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Nature

FALL/WINTER 2014

Saving Our Great Lakes

Celebrating the year in conservation

Board chair Clayton Millard and director Jim Howe. © JAN MILLER/TNC

Making Our Lakes Great Again

A watershed is composed of many parts—the rivers, creeks, lakes, waterfalls and wetlands we can easily see, but also its shores, uplands and groundwater. A watershed is also home to people and infrastructure—our roads, homes, grocery stores, farms and canals.

Central and Western New York enjoys an abundance of fresh water: two Great Lakes, a unique cluster of Finger Lakes at the heart of our state, and thousands of miles of rivers, streams and aquifers connecting it all. We also have abundant water needs—from growing food to producing energy to supplying drinking water. Balancing our needs with the needs of nature is vital to our well-being.

In the old days, traditional solutions like dams, reservoirs and other "gray infrastructure" were the norm. But those strategies are proving costly and unsustainable on their own. Relying solely on infrastructure compromises many of the benefits that healthy lakes and rivers provide—inflicting significant costs on the people who depend on those natural systems for food, income, recreation and other services. We must find new solutions.

Plan 2014 for Lake Ontario is one exciting example. As you'll read in our cover story, Plan 2014 stands to be one of the largest-ever wetland restoration initiatives in North America. By changing the way water is managed through the Moses Saunders dam we can restore 64,000 acres of coastal wetlands on Lake Ontario and the St. Lawrence River, create a more resilient shoreline, help declining fish and wildlife, and bring as much as $9 million a year in additional value to our economy from increased nature-based recreation and tourism.

You'll also read in this issue about two new projects to bolster water quality in Honeoye Lake and Lake Erie, our latest successes in beating back aquatic invaders, and our work to rebuild native fish populations in Lake Ontario. None of these projects would be possible without the support of you, our members.

The Nature Conservancy believes we can protect and restore our waters by implementing new solutions rooted in nature and by re-connecting people with the "free" services nature provides for us every day—like water filtration, flood control and healthy fisheries.

Thank you for all you did this year to support this work. Because of you, we are fundamentally changing how the world manages its water resources, starting right here at home in our own watersheds.

Jim Howe Clayton Millard

COVER: LEAF interns canoe on Lake Ontario © TNC

Hope for Native Fish

Solving a lake herring mystery

Cisco, or lake herring, were once abundant across the Great Lakes basin and a bountiful source of prey to large native predators such as lake trout. But their numbers declined drastically by the 1950s due to environmental degradation, overfishing and invasion of exotic species like alewife and sea lamprey. Chaumont Bay in Jefferson County is now home to the last known spawning stock of lake herring in New York's Lake Ontario basin, but we know very little about their behavior or population status.

With lead support from the Wendt Foundation, The Nature Conservancy has embarked upon a discovery mission to figure out how many cisco are left, locate their spawning site and identify potential roadblocks to their recovery. Here's how we've tackled these questions so far.

WINTER 2014 – Cisco eggs were collected using an egg pumping system designed to accommodate the challenges of sampling overwintering fish eggs through a thick layer of ice cover. The eggs were taken back to the lab to be photographed, measured and preserved.

SPRING 2014 – Cisco larvae were collected using light traps and by towing nets at the water's surface. To check for larvae-eating predators such as alewife, we used hydro acoustic and gillnet surveys when larvae were expected in the bay. No alewife were found and predation threats are assumed to be minimal.

SUMMER 2014 – This summer, the eggs were genetically identified with the help the USGS Great Lakes Science Center in Ann Arbor, Michigan. 41 of the 59 eggs collected contained viable DNA, and 100 percent of these eggs fit the cisco DNA profile.

Above: Cornell grad student Ellen George conducting cisco research. © DAVID KLEIN/TNC. **Below:** Mat Levine with tagged cisco. © ELLEN GEORGE; Larvae awaiting identification. © DAVID KLEIN/TNC.

What We Know Now

Lake herring eggs in Chaumont Bay were found almost exclusively at shallow, rocky sites. Although most of the eggs were found on Johnson Shoal, spawning also appears to be occurring on nearby Herrick Shoal. Cisco appear to prefer shallow, rocky, cold spawning sites, and do not spawn on weedy or muddy ground.

Cornell University graduate student Ellen George presented these research findings at two international conferences this year and brought back many new ideas and collaborations for the cisco restoration project. "We're hoping to leverage this work to bring back lake herring not only in Lake Ontario, but throughout the Great Lakes," says Darran Crabtree, director of conservation science.

PHOTOS: (Left) Lake Erie © MARK GODFREY; (Right) Jim Howe at Eighteenmile Creek © LAURIE DANN

Lake Erie: Saving Nature's Water Filters

Eighteenmile Creek headwaters to be protected

Last summer, a landowner in southern Erie County asked for help protecting her family's 225 acres of thick forest, undisturbed for over a century.

Untouched by farming or logging, the mature forest of eastern hemlocks, sugar maples and hickories filters water and provides superb habitat for wildlife. Beneath the trees, an underground aquifer feeds a stream perfect for trout. The intact forest here keeps clean water flowing downstream in Eighteenmile Creek, one of Lake Erie's major tributaries. If this headwater forest were developed, the loss of sheltering trees would erode the stream banks, adding sediment to the water, ruining trout habitat and degrading water quality for miles downstream. The entire watershed could be impacted.

Because of the land's value, The Nature Conservancy and Buffalo Niagara Riverkeeper together approached Erie County to understand their interest in permanently protecting this parcel. County representatives expressed enthusiasm for adding it to their system of protected parks and forestland.

Partners in Protection

To safeguard these critical forests, streams and wetlands, The Nature Conservancy and Buffalo Niagara Riverkeeper are now teaming up to purchase the land for Erie County. Together, our two organizations must raise $320,000 over the next few months to close on this important piece of land.

"Protecting water is a top priority in this region," says Jim Howe, The Nature Conservancy's Central and Western New York director. "Erie County has the highest number of Superfund sites in New York and faces many potential water quality problems because of its geology and mix of urban, agricultural and suburban areas. Healthy and intact forests are crucial for keeping these waters plentiful and clean."

About 90 percent of Erie County's population gets their drinking water from points along Lake Erie and the Niagara River. The lake and its tributaries also enhance quality of life and economic benefits for residents, providing opportunities for swimming, boating and fishing, as well as recreation and nature-based tourism.

Once the property is purchased, The Nature Conservancy and Buffalo Niagara Riverkeeper plan to together transfer the land to the Erie County Forest and park system.

"Our organizations have been collaborating on a conservation action plan for the Niagara watershed and agree that protecting the headwaters of Eighteenmile Creek is vital for both people and nature." —*Jim Howe*

TAKE ACTION »

In October, we received a challenge grant from a private funder that we're hoping to match with funds from our donors. To find out how you can help permanently protect Eighteenmile Creek, contact Jan Miller at **jan_miller@tnc.org** or **(585) 546-8030 x28**.

PHOTO: Baltimore Checkerspot © MARY RIPKA/TNC

Securing Lands & Waters

Land protection is the core of The Nature Conservancy's history and remains a critical strategy for achieving our mission. With your help, we continue to protect lands and waters that safeguard Central and Western New York's wealth of natural resources and provide amazing places for people to connect with nature. Thanks to you:

- We're adding 415 acres to our Tug Hill Conservation Area. Once complete, this acquisition will expand our protected area to almost 16,000 acres, making it the largest privately-owned conservation reserve in New York.
- We added 10 acres of land to Thousand Acre Swamp in Monroe County, our most highly visited preserve. This small parcel helps prevent development along the preserve.
- Working with NY State Parks, we helped grow Harriett Hollister Spencer Recreation Area (Ontario and Livingston Counties) by 335 acres, expanding year-round, trail-based recreational opportunities in the Finger Lakes and improving habitat for native brook trout.
- We're helping NYS DEC expand Point Peninsula Wildlife Management Area (Jefferson County) with two key tracts that total 38 acres.
- We're transferring 478 acres of land at Sodus Bay (in Wayne County) and 400 acres in the Rome Sand Plains (Oneida County) to NYS DEC. The Sodus Bay tract enhances water quality in the Bay and provides access for ice-fishing, bird-watching and hunting. The Rome tracts include habitat for endangered butterflies like the frosted elfin.

"It's great to have the chance to protect these lands and waters," says Andy Wheatcraft, critical lands coordinator. "Stay tuned, because we have a lot of other projects in the pipeline."

Plan 2014: Lake Ontario Gets a Second Chance

Lake Ontario—New York's largest freshwater body—represents one of the state's most important ecosystems. It provides drinking water for millions of people, sustains migrating birds and spawning fish, supports recreational economies and underpins a unique way of life for millions of New Yorkers.

The water levels of Lake Ontario and the St. Lawrence River are regulated by the Moses Saunders Dam under a joint U.S.-Canada agreement that dates back more than 50 years. That plan was developed before modern science gave us a full understanding of the lake's fragile ecosystem.

But now we know. The old system of management is slowly strangling Lake Ontario.

Fortunately, we now we have the opportunity to reverse devastating consequences of the current management plan for the environment, property owners and industries like tourism and hunting and fishing that rely on a healthy lake. The Nature Conservancy and many other stakeholders have worked for more than a decade with the International Joint Commission (IJC)—a joint U.S.-Canadian entity—to develop Plan 2014, which achieves a balance of benefits for all interests by simply restoring some of the natural fluctuations in water levels.

"The Nature Conservancy is a leader in sustainable dam management, pioneering projects such as the Penobscot River restoration in Maine," says Central and Western New York Director Jim Howe. "Now, New York has the chance to revitalize one of its greatest resources for people and nature."

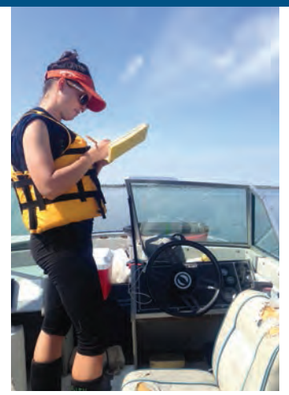
By adjusting the dam's operating plan to work with nature while preventing extreme high and low water levels, Plan 2014 will restore 64,000 acres of wetlands, boost hydropower production and increase the resilience of hundreds of miles of shoreline in the U.S. and Canada. Shoreline property owners face no significant additional threat from the new water levels. The maximum water level difference for Plan 2014 is only two inches higher than current regulation—about the height of a tennis ball.

"New York State is currently reviewing the plan and considering whether to adopt it for the next 50 years," says David Klein, senior field representative. "Plan 2014 is the biggest opportunity in our lifetime to restore a Great Lake and help all who depend on it."

TAKE ACTION »

Find out how you can support Plan 2014 at **nature.org/plan2014**.

TRANSFORM



Left: Lake Ontario ©MAT LEVINE/TNC; Fishing on the St. Lawrence River © MAT LEVINE/TNC. **Above:** Cisco research on Lake Ontario © DAVID KLEIN/TNC; Northern pike © STEVIE ADAMS/TNC. **Below:** Lakeview Wildlife Management Area © MAT LEVINE/TNC.

Plan 2014 By the Numbers

15,000+

expressions of support from concerned New Yorkers

40+

organizations including business, environmental, conservation, sportsmen and tourism in support

$5.3 MILLION

Value of annual increase in clean, renewable hydro-electric production. Through Governor Andrew Cuomo's ReCharge New York program, a portion of this additional power will be used to create jobs and control energy bills for upstate New Yorkers.

$9.1 MILLION

Annual increase to New York's economy through hunting, angling and wildlife viewing from improved wetlands in the Lake Ontario watershed.

$25.2 MILLION

Average annual savings for homeowners along the lake through the prevention of coastal erosion and flooding protection compared with no water–level regulation.

$0

The cost to restore 64,000 acres of coastal wetlands and hundreds of miles of lake and river shorelines in New York's Lake Ontario watershed. A cost-benefit analysis by the Brookings Institution shows a 2-1 return for the economy on every $1 spent on restoration of the Great Lakes region.

CLIMATE RESILIENCE IN NEW YORK

Thanks in part to the vocal support of our members who wrote to Gov. Cuomo, New York State is one step closer to climate resilience. The Community Risk Reduction and Resiliency Act was signed into law on Sept. 22, and requires that for certain state permitting and funding programs applicants proactively consider climate change impacts. Kudos to our state government, which recognizes that being prepared for a changing climate is the most prudent way to mitigate risk. Learn more and find other ways to take action at **nature.org/nypolicy**.

FLOOD SMART COMMUNITIES

Thanks to you, we officially launched our Flood Smart Communities project to reduce flooding vulnerability in three Monroe County municipalities. This winter we will be engaging local decision makers and affected property owners to better understand the costs incurred by these communities due to their physical, economic and social vulnerability. Working with this information, the Conservancy and Genesee-Finger Lakes Regional Planning Council will then provide valuable information for identifying actions to protect people and nature. Learn more at **nature.org/newyork**.

Clockwise from left: Rob's Trail II in Springwater, N.Y. © DEMIAN SPINDLER; Howard Spinder at Hemlock Lake © DEMIAN SPINDLER; Trail construction © MAT LEVINE/TNC.

A Finger Lakes Legacy

Lead gift from the Spindler Family Foundation launches lake-to-lake trail

The Spindler family—three siblings from Rochester, N.Y., along with their cousins and children—share an enthusiasm for the Finger Lakes and for The Nature Conservancy. "All of us directors of the family foundation believe in the American tradition of conservation," says Howard Spindler, secretary. "We feel it's something vital that needs to continue—the chance to get out and breathe in nature."

Thanks to Howard and his family people will soon get to experience Hemlock and Canadice Lakes like never before. Their gift to the Conservancy's "Rob's Trail II" project will help us to connect a trail on Conservancy-owned land between Hemlock and Canadice Lakes with an existing but abandoned trail on state lands along the east shoreline of Hemlock Lake. At key points along the route, signs will showcase the area's natural communities, geologic features, history and importance to people.

The project was a natural fit for the Spindlers who as kids enjoyed going to camp and spending time at a cottage in the hills. "As we got older, we became stewards of the land and got to be voices for nature through the Conservancy," says Howard, who is a pianist and accompanist on the faculty of the Eastman Community Music School.

"I've hiked Rob's Trail for years and came to admire and appreciate the generosity and vision of Rob van der Stricht, who founded the original trail. Just this spring, my son Demian and I hiked the area where the trail will be, scrambling down to the water's edge. It was amazing. It just made a lot of sense to us to spearhead the trail's extension."

Jan Miller, The Nature Conservancy's senior philanthropy officer in Central and Western New York, expressed the chapter's gratitude for this gift. "We are extremely grateful to the Spindler Family for their generosity and their eagerness to help make the dream of the lake-to-lake trail a reality. We're confident that their lead gift will inspire others to provide support and help us break ground this spring."

Howard hopes people will also realize what a gift they have in the Finger Lakes. "I would encourage people to get out and hike and paddle these lakes and experience what it is to have waters without pollution, without jet-skis and without development."

EXPLORE »

See photos and maps of the Rob's Trail II project at **nature.org/cwny**.

Honeoye Lake Revitalized

Honeoye Lake water quality project begins

Unlike states in the American Southwest, one of the things that New Yorkers can count on is an abundant supply of fresh water. Or can we? Consider this: Almost a half-million people on the shores of Lake Erie—one of the world's greatest freshwater resources—could not drink the water from their faucets this summer because it was unsafe. Could a toxic algae bloom like the one that left people without tap water in Toledo, Ohio, happen in the Finger Lakes?

"We need to be concerned about blue-green algae in all our water bodies, including the Finger Lakes," says Jim Howe. "However, we need to remember that blue-green algae blooms are just a symptom. The real issue is that we're allowing too many nutrients—especially phosphorus—to enter our rivers and lakes." Of all the Finger Lakes, Honeoye is particularly at risk. In 2013, a toxic bloom in Honeoye closed beaches for most of the summer.

Now, a Conservancy water quality project in Honeoye Lake has identified target tributaries where stream restoration can help remove nutrients and sediment before they reach Honeoye Lake, the Genesee River and Lake Ontario.

"When phosphorus increases by even a small amount,it can cause accelerated plant growth, algae blooms, low dissolved oxygen and the death of certain fish, invertebrates and other aquatic animals," explains Stevie Adams, The Nature Conservancy's freshwater practitioner in Central and Western New York.

In 2013, the Conservancy worked with the Honeoye Lake Watershed Task Force to identify the parts of the watershed that are the highest contributors of sediment and nutrients. Honeoye Inlet was identified as the greatest contributor. High levels of phosphorus create conditions ripe for the growth of blue-green algae. The situation is further exacerbated by climate change, which has increased water temperatures and led to more violent storms that flush nutrients off of steep hillsides and into streams leading to the lake.

To address this threat, the Conservancy and partners will work to restore the portion of the Inlet that runs through state land—the Honeoye Inlet Wildlife Management Area.

"By restoring wetlands and meanders, we will reconnect the Inlet to its floodplain, which will naturally filter out nutrients and sediments from the water and keep them from entering Honeoye Lake," Adams says. "We'll ensure the stream flows produced by storms can spread out, slow down and drop the sediment and nutrients they carry before reaching the lake."

But members of the community will have a role to play, too, adds Adams: "In parts of the watershed, steep valleys and geology present a challenge when it comes to treating runoff before it reaches the lake. In those places, the best solutions will be community-based actions that everyone can take—such as careful fertilizer and pesticide management and installing rain gardens. When it comes to water quality, we'll need everyone's involvement to fix the problem."

HOW YOU CAN HELP »

The Honeoye Restoration Project hopes to a secure $100,000 grant from the New York State Green Innovation Grant Program to fund the design and permitting phase. Now, the Conservancy must raise funds for the implementation phase. To help, contact Jan Miller at **jan_miller@tnc.org** or **(585) 546-8030 x28**.

Honeoye Lake © MAT LEVINE, TNC WITH AERIAL SUPPORT FROM LIGHTHAWK.

New Law Aids in Fight Against Aquatic Invasives

This year, The Nature Conservancy helped two Central and Western New York–based state legislators–Senator Thomas O'Mara and Assemblymember Barbara Lifton–draft a bill that will greatly reduce the spread of aquatic invasive species. The bill requires boaters to remove visible plants and animals from their watercraft upon exit of waterways. We then worked with local governments, lake associations, environmental groups and academia on a campaign to pass this bill.

The bill was the very last piece of legislation to pass the Senate before close of session in June and was signed into law by Governor Cuomo in September. Its importance is not lost on our region, where hydrilla infestations in Cayuga Inlet (Tompkins County) and the Erie Canal in Tonawanda (Erie County) are ground zero in the battle against aquatic hitchhikers.

"The Nature Conservancy commends Governor Cuomo for signing this important legislation, which will reduce the spread of aquatic invasive species that harm human, economic and environmental health," says Stuart F. Gruskin, chief conservation and external affairs officer for The Nature Conservancy in New York.

"Each year, invasive species cost our communities millions of dollars. By taking simple and common sense measures to clean, drain and dry our boats we can reduce the spread of these harmful species and protect our fishing, tourism and other water-dependent industries."

ON THE WEB »

We've profiled the top five 'usual suspects' among Great Lakes aquatic invasive species. See the infographic at **nature.org/AIS**

PHOTOS: Water chestnut removal in Braddock Bay. © ZAIDEE POWERS.

Local Efforts to Tackle Invasives Intensify

Invasive species are relentless, so we must be strategic about the species we focus on and the tactics we employ. With your support this year out, our conservation science team worked hand-in-hand with staff and volunteers in the field to monitor, eradicate and prevent a variety of harmful invaders.

- We **used a new technology** called environmental DNA (or "eDNA") to sample for invasive species in the Erie Canal, collecting several hundred water samples from strategic locations and testing them for the presence of invasive species DNA.
- Our Aquatic Invasives Surveillance teams **logged 10,000 miles** this summer as they surveyed more than 300 boat launches in the Finger Lakes, Chautauqua Lake, Cazenovia Lake, Lake Erie and Lake Ontario for hydrilla and other early invaders.
- We **eradicated 14 sites of giant hogweed**, significantly reducing its potential health threats to people.
- We **treated nearly 70 acres of swallow-wort** on seven priority sites along the eastern shore of Lake Ontario. Swallow-wort threatens monarch butterflies by crowding out milkweed where the butterflies lay eggs and their larvae feed. Monarchs lay eggs on swallow-worts about 20 percent of the time, but their caterpillars don't survive.
- On Braddock Bay, we **hand-harvested five tons of invasive water chestnut**, filling more than four dump truck loads.
- We **continued to restore the Salmon River Corridor** by treating more than five acres of invasive Japanese knotweed.
- We **held two workshops** with the Keuka Lake Association and the Canandaigua Lake Watershed Alliance to provide Finger Lakes communities with early detection and rapid response tools and teamed up with the NYS Federation of Lake Associations on an online webinar about citizen monitoring efforts.

Meet Globe Intern Sophia Oliveira

This summer, I had the pleasure of participating in The Nature Conservancy's Conservation Outreach GLOBE Internship program. Working with the Central and Western New York Chapter gave me the chance to expand my horizons on managing freshwater ecosystems. I focused on wetlands near Lake Ontario and the Finger Lakes as well as the ecological and economic dangers of aquatic invasive species. I also researched management methods for migratory bird stopover habitats and helped restore and extend Rob's Trail. Throughout the internship, I had the opportunity to work with conservation science and GIS mapping, but was also given a chance to experience philanthropy and communications–all of which seem imperative for non-profit organization management.

The majority of my work this summer focused on the Thousand Acre Swamp Preserve in Penfield, which is home to a diverse selection of flora and fauna, and composed of critical soils and geological features that play an important role in the area's hydrology. Between learning how to use a weed whacker, updating literature and signage, and investigating vegetation to restore for butterfly habitat, my experience with the Conservancy gave me an excellent feel for what it takes to maintain a preserve and its trails for people and nature. The skills I gained working with The Nature Conservancy team will follow me as I build my educational and professional career.

Globe intern Sophia Oliveira on Canandaigua Lake. Every summer, the Conservancy hires over 40 students for paid internships that help bridge the gap between academics and the world of conservation. © GREGG SARGIS/TNC.

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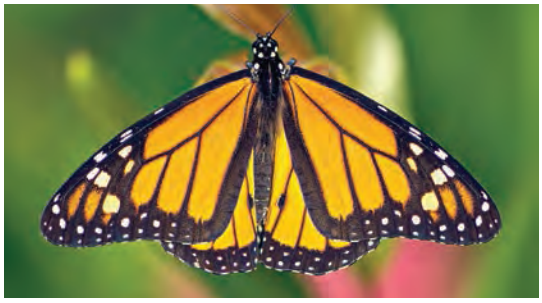

Celebrating

Your Impact for Nature and People

Clockwise from left: Children on shoreline © RANDALL EDWARDS/TNC; Monarch butterfly © RAYMOND AUGER; Lake Erie marsh © RON LEONETTI.