

Department of Earth and Environmental Sciences

University of Mary Washington | Fall 2011 | Newsletter 2



In this issue:

Letter from the Chair 3

New Programs 4

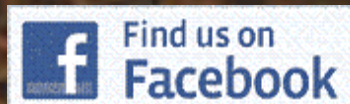
Faculty News 7

Class Field Trips 12

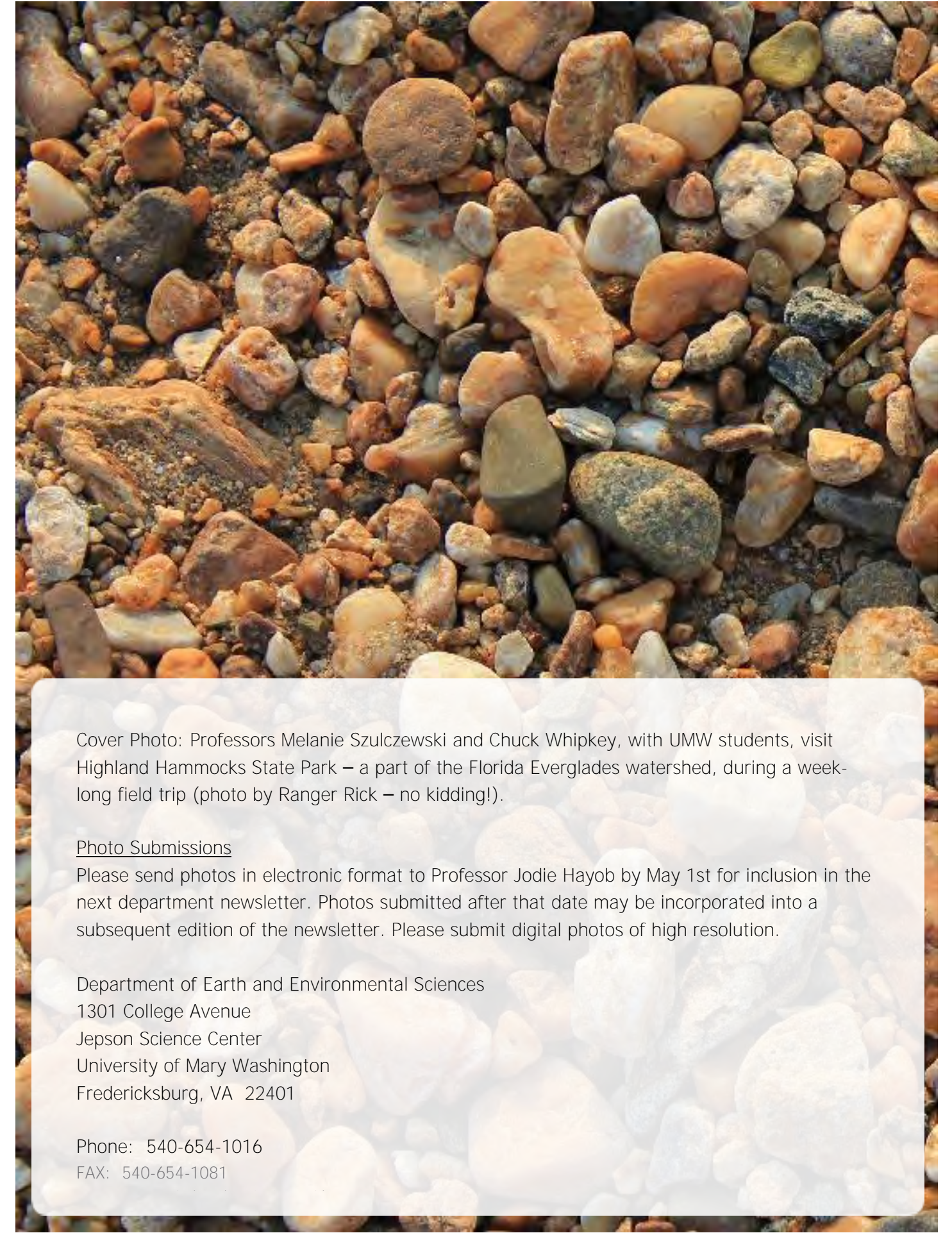
Alumni News 15

Conferences 20

Summer Adventures 22



<http://www.facebook.com/pages/UMW-Earth-Environmental-Sciences/259585170726418>



Cover Photo: Professors Melanie Szulczewski and Chuck Whipkey, with UMW students, visit Highland Hammocks State Park – a part of the Florida Everglades watershed, during a week-long field trip (photo by Ranger Rick – no kidding!).

Photo Submissions

Please send photos in electronic format to Professor Jodie Hayob by May 1st for inclusion in the next department newsletter. Photos submitted after that date may be incorporated into a subsequent edition of the newsletter. Please submit digital photos of high resolution.

Department of Earth and Environmental Sciences
1301 College Avenue
Jepson Science Center
University of Mary Washington
Fredericksburg, VA 22401

Phone: 540-654-1016
FAX: 540-654-1081

Letter from the Chair

Dear Alumni and Friends,

Welcome to the second annual issue of the Department of Earth and Environmental Sciences newsletter! This has been another fruitful year for our department, with the maturation of our environmental geology major and environmental sustainability minor, continued outstanding class work and research by our faculty and students, and a new course featuring a week-long field excursion to southern Florida and Everglades National Park.

As you may know, our EESC department recently broadened our offerings by designing and implementing a new major in environmental geology and an interdisciplinary minor in environmental sustainability. Both new programs have proven very successful; in fact, this spring we graduated our first environmental geology major, while the environmental sustainability minor has attracted many students from a broad range of majors. Both programs will allow students to concentrate their energies in areas that will provide a foundation for further study in graduate school or for a start on a career.

Our EESC students continue to excel in class work, research, and experiential learning. See the notes by individual faculty for more information on research projects, individual classes, and internships and other experiential learning opportunities over the past year. Not to brag (well, why not!), but our students were *very* disproportionately represented **among Mary Washington's** *summa cum laude*, *magna cum laude*, and *cum laude* graduates in 2011.

As always, I hope you keep in touch with the members of the department. We really do **enjoy hearing from you, and hope to benefit from your experiences "out in the real world" to improve what we do here at UMW.** And if you are ever in the Fredericksburg area, **please don't** hesitate to stop by and say hello.

Best wishes for a great year,
Chuck Whipkey

New Programs!

Environmental Sustainability Minor

Sustainability Minor Rationale

Sustainability is usually defined as the ability to meet the resource needs of the current generation without compromising the ability of future generations to meet their own needs. The goal of the Sustainability minor is to develop the way we look at society and our natural world and examine approaches to resolving critical resource issues for the long-term. This concept is not exclusive to the earth sciences; in fact, the multidisciplinary nature of environmental science includes concepts from many other fields. Because of the importance of sustainability issues in the 21st century, we would like this minor to appeal to students from many majors. We believe this minor will attract students from disciplines such as the sciences, social sciences, philosophy, economics, business and more. With this goal in mind, a set of courses were selected that meet several criteria. First, the core classes provide a common introduction to the scientific study of the environment and issues of sustainability. These courses present a vertically building framework on which students may then add additional elective classes that appeal to particular student interests. Second, recognizing that some of the upper level electives would be primarily accessible to just biology or environmental science majors, the courses from economics, geography and philosophy provide a curricular pathway that would assist students from other disciplines complete the Sustainability minor. All of the instructors for the classes listed enthusiastically endorsed the Sustainability minor and indicated their willingness to have their courses included within the program. Sustainability fits into UMW's new Strategic Plan and with our values as a university. In fact, the Strategic Plan Steering Committee has recommended that the university **develop a Sustainability minor to demonstrate the university's commitment to these** issues. Sustainability programs, both minors and majors, are becoming increasingly common at colleges and universities across the country including here in Virginia. We anticipate that this new minor would attract considerable student interest and participation.



Students with the minor come from these majors:

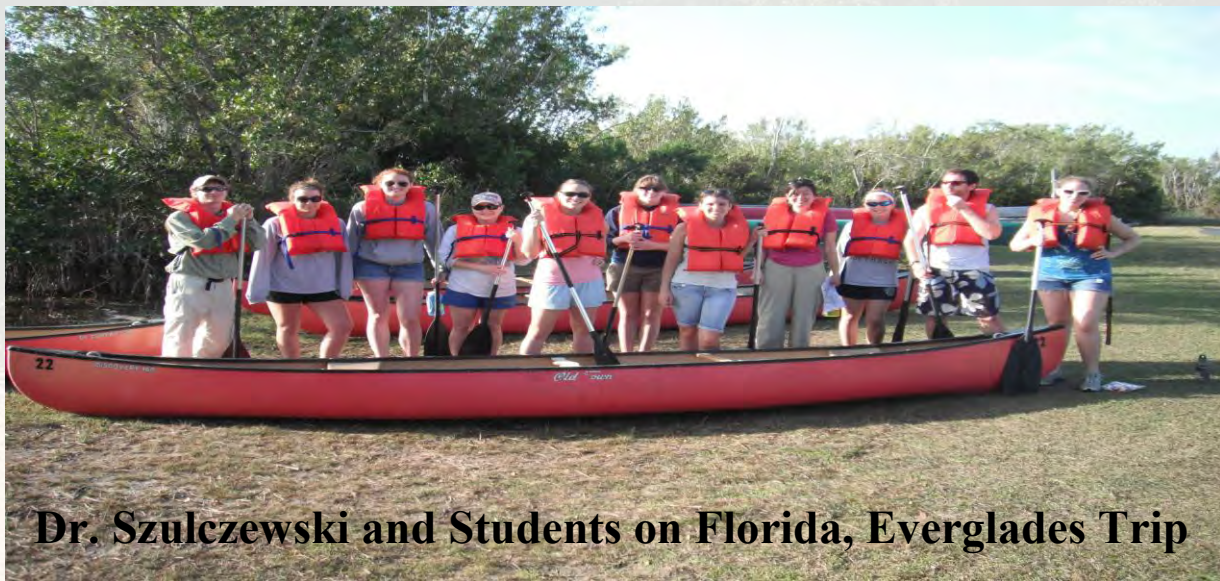
Geology, biology, chemistry, American studies, anthropology, business, political science, philosophy, modern foreign languages, historic preservation, and others.

New Course Offering!

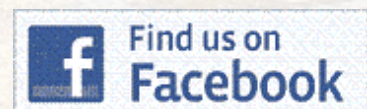
Florida Everglades

This course allows students to engage in an intellectual and physical exploration of the Everglades watershed. Students learn concepts of geology, hydrology, ecology, environmental science and policy, and how they come together in the extensive Everglades Restoration Project.

The course begins with introductory lectures, readings, and discussions here in Fredericksburg to orient students to the Everglades watershed which we then study first-hand over Spring Break. The class travels to Florida together by train and drove over 1000 miles exploring all corners of southern Florida. Our field exploration of the Everglades ecosystem and watershed involves visits to several areas, including Everglades National Park, Highland Hammocks State Park, and the Tropical Research and Education Center of the University of Florida as well as discussions with scientists, local experts, and concerned citizens.



Dr. Szulczewski and Students on Florida, Everglades Trip



[http://www.facebook.com/pages/
UMW-Earth-Environmental-
Sciences/259585170726418](http://www.facebook.com/pages/UMW-Earth-Environmental-Sciences/259585170726418)

Department Graduates

The following students graduated between August of 2010 and May of 2011. Two students were awarded departmental honors through the completion of a senior honors thesis (*). Many students graduated with academic distinction (at least 60 graded credits in residence: **summa cum laude = overall GPA \geq 3.75, magna cum laude = overall GPA 3.50-3.74, and cum laude = overall GPA 3.25-3.49**). Six of the 27 students at UMW, or 22%, who graduated summa cum laude – **and about 20% of UMW's 2011 graduates** who are members of the national honor society Phi Beta Kappa (PBK) – were from our department!

Environmental Science

Robin Eve Ayers – summa cum laude, PBK
Amanda E. Boccuti – summa cum laude, PBK
Julianne Todd Burton
Carly Ann Byers – summa cum laude, PBK
Kaitlin Nicole Cataldi
Tevin Chaney – cum laude
Olivia Reid Cooper – cum laude
Miriam Abby Cross – magna cum laude, PBK
Carolyn Anne Hannoeh – summa cum laude, PBK
Edward Field Harvey IV
Amanda Diane Howland – magna cum laude
Lynette Hall Humphries
*Isabel Eleanor Moore
Bradley Delos Nissen – cum laude
Ian Christopher Pope – summa cum laude, PBK
Chelsea Elizabeth Wegner
Kelly Elizabeth Welch



Environmental Geology major Emily Perrin

Environmental Geology

Emily Perrin

Geology

Michelle Leigh Fame – magna cum laude, PBK
Emma Virginia Jones – magna cum laude
Erin Nicole Manning
Eric Nathan Schmiege – cum laude
*Lindsay Jane Walker – summa cum laude, PBK
Nathaniel Troy Winston



Geology major Michelle Fame

Faculty News



Dr. Michael Bass — Had a very busy year helping students with research projects!



Dr. Jodie Hayob — This past year has been very rewarding; I am a collaborator on a \$444,053 National Science Foundation STEP grant (STEM technology expansion program) that was awarded to UMW faculty in late summer 2011. The main purpose of the grant is to increase the number of STEM graduates at Mary Washington over a 5-year period. Other grant personnel include departmental colleague Ben Kisila and faculty from the departments of biology, chemistry, education, and mathematics. During this past year I also began work on research project with Henry Talley (Geology '12), **in collaboration with Dr. Neil Tibert, involving the identification** of clay minerals from the Rappahannock Estuary. We will present our results at the NE Geological Society of American meeting in Spring 2012. Finally, I served as the Associate Editor of the Metamorphic Rocks & Petrography working group for the Science Education Resource Center's (SERC) **"Teaching Mineralogy, Petrology and Geochemistry"** workshop held in Minneapolis, MN in August of 2011. The SERC workshop was funded in part by the NSF and the National Association of Geology Teachers. On a personal note, my daughter Morgan is now a first-grader and is still an avid tomboy. She **is obsessed with football (esp. the New York Giants) and all things 'Star Wars',** and has begun playing recreational soccer.

Faculty News cont.



Dr. Ben Odhiambo Kisila – The Fluvial Geomorphology and Soils Research Group is still continuing with a series of projects we've been working on over the past few years. Some of these projects are near completion and others are being expanded as acquisition of new instrumentations in the department, i.e. echo sounder, has allowed us to do more comprehensive analyses. The projects includes isotopic and spatial modeling of soil erosion and sediment fluxes analysis of the upper reaches of the Rappahannock River basin; The sedimentation and sediment chemistry based environmental evolution analysis of Lake Anna and The Ni Reservoir; Continuing collaboration with Dr. *Jean Ellis, University of South Carolina Marine Science and Dept. of Geography* on the analysis of fluvial systems adjustments to dam removal at Kent

County, VA; A multifaceted environmental analysis (watershed soil erosion, geochemical and geophysical reservoir sedimentation, and sediment trace metals analysis) of lakes Pelham and Moomaw, Virginia; Environmental evolution of lagoon and marsh ecosystems in responses to environmental stresses associated with human activities in Chincoteague – Assateague lagoon systems of Virginia and Maryland eastern shores. The results of our efforts (listed below) in the past year included a peer reviewed publication on the Lake Anna project, other articles in revision/review and three professional presentations.

Articles and Presentations (= students)*

ODHIAMBO, B.K and *RICKER, M.C. (2011) – Spatial and isotopic analysis of sediment accumulation and flux rates in Lake Anna, Virginia, USA (*Journal of Environmental Earth Sciences*, DOI 10.1007/s12665-011-1098-5)

*WEGNER, C., *ANDREUCCI, S., and ODHIAMBO, B.K. (2011) – Sedimentation rates and trace metal input history in Chincoteague lagoon-marsh system derived from Pb-210 and Cs-137 chronology. *Geological Society of America Abstracts with Programs*, Vol. 43, No. 2, p. 5

*POPE, I. and ODHIAMBO, B.K. (2010) – Soil erosion and sediment fluxes analysis: A watershed study of the Ni Reservoir, Spotsylvania County, Virginia. *Geological Society of America Abstracts with Programs*, Vol. 42, No. 5, p 291

*CROSS, M., ODHIAMBO, B.K. and RIZZO, B. (2010) – Geospatial analysis of red back salamander distribution in Fauquier and Culpeper Counties, Virginia. *Geological Society of America Abstracts with Programs*, Vol. 42, No. 5, p. 291

In addition to our successful research endeavors, one important goal of the fluvial and soils research group is effective research training and preparation of participating students towards a path of further **studies in well established graduate research programs. This past year's seniors who graduated as** part of our research group ended up in good research programs and law school. Ian Pope – Perdue University (MS); Miriam Cross – William & Mary (Law School); Chelsea Wegner – University of South Carolina, Marine Science (MS); Amanda Howland – Oregon State University (MS).

Going forward, Elyse Clark has taken over the Lakes Pelham and 'Moomaw' project, and Elizabeth Gillispie will be completing the Dam removal project. We are also looking forward to starting new projects on evaluating the impact of biosolids on Virginian surface waters and collaborations with Dr. Sharpless (Chemistry) and Dr. Baker (Biology) on the distribution of PAH in fluvial and coastal systems of Virginia.

Faculty News



Dr. Neil Tibert – The past year was indeed busy whereas students and I chased down Rappahannock "paleo" salt wedges (Lindsay Walker), dug out Cretaceous nonmarine ostracods from Utah (Julie Burton), and squeezed out trace elements from the Potomac River **mud's** (Nate Winston). Lindsay wrapped up the Chesapeake Bay Paleosalinity Project with the addition of 137Cs and d18O data to complete the multi-proxy study; we're now preparing a manuscript for submission to the Virginia Journal of Science. Julie spent a good portion of her Tuesday and Thursday afternoons on the SEM analyzing nonmarine ostracods that she and Doug Rissing collected on a Dinosaur dig with Jim Kirkland. Nate worked diligently to burn mud and compile from 2 Potomac River cores collected adjacent to the Dahlgren and Quantico Dominion Power Generation Plants. With respect to publications, I completed 2 separate manuscripts on the Permian ostracoda from the Dunkard Shale (West Virginia) and I also finalized and submitted a lengthy taxonomic monograph to the Journal of Foraminifera Research.

ARTICLES

TIBERT, N. E., and LECKIE, R. M., submitted, Cenomanian-Turonian (Upper Cretaceous) Marginal Marine Foraminifera from Southwest Utah in the Western Interior Basin, USA: Journal of Foraminifera Research.

TIBERT, N. E., DEWEY, C. P., and SKEMA, V., in press, Taxonomic notes on the Carboniferous and Permian Ostracoda from the Appalachian Basin, USA: Micropaleontology.

TIBERT, N. E., 2011, Ostracode distribution across the Pennsylvanian-Permian boundary interval in the Dunkard Group of the central Appalachian Basin USA, in Harper, J. A., ed., Geology of the Pennsylvanian-Permian in the Dunkard Basin. Guidebook, 76th Annual Field Conference of Pennsylvania Geologists, Washington, PA, p. 181-189.

ABSTRACTS

*WILLIAMSON, J. A., EATON, J. G., TIBERT, N. E., and KIRKLAND, J. I., 2011, The occurrence of the marine elasmobranch *Braquyrrhizodus* sp. from a Santonian nonmarine locality, Bryce Canyon National Park, Utah: GSA Abstracts With Programs, Logan UT, v. 43, no. 4, p. 86.

EATON, J. G., TIBERT, N. E., and BIEK, R., 2011, First mammals and ostracodes from the Paleogene Claron Formation, Southwestern Utah: GSA Abstracts with Programs, Logan UT, v. 43, no. 4, p. 77.

*WALKER, L. J., TIBERT, N. E., PATTERSON, W. P., and *COOPER, O., 2011, A centennial record of paleosalinity change in the tidal reaches of the Chesapeake Bay: GSA Abstracts With Programs, Pittsburg PA, v. 43, no. 1., p. 62.

TIBERT, N. E. and DEWEY, C. P., 2011, Biostratigraphic significance of the nonmarine ostracoda from the Late Carboniferous and Early Permian Appalachian Basin, United States: GSA Abstracts With Programs, Pittsburg PA, v. 43, no. 1, p. 125.

Faculty News cont.



Dr. Melanie Szulczewski – My research and projects have really taken off over the past year! Several students pursued fascinating research on Contrary Creek, a stream in Louis County that is severely affected by acid mine drainage (AMD) from a long abandoned sulfur mine. We presented our results at conferences in Virginia, North Carolina, and even California. Isabel Moore graduated with honors after examining the effects of low pH and high metal concentrations on macroinvertebrates. Carly Byers and Robin Ayers also pursued research projects related to the water, soils, and sediments affected by the AMD. I also started a fascinating new project with two Class of 2011 students, Katlin Cataldi and Kelly Welch. We Worked with the Fredericksburg

City Cemetery to collect soil profiles down to six feet around graves of various ages. The trace metals such as arsenic and lead that we discovered prompted more research questions to pursue in the coming year. Spring Break was exciting- along with Dr. Whipkey, I developed a **field course, "Everglades Environmental Exploration," that took 10 students to southern Florida** for a week. We observed alligators, crocodiles, colorful birds, and almost a dozen types of ecosystems. We also spent an afternoon at the University of Florida research center where I conducted my postdoctoral research. Can't wait to go back there next year!



Dr. Chuck Whipkey – My first year as department chair has been every bit as interesting as I thought it would be. Although the learning curve has been steep, I have had a lot of help from all members of our department and especially from former chair Grant Woodwell. Somehow classes were scheduled, equipment was purchased, and in general the department has kept operating. Although I cut back on some activity in anticipation of the demands of being chair, I did manage to keep my hand in with several projects. I supervised a few internships and was able to act as reader on Isabel **Moore's honors project examining macroinvertebrate populations and environmental chemistry at the Contrary Creek acid mine drainage site. Melanie Everglades, which featured a spring break field trip**

to southern Florida. This new class fulfills one of my long-standing goals, which is to offer a field excursion to an unfamiliar environment at a cost that nearly any student can afford. We hope to offer the Everglades class or another field based class, every spring. As for the upcoming year, I will be offering a new class on energy resources that will concentrate on the technical side of the topic and have some interesting upcoming student research in the works.

Faculty News cont.



Dr. Grant Woodwell – The 2010 – 2011 academic year was my first since stepping down from my nine year stint as Department Chair and I definitely have **enjoyed being a regular faculty member again! I didn't** completely get away from administrative responsibilities, though; as I took over the role of representing our department in the College of Arts and Sciences Faculty Senate and chaired the General Education Committee which sets policies that affect all of our undergraduate students. This past spring 2011 term I had the chance

to revive the Plate Tectonics course which hadn't been taught in four years and I had a good group of nine students. The class continues to be speaking intensive and several of the student talks addressed some very current controversies such as recent data that challenges whether deep mantle hot spots actually exist! Although it can be disconcerting to find that concepts that seemed so well-known and accepted, such as the stationary mantle plume origin of the Hawaiian Islands, may be completely **wrong, that is what makes geology a dynamic science. It wouldn't be much fun to be a in a discipline that didn't hold any further surprises, after all! In my computer** applications GIS class changes are also afoot. We continue to use the ArcINFO version of ArcGIS but this coming fall will be the first semester in which the newest ArcGIS version 10 will be used. I attended an ESRI conference in Richmond that was devoted to the substantial changes that have been made to the ArcGIS software and have been busy these past several months updating my EESC/GEOL 205 class material as a result. For all of you who had either my GIS class or one of the geography department courses you may want to visit the esri.com website to review the software changes and new capabilities. Last year we got the good news that **funding was available for our department's purchase of a \$50,000 sub-bottom profiler** instrument and this piece of equipment arrived just this past spring. The profiler is towed beside our research boat and produces acoustic energy that is reflected from subsurface sediment horizons and returned to receivers built into the instrument. A resulting two-dimensional profile is constructed and saved on a laptop computer which can be viewed in real-time. The profile can extend down to several hundred meters depth in optimal conditions and I am particularly interested in the basement rock-sediment interface. Ben Kisila, Neil Tibert and I are still in the process of doing some exploratory data collection in the lower Potomac and Rappahannock Rivers in order to become familiar with the instrument data collection parameters. We anticipate that several new research projects will now become possible with this new technology and look forward to many hours out on the water!

Class Field Trips

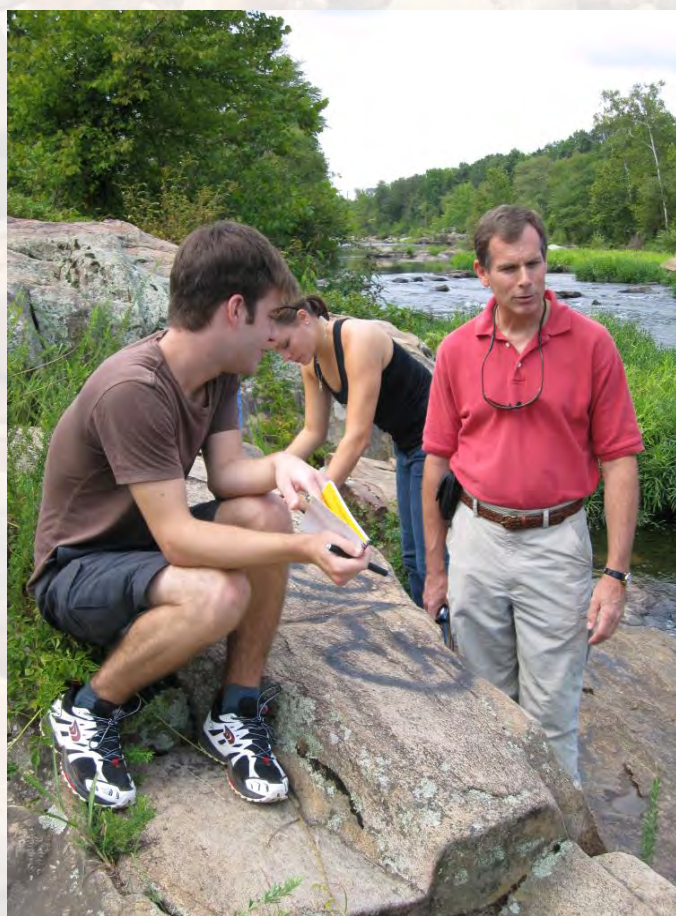


Mineralogy

Professor Hayob took her mineralogy students on two day-long field trips in the fall semester. The first was to Illuka Resources in Stony Creek, Virginia. The second was to the Morefield Mine near Amelia, Virginia. Illuka **is the world's** largest mineral-sands mining company. Adam Karst (Geology '95), the Senior Mine Geologist at Illuka, guided our tour of the open-pit fields, reclaimed fields, and processing facility. The Morefield Mine, an underground pegmatite mine, **is one of the world's** best occurrences of the feldspar amazonite (which looks a bit like turquoise). Owner Sam Dunaway guided our underground tour of several levels of the pegmatite dikes.



Department Field Trips



Mineralogy at the Old Mill District — Professor Hayob, accompanied by Professor Woodwell, took her students to the Rappahannock River to study the mineralogy of high-grade metamorphic rocks exposed there.

Department Field Trips



Aquatic Ecology – Professor Bass and his students are hard at work in the field.

Everglades, Spring 2011 – This course set in motion an intellectual and physical exploration of the Everglades watershed. Students learned concepts of geology, hydrology, ecology, environmental science and policy, and how they come together in the extensive Everglades Restoration Project!



Alumni News

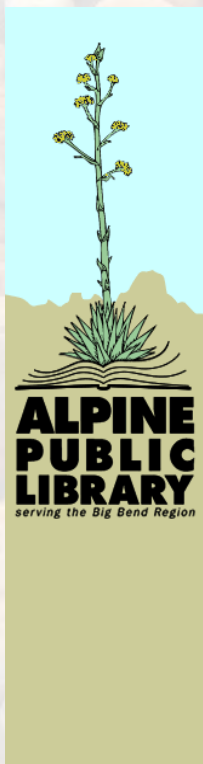


Photo: Trip to Los Angeles, CA in January 2010 to visit friends

From Mary (Stevens) Gifford, Class of 1987

Mary Wash had a big influence on who I became, so I greatly appreciate the EESG dept reaching out to alumni! Dr. Mike Bass and other professors and students, had a great impact on how I viewed the world. I graduated in 1987 with a major in Environmental Science. For 10 years, I was in the field of environmental consulting, providing information to clients on how to comply with clean water, underground storage tank (fuel tanks) and hazardous waste regulations. Then, in 1997, while working for our local western telecommunications

company (Qwest) as an environmental manager, I was introduced to the Natural Step sustainability framework from Sweden (Karl Henrik Robert) and also to Paul Hawken, an amazing and forward thinking individual. From then on, I knew that I had to change course to fulfill my "niche" in the professional world. I decided to get my secondary science teaching certificate and try to help students approach issues from a "whole-systems" perspective. My awesome husband (also a scientist) and I had a child – Galen- in 2003, who is now 7 years old. Being a parent changes your perspective in a major, and good way! Currently (May 2011) I am a substitute teacher here in Denver CO and am also a volunteer program leader at South Platte Park in Littleton CO, where I lead elementary school groups on hikes and teach them about the critters and ecology at the South Platte River. As a society, if we can make that re-connection to the natural world in a very meaningful way, we might be able to change how we interact with the natural world – the basis for our existence here! My longer term goal is to start a field school to teach specifically about ecosystem services and ecology. The changes to the University's Environmental Science and Geology Department are progressive and exciting. Keep on with the great work Mary Wash!



Paige (Peapples) Delaney, class of 1991

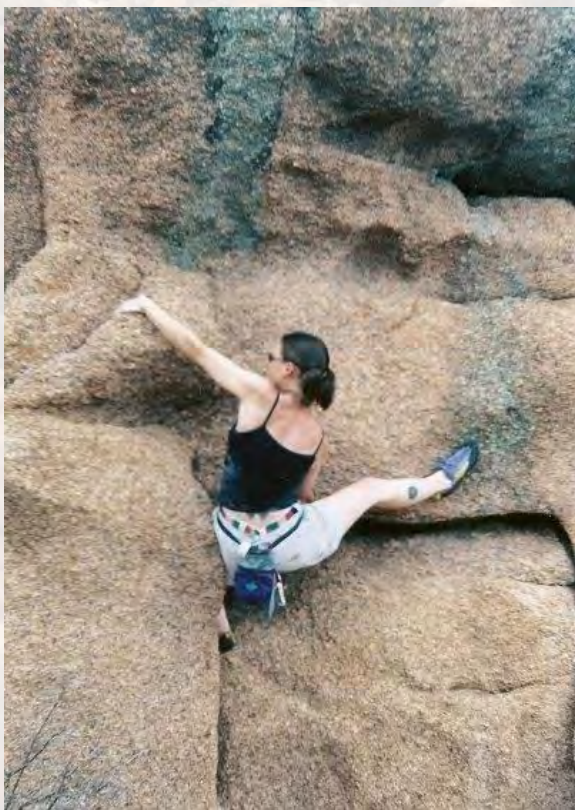
MS Geology University of Alaska Fairbanks

After graduate work in structural geology in the Brooks Range foothills of northern Alaska, I worked for several mining companies in Alaska doing remote field work, core logging, and structural interpretations. In 2000 I went to work for the US Army Corps of Engineers Cold Regions Research and Engineering Lab doing field geology, mapping, 3D modeling, and GIS for Army remediation sites in Alaska. In 2000 I left federal service and went to work for the state of Alaska as a structural geologist, field mapper, petrophysics interpreter, and GIS specialist in the Energy Section of the Alaska Division of Geological and Geophysical Surveys. I spent a rewarding eight years there, and had the opportunity to see much of wild Alaska. I published several geologic maps while working there and much of my work was in conjunction with the Alaska Division of Oil and Gas. In 2008, when my husband retired, we moved to Alpine, a very small mountain town in the Big Bend border region of Texas, and the home of Sul Ross State University. We love the desert life, wide-open spaces, and small-town feel. Of course the warmer temperatures aren't bad either! I try to keep up with Permian Basin geology via the West Texas Geological Society, and my husband Allan still does contract GPR work in the polar regions. I now work as the executive director of a small non-profit library. Anyone in a position to donate, please visit our website: alpinepubliclibrary.org!

Alumni News

Andrew Soles, class of 1995

Professionally, I have been with The Nature Conservancy for 12 yrs. My work focuses on **business planning and peer review in order to improve TNC's conservation results and cross organizational learning. I've helped** conserve a lot of the places that motivated me to **get involved in environmental science as an undergrad. I've swam in coral reefs around the** world, seen Penguins in Argentina, searched for Pandas in China (and only found their dung!), and felt very small next to wild **elephants in Africa...in addition to visiting a lot of** windowless hotel conference rooms. I credit both my Environmental Science and my Business Administration training from MWC as key to getting me where I am today. On the personal side, I live in **Arlington, VA, got married in October at my family's farm in** Lexington VA, where my wife and I do a lot of gardening. Though I gave up rugby a few years ago, I still do a lot of canoe & kayak racing – which also involves some interesting travel and **sites. I met up with Nick Gwyther (Environmental Science, class of '97) while I** was doing a race through the Panama Canal last year.



Amy (Friant) Hudson, class of 1998

Amy attended Mary Washington College during 1994-1998 and earned her B.S. with a double major in Geology and Environmental Science. Three months after graduating she married her long time fiancé Jayson and this September they will celebrate their 13th anniversary. After a few years of working in Northern Virginia, Amy and her husband packed up and moved west to Denver. In Denver she worked in the environmental and mining consulting industries as a hydrogeologist and geochemist. In 2006, Amy completed her M.S. in Environmental Science and Engineering at the Colorado School of Mines. After eight years in Colorado, Amy and Jayson decided it was time to head back east, so in September 2008, they moved to Massachusetts where Amy took the role/challenge of being manager of small consulting office. Amy has earned the

accreditation of Registered Environmental Manager and specializes in mine water impacts and issues, geochemical characterization, and modeling of mining facilities and the environment. She has also been involved in a variety of remediation and environmental management projects. This fall she will be starting her PhD in Geosciences with an emphasis on hydrogeology at the University of Massachusetts at Amherst.

Alumni News

Jennifer Burger Thomas, class of 2000

I graduated with a BS in Geology in 2000. I've worked for several environmental and engineering consultants in the Charlotte, NC area. I have gotten my geology license in North and South Carolina. I've worked on and managed underground storage tank projects including removal of home heating oil tanks. I've done soil and groundwater testing for gas stations where the tanks leaked. I've tested groundwater that dry cleaner solvents leaked into. I write the reports that are submitted to the state environmental departments. I also do Environmental Site Assessments (ESA) for properties that are changing hands or being refinanced. An ESA involves studying the history of a property and current operations (if any) to check the likelihood of contamination. At the last company I worked for I also got into doing geotechnical reports. A geotechnical investigation tests if the soil at a site will support planned construction and addresses what measures should be taken if the soil is not suitable (i.e. removing shrink-swell clay, installing piles, etc.) I filled in with the construction materials department as well doing fill testing and documentation. Currently I'm inactive as a geologist. I'm staying home to raise my 2 young children for a few years. I plan to go back to work at least part time when my son starts kindergarten. I returned to Virginia last fall for the Virginia Field Conference and am always keeping a lookout for continuing education opportunities in Virginia and other places within a reasonable driving distance from home.

Jennifer Rokasky, class of 2002

I graduated in 2002 with my B.S. in Environmental Science. After college I tried a mix of jobs, but eventually found my way into teaching. I am currently in my sixth year teaching at Woodbridge Sr. High School in Woodbridge, VA. I started out as an Earth Science teacher, and last year I helped start an AP Environmental Science course! Next year I will be teaching four sections of AP Environmental Science at my school. I didn't plan on becoming a teacher out of college, but I think I've found my calling. I love passing on my love of science and the environment to students and I hope I encourage them to become better stewards.

Alumni News cont.



Mary J. Albright, class of 2005

I graduated in 2005 with a BS in Environmental Science, Natural Science concentration. I became a stay-at-home mom in March 2010, but have been trying to stay active in the field of environmental education. This spring, I was able to work with GMU's Potomac Environmental Research and Education Center and provide Meaningful Watershed Educational

Experiences (MWEE) to Fairfax County 7th graders. This program is funded by a NOAA grant and lasted 6 weeks. Hopefully we find out this week that we received funding for next year, when we'll do this 4 weeks in the fall and then another 4 in the spring. The PEREC staff provided a meaningful connection between what kids learn in the classroom about watersheds and the actual watersheds they live in - trying to ultimately get them to make the connection to the Chesapeake Bay.

Here is a link to the article that GMU put together for their school paper,
<http://gazette.gmu.edu/articles/20175>



Michelle Fame, class of 2010

I am currently working in Avon Colorado at Avon Bakery, elevation: 7440 feet. Living here has given me a chance to see a lot of interesting Geologic features, as well as to spend some time with Lindsay Walker who is doing an internship in Florissant, Colorado, which is only two hours away from Avon. Currently I am also applying for some internships with the SCA and US Forest Service.

Current Student News!



Junior Valerie Drogo, class of 2013

So I am going to be a “rock” scientist. If you say it fast enough people assume you said a “rocket” scientist – that’s why I chose Geology as my major. Actually, that is not really the truth. I am now a rising junior at UMW but when I first came here I had other plans. While my **ultimate goal hasn’t changed the path I chose to get there has.** I started out wanting to be a Math teacher so **my major was Math. It didn’t take long for me to realize that wasn’t a subject that I had a passion for.** That semester I was also taking Intro to Geology with Professor Whipkey and I found myself looking forward to **each class. It didn’t take long before I realized that there** was more to Geology than just rocks. The next semester

I was thrown into mineralogy with Professor Hayob, and Sedimentology and stratigraphy with Professor Tibert. **The classes were difficult and I had wished I’d taken a year of calculus and chemistry before I took these classes, but I persisted and passed.** I am not sure I would have **made it if it weren’t for the faculty in the geology program. Just when I thought** I was going to fail or worse yet, give up; the professors were always there to encourage me and to push me to succeed. It also seems that as you advance toward completing your degree the classes become more challenging but the you learn you can depend on your classmates more than anything to all work together and get through. While I still plan to teach elementary education **I will be teaching science (geology) instead of math. So I may never be a “rocket scientist” but I will be a “rock” scientist with a love and passion for sharing what I’ve learned to the young student’s in my future classes.**

Honor’s Research

The following students successfully defended senior honors theses on April 26, 2010. Congratulations to each of them!

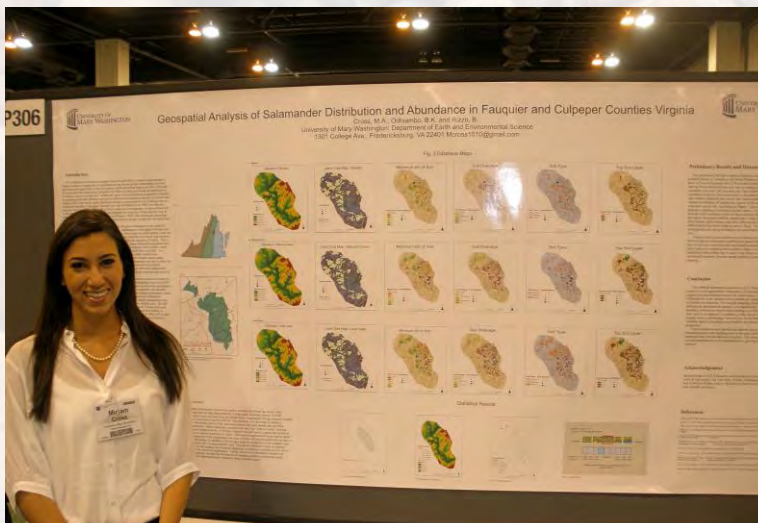
WALKER, L. J. 2011. A centennial record of paleosalinity change in the tidal reaches of the Chesapeake Bay, Virginia.

MOORE, ISABEL. 2011. The Effects of Acid Mine Drainage on Macroinvertebrate Populations Found in Contrary Creek Louisa County, Virginia.

Conferences and Research this Past Year!

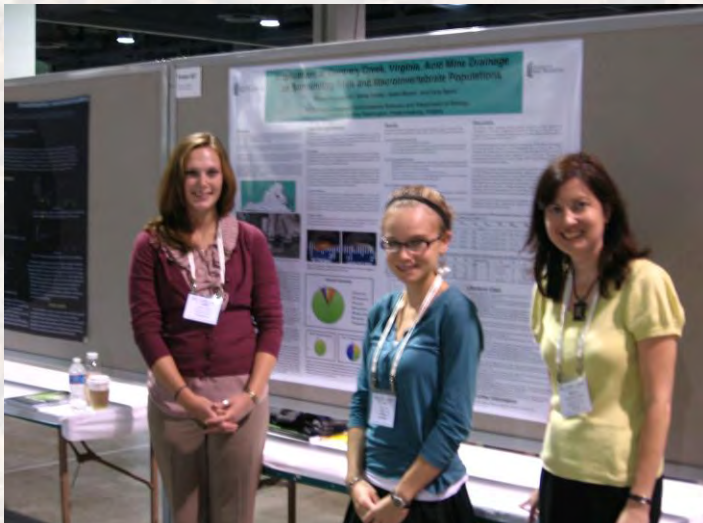


Seniors Lindsay Walker and Emma Jones collecting sediment samples from the Chesapeake Bay for their research project on Paleosalinity within the Bay.

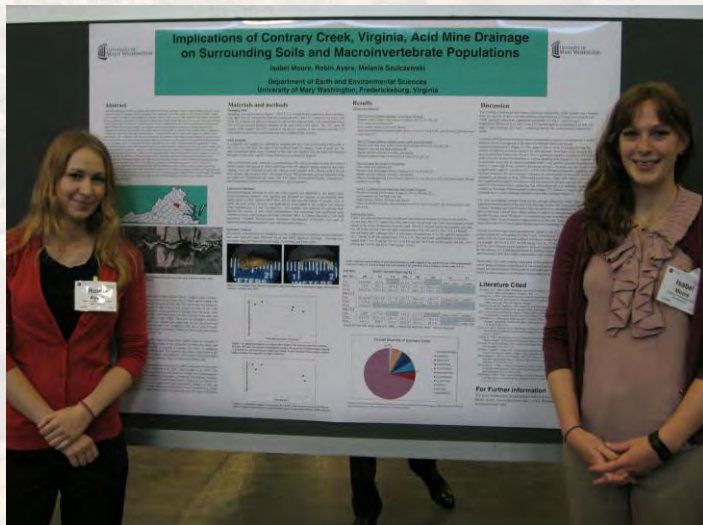


Senior Miriam Cross presents her research on the geospatial analysis of the red back salamander distribution in Fauquier and Culpeper Counties, Virginia at the annual 2010 GSA conference in Denver, Colorado.

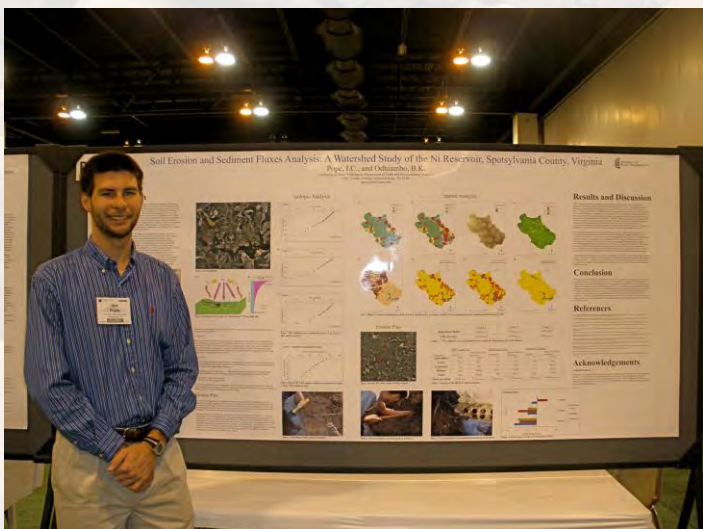
Conferences and Research this Past Year!



Seniors Carly Byers and Isabel Moore present their research at the Soil Science Society of **America's Annual International Conference** in Long Beach, California in November 2010.



Seniors Isabel Moore and Robin Ayers present their research at the SE regional GSA Conference in Wilmington, NC, in March 2011.



Senior Ian Pope presents his research on soil erosion and sediment flux at the 2010 annual GSA meeting in Denver, Colorado.

Student Summer Adventures!



Senior Henry Talley ('12) and Lindsay Walker ('11) – Well, after three days, 2,484 km of highways, and 2,170 m of net elevation gain, Lindsay and I are now sitting on the fringe of a Late Eocene formation chock full of fossilized plants and critters in Florissant, CO! The drive was super. Our trip led us past inundated fields and a flooded Mississippi, and ended with snow and hail just as we arrived at our final destination at the base of Pikes Peak. Our cross-country trip was a success, and we'd like to thank Dr. Hayob for helping us find a place to stop halfway—Kansas was beautiful, and our stay there was very relaxing and much appreciated.

Sadly, I was only in Colorado for one day, but my mountain experience is not up quite yet. I will be in Mount Vernon, WA soon, settling in for a month-long mountaineering course with the National Outdoor Leadership School (NOLS) in the heart of the North Cascades. Of course, I'm leaving Lindsay with approximately her body weight in rock samples to take back to Virginia at the end of summer (thanks, Lindsay). Here's Lindsay with a Florissant run-down:

While I'm not participating in NOLS, I'll be spending my summer out west to complete a paleontology internship at the Florissant Fossil Beds National Monument. Located approximately 45 minutes west of Colorado Springs, the monument is famous for its silicified redwood stumps and exceptionally preserved plants, insects, and spiders found in the stream, lake, and lahar deposits of the Florissant Formation. At the monument, I'll be helping develop interpretive materials for a Peruvian petrified forest, and will be learning the ropes of collections management and natural resource monitoring from my fellow GeoCorps interns. Hopefully I'll be able to bring a few Florissant samples back for Dr. T's paleo collection!

Student Summer Adventures!



Senior Tori Wong – in West Virginia studying mountain top removal.



Seniors Lindsay Walker and Michelle Fame – in Vail, Colorado for Memorial Day.

Student Summer Adventures!



Seniors Michelle Fame and Lindsay Walker – at the Garden of the Gods in Colorado Springs, Colorado.



Senior Lindsay Walker in Canon City, Colorado helping a fellow GeoCorps American intern inventory and monitor trace fossils.

Student Summer Adventures!



Senior Henry Talley – Checking in to Captain Don's Habitat, we had arrived on the island of Bonaire just before sunrise. As we struggled to caffeinate ourselves, the dawn revealed a surreal world of tropical gardens, glowing blue – purple seas, and funny lizards. The transformation from darkness was sudden and one thing rang true for Ralph, Max and I: it was time to dive, baby. The reef, visible from the resort bar by a band of dark purple water, was only about 30 meters from shore. Along the reef wall, which started at forty feet of depth and dropped down to over a hundred, Max and I were immersed in a plethora of sea life: eels, lobster, blue tang, parrotfish, and lizardfish, not to mention the countless soft and hard corals that provided the cityscape for all these critters. On boat dives to the various sites of Bonaire and nearby Klein Bonaire, we spotted seahorses and stingray below the **water's surface and on one occasion a thirty** – strong pod of dolphin above. Towards the end of the week after sucking in an exhausting amount of nitrogen from Captain **Don's bottomless cylinders, limited only by our no decompression limits, Ralph took** Max and I on a grand tour of the island. Washington Slagbaai National Park was a geological wonder, hosting cretaceous-age dark volcanics speckled with whitish feldspars and much younger subhorizontal limestone terraces (<http://www.washingtonparkbonaire.org/geology.html>). Congratulations to Max Krupp for his advanced diver certification! Also many thanks to Ralph Clark, our dive instructor, who worked patiently with me as I dove toward adventure diver status. Bonaire – what a fantastic spring break 2011 and a gem among world places!

Your News!

Please send us information on what you have been doing for the next edition of our newsletter. Digital images are welcome! You may print this form and mail it, or e-mail the information to Professor Jodie Hayob at jhayob@umw.edu.

Jodie Hayob, Professor of Geology
Dept. of Earth and Environmental Sciences
University of Mary Washington
Jepson Science Center
Fredericksburg, VA 22401

Date: _____

Postal and e-mail addresses:

Year you graduated from Mary Washington and degree(s) earned:

Post Mary Washington degrees earned:

Professional News (your job, where you work, professional travel, research, articles published, presentations given, promotions, changes in employment, and so forth):
