

Celebrating and Thanking Those Who Care for Our Watershed

Hilary Lambert Steward

Welcome...

to our 2015 Year End/2016 New Years issue, a celebration of the people and groups helping to care for our lake and watershed. The Cayuga Lake Watershed Network is a small part of the many who cherish our plentiful clean water, astonishing vistas, and waterfalls large and small; and who help maintain the sustenance and sustainability of our watershed's human and natural communities.

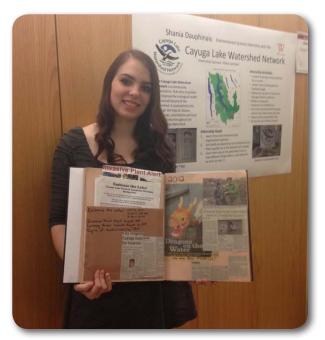
AS our motto says, "It takes a Network to protect a watershed," and in the following pages you will meet an array of students, scientists, artists and residents who make up the wider network of lake, creek and watershed stewards.

This newsletter issue is only the first to feature our friends and leaders in this fashion. Send suggestions of watershed friends and stewards you would like to see featured here, to steward@cayugalake.org.

Please support the Cayuga Lake Watershed Network, and participate in our 2016 program of presentations and events about the updated Restoration and Protection Plan, and our lake

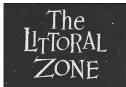
and creek recreational resources; and learn about the new wetlands maps for Tompkins County, their values and uses. Please plan to help with wintertime Hemlock Wooly Adelgid mapping; springtime Embrace the Lake cleanups along creeks, lakefront and ditches; and summer-fall Hydrilla Hunting. Watch for events we will be co-sponsoring with other groups.

My personal gratitude goes out to Tee-Ann Hunter (Chair, Intermunicipal Organization of the Cayuga Lake Watershed) and to our Board members John Abel and Deb Grantham, for the hard work they are putting into the Cayuga Lake Watershed Restoration and Protection Plan update project; to the members of the Sunset Dinner on Cayuga Committee, who helped us celebrate the lake during a wonderful, fun-filled October evening at Wells College; to Shania Dauphinais, our Lake Intern at Wells College this past semester;



Thank you to Lake Intern Shania Dauphinais for inspired work on behalf of the Network this past semester. Shania is pictured with poster and scrapbook, products of her Wells College fall 2015 internship with the Network.

and to our new staff person Jennifer Tufano, who has already done so much to help us move forward and build a stronger organization. Happy New Year!



Tales from the Littoral Zone

The littoral zone is that three dimensional outer, shallower region of a body of water, including the shore, where most of the life activities take place. These writings originate from the "Littoral Zone".

The Finger Lakes Whitefishes

Mel Russo Finger Lakes area naturalist and life-long resident

ittle is known about the existence of whitefish (subfamily Corigoninae) in Seneca and Cayuga Lakes. The 1970 edition of Hubbs and Lagler, key to northeastern freshwater fishes, lists a particular kind of whitefish as the "the Seneca Lake Cisco." This would be a subspecies of the Great Lakes cisco. The 2004 edition cites several more possible subspecies of ciscoes as being present in Canandaigua, Skaneateles, and some of the other Finger Lakes. Although not documented, the species was reported as "present" in 1909 by Cornell vertebrate biologists Reed and Wright, but the duo had collected no specimens of the fish in the Cayuga Lake basin. They did state that "Any specimens of whitefish in Cayuga Lake were certain to be ciscoes."

The cisco (*Coregonus artedi*) is a whitefish whose lower mandible protrudes beyond the snout. Also, the bodies of ciscoes are more laterally compressed and there are differences in the number of gill rakers within the species. (Gill rakers are coarse hairlike structures that are filled with many capillaries. These can be observed under the operculum [gill cover.] They are equivalent to the alveoli of lungs that facilitate gas exchange for internal respiration.) It is the rakers that caused taxonomists (classifiers) to believe that the cisco is one of the most differentiated species of fish in existence. In 1970, there were over 55 subspecies of ciscoes (*C. artedi*) listed by Hubbs and Lagler: one for almost every small, deep lake throughout the Great Lakes region.

It is theorized that during the last global warming approximately 10,000 years ago, the vast extensions of the Great Lakes resulting from the melting ice caps reached far into the northern states including Wisconsin, Michigan, Ohio, and New York. During this period, as organisms do, the original Great Lakes cisco population extended itself to fill the newly available living space throughout the expanse of high water. When the ice caps began reconstituting about 8000 years ago, the ciscoes became trapped in the deep holes into which they had settled during the receding high water. Among the "deep holes" were the Finger Lakes. Eventually they could not interbreed with the main originally contiguous population of the Great Lakes ciscoes because of the land and the intolerable shallow water barriers that separated them. Scores of separate habitats were



created by the retreating post glacial waters of Lake Iroquois (over-sized Lake Ontario), Lake Wayne, Lake Lundy (over-sized Lake Erie) and others.

Each of these "deep holes" has existed separately from the Great Lakes for about 8000 years. Since ciscoes are cold water fish, the numerous individual populations were isolated for all of this time from the original. Thus, random differences in gene make up were perpetuated within each group. There became the subspecies known as the Seneca Lake Cisco, the Cayuga Lake Cisco, the Skaneateles Lake Cisco, and the list continues. The untrained human eye can not tell the differences among these Coregonids. However subtle variations occur in the number of gill rakers, scales in the lateral line and the extremity of the snouts, among other things.

An analogy of this would be the genetic equivalent of a southern Italian and a Norwegian human being as compared to a Seneca Lake Cisco and a Great Lakes Cisco. The two types have differences but the species could interbreed if the populations were contiguous and the resulting offspring would be fertile exhibiting characteristics of each group. Isolation caused the perpetuation of differences in each of both forms.

The cisco category of whitefish is a classic example of what biologists call evolution. This is NOT a religion. These ever-so-slight changes in populations of a single species are sometimes random. Often changes occur and are perpetuated in an isolated population for no reason. At other times the gene may be advantageous and be perpetuated in the population because of environmental differences. In the case of cisco, the continuation of the variations of the number of gill rakers gene may be a survival trait in individuals related to differences in available oxygen. The greater the number of gill rakers, the more surface for the absorption of oxygen. Thus, a once meaningless

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Cayuga Lake Watershed Network

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OFFICE HOURS: By appointment. Please contact steward@cayugalake.org to arrange. STAFF: Hilary Lambert, Steward steward@cayugalake.org Jennifer Tufano, Staff, jenntufano@gmail.com Shania Dauphinais, Wells College Intern Newsletter Advisory Committee: Michael Duttweiler, John Mawdsley, Niamh O'Leary The Cayuga Lake Watershed Network thanks Leigh Dezelan of Dezelan Dezign and Pioneer Printing of Lodi for newsletter production excellence.

Cayuga Lake Lovers, Protectors, Scientists & Supporters

Co-written by: Hilary Lambert Steward, Jennifer Tufano Program Associate and Shania Dauphinais Wells College Lake Intern

The Wells College Campus Greens

s a club run by students at Wells College in Aurora NY. The Campus Greens' main goal is to help make the campus more environmentally sustainable. Campus Greens host campus clean-ups and other events to educate the students at



Wells College and the community surrounding it. Their main purpose is to educate and promote sustainability by making environmentally conscious choices in order to protect not only the Wells campus but also the areas students go on to live in after they graduate from Wells College. On Facebook at https://www.facebook.com/wellscollegecampusgreens/?fref=ts

Forces: Friends of Recreation, Conservation and Environmental Stewardship

s a state-run club that reaches out to students at local colleges and encourages them to work with New York State Parks and the staff that maintain them. This club allows students the opportunity to volunteer at State Parks in our area. Students who participate in this organization make connections and get real world experience through the work that they accomplish. Forces is aimed at educating students about the parks in their area and



what they can do to help keep these places up and running. More information and how to get involved at this NY State Parks webpage: http://nysparks.com/environment/forces.aspx

Center for Sustainability and the Environment, Wells College

The Sustainability Center has three distinct areas of focus: academics, operations, and outreach. The Center's goal is to support faculty who are interested in sustainability content in their courses and also assist with sustainability research.

The Center fosters relationships with community partners to create experiential learning opportunities and internships for students. The Sustainability Center is the hub for co-curricular and employee programs engaging the Wells community in cocreating a more sustainable campus environment. The Center uses various digital and print communication channels to encourage more sustainable action by individuals within our learning organization, as well as to increase campus visibility to the larger community around sustainability issues.

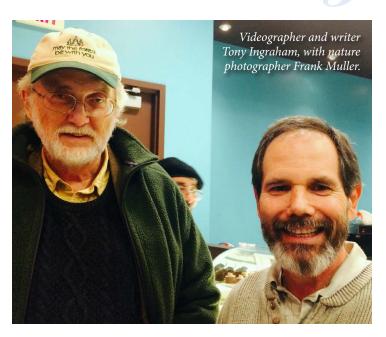


Marian Brown, director of the Wells College Center for Sustainability and the Environment.

Marian Brown, the Center's director, shares her vision: "If I could encourage every Wells graduate to fully understand one thing, it would be their role and responsibility as a global citizen, with all that that concept entails. Our new Sustainability minor will do a great job of additionally preparing students in any major field of study to take fully informed, more sustainable action when they step into their life path and onto their career track. Helping foster more sustainable human action is a worthy goal on its own; understanding how to shift organizations toward greater sustainability is a highly marketable skillset."

Ongoing efforts that students are contributing to include management of the Aurora Farmer's Market, establishment or revitalization of gardens on campus, drives to improve waste collection and recycling on campus, and more. Beautifully situated in renovated Zabriskie Hall, this vibrant new program is making friends and helping Wells College, the Village of Aurora, and east shore environs shift toward long-term sustainability thinking and action. Learn more online at www.wells.edu/ sustainability.

Cayuga Lake Lovers, Protectors, Scientists & Supporters



Tony Ingraham

Tony Ingraham, owner, Owl Gorge Productions and author of A Walk Through Watkins Glen and co-author of Ithaca—the City, Gorges, and Colleges

or twenty-four years, Tony was in charge of environmental education in the Finger Lakes Region of New York State Parks, working from the regional office at Taughannock Falls State Park in Trumansburg, N.Y. He developed interpretive and educational programs and media for the public in most of the Finger Lakes facilities, including Watkins Glen State Park. He hired, trained, and supervised seasonal guides. He led countless visitors through the glen, including tour groups and school groups, interpreting the natural and cultural history of the gorge. He also developed a slide show about the park for the people staying in the campground and a trail guide leaflet for visitors. At the end of his tenure, Tony created the system of outdoor exhibits that are now in place along the trails and at trail entrances and junctions.

In addition to book publishing, including such titles as *A Walk through Watkins Glen: Water's Sculpture in Stone* and *Ithaca: the City, Gorges, and Colleges* Tony maintains a video blog called **Walk in the Park** and produces a weekly television show, also called Walk in the Park, on Ithaca, NY's public access cable channel 13.

Frank Muller, photographer and nature lover

rank Muller is a talented photographer who has settled at Ithaca's EcoVillage, where he can quickly immerse himself in deepest nature. Frank loves finding "secret" gorges, quiet pathways, shimmering fields and waters in all seasons, and sharing them with others via walks, photographs, tales, and verse: "come sit with me, in the apple blossom rain, and together we'll listen, to the book of nature." His luminous lake and water-loving work can be enjoyed at www.facebook.com/frankfoto/



Nancy Currier, Frank DeJohn and Bill Ebert, sampling at Canoga Spring.

Bill Ebert & the Canoga Shoreliners

Cayuga Lake Watershed Network Board member, has dedicated countless hours recruiting likeminded volunteers to carry out water sampling projects at the north end of Cayuga Lake. The work of his group, named the Canoga Shoreliners, will greatly increase the available information on the water quality along this northern shoreline and create a water quality database to aid residents and governments on ways to protect Cayuga Lake. Water sampling at the north end of Cayuga Lake has not previously been carried out as a systematic, long-term project and we are grateful for Bill's interest, enthusiasm, and dedication to generating such essential data.

Community Science Institute

he Community Science Institute's mission is to empower citizens to monitor and protect local water resources for sustainable management. Led by Steve Penningroth and his highly trained staff, CSI operates a state-certified water quality testing lab and can test drinking water and surface water for private homeowners, agencies and regulated suppliers. Their stream monitoring programs empower local residents



The Canoga Shoreliners deliver water samples to the Community Science Institute's certified lab in Ithaca for analysis.

to take charge of collecting essential information about water quality that otherwise would not exist including urban development, agriculture, fracking and more. The CSI's state-of-the-art online database holds thousands of certified data items

for free use and download by municipalities, researchers, and citizens. More information on the great work conducted by the CSI can be found here: www.communityscience.org and their database can be found at: http://database.communityscience.org

Bill Foster—Floating Classroom

The mission of the Cayuga Lake Floating Classroom (CLFC) is to engage community members from around Cayuga Lake, and throughout the Finger Lakes Region, in the future of our water resources. To accomplish this, the CLFC provides experiential learning opportunities and promote academic achievement, environmental literacy, and lifelong relationships with the waterways that define our communities.

Bill Foster, CLFC's fearless and passionate leader, was recently awarded the 2015 David Morehouse Award for his long-term service to the watershed. Bill grew up in Ithaca and earned a BS in Environmental Engineering, Cornell '87. After 16 years in water resource management with the US EPA and several not-for-profits, he is now focused on community-driven environmental education.

In collaboration with Ithaca Boat Tours, the CLFC offers public "Eco-cruises", which combine elements of a narrated tour with optional hands-on lake study activities. CLFC also uses the Floating Classroom vessel to get middle school classes onto the lake, to conduct water sampling and track water clarity, encouraging the next generation of environmental stewards.

You can find the Floating Classroom on Facebook: https://www.facebook.com/Cayuga-Lake-Floating-Classroom and on the web: www.floatingclasssroom.net.



Ithaca College: Students Consulting for Non-Profit Organizations

The Ithaca College chapter of Students Consulting for Non-Profit Organizations (SCNO) is an entirely student run consulting organization that offers strategic consulting for non-profit organizations. In 2015, the IC chapter of SCNO completed



SCNO leaders consult with Network Board member Patricia Haines, Ithaca College.

an in-depth analysis of the CLWN's website, with input on style, organization, and promotion. This report is now the basis for a revitalization and reworking of our website which will make it cleaner, neater, and easier to navigate. The six contributing students were Katie Beaule, Kellie Palladino, Ashley Lesmeister, Megan Kelly, Rosalyn Moisan, and Sara Anguila.

The Students Consulting for Non-Profit Organization's mission is to provide clients with meaningful strategic consulting services to achieve significant results in the community. Simultaneously, SCNO fosters opportunities for students to develop professional skills and gain practical consulting experience.

More information on this and other service organizations at Ithaca College can be found here: http://icosemaorgs.orgsync.com/

STEPS—Seneca Towns Engaging People for Solutions

Their office is located in Ovid near the Cayuga Lake/Seneca Lake watershed divide, and STEPS spans the land between the two lakes, serving the townships of Covert, Lodi, Ovid and Romulus



in southern Seneca County. STEPS' mission: "To strengthen families, address challenges that are part of rural life, grow sustainable regional economy, cultivate leadership, encourage initiative and foster respect for all."

According to their website, "If you live, work, learn and/ or play in the towns of Covert, Lodi, Ovid or Romulus, you are already a part of STEPS, a resident-driven neighborhood health improvement project for southern Seneca County, working in collaboration with residents and community partners to implement ideas to improve the social determinants of community health... STEPS strives to provide residents with a variety of opportunities to engage in activities that lead to a healthier living environment and lifestyle." Three

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Cayuga Lake Lovers, Protectors, Scientists & Supporters

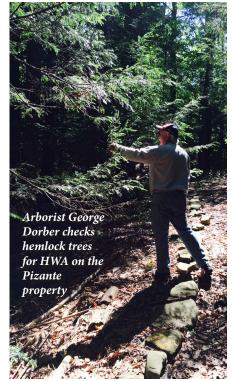
focus areas have emerged as priorities to improve community health: Improving Personal Health & Wellness—social connectedness, nutrition and physical activity; Improving the Physical Environment—beautification, healthy environment, access to green space; Increasing Economic & Educational Opportunities—literacy, small business, agri-economic development.

If you would like to get involved but are not sure how, call the STEPS office at (607) 403-0069 and speak with Theresa Lahr, Project Coordinator or Lynne Doyle, Community Engagement Specialist for more information. Website www.senecasteps.org/Facebook www.facebook.com/NYStepsProject/

Hemlock Guardian, Deborah Pizante!

ocated in the hills south of Vestal NY, the Pizante property is steep and cool, their Japanese-style home and garden situated deep in a hemlock woodland. Several years ago, Debora and her local arborist began working together to treat and save the big hemlocks overlooking the house, as the trees became infested with Hemlock Wooly Adelgid, and began to dry out and drop needles.

This invasive pest sucks the life out of hemlock trees over a



few years time, and can kill off cool, moist woodlands in a short period. Debora resolved to protect her beautiful woodlands. She and arborist George Dorber of Cook's Tree Service put deer fencing around 2.2 acres of hemlock trees, and since 2011-2012 have been using the tools and techniques recommended by Mark C. Whitmore and others at Cornell University to bring the HWA infestation under control. Today most of her big trees are again thriving. A total of 100 trees on the Pizante property have been treated—all ages and sizes.

Even as untreated hemlocks on neighboring properties suffer the consequences of Hemlock Wooly Adelgid, the Pizante woodlands will remain cool and green and healthy, thanks to Debora's vigilance and involvement. The streams that run through her property will stay healthy. Debora Pizante's stewardship is an example that many others need to follow, so that hemlock woodlands can flourish into the future.



Hydrilla hunters & heroes: Dave and Joyce Heck of Lansing.

Dave and Joyce Heck the Hydrilla Heroes!

ave and Joyce Heck of Lansing have spent the past three summers working ceaselessly to get information about hydrilla to everyone using Cayuga Lake. With peerless outreach tools and relentless data collection, plus a love of the hunt for uninformed people, the Hecks have driven down all the deadend roads to the lake, finding locals-only boat launches where they have installed hydrilla i.d.kit dispensers; have negotiated dispensers into the state parks at canoe launches and in bathrooms; and charmed marina owners and town clerks into sharing precious counter space for a hydrilla i.d. kit dispenser.

After circling the lake, the Hecks would drive home to rest, but in a few days time, all summer and fall, they would get back on the road again to revisit, restock and find new places to share the hydrilla message with more people: We must not let hydrilla get established in our lake; folks must clean their boats; and report any possible hydrilla plants to www.stophydrilla.org for early, safe identification and removal by experts.

The Hecks have trekked from their Lansing waterside home to Hook, Line & Sinker Bait Shop in Ithaca, up the west shore of the lake to Treman Marina State Park, on to Taughannock Falls State Park, to the Busy Bee Market at Sheldrake Point, to the Boathouse Beer Garden & Traders Village in Romulus, to Wolffy's Restaurant and Marina on Lower Lake Road in Seneca Falls, to Mud Lock at the north end of the lake, around to the lake's eastern shore and Hibiscus Harbor Marina in Union Springs, to the Marina at Lansing's Myers Park, and home.

Over and over again—and to many other places in between those listed: a total of thirty-three sites lakewide. Dave reports that 660 Hydrilla I.D. kits were taken from his dispensers during 2015. What a spectacular feat of outreach and deeply detailed geographic exploration, coupled with dogged determination! No hydrilla can escape this fine net!

John Mawdsley

ohn Mawdsley is a long-time Board member of the Cayuga Lake Watershed Network. He has been taking care of Cayuga Lake and its watershed for many decades, in numerous roles. His steadfast, low-key, effective service to our organization and the watershed was recognized with the 2015 David G. Morehouse Award. John first came to Cornell University in the 1970s as a student; then returned to England for a career with their Environment Agency, in water supply management. He and family moved back here many years ago. John has served as the Network's Chair

and Treasurer; he is our liaison to the Tompkins County Water Resources Council and serves on their Wetlands Committee; and he is Chair of our Issues Committee. John is overseeing a project to re-map the wetlands of Tompkins County. For the past four years John and his wife Sharon Mier have worked with a team of volunteers to stage the exciting annual paddling event, "CanYou Canoe Cayuga?" Thank you John Mawdsley.



John Mawdsley, 2015 David Morehouse Awardee, with Aaron Bholé, leader of Cornell Biology Service Leaders, recipients of the 2015 Emerging Watershed Leaders Award. Pictured together at CanYou Canoe Cayuga, September 2015.

Cornell Biology Service Leaders receive 2015 **Emerging Watershed Leaders Award**

ounded in 2013 by Tina Su '15, CBSL is a service incubator that helps students get involved in realworld projects and community service outside the classroom and beyond the Cornell campus. CBSL has a formal partnership with Cornell's Office of Undergraduate Biology, and the Public Service Center. Members of the group—including Aaron Bholé, Jake Darden, Sarah Ohnigian, Torri Ricelli, and numerous others - have provided high-quality, several-

year community service to the Network as volunteers (and participants in) "CanYou Canoe Cayuga?"; hydrilla hunting and Hemlock Wooly Adelgid fieldwork and research; and Embrace the Lake creek and lakefront cleanups. Incoming Chair Nico Campalans accepted the Network's 2015 Emerging Watershed Leaders Award on behalf of Cornell Biology Service Leaders at our October 10 Sunset Dinner on Cayuga. 🏲

Members, it's time to renew for 2016!

Please make that final tax-deductible 2015 donation to your watershed protection organization. Renewal forms were sent to you in December, so please return yours today—how about right now? You can also use the form below to join or renew. Mail completed form w/check to CLWN, PO Box 348, Aurora, NY 13026

Name				
Address				
City		State	Zip	
Email		May we add you to our listserv? O Yes O No		
We have membership levels to suit every	one's needs. Pleas	e check o	one of the levels below.	
O \$10 Student/Senior	0	\$50 Business/Farm		
O \$25 Individual	0	\$100 Headwaters Donor		
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TOTAL ENCLOSED: \$ Check # (payable to Cayuga Lake Watershed Network please) Payment can also be made via Paypal at our website www.cayugalake.org				Would you like ○ 1 or ○ 2 full-color CLWN logo
Your Contributions to the Cayuga Lake Wa	tershed Network a	re Tax De	eductible.	window stickies (4 x 6'')

The mission...

The Cayuga Lake
Watershed Network
identifies key threats
to Cayuga Lake
and its watershed,
and it advocates
for solutions that
support a healthy
environment and
vibrant, sustainable
communities.



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** Education
** Advocacy
** Protection

Tales from the Littoral Zone—The Finger Lakes Whitefish continued from page 2

gene may have had significance when oxygen concentrations of the water became lower or higher in the various lakes.

Other genetic differences like the number of scales in the lateral line may have no advantage or disadvantage and may just continue because of inbreeding within an isolated population.

There is no opportunity for hybridization or gene comingling because of geographic barriers. Other genetic barriers may be time, temperature, water quality, and reproductive cycles.

Unlike their close, tasty relative, the great lakes whitefish (*C. clupieformes*), ciscoes are savored only when smoked (not inhaled though). Few are caught in our lakes because of their weak, smaller jaws and lack of teeth. Natural reproduction of whitefish and all lake salmonids in the Finger Lakes may be nonexistent today because of increasing siltation of the rocky shoals upon which these species require to spawn. Also, the alewife (sawbelly, introduced) has replaced or seriously reduced the numbers of ciscoes in most inland lakes today. Any specimens of "whitefish" brought to my attention have proven to be sheepshead (freshwater drum, *Aplodinotus grunniens*) which are not related at all, to whitefish.

The entire whitefish group is now considered a subfamily of salmonidae (trouts and salmons) as all have a fleshy or adipose

Taxonomists
believe that the
cisco is one of the
most differentiated
species of fish in
existence.

fin between the tail and dorsal fin, all are soft scaled, and all have similar internal structures. Scales of trouts and salmon are smaller, however. Recently, genetic scientists have lumped many of what were considered separate species and subspecies into one species because of DNA studies

and newly found environmental effects on gene expression. It is a wonder to know that right here in the Finger Lakes area we have our own little bit of evolution that has recently gone on and may still be continuing. This is yet another interesting anomaly of the unique Finger Lakes area in which we live. © 2015 Mel Russo All Rights Reserved

Sources

- Hubbs, Carl L. and Karl F. Lagler. 2004. *Fishes of the Great Lakes Region*. Revised Edition.
- Reed, Hugh D., and Albert W. Wright. 1909. "The Vertebrates of the Cayuga Lake Basin." *Proceedings*, American Philosophical Society, Vol. XLVIII. No. 193, 1909 (1910), pp. 370-459, pll. xvii-xx (maps). Department of Neurology and Vertebrate Zoölogy, Cornell University, Ithaca NY.
- https://commons.wikimedia.org/wiki/File:Corehonushoyi.jpg
 Deepwater Cisco (Coregonus hoyi)