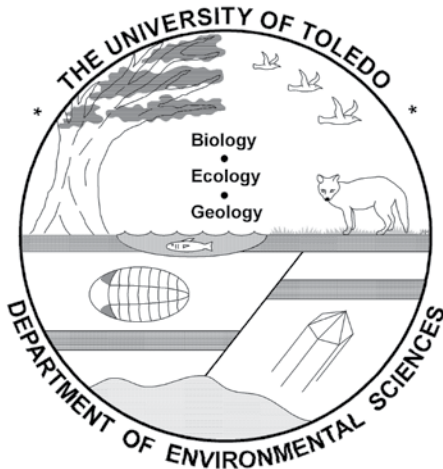




ALUMNI NEWSLETTER

FALL 2014



utoledo.edu/nsm/envsciences



Dr. Timothy Fisher
Chair

DEPARTMENTAL NEWS

Welcome to the 2013-14 edition of the alumni newsletter! A few changes have occurred since the last newsletter. Faculty members have won numerous awards, and along with promotions, there is a new face in the office and renovations are now complete on the first and third floors in Bowman-Oddy Labs.

Congratulations are in order for many of the faculty who received awards and who

Edith Rathbun Outreach and Engagement Excellence Award for his service-learning activity and community engagement, and Hans Gottgens won the college award for Professional Service and the UT Faculty Club Service Award.

We have had a few changes in staffing. Due to an increasingly worrisome university budget, the college was forced to make cuts, which filtered down to the



Dr. Becker lectures in the new Earth Lab – BOL 1006.

departments in the 2013-14 fiscal year. The department lost its visiting professor position, held by Dr. Chris Coughenour. Fortunately, he was able to secure a position at the University of Pittsburgh-Johnstown. The vacant position left by Stacy Philpott was swept, as well as my post-doctorate

were promoted. Since the last newsletter, Carol Stepien became a Distinguished University Professor, Scott Heckathorn and Chris Mayer were promoted to Full Professor, and Ricky Becker was tenured and promoted to Associate Professor. Jon Bossenbroek was awarded a full-year sabbatical and won a prestigious Fulbright Scholarship to work on invasive species in the Caribbean; see his report later in the newsletter. Mike Weintraub was awarded a sabbatical for the fall 2014 semester, Jiquan Chen was nominated a Fellow of the Ecological Association of America, I was recognized by The University of Toledo Sigma Xi Chapter with the Sigma Xi/Dion D. Raftopoulos Award for Outstanding Research and I also received The University of Toledo Outstanding Research and Scholarship Award. Todd Crail was awarded the UT

position. The good news is that Dr. Xiuju Liu, my former post-doctorate, is now employed. Last January, we hired a new department secretary, Ms. Dianne



Mauter

Mauter. She had been with UT for the past seven years, formerly working in the R1 Research and Technology Complex, and previously, in the Health Professions department. She brings some good experiences and useful skills to the position and we are enjoying working



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Our new computer lab



BOL 2014 – Our new general classroom



Our new Reading Room-Museum – BOL 1007

with her. Unfortunately, I have to report that Distinguished University Professor Jiquan Chen has left UT for a position in geography at Michigan State University. Jiquan is a world-class scholar and colleague to many who brought international prestige and resources to the department and University. He will be dearly missed.

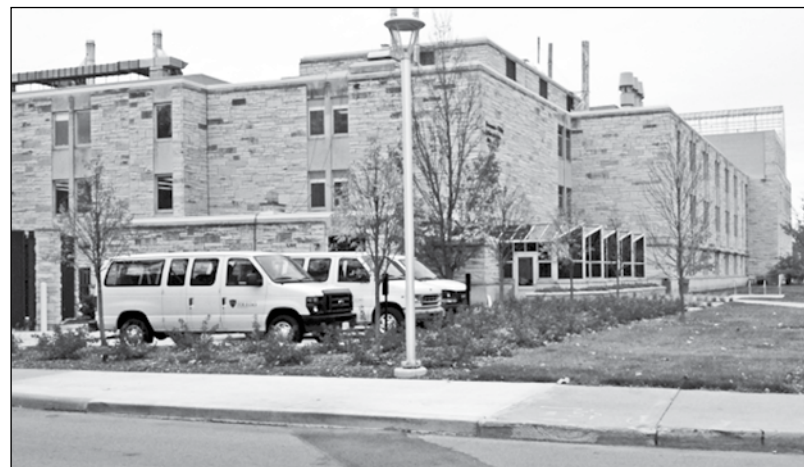
Following the two-year-old renovation of the Center for Biosphere Restoration, funding was made available from the state to renovate Wolfe Hall and Bowman-Oddy laboratories, following the College of Pharmacy and Pharmaceutical Sciences' move to the medical campus. The department now has new labs and classrooms on the first floor of the south wing of Bowman Oddy that we occupied in mid-September 2013. These rooms are around the corner from the new environmental and geology teaching labs and department office in Wolfe Hall — effectively concentrating our teaching mission to one continuous area in the Bowman-Oddy/Wolfe Hall complex. New rooms include a lab support room between a 24-seat environmental problems lab and a 46-seat geology lecture

and lab space. The new computer lab contains 30 computers, six more than the old room. There are two new lecture rooms; one that seats 46 students with moveable chairs and tables to arrange the room as pedagogy demands, and a smaller, 20-seat room we share with Biological Sciences. The new reading room has a greatly expanded rock and mineral display area, tables for students to work at, a microwave and fridge to keep students energized and a sofa for a quick nap!

Another renovation includes old teaching rooms and offices on the third floor; the west wing of Bowman-Oddy is also complete. Most of the basement geology labs have moved to the third floor, where we are enjoying the natural light without the chronic water leaks and floods in the basement.

Enjoy the rest of the newsletter and please keep in touch with emails and visits. Please take the time to fill out the alumni questionnaire at the department website. utoledo.edu/nsm/envsciences

Timothy Fisher
Chairman



We now have parking for some of our vehicles directly outside our loading dock.

NEWS FROM FACULTY AND STAFF – PAST AND PRESENT

Jonathan Bossenbroek

This past academic year, my family and I had the opportunity to live in Trinidad and Tobago, as I was awarded a Fulbright Scholarship to conduct research at the University of West Indies – St. Augustine Campus. As a Scholar, the expectation for me was to aid in the Fulbright Mission to “increase mutual understanding between the people of the United States and



My family and I with UT alumnae Kristen Woodling and Colleen Nagel exploring Nariva Swamp, an internationally-recognized Ramsar site, where we enjoyed seeing red-bellied macaws, howler monkeys, and the critically-endangered sub-species, the Trinidad white-fronted capuchin.

the people of other countries” through my academic and social interactions. Socially, our family of five did everything we could to learn about and experience the culture of Trinidad and Tobago. Our sons played football (soccer) for one of the biggest clubs in the country (SKHY) and they played in several chess tournaments against several individuals who just played in the World Chess Olympiad held in Norway and got to know them. As a family, we became well-known in the eco-tourism circles through our many hikes to waterfalls and gorges, our trips to major birding destinations and our support and volunteering for organizations working to restore forests (facebook.com/facrp) and protect nesting sites of sea turtles (facebook.com/NatureSeekers). We even had the pleasure of hosting UT alumnae Kristen

Woodling and Colleen Nagel for a week of eco-tourism during our stay. Through our tours, we were able to see an amazing diversity of plants and animals, including nesting leatherback sea turtles and two endangered species, the Trinidad white-faced capuchin and the Trinidad piping guan, which is thought to have only ~200 left in its population. Of course, we also relished in the big social events on

Trinidad: Panorama and Carnival. Panorama is the annual competition for the best steel pan band in the country. The steel pan was invented in Trinidad and the Panorama competition includes bands that contain more than 100 individuals all playing together. Carnival in Trinidad consists of approximately 50,000 people flocking to the island to join the million-plus residents for several days of dancing, costumes and debauchery.

Academically, I focused my time on understanding the patterns and implications of the spread of invasive species throughout the Caribbean. The islands have many invasive species causing environmental and economic damages, including the lion fish, Asian green mussel, red palm mite, Africanized honey bees and many other species and diseases that impact agriculture. My main interest was trying to understand the historical spread of Asian green mussel throughout the Caribbean to use it as a model organism to predict how future invasive species brought to this region are likely to spread. The primary potential vectors of spread of the green mussel are ocean currents and shipping. Considering Trinidad is a major exporter of oil and ammonia, shipping connects this small island to the United States, the rest of the

Caribbean and the world. Understanding how species are likely to be spread throughout this region and identifying industries likely to be impacted, such as cooling towers or desalination plants being clogged by green mussels, is important for the future management of invasive species in this region.

Beyond my modeling of Asian green mussel, I also had the opportunity to contribute to several other projects. I worked with an economics graduate student to evaluate the value that the people of Trinidad place on palm trees and, thus, their willingness to pay to control or eradicate the invasive red palm mite.

My family and I assisted in a bird banding project at the Aripo Savannas in central Trinidad. The tropical savanna is a very rare habitat and home to many rare plants and animal species. Finally, I was able to participate and help organize a meeting focused on Mitigating the Threats of Invasive Alien Species in the Insular Caribbean. This meeting brought together managers and scientists from five Caribbean countries and representatives of the U.N. Environmental Programme. The network developed throughout all of these activities will hopefully lead to more collaboration and, of course, future trips to Trinidad!



My son, Eric, holding a golden-headed manakin during one of the days we assisted with bird banding at the Aripo Savannas, a federally protected area for conservation and scientific research.

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Pat Hacker

Pat Hacker, our former secretary, says hi. Unfortunately, her husband, Miles, passed away shortly after her retirement. Pat is planning on moving to Ludington, Mich., in the future.

Mark J. Camp

I've spent the last several months breaking down the old geology museum in BOL 3049, packing up rock, mineral and fossil specimens for transfer to the reference collections in the basement and our new Reading Room and museum on the first floor, moving the map collections and boxing up journals and other publications. I found a new home for the massive display cases at Carlson Library's Canaday Center and supervised their dismantling and removal. Four of the museum cabinets were relocated to the first floor of BOL for departmental displays next to the major lecture halls. These cabinets came from the University of Michigan's Exhibit Museum back in the 1960s. They were moved here as Dr. William Kneller established the Department of Geology. I recently unearthed their blueprints, showing they were constructed by U. of M. carpenters back in the 1930s. Other display cases and library shelving went to the Holland Historical Society and Toledo Fire Museum. Now, the task is rebuilding the museum displays in our new rooms on the first floor.

Stuart Dean

I have had a very interesting and productive year. I continued geological mapping for the West Virginia Geological and Economic Survey in the western Valley and Ridge Province of eastern West Virginia. In spring 2013, I completed the Maysville 7.5-minute quadrangle. I then proceeded south and finished the Petersburg West quad and have adjacent Hopeville quad nearly done. I was ably assisted by my former student, Mark Ferguson. Mark Baranoski of the Ohio Geological Survey and my colleague, Byron Kulander, also

helped out for a few days. The region has classic fold and thrust fault geology, making it a pleasure to study. Wildlife abounds in the remote areas of this region and I commonly encountered deer, wild turkeys, bald eagles and an occasional black bear. Access is a major problem and it is an area of locked gates. However, most property owners are quite cooperative once they find you do not work for the federal government. Dick Sites, a land owner, devoted an entire day to showing me around the Smoke Hole region, a relatively famous area for its scenic beauty, topography, geology and storied history. Dick proved to me that a Jeep can indeed be an amphibious vehicle, as he traversed the South Branch of the Potomac River in the Smoke Hole. My fieldwork is completed for 2013, but I look forward to resuming my endeavors in spring 2014.

James A. Harrell

I'm continuing to work on my book about ancient Egyptian mines and quarries with the first draft mostly done. I returned to Egypt for more fieldwork in November 2012, February 2013 and March-April 2014 and in spite of the recent troubles there, I plan to make another trip in October 2014. The purpose of the next trip is to investigate five previously unknown stone fortresses I discovered in the Nubian Desert from satellite images. They are all ancient, with three of them, which are guarding gold mines, probably dating to around 2000 B.C. I remain actively engaged in collaborative writing projects with colleagues in both the U.S. and Europe; the papers I am currently working on concern ancient Hebrew words for gemstones, ancient Egyptian quarrying technologies for limestone and sandstone and a geochemical provenance study of peridot (gem olivine) from localities around the world. After 14 years as president of the Toledo Society, a chapter of the Archaeological Institute of America, I have stepped down from this position but continue to serve the organization as a trustee and lecture program coordinator. When I am not

occupied with the above activities, I like to visit family in Tennessee and California, exploring back roads along the way and hang out with my seven cats.

Don Stierman

You might not recognize Dr. Don Stierman if you passed him in the hall. His weight has dropped to 100 kg (graduate student level) and he shaved his beard following successful surgery, radiation treatments and chemo for tongue and neck cancer. Students under his supervision used gravity in an attempt to measure how much void space has developed in the karst north of Bellevue, Ohio. Despite evidence from digital elevation models of significant karst development (since glaciers retreated in some areas), these investigations failed to detect significant concealed karst.



Prof. James Harrell (left) with British archaeologist John Ward discussing tool marks in an ancient Egyptian sandstone quarry.

CONTRIBUTIONS AND ACTIVITIES OF OUR LABORATORIES AND CENTERS

ESE Lab

Over the last four years, my lab had led two major NSF-funded collaborative research projects. The first is a study of exactly how decomposer microbes break down plant litter, with the goal of better predicting decomposition rates, and how the C balance of terrestrial ecosystems will respond to climate change. We recently published an education and outreach website based on this project called IMOLD: the Interactive Model of Leaf Decomposition (<http://imold.utoledo.edu/>). IMOLD is designed to provide educational outreach about decomposition for grades 9-12. IMOLD includes professionally animated and narrated lessons about decomposition and the carbon cycle; an interactive model that allows users to simulate decomposition for several plant litters in different environments based on a range of LTER sites; and lesson plans for teachers.

- The second research project led by my lab is a study of how warmer spring temperatures and earlier snowmelt will affect plant growth, nutrient cycling, and decomposition rates in the arctic tundra of Alaska, with the goal of improving our predictions of how this critical ecosystem will respond to climate change. This project was recently completed and we are in the process of publishing the results. Additionally, we recently had a small project funded to study how nitrogen deposition influences soil biological functioning and dust release in Arches National Park. This project is a collaboration with researchers at the USGS in Moab, Utah.
- Over the past year, we have had several students and employees working on these projects: Anthony Darrouzet-Nardi, a post-doc on our Arctic Project, who left in June 2013 and is now working for the USGS in Moab, Utah; Mallory Ladd, a full-time lab

tech who left in May 2013 and is now a PhD student at the University of Tennessee Knoxville; Darian Marinis, an undergraduate researcher and recent UT Undergraduate Research Grant recipient; Zachary Rinkes, a PhD student scheduled to graduate this fall; Heather Thoman, a MS student scheduled to graduate this spring; and Megan Wenzel, an undergraduate researcher who graduated this past spring. Our lab also welcomed two new MS students this fall: Chris Collier and Kawthar Esseili.

- Over the past year (since November 2012), our lab has published seven papers (with several more coming out soon) and presented ten talks at professional meetings.
- For more information on our research and accomplishments, visit our website at <http://www.eeescience.utoledo.edu/faculty/weintraub/ESELab.htm>

Cheers,

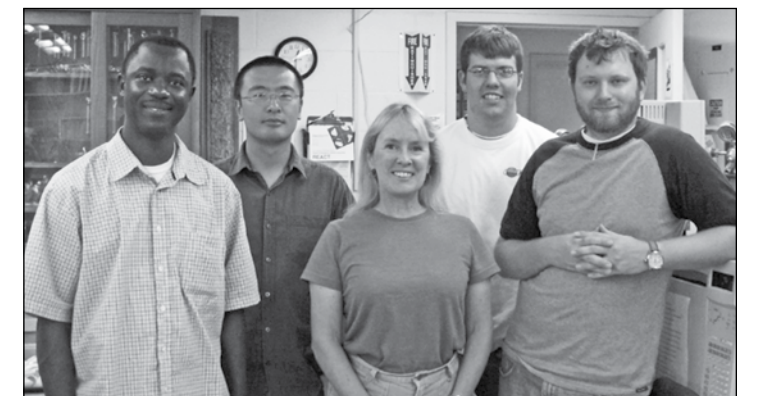
Mike

Michael Weintraub
Associate Professor
Department of Environmental Sciences
The University of Toledo
eeescience.utoledo.edu/Faculty/weintraub/ESELab.htm

GESS Lab

Greetings from the GESS lab,

Many of our alumni knew Jason Witter either as a student or as my lab technician. Well, I finally had to set him free this past year. He worked in my lab for eight years, but was a student



GESS lab

for many years before that. I can hardly believe it, but I had to let him go this past January due to funding concerns. He has survived the transition better than I have. He found a related job in the Ann Arbor area and has lots of good news of his own. I, on the other hand, realize every day his true value in my lab. Not only was he an excellent, conscientious technician capable of solving analytical, mechanical and electronic problems, but he was also a very good friend. I miss him but wish him well. That is what we strive for from all of our students...that they leave the University for a job that uses their training and that they become productive and happy. Here's a picture with Jason on the right, along with Yinka, Chenxi and Don (three other successful grads).

GLASS Lab

Henry Loope (MS 2006) successfully defended his Ph.D. from UW-Madison. He is now working as a research glacial geologist for the Indiana Geological Survey. Post-doc Xiuju Liu is now employed at Ellington and Associates in Houston, working as a stratigrapher examining cores for the oil and gas industry. Melinda Higley (nee Campbell) (MS 2009), just left the Illinois Geological Survey, to start a Ph.D. at UIUC with plans to work on paleoclimate records within lake sediment from Christmas Island. Joe Blockland (2013) taught

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physical geology lab at UW-Platteville last year and is currently working on getting his second paper out from his MS research. Kira Baca (2013) has been teaching high school science in Iowa, and now is moving to the Adirondack region to continue teaching. Currently, Jenn Horton is using sediment cores and OSL dating to determine the age of the Sturgis Moraine, a recessional moraine of the Saginaw Lobe. Undergraduate student John Dilworth is mapping compaction ridges and shorelines in the Lake Agassiz basin.

Along with Ed Hansen from Hope College, our GSA Special Paper 508 is now published. Many department faculty and students have papers within it focusing on the coastal geology and dunes of the Great Lakes. A few other recently-published papers include Xiuju's work on Lake Agassiz sediment and two other Lake Agassiz papers with co-authors Lowell and Lepper about the age of the shorelines and its drainage history during the Moorhead Phase. I'm also very pleased that Melinda's GPR paper in Canadian Journal of Earth Sciences was selected as an Editor's Choice and, consequently, it is in open access format at the journal website for anyone to browse: nrcresearchpress.com/doi/full/10.1139/cjes-2014-0047#.U9FQ9IZyO3A.

The Lake Erie Center

The Great Lakes Genetics/Genomics Laboratory (GLGL) of the Lake Erie Center, formulated and directed by Dr. Carol Stepien, focuses on working with

federal and state agencies, along with national and international researchers, to develop and apply genetic/genomic DNA markers for:

1. Evaluating the population and biogeographic structure and adaptedness of native fishes in the Great Lakes
2. Understanding the vector pathways, population dynamics, evolutionary adaptations and genetic time course of nonindigenous species invasions in the Great Lakes
3. Interpreting gene flow patterns of river and lake fish as influenced by dams, habitat changes, climate fluctuations, fishery exploitation and other anthropogenic factors.

- The LEC welcomes (fall 2013) undergraduate interns Joe Heidenescher and Breana Cousino.
- Ph.D. student Justin Chaffin defended his dissertation, "Physiological Ecology of Microcystis Blooms in Turbid Waters of Western Lake Erie" (rave.ohiolink.edu/etdc/view?acc_num=toledo1248373282) at the Lake Erie Center under the direction of Dr. Bridgeman with committee members Scott Heckathorn, W. Von Sigler, Mike McKay (BGSU), and Darren Bade (Kent State). Justin was the first author on five peer-reviewed publications during his M.S. and Ph.D. studies at the Lake Erie Center and co-author on five additional publications. He is now a research coordinator at Ohio State University's Stone Laboratory. In his new position, Justin manages research

projects, the lab's REU program and also teaches classes.

- M.S. student Jason Ross won the Dr. Brundage-Western Lake Erie Waterkeepers LEC research graduate student scholarship in 2013.
- Dr. Stepien's former Ph.D. student, Dr. Osvaldo Jhonatan Sepulveda-Villet (who defended his Ph.D. in 2011), went on to a postdoctoral fellowship at the USDA ARS in Milwaukee, Wis. He accepted an assistant professorship in aquaculture at the University of Wisconsin-Milwaukee.
- Recent M.S. recipient Mark DuFour is now pursuing a Ph.D. at the LEC, continuing his work with Dr. Christine Mayer and the Aquatic Ecology Lab.
- Graduate student Jason Ross defended his M.S. thesis under Dr. Mayer and is currently working for the USGS Great Lakes Science Center.
- Our LEC students and faculty were very active at the American Fisheries Society Annual Meeting. Dr. Carol Stepien, Dr. Chris Mayer, Mark DuFour, Jason Ross, Jeremy Pritt, and Jennifer Sieracki gave research presentations.
- The LEC was well-represented at the 2013 International Association for Great Lakes Research (IAGLR) meeting in West Lafayette, Ind., with 12 presentations by our faculty and students.
- Ph.D. student Carson Prichard received the 2013 IAGLR Scholarship for his research (advisor: Dr. Carol Stepien), "Environmental DNA Detection and Quantification: A New Next-Generation Sequencing Test for Great Lakes Native and High Risk Invasive Fish Species." LEC graduate students have received these highly competitive awards for seven of the last nine years.
- M.S. thesis student Timothy Sullivan (advisor: Dr. Carol Stepien) defended his M.S. thesis, "A fine-scale analysis of spatial and temporal population genetic patterns in the yellow perch (*Perca flavescens*)." Results were

published in the Journal of Great Lakes Research and another paper is in re-review in the journal Conservation Genetics.

- Two of Dr. Stepien's Ph.D. students defended their dissertations: Dr. Amanda Haponski in June 2013 on "Evolution, biogeography, and population genetics of the genus *Sander*" and Dr. Lindsey Pierce in August 2013 on "Evolution and detection of the VHSV Fish Virus." Dr. Haponski has published two scientific papers from the work with Dr. Stepien (Journal of Great Lakes Research 2013, and Biological Journal of the Linnean Society 2013), and another is in review (Conservation Genetics). Dr. Pierce has published three scientific papers from work with Dr. Stepien (Molecular Phylogenetics and Evolution 2012, Journal of Virological Methods 2013, PLoS One 2013). A fourth paper was submitted for review last fall.
- Dr. Stepien, Ph.D. student Carson Prichard, Ph.D. students Amanda Haponski and Lindsey Pierce, technician Vrushalee Palsule, M.S. student Tim Sullivan, and undergraduate researcher Susanne Karsiotis presented a variety of scientific papers at conferences, including the American Fisheries Society (St. Paul, Minn., September 2012), Evolution Conference (Marseilles, France, September 2012), International EcoSummit (October 2012), Ohio Fish and Wildlife Management Association (February 2013), International Conference on Aquatic Invasive Species (Ontario, Canada, April 2013), and the International Association for Great Lakes Research (Purdue University, May 2013).
- Dr. Stepien gave sabbatical research presentations at the EPA in Abu Dhabi, United Arab Emirates (January 2013), the University of Warsaw, Poland (January 2013), the University of Tasmania, Hobart, Tasmania (February 2013), the University of Melbourne, Australia (March 2013), and the

Victoria Museum in Melbourne, Australia (March 2013).

- Dr. Bridgeman's lab continued work on the third year of an NSF-funded, five-year water sustainability and climate project to study the effects of climate change and land use on harmful algal blooms in western Lake Erie in collaboration with a number of other universities. Research from this project describing the 2011 record-setting algal bloom was published in March 2013 in PNAS and was featured in the New York Times in March and in an NBC Learn educational video in June (nbclearn.com/water/cuecard/65291).
- Dr. Mayer's lab continued work on a project funded in part by the Ohio Department of Natural Resources, Division of Wildlife and the Ohio EPA to develop a collaborative study of the nearshore fish community of western Lake Erie. The goals are to create a sampling strategy that can be implemented by ODNR-DoW into a long-term monitoring program and to answer specific questions about the association of the fish community and shoreline features. This study is conducted with agency partners at the USGS. Jason Ross defended his M.S. thesis, which was supported by this work. Rachel Kuhaneck (co-advisors: Drs. Mayer and Bridgeman) also contributed to this project and defended her thesis in August 2013. Mayer and Ross have been invited to present results from this project to the Ohio EPA Surface Water group (Bowling Green), ODNR-Office of Coastal Management (Sandusky, Ohio), and the Ohio Coastal Resources Advisor Council (Avon, Ohio).
- LEC staff members Rachel Lohner and Meredith Gray received a \$15,000 grant from The University of Toledo Women & Philanthropy group for the installation of interactive educational displays in the LEC lobby.
- The LEC began participating (summer 2013) in a University of Rhode Island research project to measure

hydrophobic pollutants in the Great Lakes. A "passive sampler" was installed at our facility, data from which will be used in URI research projects.

- Dr. Bossenbroek is on sabbatical in Trinidad and Tobago with the goal of developing collaborative relationships in the Caribbean to address the economic impact of marine invasive species. He received a prestigious Fulbright award.

GK-12 Program

Our NSF-funded GK-12 program at the Lake Erie Center wrapped up a great year in May as we bid farewell to eight graduate fellows, including DES students Lindsey Pierce, Danielle Long, Kyle Siemer, Nicole Lightle and Tim Sullivan. We are excited to have three new fellows in our program this year, including DES Master's student Chris Maike. These new fellows are partnering with teachers at Sylvania Northview and Toledo Early College High School. Fellows incorporate their research into the high school classrooms, as well as mentor students through their own research projects for the District Science Fair and the Lake Erie Center Student Poster Gala. Additionally, the fellows lead the school's participation in a local Student Watershed Watch program, in which the students collect samples from local streams, measure water quality parameters, analyze data, create presentations, and share their results at a summit. The sampling was done Oct. 17 and the summit will be Nov. 21 on UT's Scott Park Campus. To date, this program has reached more than 2,100 high students and will continue through 2015.



2013 GLGL members, from left: Matthew Snyder, Carol Stepien, Carson Prichard, Amanda Haponski, Lindsey Pierce, and Shane Yerga-Woolwine

FIELD TRIPS

Our annual Fall Geology Field Trip, led by Dr. Mark J. Camp, headed west to Nebraska, Wyoming and South Dakota just before classes started in August 2013. Aside from stops at Badlands National Park, Bear Butte State Park, Chimney Rock State Park, Devils Tower National Monument, Jewel Cave National Monument, Mount Rushmore National Memorial, Scotts Bluff National Monument and Wind Cave National Park that have been stops on earlier trips, we added stops at Ashfall Fossil Beds, Como Bluff, Fossil Butte National Monument (Green River fossils), Sinks Canyon State Park, Hot Springs State Park, Toadstool Geologic Park and the Wyoming Dinosaur Center. All in all, another successful trip.

Dr. Camp's August 2014 field trip headed for the Ozark region of Missouri and Arkansas. We visited the Falls of the Ohio, a famous Devonian fossil collecting site in southern Indiana; spent two-and-a-half days exploring Mammoth Cave National Park; collected Mississippian blastoids at Wax, Ky.; waded in famous Coon Creek (Tennessee), collecting Cretaceous mollusks; collected bauxite, rock crystal quartz, chalcedony, hematite, and barite in Arkansas and Missouri; visited Johnsons Shut-ins and Elephant Rocks in the St. Francis Mountains of Missouri; saw the Richter dipstick near New Madrid, Mo.; and ended up at notorious Cave in Rock. Chalk up one more great trip.



Searching the dumps at the Carissa Gold Mine site near South Pass City, Wyo.



A White River Group collapsed "toadstool" at Toadstool Geologic Area near Crawford, Neb.



River Styx Spring, a beautiful spot in Mammoth Cave National Park.



The famous Coon Creek collecting site in Tennessee, part of the Mississippian embayment.



NEWS FROM OUR STUDENTS – PAST AND PRESENT

Mark Baranoski (BS, MS)

Hi Tim,

Thanks for taking a few minutes to talk about UT's past and present. While my main interest is in the Ohio region's basin architecture, I am fascinated by the glacial and post-glacial deposits of northwest Michigan. You mentioned that you would send me references on the glacial history of the Herring Lakes area, south of Frankfort. Any leads would be appreciated.

If I can assist you in any way with Ohio geology, please let me know. And say hello to Stu Dean and Mark Camp the next time you see them.

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Candice Brothers

(recently graduated M.S. student of Dr. Dwyer)

Presentations: Brothers, C., J. Fugate, and C. Maike* (2013) Subsurface Geophysical Profiling of the Oak Openings Sand Ridge. The Mid-central Graduate Student Association Meeting, May 4, 2013.

Lindsay Cain

(current Ph.D. student of Dr. Dwyer)

Activities: Lindsay is responsible for monitoring a restored wetland at Maumee Bay State Park for her dissertation.

On top of her own research, Lindsay has continued to extend her knowledge and skill sets by actively involving herself in restoration management at Kitty Todd Nature Preserve, Sylvan Prairie and Southview Savannah in the Oak Openings region. She also attended a week-long seminar on stream restoration processes.

Ryan Jackwood

(current Ph.D. student of Dr. Dwyer)

Activities: Ryan has updated existing tree surveys and maps for public use at Stranahan Arboretum. He has also participated in spring frog monitoring for a newly-restored area at Irwin Prairie.

Set-up and planning of BOSEF events and meetings

Outreach: Ryan conducted tours and outreach days at Stranahan Arboretum for high school students and Boy Scouts.

Presentations: Ryan has been accepted and is preparing a talk at the National NPS Monitoring Conference on "The Role of Retention Time and Soil Depth on Escherichia coli in Biosolid Amended Agricultural Soil" in Columbus, Ohio, on Oct. 28.

Danielle Long

(current M.S. student of Dr. Dwyer)

Danielle was awarded the GK-12 fellowship at the Lake Erie Center under the guidance of Dr. Carol Stepien and received the Outstanding Fellow Award for 2013.

Conferences:

2013

Predicting the Roles of Soil Depth and Type on Transport of Escherichia coli and Enterococcus spp. Using an Advection Dispersion Model. University of Findlay, Findlay, Ohio.

2013

Predicting the Roles of Soil Depth and Type on Transport of Escherichia coli and Enterococcus spp. Using an Advection Dispersion Model. Midwest Graduate Research Symposium. University of Toledo, Toledo, Ohio.

Outreach:

2013

Restoring Wetlands at Maumee Bay State Park Clean Water, Safe Beaches. Earth Fest. University of Toledo, Toledo, Ohio.

2013

Role of Soil Depth and Retention Time on the Survival of E. coli, Enterococcus spp. and F+ coliphage in Biosolid-amended Agricultural Fields. Central Catholic High School, Toledo, Ohio.



Neal Moster

(B.S. 1974, M.S. 1976)

I am a past graduate of Geology, 1974 Bachelor's and 1976 Master's, and would like to contact Dr. Dean and Dr. Phillips. They were two of my favorite professors from my time at UT. I actually TA'ed for Dr. Phillips at both ASU and Toledo.

After reading the latest newsletter, I would like to wish both Dr. Phillips on his retirement and Dr. Dean on his recovery well. I was hoping you might be able to forward me some current email addresses.

Thank you; I appreciate any help you can give me. Thank you, Dr. Fisher, I really look forward to hopefully hearing from both. Since Dr. Dean may not have email, please let him know I vacationed in the Black Hills last week; my first trip back since field camp in 1975, and tell him Bear Butte is a lot easier to hike without a plane table and equipment on one's back.

Thanks again,
Neal Moster
9543 Catalina
Overland Park, Kan. 66207

Kyle Tharp (MS 1996)

Hello, UT Geology Department alumni! I hope you are all well! I'm doing great both personally and professionally. My wife Erin (UT '93) and I are living in rural Tuscarawas County where I spend much of my free time competing in high-power rifle matches and hunting deer

and turkey. I've managed to bring home some medals from the National Matches at Camp Perry in Port Clinton and hang some nice bucks on my wall. I had the pleasure of seeing Dr. Camp last year when he gave a presentation to the Ohio Geological Society in Delaware. I've been trying to get back to campus for a football game, see some old friends and see the faculty I know before they retire.

I've been working at the Ohio Department of Natural Resources-Division of Oil & Gas Resources Management as a hydrogeologist since 2007. I primarily investigate complaints of alleged oilfield contamination of private water supplies in eastern Ohio. Until recently, I was the only field hydrogeologist and covered the entire state, which kept me busy. As most of you know, the drilling activity in the Utica-Point Pleasant Shale Play has been increasing steadily. The division has been hiring geologists and inspectors at a rapid pace to stay ahead of the industry growth. One lesson I can share with you from my experience with the 'drilling boom' is that the term "fracking" is overused and equally misunderstood.

Kyle Tharp (MS '96)
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Tricia Gallant Zook (M.S.)

When I graduated from The University of Toledo five years ago, I started working as a geophysicist specializing in processing EM-61 data at NAEVA Geophysics Inc. in Charlottesville, VA. A year later, when I moved to Cleveland for my husband's work, I became my company's first telecommuter. We recently moved again, returning to Toledo to be closer to family. My husband, Steven, is also a UT alum and an Internist at The Toledo Hospital. This past February, we were blessed with the birth of our first child, Aaron. At the time of writing this, he has just mastered crawling and loves grabbing the dog's tail.

Also my new address is:
2901 Secretariat Rd
Ottawa Hills, OH 43615.

I would appreciate it if you could update it so I can get the newsletter here.

Thank you.

Hope all is well.

IN THE FIELD AND LABORATORY



A NEW SCULPTURE



Artist Judith Greavu's "Current Forces" was inspired by the nearby Ottawa River. The artwork now resides on the south side of Bowman-Oddy Laboratories and Wolfe Hall. It consists of three bronze sections and five glass circles supported by brass tubes depicting the flow of the river and its lifeforms. Look closely for evidence of creatures inhabiting the river and floodplain. Dr. Camp and Dr. Crail loaned specimens used in its creation.



SELECTED PUBLICATIONS

*Student

Becher, C.* and J.F. **Gottgens**. 2012. The Impact of Dredging on Heterogeneity and Fish Communities in Agricultural Streams of the greater Sandusky River Watershed, Ohio. Proc. National Conf. Undergraduate Research, Ogden, Utah: 578-583

Becker D., Sultan, M., Milewski, A., Becker, R.H., Sauck, W., Soliman, F., Rashed, M., Yan, E., Wagdy, A., Ahmed, M., Chouinard, K., Welton, B., Integrated Remote Sensing Solutions for Hydrologic Investigations in Arid Lands, Geosphere.

Bloxam, E., **J. A. Harrell**, A. Kelany, N. Moloney, A. el-Senussi and A. Tohamey. 2014. Investigating the Predynastic origins of greywacke working in the Wadi Hammamat. Archéo-Nil – Revue de la Société pour l'Étude des Cultures Prépharaoniques de la Vallée du Nil, n. 24, p. 11-30.

Bryan, NJ, CV Florence, TD **Crail** and DL **Moorhead**. 2013. Freshwater mussel community response to warm water discharge in western Lake Erie. Journal of Great Lakes Research. doi: 10.1016/j.jglr.2013.06.07

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Chen M, **Mishra** S, **Heckathorn** SA, Frantz JM, Krause C. 2013. Proteomic analysis of *Arabidopsis thaliana* leaves in response to acute boron deficiency and toxicity reveals effects on photosynthesis, carbohydrate metabolism, and protein synthesis. Journal of Plant Physiology dx.doi.org/10.1016/j.jplph.2013.07.008.

Chu, H.S*, S.C. Chang, O. Klemm, C.W. Lai, Y.Z. Lin, C.C. Wu, J.Y. Lin, J.Y. Jiang, J. **Chen**, J. F. **Gottgens** and Y.J. Hsia. 2013. Does canopy wetness matter? Evapotranspiration from a subtropical montane cloud forest in Taiwan. Hydrological Processes.

Harrell, J. A. 2013. Mineralogy. In R. S. Bagnall, K. Brodersen, C. B. Champion, A. Erskine and S. R. Huebner (eds.), *The Encyclopedia of Ancient History*, p. 4514-4515. New York: Blackwell. [DOI:10.1002/9781444338386.wbeah21217]

Harrell, J. A. 2013. Bitumen. In R. S. Bagnall, K. Brodersen, C. B. Champion, A. Erskine and S. R. Huebner (eds.), *The Encyclopedia of Ancient History*, p. 1141-1142. New York: Blackwell. [DOI:10.1002/9781444338386.wbeah15066]

Harrell, J. A. 2014. Discovery of the Red Sea source of Topazos (ancient gem peridot) on Zabargad Island, Egypt. In L. Thoresen (ed.), *Proceedings of the Twelfth Annual Sinkankas Symposium – Peridot and Uncommon Green Gem Minerals (April 5, 2014)*, p. 16-30. Fallbrook: Pala International.

Lepper, K., *Buell, A.W., **Fisher**, T.G., Lowell, T.V. 2013. A chronology for glacial Lake Agassiz shorelines along Upham's namesake transect. Quaternary Research 80: 88-98.

Manning, N.F.*, C.M. **Mayer**, J.M. **Bossenbroek**, J.T. Tyson. 2013. Effects of Water clarity on the Length and Abundance in August of Age-0 Yellow Perch in the Western Basin of Lake Erie. Journal of Great Lakes Research. 39: 295–302.

Martin-Hayden, J.M., Plummer, M. and Britt, S.L. 2013. Controls of Wellbore Flow Regimes on Pump Effluent Composition. Groundwater, DOI: 10.1111/gwat.12036

Moorhead, DL, G Lashermes, RL Sinsabaugh and MN **Weintraub**. 2013. Calculating co-metabolic costs of lignin decay and their impacts on carbon use efficiency. Soil Biology and Biochemistry 53:133-141. doi: 10.1016/j.soilbio.2013.06.016

Moorhead, DL, *Rinkes ZL, Sinsabaugh RL, **Weintraub** MN (2013). Dynamic relationships between microbial biomass, respiration, inorganic nutrients and enzyme activities: informing enzyme based decomposition models. Frontiers in Microbiology 4:223. DOI: 10.3389/fmicb.2013.00223 (R)

Qian, S.S., 2012. On model coefficient estimation using Markov chain Monte Carlo simulation: a potential problem and the solution. Ecological Modelling, 247:302-306.

Ouyang, Z.*, **Becker**, R.H. UT, Shaver, W.*, **Chen**, J., 2013, Evaluating the Sensitivity of Wetlands to Climate Change with Remote Sensing Techniques, Hydrological Processes, doi:10.1002/hyp.9685

*Pritt, J.J. *M.R. DuFour, C.M. **Mayer**, P.M. Kocovsky, J.T. Tyson, E.J. Weimer. 2013. Including independent estimates and uncertainty to quantify total abundance of fish migrating in a large river system: walleye (*Sander vitreus*) in the Maumee River, OH. Canadian Journal of Fisheries and Aquatic Resources. 70:803-814.



Russoniello, C.J., Fernandez, C., Bratton, J.F., *Banaszak, J., **Krantz**, D., Andres, A.S., Konikow, L.F., Michael, H.A. Geologic effects on groundwater salinity and discharge into an estuary. Journal of Hydrology. 498: 1-12

Shao*, C., J. **Chen**, L. Li. 2013. Grazing alters the biophysical regulations of carbon fluxes in a desert steppe. Environmental Research Letters 8 doi:10.1088/1748-9326/8/2/025012

Sherman, J.J., Maran, A.M., Collier, C.D., Snyder, M.R., Golnick, P.C., **Qian**, S.S. 2014. Re: M. Song, Y. Guan, "The environmental efficiency of Wanjiang demonstration area: A Bayesian estimation approach." [Ecol. Indic. 36 (2014) 59–67]. Ecological Indicators. 45: 648–649.

Sigler V., S. Hensley. 2013. Persistence of mixed staphylococci assemblages following disinfection of hospital room surfaces. Journal of Hospital Infection. 83:253-256.

Thoresen, L. and **J. A. Harrell**. 2014. Archaeogemology of peridot. In L. Thoresen (ed.), *Proceedings of the Twelfth Annual Sinkankas Symposium – Peridot and Uncommon Green Gem Minerals (April 5, 2014)*, p. 31-51. Fallbrook: Pala International.

SELECTED GRANTS

PI or co/PI	Grant	Dollar Amount	Start Date
Bridgeman	Novel Lighting Source for Bioreactor Using Plasma-Shell Technology sponsor: Imaging Systems Technology	31,658	7/1/13
Chen	CNH: Ecosystems and Societies of Outer and Inner Mongolia: Divergent Trajectories and Coevolution sponsor: National Science Foundation	1,374,000	9/1/13
Dwyer	Reduction of Sediment and Bacteria Loadings to Public Beaches at Maumee Bay State Park via Enhanced Riparian Habitat sponsor: U.S. Environmental Protection Agency	472,490	10/1/12
Gottgens	Impacts of Urban River Restoration on Fish Community (Phase I) sponsor: U.S. Fish and Wildlife Service	9,200	5/22/13
Mayer	Hydroacoustic Determination of Distribution and Abundance of Lake Erie Walleye sponsor: Ohio State University	62,225	7/1/13
Qian	A Bayesian Hierarchical Modeling Approach for Comparing Water Quality Measurements from Different Sources sponsor: University of Michigan	50,000	7/1/13
Sigler	co/PI on Early Detection DNA grant with Stepien		
Stepien	Early Detection DNA Technology for High Risk Invasive Fish Species sponsor: U.S. Environmental Protection Agency	598,922	10/1/12
Weintraub	Investigating Nitrogen Deposition Effects on Biological Soil Crust Stability and Biogeochemical Cycling in Drylands sponsor: U.S. Geological Survey	7,581	7/25/13



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