BUFFALO NIAGARA RIVERKEEPER®

Riverwatch

2014 Water Quality Report

Riverwatch 2014

Water Quality Report

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Cover Image: The Wild Center

Dear Citizen,

Thank you for reading the 2014 Riverwatch Water Quality Report! We live in a special place. Our location on the Great Lakes, with access to 20% of the world's fresh water, is our region's most precious asset. Healthy water is the key to a healthy ecosystem, community, and economy. Riverkeeper is leading our region's effort to protect and restore our waterways and create resilient watersheds in Western New York. Much like a physician taking your vital signs, we can measure important properties that give a picture of the overall condition of our streams and rivers. The Riverwatch Program consists of dedicated volunteers, interns and staff who work together to keep a watchful eye on the watershed, and is just one of many Citizen Action programs directly connecting people like you to the water.

This year's report includes information from three distinct projects within Riverwatch. Our volunteer program consists of teams that monitor 52 sites on the Niagara River and all its major tributaries once a month from April through November. They collect general water quality parameters such as Conductivity, Dissolved Oxygen, pH, and Turbidity. The report displays the results of their efforts by comparing collected data to state water quality standards, giving each site a letter grade and comparing with data collected from last season. The Young Environmental Leaders Program mentorship is a study of five urban public access sites conducted by two paid Buffalo Public High School interns and their teachers. The study focused on E. *coli* bacteria in urban waterways, which is an indicator of sewage pollution and is used to determine if water is safe for human contact. The details of their findings are discussed and displayed. Under the Buffalo River Remedial Action Plan, Riverkeeper staff has been monitoring *E. coli* levels at three public access sites in the Upper Buffalo River watershed since 2012. The report includes this year's results, as well as comparisons to 2012 and 2013.

Riverkeeper needs your help and support if we are to realize a truly healthy watershed, community and economy. In this document, we have included direct actions that you can take to become a steward of water quality. They include both opportunities to directly engage with Riverkeeper as well as steps you can take at home. I hope that this report can expand your knowledge of our wonderful Niagara River Watershed. If you have any questions on any of the information in the report, please feel free to contact me directly.

Sincerely,

Christopher J Murawski

Chris Murawski
Citizen Engagement Programs Manager

This report summarizes our testing results in two different ways:

1. Water Quality Standards

Comparison to State Water Quality Standards created by the NYSDEC under the Clean Water Act (CWA)[1]

The CWA establishes the basic structure for regulating discharges of pollutants into the waters of the United States and regulating quality standards for surface waters.

Our State Environmental Agency, the NYSDEC, is authorized by the CWA to create these standards and does this by:

1. Designating Best Uses for each waterway based on an evaluation called the Waterbody Inventory every two years.[2]

- **A Source of Drinking Water**
- **Swimming (Primary Contact Recreation)**
- **Wading and Paddling (Secondary Contact Recreation)**
- **Fishing**

2. Evaluating the "Best Uses" for each stream and designating a stream class to support these uses.

Stream Classes and Their Best Uses

A : Special. A source of water supply for drinking, culinary or food processing purposes; primary and secondary contact recreation; and fishing. The waters shall be suitable for fish, shellfish, and wildlife propagation and survival.

B : **Primary and secondary contact recreation and fishing.** These waters shall be suitable for fish, shellfish, and wildlife propagation and survival.

C : **Fishing.** These waters shall be suitable for fish, shellfish, and wildlife propagation and survival. The water quality shall be suitable for primary and secondary contact recreation, although other factors may limit the use for these purposes.

3. Setting standards for each waterway to support the uses for each class.
Here are the standards for the parameters we test[3]:

Parameter	Standard
Dissolved Oxygen	No less than 6.0 mg/L for Niagara River No less than 4.0 mg/L for all other streams
Conductivity[4]	Between 150 and 500 ùs/cm
pH	Between 6.5 and 8.5
Turbidity	No more than 5.0 NTU

2. Water Quality Index

Giving each point a numerical and letter grade using a Water Qulity Index (WQI).

A Water Quality Index provides a single number (like a grade) that expresses overall water quality at a certain location and time period based on multiple water quality parameters. The objective of an index is to turn complex water quality data into information that is understandable and useable by the public. Riverkeeper developed a WQI based on the parameters collected and adaptation from the National Sanitation Foundation's (NSF) WQI.

1. Each parameter was given a weight based on how influential they are on determining water quality.

Parameter	Weight
Dissolved Oxygen	.24
Conductivity (TDS)	.20
Turbidity	.20
pH	.18
ΔT	.18
Total	**1.0**

2. The average seasonal value for each parameter was calculated for each site and plugged into equations created by the NSF which yielded a number known as a Q value.

3. Q values for each parameter were multiplied by the weighting factor and added together to get the WQI number grade out of 100 for each site.

Example: Reservoir Park
(97 *0.24) + (64*0.20) + (84*0.20) + (78*0.18) + (88*0.18) = 83
DO Cond. Turb pH ΔT Total

4. WQI values were then given a grade A through F based on the following scale:
A = 90-100 **B** =80-89 **C** =70-79 **D** =60-69 **F** = 59 and below

Reservoir Park Total = 83
Reservoir Park would get a B grade

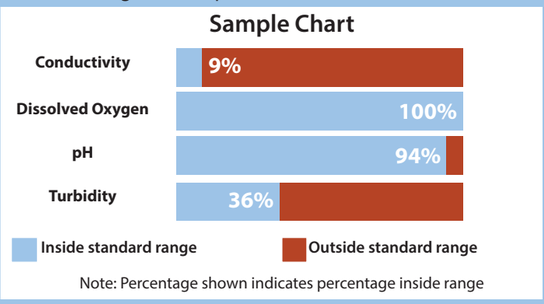
Dissolved Oxygen, Conductivity, Temerature, and pH were sampled using a YSI Pro Plus equipped with a quarto cable.[6]

Turbidity was sampled using a HACH 2100 Q Turbidimeter.[7]

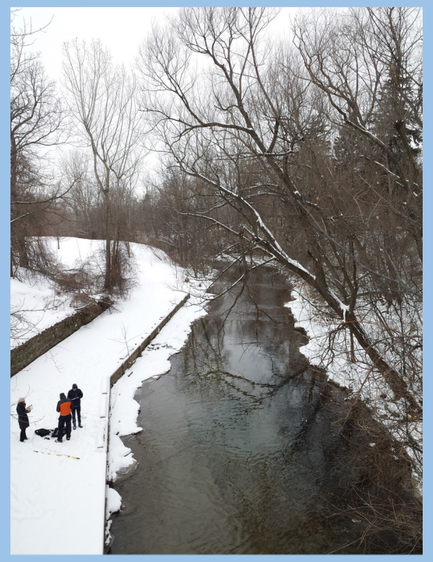
1 33 U.S.C. §1251 et seq. (1972)
2 Part 701: Classifications-Surface Waters and Groundwaters (Statutory authority: Environmental Conservation Law, §§ 1-0101, 3-0301 [2][m],15-0313, 17-0101, 17-0301, 17-0303, 17-0809)
3 Part 703: Surface Water and Groundwater Quality Standards and Groundwater Effluent Limitations (Statutory authority: Environmental Conservation Law, §§ 3-0301[2][m], 15-0313, 17-0301, 17-0809)
4 US Environmental Protection Agency's Water: Monitoring and Assessment 5.9 Conductivity
5 Oram, Brian B.F. Environmental Consultants Inc. (2013 January 20). Monitoring the Quality of Surfacewaters. Retrieved from http:// http://www.water-research.net/watrqualindex/waterqualityindex.htm
6 www.ysi.com/productsdetail.php?Professional-Plus-18
7 www.hach.com/2100Q

Water Quality Testing Results

Percentage of samples inside the standard range: A bar graph is given for each parameter indicating the total percentage of all samples taken for that site which fell inside the standard range for that parameter.



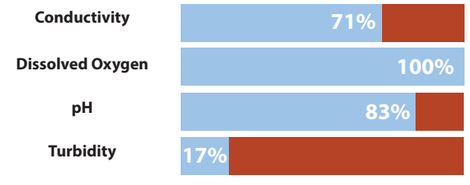
Water Quality issues are referenced from NYSDEC's "The Niagara River/Lake Erie Basin Waterbody Inventory and Priority Waterbodies List" (2010).



(First Riverwatch Testing Run in 2014 at Scajaquada Creek.)

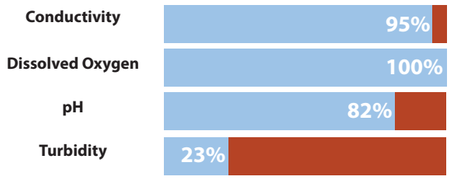
Cayuga Creek (Erie County)

Stream Class: C
Stream Length: 13.5 miles
Water Quality Issues: Aquatic life and fish consumption are stressed by suspected nutrient, silt/sediment, metals, Priority Organics (PAHs) and Pathogens. Suspected sources are stream bank erosion and urban/storm runoff. Possible source is agriculture.



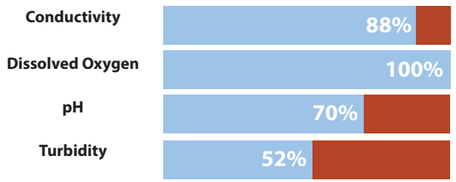
Buffalo Creek

Stream Class: B
Stream Length: 63.5 miles
Water Quality Issues: Aquatic life and recreation are stessed by known silt/sediment pollution and suspected nutrient and pathogen pollution. Known sources of pollution are stream bank erosion and urban stormwater runoff; sustpected source is agriculture and possible sources are on-site septic systems and road bank eroision.



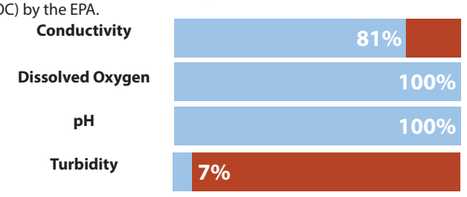
Cazenovia Creek

Stream Class: B
Stream Length: 51.7 miles
Water Quality Issues: No known impact*
*2010 NYSDEC Waterbody Inventory lists no known impact. Based on Riverkeeper testing results and observations, recreational use may be impacted and more monitoring is planned for this stream in 2015.



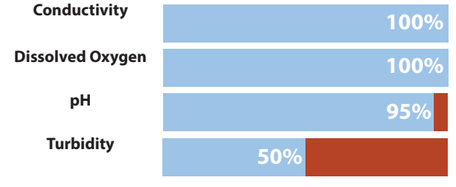
Buffalo River

Stream Class: C
Stream Length: 8.6 miles (from mouth to Cayuga Creek)
Water Quality Issues: Impaired water quality, contaminated sediments, inactive hazardous waste sites, point and nonpoint source pollution, combined sewer overflows, and fish and wildlife habitat loss and degradation. The main stem of the river is designated as a Great Lakes Area of Concern (AOC) by the EPA.



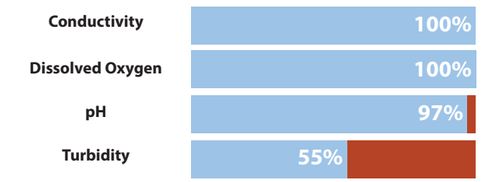
Inner & Outer Harbor

Stream Class: C
Stream Length: 5.25 miles
Water Quality Issues: Impaired water quality, contaminated sediments, inactive hazardous waste sites, point and nonpoint source pollution, combined sewer overflows, and fish and wildlife habitat loss and degradation.
The Outer Harbor is included in the Buffalo River AOC.



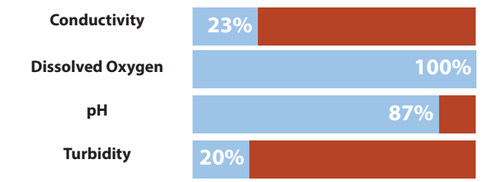
Niagara River

Stream Class: A (Special - Drinking Water)
Stretch Monitored: Upper Main Stem, Lake Erie - Niagara Falls
Water Quality Issues: The Niagara is a source of drinking water for much of the region. The NYSDEC considers this use to be threatened by known contamination from toxic sediment and suspected contamination from combined sewer overflows and urban stormwater runoff.



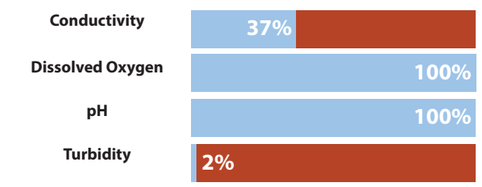
Scajaquada Creek

Stream Class: B
Stream Length: Lower: 3.0 miles (from mouth to Main St, Buffalo), Upper: 15.1 miles (above Cheektowaga)
Water Quality Issues: Aquatic life is precluded by low dissolved oxygen, excess nutrients, silt, and sediment. Public bathing is precludeded and recreation is impaired by odor, floatables, and pathogens. The point sources of these pollutants are from combined sewer outfalls and urban stormwater runoff.



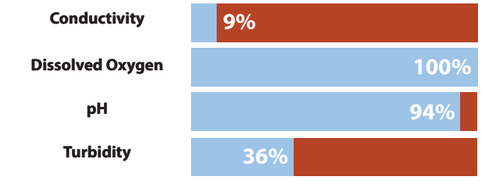
Grand Island

Stream Class: All are class B
Stream Length: 53.7 miles
Water Quality Issues: Natural resources (fishery) habitat and aquatic life in the tributaries of Grand Island are thought to be threatened by elevated stream tempertatures, silt, sediment, and urban stormwater runoff.



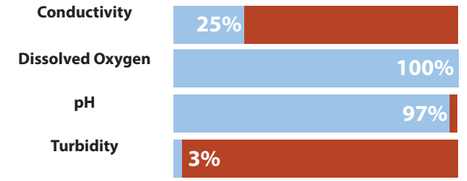
Ellicott Creek

Stream Class: B
Stream Length: 112.0 miles
Water Quality Issues: Aquatic life is impaired and recreation is stressed by suspected silt and sediment, caused by agricultural runoff.



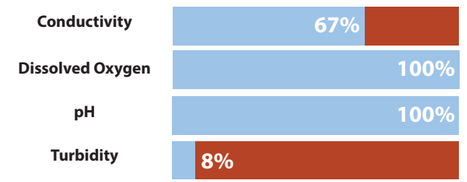
Tonawanda Creek (Middle Main Stem)

Stream Class: C
Stream Length: 11.7 miles (from East Pembroke to Batavia)
Water Quality Issues: Aquatic life and recreation are impaired and aesthetics are stressed by known nutrient pollution from sanitary discharges, erosion, urban stormwater runoff, and low dissolved oxygen, whose cause is suspected to be from agricultural runoff, municipal wastewater treament (Batavia), and onsite septic systems.



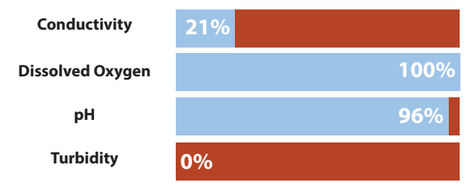
Tonawanda Creek (Lower Main Stem)

Stream Class: C
Stream Length: 11.9 miles (from mouth to NYS Barge Canal)
Water Quality Issues: Aquatic life and recreation are stressed by pollution from known sources of PCBs, toxic contaminated sediment, urban stormwater runoff, and suspected nutrient and silt pollution from sanitary discharge and erosion.



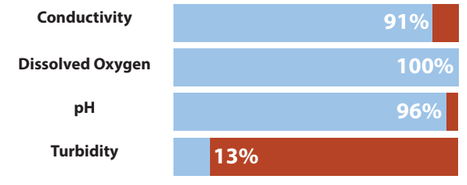
Cayuga Creek (Niagara Falls)

Stream Class: C
Stream Length: 21.6 miles
Water Quality Issues: Aquatic life and recreation are impaired by toxic contaminated sediment and urban stormwater runoff.



Gill Creek

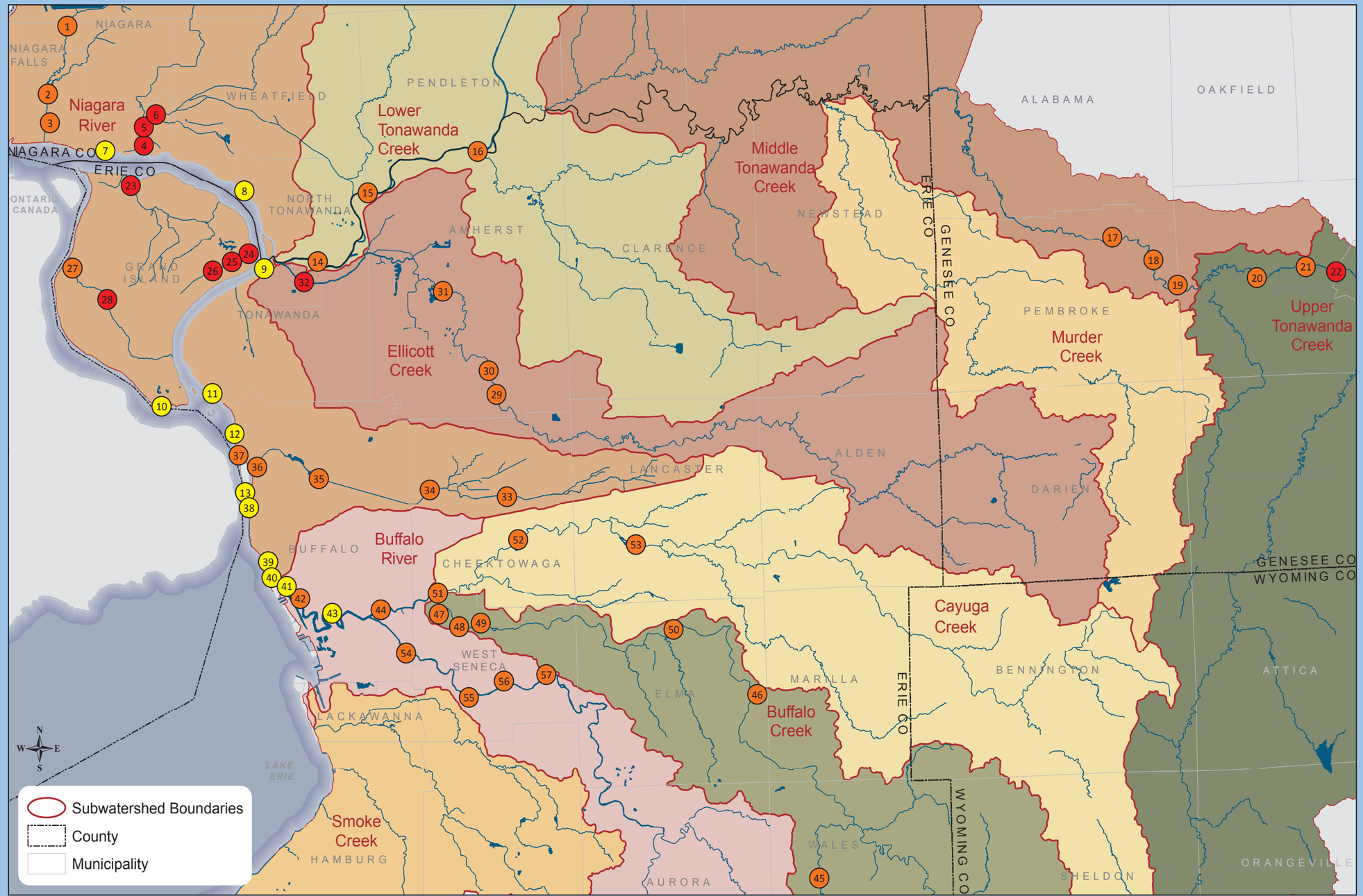
Stream Class: C
Stream Length: 12.3 miles
Water Quality Issues: Aquatic life and recreation are impaired by stormwater runoff and suspected toxic contaminated sediment.



Niagara River Watershed
and Subwatersheds

Site #	SITE NAME	2014 WQI Score	2014 GRADE	2013 GRADE
Gill Creek				
1	Reservoir Park	76	C	B
2	Hyde Park Lake	73	C	C
3	Gill Creek Park	76	C	C
Cayuga Creek (Niagara County)				
4	Military Rd	67	D	D
5	Cayuga Drive	69	D	D
6	Bergholtz Creek	67	D	D
Niagara River				
7	Lasalle Waterfront Park	81	B	B
8	Gratwick Park	83	B	B
9	Niawanda Park	85	B	B
10	Beaver Island	82	B	B
11	Aqua Lane Park	84	B	B
12	Black Rock Canal Park	85	B	B
13	Broderick Park	83	B	B
Lower Tondwanda				
14	Sweeney Street	77	C	C
15	West Canal Marina	79	C	C
16	Mouth of Ransom Creek	79	C	C
Middle Tondawanda				
17	Airville Road	73	C	C
18	Cookseville Road	74	C	C
19	Slusser Road	73	C	C
20	Route 5 Bridge	76	C	C
21	Kiwanis Park	76	C	C
22	41111 Main Street	68	D	C
Grand Island				
23	Woods Creek at Buckhorn	69	D	*
24	Spicer Creek at E. River	66	D	C
25	Spicer Creek at Whitehaven	69	D	*
26	Spicer Creek at Bonnywoods	67	D	*
27	Big 6 at Marina	76	C	C
28	Big 6 at Staley	66	D	*
Ellicott Creek				
29	Island Park	74	C	C
30	Amherst St Park	74	C	C
31	St Rita's Lane	73	C	D
32	Rt 425 Overpass	69	D	D
Scajaquada Creek				
33	N. Creek/S. Creek Drive Park	71	C	C
34	Cheektowaga Town Park	71	C	C
35	Forest Lawn	75	C	C
36	West Avenue	70	C	C
Inner Harbor				
37	BR Canal At Route 198	79	C	B
38	BR Canal at Broderick Park	83	B	B
39	Lasalle Park	80	B	B
40	Erie Basin Marina	82	B	C
Buffalo River				
41	Canalside	80	B	C
42	Riverfest Park	74	C	C
43	Red Jacket Park	81	B	C
44	Seneca Bluffs	72	C	C
Buffalo Creek				
45	Hunters Creek	77	C	B
46	Elma Centennial Park	73	C	B
47	Sill at Oxbow	72	C	C
48	Burchfield Nature Center	71	C	C
49	Borden Road Bridge	71	C	C
50	Elma Village Green	72	C	C
Cayuga Creek (Erie County)				
51	Clinton Street Bridge	77	C	C
52	Rowley Road Bridge	76	C	C
53	Como Lake Park	76	C	C
Cazenovia Creek				
54	Cazenovia Park	73	C	B
55	Seneca Park	71	C	C
56	Mill Road Park	73	C	B
57	Leydecker Road Bridge	77	C	B

* Site was not tested in 2013



Site Scores

A B C D

NOTE: No waterways received a grade A rating

Parameter Descriptions

Dissolved Oxygen (DO) is simply the amount of oxygen dissolved in the water, and is essential for the survival of nearly all aquatic life. DO can be decreased by sewage discharges, storm water runoff and failing septic systems.

Turbidity is a measure of the amount of suspended material in water which can include soil particles, algae, plankton, microbes, and other substances. Higher turbidity increases water temperatures, decreases DO, provides refuge for harmful microbes, and can clog gills of fish and crustaceans.

Conductivity is a measure of the ability of water to pass an electrical current and is indicative of the presence of inorganic dissolved solids such as chloride, nitrate, sulfate, and phosphate ions. Elevated levels may be from the presence of sewage or storm water discharges.

pH is a term used to indicate the alkalinity or acidity of a substance as ranked on a scale from 1.0 to 14.0. The majority of aquatic animals prefer a range of 6.5-8.0. pH outside this range reduces the diversity in the stream because it stresses the systems of most organisms and can reduce reproduction.

Temperature affects the oxygen content of the water (as temperature increases, DO decreases); the rate of photosynthesis by aquatic plants; the metabolic rates of aquatic organisms; and the sensitivity of organisms to toxic wastes, parasites, and diseases.

YELP E. *coli* Report

Environmental Justice (EJ) is the concept that all people regardless of race, ethnicity, or income level have the right to live in a healthy environment. Many communities in our area have been historically burdened with disproportional amounts of environmental harm. Riverkeeper, in partnership with Buffalo Public Schools and with funding from NYSDEC and First Niagara Bank, launched a pilot environmental educational program for eighteen students residing in these communities. The Young Environmental Leaders Program (YELP) provided a unique opportunity for students to learn about local environmental issues that affect their neighborhoods. Students were recruited by partner teachers Adam Hovey of South Park High School and John Bihr of Riverside Institute of Technology.

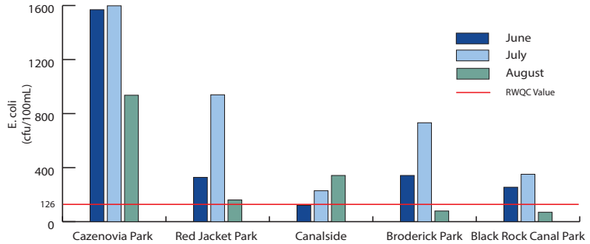
In 2014, the program consisted of two components, the first of which was a series of six workshops where students explored current environmental issues within a local context. The second piece provided a mentorship opportunity for two students to participate in a research project alongside their teachers and Riverkeeper staff. Caleek Roman of South Park High School and Ku Reh of Riverside Institute of Technology were selected and carried out a study of the water quality of five public access sites within the city of Buffalo from June through August. The students received a stipend and valuable experience in applied environmental science. David Ludwig of Hamburg High School and his teacher, Kacey Nowadly, volunteered their time to help with the project as well.

Riverkeeper and our volunteers have frequently observed residents, particularly youths, swimming at public access sites which are subject to pollution from Combined Sewage Overflows. The purpose of the YELP study was to answer the question: What are the bacterial levels at these sites where citizens often have contact with the water? To answer this question the study analyzed the Escherichia *coli* (E. *coli*) levels five times per month during the swimming season months of June, July, and August at each site. E. *coli* is the best indicator of sewage pollution in fresh water.

Site #	Waterway	Public Access Site	Stream Class
1	Cazenovia Creek	Cazenovia Park	B
2	Buffalo River	Red Jacket Park	C
3	Buffalo River	Canalside	C
4	Black Rock Canal	Broderick Park	C
5	Niagara River	Black Rock Canal Park	A - Special

E. *coli* levels were compared to the USEPA 2012 Recreational Water Quality Criteria (RWQC) which has two sets of thresholds for comparing bacteriological data:

1. Geometric Mean (GM): A GM is a way of averaging a set of values without allowing disproportionate influences from values that are extremely high or low. The RWQC requires GM calculations of at least 5 samples within a 30 day period. 5 samples were taken at each site during the months of June, July, and August. GM was calculated for each site per monthly sample period. GM levels were compared to the threshold amount of 126 cfu/100mL. The following chart displays the values. Any of the values above the red line are considered above the recommended level for protection of human health, according to the EPA.



2. Statistical Threshold Values (STV): STV is a value given by the RWQC that should not be exceeded by more than 10% of individual samples in a 30 day period. For this project, there are 5 samples per sample period so if one or more exceeded the STV, then this sample period would be considered to be exceeding the standard. The following table displays the results as compared to the STV of 410 cfu/100mL:

Percentage of Sample Values exceeding STV of 410 cfu/100mL

Site #	June	July	August
1	80%	100%	80%
2	40%	60%	20%
3	0%	40%	20%
4	60%	40%	20%
5	40%	40%	0%

YELP E. *coli* Report Summary

When comparing the results to the GM threshold, 12 out of 15 sample periods exceeded the standard. When comparing to the STV level, 13 out of 15 sample periods exceeded the standard. Site 1 showed the worst water quality with the highest monthly GMs, highest STV exceedances, and greatest mean sample value. During dry weather, levels were much higher than should be expected and the large CSO near the sample site was flowing. Site 3 showed the best water quality with the lowest monthly GM values, lowest STV exceedances and lowest mean sample value. Sites 2,4 and 5 had extreme spikes in E. *coli* levels during some wet weather events. Regardless of which standard you look to, these bacterial levels are unacceptable for protection of public health. Though there are signs in several languages warning people not to swim and they are not designated swimming spots, citizens continue to swim at these sites, risking exposure to high bacterial levels.

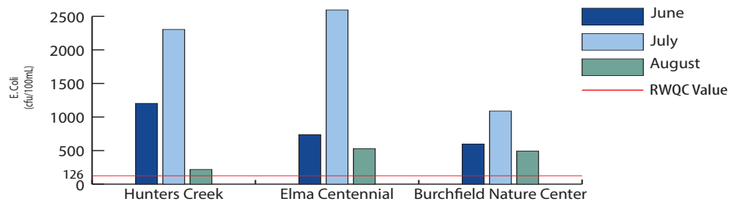
The Young Environmental Leaders Program will begin its second year in 2015. A new set of student mentees will use this data to design a second study to further investigate the water quality of these sites. For complete results and raw data from the study, see our web page at www.bnriverkeeper.org/riverwatch.

Buffalo River E. *coli* Report

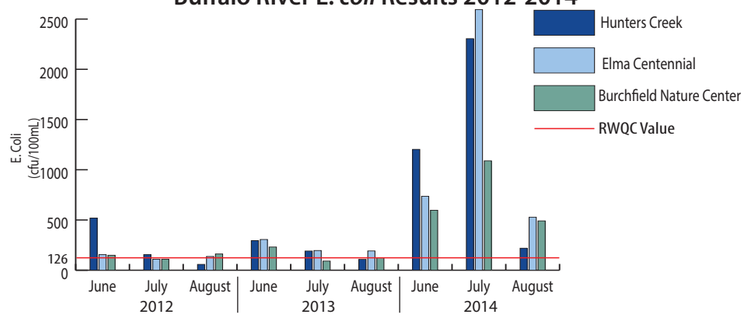
Riverkeeper has been monitoring E. *coli* levels at 3 sites in the Upper Buffalo River watershed since 2012 with funding from the Buffalo River Remedial Action Plan. While inputs from sewage pollution are well documented in the Buffalo River Area of Concern (AOC) little is known of bacteriological inputs form sources upstream of the AOC. The purpose of this ongoing study is to identify pollution levels at these sites and in the future identify the source of these inputs.

Site #	Waterway	Public Access Site	Stream Class	Municipality
1	Hunters Creek	Hunters Creek Park	B	Wales Center
2	Buffalo Creek	Elma Centennial Park	A	Elma
3	Buffalo Creek	Burchfield Nature & Arts Center	B	West Seneca

Buffalo River E. *coli* Results 2014



Buffalo River E. *coli* Results 2012-2014



(Marion Young , left, and Chelsea Kanaley, right, performing E. coli *testing at Hunters Creek)*

Buffalo River E. *coli* Summary

Sample results values for the 2014 campaign returned the highest E. *coli* levels of the 3 seasons of monitoring. When compared to the 2012 EPA Recreational Water Criteria standard of 126 cfu/100mL for geometric mean values, all 9 monthly sample periods exceeded the recommended threshold to protect human health for both GM and STV. This is compared to 6 of 9 for 2013 and 6 out of 9 sample periods for 2012. This increase corresponds with an increase in 48 hour precipitation in 2014 compared to both previous years. Based on the sampling results, it is apparent that there is a significant input of bacteriological pollution at these 3 sampling locations, especially during wet weather. The sources of pollution are currently unknown and further investigation is recommended.

Sources of Ongoing Pollution

There are two forms of pollution in the watershed: legacy pollution, which was discharged to the water during our industrial past, and ongoing pollution which continues to be discharged into our waterways. The Riverwatch Program monitors for water quality parameters affected by ongoing sources of pollution.

Combined Sewer Overflows (CSOs)

During wet weather, water from streets, roofs, and lawns runs off into storm drains and combines with sewage in one system. When we get more than a half inch of rain, the volume of water overwhelms the system and overflows into local waterways by design. These overflows contain not only stormwater, but untreated human waste, toxins, and debris.

Stormwater Runoff

In rural areas or areas with separated sewer systems, rainwater runs directly off of buildings, roads, lawns, and farm fields into waterways, often with no type of filtration. This stormwater runoff carries nutrients and pesticides from lawns and fields, toxins and salts from roads, along with silt and sediment from erosion.

Land Use

Waterways in their natural state have areas of forest, shrub land or wetlands along shorelines. This vegetation is natural infrastructure that helps filter stormwater and control erosion. The way we have developed the land in our watershed has removed a much of this natural resiliency resulting in increased erosion and pollution from stormwater.

Sources for Ongoing Solutions

You can help reduce stormwater and sewage pollution! Below are three different Green Infrastructure solutions you can apply at your own house to reduce the amount of stormwater from your property.

Downspout Disconnection

Disconnecting downspouts from the sewer system allows roof water to drain to lawns and gardens. It's a more natural way to manage roof runoff because it allows water to soak into the ground as plants and soils filter pollutants. Downspouts on many homes are connected directly the combined sewer system, contributing to combined sewer overflows.

Rain Barrels

Rains barrels are containers that collect and store rain water for future uses, such as watering landscaping, while decreasing the amount of storm water runoff that leaves your property . A rain barrel is placed under the downspout to channel rainwater into the barrel for later use.

Rain Gardens

A rain garden is a planted depression that allows rainwater runoff from impervious urban areas like roofs, driveways, walkways, and compacted lawn areas to be absorbed. This reduces rain runoff by allowing storm water to soak into the ground. Rain gardens can reduce amount of pollution reaching creeks and streams by up to 30%.

Related Riverkeeper Projects

River Academy & Public Forums

River Academy is a field-based college credit environmental science class also open to the public. **Public Forums** are free monthly public lectures on interesting water-based topics.

Shoreline Sweeps

Biannual Shoreline Sweeps engage 2,000 volunteers and remove 40 tons of trash from 40 shoreline sites throughout the watershed.

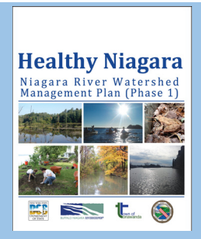
River Tours

River Tours provide citizens a direct connection to the water through paddling, hiking and biking tours led by expert guides in and along waterways.

Green Infrastructure Solutions

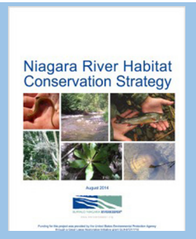
The Green Infrastructure Solutions Report provides a plan to incorporate green and living infrastructure in order to eliminate sewage contamination to area waterways.

Healthy Niagara



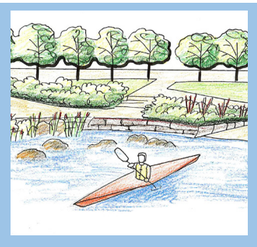
Healthy Niagara is the first regional, community-based initiative to develop a Watershed Management Plan for the Niagara River Watershed.

Habitat Conservation Strategy



Niagara River Habitat Conservation Strategy is a three-year long study which assesses and identifies critical habitats for the entire Niagara River Watershed.

1660 Niagara Street Micro-Park



A brownfield near the mouth of Scajaquada Creek, **1660 Niagara** will be remediated and transformed to a micro-park and paddle sports launch with public access to the creek.

Emerald Shiners

Riverkeeper is assisting with outreach and education on a conservation and restoration study of the **Emerald Shiners** in the Niagara River conducted by Buffalo State College.

Buffalo River Restoration

For the last 12 years, Riverkeeper has coordinated the **Buffalo River Remedial Action Plan**. In 2014, the dredging of the rivers bottom was completed removing on million cubic yards of toxic sediment.

The Riverwatch Team

Staff

Chirs Murawski - Citizen Engagement Programs Manager
Jarrett Steffen - Citizen Action Coordinator
Robbyn Drake - Director of Citizen Action

Interns

Brian Siklinski – University at Buffalo
Meredith Van Acker – DePaul University
Jonathan Hughes – Erie Community College
Kim Engels – The College at Brockport
Ellen Lana – Elon University

Volunteers

Calibration and Data Management Specialist: Deborah Arent
Buffalo Creek: Carl Carlson, Jonathan Hughes, Joshua Konovitz
Buffalo River: Hillary Chiarella, Tim Englert, Gabriel Johnson
Cayuga Creek (Erie County): Dana Havas, Jeremy Henning, Haillie Suk
Cayuga Creek (Niagara County) and Gill Creek: Thomas Heyer, Edward Nickson, Brian McGowan
Cazenovia Creek: Joshua Fisher, Styphanie Torres Hernandez
Black Rock Canal/Inner Harbor: Mellissa Bender, Elizabeth Czapski, Joseph Petrino
Ellicott Creek: Mark Casper, Brian Foley
Niagara River: Jim Galbo, Michelle Johnson, Rose Pietras
Grand Island: Diane Evans, Greg Madejski, Roy Tilghman
Scajaquada Creek: Denine Jackson, Emily Kirst, Joseph Kurtz, Katherine Szymanski
Tonawanda Creek Lower: Jude Hammer, Val Macer, Mary McNeil
Tonawanda Creek Middle: Elizabeth Bentley-Huber, Linda Logan

Volunteer Profiles

Jim Galbo

Niagara River Team

Jim has been volunteering with Riverkeeper since 2005 for both Riverwatch and our Shoreline Cleanups and is one of our most dedicated supporters. In addition to never missing an outing with his Niagara River team, he is always willing to help out in a pinch by filling in on other teams and even helping us move our office. A lifelong WNY resident, he spends his time hiking, biking, and paddling along the Niagara. "I need to be on the water, so I want to help protect it, keep it clean, and make sure that people have access to it. I volunteer with Riverkeeper because their passion for our water is so evident," said Jim. If you see him on the water, thank him for all he does!

Dana Havas & Jeremy Henning

Cayuga Creek (Erie County) Team

Dana and Jeremy are an enthusiastic husband and wife volunteer team and recent transplants to our watershed. Being new to the area and newly married, they wanted to volunteer as a way to build roots in the community and for something meaningful to take part in together. According to Dana, "Having come from the Catskills, being outside and taking part in the outdoors is important to us, and we believe it should be a part of everyone's lives." You may see Jeremy and Dana wandering through Hunters Creek Park or enjoying the sunset on Lake Erie where they always find the enormity and wonder of the Great Lakes to be overwhelming and stunning!

Buffalo Niagara **RIVERKEEPER®** is a community-based organization dedicated to protecting the quality and quantity of water, while connecting people to water. We do this by cleaning up pollution from our waterways, restoring fish and wildlife habitat, and enhancing public access through greenways that expand parks and open space.

Buffalo Niagara **RIVERKEEPER®** is a member of the global **WATERKEEPER®** ALLIANCE.

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