

## CONSERVATION BEGINS WITH DETERMINATION

Last summer 2015 I worked with the Student Conservation Association to protect sea turtles at Cape Lookout National Seashore in North Carolina. My main responsibilities included patrolling the shoreline on one of the remote barrier islands of the Park. I monitored and collected data on sea turtle nesting and sea turtle strandings. This involved locating, protecting, and relocating nests in danger of flooding, and inventorying nests to determine their success. This required me to be decisive in the field about management options to improve the reproductive success of an endangered species. One of the highlights of my summer was seeing my very first loggerhead hatchlings in one of the nests. Seeing sea turtle hatchlings run their way to the ocean is a magical experience and one I'll remember always. Amongst my memories is being immensely happy the rest of the day after watching my first turtle crawl to the ocean, I wore a huge smile the whole time. This internship allowed me to work closely with professionals in a career that I'm interested in. I became more comfortable with working independently in the field, using hand held GPS systems, and collecting and reporting data. I look forward to working in the conservation field and possibly with the National Park Service after graduation. I will be working this summer 2016 season at Cape Lookout National Seashore where I will be monitoring the piping plover, an endangered shorebird. The position is part of the Mosaics In Science

Diversity Program, a partnership between the National Park Service and Environment for the Americas. My primary duties are many and will include nest searches, recording nest site locations, nest exclosure installation, tracking nest and chick fates, resighting banded birds, assisting in banding birds, and measuring nest site parameters. Beyond my primary duties, I will be participating in a cooperative study on modeling the impacts of climate change/sea level rise on piping plover nesting habitat along the Atlantic Coast. I will also be using a mobile phone application, "Iplover", this technology has been developed by USGS to measure nest site parameters. The data I collect will contribute to this modeling project.

Taking advantage of every opportunity as it presents itself and striving to perform at your best allows for even more possibilities to open up down the road. *By Aimee Aquino*

*Congratulations to Aimee for receiving the National Student Exchange Achievement Award Honorable Mention!!*



## JESS AND JEWEL CAVE

This past Summer I worked at Jewel Cave National Monument in South Dakota, as a volunteer interpretive intern with the Student Conservation Association. My main responsibilities were to interpret and guide visitors through the third longest cave in the world on scenic, and historical lantern tours. I also had the opportunity to develop, and interpret Junior Ranger Programs relating to the cave for children ages 5-12. The opportunity that I had with the National Park Service has helped me discover that the road of conservation, and preservation of the great American lands is of the path that I want to go on in my future. I had an experience of a lifetime being able to go wild caving with my coworkers in the Black Hills, while encountering how beautiful the dark, and dangerous depths of the earth can be.

*By Jess Geary*



Jess Geary and Jewel Cave

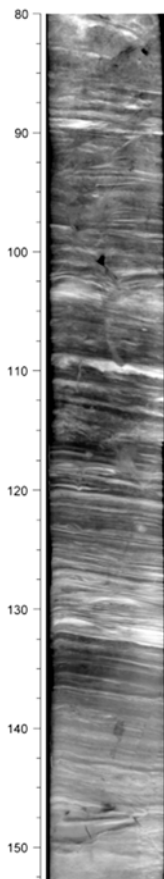
## STERLING HILL MINE

My field experience was at Sterling Hill Mining Museum in Ogdensburg, New Jersey. My main responsibilities there were to give educational tours to visitors and provide sales assistance. I've learned about the geochemistry and geology of the area I work in, how to work with time restraints, and how to inform visitors about the history and science behind Sterling Hill. The best part of my field experience was teaching elementary school students about the background, and seeing that "aha" moment cross their faces.

*By Tony Luisi*



## UNDERSTANDING CLIMATE VARIABILITY



Last summer Seth Getch and Kyle Hansen had the opportunity to work with Dr. Stephanie Brachfeld in her lab at Montclair State University. Under the supervision of Dr. Griffiths, they have been working on a project that utilizes a lake sediment core from Blauvelt Lake in Franklin Lakes, New Jersey to understand climate and hydrological variability over the past 15,000 years. Their work at MSU included the use of advanced magnetic instrumentation to measure the magnetic susceptibility and anhysteritic remnant magnetization (ARM) of their sediment samples. Magnetic susceptibility is a measure of the magnetic response to the bulk of a sample, which gives you information pertaining to the concentration of magnetic particles within a sedimentary unit. By contrast, ARM is a measurement of the ability of the magnetic particles to be aligned within a magnetic field and hold that alignment. Both of these magnetic properties are useful indicators of changes in material and grain sizes throughout the core, which can reflect lake recharge. Seth and Kyle have used these properties, in conjunction with other proxies such as organic C and N, particle size, and diatom assemblages, to paint a picture of the hydro-climatological changes of northern New Jersey since the retreat of the Laurentide ice sheet approximately 16-18 thousand years ago.

This research has provided Seth and Kyle with

numerous opportunities to present their work at both local and regional conferences, including the Geological Society of America's (GSA) annual conference in Baltimore, Maryland and the sectional GSA conference in Albany, New York this past March.

*By Kyle Hansen and Seth Getch*



**Seth Getch and Kyle Hansen presenting at WPU Research Symposium.**

## Shedding Light in Dendrochronology

In the Fall of 2015, I began to work with Dr. Nicole Davi in the field of Dendrochronology. Dendrochronology is the study of tree rings, and one of its main purposes is to analyze past climate change. Most importantly, dendrochronology is crucial in understanding the climate of the past 2,000 years. The study of this specific climate proxy has been around since the late nineteenth century, and since then, new methods of analyzing tree rings to understand past climate have been discovered. Typically, one would

measure the ring width of multiple trees on a microscope in order to put recent warming in a long-term context. Recently, the tree ring community has been working diligently on a new methodology called blue intensity. Blue intensity is superior in reconstructing past climate compared to ring width. Blue intensity measures the cell density of the latewood portion of a tree ring. At the end of the growing season, the cells grow closer together and become denser, which appears as a dark ring band known as latewood.

My work with Dr. Davi has been focusing on an international comparison of blue intensity. As this new method emerges, it is important for the tree-ring community to understand which methods in producing blue intensity data are the most productive. The purpose of this study is to analyze the differences between methodologies used at various international laboratories, and to determine which methods are producing the strongest density signals. The trees we are focusing on are Scots Pine from Northern Finland. The cross sections must first be submerged in acetone for 3 days in order to get rid of any impurities that can alter the blue intensity data. Once each cross section has been sanded and scanned, they are then ready to be analyzed on a new computer program called Coorecorder. Coorecorder will analyze the intensity of blue light that has been reflected from the latewood of each cross section's scan. Jesper Björklund of the Swiss Federal Institute of Forestry will make comparisons between the methodologies and data that have been derived from the participating laboratories including ours. From these comparisons, the tree ring community will be able to determine the best method to use when deriving blue intensity data. Blue intensity is a promising method although much work still needs to be done to prove its validity within the tree ring community.

*By Jessica Geary*



**Jess prepping samples for analysis in the Tree Ring Lab.**

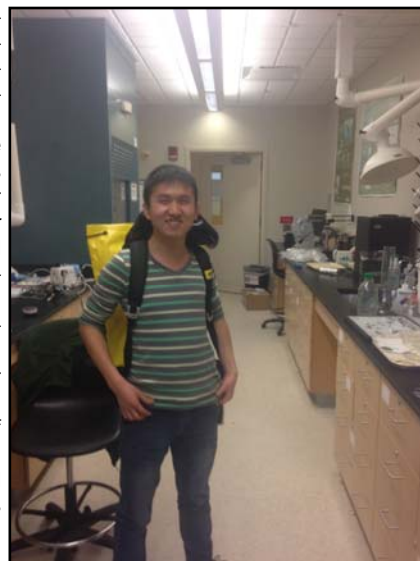


# Welcoming an International Climate Scholar

Visiting scholar Hongbin Zhang, currently in his final year as a Ph.D. student based at the State Key Laboratory of Biogeology and Environmental Geology, China University of Geosciences (Wuhan, China), spent much of the spring semester in my lab as part of a '111' funded project. Hongbin and I have been working on various paleoclimate records from cave deposits (speleothems) in central China, with particular emphasis on how these natural archives record changes in the East Asian summer monsoon (EASM) during the last deglaciation (~10-18 thousand years ago). Through the analysis of stable isotope-ratios of oxygen ( $^{18}\text{O}/^{16}\text{O}$ ) extracted from calcite layers within the speleothems, we have discovered two prominent stages of abrupt EASM change during the demise of the last Ice Age, which closely resemble the temperature shifts observed in Greenland ice core records. Whilst this strong connection between the northern mid latitudes and North Atlantic has been known for quite some time, to our surprise we also found a critical link with the Southern Ocean (located in the Southern Hemisphere), and in particular ice-berg rafted debris events during Antarctic warming ~14-16 thousand years ago. What is most significant about this finding is that the abrupt changes in EASM intensity during the deglaciation were not solely due to Northern Hemisphere warming, but

also controlled by Antarctic meltwater discharge, which would have cooled the surrounding surface waters and, through resultant sea ice expansion, caused the SH westerly wind patterns and equatorial 'rain belt' (called the intertropical convergence zone) to shift northward; this chain-of-events would have led to more intense rainfall over East Asia. These findings are currently *under review* in a peer-reviewed manuscript and were presented recently at the regional *Geological Society of America* conference in Albany, New York. Hongbin and I have numerous other studies currently in the works, and as such anticipate collaborating for years to come. Whilst Hongbin's visit to WPU was a learning experience for both myself and Hongbin (given language and cultural differences), it has been one that has helped pave the way for future collaborative efforts involving WPU and foreign institutions.

*By Dr. Mick Griffiths*



Hongbin in Dr. Griffiths' Paleo Lab

## Shark Dental Work and Ocean Climate

Cladogram shows the interrelationships of the orders of lamniformes (osteodont) and carcharhiniformes (orthodont). Shark teeth, both modern and prehistoric, can be grouped by differences in their hierarchical self-assembly based on these variations of internal composition. Shark teeth hold vast information of their evolutionary order as well as the water condition. By employing the methods of spectroscopic analysis, like the Fourier Transform Infrared Spectrophotometry (FTIR), scanning electron microscopy with the electron disruptive spectrophotometer (SEM/EDS), and X-ray crystallography (XRD) we were able to elucidate patterns of dentin and enamel arrangement in both carcharhiniformes and lamniformes. Our research focuses on characterization of fossil and modern analogs based on the chemical signature. The varying elemental composition led us to conclude that bioassembly can be affected by chemical resources available to the various species. With this study, we can trace the migration pattern of the sharks and the condition of the waters they are in, also learn how diagenesis affects the fossil teeth samples.

I am a post-baccalaureate student with an intention of finishing all my pre-requisite classes for dental school. I am currently a double major for Biology and Chemistry and looking forward to graduate by this summer. Because of my plan to go to dental school, I became interested with the shark teeth research. Before this, the only sharks well known to me were Great White and Hammerhead and never saw the beauty of these creatures. This research, has broadened my knowledge and taught me to appreciate the uniqueness of sharks and the information they hold. Furthermore, this research reinforced the importance of organization, responsibility and accountability with sample handling and analyzing of data as well as learning to properly use the different instruments. I've learned so much in a year and I can say this research will helped me as I go to dental school and after. *By Sanserei Aiah Pilapil*

During my sophomore year at William Paterson, I began working in Dr. Chauhan's chemistry lab on projects involving the synthesis and characterization of nanostructured materials. Spring of my senior year I was informed we would be working with Drs. Becker and Griffiths on the analysis of shark teeth with two undergraduate students. Working on this project has been very beneficial and entertaining as this interdisciplinary research blurs the boundaries of both fields in both technique and language. *By Qiaxian R. Johnson*

I am currently a senior here at William Paterson University. Over the course of the year, I have performed countless hours performing spectroscopic characterization, with equipment like IR, SEM, and XRD. Our greatest accomplishment came in March when we got the chance to travel to Albany NY for the National Geological Society conference, where we presented our work along with many other great students. As a biology major, I never saw myself being so involved with physical sciences. However, what I've learned over the years at William Paterson is that you never know in what direction of academia life would take you. Working under the direction of Chemistry chair Dr. Bhanu P. S. Chauhan is what also ultimately also led me to pursue a chemistry minor this year. I hope to graduate in the Fall'17 and apply to dental school the following year, where I'll continue to study teeth—human kind. *By Fatima Popcakova*



Students working with research advisors Drs. Griffiths and Becker.

# Student-Faculty Conference Proceedings Fall 2015-Spring 2016

## Dr. Michael Griffiths

- †Getch, S., †Hansen, K.G., Griffiths, M.L., Brachfeld, S., †Greendyk, T., DaSilva, M., Sebitich, M., Pardi, R. Deglacial Climate Variability in Northern New Jersey Inferred from a Lake Sediment Core. William Paterson University Undergraduate Research Symposium, William Paterson University, Wayne NJ, April 09, 2016.
- †Popcakova, F., †Pilapil, A., Johnson, Q., Griffiths, M., Becker, M., and Chauhan, B. Chemical Comparison Between Modern and Fossil Lamniforms. William Paterson University Undergraduate Research Symposium, William Paterson University, Wayne NJ, April 09, 2016.
- †Pilapil, A., †Popcakova, F., Johnson, Q., Griffiths, M., Becker, M., and Chauhan, B. Chemical Comparison Between Modern and Fossil Carcharhiniformes. William Paterson University Undergraduate Research Symposium, William Paterson University, Wayne NJ, April 09, 2016.
- †Zhang, H., Griffiths, M.L., Huang, J., Yanjun, C., Cheng, H. Antarctic Link with East Asian Summer Monsoon Variability During the Heinrich Stadial-Bolling Interstadial Transition. Geologic Society of America Northeastern Section-51st Annual Meeting, Albany, New York, March 21-23, 2016.
- †Getch, S., †Hansen, K.G., Griffiths, M.L., Brachfeld, S., †Greendyk, T., DaSilva, M., Sebitich, M., Pardi, R. Deglacial Climate Variability in Northern New Jersey Inferred from a Lake Sediment Core. Geologic Society of America Northeastern Section-51st Annual Meeting, Albany, New York, March 21-23, 2016.
- †Pilapil, A., †Popcakova, F., Johnson, Q., Griffiths, M., Becker, M., and Chauhan, B. Chemical Characterization of Tooth Tissues in Modern and Fossil Sharks: Implications for Paleocceanographic Studies in the Atlantic and Gulf Coastal Plains During the Cenozoic. Geologic Society of America Northeastern Section-51st Annual Meeting, Albany, New York, March 21-23, 2016.
- †Getch, S., †Hansen, K., Griffiths, M.L., Brachfeld, S., †Greendyk, T., DaSilva, M., Sebitich, M., Pardi, R. Reconstructing past climate variability after the laurentide ice sheet retreat in northern New Jersey using a lake sediment core. Geologic Society of America Annual Meeting, Baltimore, Maryland, November 1-4, 2015.
- †Sanders, R., Davi, N., Goldman, I., Griffiths, M., Balistreri, B., Golden, B., and †Aryasz, A. 2015. Connecting Grade 3-12 Students to Natural Geoscience Processes in Their Local Urban National Park. Geologic Society of America Annual Meeting, Baltimore, Maryland, November 1-4, 2015.
- †Sanders, R., Davi, N., Goldman, I., Griffiths, M., Balistreri, B., Golden, B., and †Aryasz, A. 2015. Connecting Grade 3-12 Students to Natural Geoscience Processes in Their Local Urban National Park. NJ Science Convention, Princeton New Jersey, Oct. 2015.
- Griffiths, M.L., Becker, M., Maisch, H.M., †Gonzalez, B.G., Eagle, R.A., Rosenthal, Y. Reconstructing Transatlantic Migrations in Late Mesozoic and Middle Cenozoic Lamniform Sharks from New Jersey utilizing Seawater Sr/Ca and 'Clumped' Isotope Paleothermometry from Tooth Enameloid. Society of Vertebrate Paleontology 75th Annual Meeting, Dallas, Texas. October 14 – 17, 2015.
- †Getch, S., †Hansen, K., Griffiths, M.L., Brachfeld, S., †Greendyk, T., DaSilva, M., Sebitich, M., Pardi, R. Reconstructing past climate variability after the laurentide ice sheet retreat in northern New Jersey using a lake sediment core. GS-LSAMP annual meeting, Rutgers University, New Brunswick, New Jersey, October 9th, 2015.

## Dr. Nicole Davi

- Hansen\* K, Wiles G, Oelkers\* R, Davi N, Strengthening the climate signal in tree-ring records using blue intensity methods: Gulf of Alaska. EXPLORATIONS: Research, Scholarship and Creative Expressions, William Paterson University, April 2016 (\*Student Presentation)
- Geary\* J, Oelkers R, Davi N, Björklund J, An International Comparison of Tree-Ring Density. EXPLORATIONS: Research, Scholarship and Creative Expressions, William Paterson University, April 2016 (\*Student Presentation)
- Davi N, Oelkers\* R, Geary\* J, Climate Variability in Mongolia. EXPLORATIONS: Research, Scholarship and Creative Expressions, William Paterson University, April 2016
- Hansen\* K, Wiles G, Oelkers R, Davi N, Strengthening the climate signal in tree-ring records using blue intensity methods: Gulf of Alaska. 10th Annual Undergraduate Research Symposium in the Biological & Chemical Sciences at William Paterson University, April 2016 (\*Student Presentation)
- Geary\* J, Oelkers\* R, Davi N, Björklund J, An International Comparison of Tree-Ring Density. 10th Annual Undergraduate Research Symposium in the Biological & Chemical Sciences at William Paterson University, April 2016 (\*Student Presentation)
- Oelkers\* R, Davi N, D'Arrigo R., A long-term context for rapid warming in Mongolia and introduction to a new climat proxy. Rutgers Regional Climate Symposium, Nov. 2015, (\*Student Presentation)
- Davi N, R D' Arrigo, Cook ER, Anchukaitis K, Nachin B, Rao M, Leland C, Oelkers R, A Long-Term Context (931-2005 C.E.) for Rapid Warming Over Central Asia. American Geophysical Union Fall 2015 Conference, San Francisco.
- Davi N, F Wattenberg, P Pringle, F Fiondella, I Greidanus, and Rose Oelkers\*, Using Tree-Ring data to Develop Critical Scientific and Mathematical Thinking Skills in Undergraduate Students. American Geophysical Union Fall 2015 Conference, San Francisco.
- Sanders\* R, N Davi, I Goldman, M Griffiths, B Balistreri, B Golden and A Apyrasz\* 2015. Connecting Grade 3-12 Students to Natural Geoscience Processes in Their Local Urban National Park, Geological Society of America, Baltimore, Maryland, Nov. 2015 (\*Student Presentation)
- R Sanders\*, N Davi, I Goldman, M Griffiths, B Balistreri, B Golden and A Apyrasz\* 2015. Connecting Grade 3-12 Students to Natural Geoscience Processes in Their Local Urban National Park, Re: NJ Science Convention, Princeton NJ Oct. 2015 (\*Student Presentation)
- Conference proceedings with WPU alumni student co-author (Oelkers) with Davi and colleagues:*
- Wiles, G.; Happ, M.; Oelkers, R.; Wilson, R.; D'Arrigo, R.; Solomina, O. Davi, N.; Andreu-Hayles, L.; Anchukaitis, K. Development of Blue Intensity (BI) Chronologies along the North Pacific Rim. Ameri-Dendro Conference, March 2016. Mendoza, Argentina.
- Andreu-Hayles, L.; D'arrigo, R.; Oelkers, R.; Anchukaitis, K.J.; Wiles, G.; Wilson, R.; Frank, D.; Davi, N. Blue Intensity (BI) and Maximum Latewood Density (MXD) tree-ring chronologies from Alaska and Yukon Territory, Canada. Ameri-Dendro Conference, March 2016, Mendoza, Argentina.



## Student-Faculty Conference Proceedings Cont'd.

Wiles, G.; Happ, M.; Oelkers, R.; Wilson, R.; D'Arrigo, R.; Solomina, O.; Davi, N.; Andreu-Hayles, L.; Anchukaitis, K., Development of Blue Intensity (BI) Chronologies along the North Pacific Rim. Ameri-Dendro Conference, March 2016, Mendoza, Argentina.

Andreu-Hayles, L.; D'arrigo, R.; Oelkers, R.; Anchukaitis, K.J.; Wiles, G.; Wilson, R.; Frank, D.; Davi, N., Blue Intensity (BI) and Maximum Latewood Density (MXD) tree-ring chronologies from Alaska and Yukon Territory, Canada. Ameri-Dendro Conference, March 2016, Mendoza, Argentina.

Oelkers\*, R.C.; Darrigo, R.; Andreu-Hayles, L.; Wiles, G.; Wilson, R.; Davi, N.K.; Buckley, B., The temperature signal of Blue Light Intensity (BI) tree-ring data sets from trees growing under distinct environmental conditions, Ameri-Dendro Conference, March 2016, Mendoza, Argentina. (\* Alumni student Presentation)

### Dr. Marty Becker

Becker, M., Maisch, H., Raines, B., and Chamberlain, J., 2014. Chondrichthyan from the Tallahatta-Lisbon Formation Contact (Middle Eocene) Silas, Choctaw County, Alabama. Geological Society of America: Abstracts with Programs, Vol. 46, p. 81. Lancaster, Pennsylvania.

Becker, M., Parris, D., Maisch, H., IV, 2014. Turtles from the Arkadelphia Formation-Midway Group Contact (Maastrichtian-Paleogene) of Hot Springs County, Arkansas USA. Society of Vertebrate Paleontology Annual Meeting, Berlin, Germany, p. 88.

Brembs, R., Heinemann, A., Scimeca, R., Maisch, H., Becker, M., and Bartholomew, A., 2015. Cephalopod Diversity in the Lower Devonian Schoharie Formation: A Unique Opportunity for Reassessment of Diversity from Glacial Erratics Geological Society of America Abstracts with Programs, Vol. 47, p.138. Mt. Washington, New Hampshire.

Maisch, H., Scimeca, R., Becker, M., Raines, B., and Chamberlain, J., 2015. Fish Remains from the Tallahatta-Lisbon Formation Contact (Middle Eocene-Lutetian) Pigeon Creek, Covington County, Alabama. Geological Society of America Abstracts with Programs, Vol. 47, p.132. Mt. Washington, New Hampshire.

Griffiths, M., M. Becker, B. Gonzalez, H. Maisch, IV, R. Eagle, and Y. Rosenthal, 2015. Reconstructing Transatlantic Migrations in Late Mesozoic and Middle Cenozoic Lamniform Sharks from New Jersey utilizing Seawater Sr/Ca and 'Clumped' Isotope Paleothermometry from Tooth Enameloid. Society of Vertebrate Paleontology, Annual Conference, Dallas, T.X. p. 87.

### Dr. Jennifer Callanan

Callanan, J., Kern, N., Nichols, D., Cox, I., Mayrant, S., 2015. Physical Weathering of Chlorite and Smectite as a Result of Post-fire Soil Conditions. Geological Society of America Northeastern Section Meeting. Bretton Woods, NH.

## Alumni Highlight: Rose Oelkers—researcher at LDEO

After receiving my Bachelors in Environmental Science in the winter of 2014, I entered the "real world" with a positive outlook. I was continuing my part-time work as a technician for my mentor Professor Dr. Davi, and was taking the steps to prepare for graduate school in the future. My journey towards experience in STEM began in winter of 2013 where I had been given the opportunity to partake in undergraduate research. I was able to channel my creativity and love for natural science with the development of a Paleo-climate photo-archive. The idea of connecting the public to scientific expeditions gave me a taste of the value and definition of what it means to be a scientist. Dr. Davi's support for my enthusiasm allowed me to participate in several hands-on tree-ring projects in both the lab and field. Due to my participation in undergraduate research, I was able to network and develop relationships with the scientists at Lamont-Doherty's Tree Ring Laboratory. My love and excitement for science turned into a determination to learn more. In January of 2015 I was invited by Dr. Brendan Buckley to attend a dendro-ecological field week in Da Lat, VietNam. The opportunity not only strengthened my character and skill set, but gave me further motivation to pursue my passion for research. After the trip I was offered a position as a research technician to work on the Lamont Doherty campus. From sample preparation to density and stable isotope analysis, I have gained experience and knowledge that is invaluable to me. Currently I am working on several exciting projects at both WPU and Lamont Doherty. One in particular highlights a new method studying the density of Tree rings known as Blue Light Intensity. It is a project that uses density data from trees to reconstruct climate information in the areas they grow. My knowledge on this new method allowed me to the opportunity to give a plenary talk at the 2016 Ameridendro Conference in Mendoza Argentina. Prior to the conference I participated in the South American Dendro-ecological field week in El Bolson Patagonia. The entire trip was an unforgettable experience. The chance to

explore a new country while networking with legendary scientists in the field influenced my career in a major way.

On a daily basis I find myself feeling so grateful for having the opportunity to participate in undergraduate research in the Environmental Science Department at William Paterson. I would not be living my dream if it wasn't for the support and encouragement to connect to science. The support and trust given by Dr. Davi, the Environmental Science department and the colleagues at Lamont Doherty is overwhelming and deeply appreciated. I will always value the foundation built during my undergraduate career and continue expanding my knowledge while I apply to graduate schools this fall.

By Rose Oelkers

Photo by Rich Green



Rose coring an Atlantic white cedar tree at High Point State Park



**Faculty:**

**Dr. Jennifer Callanan, Chair**

**Dr. Marty Becker**

**Dr. Nicole Davi**

**Dr. Mick Griffiths**

**Dr. Karen Swanson**

**Staff:**

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# Alumni Connections...

**AMY McWATERS, 2000'**  
Environmental Scientist  
DEP

**ERIC SLOGINSKI, 2000'**  
Civil Engineer  
Chugach Alaska Corporation

**CARMELLA CASTALANA, 2009'**  
Earth Science Teacher  
St. Peters Prep

**STEPHEN ROZAK, 2009'**  
Environmental Scientist  
McCabe Environmental

**AMANDA SWITZER, 2011'**  
Environmental Scientist  
US Army Corp of Engineers

**JOHN DORVAL, 2012'**  
Environmental Science Teacher  
Clifton High School

**AMBER KONEY, 2012'**  
Earth Science Teacher  
Hillsborough Middle School

**STEPHANIE FRANK-VIRGIN, 2013'**  
Staff Scientist  
Langan Engineering, Inc.

**ELENA NOONAN, 2013'**  
Regulatory Reporting Analyst  
American International Group

**STEPHANIE HILL, 2013'**  
Quality Assurance Specialist  
Mast Global Technical Services

**KIM SNYDER, 2013'**  
Residence Life  
William Paterson University

**LUISA TORO, 2014'**  
Associate Environmental Scientist  
Environmental Medicine, Inc.

**RALPH SCIMECA, 2014'**  
Earth Science Teacher  
Randolph Middle School

**ALEXANDRA LUCAS, 2014'**  
Project Manager  
QC Laboratories, Inc.

**MARTINE POPE, 2014'**  
Earth Science Teacher  
West Orange High School

**MELISSA MARTE, 2014'**  
Environmental Assistant Project Manager  
IVI International

**ROSE OELKERS, 2014'**  
Research Technician  
LDEO, Columbia University

**KEVIN JOHNSON, 2014'**  
Environmental Scientist Intern  
Environmental Medicine, Inc.

**BRIAN WINFELD, 2014'**  
Graduate Student, Environmental Law  
Pace University Law School

**NICOLE KERN, 2014'**  
Environmental Scientist  
Accutest Labs, Inc

**SARAH MIRANDA, 2015'**  
Volunteer Services & Horticulture Assistant  
Naples Botanical Garden, FL

**EVAN GERRY, 2015'**  
NPS, Backcountry Ranger  
Rocky Mountain National Park

**JENN CRAPELLA, 2015'**  
Environmental Scientist I  
TRC Companies

**DANIELLE NICHOLS, 2015'**  
Tefel English Instructor  
Yokohama, Japan

**DAN PAGANO, 2015'**  
Earth Science Teacher  
Garfield Middle School

**MATT HEYE 2015'**  
Solar Advisor  
Sungevity, Inc

**ANTHONY SCALERA, 2015'**  
Laboratory Director  
Passaic valley Sewerage Comm.

**MATT BEAUPRE, 2015'**  
Environmental Scientist III  
TRC Companies

**DOM STOCKTON-ROSSINI, 2015'**  
Graduate Student, Legal Studies  
Rutgers University

**SETH GETCH, 2016'**  
Living the dream

**KYLE HANSEN, 2016'**  
Research Technician  
LDEO, Columbia University

**AIMEE AQUIÑO, 2016'**  
Mosaics in Science Researcher  
National Park Service

**TIMOTHY GREENDYK, 2016'**  
Environmental Scientist  
Peek Environmental

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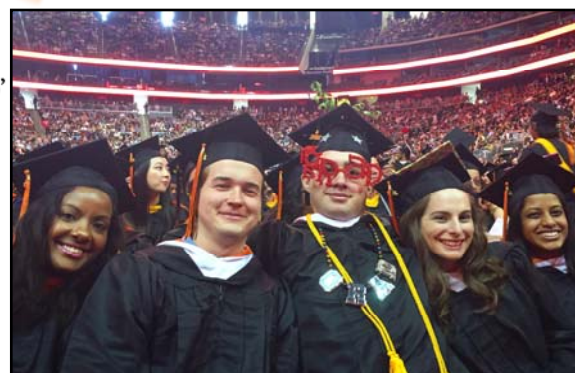
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Kyle Hansen 2016 recipient of the Richard R. Pardi Award for Excellence in Environmental Science.

