Dr. Mark Holland Memorial Scholarship

The Department of Biological Sciences is pleased to announce the creation of the Dr. Mark Holland Memorial Scholarship. In the October 2020 Biology Newsletter, we announced the sad news of Dr. Holland's passing. Since that time, faculty and staff in the department have been working to make this scholarship a reality. While we are still some time away from being able to award the scholarship to students in the department, we are excited for the opportunity to remember our friend and mentor. Please use this QR code to learn a little more about Dr. Holland on the SU giving page specifically designed for this scholarship. The words you'll find there about Dr. Holland were written for his eulogy by Dr. Les Erickson. We hope they inspire you to support our students in memory of this amazing person.

Our Students

SUPP
SALISBURY UNIVERSITY PHENOLOGY PROJECT

SUPP has launched!

This fall, students of Biology 202: Introduction to Evolution and Ecology have begun collecting data for our long-term Salisbury University Phenology Project (SUPP). Students are using the National Phenology Network's free app called Nature's Notebook to track the changing physical traits of select campus trees during fall and spring semesters. This fall, the key phenophases that are changing in our study oaks, maples, dogwoods, serviceberries, redbuds, and sassafras are the abundance of fruit (such as acorns, berries), dropping of fruit, the appearance of flower buds, the change of leaf color, and the dropping of leaves. Our data will help us (and scientists nationally) to track the effects of climate change on the timing of local biological events. The data are rolling in!





Some of the SUPP students, Taylor Palomo, Elizabeth Hersh, Jasmine Brice, Maclane Doty, Coale Lenox, Raven McNeil, Emily Duncan, Colin Moxey, Jasmine Johnson, and Osman Yahya collecting their phenophase data and sampling for insects, birds, and other organisms in their SUPP trees.

Amanda Rocker: Hoofstock Keeper at the Tanganyika Wildlife Park, Goddard, Kansas

My name is Amanda Rocker and I will be graduating from Salisbury University's Master's in Biology graduate program. I have been studying endangered turtles in Maryland and Delaware for my graduate career while working at the local Salisbury Zoo. My love for animals and conservation of species has led me to pursue a career in zoology. I have accepted a position as Hoofstock Keeper at the Tanganyika Wildlife Park in Goddard, Kansas where I will work with Grevy's Zebras, Giant Anteaters, Springbok, Bongos, and Warthogs and have training in Indian and White Rhinos, Okapi, and Reticulated Giraffes, among others. Tanganyika has a vast variety of species and is a leader in breeding endangered species. Their goal is to maintain genetically diverse populations of species through successful captive breeding programs as a conservation strategy for endangered species, along with educating the public through authentic experiences. I am excited to contribute to these goals and be a part of upcoming expansions and plans, such as the installment of a Safari Park which will house white rhinos along with other species.

New Graduate Students

Karsin Bachran

I'm Karsin Bachran. I am in my first year as a graduate student in the M.S. applied biology program at Salisbury University. I attained my bachelor's degree in biology from SU in Spring of 2019. I went on to work in the cutaneous nerve lab at Johns Hopkins University for two years until I came to the conclusion that rigorous lab work wasn't for me. I missed the joys of doing ecological field work. Therefore, I decided to come back to SU to work with Dr. Eric Liebgold doing research on the endangered spotted turtle. We will be working on using radio telemetry to analyze spotted turtle home-range movement patterns. Very exciting! When I'm not doing field work, I love to read, play piano, and travel. I recently got back from a two-month solo road trip across the U.S. this summer. Hoping to do it again once I finish my degree.

Zach Crum

Zach Crum grew up in Chesapeake, Virginia and is an avid angler and conservationist. He graduated with a Bachelor of Science in marine fish conservation from Virginia Tech in 2019. As an undergraduate student, Zach had the opportunity to complete internships in fisheries ecology and management in Eleuthera, The Bahamas and South Carolina, which greatly influenced his desire to pursue a career in fisheries science as well as graduate education. Before coming to Salisbury, he worked for two years as a fisheries technician in Alaska and California with the United States Fish and Wildlife Service and Pacific States Marine Fisheries Commission on projects pertaining to Salmon and Steelhead conservation. As a new master's student in Dr. Noah Bressman's lab in the Applied Biology program at Salisbury University, Zach's research will focus on assessing the feeding ecology and population dynamics of invasive Blue Catfish in the Nanticoke River.

Kyle Musselman

My name is Kyle Musselman and I am a new graduate student at SU, with Dr. Christiana Bradley. I graduated this past spring from St. Mary's College of Maryland with a Bachelor of Science in Biology. I am now seeking to complete a Master's in Applied Biology at SU. Specifically, I want to study aquaponics as a more sustainable food production system. This type of system combines aquaculture and hydroponics to use aquatic animal waste to fertilize plants. I am researching if horseshoe crab waste can be used to help grow seaweed and if this system can be a sustainable source of horseshoe crab blood which is critical to testing medical supplies for sterility. I will also be helping to build a brand-new aquaculture/aquaponics system for SU. I hope future students and faculty will use this space for research as well as help to expand it over time. I am looking forward to my completing my Master's here and hope to work for a government resource management agency such as the DNR, EPA, or FWS.

Samuel Pinkus

My name is Samuel Pincus and I'm a Salisbury University undergraduate alumni and current Salisbury University graduate student with Dr. Christina Bradley. I initially started at Salisbury University back in August 2013, and after nearly 8 years I graduated with a BS in Biology from Salisbury University and a BS in Environmental Science from UMES, which I got through the dual degree program here at Salisbury University. During that time, I studied ctenophores and the effects of environmental stressors on them using pseudokreisel tanks. This became the gateway for my graduate research, which is examining how hydrologic flow can affect biology factors that determine survivability and recruitment for juvenile finfish within aquaculture and after restocking. I'm currently considering the Striped Bass, *Morone saxatilis*, as the focus for my research; however, I've looked at working with other finfish species and even the Eastern Oyster, *Crassostrea virginica*. Depending on the results, I would like to pursue this research even further in a PhD program or use my experience to take the first step into my career as a marine biologist.

Logan Thomas

Hi, my name is Logan Thomas. I am a new graduate student in the biology department here at Salisbury University conducting bioinformatics research with Dr. Anderson. I received my bachelor's degree in biology from SU in 2020. When I'm not in school I enjoy playing golf, watching football, and spending time with family and friends. After school I plan to work in the bioinformatics field.

Our Faculty

Happy Halloween!

Thanks to the efforts of Dr. Christina Bradley, the Henson School of Science & Technology now has a research vessel!

After acquiring the 24-foot Lookout Skiff early this summer, Dr. Bradley began the process of establishing best practices for use of the boat for research purposes. Authorized users, along with their collaborators and students, can reserve the boat to study ecosystems from the water rather than land.

Right: Dr. Chen stands on the bow of the boat to get a better view of a potential new wetland study location.

Throughout the summer, Drs. Xuan Chen and Jennifer Nyland joined Dr. Bradley on exploration voyages on the Wicomico, Pocomoke, and Nanticoke Rivers as these three faculty prepared a grant proposal. Other faculty and students involved with the Wicomico Creek Watchers program spent some time identifying additional sampling locations. This fall semester Dr. Bradley has been working with interested faculty to become authorized users and especially helping Dr. Nyland and her students gather preliminary data on impacts to the rivers from various land use activities (as potential sources of toxicant exposures).

Left: Drs. Nyland, Bradley, and Chen (back row L-R) with undergraduate student Kelly Williams.

New Faculty: Dr. Angela Freeman

I am a new faculty member in the department. Prior to my arrival at SU, I was a postdoctoral fellow in Alex Ophir's lab at Cornell University where I worked on olfaction and reproduction in the African giant pouched rat or 'pouchie' (pictured at right). Some of the highlights from this work was the discovery that female pouchies' reproductive state 1) Changed how 'good' they smelled to males and 2) Changed how well they could smell fertile males. There is more to this story that will have to be shared in a future seminar. There is a specimen in my office, so feel free to come check her out. I also have an ongoing vampire bat project that I brought with me, looking at the neuroendocrinology of blood sharing, in collaboration with Gerry Carter at Ohio State.

Before Cornell, I completed my dissertation at Kent State on my first love, SQUIRRELS. And I am returning to researching (and teaching about) this amazing clade at SU, and will (hopefully) be working soon with flying squirrels (see below) of Maryland, asking what in their brains makes them want to 'cuddle' with other squirrels in the wintertime.

Me and a Pouchie, circa 2019

I radio collared this flyer, circa 2006

I am excited to bring my love of physiology and the brain to SU, and hopefully will have some fun new course offerings along the way! I love all things mammals, but especially Rodentia.
In my spare time, I am an amateur circus performer. I do aerial silks, trapeze, juggling, hand standing, and more!

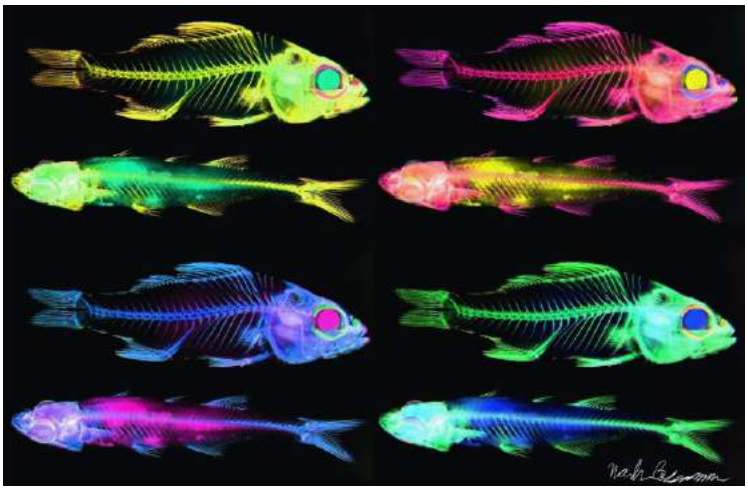
New Faculty: Dr. Noah Bressman

"I'm Noah Bressman and I LOVE fish." My introduction for my Discovery Channel debut was probably the most accurate statement I ever made. I LOVE fish, whether it is watching them, eating them, catching them, diving with them, wearing them on my clothes, making them into art, doesn't matter to me as long as it involves fish (and I am, indeed, Noah Bressman).

Me with a large Striped Bass (*Morone saxatilis*).
Photo by John McMurray, featured in Saltwater Sportsman.

I was born with this inexplicable passion for fish, which I have pursued tirelessly throughout my life, and will continue to do until I am swimming with the fishes. I talked so much about fish during elementary school that my teacher had to write me a note saying no more writing about fish; you need to write about other things in life to be successful. Well, here I am as a professor, still writing about fish and getting paid to do it.

In high school, growing up watching shark week and fishing shows, I always thought I would research something big and flashy about fish, like the feeding behavior of great white sharks or billfish. However, when I went to college at Cornell University and took at summer course after my first year at their marine lab, Shoals Marine Lab, I accidentally discovered a fish in the hallway.



Using a biochemical research technique known as "Clearing and Staining" combined with digital art techniques, I create fish art from actual fish. This piece is entitled "Nanjemoy Natives"

And then another one. Both were in the exact same spot 10 ft away from their tank, but found a day apart. What was going on?! My curiosity was piqued. After a bit of experimenting during that course, I found that those fish, mummichogs, are able to breathe air for hours at a time, move overland using coordinated jumps, and reorient themselves toward water, which they find by looking for the most reflective surface in the environment. Everything then clicked together: the spot where I found those two fish was where the sunlight first hit the shiny tile floor in the morning. Those two fish must have left the tank in the middle of the night and moved to that shiny spot in the morning, thinking it was a puddle. I literally shouted "AHA!" when I figured that out. I was able to discover something new about this planet and the creatures that inhabit it that nobody else knew before and I had an opportunity to share this with the world! I was an amazing feeling and I was hooked on researching amphibious fishes.

Since then, I went on to complete my PhD at Wake Forest University in Dr. Miriam Ashley-Ross' lab, where I researched the biomechanics, behavior, functional morphology, and sensory biology of amphibious fishes. My dissertation especially focused on learning why invasive amphibious fishes (including snakeheads, walking catfish, plecos) come onto land, how they move around and survive on land, where they go while on land. Taken together, this information could be used to better understand the spread of these invasive species between bodies of water and learn methods for mitigating their dispersal.

A Northern Snakehead crawling in the lab, for science!

Fish that reffle, wiggle, wriggle, and squiggles (actual terms in my field) always have a place in my heart and in my lab, but when it came time to do a postdoc, I decided to try something a bit different to see what else is out there. I joined Dr. Doug Fudge's lab at Chapman University to study the incredible properties of hagfish slimmer.

Hagfish are primitive, eyeless, jawless, boneless fish that secrete copious amounts of really tough slime to deter predators. My job was to assess the ability of hagfish slime to be used by the US Navy to safely and sustainably stop boat propellers at high speed, along with related side projects. Because of military secrets, I cannot tell you anything more about this research or else I would have to kill you, but I can say it was totally awesome! The kinds of experiments I was doing made me feel like a Mythbuster, further fueling my passion for science.

As an assistant professor of physiology at Salisbury University, I am starting a lab that will continue researching amphibious fishes, biomechanics, functional morphology, behavior, and sensory biology, but will branch out into other topics that I've always wanted to delve into. For example, with my MS student Zach Crum, we are researching the feeding ecology of invasive blue catfish on the eastern shore of MD, which is revitalizing my interests in researching big fish that eat a lot of crazy things and put up a good fight on a fishing rod.

I didn't always eat fish because I wanted to do my part to ensure that fish populations stay healthy in the wild and because "fish are friends, not food." However, in college I learned that friends could also be food, as long as they are sustainably caught. The best way for me to ensure the sustainability of fish that I eat is by catching them myself! I am an avid angler and will catch fish by any legal means, including conventional fishing, fly-fishing, ice fishing, and scuba fishing. I do enjoy catching big fish, but I also enjoy catching the small ones, too, because there is a greater diversity of small fish out there. In my endeavors to explore fish diversity, I am on a mission to catch every species of fish on the planet. Currently, my "life-list" stands at 446 species, with the most recent new addition being a Banded Rudderfish caught 30 miles offshore from Ocean City.

Publications

Bressman N. 2021. Seahorse divorce? Of course, of course. Journal of Experimental Biology 224, jeb237370. doi:10.1242/jeb.237321

James LS, Halfwerk W, Hunter KL, Page RA, Taylor RC, Wilson PS, & Ryan MJ. 2021. Covariation among multimodal components in the courtship display of the túngara frog. Journal of Experimental Biology, 224(12), jeb241661.

Mary Gunther's Southern Sojourn

In June 2021 I drove south to visit some zoos and museums. My itinerary was: Virginia Zoo- Norfolk, VA, Riverbanks Zoo and Botanical Garden – Columbia SC, North Carolina Zoo -Asheboro NC, North Carolina Museum of Natural Sciences – Raleigh NC, and Museum of Life and Science – Durham NC. All except the Virginia Zoo were new experiences for me. I saw many wonderful animals and talked to lots of great zoo folks. I even got to sit inside a puffin exhibit at North Carolina – it was like coming home! I am currently thinking of doing a similar trip next summer but to some new zoos! Let me know if you have a favorite somewhere. I took LOTS of pictures but here are some of my favorites! Enjoy!

Mary Gunther Returns to Maine

In July I took a trip to volunteer at the Audubon Hog Island Camp in Maine. I have volunteered here many times but this summer was the reopening after missing last year due to the pandemic. On the way to Maine, I visited friends at the Beardsley Zoo in Bridgeport CT, stopped at the Mystic Aquarium in Mystic CT, went to the Coastal Maine Botanic Gardens to see trolls and even popped into visit Steve Gehnrich at his retirement home! After spending a week helping out at Audubon, I headed home via Long island to visit my son and his family. Here are a few of my pictures.

Alumni Connection

SU BIOLOGY ALUMNI

Stay Connected !

We want to hear from you! Please let us know where you are living & what you are doing! We would love to hear from you. In the future we plan to have an Alumni Connection section in our newsletter.

Send information to: Sandra Ramses, Program Management Specialist
SHRAMSES@SALISBURY.EDU

Your Editor

Send any contributions to **Dr. Chris Briand**
chbriand@salisbury.edu