SPRING 2021

THE LIVING SEA

The e-newsletter of the LMRCSC

UNIVERSITY of MARYLAND EASTERN SHORE

NEWS & FEATURES

TO THE LMRCSC COMMUNITY

It is with great pride and pleasure that I bring you the Spring 2021 issue of the Living Marine Resources Cooperative Science Center's, *The Living Sea.* The issue you are about to read showcases the perserverance and the fortitude of our students as they have not only adjusted, but continued to excel during these uncertain times.

Dr. Paulinus Chigbu
LMRCSC Director

Although the world is one year into the global pandemic, our faculty are continuing to provide an excellent education and our students are still making great strides in their academic careers.

In this issue, you will see that we have graduated students from three of our partner institutions. Also, we have highlighted a student who started his career in the software field; however, although he is now focusing on becoming a marine scientist, he has been able to utilize his software skills to create technological tools that aid in the preservation of fishery habitats. But the excellence of our students does not end there. We also have a young Ph.D. candidate who has combined her interest in human dimensions with her love for fisheries to explore the world that is social science.

As you read through, I hope you are able to see that our commitment to conduct great science and produce excellent researchers is our top priority. In spite of the recent challenges to our country, and our globe, the LMRCSC continues to be committed to our research, and we will continue to support our students as they soar to the highest of heights. As always, thank you for your support and until next time, enjoy *The Living Sea!*

Sincerely,
Paulinus Chigbu, Ph.D.

RECENT NOAA EPP LMRCSC GRADUATES

From doctoral degrees in Marine Biology to bachelor degrees in Natural Sciences, the NOAA LMRCSC continues to graduate diverse individuals who add great value to the science and research realm

Halie O' Farrell graduated with her Ph.D. in Marine Biology and Fisheries at the University of Miami RSMAS under Dr. Elizabeth Babcock in December 2020. Ms. O'Farrell also received a B.S. in Marine Science and Biology from the University of Miami RSMAS in 2013. Halie's research aimed to determine if the spatial structure of shark populations matter to fisheries sustainability and to evaluate the ability of available data to address this question. Her work included exploring how different sexes and life stages are distributed, how this distribution affects which fishery each group encounters, and how management can address the resulting variation in mortality. Halie is now working at the Florida Wildlife Research Institute in St. Petersburg, Florida.

Dr. Detbra Rosales, graduated with her Ph.D. in the Marine-Estuarine-Environmental Sciences program at the University of Maryland Eastern Shore (UMES) in Fall 2020. Prior to receiving support as a NOAA EPP LMRCSC Graduate Fellow, she was a Graduate Research Assistant in the NSF Center of Research Excellence in Science and Technology - Center for the Integrated Study of Coastal Ecosystem Processes and Dynamics (CREST-CISCEP) at UMES. Under the guidance of Dr. Joseph Pitula, a UMES professor in the Department of Natural Sciences, Dr. Rosales worked on a project entitled "Assessing the Microbial, Phytoplankton Community and Associated Water Quality in the Delaware and Maryland Coastal Bays." She worked closely with Dr. Salina Parveen, a professor in the Department of Agriculture, Food and Resource Sciences at UMES, and Dr. John Jacobs, a Research Fishery Biologist at the National Oceanic and Atmospheric Administration Cooperative Oxford Laboratory.

Recently, she received the NSF CREST-Postdoctoral Research Fellowship (PRF) to work at UMES starting February 2021 to January 2023. She will work collaboratively with Dr. Salina Parveen and Dr. John Jacobs to investigate the effects of ctenophores, *Mnemiopsis leidyi* on *Vibrio* spp. and Harmful Algal Blooms (HABs), and develop models for predicting the abundance of HABs and *Vibrio* spp. in the MCBs. The work will inform the public and local government on the overall health of the Maryland Coastal Bays, regarding HABs, pathogenic *Vibrio* spp., which can be used to design management strategies. Detbra earned her B.S. degree in Environmental Studies from Binghamton University in 2010 and her M.A. degree in Biology in 2012.

Marcus Teat studied Natural Resources at Delaware State University and graduated with his B.S. degree in December 2020. He worked in Dr. Gulnihal Ozbay's lab studying and analyzing water quality in salt marshes located in the state of Delaware. Marcus' future plans are to pursue his graduate degree at Delaware State University.

STUDENT SPOTLIGHT

Our students are always working hard and making great strides in their academic and professional careers. Read on to see some of the amazing things our fellows are doing!

Social scientist explores the human dimension aspect of fisheries

The world of fisheries science is not just limited to the research of various ocean species; however, there is also a human dimensions component to the field as well. That is where NOAA EPP LMRCSC Ph.D. candidate, Brittany King, steps in. The Oregon State University student's NERTO research project explores the ecological and, often overlooked, social components of salmon habitat restoration in the Puget Sound. King's primary research goal is to highlight how the salmon restoration habitat affects communities in the Pacific Northwest.

It has long been understood that racial and socioeconomic backgrounds can have an impact on one's quality of life. Many studies have shown that individuals from communities of color, or those who suffer from financial instability, can have limited access to resources. Unfortunately, when it comes to fisheries restoration, there is no exception.

King's NERTO research was inspired by a 2018 Biological Conservation journal article, (written by Stanford et al.), that examined how biophysical and sociopolitical factors affected where stream restoration occurred in California. The article's findings suggest that stream restoration efforts tend to be highest in areas with high population density, pro-environmental voting, and highly educated, wealthy, non-Hispanic white populations.

"Upon discussing this paper with my mentor, Robby Fonner of the NOAA Northwest Fisheries Science Center, we decided that we wanted to explore if there were similar trends happening in the Pacific Northwest – specifically with salmon habitat restorations," stated King. "Understanding whether restoration effort tends to flow towards certain types of communities, could inform future effort allocations in the Pacific Northwest and raise awareness about potential equity and environmental justice issues."

King's research focuses on exploring how regional distribution of completed salmon habitat restoration projects correlate with biological, physical and human community characteristics. She also is looking into how the cost of completed salmon habitat restoration projects correlate with biological, physical and human community characteristics and if similar correlations between social factors and stream restoration efforts found in California exist in Pacific Northwest salmon recovery context.

"I decided to focus my work on the Puget Sound region in Washington State," stated King. "I'm looking at over 1500 restoration projects that took place between the years 2000 and 2015. Some of the social variables that I am focusing on include, population density, education levels of the population, poverty levels and race.

King's interest in the human dimension aspect of fisheries started long before her current research project.

The social scientist has held various positions where she worked on environmental issues impacting communities of color, in addition to focusing on other racial injustices.

As she continues to conduct her research, King is hoping that her work and career will bring awareness to the intersection of social injustice and the environment.

"I want to allow an opportunity for people to speak on their experiences," stated King. "I want to shed light on people's experiences with the hopes that environmental organizations like NOAA will listen."

From the looks of her career thus far, it appears that the budding scientist is well on her way to achieving her goal.

From software to science

University of Miami RSMAS and NOAA EPP LMRCSC Master's fellow, Juan Cervera had an interesting path which led him to a career in fisheries. Graduating with a bachelor's degree in Computer Science from the University of Central Florida, Juan started a career in the software development industry, but after a few years working as a video game developer, he decided to make a career change.

"I began working with the Florida Conservation Corps and my focus began to shift," stated Juan. "Working in the Florida state parks plant mapping and removal piqued my interest which lead to me pursing my master's in fisheries."

Since joining the NOAA LMRCSC, the master's fellow has accomplished a lot, with one of his more recent accomplishments being the completion of his NOAA internship.

The NOAA Experiential Research & Training Opportunities or NERTO, for short, is an internship program, backed by NOAA, which provides students with hands on work experience in their field. In June 2020, Juan was able to work for the NOAA Southeast Fisheries Science Center in Galveston, Texas. It was there where he was assigned the task of improving the agency's Essential Fishery Habitat Mapper technology.

"NOAA's mapper technology is used to see if a potential construction project would overlap or interfere with an essential fishery habitat," stated Juan. "Although the agency has this tool that is accessible by the public, it was inaccurate along the coastline. Many members of the public would call the Habitat Conservation Division to get an accurate assessment of where fishery habitats were. Although this method provided accurate information, it caused a high call volume for the organization."

Being made aware of this issue, Juan's software development background came in handy, for he spent this past summer working remotely for the NOAA fisheries office in Galveston, Texas to help mitigate the problem. Collaborating with NOAA scientists, Dr. Jennifer Leo and Danielle Alvarez, Juan worked on developing an application to better serve NOAA and the public.

"I was assigned with the task of creating software that would accurately depict where fishery habitats were," said Juan. "I created a new web application that was more user friendly, which will allow for the public to have access to accurately locating fishery habitats."

All that Juan was able to accomplish is very impressive; however, it is even more impressive that he was able to do such things working remotely. In spite of the physical distance, the NOAA LMRCSC graduate fellow was able to maintain a camaraderie with his colleagues, and build a great rapport with his NOAA mentor, Dr. Jennifer Leo.

When asked to sum up his experience, Juan has no complaints.

"Overall I had a great experience," exclaimed the fisheries major. "Being malleable and able to adapt to change allowed for me to be successful in my opportunity."

SPECIAL HIGHLIGHTS

LMRCSC students are not the only ones making great strides in their careers. Our alumni and faculty members are also embarking upon great things!

Dr. Tiara Moore is the founder and creator of "Black in Marine Science Week," an online initiative that highlighted people of African descent who work in marine science. Founded in November 2020, the week-long event featured a host of talks that were focused on unique experiences of black researchers navigating the field of marine science. Some events included a talk, hosted by LMRCSC alum, Dr. Jeanette Davis, who educated viewers on marine science and all it entails. Other events included a youth empowerment panel, a talk that featured the experiences of black scuba divers, and a science identity workshop, which featured LMRCSC Project Director at Hampton University, Dr. Deidre Gibson.

The environmental ecologist's event received over one million engagements on social media and has been converted into a weekly web series, titled BIMS Bytes – a host of online videos where scientists speak on various topics and provide their professional opinions.

A former NOAA EPP LMRCSC fellow, Dr. Moore received a master's degree in Biology with a concentration in Environmental Science from Hampton University. She subsequently completed a Ph.D. degree in Biology from the University of California Los Angeles, and is currently a Post-doctoral Research Associate at the University of Washington and The Nature Conservancy.

To watch Dr. Moore's "BIM Bytes" and more "Black in Marine Science" videos, visit her YouTube page, "Black In Marine Science."

The Cooperative Institute for North Atlantic Region (CINAR), led by the Woods Hole Oceanographic Institution and the Northeast Fisheries Science Center announced University of Maryland Eastern Shore Research Assistant Professor, Daniel Cullen as a recipient of the CINAR Fellowship in Quantitative Fisheries and Ecosystem Science. The fellowship focuses on supporting early career scientist in conducting research, which aids in educating and training future stock assessment and ecosystem dynamics scientists, and economists.

The fellowship will provide Dr. Cullen with support in assessment and management issues as it relates to his teaching and training duties. He will specifically work on a project entitled "Using underwater image data to examine the influence of Jonah crab (*Cancer borealis*) behaviors and habitat associations on the species' catchability in multi-species bottom trawl surveys", in collaboration with Dr. Burton Shank, a Research Fishery Biologist at NOAA NEFSC.

Dan received his master's and doctoral degrees in Marine, Estuarine and Environmental Science from UMES as a NOAA EPP Fellow, and subsequently was hired as the LMRCSC Post-doctoral Research Associate. For his master's work, supervised by Dr. Andrea K. Johnson (UMES) and Dr. Anne Richards (NOAA NEFSC, Woods Hole, MA), Dan worked on the biology of large monkfish. Thereafter, he completed a dissertation project examining methods for sampling black sea bass in inshore habitats under the supervision of Dr. Bradley Stevens (UMES) and Dr. Vince Guida (NOAA NEFSC, J.J. Howard Lab, Sandy Hook, NJ).