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# EXECUTIVE SUMMARY



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# Executive Summary

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## Introduction

The purpose of this planning effort, the Black Creek Watershed Management Plan, was the formation of a long-term strategy to ensure the protection and restoration of Black Creek water quality and compatible land use and development. The result is this watershed management plan for the protection and enhancement of Black Creek. This briefing describes the Plan's discrete components and the project's process to develop strategies to protect and restore water quality within the Black Creek Watershed.

The Black Creek watershed lies within the Lower Genesee River Basin – part of the larger Lake Ontario Drainage Basin – and occupies 129,422 acres (202 sq. mi.) across portions of Wyoming, Genesee, Orleans, and Monroe Counties of New York State. The watershed overlaps portions of 19 municipalities. The Lower Genesee River Basin has an area of 2,500 square miles and drains the hills and valleys over a wide swath of western New York and part of northern Pennsylvania into the Genesee River, which flows north into Lake Ontario. Of the 17 watersheds that comprise the Genesee River Basin, the Black Creek watershed has the third largest drainage area, constituting approximately 8% of the entire Genesee River Basin.

The Black Creek Watershed Management Plan was developed through a grant by the New York State Department of State (DOS) with funds provided to the Town of Wheatland under Title 11 of the Environmental Protection Fund.

## History of Watershed Protection

Intermunicipal watershed planning began in the Black and Oatka Creek Watershed counties with the Rochester Embayment Remedial Action Plan (RAP), an area identified as an Area of Concern (AOC) since the early 1980's. Since then significant progress has been made towards improving the water quality in the Black Creek watershed.

The Black Creek Watershed Coalition has also been active in watershed planning and stewardship since the late 1990's. With the help of researchers at the State University of New York at Brockport, the Black Creek Watershed Coalition also developed a *State of the Basin* report in 2003. Additional water quality information has become available since with work that was done by Mellissa Jayne Winslow in a thesis submitted to the Department of Environmental Science and Biology of the State University of New York College at Brockport, February 2012, entitled *Water Quality Analysis of Black Creek Watershed: Identification of Point and Nonpoint Source Pollution and Loading Simulation Using the SWAT Model*.<sup>1</sup>

The Upper Black Creek (WI/PWL ID 0402-0048) was listed on the New York State Section 303(d) List of Impaired Waters Requiring a TMDL, which provides the framework that allows states to establish and implement pollution control and management plans. The NYSDEC Priority Waterbodies List (PWL) indicates that most segments are impaired or stressed. Black Creek was listed in 2004 with impairment requiring Total Maximum Daily Load (TMDL) development for phosphorus from agriculture and municipal sources. A draft TMDL was developed by NYSDEC in September 2013 entitled *Total Maximum Daily Load (TMDL) for Phosphorus in Upper Black Creek and Bigelow Creek*.<sup>2</sup>

Modeling by SUNY Brockport researchers in 2013 estimated the total phosphorus load for Black Creek to be 36,376 lb/yr and the sediment load to be  $1.8 \times 10^7$  lb/yr.<sup>3</sup> Areas of significant stream bank erosion in the Lower Black Creek watershed were also noted. Of the 3.2 miles of stream bank surveyed, 32% showed signs of erosion.

### Intermunicipal Cooperation

The basis for intermunicipal cooperation is founded in a Memorandum of Understanding (MOU) between the four counties and 19 municipal governments that geographically fall within the Black Creek Watershed. The MOU will link those municipalities with project partners, county and state officials, watershed groups, and local scientists in an intermunicipal watershed organization.

This “new” intermunicipal organization may replace the Black Creek Watershed Coalition. This group can further the Plan’s goals of preserving, restoring, and enhancing the health of Black Creek through implementation of the *Black Creek Watershed Management Plan*.

### SECTION ENDNOTES

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<sup>1</sup> Winslow, Mellissa Jayne. *Water Quality Analysis of Black Creek Watershed: Identification of Point and Nonpoint Sources of Pollution and Loading Simulation Using the SWAT Model*. 2012. Environmental Science and Biology Theses. Paper 10. [http://digitalcommons.brockport.edu/env\\_theses/10](http://digitalcommons.brockport.edu/env_theses/10)

<sup>2</sup> NYSDEC, *Total Maximum Daily Load (TMDL) for Phosphorus in Upper Black Creek and Bigelow Creek*, September 2013 [http://www.dec.ny.gov/docs/water\\_pdf/draftblackcreektmdl.pdf](http://www.dec.ny.gov/docs/water_pdf/draftblackcreektmdl.pdf)

<sup>3</sup> Makarewicz, Joseph C.; Lewis, Theodore W.; Snyder, Blake; Winslow, Mellissa Jayne; Pettenski, Dale; Rea, Evan; Dressel, Lindsay; and Smith, William B. *Genesee River Watershed Project. Volume 1. Water Quality Analysis of the Genesee River Watershed: Nutrient Concentration and Loading, Identification of Point and Nonpoint Sources of Pollution, Total Maximum Daily Load, and an Assessment of Management Practices using the Soil Water Assessment Tool (SWAT) Model. A report to the USDA*. 2013. Technical Reports. Paper 124. [http://digitalcommons.brockport.edu/tech\\_rep/124](http://digitalcommons.brockport.edu/tech_rep/124)

# Watershed Plan Components

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## Process of Preparing the Plan

The project began in July 2009 with a meeting between project partners, including: the Oatka Creek Watershed Committee (OCWC); the Black Creek Watershed Coalition (BCWC); the Genesee/Finger Lakes Regional Planning Council (G/FLRPC); the Genesee County Soil and Water Conservation District (GCSWCD); Genesee Community College; the Monroe County Planning and Development; and the New York State Department of State (DOS).

The BCWC served as the core of the Project Advisory Committee (PAC). (A joint Oatka Creek and Black Creek Watershed organizational meeting was held on August 10, 2009 to encourage additional participants such as town supervisors and county agency staff.<sup>4</sup>) The BCWC was formed to protect and improve the health of the watershed in 2002. This Black Creek Watershed Management Plan, developed from 2009 to 2014, builds on 2003's *State of the Basin* report,<sup>5</sup> prepared for the BCWC.

Regional Planning Councils are established pursuant to New York State General Municipal Law to address regional issues and assist with local planning efforts. The G/FLRPC supports watershed planning in the Black Creek watershed directly through the acquisition of funding sources for specific projects and indirectly through ongoing land use and water resources planning projects. County Planning departments also offer technical assistance and information regarding land use and related planning issues to municipalities.

Soil and Water Conservation Districts within each county play a critical role in the management of natural resources and agricultural activities in the Black Creek watershed, including applying for funding and implementing projects related to erosion and sediment reduction, streambank remediation, nonpoint source pollution control, and Agricultural Environmental Management (AEM).

Genesee Community College and the State University of New York at Brockport are very active in the Black Creek watershed, conducting various water quality sampling and quantity monitoring studies in support of a variety of short- and long-term projects and programs. Their independent research has significantly advanced the knowledge base within the watershed.

The New York State Department of State helps protect and enhance coastal and inland water resources and encourage appropriate land use through technical assistance for plans and projects that expand public access, restore habitats, and strengthen local economies.

The following documents are components of the Black Creek Watershed Management Plan, and were prepared to ultimately determine recommendations and priority projects in order to enable decision makers, stakeholders and residents to make decisions that will ultimately improve and protect the water quality of Black Creek and its tributaries:

- A community education and outreach program on water quality and quantity and watershed protection issues, completed in 2009;
- A characterization of the watershed and its constituent sub-watersheds, land use and land cover, demographics, natural resources, and infrastructure, completed in 2012;
- An evaluation of subwatersheds through existing water quality data, run-off characteristics, and pollutant loadings, completed in 2013;
- Establishment of a formal Intermunicipal Organization;
- Evaluation of government and non-government organizations, local laws, plans, programs, and practices that have an impact on water quality in the watershed, completed in 2013; and

- An implementation strategy, including the identification of watershed-wide and site-specific projects and other actions necessary to protect and restore water quality, completed in 2014.

A summary of each component can be found below. These documents can be found in their entirety at the websites listed in each summary section.

### Community Outreach and Education

Community outreach was a significant part of the planning process. The *Community Outreach and Education Plan* was developed to clarify and define the variety of forums and outreach mechanisms used to engage people in the Black Creek Watershed Management Plan. Guided by the PAC, G/FLRPC, and the respective county Soil and Water Conservation District representatives reached out to a broad set of stakeholders.

The *Community Outreach and Education Plan* report includes brief guidance on the plan's structure and process:

- Regular PAC Meetings
- Project Website
- Identification of Watershed Stakeholders
- Consultations, Discussions, and Reporting
- Special Stakeholder Focus Groups, Meetings and Key Contact Interviews
- Public Information Meetings

The *Community Outreach and Education Plan* defined the role of the PAC: its purpose; membership; chairperson; public participation protocol; meeting notification, scheduling, format, and location. PAC meetings were held to manage the project's progress, prepare and review draft documents, and advise the participating members of the PAC of project business or materials. Meetings of the Black Creek PAC were open to the public (and used the consensus form of decision-making) to encourage broad participation among all residents and municipal officials throughout the watershed.

The PAC also included various additional "Key Contacts": representatives from each watershed community, County Planning Departments, County Soil and Water Conservation Districts, the NYS Department of Environmental Conservation, and environmental, recreational, historic preservation and economic development interests such as conservationists, boaters, and other regional recreation and trail groups.

The *Community Outreach and Education Plan* included the protocol for arranging at least two public information meetings and for outreach to special focus groups such as property owners, business owners, farmers, local highway superintendents, and local code enforcement officers.

### Watershed Characterization Report (2012)

The *Black Creek Watershed Characterization Report* describes, or characterizes, the condition of natural resources and the built environment in the watershed. It is an environmental inventory containing a wealth of data on the watershed's character, including the 202 square miles of drainage areas and subwatersheds that make up Black Creek. The 221-page *Characterization* contains over 50 maps, figures, and tables produced by project consultants at EcoLogic and the staff of the G/FLRPC. Building on previous work completed by SUNY College at Brockport researchers for the 2003 *Black Creek Watershed – State of the*



*Basin* report,<sup>6</sup> the *Characterization* report is the most comprehensive scientific report on Black Creek to date.

The Black Creek watershed lies within the Lower Genesee River Basin – part of the larger Lake Ontario Drainage Basin – and occupies 129,422 acres (202 sq. mi.) across portions of Wyoming, Genesee, Orleans, and Monroe Counties of New York State. The watershed overlaps portions of 19 municipalities. The Lower Genesee River Basin has an area of 2,500 square miles and drains the hills and valleys over a wide swath of western New York and part of northern Pennsylvania into the Genesee River, which flows north into Lake Ontario. Of the 17 watersheds that comprise the Genesee River Basin, the Black Creek watershed has the third largest drainage area, constituting approximately 8% of the entire Genesee River Basin.

The primary water quality issues in Black Creek are nutrients, invasive species and contaminants. Streambank erosion and agriculture were cited as the suspected sources of the excessive nutrients and sediments.

The *Characterization* report is comprised of the following sections:

1. Project Overview and Background
2. Description of the Study Area
3. Physical Characteristics of the Watershed
4. Planning Considerations
5. Surface Water Chemical Characteristics
6. Biological Characteristics
7. Identification of Impairments and Threats

## **Project Overview and Background**

This section describes the history of past Black Creek watershed planning efforts and the background of the current plan, including the intermunicipal – yet separate – planning effort with Oatka Creek. The *Characterization* report is intended to facilitate the development of an overall strategy to protect and restore water quality within the Black Creek watershed by establishing a reliable inventory of existing vital and accurate information, identifying any significant knowledge gaps, and building on previous work already begun in the *State of the Basin* report.

## **Description of the Study Area**

This section provides an overview of the study area and explains how a watershed can be defined and delineated. A watershed may be described as a geographic area of land drained by a river and its tributaries to a single point. A watershed's boundaries are generally defined by the highest ridgeline around the stream channels that meet at the lowest point of the land; at this point, water flows out of the watershed into a larger river, lake, or ocean. Watersheds can be small and represent a single river or stream within a larger drainage network or be quite large and cover thousands of square miles.

The Black Creek watershed lies within the Lower Genesee River Basin – part of the larger Lake Ontario Drainage Basin – and occupies 129,422 acres (202 sq. mi.) across portions of Wyoming, Genesee, Orleans, and Monroe Counties of New York State. The watershed overlaps portions of 19 municipalities:

- Bergen Village
- Churchville Village

- Town of Middlebury
- Town of Clarendon
- Town of Wheatland
- Town of Ogden
- Town of Batavia
- Town of Sweden
- Town of Elba
- Town of Bethany
- Town of Stafford
- Town of Bergen
- Town of Byron
- Town of Chili
- Town of Riga

(The Town of Pavilion, Scottsville Village, the Town of LeRoy, and the City of Batavia have less than 1% of their total land area within the watershed and thus were excluded from detailed analysis in this report.) The Lower Genesee River Basin has an area of 2,500 square miles and drains the hills and valleys over a wide swath of western New York and part of northern Pennsylvania into the Genesee River, which flows north into Lake Ontario. Of the 17 watersheds that comprise the Genesee River Basin, the Black Creek watershed has the third largest drainage area, constituting approximately 8% of the entire Genesee River Basin.

The USDA's National Resource Conservation Service designates all water bodies in the United States through hydrological units, or HUCs. The Black Creek is a Fifth level, or watershed HUC, with the assigned 10-digit HUC # 0413000306. The Black Creek HUC has six subwatersheds, all assigned a 12-digit HUC: Spring Creek (041300030601); Black Creek Headwaters (041300030602); Robins Brook (041300030603); Hotel Creek (041300030604); Mill Creek (041300030605); and the Black Creek Outlet (041300030606).

An ecoregion is a biological designation useful for making comparisons in ecosystems by type, quality, and quantity of environmental resources. The Black Creek sits in a Level IV ecoregion known as the Ontario Lowlands, largely defined by the extent of glacial Lake Iroquois. (A very small area of the southern-most portion of the Black Creek watershed is located in the Cattaraugus Hills Level IV ecoregion, which is a subset of the Northern Allegheny Plateau Level III ecoregion.) The relative proximity of the Ontario Lowlands ecoregion to Lake Ontario tempers its climate, so that that summer heat and winter cold are lessened. The climate in and around the Black Creek watershed is generally defined as humid-continental and the average annual precipitation in the Black Creek watershed ranges between 33 and 39 inches per year, depending on the location within the watershed.

### Physical Characteristics of the Watershed

The physical makeup of the Black Creek watershed is explained through bedrock and surficial geology, location of mines, geomorphology, geography, hydrology, climate, soils, elevation, demographics, and land use (including a build-out analysis). Much of the physical form of the Black Creek watershed is owed to the long-ago advancement and retreat of glaciers, and the modern streams that resulted still flow in low floodplain areas and nourish wetland swamps and deposit alluvial sediments. The dissolution of soluble rocks such as the limestone, dolostone, and gypsum in the bedrock of the Black Creek watershed

have resulted in karst areas, underground drainage systems sensitive to fertilizer application and with potential for groundwater contamination.

More than half (52%) of the soils in the Black Creek watershed have a moderately low runoff potential and 42% have a moderately high to high runoff potential. Nine percent of the acreage in the Black Creek watershed sits at or below the 100-year flood elevation, further illustrating the importance of watershed planning in a future of higher levels of precipitation. Groundwater flows northward from the aforementioned Allegheny Plateau and discharges into Lake Ontario. Deviations from this path may locally be affected by discharges into surface waters or withdrawal from surface waters.

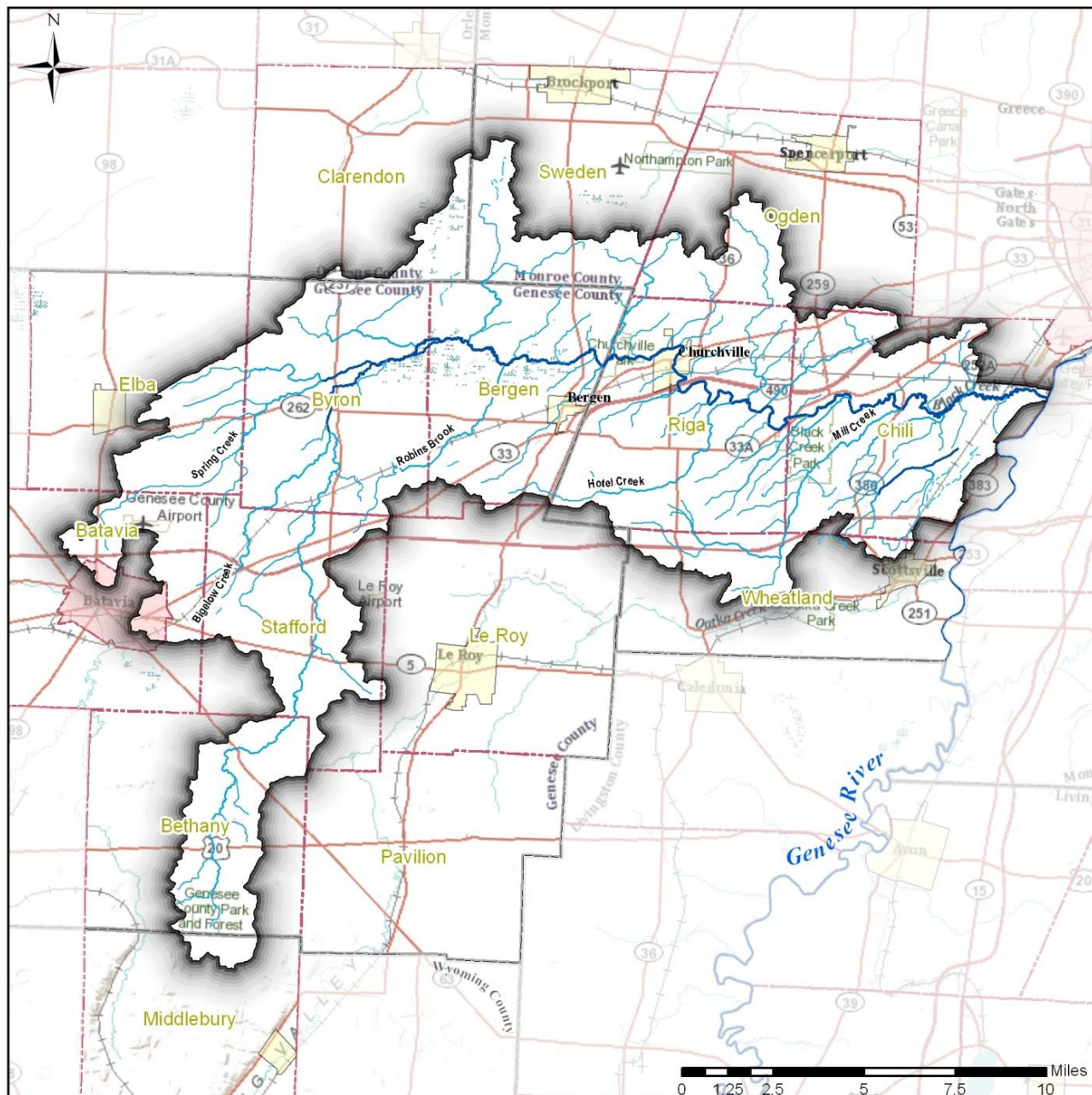
The main stem of the Black Creek flows for 52.6 miles across the counties of Wyoming, Genesee, Orleans and Monroe until it empties into the Genesee River. Black Creek's headwaters originate at 1,150 feet above sea level in the Town of Middlebury. At Creek-mile point 52, the Black Creek meets the Genesee River (elev. ~523') just north of the Ballantyne Bridge at the intersections of State Routes 383 and 252 in the Town of Chili.

Almost half (48.5%) of the land in the Black Creek watershed – over 60,000 acres – is used for agricultural purposes, largely pasture hay and cultivated crops. The watershed is 27% residential, 11.6% vacant, and 4.2% wild, forested or conserved lands. The Black Creek watershed has over 20,000 total acres of wetlands; about 13,600 of those wetland acres are regulated by New York State's Freshwater Wetlands Act. The watershed has a relatively low percentage of impervious cover, though more research is needed to quantify the areas of effective impervious cover in its urbanized areas.

### Planning Considerations

This section provides an overview of organizational structures, land uses, and regulatory measures relevant to environmental planning in the Black Creek watershed, beginning with the history of research, planning, and assessment on the Rochester Embayment Remedial Action Plan in the late 1980's. The Black Creek Watershed Coalition was formed in April 2002 and has tallied a number of notable accomplishments for the watershed over the twelve years since its inception. This section also contains information on federal, state, and local government entities as well as local regulations in the watershed, a topic further explored in the subsequent *Regulatory and Programmatic Environment Report*.

The watershed's 2000 estimated population is just fewer than 50,000 people. The most significant population increases are concentrated in the municipalities near the outlet of the watershed, which are also the most suburbanized towns in the watershed. An estimated build-out analysis is available in Table 4.13.



1. *Journal of Management Studies*, 1996, 33, 1, 1-14.



Environmental Management (AEM) and the State Pollution Discharge Elimination System (SPDES) programs. Following this is an examination of pollutants in the watershed, including permittees governed by SPDES, EPA regulated facilities, hazardous waste sites, spills, and landfills.

### Surface Water Chemical Characteristics

This section explains the science behind water quality criteria, data collection, and its subsequent analysis in relation to the classification of surface waters in the state (precluded, impaired, stressed, or threatened.) Much of Black Creek is classified as impaired, which underscores the need for additional research such as the recent draft Total Maximum Daily Load (TMDL) analysis based on the US EPA's guidance on Water Quality Planning and Management Regulation and New York State's Priority Waterbody Listings (PWL).

This section also includes a water quality data summary which further explains the data collection and monitoring results over many decades in the Black Creek, including statistics for concentrations of phosphorus, nitrogen, and total suspended solids (TSS).

### Biological Characteristics

This section analyzes collected data on coliform bacteria from on-site wastewater disposal systems (septic systems), wastewater treatment facilities and animal feeding operations, including pastured animals with access to streams, confined animal feeding operations (CAFOs), and run-off from manured fields. It also presents data on macroinvertebrates, fish, birds, and other species that call the creek home.

### Identification of Impairments and Threats

This section summarizes a complex and varied group of watershed "issues" organized into specific categories that lay the groundwork for a completed watershed strategy and subsequent implementation program, including agriculture, climate change, failing septic systems, habitat fragmentation, industrial and municipal discharges, nuisance and invasive species, spills, contamination, stormwater management, streambank erosion, and water quantity, flow, and channel maintenance.

These water quality issues identified in the *Black Creek Watershed Characterization Report* were considered and evaluated to formulate specific practices, approaches and strategies to better protect, restore and enhance water quality and watershed functions of Black Creek in the final component of the watershed plan, the *Identification and Description of Management Practices, Approaches and Strategies for Watershed Protection and Restoration & Implementation Strategy and Schedule*.

The *Black Creek Watershed Management Plan: Characterization Report* is available at:  
<http://www.gflrpc.org/uploads/5/0/4/0/50406319/blackcreekcharacterizationinwmp.pdf>

### *Subwatershed Report (2013)*

The *Subwatershed Report*<sup>7</sup> provides a description of Black Creek's natural features such as hydrology, floodplains, and wetlands. Along with consideration of water quality within the subwatersheds or stream segments, the report evaluates Black Creek's subwatersheds according to impairments and/or threats to water quality and habitat, and identifies priority subwatersheds for focused, nonpoint source pollution management action.

The Black Creek Headwaters is the largest or second largest subwatershed in most categories based on Characteristics of Streams and Associated Subwatersheds in the Black Creek Watershed. This is an

important consideration given the nature of the upper part of the Black Creek Watershed: largely agricultural with steep slopes and a significant number of Section 303(d) Impaired/TMDL Waters. The mid-section of the Black Creek Watershed, the Robins Brook and Hotel Creek subwatersheds are characterized by fairly high wetland concentration, floodplains, and fairly low slope. This is largely agricultural and forested lands outside of the Village of Churchville and Bergen. The downstream portions of the Black Creek Watershed, that of the Black Creek Outlet and Mill Creek subwatersheds are characterized by low relief, large floodplains, more developed land cover, and outside of the City of Batavia, the highest population density as well as a high percentage of the 303(d) Impaired/TMDL Waters and Section 303(d) Listings in the watershed.

Also included in the report is more recent analysis based on water quality information found in Mellissa Jayne Winslow's *Water Quality Analysis of Black Creek Watershed: Identification of Point and Nonpoint Sources of Pollution and Loading Simulation Using the SWAT Model*,<sup>8</sup> a thesis submitted to the Department of Environmental Science and Biology of the State University of New York College at Brockport.

The *Black Creek Watershed Management Plan: Subwatershed Report* is available at:  
<http://www.gflrpc.org/uploads/5/0/4/0/50406319/blackcreeksubwatershedreportinwmp.pdf>

### *Regulatory and Programmatic Environment Report (2013)*

A *Regulatory and Programmatic Environment Report* is an assessment of federal, state, and local laws, programs and practices that affect water quality was conducted for the entire watershed, in order to determine gaps between present laws/practices and model best management practices (BMPs), and to provide specific recommendations to each watershed municipality to address those gaps and improve water quality. Each municipality was provided with its own individual assessment based on a review and evaluation of laws, practices, and plans.

Many of the gaps in local laws and practices across the watershed are similar. Recommendations are specifically presented for each municipality based on the report, but also refer to recommendations that are applicable to multiple municipalities, such as amending a comprehensive plan or developing subdivision regulations. These recommendations may be used as a starting point to help municipalities and counties hone in on top priorities, determine what additional information is needed, and what steps are needed for implementation.

Generally, the regulatory deficiencies found in the *Regulatory and Programmatic Environment Report* are related to lack of stream or riparian buffers, and outdated floodplain regulations. Additionally, a number of municipalities within the watershed are utilizing obsolete zoning ordinances. This is reflected in the planning matrix, in both the sections on Stormwater Management & Erosion Control and Regulatory Management. The highest recommendation, though inconsistently prioritized across the planning matrix, is the adoption of stream buffer setbacks to reduce the amount of harmful runoff and sedimentation caused by land use activities, achieved through an environmental protection overlay district (EPOD) or setbacks from waterbodies within the zoning code. The other highly prioritized actions are related to management of water quantity and water quality, such the creation of green infrastructure standards, the expansion of agricultural and soil health initiatives that provide technical assistance and incentives to implement best practices, and the restoration of very severely eroded streambank segments.

Water quality management is a regional issue and thus collaboration and standardization of strategies can be beneficial to all. The inclusion of some standardized recommendations is intended to facilitate the sharing of information between counties and municipalities; collaboration and standardization can make initial efforts more efficient and allow groups to focus on implementation work. Some examples of recommendations proposed to improve water quality through the reduction of nonpoint source pollution focus on increased participation in Agricultural Environmental Management Program; creation of riparian buffers; strengthened floodplain, onsite wastewater treatment, and subdivision regulations; development of green infrastructure standards; updating site review procedures; and recommendations based on stream monitoring, best management practices and education and outreach. Recommendations found in the *Regulatory and Programmatic Environment Report* are grouped together by municipality, and can also be cross-referenced in the overall implementation matrix.

The *Regulatory and Programmatic Environment Report* provides a broad overview of the regulatory and programmatic environment in the Black Creek watershed as well as specific analysis of the land use laws governing 19 municipalities – excluding four municipalities that have less than 1% of their total land area within the watershed – and four counties. The assessment is intended to determine gaps between present laws/practices and model best management practices (BMPs).

The assessment contains:

- Evaluation of government and non-government roles:
  - Descriptions of local, county, regional, state, and federal organizations that have an impact on water quality in the watershed
- Analysis of local laws, plans, programs, and practices affecting the watershed:
  - Assessment of local laws, plans, programs, and practices based on water quality best management practices (BMPs);
  - Recommendations for priority additions or changes to local laws, plans, programs, and practices.

The *Black Creek Watershed Management Plan: Regulatory and Programmatic Environment Report* is available at:

[http://www.gflrpc.org/uploads/5/0/4/0/50406319/final\\_black\\_creek\\_regulatory\\_and\\_programmatic\\_environment\\_reportinwmp.pdf](http://www.gflrpc.org/uploads/5/0/4/0/50406319/final_black_creek_regulatory_and_programmatic_environment_reportinwmp.pdf).

## **Intermunicipal Cooperation and Intermunicipal Organization**

The basis for intermunicipal cooperation is founded in a Memorandum of Understanding (MOU)<sup>9</sup> between the four counties and 19 municipal governments that geographically fall within the Black Creek Watershed. The MOU would link those municipalities with project partners, county and state officials, watershed groups, and local scientists in an intermunicipal watershed organization. Article 12-C of New York State General Municipal Law authorizes formation of joint survey committees for this purpose.

The recommended Intermunicipal Organization Memorandum of Understanding (IO MoU) can help municipalities work together to implement the Watershed Management Plan – ultimately preserving, restoring, and enhancing the health of Black Creek through efforts in adopting improved ordinances, greater code enforcement, water monitoring, and staff training.

For more information on Intermunicipal Cooperation, please consult the Local Government Management Guide<sup>10</sup> published by the New York State Office of the State Comptroller. It contains a wealth of

information on recommended practices, cooperative studies, communication between parties and stakeholders, and how best to implement an intermunicipal agreement.

An example Intermunicipal Organization MOU is available in the Appendix of the Identification and Description of Management Practices, Approaches, and Strategies for Watershed Protection and Restoration & Implementation at:

<http://www.gflrpc.org/uploads/5/0/4/0/50406319/blackidentificationanddescriptioninwmp.pdf>.

### SECTION ENDNOTES

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<sup>4</sup> *Intermunicipal Planning for the Black and Oatka Creek Watersheds*: “Organizational Meeting – August 10, 2009.” <http://gflrpc.org/Publications/BlackOatka/081009MeetingSummary.pdf>

<sup>5</sup> Autin, Whitney J., Mark Noll, James Zollweg. *Black Creek Watershed – State of the Basin*. July 2003. <http://www.blackcreekwatershed.org/docs/v3contents.pdf>

<sup>6</sup> Autin, Whitney J., Mark Noll, James Zollweg. *Black Creek Watershed – State of the Basin*. July 2003. <http://www.blackcreekwatershed.org/docs/v3contents.pdf>

<sup>7</sup> *Black Creek Watershed Management Plan: Subwatershed Report*. 2013. <http://gflrpc.org/Publications/BlackOatka/Subwatershed/BlackCreekWatershedSubwatershedReport.pdf>

<sup>8</sup> Winslow, Mellissa Jayne, “Water Quality Analysis of Black Creek Watershed: Identification of Point and Nonpoint Sources of Pollution and Loading Simulation Using the SWAT Model” (2012). Environmental Science and Biology Theses. Paper 10. [http://digitalcommons.brockport.edu/env\\_theses/10](http://digitalcommons.brockport.edu/env_theses/10)

<sup>9</sup> “Intermunicipal Organization MOU.” <http://www.gflrpc.org/Publications/LocalLaws/Manual/AppendixE13.pdf>

<sup>10</sup> New York State Office of the Comptroller, Division of Local Government and School Accountability. *Local Government Management Guide: Intermunicipal Cooperation*. November 2003. <http://www.osc.state.ny.us/localgov/pubs/lgmng/intermunicipal.pdf>



## Identification and Description of Management Practices, Approaches and Strategies for Watershed Protection and Restoration & Implementation Strategy and Schedule

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Recommendations were developed in order to address a number of areas of concern. These recommendations are presented in the *Regulatory and Programmatic Environment Report* and in the *Identification and Description of Management Practices, Approaches and Strategies for Watershed Protection and Restoration & Implementation Strategy and Schedule* section. The matrix in this section represents the culmination of years of deep research into the current conditions of Black Creek. The matrix includes recommendations that are presented in the *Regulatory and Programmatic Environment Report*, and shows specific steps and strategies needed to complete an action, the groups responsible for completing the actions, and the timeline by which the tasks must be completed.

The matrix includes priority assignments, actions, objectives, steps, strategies, anticipated reductions and water quality improvements, benefits, related issues, lead organizations, potential funding sources, long- and short-term measures, approximate cost, and regulatory approvals in the following areas of concern for Black Creek:

**Coordination, Collaboration & Partnership Recommendations** – This set of recommendations addresses the need for improved collaboration amongst watershed municipalities, citizens and stakeholders; addresses the need for continuous water resource related monitoring activities; and identifies specific educational opportunities. The strongest recommendations are to present information on achievements in watershed planning to municipal boards and to develop an intermunicipal organization. Shared practice allows for better design, better maintenance, and economic incentives that can deliver higher performance and lower cost. Specific recommendations pertaining to Coordination, Collaboration & Partnership opportunities can be found in the *Identification and Description of Management Practices, Approaches and Strategies for Watershed Protection and Restoration & Implementation Strategy and Schedule* section.

**Agriculture** – Farming can have a negative effect on water quality through erosion of crop land, sedimentation, and runoff contaminated with fertilizers or animal wastes. This section includes some of the highest prioritized actions of all the recommendations in the watershed, including the recommended expansion of agricultural and soil health initiatives that provide technical assistance and incentives to implement practices, such as cover cropping, nutrient management, conservation tillage, conservation cropping systems. Further specific recommendations pertaining to agriculture can be found in the *Identification and Description of Management Practices, Approaches and Strategies for Watershed Protection and Restoration & Implementation Strategy and Schedule* section.

**Stormwater Management & Erosion Control** – Stormwater runoff contains pollutants such as nutrients, pathogens, sediment, toxic contaminants, and oil and grease, resulting in water quality problems. This section's highest recommendation is to restore very severe streambank segments, focusing on restoring these critical processes that form, connect, and sustain habitats. Protecting these stream banks is vital to controlling sediment loading and maintaining the rock structures and vegetation helps prevent erosion. This is an important consideration given the nature of the upper part of the Black Creek Watershed: largely agricultural with steep slopes with a significant number of Section 303(d) Impaired/TMDL Waters, Priority Waterbodies List (PWL) and Section 303(d) Listing sections. Thus the other highest priorities in this category are the restoration of severely eroded streambank segments, the creation of green infrastructure standards, and the integration of Stormwater Management & Erosion Control Laws into zoning, subdivision, and site plan review controls. Further specific recommendations pertaining to stormwater management and erosion control can be found in the *Identification and*

*Description of Management Practices, Approaches and Strategies for Watershed Protection and Restoration & Implementation Strategy and Schedule section.*

**Forestry and silviculture management** – Sustainable forestry balances preserving the integrity of our forests with economic development and maintaining our diverse wildlife population while minimizing damage to the agriculture and rural communities. An array of tools is available from the New York State Cooperative Forest Management Program; further details are available in the *Identification and Description of Management Practices, Approaches and Strategies for Watershed Protection and Restoration & Implementation Strategy and Schedule section.*

**On-Site Wastewater Management Systems (OWTS)** – The number one source of nonpoint source pollution in New York State is on-site wastewater treatment systems. The highest recommendation in this category is the adoption of a uniform sanitary law throughout the Black Creek Watershed. There are a number of successful collaborative septic inspection programs already existing in the region that are good sources for shared information and case studies. Further specific recommendations pertaining to on-site wastewater treatment systems can be found in the *Identification and Description of Management Practices, Approaches and Strategies for Watershed Protection and Restoration & Implementation Strategy and Schedule section.*

**Wastewater Treatment Plant Systems (WWTPS)** – One of the highest overall recommendations for the Oatka Creek watershed is the upgrading of the Bergen WWTP based on monitoring results analyzed before and during construction upgrades to the plant. Complete analysis of other monitoring results downstream from the Bergen WWTP is still outstanding. Further specific recommendations pertaining to wastewater treatment systems and management can be found in the *Identification and Description of Management Practices, Approaches and Strategies for Watershed Protection and Restoration & Implementation Strategy and Schedule section.*

**Hazardous Waste Management** – The highest-ranked priority in the Black Creek is the implementation of a watershed-wide hazardous waste pick-up or drop-off. This action educates the public and provides an opportunity to safely dispose of hazardous products, which keeps dangerous wastes out of landfills, lowering the environmental risks associated with improper disposal. Further specific recommendations pertaining to hazardous waste management can be found in the *Identification and Description of Management Practices, Approaches and Strategies for Watershed Protection and Restoration & Implementation Strategy and Schedule section.*

**Roads and Highways** – The highest-ranked priority in this section is the promotion of sensible de-icing strategies and best management practices for winter maintenance, including a salt management plan, development of an anti-icing strategy, and precision application techniques. Further specific recommendations pertaining to highway department practices can be found in the *Identification and Description of Management Practices, Approaches and Strategies for Watershed Protection and Restoration & Implementation Strategy and Schedule section.*

**Wetlands, Riparian Zones, and Floodplains** – Floodplains act as a check valve for streams; they allow water to be slowed down, to dissipate energy after a rainstorm or snow melt. FEMA's 2014 draft Discovery report indicates an average annualized loss of \$5.7B concentrated around Oatka Creek, Black Creek, the Genesee River, and Spring Creek, making this a critical recommendation area both environmentally and economically. The highest recommendation under this heading is for all municipalities to review disturbances within 100 ft. of all natural wetlands and to prohibit discharge of stormwater to wetlands without prior treatment. More specific recommendations pertaining to wetlands,

riparian zones, and floodplains can be found in the *Identification and Description of Management Practices, Approaches and Strategies for Watershed Protection and Restoration & Implementation Strategy and Schedule* section.

**Regulatory management** – The highest recommendation is to adopt stream buffer setbacks to reduce the amount of harmful runoff and sedimentation caused by land use activities, achieved through an environmental protection overlay district (EPOD) or setbacks from waterbodies within the zoning code. Another highly prioritized action is the recommendation for municipal and county agency training on the specifics of federal and state regulations and programs, and funding as it relates to nonpoint source pollution and water quality. Further specific recommendations pertaining to regulatory management can be found in the *Identification and Description of Management Practices, Approaches and Strategies for Watershed Protection and Restoration & Implementation Strategy and Schedule* section.

**Nutrient and contaminant inputs to surface waters** – Continuing the emphasis on nutrient loading and sediment reduction strategies, this section covers recommendations ranging from the highest prioritized action, the development of nutrient and sediment reduction strategies for Black Creek subwatersheds and continued cooperation with NYSDEC’s TMDL project. Further specific recommendations pertaining to the reduction of nutrient and contaminant inputs to surface waters can be found in the *Identification and Description of Management Practices, Approaches and Strategies for Watershed Protection and Restoration & Implementation Strategy and Schedule* section.

**Natural Resource and Habitat Protection** – The highest ranked priority is leadership and support for further research and monitoring to improve early detection and management of invasive species. The Finger Lakes PRISM (Partnership for Regional Invasive Species Management) is a cooperative partnership in central New York focused on reducing the introduction, spread, and impact of invasive species through coordinated education, detection, prevention and control measures. Other related recommendations pertaining to invasive species can be found in the *Identification and Description of Management Practices, Approaches and Strategies for Watershed Protection and Restoration & Implementation Strategy and Schedule* section.

The complete *Identification and Description of Management Practices, Approaches and Strategies for Watershed Protection and Restoration & Implementation Strategy and Schedule* section can be found at: <http://www.gflrpc.org/uploads/5/0/4/0/50406319/blackidentificationanddescriptioninwmp.pdf>.

## Next Steps

The basis for intermunicipal cooperation was founded in a Memorandum of Understanding (MOU) between the four counties and 19 municipal governments that geographically fall within the Black Creek Watershed. The MOU will link those municipalities with project partners, county and state officials, watershed groups, and local scientists in an intermunicipal watershed organization.

This “new” intermunicipal organization will replace the Black Creek Watershed Coalition (BCWC). This group can further the Plan’s goals of preserving, restoring, and enhancing the health of Black Creek through efforts in adopting improved ordinances, greater code enforcement, water monitoring, and staff training. The IO/MOU document has been circulated to all watershed municipalities.

The Memorandum of Understanding document does not request or require funding from municipalities. BCWC members (agencies, DEC, etc.) and municipalities not in the watershed but with interest in creek

water quality may be non-voting *ex-officio* members of the council. The importance of the formal watershed management plan adoption by a municipal council in accessing grant funding for implementation of water quality protection measures was emphasized.

The key next steps for the Black Creek Watershed Management Plan's advancement are:

- BCWC and the PAC continuing to work with municipalities to sign the IO/MOU;
- An organizational meeting of the IO scheduled by the end of 2014;
- BCWC continuing its mission to shift the focus of water quality issues from political boundaries to watershed boundaries;
- Implementation of the Oatka Creek Watershed Management Plan; and
- Finding funding for the advancement of research in identified knowledge gaps, as delineated below.

As the data and related information reported in the *Characterization* is not exhaustive, pursuing funding to close gaps in knowledge is essential. The following specific gaps in research and monitoring criteria should be considered when seeking and applying for implementation funding:

- Securing a funding stream to classify and bring substandard septic systems into compliance;
- Continue to partner with FEMA's Discovery Risk MAP (Mapping, Assessment, and Planning) program to identify communities and areas at risk of flooding and solutions for reducing that risk;
- Continue to participate in NYSDEC's TMDL program where needed;
- Monitoring of fish and macroinvertebrate distributions, heavy metal concentrations, and other associations in the watershed's tributaries;
- Linkages between stream corridors, sediment transport, and habitat availability and quality; and
- Developing a historical record of heavy metals, organic and other potentially toxic compounds for the watershed.