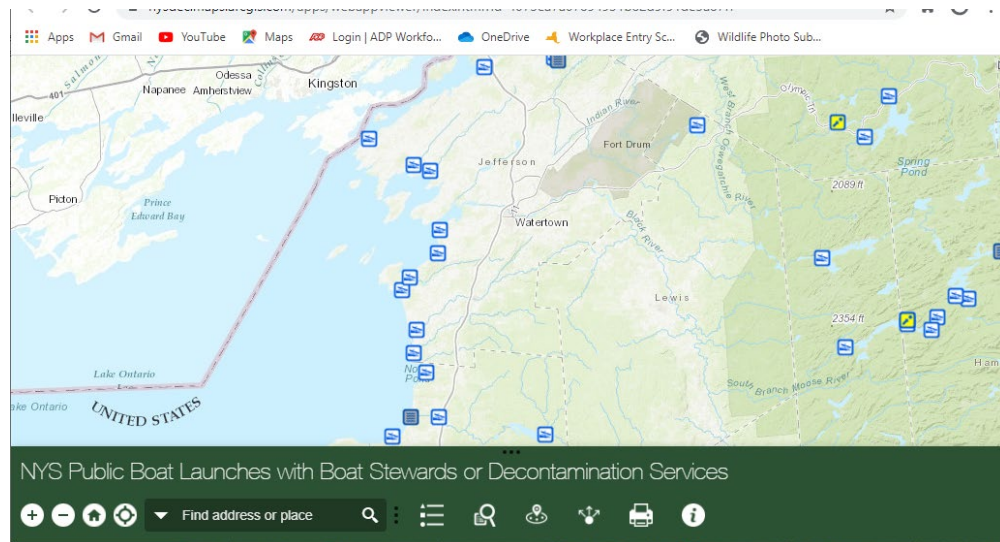
Poster developed for stormwater outreach.

5. **Continue to monitor and eradicate invasive species.** Ongoing programs and partnerships are advancing the following 4 actions:

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- The St. Lawrence-Eastern Lake Ontario Partnership for Regional Invasive Species Management (SLELO PRISM) partners, including the Tug Hill Commission, educates and engages communities and the public in the watershed in monitoring and managing invasive species, and has identified and implemented control practices. For more information, visit: www.sleloinvasives.org.
- SLELO PRISM has developed a Volunteer Surveillance Network (VSN) to recruit volunteers to help monitor invasive species in the region, and more information is available at: www.sleloinvasives.org/learn/vsn/.
- Invasive species of concern in the watershed include giant hogweed, swallow wort, Japanese knotweed, glossy buckthorn, Hemlock Woolly Adelgid, and purple loosestrife. SLELO PRISM and DEC actively manage giant hogweed sites by spraying plants with herbicide, and Lewis County Soil and Water completed purple loosestrife bio-control in the watershed in 2015.
- Urban Forest Resiliency in Watertown - The city is planting diverse tree species to help ensure resiliency of urban forests. The Tree Watertown committee oversees tree management, and the city is a Tree City USA with the Arbor Day Foundation.
- Boat launch stewards are coordinated by SLELO PRISM or facilitated by local communities. A statewide map of boat launch stewards locations and more information is available at: nysdec.maps.arcgis.com/apps/webappviewer/index.html?id=f075ea7a07894951b82d9f91de5a87f7.

Stewards are currently located in Dexter, Sackets Harbor, Old Forge, and at Stillwater Reservoir. Boat launches would benefit from additional stewards in the watershed.



Map of boat launch stewards portrays gaps in the Black River Watershed.

6. Maintain onsite septic systems. Two examples of partners that are advancing these actions are:

- The Fulton Chain of Lakes Association has advanced a strategy to reduce septic loading that included outreach to waterfront homeowners, septic inspections and voluntary repair and replacements, and worked with the town of Webb to update zoning to require septic maintenance and replacements that protect drinking source waters and recreational waterways, fultonchainoflakesassociation.org/.
- The NYS Department of Health provides guidance on septic system operations and maintenance, available at: www.health.ny.gov/publications/3208/index.htm.

7. Restore and/or maintain riparian buffers. Two projects that have advanced this action and received nearly \$200,000 in funding for implementation include:

- US Forest Service (USFS) Great Lakes Restoration Initiative grant (\$175,000) in 2015 to plant trees and install rain gardens in the Lower Black River sub-watershed.
- Forestport was awarded a small NYSDEC Urban and Community Forest grant in 2011 to plant trees along the Black River.



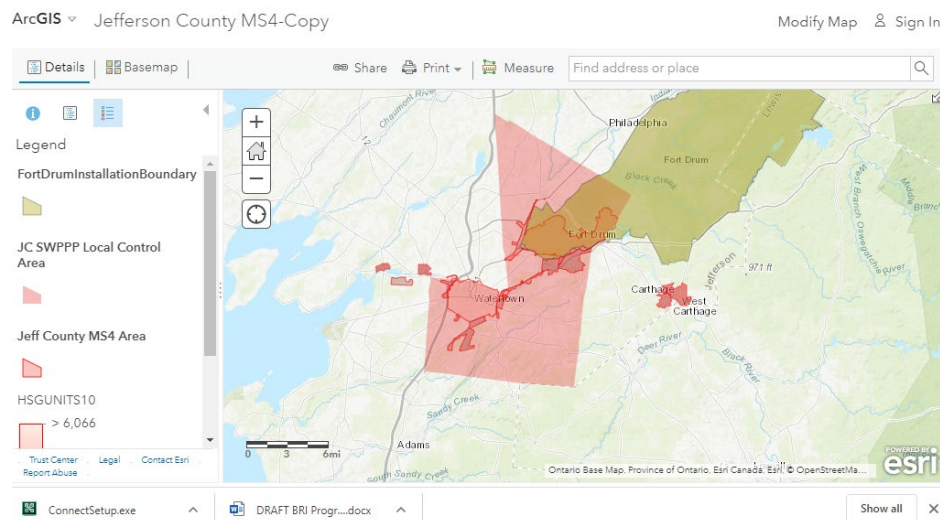
*Trees were planted at the fairgrounds to buffer the river under the USFS grant.
(Photo by Emily Sheridan)*

8. Keep new development out of floodplains. Five actions towards this recommendation are:

- With funding from the Black River-Beaver River Advisory Committee, Lewis County SWCD installed stream gauges throughout the Black River watershed that provide real time monitoring of water levels and water quality, and can be accessed at: 208.125.212.114:8085/index.html.
- Floodplain Mapping: Jefferson County floodplain mapping was completed in November of 2017 is available at catalog.data.gov/dataset/floodplain-jefferson-county-ny7dc2e. Additional FEMA floodplain mapping can be accessed at: <https://msc.fema.gov/portal/home>.
- In July of 2016, a Black River RISKMAP Discovery report was completed, identifying historic flooding and mapping needs, and can be accessed at: greatlakescoast.org/pubs/DiscoveryReports/Ontario/LakeOntario_BlackRiver_Watershed_July2016/LakeOntario_BlackRiver_Watershed_DiscoveryReport_FIN_AL-July2016.pdf.

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- NYSDEC floodplain management training was offered to communities in the watershed in 2018.
 - Online trainings on floodplain management were developed in 2020, and are available at: www.nyfloods.org/.
- 9. Minimize impervious surface cover.** Three projects have been implemented, totaling \$2,270,000:
- Lewis County Soil and Water Conservation District, and Jefferson Community College, were awarded grants from the NYS Environmental Facilities Corporation (EFC), to install porous pavement, in place of impervious concrete pavement. Additional information on these projects is included in Section IV.
- 10. Incorporate effective stormwater and erosion control practices.** Four actions achieving this include:
- In 2010, the city of Watertown and surrounding communities were designated an urbanized area, and new regulatory requirements under the municipal separate stormwater sewer system (MS4) permitting program were mandated.
 - Watertown and surrounding communities established the [Jefferson County Stormwater Coalition](#) to meet the MS4 requirements.
 - In addition to meeting regulations, the coalition has implemented two grants that achieve good housekeeping measures, including and a U.S. Forest Service green infrastructure grant, and a NYSDEC Water Quality Improvement Project grant (\$100,000) awarded to the town of LeRay in 2013 to map outfalls and complete a stormwater management plan,
 - Jefferson County SWCD completed stormwater mapping in the lower Black River watershed urbanized area, which can be accessed at: arcg.is/1KSru1.

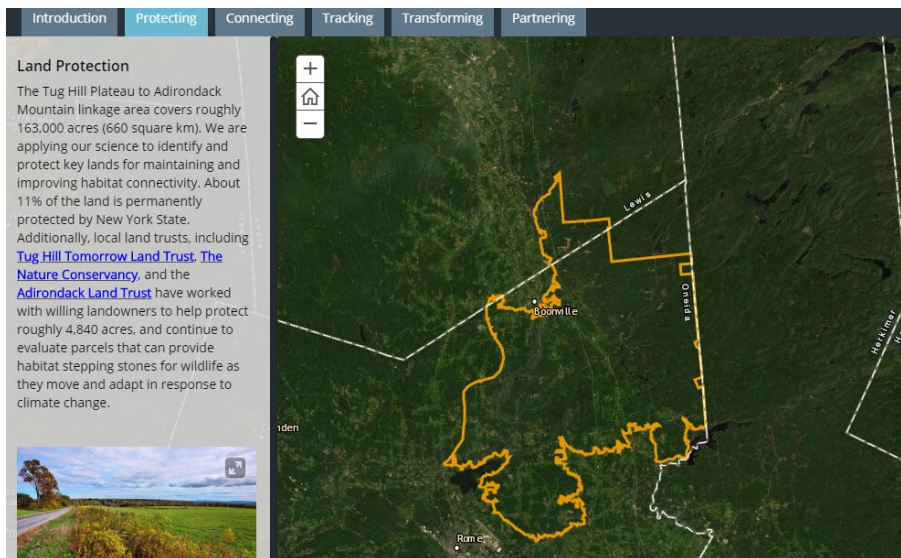


Jefferson County Urbanized area map.

- 11. Minimize forest fragmentation and encourage forest easements.** Two actions advancing this are:

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- Tug Hill Tomorrow Land Trust land acquisitions in the watershed total 6,512 acres, including 3,219 acres in the town of Martinsburg.
- The Wildlife Conservation Society and The Nature Conservancy are advancing land conservation within the Tug Hill/Adirondack connectivity corridor, and in 2018 The Nature Conservancy was awarded \$537,543 from NYSDEC for Black River valley source water protection land acquisitions:
stayingconnectedinitiative.org/our-places/tug-hill-to-adirondacks/
- In 2020, NYSDEC announced land acquisitions in Oneida and Lewis County:
www.dec.ny.gov/press/120851.html



Focus area for land protection in the Tug Hill- Adirondacks corridor.

12. Enhance recreation opportunities and quality of life in the watershed. Grants funded for recreation have totaled \$17,187,000, and 10 projects have been completed, as follows:

- In 2016, Lyons Falls made improvements at the boat launch under the falls, with funding from an Iroquois Community grant.
- The village of Black River was awarded a Restore NY Grant (\$270,000) in 2017.
- Tug Hill Commission and the NYS Office of Parks, Recreation and Historic Preservation assisted with Black River navigation improvements. The River Area Council of Governments has done additional annual mapping to track hazards and communicate with the public. www.innovationtrail.org/post/summer-months-black-river-yearns-more-attention.
- Upgrades to Burdick's Crossing boat launch were completed in 2012, under a DOS Blueway implementation grant.
- In 2018, the town of Wilna was awarded \$772,000 in Restore NY funding to redevelop buildings along Dock St in Carthage.
- NYS Office of Parks, Recreation and Historic Preservation (OPRHP) and the city of Watertown extended and made improvements to the Black River Trail from 2017-2020, with \$950,000 in state and federal funding.

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- The town of Wilna was awarded \$75,000 from NYSOPRHP to develop designs for a park at the former Crown Cleaners site along the Black river.
- NYS Department of State (DOS) Local Waterfront Revitalization Program (LWRP) implementation grants have funded the following projects:
 - 2014: Funding awarded to Hamilton County supported an Adirondack community-based trails and lodging system, which included Black River headwaters (\$220,000).
 - 2015: The village of Dexter was awarded funding for the Dexter Bridge over Black River design (\$5.8m project funded by the NYSDOT began in February 2015).
 - 2016: City of Watertown awarded funding for a Downtown Revitalization Plan (which was awarded \$10M from the DRI program in 2018), and the Downtown-Riverfront Parks Connection feasibility study.
 - 2019: Update to the city of Watertown's Local Waterfront Revitalization Plan (\$50,000).



View of bridge spanning the Black River in Dexter

b. Additional actions recommended to further advance the Black River Watershed Management Plan include:

- Equipment, such as a vacuum truck, is needed within Jefferson County to maintain porous pavement and improve stormwater runoff in communities by sweeping streets.
- Build on existing coordination efforts to engage municipalities, stakeholders, and the public in collaborative ongoing watershed management actions.
- Additional applications to the NYSDOS LWRP program for project implementation to advance recommendations.
- Floodplain management to reduce vulnerability of infrastructure under severe storm events. Community participation in FEMA's Community Rating System would reduce flood insurance costs.
- Additional community participation in DEC's Climate Smart Communities program to adapt to and mitigate climate change.
- Advance strategies to maintain and upgrade on-site septic systems.

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- Where septic density limits maintenance and upgrades, consider installation of sewers or cluster systems, and other alternatives. Information about septic density can be accessed at: opdgig.dos.ny.gov/#/map. Areas with high septic density identified included upper Beaver River, Middle Branch of Moose River, Swiss Creek, and Kelsey Creek sub-watersheds.
- Manage wastewater infrastructure assets to prevent phosphorus discharges exceeding 1mg/l for facilities discharging 1,000,000 gallons per day or more, upgrade wastewater treatment infrastructure to comply with State Pollutant discharge Elimination System (SPDES) permits and reduce combined sewer overflows. Additional progress on managing wastewater treatment infrastructure is detailed in the 9-element plan implementation section.
- Watershed modeling and prioritization at the HUC-12 scale would better enable stakeholders to track project outcomes and communicate accomplishments. An interactive mapping platform to display information and projects in the watershed would allow for user-friendly access to this information.
- Dedicated full-time or part-time Black River watershed coordinator/stewardship specialist that can ground-truth data, identify projects, engage communities, assist with grant applications, and advance projects.
- Long term outreach and education for youth in the watershed to promote environmental literacy and stewardship.
- Continue with collaborative public outreach, engagement, and stewardship actions, including the annual watershed conference, newsletter, and trash bash, and other activities promoting local stewardship of watershed resources.
- Additional boat launch stewards in Watertown, Carthage, Glenfield, Lyons Falls, and Brantingham Lake would be beneficial to protect the watershed from aquatic invasive species. Explore opportunities to partner with SLELO PRISM and/or Adirondack Watershed Institute to employ additional boat launch stewards, in coordination with local communities.
- Additional implementation of agricultural best management practices within high priority sub-watersheds, including Mill creek, lower Black river, and lower middle Black river sub watersheds, to restore and protect beneficial uses of waterways.
- Complete aquatic and terrestrial connectivity assessments, using new NAACC protocols, throughout the watershed, to identify priority areas for culvert enhancement and habitat restoration. Gaps in current assessments are within the lower Black River (from Dexter to Carthage), Beaver River (from Stillwater to Castorland) and Deer River (from South Rutland to Deer River) sub watersheds. Replace culverts identified as severe barriers based on NYS Department of Transportation guidance.

Progress Under the Black River Watershed 9-element Plan

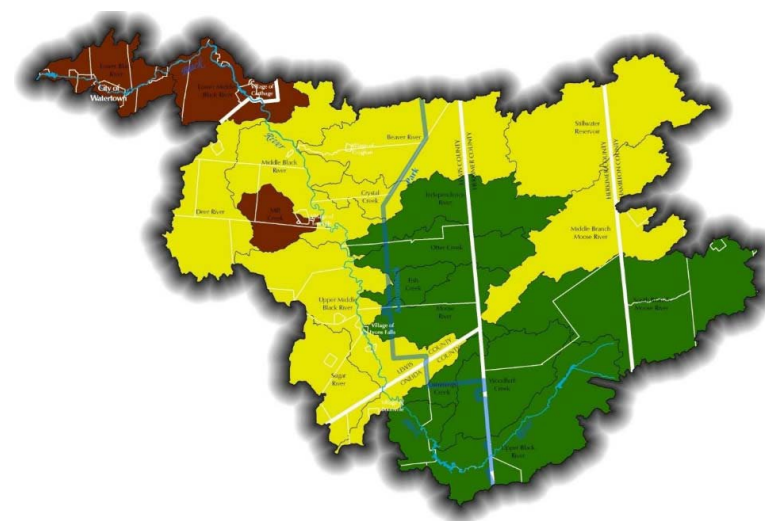
- a. Recommendations in the Black River 9-element Plan included actions needed to reduce phosphorus, nitrogen, and sediment loading in the Black River Watershed.

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The Black River 9-element Plan (9E plan) to reduce phosphorus, nitrogen and sediment loading in the watershed was completed and NYSDEC-approved in 2016, after consultation with stakeholders in the watershed, to meet USEPA requirements for watershed plans, and increase eligibility for federal funding to complete projects.

The plan uses Bergmann and Associates AGVWLF watershed modeling information at the HUC-11 sub-watershed scale to estimate loading of sediments and nutrients, and *Devereux & Rigelman, 2014* load reduction estimates to calculate load reductions that will be achieved through implementation.

In 2012, Macarewicz et al. monitored the Black River Watershed and determined phosphorus loading to Lake Ontario from the Black River Watershed was 297,756 pounds per year, and the modeling by Bergmann and Associates estimated the phosphorus loading to be 256,582 pounds (116,384 kg) per year. The comparison of the modeling and monitoring data aids in determining the accuracy of the modeling and calibrating results. Additionally, NYSDEC Priority Waterbodies List Assessments identified impairments in the watershed in similar locations as the watershed models.



High priority areas (brown), medium priority areas (yellow), and healthy areas (green) in the watershed. Map by Bergmann and Associates.

The modeling from the plan identified priority sub-watersheds where actions are most needed to reduce loading, which included the Lower Black River in the Watertown area, Lower Middle Black River in the Black River (village) area, and Mill Creek in the Lowville area. To achieve targeted load reductions in these areas, actions needed include:

1. Implement agricultural best management practices;
2. Restore riparian buffers;
3. Wastewater treatment improvements;
4. On- site septic repair and replacement; and
5. Green infrastructure to improve stormwater management.

- b. Implementation actions within the plan that have been completed or are underway include:

1. Implement agricultural best management practices:

- The majority of the Black River is located within Lewis County, and the valleys of the Black River and its tributaries of this region are characterized by rich, fertile soils. To sustain the productive farmland and protect water quality, agricultural best management practices are being implemented by Lewis County Soil and Water Conservation District in coordination with farmers. These practices include no till crops, riparian buffers, cover crops, livestock exclusions, barnyard runoff management, and comprehensive nutrient management planning and implementation (including manure storage).
- Projects implemented within the Black River Watershed from 2010-2020 totaled \$3,646,290 for 29 projects, and are as follows:
- Natural Resource Conservation Service (NRCS) funded projects from 2010-2020 totaling \$293,271 within the high priority Mill creek sub-watershed in Lewis County. A total of 12 conservation practices were implemented under these awards, including a waste storage facility closure, a new waste storage facility, critical area plantings, and forest stand improvements.
- NYSDAM Agricultural Non-Point Source Pollution Abatement grants awarded from 2010-2020 in Lewis County totaled \$3,533,019, and included:
 - In 2012, \$135,238 was awarded for nutrient management (silage leachate control) on a 2,880-acre farm in the town of Martinsburg, within the agriculture impaired Mill creek sub- watershed.
 - In 2013, \$560,032 was awarded for nutrient management planning and implementation in the Black River Watershed on an 841-acre farm in the town of Croghan, an 800-acre farm in the town of Lowville (within the agriculture impaired Mill creek sub-watershed), and a 260-acre farm in West Turin. Projects included 252 feet of exclusion fencing for an 841-acre farm, and installation of a waste storage and transfer system.
 - In 2014, \$49,703 was awarded for soil health projects completed on 4 farms, totaling 515 acres in the towns of Croghan, Denmark, Martinsburg (Mill creek sub-watershed), and Turin (Mill creek sub-watershed).
 - In 2016, \$63,061 was awarded for cover crop projects on 832 acres in Leyden and New Bremen, removing an estimated 83 lbs of phosphorus, and 8,736 lbs of nitrogen.
 - In 2017, \$406,119 was awarded for nutrient management projects, including 740 feet of fencing for a 1,370-acre farm, and an acre of critical area plantings, on Crystal creek in the town of New Bremen.
 - In 2018, \$1,901,103 was awarded for nutrient management (manure storage), at Roaring brook in the town of Martinsburg, and \$64,795 was awarded for 50 acres of cover crops and other projects in Turin.
 - In 2020, \$172,968 was awarded to implement 980 acres of cover crops on five farms in the watershed, reducing nitrogen loading by an estimated 10,290 lbs, and phosphorus loading by 98 lbs.



Dairy farm in Lewis County. Photo by Emily Sheridan

2. Restore riparian buffers

- Forestport was awarded a DEC Urban and Community Forest grant in 2011 to plant 25 trees along the Black River, intercepting an estimated 1,350 gallons of runoff per year.

3. Improvements to wastewater treatment infrastructure:

Under the National/State Pollutant Discharge Elimination System permitting program (NPDES/SPDES), facilities discharging to the Black River watershed are required to comply with effluent limits and report exceedances. Information about SPDES permit locations and numbers can be viewed from the [DECinfo Locator](#), and compliance history can be accessed at echo.epa.gov/. Evaluating compliance and progress communities are making towards implementing long-term control plans provides a mechanism for determining the overall progress towards achieving watershed goals. Grant funding assisted with 8 projects, totaling \$12,413,132, that will help communities meet requirements to protect waterways, as follows:

- NYSDEC WQIP point source pollution grants awarded:
 - In 2016, the Carthage/West Carthage Joint Water Pollution Control facility disinfection upgrade was awarded \$2,500,000, to help the community meet compliance under their SPDES permit. Information about the facilities compliance with their SPDES permit can be found at: echo.epa.gov/detailed-facility-report?fid=NYR00E592.
- NYSEFC Water Infrastructure Improvement Act grants awarded:
 - 2017- City of Watertown anaerobic digester for sludge disposal and energy production; \$2,306,840. SPDES permit number: NY0025984, compliance information available at: echo.epa.gov/detailed-facility-report?fid=110010583573.

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- 2017- Village of Dexter sewage collection and treatment; \$764,775. Permit NY0031461, compliance information available at: echo.epa.gov/detailed-facility-report?fid=110009828632.
- 2017- Town of Champion sewer district 2 upgrades; \$502,642.
- 2017- Village of Carthage joint water pollution control facility; \$1,687,500: permit information at: echo.epa.gov/detailed-facility-report?fid=NYR00E592
- 2017- Village of Lowville sanitary sewer and wastewater treatment plant improvements; \$3,950,000: NY0020125, compliance information: echo.epa.gov/detailed-facility-report?fid=110002344687
- 2018- Village of Deferiet Wastewater treatment improvements; \$140,000 : NY0020931 Compliance information: echo.epa.gov/detailed-facility-report?fid=110009829445
- 2019- Village of Carthage infiltration and inflow project; \$561,375: echo.epa.gov/detailed-facility-report?fid=NYR00E592.



Wastewater Treatment Plant in Watertown. Photo by Emily Sheridan

4. On-site septic repair and replacement

- NYS Dept. of Health provides guidance to property owners and local governments, and developed a design handbook for residential treatment systems in 2012, that can be accessed at: [www.health.ny.gov/environmental/water/drinking/wastewater treatment systems/docs/design_handbook.pdf](https://www.health.ny.gov/environmental/water/drinking/wastewater_treatment_systems/docs/design_handbook.pdf).
- Fulton Chain of Lakes Association established a sanitary code that was eventually adopted by the town of Webb board. A full-time inspector was hired and conducted dye tests of septic systems, issued violations and collected lake water samples for testing. The inspector worked closely with the Towns of Webb and Inlet Code Enforcement Officers. As homeowners were notified of defects in

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their system, the majority of homeowners quickly corrected the problem. Within two years the water quality had improved from a coliform count of 40,000 per 100 ml to well under 2400 per 100 ml which is the state maximum allowed for public swimming: fultonchainoflakesassociation.org/aboutus/index.html.

5. Green infrastructure to improve stormwater management.

Projects implemented and funded from 2010 to 2020 have totaled \$2,270,000, intercepting at least 298,222 gallons of stormwater annually, and have included:

- Under the U.S. Forest Service Great Lakes Restoration Initiative grant (\$175,000) awarded to Jefferson County Soil and Water Conservation District, 1,279 trees were planted, and two rain gardens and one bio-swale were installed, intercepting an estimated 230,000 gallons of rainwater annually.
- NYSEFC Green Innovation Grant project awards were funded, as follows:
 - 2014 - Lewis County- \$640,000 for bio-retention and porous pavement at the county administration building. Porous pavement total 7,420 cubic feet at the site holds in 55,505 gallons of stormwater annually, and the 1,700 square foot bio-retention practices hold in 12,717 gallons of stormwater annually. More information at: www.tughill.org/wp-content/uploads/2016/05/Frank-Pace-Green-Infrastructure-Lewis-County.pdf
 - 2017- Lewis County - \$575,000 for bio-retention, stormwater harvesting, and porous pavement at Lewis County fairgrounds, to be completed in 2020/2021.
 - 2018- Jefferson Community College- \$880,000 for bio-retention medians and porous roadway shoulders at the campus entrance, to be completed in 2021.



Green infrastructure at Lewis County administration building. Photo by Frank Pace.

c. Additional actions recommended

- Apply an ecosystem-based management approach, consistent with the Ocean and Great Lakes Ecosystem Conservation Act of 2006, to facilitate collaboration among communities and partners to achieve and sustain Black River Watershed Management Plan goals, at the watershed scale.
- Engage partners to help fill gaps and develop competitive applications for state and federal funding programs.
- Additional watershed protection, green infrastructure, water infrastructure, and forestry and land use best practices needed in the watershed in Herkimer, Lewis, Oneida, Jefferson, and Hamilton counties.

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- To evaluate outcomes of the Black River 9-element Plan and progress towards achieving nutrient load reduction targets, information on load reductions from practices being implemented need to be documented and tracked.
- Develop strategies/targeted outreach to implement projects in high priority areas (Lower Black River, Middle Black River, and Mill Creek) and in moderate priority areas.
- Wastewater treatment improvements are needed to reduce combined sewer overflows and discharges of untreated wastewater. To achieve the Clean Water Act (CWA) and 1 mg/l standards for phosphorus loading at wastewater treatment facilities discharging over 1,000,000 gallons per day, communities with violations within the past three years need to upgrade and improve wastewater treatment infrastructure, in accordance with their long-term control plans.
 - Sewage Pollution Right to Know Law, EPA ECHO, and DECinfo Locator shows discharges of untreated wastewater and non-compliance with CWA standards to educate the public about the locations and risks of untreated sewage discharges and CWA violations.
 - Communities can leverage funding from NYSDEC and NYSEFC to fund projects that will help them comply with their Long-Term Control Plan (LTCP).
- To evaluate the success of stormwater and agricultural best management practices, metrics such as the number of trees planted, number of acres of practices, and/or square footage of project areas need to be documented and tracked.
- Source water protection strategies for surface and groundwater resources, including land acquisitions for source water protection, and riparian buffers for source water protection, need to be advanced to protect important drinking water resources, such as the class A section of the lower Black River located east of the City of Watertown, and aquifers identified by the Black River Watershed Management Plan. State and federal grant programs can be leveraged to protect these waterways.
- Advance strategies to improve on-site septic management, including incentives, education and outreach, inspections, and community-driven changes to zoning and enforcement in priority source water protection and recreational use waterways.
- DEC biomonitoring assessment indicates areas that are still moderately impaired and could be targeted for additional improvements, including:
 - Eagle Creek in Inlet
 - Unnamed tributary of Swiss Creek near West Carthage
 - Kelsey Creek in Watertown

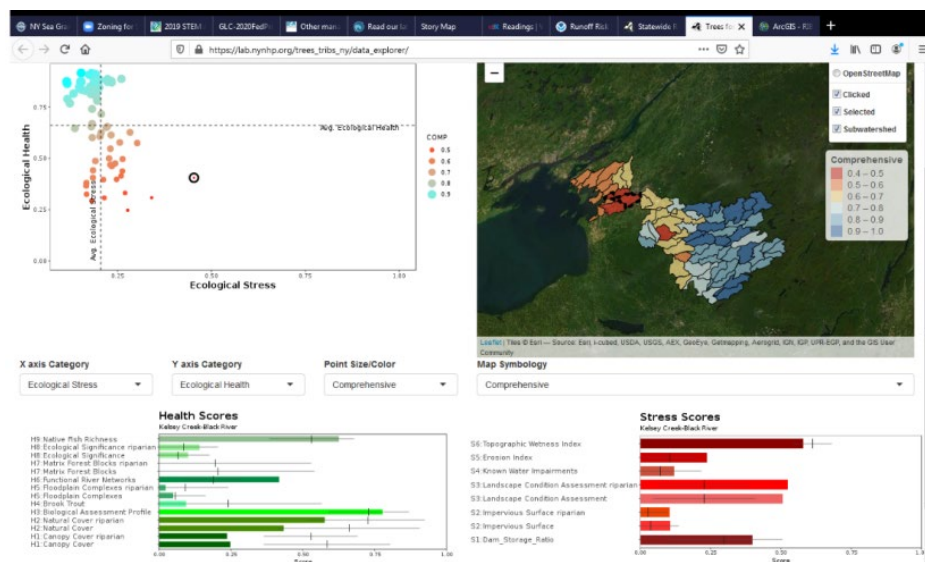
*Drinking Water
Treatment Plant in
Watertown. Photo
by Emily
Sheridan.*



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Gaps and Challenges

- Legacy HUC-11's used in watershed modeling make it difficult to connect watershed management actions with funding criteria and to track progress towards load reduction targets.
- Watershed modeling used in the Black River Watershed varies from models used in other watersheds within the state, and a lack of consistency for the models used can create challenges when trying to connect projects to state funding programs.
- The [Riparian Restoration Opportunity Assessment](#) can be used to identify areas for further assessment and project development that will also implement actions identified in the 9-element plan, and can be used to track projects within priority sub-watersheds.



The assessment portrays low comprehensive scores, based on indicators of ecological health and stress, for the lower Black river and Mill creek sub-watersheds.

- Work with communities and partners to remediate superfund and restore brownfield sites, which can be identified using the DECinfo Locator: gisservices.dec.ny.gov/gis/dil/.
- Black River PCB's at West Carthage superfund site remediation – Finalize and implement record of decision. Ongoing monitoring, evaluation towards achieving goals, coordination between upstream and downstream communities, and maintenance of projects needed.
- Protecting and conserving healthy watersheds/ drinking water resources for private wells and small community systems.
- Researching emerging contaminants of concern (PFA's, PFOA's, salt contamination) and their impacts to drinking water, human health, and aquatic life to inform management and protect water resources.
- Establish an ad-hoc or formal inter-municipal collaboration committee that engages communities throughout the watershed.

Outreach and Engagement

a. Stakeholder feedback

To better inform actions needed, additional project interests, and gain feedback on the progress of the initiative, the following organizations within the Black River Watershed were invited to review and comment on this report, and were be asked to provide additional projects completed and projects/actions of interest to recommend.

- Soil and Water Conservation Districts (Jefferson, Lewis, Oneida, Herkimer, and Hamilton)
- Jefferson Community College and other research institutions
- St. Lawrence Eastern Lake Ontario Partnership for Regional Invasive Species Management and Adirondack Park Invasive Plant Program.
- Jefferson County Stormwater Coalition
- NYS Office of Parks, Recreation and Historic Preservation
- The Nature Conservancy
- Tug Hill Tomorrow Land Trust
- Development Authority of the North Country
- Downtown Business Association

To promote additional feedback on the report and help finalize projects completed and recommended actions; interested communities, organizations, and the public were invited to participate in a survey, which can be accessed at: www.surveymonkey.com/r/R3NJ57M.

Comments from stakeholders via the survey, email, and feedback on the presentation that was given as part of the Virtual Black River Watershed Conference, included:

- Include land conservation accomplished - maybe acreages by land use. Not just by the land trust, but by zoning regulations, state, county and municipal projects, etc., to show the connection between open space protection and water quality/recreation benefits.
- Improve community connection with small-scale natural amenity tourism by including small retail and business centers in watershed inventories, planning and marketing.
- Open discussion about the potential for reinstalling flood gates back at the Herrings ny hydro dam (to mitigate flood risks).
- The improvements from the water are so telling. I have 60+ years on and in the water, and it us dramatically improved over that term.
- A poll was held that asked what activities everyone values in the watershed was participated in by 30 people, and 3% valued swimming, 34% valued boating and fishing, 3% valued drinking water, 3% valued agricultural production, and 55% valued all of the uses.
- During the presentation, a discussion of progress included feedback, as follows:
 - Are there any plans to update the plan within the next 5 years?
 - Tug Hill Commission would like to see updated- combining the two plans into one, and doing modeling based on the 12-digit HUC.
 - What obstacles still need to be addressed? – Adapting to climate change, right sizing culverts (training coming up soon).
 - Include water quantity and water quality metrics/indicators?

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- DEC Water resources law, and Great Lakes St. Lawrence Water resources compact regulates water withdrawals. Tug Hill Commission- original plan included groundwater assessment, additional needs can be identified. DEC regional permit administrator – water quantity as it relates to dam regulation important during relicensing process. Increasing drought may lead to need for additional conservation measures.
- Poll- If you were to give the initiative a “grade”, what would it be? -
 - 12- excellent work (A), and 12 – good job (B)
- Webinar participants were asked what additional actions that they would like advanced in the watershed in the next 5-10 years, and responses included:
 - Additional riparian buffer projects. – In the Chesapeake Bay watershed, stewardship coordinators were hired to identify and implement projects, working closely with homeowners and communities, and completing tree planting and maintenance projects. Lewis County SWCD would like to look into.
 - Water quantity- looking at dam relicensing and climate change to evaluate changes and regulation needs.
 - Floodplain management and land use regulations are needed.
 - Has assessment looked at old/abandoned dams? DEC infolocator identifies hazard dams, and can be accessed at: gisservices.dec.ny.gov/gis/dil/
 - Assessments are needed for individual dams to identify sediment toxicity, flooding implications, and/or implications for introducing invasive species/pathogens. Tom – Abandoned dams in watershed have no owner of record to hold accountable. Funding available for hazard mitigation planning.
 - Dust off Blueway trail and discuss additional recreational access and signage projects. Adding mile markers from launch to launch would be beneficial. Identify points of interest for interpretation along river.
 - Engage additional citizen scientists (through presentations to college students and other groups) to monitor conditions (habitats, invasive species, water quality) in the watershed.

Survey Results and Next Steps

A survey was sent to webinar participants after a September 2020 presentation. As of the beginning of September eight participants had answered the survey. Priorities that were identified included enhancing recreation and access, improving on site septic systems, and improving coordination and collaboration among communities and organizations. There were six people that provided contact information to be more involved in the initiative. Next steps are to engage these additional stakeholders in discussions to further identify and implement watershed projects.

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Acknowledgements

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NYS Department of Agriculture and Markets (Bethany Bzduch, Jason Kokkinos)

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Development Authority of the North Country (Michelle Capone and Carrie Tuttle)

Jefferson Community College (Bruce Alexander)

The Nature Conservancy (Alissa Fadden, Megan Pistolese, Brittney Rogers)

References

NYSDEC. Black River Nine Element Watershed Management Plan. 2016.

Tug Hill Commission. Black River Initiative. Accessed July 2020. www.tughill.org/projects/black-river-projects/watershed-initiative/

Bergmann and Associates. Black River Watershed Management Plan. 2010. Accessed on Tug Hill Commission website: www.tughill.org/projects/black-river-projects/watershed-initiative/

DEC Infocator: Remediation sites. Accessed April 2020. gisservices.dec.ny.gov/gis/dil/

NYSEFC Green Innovation Grants Program: www.efc.ny.gov/gigp-previous-awards

DEC Division of Water: www.dec.ny.gov/chemical/290.html

USEPA. Handbook for Developing Watershed Plans to Restore and Protect Our Waters. March 2008. Accessed July 2020 at: www.epa.gov/nps/handbook-developing-watershed-plans-restore-and-protect-our-waters

National Tree Benefit Calculator:

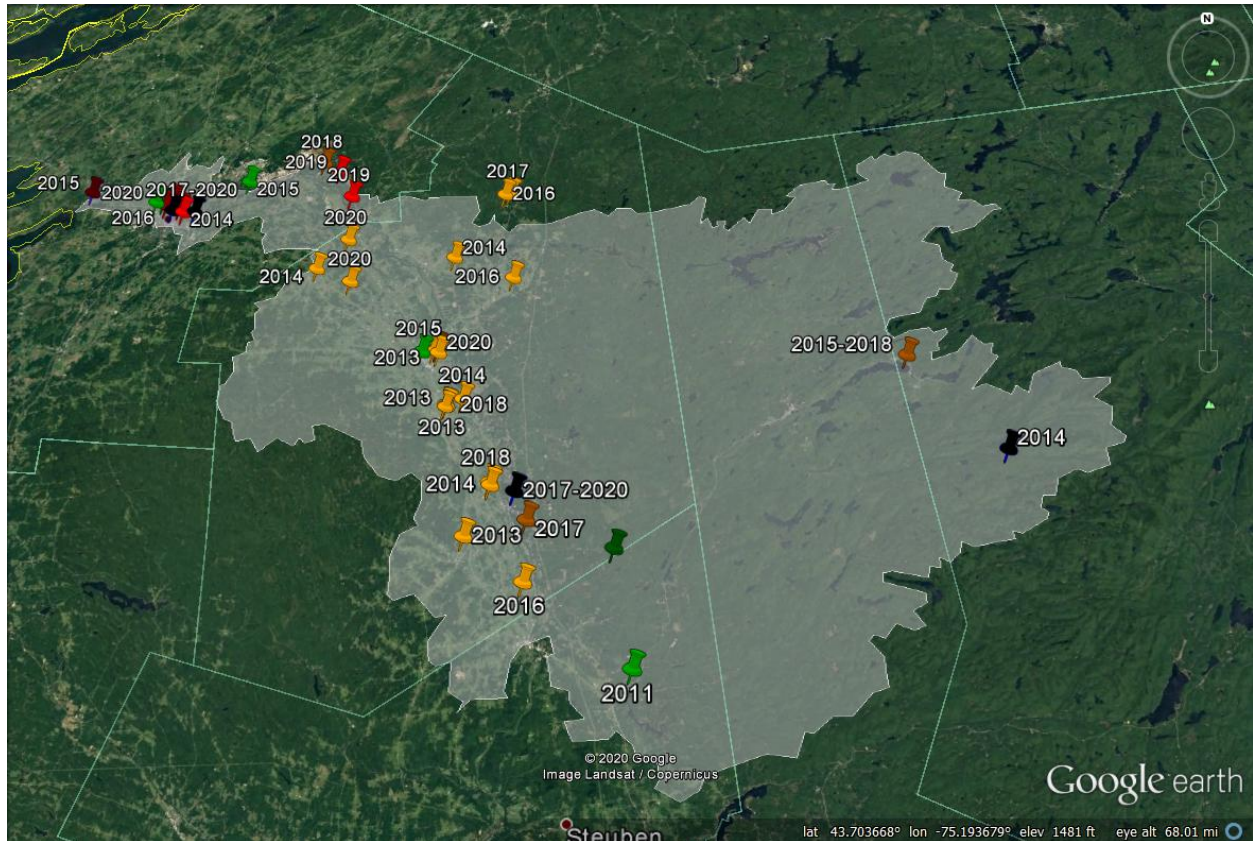
www.arboday.org/calculator/treeInfo.cfm?zip=92807&city=ANAHEIM&state=CA&climatezone=Inland%20Empire

EPA ECHO Facility Search: echo.epa.gov/facilities/facility-search?mediaSelected=cwa

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Appendix: Project Location Maps

Watershed Project Map



Map of Projects in the Black River Watershed. Developed by Emily Sheridan using Google Earth.

Red- Remediation

Green- Restoration, land protection, and green infrastructure

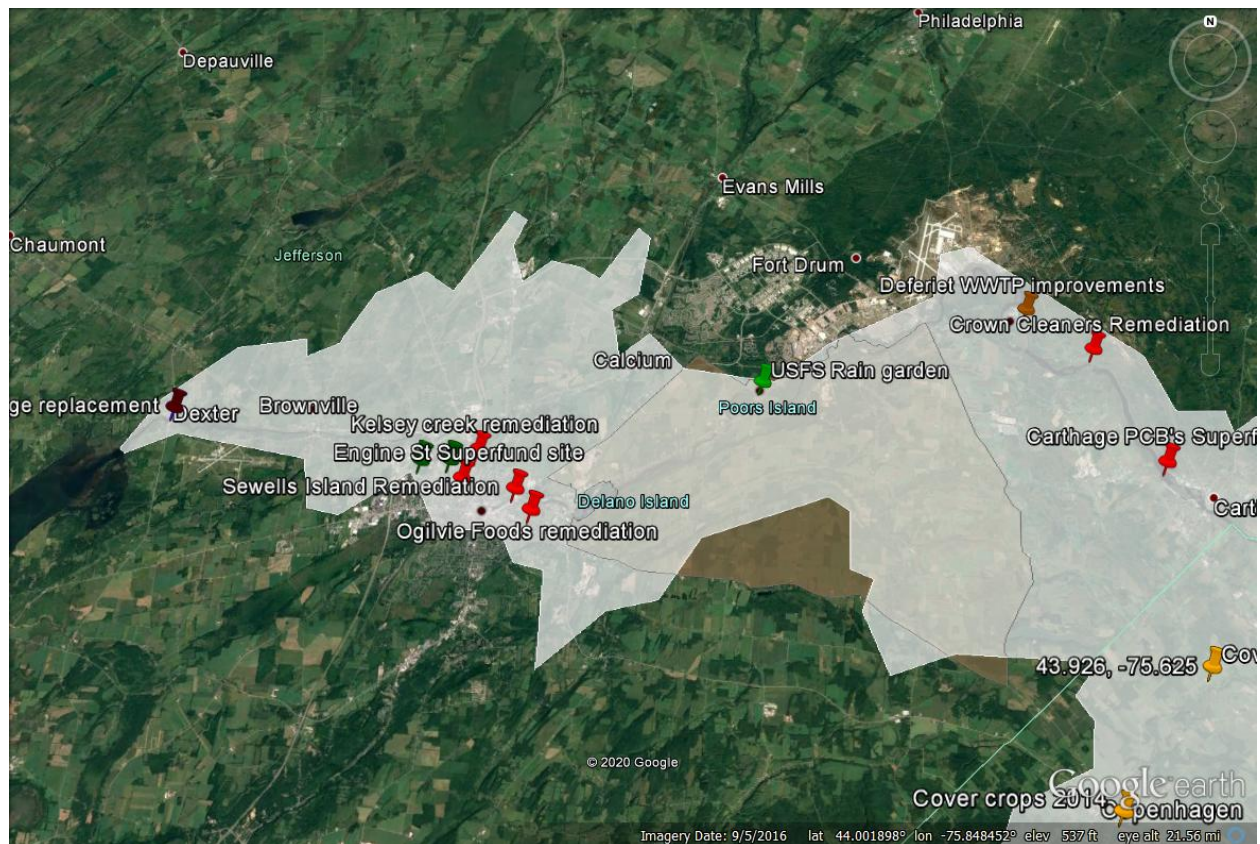
Orange- Agricultural Best Management Practices (Ag BMP's)

Brown- Wastewater and septic improvement

Blue- Recreation, community renewal, and access

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Lower Black River Project Map



Red- Remediation

Green- Restoration, land protection, and green infrastructure

Orange- Agricultural Best Management Practices (Ag BMP's)

Brown- Wastewater and septic improvement

Blue- Recreation, community renewal, and access