




FINGER LAKES INSTITUTE



HOBART AND WILLIAM SMITH COLLEGES

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FLI Funding Announcements

The Finger Lakes Institute (FLI) is grateful to State Sen. Michael F. Nozzolio, the Triad Foundation, and Andrew W. Mellon Foundation for their generosity and support of the Finger Lakes Institute at Hobart and William Smith Colleges.

State Sen. Michael F. Nozzolio (R-Fayette) announced in April that he has secured a \$100,000 state grant to expand the Finger Lakes Institute's educational programs and to benefit research on the Finger Lakes region. The money will employ a full-time education outreach coordinator, expand the Science on Seneca program to students in grades K-12, run a summer symposium for teachers and hold a regional economical development summit.

Marc Edwards, the education outreach coordinator works with school groups, conducts teacher training on ways to enhance curriculum with science and technology, coordinates activities that apply to the institute's research, and also works with undergraduate and graduate students who are working to be science educators.

President Mark D. Gearan announced in May that the **Triad Foundation** in Ithaca, N.Y., has awarded a grant of \$300,000, to be paid over three years, to the FLI. The funding will support two key administrative positions, the director and the community outreach coordinator.

This is the second grant FLI has received from the Triad Foundation. The first grant, along with funding from the State of New York, allowed for the initial hiring of both the FLI director, Marion E. Balyszak, and the FLI community outreach coordinator, Sarah A. Meyer, for one year's time. Due to the success of the initial project, the Triad Foundation has awarded another, larger grant to continue funding for both administrative positions for the next three years.

The positions funded through this grant are instrumental to the success of the Finger Lakes Institute, especially its community and regional components. The director provides overall leadership to the FLI and works closely with the Colleges' administration and faculty, as well as with local and regional planners, business leaders, government and water quality officials, and community groups. The community outreach coordinator develops and maintains outreach activities and materials for the Institute.

"The continuing efforts of the Triad Foundation will enable the Finger Lakes Institute, under Marion Balyszak's direction, to build upon the exceptional work she and her staff have accomplished during this past year," said Mark D. Gearan. "We greatly appreciate the Triad



State Sen. Michael F. Nozzolio R-Fayette (far right) speaking at the dedication of the Finger Lakes Institute.

PHOTO BY CLAYTON ADAMS

The Triad Foundation in Ithaca, N.Y., has awarded a grant of \$300,000, to be paid over three years, to the Finger Lakes Institute.

The HWS Environmental Studies Department, in cooperation with Finger Lakes Institute, has received a renewed grant of \$300,000 from the Andrew W. Mellon Foundation, of New York.

Foundation's willingness to assist our efforts to enrich the academic experience of our students while preserving and promoting our greatest natural resource — the Finger Lakes.”

The HWS Environmental Studies Department, in cooperation with Finger Lakes Institute, has received a renewed grant of \$300,000 from the **Andrew W. Mellon Foundation**, of New York, N.Y. The grant, which will be dispersed over the next three years, will be used to expand the Environmental Studies program to include additional summer science research student positions, Environmental Studies Summer Youth Institute Minority scholarships, an Annual Student Research Symposium, and a new Finger Lakes Institute Geographical Information Systems (GIS) Specialist position.

The new hire, James Hall, will provide the technological expertise needed to train students, support faculty and help delineate environmental priorities for the Finger Lakes region using GIS. “This is an exciting new position to add to the Institute,” says Balyszak. “GIS will enhance our abilities to assess and prioritize future strategies to protect the Finger Lakes.”

The grant will also help fund new opportunities for student research and experiential learning by initiating the Finger Lakes Institute Undergraduate Fellows Program, a summer research program at the Finger Lakes Institute. Attached to this program will be the Finger Lakes Regional Annual Student Symposium on environmental issues, which is designed to allow undergraduate and graduate students to present their research findings about the Finger Lakes.

“The Symposium opens important lines of communication between students,” says Geoscience Professor John Halfman, director of the HWS environmental studies program. “It allows researchers to find out what everyone else is working on. Ideally, the student symposium encourages the students’ advisers to present, as well.”

The Andrew W. Mellon Foundation began its generous support of the Colleges’ environmental programs in 2000, making this the second three-year grant awarded to Hobart and William Smith. Past Mellon Foundation supported initiatives have included the addition of new environmental studies faculty, summer research opportunities and enhancements of existing educational outreach programs.

Educational Outreach

Finger Lakes Institute Hires Education Outreach Coordinator

Marc Edwards recently assumed the duties of Education Outreach Coordinator at the Finger Lakes Institute (FLI).

Edwards leads the institute’s effort to improve educational outreach opportunities offered to regional grade schools. The K-12 outreach position was made possible through a generous grant from New York State and the dedicated efforts of State Sen. Michael Nozzolio.

As education outreach coordinator, Edwards works closely with Jim MaKinster, assistant professor of education, Barb Halfman, Science on Seneca coordinator, and John Halfman, director of environmental studies and geoscience, to enhance the Science on Seneca and other K-12 educational outreach programs at the FLI.

In particular, Edwards joins teachers and their students on lake cruises, writes lesson plans, and determines how the experience better fits into the guidelines for New York State Regents and other benchmarks of excellence in the New York K-12 educational system. Edwards is available to give presentations to schools, either in classrooms or at the Finger Lake Institute building on South Main Street.

Edwards holds certification through the National Association for Interpretation as a Certified Interpretive Guide and has experience in researching, developing, and delivering educational programs to schools, as well as working with educators to develop curriculum based programs for use in schools.

Edwards comes to the Finger Lakes Institute from Calais, Maine. He received a master’s degree in forest management and ecotourism development from the University of Maine. He received his undergraduate degree in recreation and park management from the same institution.



University of Rochester Students Intern for Science On Seneca

Three teacher education graduate students from the University of Rochester, Jen Traggis, Taryn Cutting and Melisa Dettbarn, completed a three-week internship at the Finger Lakes Institute in April. These interns focused on curriculum development and a collaborative action research project with local teachers participating in Science on Seneca. They worked with local teachers to develop and implement lessons that prepared students for their trip on Seneca Lake, supported teachers during their trip and helped students to analyze their findings and reflect upon what they learned when they returned to their classroom.

This internship experience served as the informal education component of the student teaching experience. This was part of a new program at the University of Rochester titled Agents of Change, which enables teacher education students to split their student teaching experience among a high school classroom, a middle school classroom and an informal learning environment. The institute was very pleased to serve as a site for this unique opportunity.

5th-graders Go Hog Wild

Collaboration between Geneva Middle School, Hobart and William Smith Colleges and the Finger Lakes Institute, began in February 2005 to engage middle school students in sustained interdisciplinary inquiry around an environmental issue of significance in the local Seneca Lake watershed. The program, titled "Should We Go Hog Wild?", was directed by Jim MaKinster, HWS assistant professor of education, and Eric Barnes, HWS assistant professor of philosophy, and generously funded by the Independent College Fund of New York, in cooperation with the John Ben Snow Memorial Trust.

The thematic unit, focused on the establishment of hog farms, simulated real-world situations and role-playing in order to create a dynamic learning environment. Using a multi-disciplinary and community-based approach, students prepared for and engaged in a simulated Department of Environmental Conservation (DEC) hearing on the establishment of a particular hog farm in their area. Student groups took on the role of different special interest groups, under the guidance of their teacher and student leaders from Hobart and William Smith, and prepared position statements to understand the nature, thinking, beliefs and perspectives of their character.

In-class activities built on actual concerns amongst different Seneca Lake communities and other organizations and helped students understand the environmental, social and governmental perspectives relevant to hog farming. The students were directly exposed to many of these issues through field trips to a working hog farm, the site of the proposed hog farm and other relevant destinations or institutions, and visits from representatives of the actual special interest groups that they represent at the mock hearing.

The Hog Wild project enabled middle school students to see and experience how environmental problems are affected by a variety of social, political and economic factors. The long-term goals of this pilot project are to include more students by working with teams of middle school teachers to develop a service learning course on the HWS campus.

Project WET Teacher Training

• September 13 and 15, 4-7 p.m., Finger Lakes Institute classroom

All youth educators are encouraged to become trained and certified in Project WET. Project WET (Water Education for Teachers) is a nonprofit water education program for educators and young people ages 5-18. The program facilitates and promotes awareness, appreciation, knowledge, and stewardship of water resources through the dissemination of classroom-ready teaching aids. This is a six-hour training session to get acquainted with the program, curriculum guide, and to experience a few of the activities first hand. Please dress in casual clothes, and be ready to go outside for some activities. To register, call Marc Edwards, Education Outreach Coordinator at (315) 781-4380 or e-mail edwards@hws.edu.

Going with the Flow

Twenty-four Geneva students from Maria Reale's fifth-grade St. Stephen's School class visited the Finger Lakes Institute on March 4 for a lesson on the water cycle. Community Outreach Coordinator, Sarah Meyer, organized an interactive activity for students to simulate travel within the water cycle as water molecules. The lesson, taken from the Project WET Curriculum

Add your name to our mailing list

The Finger Lakes Institute has established a mailing list. If you would like to receive our publications, including our quarterly newsletter, sign up at <http://fli.hws.edu/MailingList.asp> or call (315) 781-4382. We offer our newsletter via e-mail to conserve resources.

Stay up to date

with current Finger Lakes regional community outreach activities at <http://fli.hws.edu/workshops.asp>.

FLI staff and HWS faculty are also available to do presentations related to the Finger Lakes.

You may contact Sarah Meyer, the community outreach coordinator, by e-mailing smeyer@hws.edu or calling (315) 781-4382 for further information.

Search our Clearinghouse

Over 1,000 documents pertaining to the Finger Lakes searchable on the Web. Search our database at <http://fli.hws.edu/flicatalog>



Maria Reale's fifth-grade class from St. Stephen's School in Geneva, N.Y.

Guide, demonstrated the movement and physical state (solid, liquid, gas) of water within the water cycle.

The water cycle is the process of circulation of water within the atmosphere, biosphere, cryosphere and geosphere of Earth. The cycle is very variable, allowing water to move as a solid, liquid, and gas through many movers of water, such as plants, animals, glaciers, groundwater, soil, rivers, lakes, ocean and clouds. Processes making that movement possible (condensation, evaporation, transpiration and precipitation) depend on the sun, electromagnetic energy and gravity to occur.

Reale's class tracked their travel and analyzed their movement. Results concluded that the most dramatic movement of water molecules occurs in the gaseous state to clouds via evaporation and condensation. Among living organisms — plants, animals and humans — the greatest movers of water are plants via absorption from the soil and transpiration to the atmosphere.

Teachers, if your class would be interested in visiting the Finger Lakes Institute contact Education Outreach Coordinator, Marc Edwards at (315) 781-4380 or e-mail edwards@hws.edu.

Community Outreach and Public Service

You are invited. The Finger Lakes Institute sponsors a variety of guest speakers to present on current issues in the Finger Lakes, such as watershed management, economic development, current research, humanities, public policy and more.

Upcoming 2005 FLI Events

For a full listing and description of programs and events at the Finger Lakes Institute visit <http://fli.hws.edu>. All events are free and open to the public. Registration is required by calling (315) 781-4382 or e-mail fli@hws.edu.

- **August 17, 6:30 p.m., Finger Lakes Institute classroom**

"The End of Suburbia" Movie Showing & Discussion

"The End of Suburbia" explores the American way of life and its prospects as the planet approaches a critical era, as global demand for fossil fuels begins to outstrip supply. Come and watch this documentary film and participate in a discussion of what peak oil means for North America. How can Smart Growth be incorporated into planning communities within the Finger Lakes region? As energy prices skyrocket in the coming years, how will the populations of suburbia react to their collapse? And what can be done now, individually and collectively, to avoid the end of suburbia? To learn more about "The End of Suburbia" visit <http://endofsuburbia.com/>.

- **August 21, 12-4 p.m., Camp Barton at Frontenac Pt., Trumansburg, N.Y.**

Cayuga Lake Watershed Network 8th Annual Lakefest FLI Educational Booth

The Finger Lakes Institute will have a hands-on exhibit for children and adults to learn more about the current issues facing the Finger Lakes watersheds. Information

pertaining to K-12 educational programs, public service opportunities, and educational resources will be available to participants. Enjoy the day learning about ways you can preserve our drinking water source! For more information, visit <http://www.cayugalake.org/news/Lakefest2005announcement.php>

- **September 14, 6:30 p.m., Finger Lakes Institute classroom**

Mastodon Excavations and Geologic History

Molly Stapleton, Paleontological Research Institution (PRI)'s Educational Programs Manager, will discuss the 11,000-year-old Mastodon bones recovered in New York- not far from the Finger Lakes. Enjoy an evening presentation introducing the geologic history of the Finger Lakes and providing an overview of the recent mastodon excavations conducted by PRI's Mastodon Project. The PRI, located in Ithaca, N.Y., provides educational outreach and research in Earth science and natural history.

- **September 27, 4-7 p.m., Finger Lakes Institute classroom**

Project WILD Aquatic Teacher Training

All youth educators are encouraged to

become trained and certified in Project WILD Aquatic. In the face of competing needs and pressures affecting the quality and sustainability of life on earth, Project WILD addresses the need for human beings to develop as responsible citizens of our planet. Each person completing the Project Wild Aquatic training will receive a FREE copy of the Project WILD Curriculum and Activity Guide, which focuses on wildlife and habitat, and the Project WILD Aquatic Curriculum and Activity Guide, emphasizing aquatic wildlife and aquatic ecosystems. This is a three-hour training session to get acquainted with the program, curriculum guides, and to experience a few of the activities firsthand. Please dress in casual clothes, and be ready to go outside for some activities. To register, call Marc Edwards, Education Outreach Coordinator at (315) 781-4380 or e-mail edwards@hws.edu.

• **November 1-30**

Cell Phone and Battery Recycling

Celebrate America Recycles Day and drop off your old cell phones and rechargeable batteries at the FLI to be recycled into stainless steel products.

• **November 16, 6:30 p.m., Finger Lakes Institute classroom**

Empire Biofuels: The Right Time and the Right Place

Ed Primrose, CEO of Empire Biofuels, LLC

discusses how Empire Biofuels plans to convert 18.7 million bushels of corn into 50 million gallons of ethanol annually. Local residents and farmers are encouraged to learn about the history and site selection of the local ethanol production plant in Seneca Falls, N.Y., and how its production of ethanol and byproducts will boost the economic stability of the Finger Lakes region.

• **December 14, 6:30 p.m., Finger Lakes Institute classroom**

Get Energy \$mart!

Matt Griffiths, Genesee /Finger Lakes Regional Planning Council, Finger Lakes Energy \$mart Coordinator, will explain how to save energy, money, and the environment with energy-efficiency and renewable energy in your home. Griffiths will provide an overview of the technical assistance and financial incentives available to homeowners and new home buyers through New York State Energy Research and Development Authority Energy \$mart programs. Photovoltaic (solar energy) systems will be discussed in detail as an example of clean, cost-effective renewable energy that homeowners can use to offset their demand for utility power.

At a Glance!

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Get Energy \$mart!

Public Service

The FLI provides opportunities for the Finger Lakes community to participate in public service activities. In the past, the Institute has held public water monitoring days on Naples Creek, Guyanoga Creek and Seneca Lake.

In October 2004, 40 pounds of litter and debris was collected on the shoreline of Seneca Lake State Park, in an effort to protect our local drinking water source. Public service events are free and open to the public. *Registration is required by calling (315) 781-4382 or e-mail fli@hws.edu.

September 17, 10 a.m., Finger Lakes Beach Cleanup

Celebrate New York State Beach Cleanup Day

Collect and record the litter around your lake or river. In observance of the International Coastal Cleanup, the Finger Lakes Institute is holding a community coastal cleanup event at Seneca Lake State Park (Pavilion #3). All registered participants will be provided with bags and data sheets to record the specific types and quantities of lake debris found. The data collected will be used to better identify sources of pollution and help find solutions for preventing it. Bring a bag lunch, closed toed shoes and work gloves. *



PHOTO BY SARAH MEYER

(L to R:) Emily Runnells '08, and Billy Houle and family from Canandaigua, N.Y. monitor Naples Creek.

October 1, 10 a.m., Flint Creek Water Monitoring

Celebrate World Water Monitoring Day

The FLI is committed to protecting our community's aquatic ecosystem and welcomes citizen participation. Everyone is invited — experienced and first-time monitors, students and senior citizens. Citizens' monitoring activities will contribute water quality data that will help characterize watershed conditions and trends, establish baseline water quality knowledge and build environmental awareness. Learn simple methods to monitor water quality. Meet in the Ontario Pathways trailhead parking lot located on Rt. 96 between Phelps and Clifton Springs. *

October 15, 10 a.m., Catharine Creek Water Monitoring

Celebrate World Water Monitoring Day

Meet in the NYSDEC Public Fishing site parking lot located (south of Genesee Street) on Rt. 14, south of Montour Falls. *

Finger Lakes Institute Exhibit Opens

The Finger Lakes Institute exhibit area, named in October 2004 for Honorable Sen. Michael F. Nozzolio, is now featuring its first exhibit, titled, "Making Connections: Your Lakes and the Finger Lakes Institute." The general public, school groups and visitors to the region are invited to visit the exhibit space to learn about featured topics.



The FLI is introduced through an overview of its goals and purpose, and key programs, in scientific research, educational and community outreach, and economic development. The exhibit outlines the importance of recognizing environmental challenges and the need to protect the Finger Lakes water resources.

Concerns of the Finger Lakes region, such as invasive species, changes in land use, water quality and quantity issues, and the status of what is being done to protect our lakes are reviewed. Guests can also discover how alternative energy sources, geothermal, solar and wind energy, are used to generate heat and electricity for the building.

Please contact the FLI to schedule an exhibit visit or formal tour for groups larger than 10.

Research

Have you seen this boat?

Hobart and William Smith Colleges Geoscience professors, John Halfman and Tara Curtin, along with undergraduate students, are expanding their research via the J.B. Snow to include all of the 11 Finger Lakes. Finger Lakes residents may see this boat, and, with curiosity, wonder what it's doing out on the lake.

Tara Curtin and her students are investigating the paleoclimatic record preserved in the sediments of Canandaigua and Keuka lakes by collecting high-resolution seismic profiles of the sediments on the lake floor. By taking piston cores, vertical tubes of sediment ~4 inches in diameter by up to 16 feet long, sediment can be analyzed for various parameters, including, grain size, magnetics,



The J.B. Snow

carbonate content, charcoal content, total organic carbon content, that preserve information on past climates/environments. This research was funded by the National Science Foundation and the Keck Foundation.

John Halfman and his three students are working on a number of water quality/hydrogeochemical projects. An analysis is being made of the bacteria (total coliform and E. coli), nutrients, and chlorophyll-a concentrations found in the mid-lake surface and bottom water of Skaneateles, Owasco, Cayuga, Seneca, Keuka, Canandaigua, and Honeoye lakes. Nearshore samples are being taken from all lakes but Hemlock and Conesus. In addition, conductivity, temperature, and depth casts, major ions, pH, dissolved oxygen, and total suspended solids are being analyzed to see if there is a correlation between water quality indicators and land use practices. Keuka Outlet water quality data (bacteria, nutrients, major ions, pH, conductivity, Total Suspended Solids) is also being analyzed to study a segment of stream, located mid-stream, which could potentially be adding nutrients to the stream. It should be noted that none of the concentrations found are above EPA's Maximum Daily Loads. The third water quality study, funded by the Seneca Lake Pure Waters Association and the Kloman Foundation, is researching the major ion hydrogeochemistry of all the Finger Lakes but Hemlock and Conesus.

Research conducted on the J.B. Snow will continue throughout the fall. Finger Lakes region residents are encouraged to give a friendly wave to the researchers working to better understand and share the science behind each Finger Lake.

Pharmaceuticals and Personal Care Products (PPCPs) May Impact the Finger Lakes

More than 1.2 million residents rely on the Finger Lakes for a class AA drinking water supply. As municipalities expand, the demand for healthy drinking water rises. The Finger Lakes Institute and Hobart and William Smith Colleges are taking a closer look at some of the compounds that may put your drinking water at risk in the future. Jim Ryan, professor of biology at Hobart and William Smith Colleges (HWS), is investigating the consequence of several pharmaceutical and personal care products on the future water quality of the Finger Lakes. Information from his research will be used individually and collectively to determine long range protective efforts for precious freshwater resources.

Many studies have evaluated the potential impacts of changing land use patterns on water quality. However, a new threat, the presence of pharmaceuticals and personal care products (PPCPs) in our drinking water supply, is becoming a "hot topic" for research scientists. PPCPs include a large number of unregulated chemicals that may cause acute and/or chronic health effects to humans drinking contaminated water. For example, many Finger Lakes residents regularly use antibiotics, birth control pills and a host of other prescription medications. Most

residents are unaware that we excrete a certain percentage of these drugs, which then enter the wastewater stream. Importantly, most of these compounds, including antibiotics in antibacterial soaps, are not removed by sewage treatment plants, and may be present in your drinking water.

Pharmaceuticals, hormones and other organic contaminants were measured in 139 U.S. streams during a United State Geological Survey (USGS) study conducted in 1999 and 2000. Eighty percent of U. S. streams tested had trace amounts of substances, such as fecal and animal steroids, topical insect repellent, caffeine, cardiac stimulants, antidepressants and reproductive hormones. Unfortunately, the Finger Lakes watersheds were not included in the USGS national study.

In Spring 2005, Ryan and several HWS undergraduate science students pioneered the first research of its kind on the presence of certain PPCPs in the local Finger Lakes watersheds. The pilot study will look for environmental estrogens and antibacterial compounds, using the



Hobart and William Smith Colleges Geoscience professors, John Halfman and Tara Curtin, along with undergraduate students, are expanding their research via the J.B. Snow to include all of the 11 Finger Lakes.

Example PPCPs:

- Antibiotics
- Steroids
- Antidepressants
- Narcotics
- Painkillers
- Tranquillizers
- Oral contraceptives
- Antiseptics
- Fragrances
- Shampoos
- Sunscreens
- Insect repellents
- Food supplements
- Caffeine
- Nicotine
- Veterinary drugs
- Disinfectants
- Fire retardants
- Antioxidants
- Detergents
- Plasticizers
- Any prescription or non-prescription drug or treatment



ELISA technique to analyze water samples. Enzyme-linked immunosorbent assays (ELISA) are powerful, yet simple research tools capable of measuring a variety of environmentally important compounds found in water, soil, and tissue samples. ELISAs are based on the recognition of a target compound (e.g. testosterone, PCBs, etc.) by specific antibodies. Environmental samples containing a compound of interest bind competitively to the antibodies, and a colored product is developed. Many of these assays can detect concentrations in parts per billion.

The ELISA equipment was purchased recently by the Finger Lakes Institute and over the next few years, Ryan will provide students with interdisciplinary experience centered on this environmental problem. Beginning in 2005, water samples from study sites throughout the region were analyzed; study sites include areas near local Confined Animal Feeding Operations, tributaries draining agricultural fields and vineyards, and wastewater effluent from local sewage treatment facilities.

This analysis will provide key information not yet available for the Finger Lakes region, which will be vital in the ongoing efforts to assess the water quality of the 11 Finger Lakes. This information will also be used to educate and inform key decision-makers, watershed managers, and resident stakeholders about water quality. The results of Ryan's PPCPs research will be distributed to the public via the FLI's information clearinghouse, available at <http://fli.hws.edu>.

For more information about PPCPs:

USGS, National Reconnaissance of Pharmaceuticals, Hormones, and Other Organic Wastewater Contaminants in Streams of the U.S., 1999-2000. http://toxics.usgs.gov/regional/emc_surfacewater.html



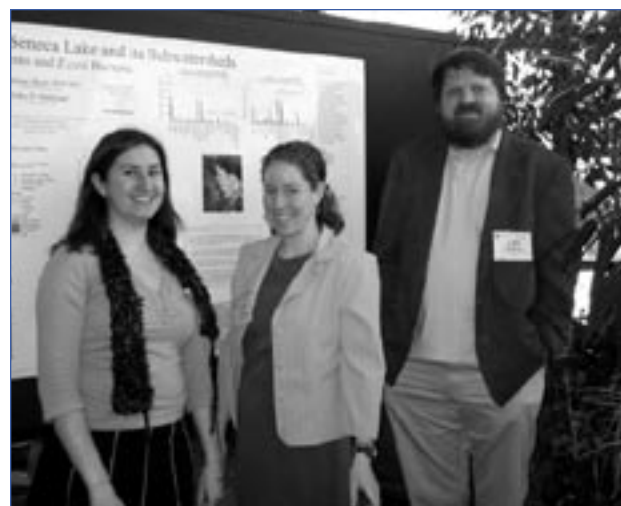
James M. Ryan holds a Ph. D in zoology from The University of Massachusetts, a master's degree in biological sciences from The University of Michigan and a bachelor's degree in zoology from The State University of New York at Oswego. He has been a member of the Biology Department and the Environmental Studies Program at HWS Colleges for 17 years. Ryan is one of the founding members and on the advisory board of the Finger Lakes Institute, and he is a board member of the Seneca Lake Pure Water Association. He has successfully involved more than 30 undergraduates in his research, and has published over 30 scientific papers collaborating with nine undergraduate co-authors.

Finger Lakes Research on the Road

Rather than enjoying a week under the sun in the Bahamas, like many students do for spring break, two William Smith students took a road trip to Saratoga Springs, N.Y. to present their research at the Northeastern Section of the Geological Society of America's annual meeting, March 14-16.

Junior Kathleen Bush and sophomore Rachel Sukeforth attended the conference to present their Finger Lakes research, conducted under the guidance of Hobart and William Smith Associate Professor of Geoscience John Halfman.

Bush, from Henrietta, N.Y., presented "Total Coliform and E. Coli Bacteria Concentrations in the Seneca Lake N.Y. Watershed." The goal of the project was to correlate the results to potential sources of bacterial contamination, including septic systems, sewage treatment plants and human or animal waste. Seven primary streams (19 streams in all), four lake sites and 12 nearshore sites were sampled to determine significant sources of contamination. Her research concluded



L to R: Rachel Sukeforth ('07), Kathleen Bush ('06), and Associate Professor of Geoscience John Halfman.

that concentrations were generally well below the Environmental Protection Agency maximum contaminant levels and that no one source of bacterial contamination exists. Her study suggests that agriculture and septic system sources pose potential but not detrimental impacts on the bacterial integrity of the Seneca Lake Watershed.

“It was a great experience. I was able to see what professionals in geology are currently doing. They shared ideas for future research and commended the work I had done. I am eager to learn more about future research possibilities in the Finger Lakes Region.” Bush said.

Sukeforth, from Litchfield, Maine, presented “Spatial and Temporal Trends in Major Ion Concentrations from the Finger Lakes, N.Y.” Sukeforth has compared monthly water samples from Canadice, Honeoye, Canandaigua, Keuka, Owasco, Skaneateles and Otisco lakes with annual samples collected over four years for chloride, sulfate, fluoride, sodium, potassium, magnesium and calcium, to construct a preliminary hydrochemical budget for the major ions. Her findings are consistent with Seneca Lake research conducted by previous undergraduates at HWS. Results indicate that the major ion concentrations are constant over time and location, suggesting that each ion is at equilibrium in the lake.

Spatially, chloride, sodium and sulfate concentrations are higher in Seneca and Cayuga Lakes, the deepest of the 11 Finger Lakes. This occurrence is consistent with past hypotheses that there may be a groundwater source leaching Silurian evaporites containing chlorides into the deepest Finger Lakes. Owasco, Skaneateles and Otisco Lakes reveal lower potassium concentrations, whereas Canadice and Honeoye Lakes show lower calcium and magnesium concentrations than the other Finger Lakes. Both trends suggest a bedrock control on the fluvial ion flux to each lake. Temporally, only chloride and sodium concentration have increased slightly over time, a trend that might reflect winter road de-icing practices.

“It was great to see the research that other undergraduates and many graduate students are doing. It got me thinking about my next step with my research as well as my future plans. While I’m not entirely sure that my chosen field will lead to geology, the conference helped to direct my attention in my studies and pushed me toward refining my career goals,” Sukeforth said.

Finger Lakes Institute Offers Internships and Independent Study Opportunities to College Students

The FLI is dedicated to the promotion of environmental research and education about the Finger Lakes and surrounding environments. In collaboration with Hobart and William Smith Colleges and surrounding academic institutions, encourages students to make a significant contribution to the investigations of the Finger Lakes region. Intern and independent study experiences at the Finger Lakes Institute introduce college students to the workplace and help them learn more about their area of study.

On March 29, the FLI hosted an opportunity for the Finger Lakes community to learn about the progress made by our interns and independent study students, from William Smith College. Caitlin Rogers '05, presented on the Finger Lakes Institute’s clearinghouse document management; Laura Evans '06, discussed water quality research conducted within the Finger Lakes; Marissa Madej '07, presented invasive plant species management in the Finger Lakes; and Meredith Trainor '05, presented forest ecology and best management practices for Seneca Lake watershed private landowners.

Copies of the students’ presentations are available at <http://fli.hws.edu/internships.asp>.

Independent study and internships with the FLI are available each academic semester. Students will not only gain experience in day-to-day operations of the Institute, but can also complete a core project related to primary watershed management priorities for one or more of the 11 Finger Lakes.

The Details

Intern and independent study positions are unpaid and receive academic credit for successful completion. Each intern is required to commit 15-20 hours per week to the FLI and complete a final research paper and public presentation.

For more information about student internships or independent study opportunities at the FLI, contact Sarah Meyer at (315) 781-4382 or e-mail fli@hws.edu.

FLI Student Researchers

- Alternative Energy Sources and the Environment: Assessing the Potential for Green Energy to Replace Traditional Sources in the Finger Lakes Region
—Ryan Williams '07

- Green Architecture: Community Development and Proposing a Shift to More Sustainable Building Practices in the Finger Lakes Region
—Matthew Jacobus '06

- Implications of Lakeshore Privatization in Relation to Public Policy in Communities of the Finger Lakes Region
—Emily Corcione '06

- Summer Science Research Project in FLI Science Education Program Development
—Brittany Holler '08

- Mellon Foundation Internship in FLI Operational Support
—Katherine Cianciotto Denison University '06



L to R: FLI Interns Marissa Madej '07, Laura Evans '06, Meredith Trainor '05, Caitlin Rogers '05.

PHOTO BY SARAH MEYER

FLI Clearinghouse Feature Article

The Ins and Outs of Our Lakes: Research Continues to Identify Access to the Finger Lakes

Do you have access to the many wonderful inland lakes and coastal waterfronts in New York State? While the state of New York has created many initiatives to support and increase public access to waterways per se, there is still a need to improve public access to inland lakes and coastal beaches. Lakefront property across the Finger Lakes faces considerably greater development pressure than neighboring non-waterfront land. Lakefront land is some of the most valuable land and needs preservation as open-space because of its inherent recreational and environmental potential.

For over 50 years, Sandy Beach, a privately owned property located on the shores of Skaneateles Lake, was generously opened to the public for a small fee for both swimming and picnicking. Because of insurance issues, the owners closed public access around 1980. Due to tax and other concerns, the property was put up for sale for the first time in 150 years by its owners in 1993. Unfortunately, relentless efforts made by Citizens to Save Sandy Beach (CSSB), to preserve Sandy Beach as a locally operated park, failed. In June 1997 the Skaneateles Country Club bought the land, kept an eight-acre parcel and sold the remaining 82 acres to Robert Congel, a mall developer and head of Pyramid Companies.

CSSB dedicated an extensive amount of time and energy into saving Sandy Beach because public access points on Skaneateles Lake are extremely limited. Of the three Skaneateles village lakefront parks, only one allows very limited swimming. Sandy Beach is only one example of the efforts local citizens have devoted to sustaining and creating public access to waterfront within the Finger Lakes region. The struggle to create and retain public access in the Finger Lakes continues today.

Throughout the 11 Finger Lakes, there are 387 miles of shoreline. The exact number of waterfront miles that are accessible to the public is unknown. Within the 2,000-square-mile Finger Lakes region, only six state parks offer a public swimming beach; Keuka Lake State Park, Seneca Lake State Park, Cayuga Lake State Park, Long Point State Park, Sampson State Park and Taughannock State Park. The number of access points available through town, village, and city parks is unknown. With approximately 22.2 million tourists visiting the region annually and 1.2 million residents living in the area, does the Finger Lakes region have enough waterfront public parks and adjacent recreation lands to provide waterfront access and related recreational opportunities to all?

Sponsored by the John Ben Snow Foundation, in 2000 and 2001, Sandra Souder, a grant consultant and cofounder of CSSB, worked with environmental attorney Neil Gingold and environmental scientist Bill Hecht to mentor and assist students from the Maxwell School of Citizenship and Public Affairs at Syracuse University to investigate public access to waterfront in the state of New York. Two major masters' projects titled, *Public Lake Access: A Comparative State Analysis with Recommendation for New York*, (June 2000) and *Public Lake Access: An Analytical Perspective on Skaneateles, Otisco and Cazenovia Lakes*, (June 2000), formulated a comparative state analysis of public access to waterfront throughout



Sandra Souder and dog, Honey.



PHOTO BY SARAH MEYER

eight states: Maine, Massachusetts, New Hampshire, New York, Minnesota, Pennsylvania, Washington, and Wisconsin. The reports focused on what New York can do, mainly at a state-level, to improve initiatives to acquire, develop, and maintain public access to inland lakes. Legislation, programs, and funding sources in several other states were compared and analyzed in order to provide recommendations for New York.

Documents on public access to waterfront in New York State, including the Maxwell School research, and the results of FLI student research on public access in the Finger Lakes region will continue to be distributed to the public via the FLI's information clearinghouse and Web site, available at <http://fli.hws.edu>.

Real-time Solar Power Data Available

The sun is a clean, renewable, domestic energy source.

The Finger Lakes Institute has 12 solar photovoltaic modules installed along the southeastern side of the building to convert sunlight directly to electricity. Each photovoltaic module contains 54 monocrystalline cells connected in series, with a peak power of 165 watts at 25 volts. As an economic benefit, excess energy collected by the panels, but not used by the FLI building, can be sold to the power company and deducted from monthly energy bills. The solar cells, installed at the FLI, supply approximately 20 percent of the electricity for the building.

Prime Energy Solutions, Inc., based in Scipio Center, N.Y., designed and installed the FLI renewable energy system in October 2004. Energy generated by the FLI solar panel is changed from Direct Current (DC) to Alternating Current (AC) by a SMA America Sunny Boy Inverter which is monitored by a Sunny Data system.

The energy monitoring and measurement computer software program, called Sunny Data, was set up specifically for the FLI building to display real-time data from the FLI's solar panel. Graphs and charts showing performance of the on-site solar panel will allow students and visitors to the Institute to analyze and examine the building's long- and short-term energy production, consumption and efficiency.

For more information about solar power or to inquire about installing a renewable energy system in your home, contact the FLI at fli@hws.edu.



PHOTO BY SARAH MEYER

Solar panels are located in the rear of FLI.

The Finger Lakes Institute has 12 solar photovoltaic modules installed along the southeastern side of the building to convert sunlight directly to electricity.

Economic Development and Land Planning

Dr. Paul Eberts Discusses Socioeconomic Trends

The Institute strives to raise awareness of economic and regional development impacts that preserve the environmental vitality of the region. Most people usually have a general awareness of what is going on around them, which demonstrates their collective levels of well-being. But they seldom have specific information derived from systematic examination of trends on a range of objective indicators about their collective well-being. In conjunction with the New York State Legislature's Commission on Rural Resources, Professor Paul Eberts and his colleague Kris Merschrod have organized trends for every county in the state between 1950 and 2000 on 55 indicators of well-being taken from the census and other public sources. Their 500-page book titled, "Socioeconomic Trends 2000 and Well-Being Indicators in New York State, 1950-2000," on these trends is available from the Commission, and on the Web site (<http://www.cardi.cornell.edu>) of Cornell's Community and Rural Development Institute or at <http://www.cdtoolbox.org/pdf/Eberts.pdf>.

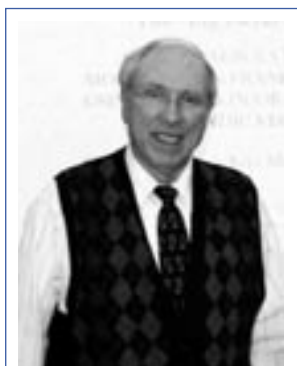
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Paul R. Eberts is professor of development sociology at Cornell University, former director of graduate studies for the Field of Community and Rural Development, and former director of the Community and Rural Development Institute. His appointment is in teaching, extension and applied research.

The FLI, in co-sponsorship with Cornell Cooperative Extension of Ontario County, hosted a presentation by Eberts in March, on certain key trends, occurring within four counties of the Finger Lakes region - Ontario, Seneca, Yates and Schuyler. After examining the trends carefully, on a range of demographic, employment, socioeconomic, family and health issues, Eberts identified certain trends which he considers “emerging resources” in the region and others which might be “emerging problems.” The “problem trends” and their implications represented important challenges to the people and leaders of the Finger Lakes region.

“The major emerging socioeconomic issue in these four counties (as in most of upstate New York) is the tremendous re-structuring of the work force that occurred between 1990 and 2000, and, apparently, is still occurring. The main features are the re-constitution of manufacturing into computer-controlled machine operations requiring fewer workers to produce approximately the same (or more)

output. This “emerging problem” is also found in both the agriculture and manufacturing sectors, but the computerized re-structuring is also affecting the services sector,” Eberts said.

Eberts concluded his remarks by discussing ways other counties have approached these “problem trends.” “The trends I present demonstrate that the problems are very real and immediate indeed, and that these are not only “personal problems” but also collective issues for us to identify and work on collectively.”

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