Black River Adaptive Modeling: Watershed Stakeholder Meeting January 25, 2023

- This meeting will be recorded.
- Please add your affiliation to your name in the zoom participant window.
- Please use the chat for any questions and to say hello to us.







Bright ideas. Sustainable change





Meeting Purpose:

- Introduce Planning Committee and Project Team and connect with stakeholders
- Review Black River Initiative Background
- Present Black River Adaptive Modeling (BRAM) Project and purpose
- Discuss process, schedule, and water quality data deliverables for BRAM
- Share Google Form Results and get feedback through an interactive watershed activity



View of the Fulton Chain of Lakes from Bald Mountain. Old Forge, NY. Photo by NYSDEC.

• Review next steps

Welcome and Introductions

SPEAKERS/CONSULTANT TEAM

Emily Fell – NYSDEC Great Lakes Program

Jennifer Harvill – Tug Hill Commission

Gabriel Yerdon- Tug Hill Commission

Nichelle Swisher- Lewis County SWCD

Karyn Hanson – NYSDEC

Carolyn Dunderdale - NYSOGS

Tony Eallonardo – Ramboll

Jasmine James – Ramboll

Sheila Hess – CC Environment and Planning

Katlyn Hojnacki – CC Environment and Planning

Overview: Black River Watershed

- 1.2 million square acres (1,875 square miles)
- Includes Jefferson, Lewis, Oneida, Herkimer, and Hamilton Counties
- Headwaters = western Adirondacks, drains into Lake Ontario



Black River Initiative



Additional studies supported the 2010 Black River Watershed Management Plan

oroject components

- Community Outreach
- Socio-Economic Analysis
- Groundwater Assessment



Socioeconomic Characterization and Assessment Prepared By: Camoin Associates

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• Will provide an understanding of demographic and economic trends in the Black River Watershed area that will help to inform other planning processes occurring in region.

 Will highlight economic strengths the region can build on and will outline challenges the region faces as it seeks to improve quality of life and employment opportunities for residents.

(Additional) Stakeholder Outreach Report: Prepared by Bergmann Associates

- Steering Committee Meetings
 - Held throughout process for purpose of information sharing and review
- Visioning Workshops
 - To identify community issues and objectives
- Focus Group Sessions
 - Held with stakeholders to discuss specific topics relevant to study area
- Public Informational Meeting
 - To present economic, groundwater, and community outreach plans

2020 Exercise: If you were to move away from the region, and return in 2020, what would you like to see the same, or different, within the Black River Watershed study area?

- Stronger, diversified economic base
- Recognize unique character of communities and manage growth / change
- Variety of industries
- Same rural communities and landscapes
- More self-reliant regarding energy (alternatives)
- Better organization and access to river
- More amenities for tourists are needed, including overnight lodging and campsites
- Economic development of Lyons Falls Old Mill
- Continued growth in manufacturing
- Balanced development
- Thriving communities
- Same peace, tranquility, and open space
- Green technologies
- Better retention of youth through better jobs
- Preservation of open space and natural resources

Groundwater Assessment Prepared by: Bergmann Associates

- Assess current use and future utilization of groundwater resources
- Potential adverse impact to groundwater resources
- Recommendations for future utilization and protection of groundwater resources
- Recommendations for monitoring program



Black River Watershed Management Plan

Nichelle Swisher Lewis County Soil and Water Conservation District

JAA.

Steering Committee Established





Department of Environmental Conservation





Grant Writing

Technical Assistance Town of Greig *Municipal Applicant & Project Sponsor* Lewis County Soil & Water Conservation District DOS Grant

Administrator



NYS DOS Grant Award

- •Phase I \$80,000
- •Phase II \$80,000
- •NYS Department of State Division of Coastal Resources
- •Funded Title 11 of the Environmental Protection Fund, Local Waterfront Revitalization Program





Contractor Chosen for DOS Grant

The Academy of Natural Sciences



Beaver River

Stillwater Reservoir

Middle Black River

Mill Creek

Deer River

Independence River

Otter Creek

Middle Branch Moose Rive

Fish Creek Upper Middle Black River

Crystal Creek

South Branch Moose River

2010 Moose River Completed Black River Watershed Management Plan

Threats and Impairments Identified in the BRWMP

- Erosion and stream sedimentation
- Stormwater and flooding
- Nutrient inputs and eutrophication
- Hydrological change and stream channel modification
- Fires
- Acidification
- Contamination by pesticides and industrial wastes
- Invasive species
- Climate change

List from the 2010 Black River Watershed Management Plan (BRWMP)



Implementation of Recommendations from the Black River Watershed Management Plan



Partnerships, Collaborations & Education

- Black River Watershed Conference
- Annual Black River Trash Bash
- Water Quality Coordinating Committees Hamilton County
- Lake Monitoring Lewis County
- Water Conservation Education for Elementary School
- Erosion Control Training for Highway
- Permit Assistance and Right Sizing Culverts for Highway



Development, Infrastructure, & Stormwater Management

Lewis County

- Fairgrounds & DSS Stowe Street Green Infr. Project
- Beaver & Sugar River NAACC Assessments and Prioritizations Hamilton County
- Arrowhead Park Green Infr. Jefferson County
- Stormwater Coalition
- Tree Watertown Tree Planting
- City Butler Pavilion Green Infr.
- Village of Black River Green Infr.
- Vacuum Truck Purchase





Wastewater Management

Agricultural Practices and Management

Beaver River Septic System Replacement Program

DEC Water Quality Improvement Project funding and NYS Environmental Facilities Corporation Funding for Wastewater Treatment Improvements



AGNPS Abatement & Control Project BMP Implementation NYS Grown and Certified

Nutrient Management Plans





Floodplain Management

Forestry Practices

- Educating Town Floodplain Managers
- Work with Municipalities to Become Climate Resilient
- Work with Emergency Management and FEMA on Hazard Mitigation

- Improvements to Jefferson County Forest at Evans Mills
- Tree Planting for RFP's in 9 Municipalities





Invasive Species

- Beaver River Purple loosestrife Manual Control
- Black River Watershed Weevil
 Release for Purple Loosestrife Control
- Japanese knotweed Control Injection Demonstration
- Invasive Species Training for Highways
- Hamilton/Herkimer County Japanese Knotweed



Planning & Land Use

- Comprehensive plan updates happening in many watershed communities
- Working with Lewis County IDA on Pilot Solar Projects to Protect Prime and Important Farmland





Recreation

Prepare SEQR's for county trail systems to protect streams, wetlands, species of concern and unique habitats

Black River trail expansion



Watershed Residents Emergency Flood Monitoring System w/

WQ Monitoring System W/



Black River Watershed Management Projects



- Since the Black River Initiative began, 72 actions (projects and initiatives), totaling \$35,812,470, have been completed or are underway
- •Locations of projects between 2010-2020 are pictured on the left

Image key:

- Red = remediation
- Orange = agricultural best management practices (BMPs)
- Brown = wastewater treatment upgrades
- Green = restoration and green infrastructure
- Black = recreation, access, and community renewal

2016 Black River 9 Element (9E) Plan

- Developed to meet federal requirements for watershed plans and help get federal funding
- Goal of the plan: reduce phosphorus, nitrogen, and sediment loading in the watershed
- Priority (HUC11) subwatersheds were identified (brown areas pictured to the right):
 - \circ Mill Creek
 - $_{\odot}\,\text{Lower}$ Black River
 - Lower Middle Black River



Challenges with 9E Plan Implementation

- •HUC11-scale modeling was catalogued as legacy (no longer available to track watershed management implementation)
- •Limited accuracy determining if projects were occurring within a priority subwatershed
- •Tracking metrics such as acres/sq. ft of project, and number of trees planted
- •Agricultural BMP locations are typically confidential but can be tracked at HUC 12 scale

Black River Adaptive Modeling (BRAM)

- •Phase I: Engage with the public, review existing data, identify data needs, and scope out water quality monitoring needed to support model
- •Phase II (planned): Integrate additional monitoring and develop adaptive watershed model at the HUC12 scale to evaluate trends and address challenges to the 9E Plan implementation. This phase is not yet funded.



Red lines delineate HUC12 subwatersheds

Data Collection

Overview:

- •Agricultural practices at the HUC12 level
- Watershed management practices
- Nutrient concentrations
- •Sediment concentrations (total dissolved sediment and total suspended sediment)
- •Topography/Digital Elevation Model (DEM)
- Land cover and land use
- Point sources (flow and nutrient concentration)
- Septic inventory and failure rate
- •Soils
- Meteorological data
- •Water flow and discharge (including stream gauge data)



Moshier Reservoir. Webb, NY. Photo by Emily Fell



Black River Watershed North Central New York State

RAMBOLL

2,500 5,000

0



STREAM AND GROUNDWATER MONITORING SITES

FIGURE 02

RAMBOLL US CONSULTING, INC. A RAMBOLL COMPANY

0	2 500	5 000
-	2,000	0,000
	-	Fe

Feet

USGS Goundwater Data Sites

RIBS Stream Monitoring Sites

USGS Surface-Water Data

Sites

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Black River Watershed North Central New York State





FIGURE 03

RAMBOLL

RAMBOLL US CONSULTING, INC. A RAMBOLL COMPANY

Black River Watershed North Central New York State

NOAA CLIMATE STATIONS

2,500 5,000 0 ___ Feet



Black River Watershed Boundary





FIGURE 04

RAMBOLL

RAMBOLL US CONSULTING, INC. A RAMBOLL COMPANY

BLACK RIVER ADAPTIVE MODELING WASTEWATER TREATMENT PLANTS (SPDES)

Black River Watershed North Central New York State

2,500 5,000 ____ Feet

(SPDES)

Wastewater Treatment Plants

1

0

Types of data to share with team:

- Anecdotal observations (e.g., areas of concern)
- Stream nutrient concentration and flow data
- Bank/sediment erosion
- Agricultural practices (fertilizer, tillage, drainage)
- Lake nutrient concentration and other water quality data
- Photos



Stillwater Boat Launch. Photo by Emily Fell

Data Usability Assessment for Modeling

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1. Overall quality of and level of details in report(s)

2. Formal documentation of procedures

3. Analytical methods used and detection limits achieved

4. Data review, validation, and quality assurance

Criteria

5. Assessment of data quality indicators (DQIs)

6. Data history and overall apparent data quality

Level A – Acceptable, unrestricted use in modeling

Level B – Acceptable, may have some restrictions in modeling

> Level C – Limited use in modeling

Level D – Not used in modeling, may be used for education, cross-checking a model, or as a reference

Data Usability Assessment for Modeling

Quality Assurance Project Plan (QAPP):

written document that provides a blueprint for the entire project and each specific task to ensure that the project produces reliable data that can be used for the potential watershed model

Environmental Laboratory Accreditation Program (ELAP):

program that certifies environmental laboratories through on- site inspections and evaluation of principles of credentials and proficiency testing

Data Gap Analysis

- Evaluate the availability of data meeting quality assurance (QA) standards needed for a watershed model
- Categories missing data
- Spatial distribution gaps
- Summarize project findings, identify quality data gaps, and identify additional data needed to support the calibration of the watershed model
- Present at the Annual Watershed
 Conference



Black River, Great Bend. Photo by Emily Fell



Registration Survey Results - In Review

What is your connection to the Black River Watershed?



In your experience, what changes to land use, water use and/or climate have affected water quality in the Black River watershed?



What are your biggest water quality concerns in the watershed?



Where are the biggest water quality concerns (e.g., subwatersheds or areas with nonpoint source pollution and/or point sources)?



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Have you observed management practices in the watershed that have benefited water quality? Where?

- Town of Webb
 - Septic inspection program
- Combined sewer separation in the City of Watertown
- Grants addressing non-point source pollution
- Stormwater retention ponds in the Town of Watertown
- Installation of local sewerage systems (e.g., Old Forge, Inlet).
- Potentially, centralized wastewater treatment.
- All throughout the Black River Watershed
- Yes wastewater infrastructure improvements in Watertown and Lowville
- Agriculture
- No (x6)

What locations would benefit from additional water quality monitoring?

- Fulton Chain of Lakes (x3)
- Big Moose Lake
- Unsure (x4)
- The entire watershed (x4)
- Smaller Lakes
- Lower Black River
- Black River Bay
- Lake Lila
- Downstream of municipal water treatment plants, CSOs & stormwater outfalls
- Tug Hill Tributaries
- Gauges next to mixed use land
- Forestport, Woodgate, Talcotville, Port Leyden











Next Steps and Discussion



Snow Ridge Ski Resort, Turin, NY

•Comments or questions on BRAM project

•Explore opportunities to support phase II

- •Submit data to Ramboll (email or upload to google) and discuss data usability as needed
 - •Email: jjames@ramboll.com
 - Google folder: <u>https://drive.google.com/drive/folders/18Fub</u> <u>33fIHEeJczb3ET-BksLQjpbBnNG2?usp=sharin</u> g
- •Attend Watershed Conference on June 14th to learn about project outcomes and water data needs

 Check the Tug Hill Commission website for updates: <u>https://tughill.org/projects/black-river-projects/watershed-initiative/</u>