



**BUFFALO NIAGARA
WATERKEEPER®**

Volunteer Ambassador Handbook

2018

Acknowledgements

This handbook was created by Buffalo Niagara Waterkeeper for our Volunteer Ambassador Program. **Waterkeeper would like to thank our committed volunteers for their dedication and enthusiasm.** Volunteers are encouraged to contact Waterkeeper with any questions and concerns.

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Chapter 1 The Niagara River Watershed

1.1 The Big Picture

As Western New Yorkers, we reside on the shores of our planet's great freshwater seas. One-fifth of the Earth's surface fresh water is contained in the Great Lakes and passes through the narrow neck of the Niagara River. All across the watershed, creeks, ditches, ponds and patches of wetland habitat greet those who venture outdoors.



Source: <http://glin.net>

Linking the United States with Canada, the Niagara River travels 37 miles on its route from Lake Erie to Lake Ontario, carrying an average flow of 212,300 cubic feet per second, 83% of Lake Ontario's tributary flow. The outlet for four of the five Great Lakes, the Niagara River drains waters from approximately 264,000 square miles (684,000 kilometers), an area roughly the size of the state of Texas.¹

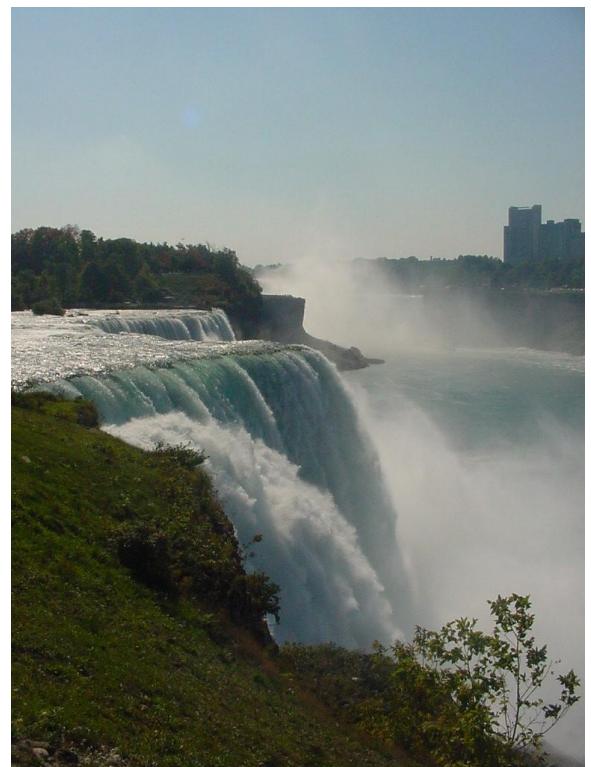
¹ Source: <http://bnwaterkeeper.org/places/niagara-river/>

Locally, the United States side of the Niagara River Watershed has a drainage area of approximately 1411 square miles, including five counties and 1.5 million residents. Its principle tributaries include the Buffalo River (including Cazenovia, Buffalo and Cayuga Creeks), Tonawanda Creek (including Ellicott, Ransom and Murder Creeks), Scajaquada Creek, Smokes Creek, Cayuga Creek (Niagara County), Gill, and Fish Creeks.

The tremendous volume of flow has made the Niagara one of the most important sources of hydroelectricity in the world. As the river falls nearly 170 feet, the hydropower generating facility located in Lewiston, NY is able to generate a staggering 2.4 million kilowatts of hydroelectric power.²

This wealth of water has created an intensely rich landscape. Over 90 species of fish inhabit the waters of the Niagara River and its tributaries, many beloved by fishermen, such as Muskellunge, Northern Pike, Walleye and Bass. Birds of all feathers grace the region, inspiring the National Audubon Society to declare the river corridor an “Important Bird Area” of worldwide significance.³ Unique plant communities survive in isolated places such as the cliff walls of the Niagara Gorge.⁴ Urban waterways bloom with unexpected stretches of natural habitat, in some cases side by side with icons of the region’s industrial heritage.

Waterways, lakes, and wetlands are arguably the Buffalo Niagara region’s greatest resource. Generations of Western New Yorkers have made a living from their bounty.



Source: Buffalo Niagara Watereeper

² Source: <https://www.nypa.gov/>

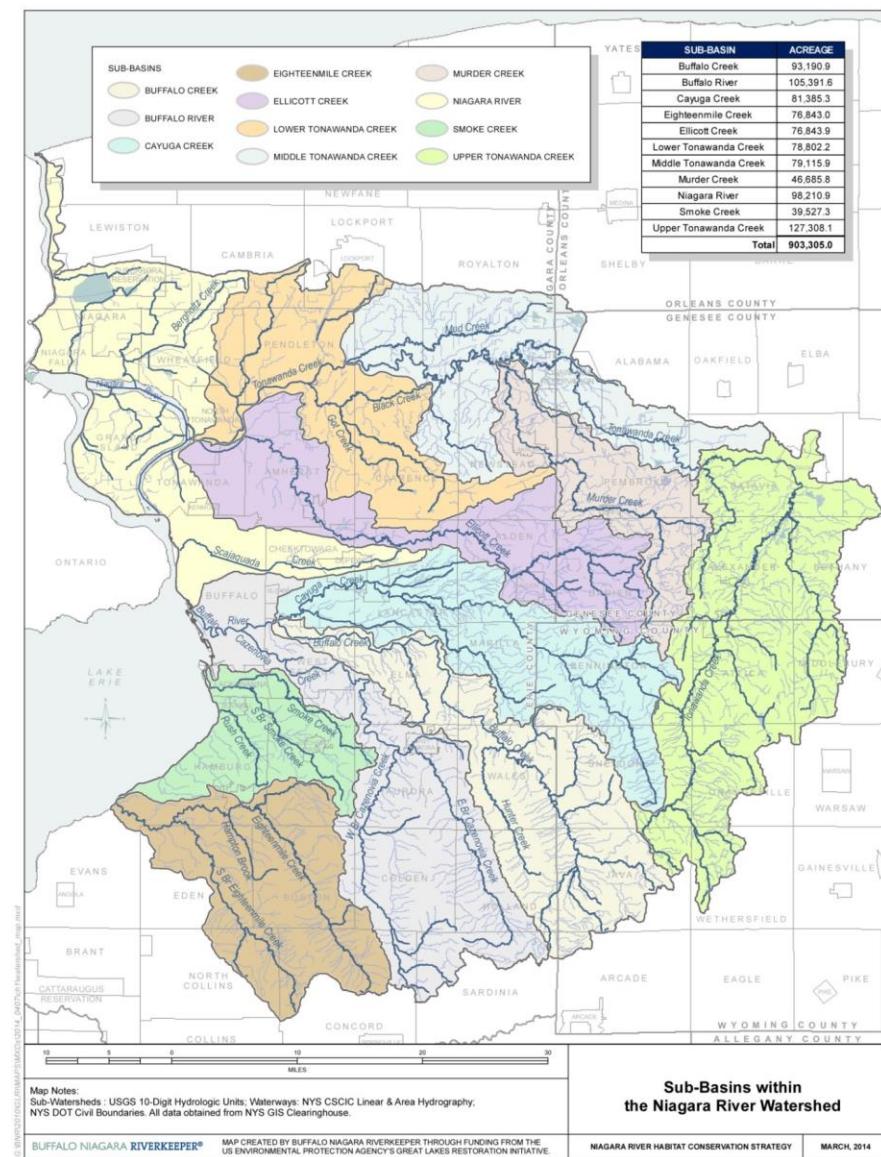
³ Source: <http://www.audubon.org/important-bird-areas>

⁴ Source: <https://www.niagaraparks.com/niagara-falls-attractions/natural-history.html>

Residents and visitors alike enjoy stunning sunsets, world-class fishing, challenging hikes and paddles along rivers, creeks, lakes and streams.

This is the luxurious legacy of the Niagara River Watershed - the vast region of land that, through creeks, streams and ditches, drains into the Niagara River and its tributaries.

The Niagara River Watershed includes 1411 square miles of land in the U.S.



1.2 Troubled waters

Long before the first European settlers reached Niagara's shores, the region was home to a vast diversity of life. Masses of terns and gulls crowded the skies, cruised the shoreline, and searched the waves for glimmering fish. In springtime, their nests littered the beaches. Fish thrived in the cool, clear water, where giant Sturgeon glided along the riverbed. Black bear, wolf, cougar, and bobcat prowled the deep forests along the riverbanks, beaver dammed the streams, and otter frolicked in the shallows. Native people fished the teeming waters, hunted the rich woodlands, and revered the sacred power of the Falls and Gorge.⁵

The Buffalo Niagara region's richness, coupled with the ease of transporting goods along the many waterways, led to rapid settlement and development. The first immigrants came to exploit the valuable timber and farmland, changing the rolling forests to a patchwork quilt of fields and pastures. Later arrivals were drawn by the promise of jobs at thousands of factories crowding the creek and river shores during the industrial boom. After more than two centuries of use and abuse, the lands and waters of the Niagara region have come to bear many scars.

Water quality in the Niagara and Buffalo Rivers, although improved from 1950's conditions, is still impacted by persistent toxic pollutants. Some of these, such as PCBs⁶ and dioxin⁷, concentrate in fish and wildlife tissues and may cause fish tumors. Failing septic systems and regular inflows of raw sewage from Combined Sewer Overflows (for more information view page 48) in Buffalo, Niagara Falls, and some first-ring suburbs flood rivers with dangerous fecal bacteria. Stormwater runoff (for more information view page 49) carries pollutants, pesticides and unhealthy levels of nutrients into local

⁵ Source: <http://www.discoverniagara.org/>

⁶ **Polychlorinated biphenyl:** a group of man-made organic chemicals consisting of carbon, hydrogen and chlorine atom. PCBs belong to a broad family of man-made organic chemicals known as chlorinated hydrocarbons. PCBs were domestically manufactured from 1929 until manufacturing was banned in 1979. They have a range of toxicity and vary in consistency from thin, light-colored liquids to yellow or black waxy solids. (Source: EPA)

⁷ **Dioxins:** a group of toxic chemical compounds. dioxins are extremely persistent compounds and break down very slowly. Dioxins are highly toxic and can cause cancer, reproductive and developmental problems, damage to the immune system, and can interfere with hormones. (Source: EPA)

waterways.⁸

Habitat throughout the Niagara Watershed has also been devastated - forests have been cut or fragmented by roads and suburbs, wetlands drained, the rivers and creeks channelized and dredged. Poorly planned development continues to threaten remaining habitat and water quality throughout the region. Invasive plant and animal species have been introduced to both aquatic and terrestrial environments, damaging critical relationships and functions of the ecosystems they colonize.⁹

Great Lakes Areas of Concern

The Niagara River is designated a Class A-Special waterbody, the highest protection any waterbody can receive by the New York State Department of Environmental Conservation (NYSDEC). The best uses of the river are a water supply source for drinking, culinary or food processing purposes; primary and secondary contact recreation; and fishing. By contrast, the Buffalo River has been designated as a Class C waterbody with fishing (fish propagation and survival) identified as its best use. This designation fails to recognize a growing body of photographic and survey evidence indicating that community members regularly use the Buffalo River for both swimming and fish consumption.¹⁰

In 1987, the U.S.- Canada Great Lakes Water Quality Agreement identified the Niagara River, and its second largest tributary, the Buffalo River, as 2 of 43 Great Lakes Areas of Concern (AOC's). These trouble spots fail to meet environmental objectives of the Agreement and suffer unacceptable impairments of their natural integrity and beneficial human uses.¹¹

⁸ Source: https://www3.epa.gov/caddis/ssr_urb_is1.html

⁹ Source: http://www.nyis.info/?action=prism_partners

¹⁰ Source: <http://www.dec.ny.gov/permits/6042.html>

¹¹ Source: <https://www.epa.gov/glwqa>



Source: <http://www.ec.gc.ca/raps-pas/>

The Buffalo and Niagara Rivers, their sediments and near shore areas have been impaired by over a century of industrial activities and municipal waste discharges. To address these problems, NYSDEC, in conjunction with citizen advisory committees, prepared Remedial Action Plans (RAP) for the Buffalo River in 1986 and the Niagara River in 1994. For both rivers, the official RAP documents identified restrictions on fish and wildlife consumption, primarily due to PCB, chlordane, dioxin, and/or mirex contamination. Similarly, contaminated sediments in both river channels have been identified as the cause of degradation of benthic activity and have resulted in restrictions on dredging activities. The RAPs also identify loss of fish and wildlife habitat due to physical disturbances from human activities such as annual river maintenance dredging, shoreline bulkheading, and urban land uses.¹²

¹² Source: <https://www.epa.gov/buffalo-river-aoc/buffalo-river-aoc-1989-remedial-action-plan>

Unfinished Business

For decades, local, state, federal and bi-national projects have worked to improve the Buffalo and Niagara Rivers. Their success stories include remediation of many inactive hazardous waste sites, implementation of the State Permitted Discharge Elimination System (SPDES), the Niagara River Toxics Management Plan, Niagara River Remedial Action Plan, Regional Municipality of Niagara's Niagara Water Quality Protection Strategy and several habitat restoration projects.

Nevertheless, throughout the Niagara River Watershed:

- The water remains unsafe for swimming and undrinkable due to elevated bacteria levels from combined sewer overflows, failing septic systems, and agricultural runoff.
- There remains a long-standing fish consumption advisory due to contamination from urban runoff, historic dumping and inactive hazardous waste sites.
- Fish and wildlife suffer from botulism and reproductive problems.
- Fish and wildlife have limited habitat due to development pressures and shoreline bulkheading.
- Dredged sediment from navigational maintenance must be transferred to confined disposal areas due to high contamination levels.

According to 2002 Toxic Release Inventory data¹³, the primary sources of toxic releases to the Niagara River were:

- CWM Chemical Services
- Huntley Generating Station.
- Delphi Harrison Systems
- Ivaco Steel Processing
- Buffalo Sewer Authority
- Buffalo Color

¹³ Source: <https://www.epa.gov/toxics-release-inventory-tri-program>

These injuries to lands and waters threaten the economic vitality of local communities, quality of life, and human health. Restoring the watershed and promoting responsible use of its many gifts may also be the greatest hope for a bright, economically and environmentally sustainable future. Volunteer Ambassadors will bring the region a few steps closer to achieving Waterkeeper's dream of a clean, healthy, and vital Western New York. We hope you take pride in this role as you become one of Buffalo Niagara Waterkeeper's Volunteer Ambassadors.

Chapter 2 Waterkeeper

2.1 The First Riverkeeper

In 1966 a group of concerned fisherman founded a group known as the Hudson River Fishermen's Association (HRFA) to act as an environmental watchdog and enforcer to monitor pollution on the Hudson River. At this time raw sewage was being discharged into the river from many river towns and New York City. The river had been an industrial dumping ground for decades.

The group's leader, Robert Boyle, discovered two water pollution laws which were on the books but had never been enforced. These laws – the Federal Refuse Act of 1899 and the New York Rivers and Harbors Act of 1888 – banned the discharge of pollutants into America's navigable waters and carried a fine for violators. The laws also carried the provision that the person who reported the polluter would keep half of the fine. Boyle saw these laws as a way to both clean up the Hudson and raise money for the Fishermen's Association. Armed with the laws, the Fishermen began to collect evidence and won their first case against Penn Central, who had been dumping oil waste into the Hudson for years. The case garnered a \$2,000 bounty for the Fisherman.

The Fishermen's Association continued their work of investigating and suing polluters for many years. In 1983, they hired John Cronin as the first full-time Riverkeeper and established the Hudson Riverkeeper organization. John used an old fishing boat to patrol the Hudson River and uncover evidence that was vital to prosecuting polluters. Hudson Riverkeeper, Inc. has successfully prosecuted over 100 environmental law-breakers since that time.¹⁴



Source: Riverkeeper.org

¹⁴ Source: <https://www.riverkeeper.org/>

They are now a model organization for over 300 “keeper” groups established worldwide. These groups have allied together as members of the Waterkeeper Alliance.¹⁵



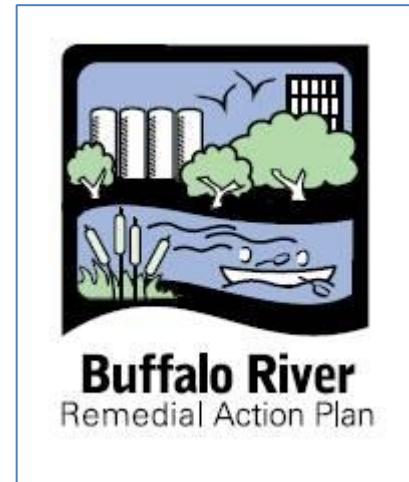
Source: Waterkeeper.org

2.2 Buffalo Niagara Riverkeeper now Waterkeeper

a. History

Buffalo Niagara Waterkeeper began in 1989 as a small community organization called the Friends of the Buffalo River. The group had formed as a citizen's committee providing input for the NYS Department of Environmental Conservation's Buffalo River Remedial Action Plan (RAP). The Friends advocated for improved water quality improved public access on the Buffalo River, and organized community cleanups of the shoreline. They worked successfully on important policy issues such as setback ordinances, a Buffalo River Greenway plan and an Urban Canoe Trail guide.

In 2000, a strategic planning process led the Friends to expand their mission beyond the Buffalo River watershed to include the entire U.S. side of the Niagara River Watershed. In this new capacity, the Friends took on an important environmental negotiation that would impact the Niagara River for the next 50 years: the relicensing of the Niagara Power Project. Endorsed by a coalition of over 30 local nongovernmental organizations, the Friends worked to ensure that the New York Power Authority Comprehensive Settlement Agreement would provide sufficient resources to mitigate the project's impacts on the Niagara River.¹⁶



Source: Buffalo Niagara Waterkeeper

¹⁵ Source: <http://waterkeeper.org/>

¹⁶ Source: <http://niagara.nypa.gov/>

In 2003, Friends of the Buffalo and Niagara River (FBNR) became the first nonprofit organization in the Great Lakes Basin to receive funding and authority from the USEPA to coordinate and manage the implementation of a RAP.¹⁷ By mid-decade, FBNR became a member of the Waterkeeper Alliance and changed its name to Buffalo Niagara Riverkeeper (BNR).

A **nonprofit** is a group that is tax-exempt under Internal Revenue Code Section 501(c)(3). The organization aims to benefit the broad public interest and uses surplus revenues to further achieve its mission.

In 2017, after many years of behind the scenes work, Buffalo Niagara Riverkeeper changed its name to Buffalo Niagara Waterkeeper. This name change better reflects the organization's scope of work. Waterkeeper is dedicated to protected water in all of Western New York, not just a River. We protect and restore our water and surrounding ecosystems for the benefit of current and future generations of Western New Yorkers.

We **PROTECT** clean water

We **RESTORE** the health of ecosystems

We **CONNECT** people to the water

We **INSPIRE** economic growth and community engagement

Continuing a trajectory of growth, Waterkeeper is now an organization with over twenty employees and an ever-broadening support system in the Buffalo Niagara region.

Working on projects with investments from community leaders and foundations, concerned citizens, and federal, state, and local agencies, Waterkeeper has helped restore and protect local waterways. We use these investments to leverage additional funding from our many partners to ensure continued progress for the Niagara River Watershed.

¹⁷ Source: <https://www.councilofnonprofits.org/what-is-a-nonprofit>

b. Buffalo Niagara Waterkeeper's Mission:

We protect and restore our water and surrounding ecosystems for the benefit of current and future generations of Western New Yorkers.

c. Recent Awards

Buffalo Niagara Waterkeeper Receives Recognition: A few recent awards

- 2016 President's special recognition from Erie Co Federation of Sportsman's Clubs
- Jill Received the Stan Spisiak Conservationist of the year
- 2016 Executive Director Jill Jedlicka on Cover of Spree Magazine
- 2016 Thiess International Riverprize: awarded each year to organizations demonstrating outstanding results in sustainable river basin management, restoration and protection worldwide
- 2016 Buffalo Spree Best of WNY: Most Sustainable Project
- 2015 North American Riverprize: received the award for 25 years of collaborative restoration works within the Buffalo-Niagara River Watershed.
- 2015 Southtowns Walleye Association Conservationist of the Year
- 2015 American Public Works Association Sustainable Practices Awards
- 2014 USEPA Region 2 Environmental Quality Award: given to those who demonstrate outstanding achievements in protecting the environment
- 2013 Buffalo Spree Best of WNY: Best Volunteer Group

Everyone lives in a Watershed!

Political and watershed boundaries often don't match up. There must be collaboration across these boundaries to address environmental issues at hand.

Chapter 3 Waterkeeper Projects

3.1 Staff and Staff Roles

Waterkeeper is an organization with over 20 employees. More staff is usually brought on for seasonal summer work. Below are current staff and their project focus. Use this as a guide for who to contact for additional information. Still not sure who to reach out to? Contact Wendy Paterson (wpaterson@bnwaterkeeper.org) or Liz Robbe (erobbe@bnwaterkeeper.org)

Staff	Project Focus
	Jill Spisiak Jedlicka <i>Executive Director and Waterkeeper</i> jedlicka@bnwaterkeeper.org Extension 21 The Waterkeeper
	Renata Niedzwiecka Kraft, RLA <i>Deputy Executive Director</i> rkraft@bnwaterkeeper.org Extension 37 Landscape Architect Buffalo River Restoration Partnership Projects Forest Lawn Design
	Kelly Mayer <i>Deputy Executive Director of Finance and Operations</i> kmayer@bnwaterkeeper.org Extension 18 Daily operations and finances Grant Development
	Kerrie Gallo <i>Deputy Executive Director</i> kgallo@bnwaterkeeper.org Extension 30 Forest Lawn Upper Watershed Campaign Watershed Management Plan

	Chris Murawski <i>Director of Community Engagement</i> cmurawski@bnwaterkeeper.org Extension 39	River Tours Young Environmental Leaders Program Restore Corps Plantings Grant applications
	Robbyn Drake <i>Senior Program Manager of Community Engagement</i> rdrake@bnwaterkeeper.org Extension 12	Water Academy Fish Consumption Outreach School Programs Aquatic Invasive Species
	Joel Bernosky <i>Program Manager</i> jbernosky@bnwaterkeeper.org Extension 17	Scajaquada Creek Initiative Lead Watershed Management Policy Analysis
	Christine Bukowski <i>Project Coordinator</i> cbukowski@bnwaterkeeper.org Extension 35	Field Project Oversight <ul style="list-style-type: none">• Great Lakes Restoration• Forest Lawn
	Joseph Gould <i>Director of Ecological Programs</i> jgould@bnwaterkeeper.org Extension 27	Fish Barrier Restoration Grant Development
	John Grabowski <i>Senior Ecological Planner</i> jgrabowski@bnwaterkeeper.org Extension 34	Field Project Oversight <ul style="list-style-type: none">• Great Lakes Restoration• ArcGIS map making
	Erica Grohol <i>Senior Landscape Designer and Planner</i> egrohol@bnwaterkeeper.org Extension 32	Project Design Poster Design Web Design Grant Development

	Jessica Amico <i>Media Design Coordinator</i> jamico@bnwaterkeeper.org Extension 38	Press releases Social Media Design
	Jo Johnson <i>Ecological Planner</i> rjohnson@bnwaterkeeper.org Extension 25	Buffalo River AOC
	Joy Knowlton <i>Senior Manager of Finance and Operations</i> jknowlton@bnwaterkeeper.org Extension 11	Daily operations Daily Finances
	Joshua Konovitz <i>Senior Project Coordinator</i> jkonovitz@bnwaterkeeper.org Extension 29	Lead Field Project Oversight Native Niagara Coordination
	Monica Lippens <i>Senior Administrative Coordinator</i> mlippens@bnwaterkeeper.org Extension 10	Office Contact Rain Barrel Sales
	Charles Oddo <i>Senior Landscape Designer and Planner</i> coddo@bnwaterkeeper.org Extension 20	Project Design Graphic Design

	Leah Pabst <i>Project Manager</i> lpabst@bnwaterkeeper.org Extension 14	Buffalo River Restoration Project Management 1660 Niagara St/Brownfield Cleanup Program Spill Response
	Wendy Paterson <i>Senior Community Engagement Coordinator</i> wpaterson@bnwaterkeeper.org Extension 26	Clean ups Gill Creek Volunteer Coordination Rivertours Water Academy Fish Consumption Outreach
	Elizabeth Robbe <i>Senior Community Engagement Coordinator</i> erobbe@bnwaterkeeper.org Extension 23	Riverwatch River Tours YELP Water Academy Watershed Management Plan
	Emily Sadowski <i>Senior Program Manager</i> esadowski@bnwaterkeeper.org Extension 16	Habitat Conservation Strategy Living shorelines project manager
	Margaux Valenti, Esq. <i>Legal and Program Advisor</i> mvalenti@bnwaterkeeper.org Extension 28	Contract Development Buffalo River AOC Remedial Action Plan Coordination
	Katherine Winkler <i>Senior Program Manager</i> kwinkler@bnwaterkeeper.org Extension 15	Buffalo River Remedial Action Plan Coordination Buffalo River Restoration Project Manager

	Ron Zietz <i>Community Engagement Assistant</i> rzietz@bnwaterkeeper.org Extension 19	Invasive Species Events Tours Fish Consumption Outreach
	Jeanne Leccese <i>Project Manager</i> jleccese@bnwaterkeeper.org Extension 24	Headwaters
	Erin Robideau <i>Development Coordinator</i> erobideau@bnwaterkeeper.org Extension 33	Donations Fundraising
	Jennifer Fee <i>Marketing Manager</i> jfee@bnwaterkeeper.org Extension 13	Donations Fundraising

3.2 Board and Board Roles

A board of directors is the governing body of a nonprofit. Those who sit on the board are responsible for overseeing the organization's activities. Board members meet (usually monthly) to discuss and vote on the affairs of the organization. Board memberships are not set up to be permanent positions; a Waterkeeper board members term is 5 years. Board Members help serve on specific committees (examples include: Legal/Policy, Executive, Finance and Audit, Land Trust, Stewardship and Advocacy, Nominations, Science and Technology, Governance, Advancement) to accomplish organizational tasks. A board member must be on each committee, and non-board members may be on a committee.

Board of Directors

Jeff Liebel, Chairperson- Managing Partner and Founder, Counterpoint Consulting

Deb Gondek, Vice Chair- Formerly Rich Products Director of Sustainability

Martin Doster, P.E., Board Secretary- COO- Lippes Mathias Wexler Friedman LLP

Keith Belanger- Senior Vice President of Corporate Service, M&T Bank

Rick Galas, Brand Mentor, Creo451

Charles Grieco, Member- Bond Schoeneck & King Attorneys

Peter Jones- Financial Advisor, Morgan Stanley

Anne Joyce

Richard Lippes, Legal Counsel- Partner, Lippes & Lippes

Chanel McCarthy, Esq.- The Knoer Group, PLLC

Alyce Notaro- Senior Manager – Tax Department, Tronconi Segarra & Associates LLP

Jack O'Donnell- Senior VP & Director of Communications – Bolton St. Johns

Alan Rabideau- Professor- Dept of Civil, Structural and Environmental Engineering, UB

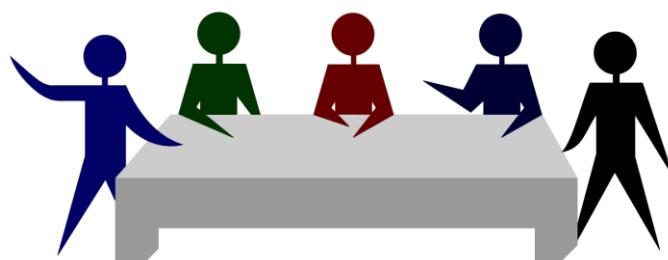
Board Emeritus

(These members have completed their term, but still wish to be involved. They cannot vote in official matters.)

Barry Boyer- Emeritus, UB Law School

Tom DeSantis- Planning Department, City of Niagara Falls

Lynda Schneekloth- Emeritus, UB Urban Design Project



3.3 Programs and Projects

a. Volunteer Programs

i. Shoreline Cleanups

Spring Sweep

Each spring, Buffalo Niagara Waterkeeper coordinates a Spring Shoreline Sweep, the largest single-day shoreline cleanup in Western New York. Targeting shoreline sites, hundreds of volunteers come out to engage in direct citizen action that makes the community a better place and reconnects the public with the region's most valued asset- water. In April 2016, over 1,500 volunteers signed up to help clean up shorelines in Niagara and Erie counties and collected over 11 tons of litter. Nearly 40 sites throughout the Watershed are available for signup.

Source: Buffalo Niagara Riverkeeper

Monthly Waterway Cleanups

2016 was Waterkeeper's pilot year for the Monthly Waterway Cleanups program and was a great success! From May to October over **400 volunteers prevented 5 tons** of litter from polluting local waterways. Ideas for new locations are always welcome.

Please contact Wendy Paterson at (716) 852-7483 ext. 26 or wpaterson@bnwaterkeeper.org

ii. Riverwatch

The Riverwatch Program consists of concerned citizens trained to use the latest technology to gather important water quality data in the Buffalo and Niagara

River watersheds. Volunteers conduct monthly monitoring of streams in their neighborhood and also provide a network of “Eyes on the Water” to report pollution or improper land uses on these waterways.

While government agencies regularly collect data from a number of sites in the Niagara River Watershed, budget and staff limitations prevent comprehensive coverage of the Niagara and its many tributaries. Waterkeeper aims to provide surveillance monitoring to bolster baseline, local water quality data. This data will allow Waterkeeper to track the health of the waterways and be able to determine if restoration efforts are having a positive effect on water quality.



Source: Buffalo Niagara Waterkeeper

Water quality reports can be accessed on Waterkeeper’s website:

<http://bnwaterkeeper.org/riverwatch/>

Training for volunteers starts in the spring each year.

Water quality issues tested for include:

- **Dissolved Oxygen (DO):** The amount of oxygen present in water, which is essential for the survival of nearly all aquatic life. Oxygen levels are decreased in rivers and streams by increased water temperature, storm water runoff from farmland, urban streets, feedlots, failing septic systems, and wastewater from sewage treatment plants.
- **Conductivity:** Conductivity is a measure of the ability of water to pass an electrical current. Conductivity in water can be affected by the presence of

inorganic dissolved solids such as chloride, nitrate, sulfate, and phosphate ions, which may indicate the presence of sewage waste.

- **pH:** 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. A pH outside this range reduces the diversity in the stream because it stresses the physiological systems of most organisms and can reduce reproduction. Low pH can also allow toxic elements and compounds to become “available” for uptake by aquatic organisms.
- **Turbidity:** 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.
- **Temperature:** Aquatic organisms are all dependent on certain temperature ranges for their optimal health. Temperature affects the oxygen content of the water (as temperature increases, the amount of oxygen it can hold 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.¹⁸

iii. Restore Corps

For volunteers interested in planting trees and shrubs, collecting native seeds for

¹⁸ Sources: <https://www.ysi.com/parameters>



Source: Buffalo Niagara Waterkeeper

propagation, or for invasive species management, Restore Corps is the program for them! In the past volunteers have been involved in the following areas:

Native Niagara project events- Waterkeeper collects seeds and seedlings from local populations of native tree and shrub species to propagate and reintroduce to restoration sites in the Niagara River Watershed. As the harvest season comes to the region, we would like to reach out to the community to join Waterkeeper in the field at a number of different locations to collect seeds as they become available.

RiverBend Phase I habitat restoration- Waterkeeper welcomed volunteers to the RiverBend Phase I site at 1140 South Park Avenue for upland plantings to recreate a riparian buffer and invasive species removal.

Gill Creek riparian plantings- Starting in 2016, work kicked off on riparian plantings to reduce stormwater runoff in Gill Creek in the City of Niagara Falls. Funding for this effort was provided by the US Forest Service GLRI. Plantings occur in the Spring and Fall.

Waterkeeper will contact potential volunteers for RestoreCorps events as they become available, sign up on the website to receive updates:

<http://bnwaterkeeper.org/restorecorps/>

iv. Internships

Voluntary internships are made available throughout the year for specific programs and projects. High school and college students are encouraged to check Waterkeeper's website for postings. Internship timelines run through the spring semester, summer, and fall semester. Applications must be submitted and interviews occur either in person, over the phone, or via skype. Check

Waterkeeper's Website for more information:

<http://bnwaterkeeper.org/internships/>

Aquatic Invasive Species Interns

- Stream Assessment Intern



Source: Buffalo Niagara Waterkeeper

iiv. Volunteer Ambassador

The Volunteer Ambassador Program is a pilot program that kicked off in 2017. Waterkeeper Volunteers will be trained to provide pollution prevention strategies, assist with community events, and promote protection, restoration, and connection to the water in WNY. This program is made possible from funding provided by the NYS Pollution Prevention Institute through a grant from the Environmental Protection Fund as administered by the New York State Department of Environmental Conservation.

b. Education Programs

i. Water Academy

Water Academy is a college-level course designed to introduce the community to environmental issues and proactive solutions currently being implemented in the Niagara River watershed. This program builds upon the success of Buffalo Niagara Waterkeeper's River Academy program, offering a more extensive range

of learning opportunities through unique partnerships with local non-profit organizations, including the Western New York Land Conservancy and the Buffalo Audubon Society. Guest lecturers may include representatives from governmental agencies, community organizations and the private sector. Additional educational partners include Cradle Beach Camp, Earth Spirit Educational Services, Friends of Reinstein Woods, the Nature Sanctuary Society, and People United for Sustainable Housing (PUSH Buffalo).

Class topics may include:

- Scajaquada Creek Tour
- Native Perspectives on the Niagara River Watershed
- Great Lakes Aquatic Invaders
- Niagara River Important Bird Area
- Love's Canal
- Sewage and You
- Living Infrastructure for Water Quality
- Land Trusts in Conservation Strategy: Saving Unique Places
- Riparian Buffers in our Watershed
- Teaching Citizens to Value Headwater Forests
- Unique Habitats of the Niagara River Watershed

A spring and fall semester is offered. Check Waterkeeper's website for updates:
<http://bnwaterkeeper.org/wateracademy/> or contact: Robbyn Drake at
rdrake@bnwaterkeeper.org or 852-7483 ext 12.

ii. Young Environmental Leaders Program

In 2014 Waterkeeper in partnership with the Buffalo Public Schools launched a pilot educational program for high school students residing in under-served communities. The Young Environmental Leaders Program (YELP) provides a unique opportunity for these students to learn about local environmental issues that disproportionately affect their communities.

Students experience a science-based curriculum exploring current environmental issues in a local context, examining topics such as environmental justice and innovative solutions being pursued through WNY's emerging Blue Economy (For more information about the Blue Economy please view page 39). Students participate in active outdoor learning opportunities such as kayaking on local waterways and sampling for macroinvertebrates to learn about stream health.

A summer mentorship opportunity is presented for select students to work alongside Waterkeeper staff to participate in a research project. The students receive a stipend and valuable experience in environmental science.

The program has expanded since its pilot, providing the opportunity for additional students to become Young Environmental Leaders. With an additional partnership with Erie Community College (ECC), students who successfully complete the program will receive 3 college credit hours.



Source: Buffalo Niagara Waterkeeper

c. River Tours

Waterkeeper's River Tours program is a fun and unique way to connect the community to local waterways. Registrants are welcome to bring their own equipment or add a rental to their ticket order. Waterkeeper tour leaders are Red Cross First Aid and CPR certified and American Canoe Association certified kayak trainers.

2017 tours in the Niagara Falls National Heritage Area are made possible through a grant from the National Parks Active Trails Program. Additional kayak tours are made possible thanks to the East Hill Foundation.

Visit Waterkeeper's website for upcoming dates and more information:

<http://bnwaterkeeper.org/rivertours/>



d. Buffalo River Restoration

A unique public-private partnership, including the U.S. EPA's Great Lakes National Program Office (GLNPO), Waterkeeper, Honeywell, New York State Department of Environmental Conservation (NYSDEC), and the United States Army Corps of

Engineers (USACE), is developing plans to address a number of environmental problems affecting the Buffalo River.

The environmental challenges include: contaminated river sediments, poor water quality, a lack of public access, and insufficient fish and wildlife habitat. In the past, individual agencies implemented projects to address some of these problems. NYSDEC, for example, has cleaned up many contaminated sites that contributed to pollution in the river. Specific cleanup efforts, however, were not designed to address multiple environmental issues. The new partnership brings together resources and expertise to plan a comprehensive cleanup of the Buffalo River. Its goal is to transform the river into a beneficial environmental, economic, and community resource.



Source: Buffalo Niagara Waterkeeper

Current Status:

- Legacy Act Dredging – Completed in 2016
- Habitat Action Plan – Construction will be complete in 2018 (anticipated)
 - Excavating and regrading land

- In/out of water plantings
- Buffalo AOC Monitoring – Delisting anticipated to be completed in 2022

	Project Information	Project Phase
RiverBend Phase 1	Shoreline and riparian/upland restoration	Monitoring
RiverBend Phase 2	Shoreline and riparian/upland restoration	Monitoring
Buffalo Motor and Generator Corp. (BMGC)	In-water, shoreline, and upland habitat restoration	Construction
Blue Tower Turning Basin	In-water habitat restoration	Construction
Old Bailey Woods	Shoreline and riparian/upland restoration	Pre-Construction
NYSDEC Ohio Street Boat Launch	Shoreline and riparian/upland restoration	Pre-Construction
Toe of Katherine St.	Shoreline and riparian/upland restoration	Monitoring
Buffalo Color Peninsula	Shoreline and riparian restoration	Monitoring

e. Living Shorelines

A growing number of communities around the country are employing programs to restore shorelines to their natural form. The benefits of these naturalized living shorelines are well documented in numerous studies, and research verifies that they

provide significant improvements in water quality, habitat, and shore resiliency.¹⁹ With funding provided by the Greenway Ecological Standing Committee, Buffalo Niagara Waterkeeper has launched a Living Shorelines program within the Niagara River Greenway.

Here is an example of a Living Shoreline from Waterkeeper's Guide for Waterfront Landowners. The full document can be viewed here: <http://bnwaterkeeper.org/wp-content/uploads/2011/08/PDF-Version-for-Website.pdf>



Source: Buffalo Niagara Waterkeeper

The Living Shorelines program aims to restore both hardened and degraded shoreline areas to their natural, resilient, and self-repairing form which will better support a sustainable, protective and higher-functioning ecosystem. A healthy shoreline encompasses the full expanse of the land-water interface: in-water, shoreline, and upland. When functioning properly, this interface will:

¹⁹ Source: <http://www.habitat.noaa.gov/restoration/techniques/livingshorelines.html>

- Improve water quality by filtering sediments and stormwater runoff
- Create habitat that supports the life cycles of many fish and wildlife species
- Reduce shoreline erosion by absorbing and lessening erosive forces
- Enhance public access and improve recreational opportunities
- Increase community resiliency by absorbing wave energy, floodwaters, and storm surges²⁰

Buffalo Niagara Waterkeeper is developing and installing Living Shorelines on four sites in order to meet both the goals of this program, as well as the needs of local landowners and public spaces. The program's focus is to improve shoreline sections that lack healthy vegetation buffers and in-water habitat, and to restore shorelines with hardened structures or erosion problems to functional natural living infrastructure systems.

Utilizing best management practices, Waterkeeper is applying innovative bioengineering techniques to execute the Living Shorelines Program. Bioengineering employs native and naturalized plant species, natural slopes and other natural materials, such as stone, boulders, and log revetments to buffer the shore and vegetation from storm effects and hydrologic forces. When applied to a shoreline that is hardened or eroding, these techniques restore the ecosystem services provided by the habitat components that make up a living shoreline, including improved water quality and enhanced biodiversity.

Waterkeeper's first living shoreline project was constructed at the Sandy Beach Park Club on Grand Island.

Photos below were taken from a different vantage point.

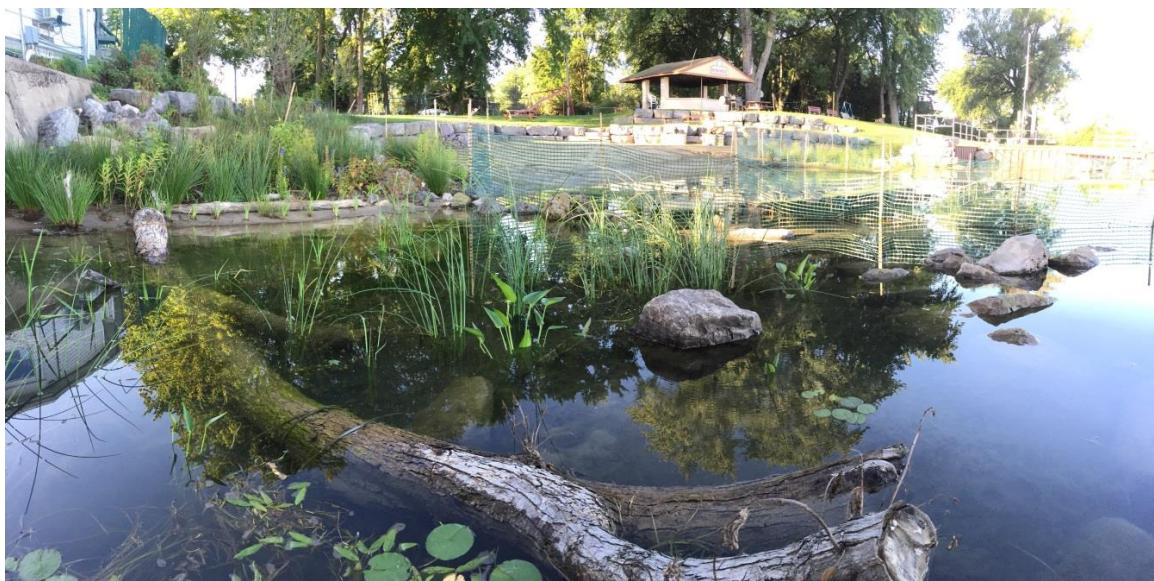
Sandy Beach Park Club Before:

²⁰ Source: <http://www.habitat.noaa.gov/restoration/techniques/livingshorelines.html>



Source: Buffalo Niagara Waterkeeper

Sandy Beach Park Club After:

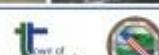


Source: Buffalo Niagara Waterkeeper

f. Healthy Niagara

Buffalo Niagara WAtkeeper has recently completed a regional, community based initiative to

Healthy Niagara
Niagara River Watershed Management Plan (Phase 1)



develop a Niagara River Watershed plan (**Healthy Niagara**) that focused on action steps to protect and restore water resources in the community and the watershed. Financial support for the development of the plan was provided by the New York State Department of State with funds provided under Title 11 of the Environmental Protection Fund. Other project partners included the Town of Tonawanda and the Erie County Department of Environment and Planning.

The planning process included a review of existing data and information; an inventory and summary of existing watershed physical, biological, and ecological conditions; and identification of problems and opportunities. From this work a report was compiled to provide a Phase 1 Watershed Management Plan for the Niagara River Watershed. The plan provides watershed stakeholders and citizens with current information on the health of the watershed, recommends what can be done to improve water quality, and informs citizens as to how they can be involved in watershed protection and restoration.

Phase 1 can be found here: <http://bnwaterkeeper.org/healthyniagara/>

Phase 2 reports were completed in 2017.

Phase 2 of the project aims to:

- Assess current sub-watershed conditions
- Identify areas contributing pollution to the watershed
- Develop action-oriented management practices to preserve, enhance, and restore watershed resources
- Work with municipalities to identify implementation opportunities

g. Niagara River Habitat Conservation Strategy

Waterkeeper has completed two planning efforts that serve as blueprints for habitat restoration and conservation in both the Niagara River watershed and Niagara River Greenway. Both efforts followed

Niagara River Habitat Conservation Strategy



August 2014



Funding for this project was provided by the United States Environmental Protection Agency through a Great Lakes Restoration Initiative grant GLI-97217710

the Conservation Action Planning (CAP) process similar to that utilized for the Lake Ontario Watershed, the Lake Erie Watershed, and the Niagara River Watershed in Canada. The CAP process uses a science-based model for evaluating biodiversity features in terms of landscape context, condition, size, and other variables to help rate the health status of each feature. Mapping analyses, data collection, existing regional documents, and stakeholder input are other elements that assisted in the development of both efforts. The results of both plans are intended for use by local stakeholders and municipalities. By reviewing the proposed conservation strategies and actions, stakeholders can identify areas of synergy with their goals and utilize the results to inform and refine those goals, support funding applications for conservation projects in an ecosystem or watershed context, educate constituencies, and strengthen and enhance local partnerships. More information about each of these efforts can be found below.

Niagara River Habitat Conservation Strategy

Completed in 2014, this document identifies critical habitats and priority actions for the 900,000+ acre Niagara River watershed. Funding for this effort was provided by the 2010 US Environmental Protection Agency's Great Lakes Restoration Initiative. The completed document serves as a regional blueprint for habitat restoration and conservation, identifying best-bet opportunities to positively impact water quality. A major priority action identified in the final document focuses on the protection of headwater forests along with the first and second order streams they nurture. Headwater forests are an essential part of a functional river landscape, which includes the aquatic habitats needed to sustain and rebuild fresh water fisheries and improve the quality of local drinking water sources

Niagara River Greenway Habitat Conservation Strategy

Completed in 2015, this document serves as a companion to the 2014 Niagara River Habitat

Niagara River Greenway Habitat Conservation Strategy



July 2015



www.bniw.org
Funding for this project was provided by
the Greenway Ecological Standing Committee

Conservation Strategy and provides detailed habitat restoration and conservation opportunities for the Greenway portion of the watershed. Funding for this project was provided by the Greenway Ecological Standing Committee. Notable products from this effort include: an analysis of barriers to fish, an assessment of shoreline conditions, data collection regarding seeps within the gorge, completion of stream assessments along over 13 miles of stream, and gathering of public input on priorities and threats from stakeholder meetings. Another important outcome from this project is the completion of a one-foot-resolution land cover mapping database for the coastal areas in the Greenway which offers a level of detail that is unmatched in any other publically available datasets, providing important information needed to inform restoration planning.

h. Blue Economy Initiative

Western New York lies at the heart of the Great Lakes, and is an ideal community to advance a “**blue economy**”²¹. Water resources support recreation, eco-tourism, fish and wildlife, manufacturing, waste processing, power generation, trans-shipment, and drinking water.

²¹ The concept of the “blue economy” emphasizes innovation to create more with less, using local resources, avoiding waste, and leaving natural resources in better condition than before. Source: <http://www.oneregionforward.org/casestudy/buffalo-niagara-riverkeepers-blue-economy-initiative/>

The Buffalo Niagara region is at a critical moment in time. The community is poised to become a globally relevant case study by creating economic revitalization through the restoration of the health and integrity of its fresh water system. This model is what Waterkeeper refers to as our “Blue Economy”.

Clean water is a vital asset and its value will continue to increase as global climates change. Buffalo Niagara Waterkeeper has worked for 20 years to restore and revitalize our fresh water. With other partners, it is therefore ready to lead the surge into a “blue economy,” based on this invaluable natural asset.

Buffalo Niagara Waterkeeper is working towards **Five Guiding Principles** for sustaining Western New York’s Blue Economy:

Guiding Principle #1: Restoration and protection of our water systems is a driver of regional economic revitalization through the establishment of a sustainable jobs market.

Guiding Principle #2: Increased public accessibility to the water and preservation of open space is a design priority for waterfront revitalization.

Guiding Principle #3: Green infrastructure solutions are a major component in the restoration of our sewer systems, watershed habitats and greenways.

Guiding Principle #4: Implementation of the Niagara River Greenway will be a catalyst for economic development and community vitality.

Guiding Principle #5: Public, private and non-profit partnerships and collaborations will leverage diverse resources and community engagement.

i. Scajaquada Creek Initiative

Waterkeeper is engaging a diverse team of stakeholders through the Scajaquada Creek Initiative to create a Restoration Strategy for the Creek and surrounding communities.

The Strategy will prioritize the action steps needed to mitigate the multitude of environmental problems to restore water quality for Scajaquada Creek. Waterkeeper is working with many partners to create a consensus-based strategy that will build upon previous work, coordinate the various efforts, and also combine and leverage resources to ultimately implement restoration solutions.

Scajaquada Creek has a long history of water quality issues, including CSO's (for more information view page 48), urban stormwater runoff and lack of riparian vegetation. 4 miles of the creek was actually covered over and developed upon in Cheektowaga.

Thanks to a \$5 million New York State Water Infrastructure Improvement Act grant²², accompanied by \$15 million in interest-free state loans, restoration of the creek has kicked off! The funding will support the reduction of pollution and remediate areas that have been contaminated.

The Army Corps of Engineers, a contract partner of Buffalo Niagara Waterkeeper, is working on a \$2 million project to clean up Forest Lawn's waterway. The work is expected to take two to three years.

The implementation phase that began in fall 2016 is orchestrated by the Buffalo Sewer Authority. This includes the dredging of the creek, and the restoration of a large portion of its floodplain and wetlands.

Additional wetland restoration is being implemented by Buffalo Niagara Waterkeeper and Ducks Unlimited through funding from the Greenway Ecological Standing Committee.

Site Rendering of Forest Lawn Wetland

²² Source: <http://sustainablewater.com/ny-approves-200mm-in-grants-for-water-infrastructure/>



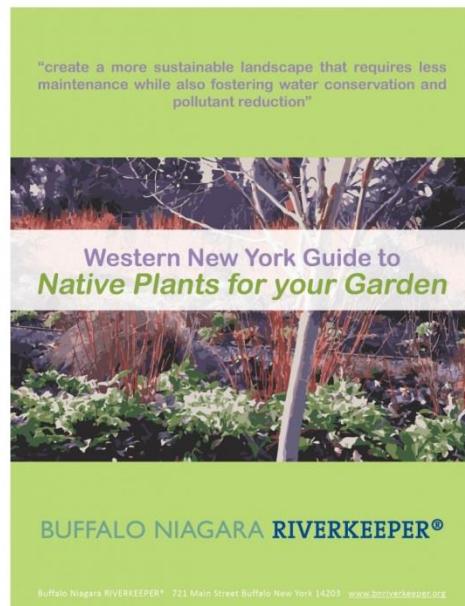
Source: Buffalo Niagara Waterkeeper

j. Native Plant Guide

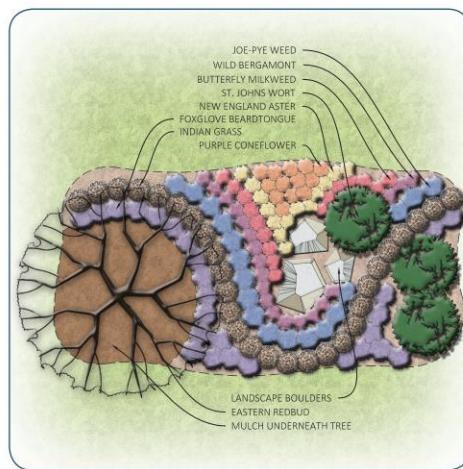
One of the most effective ways of restoring the health of local ecosystems is for property owners to use native plant species when planting gardens and landscaping. Buffalo Niagara Waterkeeper has prepared a native plant guide to help property owners identify and choose native plant species.

Native Plants are indigenous plants that have evolved to a particular region, adapting to the geography, hydrography and climate of that region. As a result, regions with healthy populations of native plants are more sustainable and resilient, supporting cleaner water, a diversity of wildlife and thriving ecosystems. Native plants have adapted to the local climate and ecosystems, they usually require little to no additional water beyond normal rainfall levels and typically do not need fertilizers, pruning, or pesticides to flourish; saving time, money, and the environment.²³

Beautifully illustrated, the Guide outlines over 90 different plants native to Western New York. Everything from groundcovers and vines to grasses and trees are represented. Funded through a grant by the Niagara River Greenway Ecological Standing Committee, the guide also provides 6 different native garden planting plans, a planning design consideration checklist, and proper planting instructions. Waterkeeper encourages you to utilize this guide to incorporate native plants in gardens and improve the health and sustainability of local waterways.



Butterfly Garden



²³ Source: https://www.fs.fed.us/wildflowers/Native_Plant_Materials/Native_Gardening/index.shtml

k. Rain Barrel Sales

Rain barrels (for more information view page 51) sold by Waterkeeper have the capacity to hold 60 gallons of rain water, stand 39" tall by 24" wide, and weigh approximately 20 lbs. when empty. Colors are available in Dark Brown, Forest Green and Nantucket Gray. Built with a 3/16" thick wall, these barrels are one of the most durable on the market. Each UV protected polyethylene barrel is made in the USA from a recycled food grade shipping barrel, previously used to import olives.

Cost of Rain Barrel: \$99.95 plus tax

You may purchase rain barrels, downspout diverters, and spigots at the Waterkeeper office where we accept cash, credit, and check payments.

All orders are available for pickup at Waterkeeper's office (721 Main Street, Buffalo, NY 14203) on weekdays from 9AM to 4PM (excluding holidays).

Rain barrels come complete with installation instructions, overflow fitting (that you can attach a hose to), drain plug, screw on cover with a mosquito-preventing screen, and a threaded spigot positioned 14" from ground level.



Source: www.greatamericanrainbarrel.com/

3.4 News & Advocacy

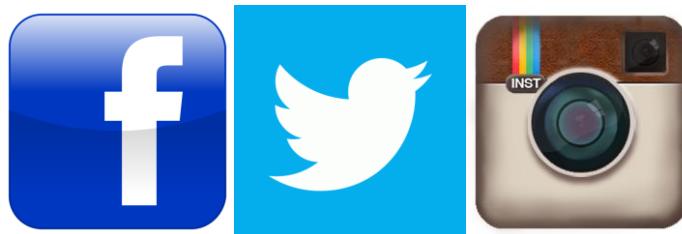
For updates about Waterkeeper Programs and current projects, please view the news page here: <http://bnwaterkeeper.org/category/recent-news/>

An event calendar is also listed on the website: <http://bnwaterkeeper.org/calendar/>

Buffalo Niagara Waterkeeper regularly prepares public comments and position statements on issues that may impact the ecological integrity of our waterways and watershed, which includes public health, public access, and ecosystem impacts. To view these public comments and positions statements visit the website:

<http://bnwaterkeeper.org/position-statements/>

For updates about community events, volunteer spotlights, and how to get involved, follow Waterkeeper on Facebook, Twitter, and Instagram [@bnwaterkeeper](https://www.instagram.com/bnwaterkeeper)



Chapter 4 Pollution

4.1 Point VS Nonpoint Pollution

a. Point Source Pollution

Polluting substances are considered point source pollution²⁴ when they are discharged from discrete sources, such as factories, sewage systems, power plants or oil wells. The pollutants flow directly into waterways through a simple pipe. All dischargers of point source pollution must hold a valid permit under the State Pollution Discharge Elimination System (SPDES) in order to discharge legally, and the effluent must match the type and volume allowed by their permit.²⁵

SPDES permits are monitored by the NYSDEC, although the program includes self-monitoring and reporting by the polluter. The inspection and monitoring history of all SPDES permit holders is public information and can be downloaded from the internet through NYSDEC's Environmental Navigator program.²⁶

Any polluter discharging from a point source without a permit is breaking the law. Such pipes may be hidden under high water lines to avoid detection. Discharge by permit holders of substances not listed on the permit, or in greater quantity than that listed on the permit, is also illegal.

b. Nonpoint Source Pollution

Unlike the easily identified point sources, nonpoint sources²⁷ are poorly defined and may be scattered over broad areas. Nonpoint source pollution results when runoff from rainfall and snowmelt move over and through the ground, picking up pollutants as they go. Common non-point sources include agricultural runoff from farm animals and croplands; storm water drainage from streets, parking lots and lawns; and air pollutants

²⁴ Source: <http://oceanservice.noaa.gov/education/kits/pollution/03pointsource.html>

²⁵ Source: <http://www.dec.ny.gov/permits/6054.html>

²⁶ To visit view this website: <http://www.dec.ny.gov/imsmaps/facilities/viewer.htm>

²⁷ Source: <https://www.epa.gov/nps/what-nonpoint-source>

washed to earth in rain or snow or deposited as dry particles. Fertilizers, pesticides, yard and animal wastes, sediment, oil, gasoline and automotive chemicals are commonly washed into our waterways through these many, varied nonpoint sources.

Nonpoint sources are difficult to regulate because they are so scattered and numerous. Yet, they account for a large percentage of the pollutants found in local waterways. One way of tackling nonpoint source pollution is through education of the community. Engaging with farmers to adopt Best Management Practices²⁸, such as providing a buffer along a stream to filter out pollutants, can help protect waterways in agricultural areas. Educating urban and suburban residents to the pollution dangers posed by lawn pesticides and fertilizers, motor oil and automotive chemicals, and even improperly disposed yard waste can help to change the community's behavior and protect waterways.

4.2 Legacy VS Ongoing Pollution

a. Legacy Pollution

Legacy pollution is any pollution that remains from past activities where there is no immediate responsible party to be held liable and obligated to carry out remediation.

In the Buffalo-Niagara Region, legacy pollution stems from the industrial past. Waterways (like the Buffalo River) were often used as a dumping ground for industrial waste disposal, as there was little to no regulation of industrial discharges prior to the 1960s and 1970s.

These toxic, chemical pollutants are able to make their way from the river sediment through the aquatic food chain. There, they accumulate in fish, posing health risks to

²⁸ Source: <http://www.ecswcd.org/html/BMP.html>

humans and causing fishing consumption advisories in many Western New York Waterways.²⁹



Historic photo of the Buffalo River. The former Republic Steel plant is to the left of the river and the former Buffalo Color plant is to the right. Oil sheen visible in the photo indicates petroleum impacts. Most of the contamination is now bound to river sediments.

Source: www.dec.ny.gov/

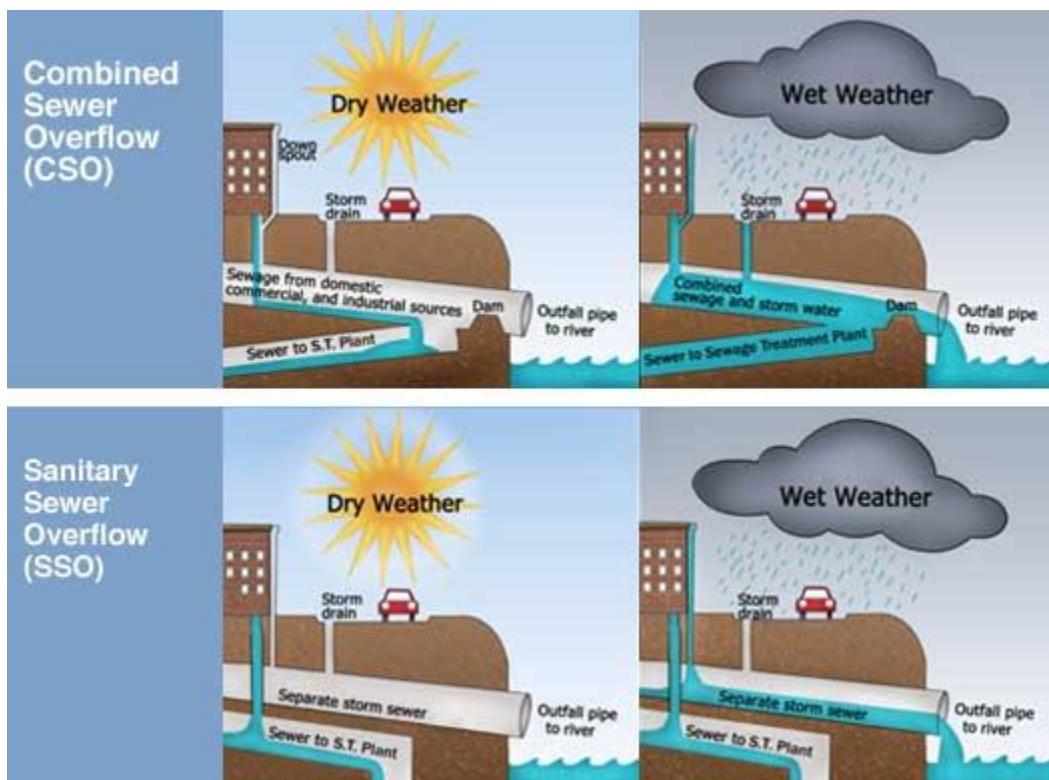
b. Ongoing Pollution

Ongoing pollution continues to plague our waterways. Sources of ongoing pollution in the Buffalo Niagara region include Combined Sewer Overflows (CSOs), Stormwater Runoff, and Land Use.

²⁹ Source: <http://www.dec.ny.gov/chemical/69678.html>

i. Combined Sewer Overflows

During rain events, water from streets, roofs, and lawns run off into storm drains and combines with sewage into one system. When there is more than a half inch of rain, the volume of water may overwhelm the system and overflows into local waterways by design. Overflows contain not only stormwater, but untreated human waste, toxics, and debris.³⁰



Source: <https://www.epa.gov/>

³⁰ Source: <https://www.epa.gov/npdes/combined-sewer-overflows-csos>

ii. 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, toxics and salts from roads, along with silt and sediment from erosion.³¹



Source: <http://cleanwatercampaign.org/learn-about-our-water/>

³¹ Source: https://www3.epa.gov/caddis/ssr_urb_is1.html

iii. Land Use

Waterways in their natural state have areas of forest, shrub land or wetlands along shorelines. This vegetation, often referred to as a riparian buffer, is natural infrastructure that helps filter stormwater and control erosion.³² Development of the land in The Niagara River

Watershed has removed much of this natural resiliency resulting in increased erosion and pollution from stormwater.



Source: Buffalo Niagara Waterkeeper

³² Source: https://www.nrcs.usda.gov/wps/portal/nrcs/detailfull/national/landuse/forestry/sustain/guidance/?cid=nrcsdev11_009302

4.3 Pollution Prevention

a. Downspout Disconnection

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

Downspout connected to sewer line



Source: <http://theeavestroughcompany.blogspot.com>

Downspout disconnected from sewer line



Source: <http://www.stormwater.allianceforthebay.org>

b. Rain Barrels

Rain barrels are containers that collect and store rain water for future uses, such as watering landscaping, while decreasing the amount of stormwater runoff that leaves your property. A rain barrel is placed under the downspout to channel rainwater into the barrel for later use. (For more information about rain barrels see page 42).



Source:
www.greatamericanrainbarrel.com/

c. 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 stormwater to soak into the ground. Rain gardens can reduce the amount of pollution reaching creeks and streams by up to 30%.

³³

Rain Garden in Buffalo, NY



***Parking Lot Rain Garden
in North Tonawanda, NY***



Sources: Buffalo Niagara Waterkeeper

d. Shoreline Sweeps / Monthly Waterway Cleanups

Cleaning up litter from the shores of our local waterways is a direct action anyone can take to prevent pollution. Waterkeeper offers many opportunities during the year to volunteer and clean up litter. Waterkeeper's annual Spring Shoreline Sweep attracts 1500 volunteers to volunteer at over 40 sites in WNY (for more information view page 22). New in 2016 is the Monthly Waterway Cleanups, providing additional opportunities throughout the year for community volunteers to keep local waterways clean!

³³ http://water.rutgers.edu/Rain_Gardens/fs513.pdf

e. Report a Spill



Source: <http://dec.alaska.gov/spar/>

**Have you witnessed a chemical or oil spill?
Found evidence of dumping?**

Call the following organizations:

Waterkeeper 716-852-7483 (ask to speak with Leah Pabst ext. 14)

and

NYSDEC 1-800-457-7362 (Spill Hotline)

Please take photo and be prepared to provide detailed information

There are more than 300 Environmental Conservation Police Officer (ECOs) and Investigators in New York State. They each patrol an average of 400 square miles. Help them by reporting any violations you may see!

Chapter 5 Volunteer Ambassadors and Pollution Prevention

5.1 About the Program

In 2017 Buffalo Niagara Waterkeeper was able to pilot a Volunteer Ambassador Program. Through this program, Ambassadors represented Waterkeeper within the Niagara River Watershed, raising awareness of water pollution issues and educating citizens on direct actions that can lead to reductions in water pollution.

In 2018, the Volunteer Ambassador Program is continuing and expanding to involve more Ambassadors, additional events, and new target audiences.

- Outreach conducted by Volunteer Ambassadors will target reduction of polluted Stormwater Runoff and Combined Sewage Overflows (CSOs). Citizens will be informed and educated on the use of rain barrels and rain gardens to capture stormwater runoff that will flow directly to waterways or contribute to CSOs, as well as planting native vegetation in their gardens to reduce the use of fertilizer necessary for plants to thrive.
- Volunteer Ambassadors will also Lead Shoreline Cleanups, directly reducing the amount of plastics and other harmful debris that may pollute waterways.
- Through planting native trees and shrubs at RestoreCorps events, pollution from stormwater runoff will be reduced.
- Data gathered through the Riverwatch program will bring to light problem stretches of waterways. This information can be used to inform and inspire residents to action as well as reduce stormwater pollution.

5.2 Volunteer Ambassador Tasks

Volunteer Ambassadors are required to complete specific task and attend specific events as listed below on an annual basis. The specific of the tasks required is listed on your task tracking sheet that will be given to at orientation. The tracking sheet will be reported to the program coordinator biannually.

- Attend Volunteer Ambassador Training
- Shadow BNW Staff at a community event
- Conduct direct outreach at community events
- Attend Cleanup Site Captain Training
- Attend Gill Creek Site Captain Training
- Attend Riverwatch Training
- Site Captain Monthly Cleanups
- Site Captain Gill Creek Plantings
- Sample for Riverwatch

The Volunteer Ambassador program is ideal for educating and engaging with the following groups of people:

- **University Students** – engage and educate college students on water pollution prevention issues so that these future leaders are equipped to finding solutions to the myriad environmental issues.
- **Recreational Paddlers** – With access to over 20% of the world's fresh surface water there are unlimited recreational opportunities along regional waterways providing potential engagement. We will target paddlers to educate them on protecting the water's that they enjoy.
- **Gardeners**- With the tremendous growth of the Buffalo Garden Walk and the national attention that it brings to the region, gardening has exploded in popularity in the community. Waterkeeper has had success with developing and distributing Native Plant Guides to educate the community. Ambassadors will continue these efforts.
- **Anglers**- With a vested interest in preventing pollution that harm recreational fish species we will stress the harm that plastic, Styrofoam, fishing line and other fishing-related debris can have on wildlife.

5.3 Protocols

This section will provide detailed information for Ambassadors to conduct successful events.

Event Signup:

Use the google sheets signup to reserve a spot tabling at an upcoming event.

https://docs.google.com/spreadsheets/d/1jo2PAm4tX32_04Alp1TQS1LKgmmV5LeYFPQAtVrOado/edit#gid=0

If you have an event in mind, and do not see it on the list- **let Wendy know!**

- ✓ Before Event
 - 1) Confirm that you are attending each event by responding to reminder email
 - You will receive an email prior to each event with details about how to get there, where to park, who the contact is, what the audience is, and what the primary topics are
 - After you get this email send a confirmation email and tell us when you can pick-up supplies
 - Read instructional and educational information provided to you prior to the event
 - 2) Pick-up tabling supplies
 - Each supply kit should include the following
 - Community member contact sign-up
 - Handouts (Rain Barrel Brochures, Riverwatch Reports, Native Plant Guides, and Land-Owner Stewardship Guides)
 - Clicker(s) to count people engaged with
 - Signage/tablecloth
 - Name tags, donations container, pens and pencils
 - Questionnaire to fill out after the event
 - 3) Plan to have enough time to get there early (15-30 minutes)
 - Double check you know where to go
 - Double check your personal schedule prior
 - Make a personal supply list (water, snacks, clothing)

- Check the weather and check to see if the event was canceled
 - If the event is canceled Waterkeeper staff will call and email you
- ✓ During Event
 - 1) Put on name tag
 - 2) Fill out community member info sheet header (name of the event and date)
 - 3) Set up table and get clicker ready
 - 4) Interact and engage with attendees, take pictures, and have fun!
 - Use the clicker every time you have a conversation with a community member
 - Collect contact information and inform individuals they will be receiving a survey
 - Document interesting and/or frequently asked questions
 - Document if you think this was a valuable event for Waterkeeper to attend
 - Right audience? Well organized and advertised?
 - Smile and be welcoming to guests!
 - Ask people if they have heard of Waterkeeper before. Be sure to explain Waterkeeper's mission!
 - Suggestions to include in conversations:
 - Upcoming events (tours, volunteer event, forum, etc)
 - eNewsletter (sign up, receive email monthly)
 - Follow Waterkeeper on Facebook
 - View Waterkeeper website for additional information

REMEMBER: Volunteer Ambassadors represent Buffalo Niagara Waterkeeper. During the outreach event, Waterkeeper requires Ambassadors to present and uphold the views of the organization.

- ✓ After Event
 - 1) Make sure questionnaire is filled out
 - 2) Pack up all supplies
 - 3) Return supplies to the office

Table Set up Examples:



Source: Buffalo Niagara Waterkeeper



Source: Buffalo Niagara Waterkeeper

5.4 Managing Challenges

At times, you may encounter people that have vastly different views than yourself and Buffalo Niagara Waterkeeper. Here are some tips to help you through these difficult times:

- Listen
- Stay calm
- Know your facts!
- Don't judge
- Show them respect for what they DO know
- Don't take it personally
- Resist that urge to be an expert right back- often escalates the situation.
- Practice Defenselessness: Being defenseless doesn't mean you're passive—you still maintain your opinion and perspective in the situation—but rather than engaging with the intention of making the other person wrong, you consciously choose not to be an adversary.
- Sometimes, just let them run down. Don't interrupt.

A helpful acronym to keep in mind when dealing with a difficult person

Stay whatever you're doing
Take 3 deep breaths
Observe how your body feels
Proceed with kindness and compassion

5.5 Practices and Policies

Fair Treatment Policy

All volunteers of Waterkeeper are expected to treat their fellow volunteers, employees, supervisors, customers, vendors, guests, the media or any other business contact courteously and with honesty, dignity and respect. It is Waterkeeper policy to prohibit verbal or physical conduct by any volunteer which harasses, disrupts or interferes with another volunteer or employee's work performance or which creates an intimidating, offensive or hostile work environment. Furthermore, volunteers will not initiate or participate in dialogue, discussions or other communications that is knowingly untrue, speculative or malicious in nature.

Volunteers making complaints under this policy shall follow and be subject to the same procedures and assurances spelled out in the Sexual Harassment Policy.

Standards of Conduct

Prohibited conduct by volunteers may result in disciplinary action being taken up to and including discharge. While such action will generally be progressive in nature for minor offenses, the seriousness of the misconduct will determine the severity.

Conduct which will result in disciplinary action includes, but is not limited to the following:

1. Failing to comply with safety regulations or contributing to unsanitary or unhealthy conditions.
2. Taking excessive breaks or absenting self from work area without permission or notice.

3. Creating unnecessary waste of materials or causing damage to company equipment or property through neglect or intent.
4. Use of foul or abusive language.
5. Harassing, threatening or intimidating volunteers, employees, customers, visitors or others for any reason.
6. Discriminatory treatment against fellow volunteers, employees, customers or others on the basis of race, religion, color, creed, national origin, age, sex, sexual orientation, disability or marital status, including any form of sexual harassment.
7. Fighting or provoking a fight on company property or while on duty.
8. Willful disobedience, insubordination or intentional failure to carry out any reasonable order given by authorized management.
9. Tampering with or falsifying yours or another volunteer's or employee's time record. Giving false or misleading information on benefit claims or other company records.
10. Gambling while on duty
11. Stealing from company, fellow volunteers, employees, customers or visitors.
12. Possessing, consuming or selling illegal or controlled substances or alcohol on company property or otherwise on duty or stand-by status.
13. Reporting to work or otherwise being under the influence of alcohol, drugs (including prescribed) to the extent that the ability to work in a safe and proficient manner is adversely effected.
14. Possession of firearms or other weapons on company property or otherwise on duty.
15. Violation of company policies such as dress code, smoking, etc.
16. Tardiness, whether habitual or excessive; failure to call in prior to beginning of shift; leaving an event early without permission or notification as required.
17. Excessive or habitual absenteeism.

Sexual Harassment Policy

Sexual harassment, whether involving opposite or same sex situations, is particularly disruptive to the values most central to the mission of Waterkeeper; and will not be tolerated. This policy shall apply equally to all volunteers and representatives of Waterkeeper.

Prohibited activity is defined as any unwelcome behavior of a sexual nature that relates to gender or sexual activity and has the purpose or effect of creating an intimidating or hostile work environment. Sexual harassment encompasses the full range of coercive or unwelcome behavior that may be physical, verbal or visual in nature. Such conduct may include, but not be limited to, flirtations, touching, propositions, verbal suggestions or abuse of a sexual nature or any similar activity or unwelcome advances that create a hostile or threatening work environment. The display of sexually suggestive objects or pictures is specifically prohibited.

No supervisor is to threaten or insinuate, either explicitly or implicitly, that an volunteer's or applicant's refusal or agreement to submit to sexual advances will in any way affect matters of employment, performance evaluation, compensation, promotion or demotion, job duties and assignments or other conditions of service.

The company is committed to fully investigating any complaints of harassment in accordance with the following procedures:

- 1. It is the volunteers' responsibility to report any problems to your supervisor, the Director of Finance and Operations or to the Executive Director as soon as possible.** Supervisors are prohibited from attempting to resolve allegations of harassment without the express authorization of the Executive Director.

2. All reported incidents or complaints will be investigated as expeditiously as possible. Confidentiality will be maintained to the maximum extent possible for the protection of all parties during the investigation and determination of fact.
3. Any volunteer, employee, supervisor or manager found to have violated this policy and to have sexually harassed another volunteer or employee will be subject to appropriate disciplinary action up to and including discharge. Other remedial actions may be taken as appropriate.
4. No reprisals will be taken against any volunteer who in good faith, reports an incident, makes a claim of harassment or otherwise participates in an investigation.

Personal Appearance

Your appearance is important, as it reflects pride in yourself, your position, and Waterkeeper. It is expected that Volunteer Ambassador clothing and personal appearance will be neat, clean, and appropriate to the volunteer's position and work situation. No visible undergarments or midriffs should be showing at any time. One Waterkeeper shirt will be provided at no charge. Appropriate footwear should be worn depending on duties and nature of the work.

ACKNOWLEDGEMENT FORM

This is to acknowledge that I have received and read the Buffalo Niagara Waterkeeper Volunteer Ambassador Handbook and understand what is expected of me as a Volunteer Ambassador.

Further, I realize that my commitment with Waterkeeper as a Volunteer Ambassador is on an at-will basis, which means that my position as a 'Volunteer Ambassador' may be dismissed at any time by either party, for any reason not expressly prohibited by law.

Print Volunteer Ambassador Name

Signature of Volunteer Ambassador

Date

Signature of Volunteer Ambassador Coordinators

Date