

PLEASE DO NOT PRINT THIS.

Dr. Karen Olmstead, Dean of the Henson School of Science and Technology, talks with Kaitlyn Mitchell about her summer research.



ANNOUNCEMENTS

Biology Travel and Research Fund

Over the years the Department of Biological Sciences has had great success attracting highly qualified students, and we are justifiably proud of our Biology majors. The success of our students is a testament to our faculty, curriculum, and facilities, but also to our alumni who help us provide extra opportunities for these students. Graduate and professional schools, as well as competitive employers, now demand that applicants have research experience, membership and activity in professional societies, and sometimes even international exposure. Every year the Biology Department provides funding to undergraduate and graduate students to support the purchase of equipment and materials needed for their research and for travel to scientific meetings to present their research results. Unfortunately, the funds may not cover all of the research expenses, or the entire cost of conference registration and travel. Approximately 40 students are currently conducting research in the department, and the need for funding exceeds the financial resources of the department. We are asking you to please support the Biological Travel and Research Fund at Salisbury University to enable us to attract the best students and provide them with professional opportunities that are not usually available at the undergraduate level.

These students are worthy and have great potential, but they need your support. When you give, 100 percent of your tax-deductible gift goes towards giving a fellow Sea Gull an opportunity to have a life-changing experience, and helps establish Salisbury University as a leader in undergraduate research. Thank you for your consideration, any help you can give is greatly appreciated.

If you would like to make a donation to the Biology Travel and Research Fund please go to the website <https://salisbury.site-ym.com/donations/donate.asp?id=7399>

Thank you! We greatly appreciate your support of our students!

SAVE THE DATE

BIOLOGY MEET AND GREET

Saturday, October 18, 2014

Join us 11 a.m. at the Homecoming/Family Weekend Alumni Pre-Game Barbecue at the Sea Gull Stadium Track Field. Enjoy great food, lots for children to do and football. Details on registering will be included in the Homecoming brochure mailed to you in September. We hope to see you there!

Biological Sciences Department
410-543-6054

Salisbury
UNIVERSITY



Something for everyone! Bring the kids to enjoy the bounce house and kite build. Music by "Beauty for Ashes." Cost: \$15 Adults (includes game ticket, BBQ and \$10 donation) \$5 - Children 10 and under. Game day purchase will not include game ticket. Game tickets will be mailed prior to the game. For more events taking place during Homecoming weekend, please go to the following webpage [<http://alumni.salisbury.edu/?page=Homecoming>]

Dr. Ryan Taylor has been named by the University System of Maryland as a recipient of the Elkins Professorship for the upcoming academic year. Elkins Professorship recipients must demonstrate a strong record of academic achievement, a desire to inspire undergraduate and graduate students, evidence of achievement beyond one's traditional discipline, and evidence of intent to pursue scholarship endeavors beyond the USM. Dr. Taylor easily met all of these requirements with his many teaching and scholarly achievements. Congratulations Dr. Taylor on being named an Elkins award winner.

Andrew McGowan (graduate student in the Applied Biology program) received a grant of \$1500 from the American Society of Mammalogists for his project "Bat Abundance, Distribution, Biodiversity, and Habitat Preference on the Delmarva Peninsula." Andrew was one of only a few recipients of this highly competitive grant who was not from a much larger research institution such as UCLA, Purdue, Johns Hopkins, or Stony Brook.

SALISBURY UNIVERSITY STUDENT RESEARCH CONFERENCE

More than 200 Salisbury University students presented their research during the 13th Salisbury University Student Research Conference on Friday, April 25. Pictures from the conference are provided at the following link.

[<http://www.salisbury.edu/photogallery/susrc2014/pics/>]



Dr. Dana Price of the Biological Sciences Department was presented with SU's 2014 Outstanding Research Mentor Award. Photo by Kathy Pusey. Shown left to right: Mike Burchett, Betsy Bangert, Katie Ballentine, Dr. Dana Price, Kaitlyn Mitchell, Mallory Hagadorn, and Patrick Simons.



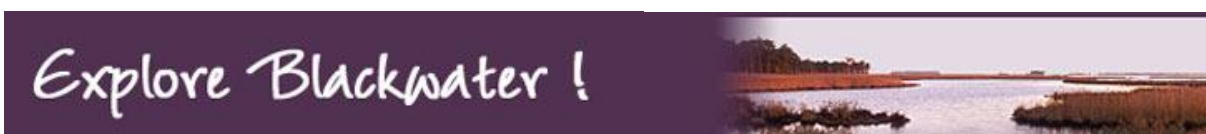
ANNOUNCEMENTS cont.

From the Maryland Coastal Bays Program (MCBP) Newsletter:

MCBP interns **Amanda Poskaitis** and **Kyle Kowalczyk** confer on fish identification. Sampling was conducted in area streams to monitor stream health. Amanda is a recent graduate of the Dual Degree program and has been employed at MCBP since May. Kyle returns to Salisbury University to complete his dual degree (with the University of Maryland Eastern Shore) in Biology/Environmental Science.



OPPORTUNITIES



The Friends of Blackwater National Wildlife Refuge, Inc., are offering scholarships to students who are pursuing careers in fish and wildlife management, environmental education and science, and related fields. Students can apply if they are residents of the Maryland Eastern Shore counties of Cecil, Kent, Queen Anne's, Talbot, Caroline, Dorchester, Wicomico, Worcester, or Somerset and will be entering junior, senior or graduate programs at the end of their present college term. Applicants are required to have the eligible Eastern Shore counties as their principal residency for the past four years. Students receiving full scholarships from another source or combination of sources are not eligible.

Application materials and specific requirements can be found at the following webpage (<http://www.friendsofblackwater.org/scholarship.html>).

WARD MUSEUM OF WILDFOWL ART, SALISBURY UNIVERSITY JOINS SMITHSONIAN MAGAZINE'S NATIONAL MUSEUM DAY LIVE!

On September 27, 2014, the Ward Museum of Wildfowl Art, Salisbury University will open its doors free of charge as part of Smithsonian Magazine's tenth annual Museum Day Live! A nationwide event, Museum Day Live! offers free admission to visitors presenting a Museum Day Live! ticket at a participating museum or cultural institution. Inclusive by design, the event represents Smithsonian's commitment to make learning and the spread of knowledge accessible to everyone, giving museums across all 50 states the opportunity to emulate the admission policy of the Smithsonian museums in Washington D.C.

The Museum Day Live! tickets will be available to download at Smithsonian.com/museumdaylive. Visitors who present the ticket will gain free entrance for two at participating venues for one day only. One ticket is permitted per household, per email address. For more information about this event and a list of participating museums and cultural institutions, please visit: Smithsonian.com/museumday/venues.

Ward Museum & the CBFS – Delmarva Nature and Wildlife Photography Summit

The Delmarva Nature and Wildlife Photography Summit is geared toward photographers with an interest in unique ecosystems and in creating inspiring imagery with particular consideration for conservation and the environment. The Delmarva Peninsula is a wildlife and nature photographer's paradise. Summit participants will access the natural resources of Chincoteague, Assateague, and restricted Wallops Island. This three day conference will present full days of creative and professional education providing an exciting line-up of workshops, comprehensive field sessions, photo tours, portfolio critiques, and social and networking opportunities. Space is limited. Phone Registration: 757-824-5636. Online Registration and Payment: <http://delmarvaphotosummit.weebly.com>

The Ward Museum of Wildfowl Art, Salisbury University, and the Chincoteague Bay Field Station will host the Delmarva Nature and Wildlife Photography Summit on November 13–16, 2014.



Chesapeake and Potomac Regional Chapter of Society of Environmental Toxicology and Chemistry

Our Mission

To promote the exchange of information among environmental scientists in the mid-Atlantic region. In particular, the organization facilitates and supports graduate students through research and networking opportunities and sponsoring awards.

History and Membership

CPRC-SETAC, mid-Atlantic regional chapter for SETAC North America, was founded in 1983. Like the national organization, CPRC-SETAC promotes science-based discussion and a connection between government, academic and business sector members. SETAC-CPRC currently has over 100 members.

Student Activities

CPRC-SETAC promotes student activities and serves student members by providing a platform to find jobs, graduate schools, internships, and volunteer opportunities. CPRC-SETAC provides students a forum to present research papers and posters.

Student Award Opportunities

Subsidized travel to present at the SETAC North America annual meeting held in November.

Best platform and poster awards at the CPRC-SETAC annual meeting held in the Spring.



Interested in getting involved or becoming a member? Check out our website for information on how to become a member and for volunteering opportunities!

www.cprcsetac.wordpress.com

Benefits of CPRC-SETAC Student Membership

Reduced membership and registration fees at events sponsored by CPRC-SETAC.

Opportunity to present research in a supportive environment at CPRC-SETAC annual meetings.

Opportunity to network with other students and environmental professionals from government, academia, and business sectors.

Opportunity to become active SETAC members and gain valuable management experience.

Up to date volunteer, job and internship information on the chapter web site & newsletter.



Examples of CPRC-SETAC Volunteer Events

History of Earth Day

Bay Shoreline Restoration and Pilot Carbon Offset Project



Find us on:



Look for CPRC SETAC



Environmental Education Training Fall 2014 Schedule

Flying WILD: K-12 Educator's Guide to Celebrating Birds

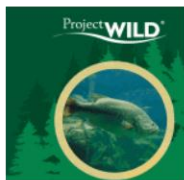


Wednesday, October 22, 2014; 5:30 pm - 8:30 pm

Fee: \$25; registration deadline Wednesday, October 15, 2014

This curriculum introduces students to bird conservation through standards-based, interdisciplinary classroom activities and environmental stewardship projects. Flying WILD encourages schools to work with conservation organizations, community groups, and businesses to implement school bird festival and bird conservation projects.

Project WILD Aquatic: K-12 Curriculum and Activity Guide



Monday, October 27, 2014; 9:00 am - 1:30 pm (Bring a bag lunch)

Fee: \$25; registration deadline Wednesday, October 22, 2014

Project WILD Aquatic was designed to be an instructional resource for educators who want to introduce students to hands-on activities that encourage problem-solving and decision-making skills about the environment through the lens of aquatic habitat and wildlife. The goal of Project WILD Aquatic is helping students to evaluate choices and to make responsible decisions about the environment and wildlife.

Growing Up WILD: Ages 3-7 Exploring Nature with Young Children



Wednesday, October 29, 2014; 5:30 pm - 8:30 pm

Fee: \$25; registration deadline Wednesday, October 22, 2014

Growing Up WILD helps connect children to the outdoors through 27 activities. Each activity presents a wide range of options so that children can work and learn at developmental levels that are individually appropriate. All the activities interweave multiple content areas helping to foster development and learning in all areas.

Project WILD: K-12 Curriculum and Activity Guide



Wednesday, November 05, 2014; 5:30 pm - 8:30 pm

Fee: \$25; registration deadline Wednesday, October 29, 2014

Project WILD was designed to be an instructional resource for educators who want to introduce students to hands-on activities that encourage problem-solving and decision-making skills about the environment they share with wildlife. Project WILD is concerned with providing information, as well as helping students to evaluate choices and to make responsible decisions about the environment and wildlife.

All trainings located at:

Ward Museum, 909 S. Schumaker Dr, Salisbury, MD 21804

Registration required by dates indicated.

Registration online at <http://www.wardmuseum.org> or email
wardeducation@salisbury.edu



FEATURED FACULTY

DR. ANN BARSE

Courses Taught at SU:

I teach Zoology (BIOL 213) every semester, Invertebrate Zoology (BIOL 321) in the fall and Parasitology (BIOL 322) in the spring. During the Winter Session, I teach International Field Studies: Coral Reef Biology (BIOL 399), which takes place on campus for a week, and then on the island of Roatan, Honduras for a week. An Open Water SCUBA certification is required to take this class. I also regularly mentor undergraduates in Research in Biology (BIOL 415/416) and Readings in Biology (BIOL 420)



International Field Studies: Coral Reef Biology

Research Prior to SU:

I am a marine biologist with keen interest in the ecology and evolution of metazoan parasites of marine and estuarine animals. I have focused on parasites of snails and bivalves and marine and estuarine fishes, and in each study I investigated a different aspect of the parasite-host relationship. As a graduate student at the University of Maryland, Horn Point Laboratory, I investigated parasites of white marlin (a local

game fish), and proposed that they serve as natural "tags" to identify breeding stocks in the Atlantic and Gulf of Mexico. I also investigated and published on the community ecology of gill parasites of a Chesapeake Bay minnow. With SU students, we investigated the prevalence of a non-native swim bladder nematode parasite of the endemic American eel in numerous Chesapeake Bay tributaries. More recently, I conducted a survey of the parasites of invasive lionfishes, *Pterois volitans* and *P. miles*, off the North Carolina coast and in the Caribbean. Colleagues and I reported on and redescribed the first parasite ever documented from an invasive lionfish. My most recent publication is a species redescription of a parasitic flatworm, *Capsala leavis*, collected from a roundscale spearfish off of Ocean City MD (Barse and Bullard, 2012); this is the first and only paper to report on a parasite of this host fish species. In September of 2007 and 2011, I assisted colleagues from NOAA, Southeast Fisheries Science Center (Miami), Drs. Eric Prince and John Hoolihan, in attaching pop-off satellite archival tags (PSATs) to marlin off of Ocean City, MD and Manteo, North Carolina. Tags were programmed to pop off the fish after 120–180 days. In all, we tagged 40 white marlin and one roundscale spearfish with PSATs and learned how these fish behave during their fall migration from the eastern US to the Caribbean and coast of South America. We are currently working on a manuscript for publication of this fascinating work.

About Me:

I was born in Washington D.C., and raised in Bethesda MD. I spent many summers at the beach in Delaware as a kid and moved there as soon as I finished high school. After 5 years of working at these jobs, more or less in chronological order: waitress, short order cook, salad girl, painter, plumber, and first mate on sport fishing charter boats, I accepted Dad's offer to help me financially to go to school. I continued fishing for fun and income, and got my Bachelor's degree in Biology from the University of Delaware and my graduate degrees at the University of Maryland. I began teaching at SU in 1994. My husband Joe Byrne Jr. and I love to fish and scuba dive (shown right), and now so does Joe's daughter Arden who is a Physician's Assistant in New York City. Fishing and diving vacations are my favorite pastimes.



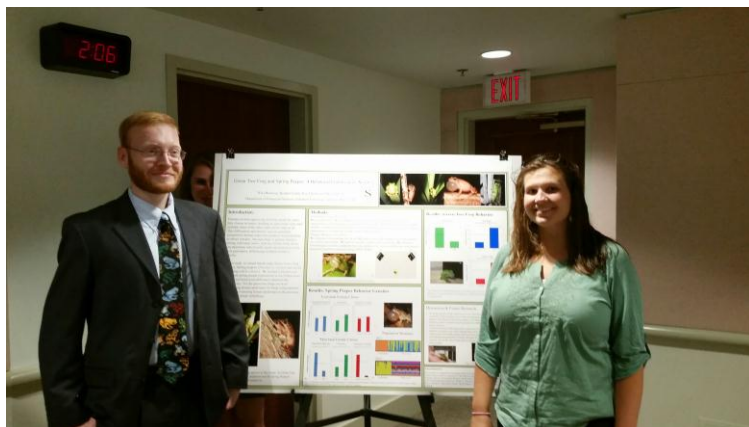
Recent Publications:

Barse, A.M. and S. A. Bullard. 2012. Redescription and new host record of *Capsala laevis* (Monogeneoidea: Capsalidae: Capsalinae) from gill of Roundscale Spearfish, *Tetrapturus georgii* (Perciformes: Istiophoridae) in the Northwestern Atlantic Ocean. *Journal of Parasitology* 98(4):735–745.

S.A. Bullard, **A. M. Barse**, S.S. Curran, J. A. Morris. 2011. First record of a digenean from invasive lionfish, *Pterois* cf. *volitans*, (Scorpaeniformes: Scorpaenidae) from the northwestern Atlantic Ocean. *Journal of Parasitology* 97(5):833–837.

GUERRIERI UNDERGRADUATE SUMMER RESEARCH PROGRAM

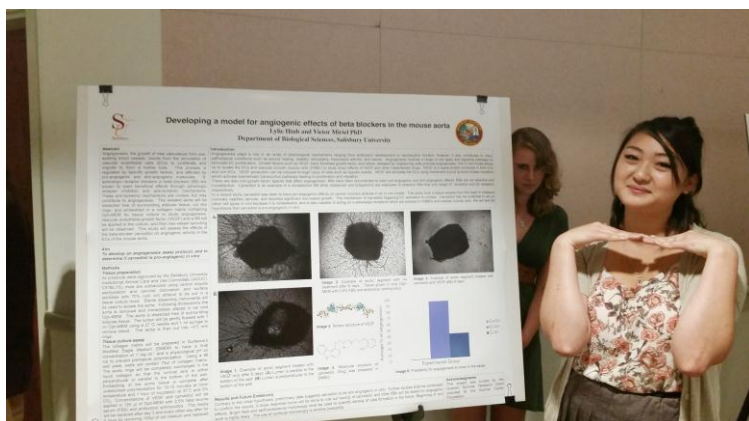
This summer over 37 students presented their research at the Henson School Summer Research Program held on August 5th in the GUC. Although we are very serious about our research, the students also like to have a bit of fun with the activities. Dr. Price decided to give you some photobombing fun with Chelsi Rose.



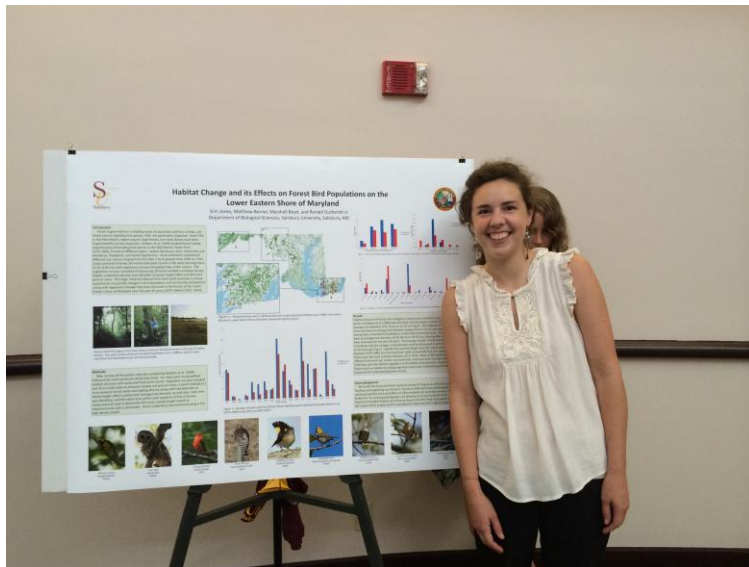
Tyler Bowling worked with **Dr. Kimberly Hunter**, **Dr. Ryan Taylor** and Graduate Student **Krispen Laird** on a project titled: "Multimodal Signaling and Individual Variation in the Green Tree Frog (*Hyla cinerea*)."



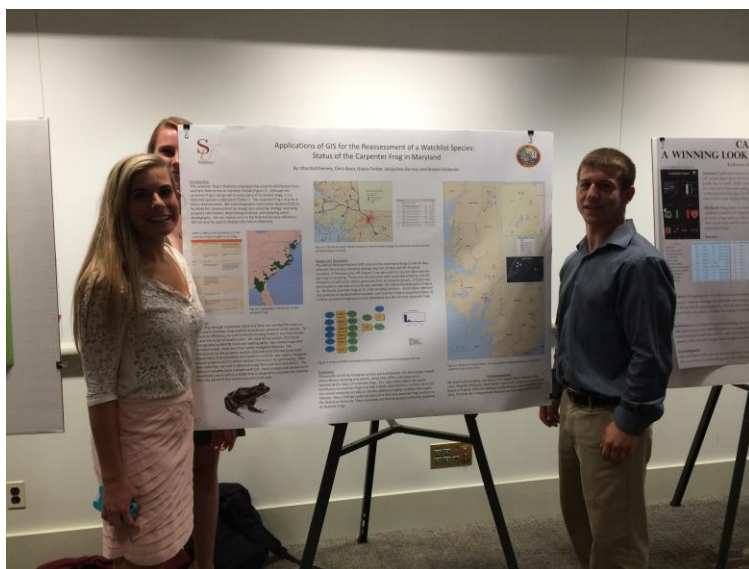
Matthew Bernoi worked with **Dr. Ron Gutberlet** and graduate student **Marshall Boyd** on a project titled: "Evaluating 30 years of Change in Forest Bird Populations on the Lower Delmarva Peninsula."



Lylie Hinh worked with **Dr. Victor Miriel** on a project titled: "Developing a Model for Angiogenic Effects of Beta Blockers in the Mouse Aorta."



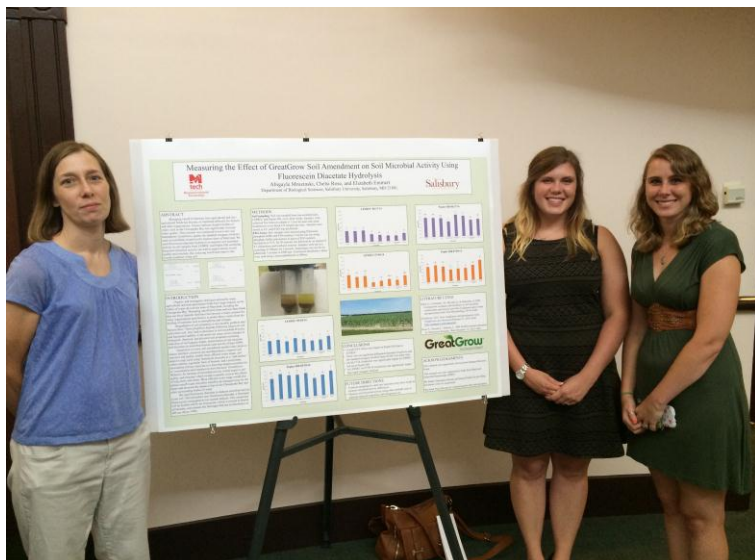
Erin Jones (Environmental Studies) worked with **Dr. Ron Gutberlet** and graduate student **Marshall Boyd** on a project titled: "Analyzing 30 Years of Habitat Change and its Effects on Forest Bird Populations on the Lower Delmarva Peninsula."



Marshall Keeney worked with **Dr. Ron Gutberlet** and graduate student **Jackie Darrow** on a project titled: "Applications of GIS for the Reassessment of a Watchlist Species: Status of the Carpenter Frog in Maryland."



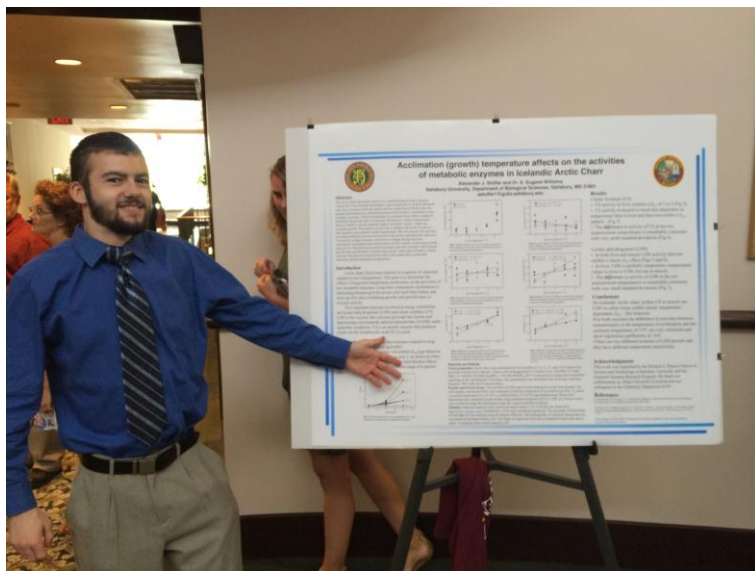
Kaitlyn Mitchell worked with **Dr. Dana Price** and graduate student **Mallory Hagadorn** on a project titled: "The Gut Microbiome of *Onthophagus taurus* on Cattle Farms."



Abigayle Mrozinski worked with **Dr. Elizabeth Emmert** and graduate student **Chelsi Rose** on a project titled: “Effect of the GreatGrow Soil Amendment on Soil Microbial Activity.”



Patrick Simons worked with **Dr. Dana Price** on a project titled: “Changes in Dung Beetle Communities Across Seven Counties on Maryland’s Eastern Shore.”



Alexander Stuffer worked with **Dr. Eugene Williams** on a project titled: “Stress and Growth Rates of Arctic Char at Different Growth Temperatures as Assessed by Changes in the Activities of Metabolic Enzymes.”

Additional students that were funded by the Henson School of Science and Technology and participated in the Undergraduate Research Symposium



Betsy Bangert and **Mike Burchett** worked with **Dr. Dana Price**. They presented two posters: "Collection and Distribution of Scarabaeoidea across Maryland" and "Maryland Scarabs and Citizen Science."



Gracie Ferber and **Chris Baqir** worked with **Dr. Ron Gutberlet** and graduate student **Jackie Darrow** on a project titled: "Status Reassessment and Phylogeographic Analysis of the Carpenter Frog (*Lithobates virgatipes*) on the Delmarva Peninsula."

CONFERENCES, MEETINGS AND PRESENTATIONS

Dr. Paul Gre cay attended the International Congress on the Biology of Fish at Heriot-Watt University in Edinburgh. His student presented a poster titled "Behavioral Responses of Juvenile Estuarine Fishes to diel-cycling Hypoxia and pH". **Authors Dixon, R.L. Gre cay, P.L. and Targett, T.E.**

Mitchell, K.M., Taylor, R.C. and K.L. Hunter. 2014. Behavioral and genetic variation among individual túngara frogs, *Physalaemus pustulosus*. Animal Behavior Society. Princeton, NJ.

Several SU biologists attended the spring meeting of the Mid-Atlantic Section of the American Society of Plant Biologists (MAS-ASPB) held April 12 at the Delaware Biotechnology Institute, Newark, DE. Graduate student **Stephen Kelley** (photo below) gave a talk entitled “Altering Growth Rates and Nutritional Qualities of Microalgal Feedstock with Symbiotic Bacteria” and **Heather Yerecic** presented a poster entitled “Identification and Characterization of mutants related to *LRS1* in *Arabidopsis thaliana*.” **Drs. Mark Holland** and **Les Erickson** also attended with **Meagan Jezek** ('14) and **Andrew Baskerville** (pictured below).



Andrew Baskerville



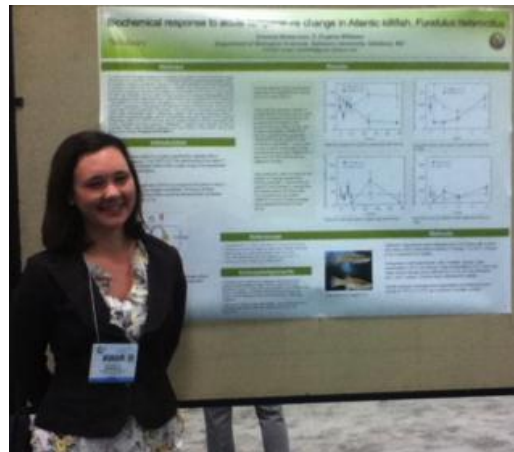
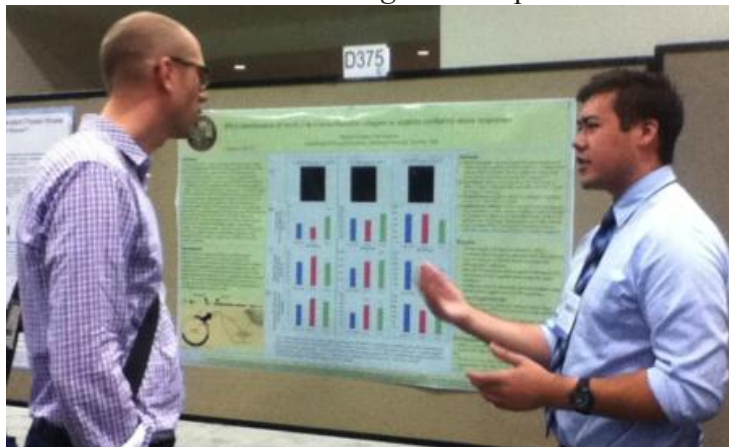
Stephen Kelley

Heather Yerecic presented her poster “Identification and characterization of mutants related to *LRS1* in *Arabidopsis thaliana*” with **Dr. Patti Erickson** on May 29th at the 15th Plant Biology Mini Symposium at University of Maryland, College Park.



Heather Yerecic and Dr. Patti Erickson are pictured on the right-hand stairwell

Amanda Biederman ('14), **Michael Robben** and **Drs. Patti Erickson** and **Eugene Williams** attended the annual meeting of the American Society for Biochemistry and Molecular Biology (ASBMB) at the Experimental Biology conference in San Diego, CA from April 25–29. Both students presented their data in the general conference sessions. Amanda's poster was entitled "Biochemical response to acute temperature change in Atlantic killifish, *Fundulus heteroclitus*" and Michael's was "RNA interference of *mrck-1* in *Caenorhabditis elegans* to explore oxidative stress responses."



Contact Michael Robben (mrobben1@salisbury.edu), Dr. P. Erickson, or Dr. Williams for more information about SU's undergraduate affiliate network chapter of ASBMB, which holds a weekly journal club and other activities throughout the semester.

Just before classes started, another group attended the 31st Annual Mid-Atlantic Plant Molecular Biology Society in Beltsville, MD. Heather Yerecic and Stephen Kelley each gave their presentations (titles above) and Andrew Baskerville, Drs. Holland, Anderson and both of the Ericksons also attended.

PRESENTATIONS cont.

Drs. Kimberly Hunter and **Ryan Taylor** attended the International Society of Behavioral Ecology, Hunter College, New York City, NY, August, 2014. They presented a poster titled: “Fine Scale Patterns of DNA Methylation in Túngara Frog Populations.”

Taylor, R.C., Wilhite, K., Mitchell, K.M., Laird, K., & K.L. Hunter. 2014. Genes, Peeps, and Non-random mating: A population genetics approach to mate choice. Animal Behavior Society. Princeton, NJ.

Taylor, R.C. 2014. Multisensory Signals and Receiver Psychology. Invited speaker for symposium honoring contributions of senior scientists in the field of anuran communication and evolution. International Society of Behavioral Ecology Congress, New York City, USA.

MANUSCRIPTS PUBLISHED/ACCEPTED: (*Salisbury University)

Camille A Holmgren, Julio L Betancourt, M Cristina Peñalba, José Delgadillo, **Kristin Zuravnsky***, **Kimberly L Hunter***, Kate A Rylander, Jeremy L Weiss. 2014. Evidence against a Pleistocene desert refugium in the Lower Colorado River Basin. *Journal of Biogeography* 41:1769–1780.

Shelby Bunting*, **Emily Burnett***, **Richard B. Hunter***, Richard Field, **Kimberly L. Hunter***. 2014. Incorporating molecular genetics into remote expedition fieldwork. *Tropical Conservation Science* 7:260–271.

Whitney. B. Smith*, Christopher T. Frye, **Ericka Veliz***, **Shandi Hiebler***, **Ryan C. Taylor*** and **Kimberly L. Hunter***. 2014. Genetic Variability of Maryland and West Virginia Populations of the Federally Endangered Plant *Harperella nodosa* Rose (Apiaceae). Accepted to *Northeastern Naturalist*.

*Halfwerk, W., Dixon, M., Ottens, K., ***Taylor, R.C.** Ryan, M.J., Page, R.A., & P.L. Jones. 2014. Risks of multimodal signalling: bat predators attend to dynamic motion in frog sexual displays. *Journal of Experimental Biology*, 217:3038–3044. [This research was also featured in *Inside JEB* and in *Nature – Research Highlights*]

*Halfwerk, W., Page, R.A., ***Taylor, R.C.** Wilson, P.S. & M.J. Ryan. 2014. Cross-modal comparisons of signal components allow for relative distance assessment. *Current Biology*, 24:1751–1755.

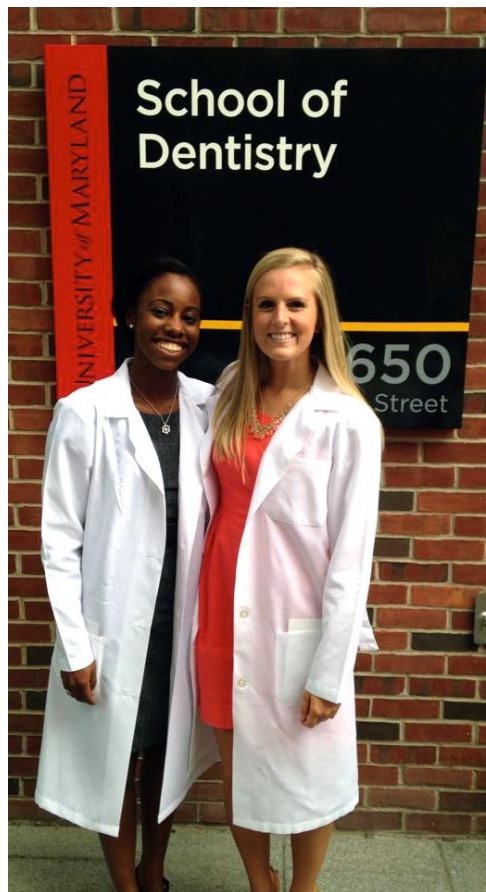
ALUMNI NEWS

Brianna Beauchamp, who graduated in May 2011 with a BS in Biology and a BS in Environmental Studies, has been accepted to the Master Of Science program in Hydrology and Water Management at Texas A&M University.

Jay Kalin, (2007 Biology graduate) received his Ph.D. in Medicinal Chemistry at the University of Illinois at Chicago in May 2012. Currently he is a Postdoctoral Fellow in Pharmacology at Johns Hopkins University in Baltimore, MD.

Patrick Masterson was just offered a position at NIH, working with the National Center for Biotech Information on genome annotations for the genome database.

Krystal Donaldson and **Dana Short** (shown right) at their White Coat Ceremony at the University of Maryland School of Dentistry.



Ryan Protzko (2010 Biology graduate) was recently awarded a prestigious 3-year National Science Foundation Graduate Research Fellowship. Ryan is a Ph.D. candidate in Dr. John Dueber's laboratory in the Molecular and Cellular Biology (MCB) Department at the University of California, Berkeley. Using synthetic biology tools, he genetically engineers yeast to degrade plant pectins for biofuel applications. Ryan joined the MCB department after spending two years as a research technician in the laboratory of Dr. Jennifer Pluznick at the Johns Hopkins University, School of Medicine. His research efforts have led to several publications, including one in the high impact *Proceedings of the National Academy of Sciences*. In addition to all of his productivity, Ryan still finds time to enjoy runs in the Berkeley hills.



If you have announcements to add or general comments regarding the Newsletter, please email dlprice@salisbury.edu.

Editor: Dr. Dana L. Price

Coeditor: Dr. Ronald Gutberlet