



SEAHORSE URF and HAMMER URF



Fall 2016

Department of Geological, Environmental, and Marine Sciences (GEMS) at Rider University
<http://www.rider.edu/gems>

NATURE'S BUSINESS – BELIZE: YES, IT REALLY WAS UNBELIZEABLE!

How can a country be so small, yet be so beautiful and have so much to offer? And how can a country with fewer than 400,000 people be so diverse, welcoming, and unique? Well, after spending nine days hiking, caving, snorkeling, and zip lining through Belize the answers to those questions, and others, are obvious and easy to come by. It's all about a people who appreciate what they have and who they are, and who also are working very hard to improve their lives and country while still maintaining their unique natural environment and proud heritage.



The sign is as colorful as the country.

And that may be the most important lesson for everyone who took part in the CBA/IND-316 Nature's Business: Belize trip this past January. It was, as all the Nature's Business trips have been, one of the most eye-opening, enjoyable, and educational experiences for all the trip participants.

Sixteen Rider students and three Rider faculty traveled throughout the western and Caribbean coastal regions of Belize, learning first hand about the country's history, culture, people, ecology, environment, climate, biodiversity,

economy, geology, geography, and ecotourism industry. The seven GEMS students who participated in the course and trip were **Tiffany Girado '18**, **Jessica Munyan '16**, **Rachel Nangle '16**, **Hayley Purcell '16**, **Aleesha Rouse, '18**, **Geoffrey Scognamiglio '16**, and **Victoria Trucksess '16**. The other participating students came from various departments across the University.

In addition to lots of reading and research about Belize during the fall semester prior to traveling, each student in the Nature's Business course, team taught by **Dr. Cynthia Newman**, Interim Dean of the College of Business Administration, and **Dr. Jonathan Husch**, GEMS Chair and Professor of Geological and Environmental Sciences, kept a detailed journal during the trip and wrote a research paper and made a presentation on a faculty-approved topic of his/her choice after returning to Rider.

In addition to Drs. Husch and Newman, **Dr. Larry Newman**, Professor of Marketing, and Cynthia's husband, joined the class for the trip and provided additional business expertise and insight, as well as way too many bad puns! Finally, our group was led by our fantastic Belizean guide, **Wilbert Moe**, who knew absolutely everything about the country, as well as just about everyone who lived there!

After arriving at Belize City, the country's largest city and former capital, the group drove to the western town of San Ignacio near the Guatemalan border where we stayed at the beautiful Windy Hill Resort and spent three days exploring the surrounding region. Sites



The Mayan ruins at Cahel Pech.

visited included the fantastic Mayan ruins of Xunantunich (Stone Lady) and Cahel Pech (Place of Ticks) and the relatively new capital city of Belmopan, where we visited the National Assembly and heard lectures on the economy of Belize and tropical forest preservation.



Entering the Aktun Tunichil Muknal cave. (www.jmbelizetravel.com)

However, the absolute highlight of our time in San Ignacio had to be the visit to the Aktun Tunichil Muknal (ATM; Cave of the Crystal Sepulcher) cave. This incredible journey first involved a three-mile hike through the jungle, including wading through a rushing stream, and then swimming, crawling, walking, squeezing, and climbing our way for about a half mile through the cave itself, all with only the light from our helmets to illuminate the way. Inside the stunningly beautiful cave were many stalactites, stalagmites, Mayan artifacts, as well as human remains, all considered sacred to the Mayans. For many of us, the

ATM cave was not only a real physical and mental challenge, but also a spiritual journey.

It was back to the Caribbean coast for our next stay in San Pedro on Ambergris Caye. Along the way, we stopped at the Belize Zoo to learn about animal conservation and species preservation efforts in Belize. The highlight here was our personal interaction with a rescued spotted jaguar. We also stopped for some zip lining thrills at the Cave Branch Outpost.

After our drive back to Belize City, we transferred to a water taxi that took us to San Pedro, where we stayed at the lovely Ramon's Village Resort, located just a few feet from the warm, clear waters of the Caribbean.

While in San Pedro we visited the headquarters for the Hol Chan (Little Channel) Marine Reserve where we heard a lecture on coral reef ecology and marine habitat preservation, followed by a leisurely tour through town back to Ramon's.



The picturesque San Pedro waterfront.

The following day found the group sailing on a large catamaran to the Hol Chan Marine Reserve and Shark Ray Alley, both located near the reef front a few miles offshore. Here we had a chance to snorkel with a wide variety of marine life, including nurse sharks, stingrays, all kinds of tropical fish, and sea turtles. And, of course, the local coral reef, part of the 700-mile-long Mesoamerican Reef

system, was particularly colorful and impressive.

Our last day in San Pedro also was spent on the same catamaran sailing to Caye Caulker, an even more remote island and town, and to Coral Gardens for more snorkeling, this time with the added bonus of a lionfish (an unwanted and loathed invasive species) spearing by the intrepid and very determined **Geoffrey Scognamiglio '16**.



A perfect ending to a perfect day and trip.

So, despite the many really early mornings, the often long, bumpy rides (who knew there could be so many road humps!), and the tropical heat and humidity, everyone was very sad to see their time in beautiful Belize come to an end. Like previous Nature's Business course trips to Costa Rica, Ecuador, the Galapagos, Iceland, Panama, and Peru, the Belize course and trip were a great way to learn, travel, make friends, see amazing sights, and experience many new things.

However, if you've missed out on the chance to join us on our previous trips or regret not having been part of the latest Belize experience, don't despair, because new courses and trips are being planned for January 2018 and beyond. Although we haven't yet decided what our next destination will be (Tanzania is being considered), you can be sure it will be someplace very interesting, educational, and unique. And even if you don't take the Nature's Business course for credit, you can still participate in the trip if space is available.

Contact Dr. Newman (cnewman@rider.edu) or Dr. Husch (husch@rider.edu) prior to next summer for more details. Hasta luego!

“DR. D” AND HIS STUDENTS TO GIVE A CHECKUP ON THE HEALTH OF EASTERN FORESTS

During the 2016-2017 academic year, **Dr. Daniel “Dr. D” Druckenbrod** will lead a number of research trips to West Virginia and Virginia. With support from a new \$68,000 National Science Foundation grant to Rider University, environmental sciences majors **Maria Chaves '17** and **Tim Forrest '18**, and geosciences major **Imani Guest '18**, will travel with Dr. Druckenbrod as part of his research team to study the impact of acid rain on eastern deciduous forests. The NSF project, which is part of a collaborative effort with Dr. Todd Scanlon of the University of Virginia and other researchers, aims to shed light on how changing soil chemistry affects the ability of trees to use water and nutrients more effectively. With the improvements in air quality due to the 1990 Clean Air Act, Dr. Druckenbrod will investigate if eastern forests are using water more efficiently during photosynthesis, which has implications for the amount of carbon they can absorb.



Dr. Druckenbrod and Imani Guest examine a tree-ring core.

Over the past summer, Dr. Druckenbrod has remained active with his tree-ring projects at

historical sites in Virginia, including serving as an invited scholar for a workshop at Jefferson's Poplar Forest to assist in developing new educational and interpretive materials for visitors to this historic site.

Imani Guest '18 also has been working hard in the tree-ring lab during this past summer as part of her scholarship through the Ronald E. McNair Post-Baccalaureate Achievement Program. Imani has been determining the ages of timbers sampled from historical sites and presented her initial findings at the Annual SAEOPP McNair/SSS Scholars Research Conference in Atlanta.

GEMS NEEDS YOUR HELP!

The following communication was sent to nearly 400 GEMS alumni this past spring. It is reprinted here to help reach those we might have missed.

Everyone at GEMS would like to express their appreciation and gratitude to all the alumni and others who reached out to us this past year in support of the department and the situation we found ourselves in November 2015. Your many kind words to us, as well as your expressions of outrage and disbelief to the University's administration were certainly heard and noted by everyone. We cannot thank you enough. Hopefully, we won't have to go through that again!

However, like much of higher education today, particularly at private institutions, we are facing ever-increasing financial, demographic, and competitive challenges and constraints, making it difficult for GEMS to continue offering the quality and scope of education that has become a hallmark of the Department and its major and minor programs. As a result, GEMS needs to address a number of critical issues affecting its future ability to serve undergraduates who wish to study the Earth and the many processes that shape our planet and its wide variety of environments. Although the Department already has begun a number of new initiatives to address these

issues, including transfer agreements with local community colleges, increased scholarship support to new GEMS students, and redirecting the already existing Sylvia Husch Scholarship Fund to help support continuing GEMS students, more needs to be done. So, how can you, as committed GEMS alumni, help the Department continue to provide a high-quality undergraduate education and train the next generation of earth, marine, and environmental scientists who are so urgently needed? Well, it turns out there are many ways, and all of them are of great importance.

HELP GEMS RECRUIT NEW STUDENTS

Both Rider, in general, and GEMS, specifically, need to increase student enrollments. As GEMS alumni, you know better than anyone the great value of a GEMS education. We need your help in communicating that fact to potential students. Become ambassadors for Rider and GEMS by telling potential students about the Department and its programs. Participate in Rider admissions events, both on campus and off, and help us spread the word about all that we have to offer.

HELP GEMS PROVIDE INTERNSHIP OPPORTUNITIES FOR ITS STUDENTS

Experiential learning is one of the hallmarks of a Rider and GEMS education. Whether it's working in a professor's lab on a joint research project or receiving on-the-job training in a public, private, or NGO setting, having practical experience makes the traditional classroom portion of a GEMS student's education more valuable and enriching. By providing internship placements you are helping the Department attract, retain, and train students to become better graduates.

HELP GEMS PROVIDE SHADOWING EXPERIENCES FOR ITS STUDENTS

If internship positions are not possible, or are limited in number, at your organization, then providing a short-term shadowing experience to GEMS students will help expose them to potential career paths and opportunities. Typically running a few weeks in length and occurring over winter break or during the summer, a shadowing experience allows a student to “dip a toe” into the real world and see what GEMS professionals are doing in their careers.

HELP GEMS PROVIDE CAREER GUIDANCE FOR ITS STUDENTS

As GEMS alumni in the “real world,” many of you are well positioned to provide valuable career guidance and information. By making yourself available to GEMS students for career counseling, either on campus at department career events or off campus via email, video, text, or voice, you can advise them about course and co-curricular choices that will make our graduates more competitive when applying for that all-important first job.

HELP GEMS PROVIDE JOB OPPORTUNITIES FOR ITS STUDENTS

Many of you are either directly or indirectly involved in the hiring of new employees at your organization, or at least are aware of new positions as they become available. If that is the case, let us know about those job opportunities, or even actively recruit GEMS students for those positions. Who better than a GEMS alum can tell your organization’s recruiters the many advantages of hiring a well trained, highly prepared GEMS graduate?

HELP GEMS STAY IN TOUCH WITH YOU AND OTHER GEMS ALUMNI

One of the best new-student recruiting tools GEMS has is the alumni listing on our web site. Whenever a potential student asks us what kind of job does a GEMS major prepare you for, we direct them to the GEMS alumni page and say, “Here, have a look.” The typical

response is then, “Oh wow, I didn’t know I could do that.” In addition, by providing GEMS with details about your career position, family situation (pictures are always welcome), and contact info, we can stay in touch with you, as well as letting others know about the great outcomes our GEMS graduates have achieved in their professional and personal life. Who knows, you might wind up on the home page of the Rider web site! And, if you have current contact info for other GEMS alumni with whom we may have lost contact, please pass it along so we can reconnect with them.

HELP GEMS IN RENOVATING THE RIDER SCIENCE AND TECHNOLOGY CENTER

Rider currently is planning and fundraising for a major renovation of the Science and Technology Center (Science Hall to the more senior alumni). The first phase of that renovation will involve the ground floor of the building, including all the primary GEMS teaching spaces. Although partial funding for the renovation will be available from a State of New Jersey bond program, the complete project will require the University to raise significant funds from donors. By donating to the project, you will help make GEMS more attractive to potential students by ensuring that the Department has modern, state-of-the-art teaching classrooms and labs for years to come.

HELP GEMS PURCHASE EQUIPMENT AND PROVIDE SCHOLARSHIP SUPPORT TO ITS STUDENTS

As all of you know, the cost of a Rider education has increased dramatically, making it financially difficult for many qualified students to enroll in one of the GEMS programs. In addition, the cost of new, advanced scientific equipment has increased significantly, making it just as difficult for the Department to purchase many needed items, or to replace some of the equipment you might have used, and now is obsolete or no longer

working. You can help rectify both of these situations by directing your donations to the University to the GEMS Support Fund and/or the GEMS Alumni Scholarship Fund. The donation amount is not what's important; it's your participation in supporting the Department and its educational mission and programs that really matters.

HELP GEMS CELEBRATE 50 YEARS OF STUDYING THE EARTH

GEMS will be celebrating its 50th anniversary as a formal department during the 2016-2107 academic year and we want you to be a part of that celebration. Although plans are still being finalized, expectations are that there will be a series of department talks and seminars throughout the year, many involving GEMS alumni, and all of which you are most welcome to attend. The Department's 50th anniversary celebration will culminate at a GEMS reunion event as part of the University's reunion weekend in June 2017. Come join us and be part of GEMS Pride!

If you have any questions or require further details about how you can help GEMS, do not hesitate to contact **Dr. Jonathan Husch**, GEMS Chair, at husch@rider.edu. You also can contact Jonathan Meer, Vice President for University Advancement, at jmeer@rider.edu; Natalie Pollard, Director of Alumni Relations, at pollardn@rider.edu; James O'Hara, Vice President for Enrollment Management, at johara@rider.edu; or Kim Barberich, Executive Director of Career Services, at kbarberich@rider.edu.

GEMS NEWS, HONORS, AND AWARDS

It's been an "interesting" year for GEMS with the typical and abundant amount of faculty and student activity, but also with some uncertainty and concern about the future because of the faculty and program cuts that were announced, and then rescinded, during fall 2015. Regardless, GEMS faculty and students continue to make news in all sorts of ways,

including teaching, research, awards, and honors.

As far as GEMS faculty are concerned, **Dr. Kathleen Browne** enjoyed another very productive year with six presentations at professional conferences focusing on various aspects of science education and the Next Generation Science Standards (NGSS). She also continued her involvement with two large ongoing grants that support the CONNECT-ED program at Rider. In addition, Kathy received kudos for being one of the top "On the Cutting Edge" educational activity reviewers, and for hosting two Science Education for New Civic Engagements and Responsibilities (SENCER) meetings; she also continued to serve as the Co-Director of the SENCER MidAtlantic Regional Center for Innovation. Finally, Kathy mentored two freshmen students, **Dina Scheri '19** and **Colin Stiles '19**, from her Discovery Program science class who studied the flow and water chemistry of the campus drainage system. She also mentored **Josh Schiarti '18** and **Victoria Trucksess '16** on their Centennial Lake loosestrife monitoring projects.

Dr. Daniel Druckenbrod continued as the Sustainability Studies Program Director, while also continuing his research program on forest ecology and the analysis of tree rings from North American forests. In support of this work, Dan received two external grants, the first for \$6,000 from the Corporation for Jefferson's Poplar Forest, and the second for \$68,000 from the National Science Foundation. This NSF grant is part of a large collaborative research effort with other institutions, including Indiana University and University of Virginia, which will look at forest hydrology and acid deposition. Dan also was awarded a Rider University Summer Faculty Research Grant to further study Aldo Leopold's work in the Lawrenceville area over 100 years ago.

Dr. Druckenbrod also was the author or co-author of nine conference papers and invited

presentations related to his research, including papers presented at the 2015 Annual Meeting of the Ecological Society of America, the 2016 Annual Conference of the Society for Historical Archaeology, and the 2016 Annual Meeting of Mid-Atlantic Ecological Society of America, which was co-authored by **Jessica Munyan '16**. He also made invited presentations at Harvard and Princeton. Finally, Dan mentored a number of GEMS students on their senior thesis or independent research projects, including **Imani Guest '18**, **Jessica Munyan '16**, and **Rachel Nangle '16**.

Dr. William Gallagher remained a visible and consistent contributor to GEMS, even though as an Adjunct Professor he no longer is a full-time member of the department. In addition to giving a number of talks to local organizations, Bill continued to serve as Editor Emeritus of the *The Mosasaur* and was the author of a published manuscript on late-Cretaceous fossil assemblages in Monmouth County, NJ, as well as the co-author of a published manuscript on the sedimentary geology, geochemistry, and taphonomy of a famous fossil-bearing quarry in Garfield County, Montana. More importantly, Bill received a Special Recognition Award from Rowan University "for exceptional achievements in the study of New Jersey's ancient past, for decades of research at the Inversand fossil site, and for unflagging dedication to communicating science to the public." Congratulations and well deserved!

Dr. Jonathan Husch completed his tenth year as GEMS Chair, and somehow still didn't manage to destroy the department, although this past year he may have come closer than ever! He also is serving on the Rider University Strategic Planning Institutional Reputation and Branding Working Group. In addition, Jon was a co-author with **Dr. Hongbing Sun**, **Elaine Panuccio '15**, **Muhammad Sarwar '15**, and **Ambria Dell'Oro '17** on a conference paper presented at the 2015 Annual Meeting of the Geological Society of America. Finally, **Dr. Husch** was

the recipient of the 2015 Rider University Chairperson Leadership Award in recognition of his outstanding work as GEMS chair.

Dr. Reed Schwimmer continued to serve as a Head Judge for the Mercer County Science and Engineering Fair, as well as being a judge for Rider's ISCAP Day student research presentations. He also continued to write and review questions for the ETS PRAXIS Earth and Space Science teacher certification exam and to lead the department's assessment activities. In addition, Reed mentored **Ian Flynn '17** on a mineral identification research project and co-authored a conference paper with **Kaitlyn Weindorfer '15** that was presented at the 2015 Annual Meeting of the Geological Society of America.

Dr. Gabi Smalley continued to serve as the Rider University Liaison to the New Jersey Sea Grant Consortium and as the GEMS Study Abroad Advisor. She also was the Chair of Rider's Undergraduate Research and Scholarship Awards (URSA) Committee, as well as being responsible for organizing the ISCAP Day student research presentation program. In addition, Gabi completed her Rider University Paid Research Leave during fall 2015 where she studied the feeding rates of microzooplankton, in collaboration with Dr. Diane Stoecker, at the University of Maryland's Horn Point Laboratory. Finally, Gabi co-authored a conference paper on her research results that was presented at the ICES/PICES Sixth Zooplankton Production Symposium (try saying that three times fast!) in Bergen, Norway.

Dr. Hongbing Sun continued his ongoing research into the fate of sodium, chlorine, arsenic, iron, mercury, and other ions in groundwater and surface waters impacted by the repeated application of winter deicing salt. In addition, Hongbing mentored **Kathy Blachut '16**, **Ambria Dell'Oro '17**, and **Fatima Sulaman '16** on their senior thesis or independent research projects. He also was the lead author on three conference papers, two of

which were presented at the 2015 Annual Meeting of the Geological Society of America with student co-authors **Elaine Panuccio '15**, **Muhammad Sarwar '15** and **Ambria Dell'Oro '17**, and one that was presented at the 2016 Annual Meeting of the Northeast Section of the Geological Society of America with student co-authors **Fatima Sulaman '16** and **Ambria Dell'Oro '17**.

Madeline Hummel '16, **Jessica Munyan '16**, and **Haley Purcell '16** are starting graduate studies this fall, although in somewhat different disciplines. Maddie is attending Old Dominion University and will pursue a Master's Degree in Marine Bioscience. She will be working on toxic algal blooms and their impact on the marine food chain. Jess is heading to the University of Virginia for her Master's Degree in Environmental Sciences and hopes to eventually pursue her doctorate in the same field. Haley is attending Drexel University to pursue her JD in environmental law. In addition, all three received generous tuition waivers and graduate stipends! Congratulations.

Veronica Geiger '18 interned this past summer at the New Jersey Department of Environmental Protection in Trenton, **Caitlyn Hoffman '16** interned at the Tulpehaking Nature Center in the Abbott Marshlands of Hamilton, NJ, and **Victoria Trucksess '16** interned at the Delaware River Basin Commission in Ewing, NJ, as well as at the Philadelphia Zoo. **Aleesha Rouse '18** interned for her second summer at the Connecticut Department of Public Health. And **Naomi Jainarine '18** participated in a National Science Foundation Research Experience for Undergraduates (NSF-REU) at the University of Massachusetts-Amherst where she studied the impact of recreational fishing on fish barotrauma and post-release survival.

A large number of GEMS students also received various honors, awards, and recognition for their many academic and service achievements. **Madeline Hummel '16**

graduated with honors in Marine Sciences, **Rachel Nangle '16** graduated with honors in Environmental Sciences, and **Fatima Sulaman '16** graduated with honors in Marine Sciences. In addition, **Jessica Munyan '16** received the inaugural GEMS Exceptional Research Award for her long record of outstanding research in the Environmental Sciences.

Madeline Hummel '16 was inducted into the School of Liberal Arts and Sciences Honor Society, and **Amanda DeRemer '16** was inducted into the Tri-Beta Honor Society. **Danielle DeLisis '16**, **Yun Jung Hong '16**, **Marin Naya '16**, **Gianna Parisi '16**, and **Alexandra Romean '16** were inducted into Kappa Delta Pi; **Hannah Bass '16**, **Katharine Jaworski '16**, **Caitlin Quinn '16**, and **Alyssa Rodriguez '16** were inducted into Omicron Delta Kappa; **Gianna Parisi '16** was inducted into the Order of Omega; and **Katharine Jaworski '16** was inducted into Pi Gamma Mu.

Alexandra Romean '16 received a certificate for Outstanding Service in the Mathematics Skills Lab and **Alyssa Rodriguez '16** received a Certificate for Excellence in Science Education. Finally, **Hannah Bass '15** received a Center for the Development of Leadership Skills Leadership Certificate and was selected for inclusion in the 2015 edition of Who's Who Among Students in American Universities and Colleges. **Katharine Jaworski '16** and **Alyssa Rodriguez '16** also received Center for the Development of Leadership Skills Leadership Certificates.

And, as if all these awards and honors were not enough, 33 GEMS students in the fall 2015 semester and 32 students in the spring 2016 semester earned Dean's List recognition. Congratulations to all GEMS students for all their hard work and their accomplishments! We could not be more proud.

GEMS STUDENT RESEARCH 2015-2016

As usual, a major strength of all the GEMS programs is the ability for our students, even freshmen, to become actively involved in independent research, usually under the mentorship and guidance of one of the GEMS faculty. The following is a complete listing of all student research, independent study, and senior thesis topics for the 2015-2016 academic year, including six student projects that resulted in papers being presented at a professional meeting. It really is quite an impressive list.

Kathy Blachut '16 and Ambria Dell'Oro '17: *Water quality baseline data for the Delaware River Basin in Pennsylvania and New Jersey.*

Ian Flynn '17: *Hand specimen identification of donated mineral samples in the GEMS collections.*

Imani Guest '18: *Strengthening the historical climate record in south-central Pennsylvania using tree rings* (student co-author of a paper presented at the Annual SAEOPP McNair/SSS Scholars Research Conference).

Madeline Hummel '16: *The influence of human urbanization on the heavy metal content of blue crab tissue.*

Jessica Munyan '16: *Dendrochemical analysis and forest history at Thomas Jefferson's Poplar Forest: A case study on two frost-damaged growth rings* (student co-author of a paper presented at the 2016 Annual Meeting of Mid-Atlantic Ecological Society of America).

Rachel Nangle '16: *Climate change's impact on sustainable water management in New Jersey.*

Elaine Panuccio '15 and Muhammad Sarwar '15: *Arsenic sequestration by pyrite, iron sulfate, and zero valent iron in soil water* (student co-authors of a paper presented at the 2015 Annual Meeting of the Geological Society of America).

Elaine Panuccio '15, Muhammad Sarwar '15, and Ambria Dell'Oro '17: *NaCl contributions from winter deicing salt and sodium retention in a salted watershed* (student co-authors of a paper presented at the 2015 Annual Meeting of the Geological Society of America).

Dina Scheri '19 and Collin Stiles '19: *Tracing a treasured resource: The flow and chemistry of the campus storm water drainage system.*

Fatima Sulaman '16: *Mobilization of mercury in an aqueous system in response to chloride complexation under deicing salt conditions.*

Fatima Sulaman '16 and Ambria Dell'Oro '17: *Changes of mercury concentration in response to chloride complexation under deicing salt conditions* (student co-authors of a paper presented at the 2016 Annual Meeting of the Northeast Section of the Geological Society of America).

Kaitlyn Weindorfer '15: *Comparing "Google Earth" and "My Maps" in disseminating geologic field site information* (student co-author of a paper presented at the 2015 Annual Meeting of the Geological Society of America).

GEMS ALUMNI UPDATE

Once again, a number of GEMS alumni either stopped by the department for a visit or contacted us with their latest news. If you haven't done so recently, please bring us up to date with what is going on in your life. You can find additional alumni news, including specific contact information, on the GEMS alumni web page, located at <http://bit.ly/NTJeO2>. As always, we look forward to hearing from you.

Tom Bambrick '83 is Director of Site Investigation and Remediation for First Environment, Inc. in Boonton, NJ.

Randy Kertes '84 is the Principal Owner of the Nautilus Environmental Group, an environmental consulting firm located in Princeton Junction, NJ. Randy also serves as a GEMS adjunct instructor and outside research advisor with an expertise in environmental and watershed issues. We're very proud and happy to still have him with us in these capacities!

Diane Pupa '84 is now an Environmental Administrator for the Florida Department of Environmental Protection, working in its Compliance Assurance Program (Air and Domestic Wastewater), located at the West Palm Beach office. Prior to her current position, Diane worked for the New Jersey Department of Environmental Protection in various programs, including the Site Remediation Program, which oversees the clean up of contaminated sites, and the Water Supply Program, which is responsible for ensuring that clean and safe drinking water is supplied to the over eight million residents of the Garden State. She also has been a Certified Hazardous Materials Manager since 2001.

Erik Bender '85 is now Professor and Chair of Geology at Orange Coast College (OCC) in Costa Mesa, California. In addition to teaching many different geology courses at OCC full time since 1994, Erik also has taught courses at Chaffey College, Chapman University, California State University at Fullerton, California State University at Long Beach, Mount San Antonio College, and Pasadena City College. Erik and his wife, Linda, are the proud parents of three wonderful daughters, Victoria, Jacquelyn, and Alexa.



Cheryl Coffee '93, her husband, Jorge Gomez, and daughters, Laura and Sarah, are still living in Yardley, PA. Cheryl has worked for Clean Earth Inc. for the last seven years where she recently was promoted to Director of Environmental Compliance. In that position, Cheryl manages environmental permitting and reporting on a company-wide basis. When she is not working, Cheryl can usually be found with a camera in her hand (go to <http://cheryllcoffee.com>).

Matthew Greenberg '98 has been working as a Hydrologist for 11 years at CH2M, an environmental consulting firm located in Boston, MA. Matt married Grace Kim in October 2006, traveling to Hawaii for their honeymoon, with Volcano National Park being the highlight of the trip. Congratulations! Matt also says that even though he has lived in the Boston area since 2001, he is still a Yankees fan. Smart boy!

Jenn Sliko '00 and her husband, Mike Meyer, moved to the Washington, DC area and welcomed the arrival of their daughter, Samantha, in October 2015. Like both her parents, Samantha seems destined to be a geologist. Congratulations!



Jill Loveland '07 is a tenured Special Education/Biology teacher at West Hempstead High School in West Hempstead, NY. She also is the school's Environmental Club advisor, helping to promote environmental awareness among the students. During the summer, Jill also is an ocean lifeguard at Tobay Beach, Long Island. And, as if that weren't enough, Jill completed an Ironman race (in 13:51:11!) last summer in Lake Placid, NY. Way to go!

Tim Swavely '07 and **Brandi Novak Swavely '07** welcomed the newest addition to the Swavely household, William James, on March 22, 2016. Weighing in at 6 lbs. 13 oz., and 19 inches long, William is already learning about the Earth and being prepped to become a GEMS and Rider legacy (class of 2038!). Tim, Brandi, and William live in Reading, PA.



Amrita Paul '10 is a Laboratory Manager for EMSL Analytical, Inc, in Fort Lauderdale, FL.

Samantha Robbins '10 is a ninth grade environmental science teacher at World Communications Charter School in Philadelphia, PA.

Elizabeth Evans '12 is back in California after spending some time in Maine at the Penobscot East Resource Center. While there, she had a chance to go to Belize City, Belize for a meeting of the Belize Federation of Fishers. Currently, Elizabeth is in charge of community outreach for Sustainable Silicon Valley's Net Positive East Palo Alto program, as well as serving on the board of the American Cetacean Society San Francisco Chapter.

Brita Gove '13 currently is working as a contracted (via Astrix Technology) Research Technician for ExxonMobil. She's doing a lot of ICP and other elemental analysis work and really enjoys her project group and the analytical tasks they perform.

Allison Ingram '13 just received her Master's degree in Geography from the University of Tennessee-Knoxville, where she worked with Dr. Henri Grissino-Mayer, who leads one of the largest tree-ring research labs on the east coast focusing on forest ecology in the southeast US. Congratulations! Prior to going to UTK, Allison spent the summer of 2013 as

a Research Intern for Dr. Kelly Caylor, Department of Civil Engineering, in his Ecohydrology Lab at Princeton University. Allison worked on the Drought Open-Source Ecology (DOSE) project, analyzing the impacts of the 2012 drought on forest growth and mortality in sites across North America by measuring the ring-widths of tree cores.

Kaitlyn Rose '13 is working at the Hudson Highlands Nature Museum in Cornwall, NY as an Environmental Educator, as well as an Animal Caretaker. She teaches guests of all ages about environmental issues in the Hudson Valley region, as well as possible solutions. Kaitlyn also maintains animal habitats and enclosures while keeping a close eye on animal welfare and health.

Amanda Young '13 is working as an Environmental Specialist at the New Jersey Department of Environmental Protection in Trenton, NJ. Since starting, Amanda completed the 40-hour HAZWOPER course and splits her time between the office and field sites.

Frank Pandolfo '14 is working as an Environmental Field Technician at the West Windsor, NJ office of Handex Consulting and Remediation.

Pilar Ferdinando '15 is pursuing a Master's degree in Marine Biology at Nova Southeastern University in Fort Lauderdale, FL. She is working in Dr. Amy Hiron's lab doing research on monk seals and other pinnipeds.

Dan Guarino '15 recently received his education certification via alternate route and will be teaching environmental sciences at Barnegat High School starting this fall. Congratulations!

Paul Jackson '15 is a Staff Professional for the Antea Group, an environmental consulting company in Marlboro, MA. He is responsible

for soil and water sampling and testing, as well as site assessment and remediation work.

Laura Moritzen '15 is pursuing a Master's degree in Marine Biology at the University of Massachusetts-Dartmouth with a full tuition waiver and a stipend. In addition to her coursework and dissertation research on possible cannibalism within populations of the invasive Asian shore crab, *Hemigrapsus sanguineus*, Laura is a teaching assistant for an Anatomy and Physiology course. Congratulations on all accounts!

Steve Schwartz '15 is working as a staff geologist for Golder Associates, a global company providing consulting, design, and construction services in earth, environment, and energy production. Steve has been leading a drilling team at a Super Fund site in Bound Brook, NJ and says that he loves the work and that he is "shocked" with how much petrology he has to use on the job. See, there really is a reason to learn all that rock stuff!