

# *State University of New York College at Brockport*

## Department of **Environmental Science and Biology**

[www.brockport.edu/envsci/](http://www.brockport.edu/envsci/)

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### *From the Department Chair* **Dr. James Haynes**

Welcome back to another academic year. We in the Environmental Science and Biology Department hope you had an enjoyable, refreshing summer. The weather in Brockport was the best in memory. As you will see below, many of your fellow students were very busy during the summer or succeeded at finding good jobs or other opportunities in the environmental field. If you have an interesting summer experience to share in the next Newsletter, please send a paragraph to Debi Dilker, our secretary ([ddilker@brockport.edu](mailto:ddilker@brockport.edu)). Have a great academic year!

### **The Future on Lake Ontario** **Joseph C. Makarewicz** **Department of Environmental Science and Biology**

With a little luck and financial support, the Port of Rochester may be the future home of SUNY Brockport's Lake Ontario Natural Resource Center – the "Center". In partnership with the City of Rochester, SUNY College at Brockport has proposed to build and staff a unique facility that will serve as a base for scientific research, education and outreach on one of the region's greatest natural resources, Lake Ontario. The "Center" will facilitate Great Lakes' research, promote community and business partnerships, provide unique opportunities for elementary and secondary students, and act as a center for environmental issues in the region. The "Center" at the Port of Rochester is modeled after the Great Lakes research and natural resource centers previously established on the shores of other Great Lakes' states (e.g., Stone Lab at Put-In-Bay on Lake Erie, Ohio State University; Great Lakes

Environmental Research Lab on Lake Michigan, NOAA; Great Lakes Water Institute on Lake Michigan, University of Wisconsin - Milwaukee; Center for Water and the Environment on Lake Superior, University of Minnesota - Duluth).

The current proposal is to house the Natural Resource Center in the former "Fast Ferry" terminal at the Port of Rochester. The terminal site will provide easy access and dockage for research ships through a deep-water harbor to Lake Ontario for scientists studying the Great Lakes from colleges and universities in N.Y.S. and the U.S., the Great Lakes Research Consortium, New York Department of Environmental Conservation, and perhaps the Environmental Protection Agency. The Natural Resource Center would occupy about 30,000 square feet of the building and have research labs, teaching labs, an auditorium, and a small display and aquarium area. The Center would serve both the general public, the academic community (K-12 and college) and the research community by using the natural environment of Lake Ontario as the framework to facilitate, support, and enhance Great Lakes outreach, education and research in the aquatic sciences, environmental arts, and applied fields related to recreation and leisure, while promoting community and business partnerships in the region and state.

At the annual Convocation beginning the academic year, President Halstead reported that concept designs from Bergmann and Associates and the City of Rochester with Sasaki Associates have been completed, further developing the concept and partnership with the City. With monetary support from Congressman Thomas Reynolds, political support from Congresswoman Louise Slaughter and

with matching funds from SUNY Brockport, we hope to begin to develop final schematic drawings in the near future. Construction is likely to occur in three phases with phase 1 costing about \$4.6 million.

## ES&B Graduate and Undergraduate Students Research and Innovation for a Better Environment

### Bill Guenther (BS '04, MS)

Bill graduated with a BS in Environmental Science with a concentration in Aquatic Ecology in May of 2004. He began work with Dr. Makarewicz on his MS degree in the summer of 2004, working with algal toxins, specifically microcystins from cyanobacteria or bluegreen algae. In addition to monitoring toxin levels along the Lake Ontario coastline and within the major embayment's Bill's research is focused on the **bioaccumulation of microcystin toxin** in *Cladophora* in Lake Ontario. *Cladophora* is a green alga found in all of the Great Lakes in large amounts. These algae are often washed ashore during extreme weather events and are commonly found fouling beaches along Lake Ontario. Bill's research aims to evaluate the potential

health threat associated with the algal toxins as they are accumulated and eventually deposited along shorelines where they may come in contact with the public. Samples were taken at three locations in Lake Ontario at five depths by SCUBA diving and brought back to the water quality laboratory for analysis. Preliminary results show that microcystins in the water do accumulate in *Cladophora*. These toxin levels appear to be quite low, with a high concentration of 0.04 µg/g fresh weight of *Cladophora*, but samples remain to be analyzed.

### Sarah (Wasson) Halbrend (BS '04, MS)

Sarah's MS thesis project deals with the emerging issue of **pharmaceuticals and personal care products (PPCP) in water**. Work by the U.S. Geological Survey suggests that these substances may be a problem in our waters, but little is known about their occurrence in streams and lakes in New York. Since water treatment plants do not remove these substances from drinking water, the possibility exists that drinking water may harbor unknown pharmaceuticals. Preliminary results suggest that 3 out of 14 surface water sites in western New York have trace amounts of ibuprofen, a common medication used to relieve pain, tenderness, swelling, and stiffness caused by arthritis.

## Environmental Science and Biology Major Concentration Areas

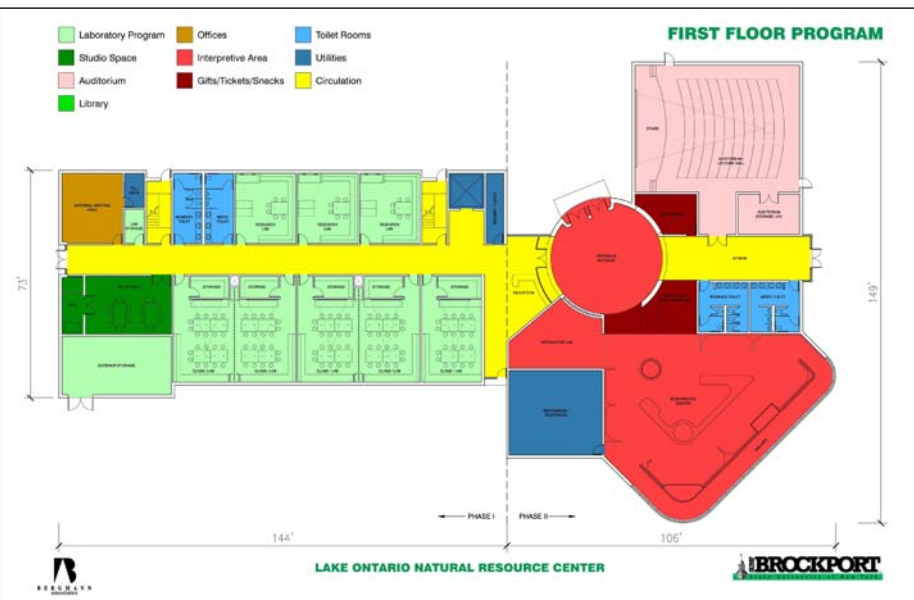
Thinking about majoring in ENV but unsure what concentration to choose? Check out these exciting and innovative areas.

**Aquatic Ecology/Biology**—prepares students for graduate school or employment in limnology and oceanography (physical, chemical and biological processes in freshwater and marine systems), marine biology, fisheries, water pollution studies, environmental analysis, etc.

**Terrestrial Ecology/Biology**—prepares students for graduate school or employment in wildlife ecology and management, conservation biology, plant ecology, terrestrial vertebrate biology, animal behavior, etc.

**Environmental Chemistry**—prepares students for graduate school or employment dealing with chemical analysis for pollution assessment, pollution prevention methods, development of remediation methods, environmental safety and health issues, toxicity testing, etc.

**Earth Sciences**—prepares students for graduate school or employment dealing with the geosphere (soils, erosion) and atmosphere (processes, pollution), watershed and wetland studies, environmental geochemistry, geographic information systems, etc.



### Daniel White (BS '02; MS)

Dan is currently writing his Master's thesis on **phosphorus fluxes and storage in the deep-water sediments of Irondequoit Bay**. Over the past three years of working as a graduate research student for Dr. Makarewicz, Dan gained practical experience in water quality analysis, environmental monitoring, and technical writing. Dan has presented his research at conferences of the Geological Society of America and the Great Lakes Research Consortium. Upon completion of his MS degree, Dan plans a career in the field of aquatic research and consultation.

### Kristie Klees (BS '05, MS), Casey Pealo (BS '06), Renee Pszyk (BS '07), Tuneeshaw Hudson (BS '07)

During the summer of 2005, graduate student Kristie Klees began her thesis research on shrub land bird/habitat relations in the Lake Ontario Plain. Kristie's work involves **surveying shrub land birds and measuring vegetation**. Sites included Iroquois National Wildlife Refuge, Bergen Swamp, Rush Oak Openings, Cicero Swamp Wildlife Management Area, and the Chaumont Barrens in Jefferson County. The goal of her project is to suggest management practices that will promote shrub land bird species, many of which are declining in the Northeast. Kristie was assisted on her project by Casey Pealo and junior Environmental Science major Tuneeshaw Hudson. Kristie's work was funded by the U.S. Fish and Wildlife Service and the Buffalo Ornithological Society, and her project will continue through 2007. ES&B senior Renee Pszyk began work on a project examining the effects of different management practices on grassland bird populations at the John White Wildlife Management Area. Renee surveyed grassland bird populations and measured vegetation in a series of fields planted with different mixtures of grasses and broad-leaf plants. The project was funded by the New York State Department of Environmental Conservation.

### Adam Lotyczewski (BS '06)

Adam graduated with a BS in Environmental Science and Biology in 2006 and is now employed at Life Science Labs in Canandaigua, New York testing **water and soil samples**.

### Ross Abbett (BS '05, MS)

During the summer, Ross **gauged streams immediately downstream of hydroelectric dams and power plants** in the Adirondacks. Working with John Homa of the Ichthyological Associates consulting firm, Ross determined water levels and flows. If the numbers agreed with a predetermined figure for minimum stream flow suitable for fishes (based on previous studies and endemic fish species requirements), a pin was placed in bedrock on the stream bank. This will allow power plant operators to visually check downstream levels to assure they are in compliance with minimum flow requirements. For his MS thesis project Ross is looking at habitat suitability and salmon spawning success in Sandy Creek, Monroe County.

### Nancy Kelly (BS '06)

Nancy quickly obtained a position with the Orleans County Health Department. She is a Health Inspector for **migrant labor camps** and **monitors the public water system** throughout Orleans County to insure that living standards and water quality, respectively, are up to code. Nancy is also involved in other issues public health issues, such as **bioterrorism**, the **rabies program**, and **West Nile virus**. Nancy notes that her education at Brockport was truly an asset to her obtaining this position. In addition, Nancy says, "*I have learned a lot and still have a lot more to learn. It is diverse and interesting. I feel very fortunate to have found a job so quickly and close to home.*" Another success story for the Department of Environmental Science and Biology!

### Andrew Hasse (BS '06)

Andy works for ENSR in Piscataway, New Jersey as a Fisheries Biologist performing sampling in the Pennsylvania and New York area around and by power plants. Andy's primarily geographic region is the Delaware and East River which is heavily polluted by sewage. Andy's position is very diverse. He says, "**I identify a new fish almost every day**", and ENSR is always looking for **Fish/Wildlife/Wetlands/GIS/Water Quality people**."

### Scott Wells (MS)

After graduating with a BS in fisheries at Humboldt State University in California, taking several terrestrial ecology courses at Brockport, and scoring very well on the NY fish and wildlife biologist exam, Scott accepted one of the four fisheries biologist positions that opened in 2005. Stationed in Stamford, NY in the Catskills, Scott is doing fisheries work in lakes and streams while working on his thesis dealing with longear sunfish, a threatened species in New York. In September, he presented a paper on his thesis research at the annual meeting of the American Fisheries Society in Lake Placid. Scott is working with Dr. Haynes.

### Benjamin Moose (BS '04)

Ben worked for several years in Dr. Makarewicz's lab and recently worked with an environmental consulting firm in Rochester, NY. Ben recently joined the Naval Officers Training Program. His goal with the Navy is to become part of their Oceanography program.

### Project to Reintroduce Sturgeon Reels in Success Mananjo Jonahson, MS

Mananjo Jonahson's research on lake sturgeon was the featured article in the August 14, 2006 issue of the *Democrat and Chronicle* newspaper. Lake sturgeon were nearly extirpated in Lake Ontario due to overfishing and the many paper mills and dams that blocked their access to spawning areas. Biologists wanted to restore this state-protected species in Lake Ontario, but were not sure if it could survive in the Genesee River. Environmental conditions have improved tremendously, but the river is a federal "area of concern" due to its potential to pollute the lake. Marc Chalupnicki, (BS '02, MS '06) of the US Geological Survey also works on the sturgeon project; he catches sturgeon with nets so that Mananjo, a Fulbright scholar from Madagascar, can implant radio transmitters in sturgeon to learn where they go once released. She implants an inch-long transmitter into the abdominal cavity allowing the wire antenna to trail from the fish's lower body. Mananjo travels the river every week, and uses a receiver and antenna to locate the tagged fish.

### Research and Scholarship

**Dr. James Haynes**, Professor and Chairman, received a research grant of \$8,411 for "**Fish Study of Lamoka-Waneta Lakes**".

**Dr. Joseph Makarewicz**, Distinguished Service Professor, received three research grants: a) Princeton Hydra LLC—\$37,000 for "**Sodus Bay Embayment**;" b) Altria Group—\$48,000 for "**Environmental Mitigation of Agriculturally related Degradation of Water Quality**;" and c) National Water Quality Program, US Dept. of Agriculture—\$597,191 for "**Experimental Manipulation of Entire Watersheds Through Best Management Practices: Nutrient Fluxes, Fate, and Transport Biotic Responses**." Dr. Makarewicz serves as Project Leader of the USDA grant, with Drs. Noll and Zollweg of the Earth Sciences Department as collaborators

**Dr. Christopher Norment**, Professor, received an award of \$15,036 from the US Fish and Wildlife Services for his research grant, "**Shrubland and Early Successional Forest Bird Habitat Study**."

### New Masters in Environmental Science and Biology Begins in Fall, 2007

The new MS program in Environmental Science and Biology will begin in the fall of 2007. If you are interested, talk with a faculty member in the Departments of Chemistry, Earth Sciences or Environmental Science & Biology, and get an application packet from the Office of Graduate Studies in Morgan III.

### Greg Teall (1955-2006)

Greg was raised in Rochester, NY, received an AS from Monroe Community College, and BS ('86) and MS ('89) degrees in Biological Sciences at SUNY Brockport. Dr. Makarewicz was his MS advisor. Greg worked for many years at General Testing Corp., and later at Columbia Analytical Services, as the manager of quality control and assurance in CAS's environmental testing labs. His interests in environmental issues were sincere and life long. We will always remember his quick wit, infectious smile and engaging personality.

### Spring 2007 Schedule of Classes

ENV 202	Environmental Science
ENV 303	Ecology
ENV 423/523	Pollution Biology
ENV 436/621	Water Quality Analysis
ENV 440/540	Herpetology
ENV 437/614	Biostatistics
ENV 439/539	Conservation Biology
ENV 483/583	Aquatic Invertebrates



### ES&B Faculty and Staff

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*We would love to hear your suggestions or  
comments about this newsletter.*

*Alumni: please send an email about what you are  
doing to [ddilker@brockport.edu](mailto:ddilker@brockport.edu). Thank you!*

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newsletter via email or regular mail, need additional  
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Deborah Dilker at [ddilker@brockport.edu](mailto:ddilker@brockport.edu).