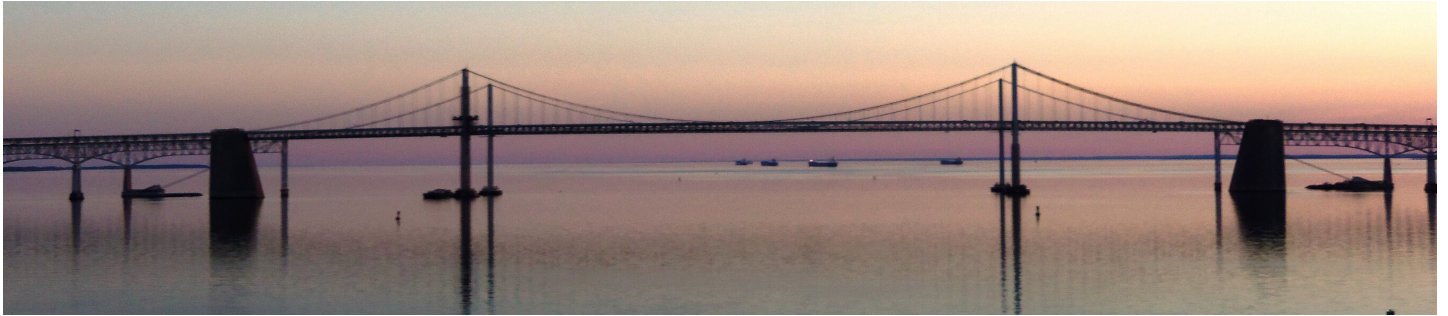




MASTHEAD

Quarterly Newsletter of the Mid-Atlantic Marine Education Association



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From the Captain's Quarters

If there has been one constant over the past few months, it has been change. The spread of the COVID-19 pandemic has impacted us all on so many levels, changing nearly every aspect of our day-to-day lives, including how we go about our work. We've found ourselves suddenly shifting our offices and "classrooms" into our homes, blurring the line between life and work. And we're facing the stress, uncertainty, and confusion of constantly changing guidelines and calendars. Many of us are now entering the summer trying to figure out how to best provide engaging field programs virtually and not knowing what next school year might bring - only that we likely will not be returning to "normal" for a while and will need to continue to adapt to these changing times.

And now we have also entered a time of nationwide protests calling for racial equity, justice, and reform. I've spent a lot of time watching, listening, reading, and trying to determine what I can do - both on a personal level to enact change as well as within my program at Maryland Sea Grant to help further our diversity, equity, and inclusion efforts. Those thoughts have also included what we, as a regional organization dedicated to improving education on all aspects of marine and aquatic environments, can do to create a more just and equitable future.

It's been a complicated time that has led to a lot of reflection and conversations. I know you all have been doing the same. I'd love to hear your thoughts as well - please reach out to me at tossey@mdsg.umd.edu.

We will be making a few changes to our normal schedule this fall. Our annual MAMEA conference that was planned for Solomons Island, Maryland, in November has been pushed back to 2021 and we'll be planning some virtual speakers and programming instead. Please stay tuned for full details as we iron them out.

A huge thanks to each of you for all you do, especially in light of the challenges of these current times. Stay safe everyone!

Lisa Tossey
MAMEA President

NMEA 2020 Conference Postponed to July 2021

Sarah Nuss

NMEA Representative

As a result of the COVID-19 pandemic, the NMEA 2020 Annual Conference, hosted by Oceania, has been postponed until July 12–16, 2021. The 2021 conference will still be held in Honolulu, Hawai'i at the Ala Moana Hotel.

- Workshops will be held July 12, 2021.
- Conference plenaries and sessions will be held July 13–15, 2021.
- Field trips will be held July 16, 2021.

Some basic information is on the conference website. Please be patient as Oceania updates the website to reflect the decision to postpone the conference until 2021.

We are putting together a FAQ page with answers to some of the questions you might have about proposals, meetings, hotel and air reservations, scholarships, and awards. We will continue to update the website and the FAQ page as more details become available. If you submitted a presentation proposal, you will be required to resubmit next year, but are welcome to resubmit the same proposal.

There was an overwhelming interest in presenting in Hawaii, so if you submitted more than one presentation, it is unlikely all presentations would be selected.

We hope to see you in Hawaii next year!

2020 MAMEA Annual Conference Postponed

After much consideration, the MAMEA Board has made the difficult decision to postpone our annual MAMEA conference that was planned this year for Solomons Island, Maryland, to November 2021.

While we are disappointed that we will not be able to connect in person this year, we felt it was the responsible decision out of caution for the safety of our members.

In place of an in person conference, we will be planning a virtual event with guest speakers and programming. Please stay tuned for the details!

Have an idea for an educational project? Need funding?? A MAMEA Educational Project Grant might be what you need!

Carol Hopper-Brill

Grants Committee Chair

Are you already thinking about fall semester? Have new ideas for engaging your students or enriching your colleagues? MAMEA can help you can get your next educational project off the drawing board and into reality—engaging students or fellow educators. Plan now for the upcoming cycle of MAMEA Educational Project grants – proposals are due September 15th!

Two grants for up to \$1,000 are available annually: One for formal educators (classrooms, K-16); and one for informal educators (museum, aquarium, zoo, science center, government agency staff). Projects should actively engage learners and focus on marine or aquatic topics.

To be eligible, applicants must be current MAMEA members with at least one year's membership. To be competitive, projects should meet the program structure described on the MAMEA Grants page at www.mamea.org/minigrant.html. You can read about projects that have received MAMEA support in the past, see www.mamea.org/pastgrants.html.

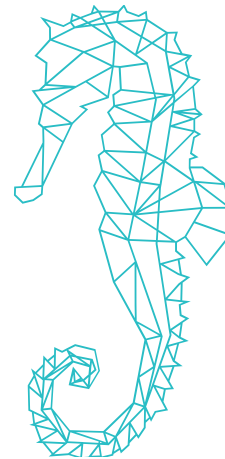
Visit the Grants page on the MAMEA website for the grant application form, as well as important details about the application process and grantee responsibilities. Or, contact the Grants Committee Co-Chairs, Dawn Sherwood at dawnsherwood@att.net and Carol Hopper Brill at chopper@vims.edu. Proposals are accepted throughout the year, but the deadline for the 2020/21 cycle is September 15, 2020. Grant awards will be announced at the MAMEA Fall Conference in November. The funding period is 12 months, from November 1 to October 31.

MAMEA Special Vote - Maintain Current Board

In light of recent events and the uncertainty that many are facing in their work and home responsibilities, the MAMEA board would like to keep ALL current elected officers in their current positions for an additional year. As we have gone through the nominations process this year, it has been difficult to find new potential board members who can commit to service on the MAMEA board at this time.

The current MAMEA officers are:

- President: Lisa Tossey
- Past President : Carrie Carlin
- President-Elect: Evan Beatty
- Secretary : David Christopher
- Treasurer: Jackie Takacs
- Delaware Representative: Tami Lunsford
- Maryland-DC Representative: Lauren Fauth
- North Carolina Representative: Brittany Pace
- Virginia Representative: Cathy Roberts
- At-Large Representative: Dawn Sherwood
- At-Large Representative: Emily Peters



The positions of President-Elect, Treasurer, Delaware Representative, Virginia Representative and At-Large representative that were up for election this year would now be up for election in 2021. The positions of President-Elect, Secretary, Maryland-DC Representative, North Carolina Representative and At-Large representative would then be up for election in 2022.

Since this deviates from the organization’s standing rules and bylaws, we cannot take this action without the approval of the MAMEA membership. Please complete the voting survey sent to you via email by June 18, 2020.

Delaware Chapter

David Christopher
Secretary



Welcome Tami Lunsford, the new Delaware Representative for MAMEA. Tami is a teacher at Newark Charter High School in Newark, Delaware. She has previously served as the Delaware Representative and is former President of MAMEA and a former President of the National Marine Educators Association. We are happy to have Tami back on the MAMEA board.

The first-ever Virtual Mid-Atlantic Climate Change Education Conference will be held June 29 and 30, 2020. This conference will bring together formal and non-formal educators from across the Mid-Atlantic and beyond to share and learn about the latest trends in climate change education. **The conference is currently FULL but there is a waitlist. For more information visit: www.maccecc.org.**

Virtual PBL on Human Impacts on Aquatic Food Webs

Tami Lunsford

Delaware State Representative

How do you keep students engaged and learning when they are quarantined at home in the middle of a pandemic? We all struggled with how best to use our platforms and programs to answer that question this spring. In my situation at Newark Charter School in Delaware, I was in school on March 13, got a phone call at 5 pm that night that we were not returning Monday for a two week "break", and then two weeks later, we launched into online learning that lasted the rest of the school year. In addition to 9th grade Honors Biology and 10th-12th grade AP Biology, I had two levels of marine science students. One group was a University of Delaware (UD) dual-enrollment course that was maintaining traditional grading and a high school elective course with strict limits on assignment length and pass/fail grading that would count as 10% of their full year grade. So how was I to best meet the needs of all my kids?!?!? I, of course, turned to Sea Grant! David Christopher at Delaware Sea Grant saved the day.

My marine science course is entirely Project Based Learning. I designed it around 5 major issues facing the world's ocean today: ocean exploration, ocean energy, pollution, climate change, and changes to food webs. All year long, students work in groups to research solutions to driving questions and present their work to their classmates and scientists. As best I could, I wanted to continue that work virtually. I also knew that if I could keep the work relevant, authentic, and local, I would get more buy-in from students frustrated with busy work and lonely. In the meantime, Delaware Sea Grant was looking for ways to continue their work of pairing scientists with educators and students to share their research. It was a perfect match.

David was able to coordinate with Dr. Ed Hale and Kate Fleming to help me complete the last PBL on human alterations to aquatic food webs.... a topic we had JUST begun before schools were physically closed. The first virtual class on the topic was a recorded Zoom meeting with only the UD students in which Ed, Kate, and David presented short slide shows on fishing techniques, aquaculture, ghost crab pots, and invasive species in our area. Students watched, took notes, and asked questions. They then selected topics that most interested them to answer the driving question: "What can we do to mitigate human-driven impacts to ocean food webs?" I paired up students based on topic selection and they then went to work researching on the human-caused changes to local food webs and how we could best impact them. They created a list of questions based on their research, and then we met again on Zoom with the scientists who answered their questions and provided additional resources. Finally, students presented their research to me, each other, and David and Chris Petrone from Delaware Sea Grant on Zoom.

The elective students were also able to gain valuable knowledge and exposure from the presentations while reducing their workload or requiring them to try to work in groups from home. They watched the recorded Zoom presentations by the UD researchers and their classmates and answered questions on them. They selected small parts of the topics to do further research and presented 2-minute talks on Zoom on their research as well.

Most importantly to me, the students really valued the interaction and learned from the experience! In a survey of our graduating seniors of their online learning experience, one student anonymously said "Ms. Lunsford did a great job with online learning. I felt like she didn't let the change influence our units we would have continued to learn if we were still in school. It was a great surprise to me when we still were able to see UD professors give a presentation about aquaculture on zoom. I felt like I was able to get the most out of my Marine Science course." Another student, when asked about their favorite activity in the course all year commented that "Honestly I liked the crab pot one and the last PBL the most. I really liked how Delaware specific it was." They were particularly impressed by a newspaper article that came out the week after their presentations about a topic Dr. Hale had shared with them about Covid-19's impact on our local shellfish aquaculture and crabbing industries. It is clear that students were launched from the course with an appreciation of how complex the world and the ocean is and how much impact they can make with their choices, which is all I could ever ask as a teacher!

Maryland Chapter

Lauren Fauth

Maryland State Representative

National Aquarium

The National Aquarium has created a variety of at-home resources for families. See the website for details: <https://www.aqua.org/activities>. New activities are added all the time!

Chesapeake Bay Foundation Educator Programs

CBF has several courses available over the summer. All of their programs scheduled through July 31st have moved to an online format.

These courses are open to all educators throughout the Chesapeake Bay Watershed – Educators from Maryland, Virginia, Pennsylvania, Washington, D.C., West Virginia, and Delaware are welcomed to participate and register for the courses.

Please see the website for course details and registration information:

<https://www.cbf.org/join-us/education-program/professional-learning/summer-courses/open-courses.html>

MAEOE (Maryland Association for Environmental and Outdoor Education)

Has a variety of home-based resources for families, educators, and care-givers. Check out all of the great resources at <https://maeoe.org/resource-library/home-based-environmental-education-resources>.

Maryland DNR

Maryland DNR is piloting an online Growing Up WILD training. Visit the website to see details about the course: <https://dnr.maryland.gov/Pages/Educational-Events.aspx>.

At Home AquaPartners Adventures

Rachel Albright and Andrew Walker

The National Aquarium

The goal of AquaPartners is to engage 2nd-5th grade students, adding a new grade level annually until we reach K-5th grade. As part of our education continuum students will use the Chesapeake Bay as a context for multidisciplinary learning. Students are visited by the National Aquarium staff a total of three times during the school year. Depending on the grade level timing of trips in fall, winter, and spring are a combination of auditorium or lab experiences and a field experience. The three interactions build on each other and end with a culmination field experience. With the evolving Covid-19 situation, many of our students were unable to experience their field trip to Ft. McHenry (4th grade) & Sandy Point State Park (5th grade). In lieu of their irreplaceable trips, we have managed to compile guides for the teachers to make them more comfortable leading virtual experiences. The guide topics include nature journaling, birds in your backyard, tree identification, scat and tracks, and all about insects. Each guide features a few at home activities, relevant Maryland



backyard information, as well as resources to continue pursuing the topic. The final resource will be a PowerPoint combined with a background resource of wildlife they may have seen at their field experiences. Our hope is to empower formal educators and give them some background knowledge in order to execute at home activities. We know this will not replace the wonder and awe of the students during their trips, but we want them to know we are still part of their AquaPartner journey and continue to be their environmental partner. We hope our AquaPartners schools enjoy it as much as our CEO John Racanelli did on his evening walk!

Virginia Chapter

Cathy Roberts

Virginia State Representative

VAST 2020 ANNUAL PROFESSIONAL DEVELOPMENT INSTITUTE

November 12-14, 2020, DoubleTree by Hilton Hotel, Williamsburg, VA

The "Why" behind many a science educator's passion is to teach and provide learning opportunities for students to critically open their minds to the exciting world around them.

Through inquiry, investigation, modeling and collaboration many of our students experience the phenomenon-based wonder of our natural world and STEM innovations that spark their trajectory as a post graduate.

Please consider what you can contribute as a presenter and joining us as a learner at the 2020 VAST PDI. Join us as we focus on science content, skills, and courses in a student's science educational continuum and how they lead to STEM career pathways. Sessions will emphasize both the teaching and learning skills of engagement and innovative science instruction supporting the 2018 Science Standards and embracing the Virginia Profile of a Graduate.

For more information check website: <https://vast.wildapricot.org>

Mariner's Museum FREE Online Student Programs

<https://www.marinersmuseum.org/>

WHAT'S THE STORY: If artifacts could talk! *Journey with a Mariners' Museum Educator on an exploration of artifacts and dive into the Museum's vast collection! During the interactive session, students will have the opportunity to connect with an educator in real time as they learn new stories, ask questions, and participate in fun but short activities.*



Museum Fun at Home

Scavenger Hunts & Coloring Pages: Make learning and play a part of your every day!

Turn a much-needed break into a fun, family activity. Take a walk around your neighborhood or look in your backyard for outdoor adventure. Send the kids on a pirate quest to discover "buried" treasures or challenge the kids to a game of Tree ID. Give quiet time a little twist with coloring pages created by The Mariners' Museum to add to your kid's art portfolio.

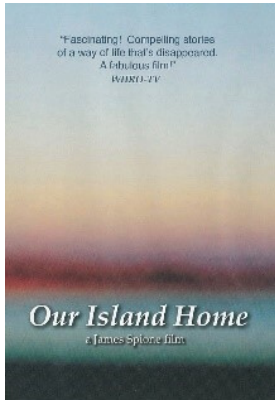


The U.S. Botanic Garden and City Blossoms

A growing number of schools are planting gardens, engaging in Farm to School activities, and integrating plant science into the curriculum. To support and expand these hands-on learning activities, schools are exploring ways to build new infrastructure or reinvest in existing facilities such as school greenhouses. Unfortunately, many school greenhouses are underutilized or only a single knowledgeable and dedicated teacher is enabling their use. The United States Botanic Garden (USBG), the National Center for Appropriate Technology (NCAT), and City Blossoms recognized the emerging need for user-friendly guidance on operating school greenhouses and maximizing their educational potential. To that end, we have developed this Greenhouse Manual: An Introductory Guide for Educators. The manual clearly and concisely lays out a basic understanding of greenhouses, how to integrate them into lessons, and how to effectively use them in classroom curricula and after-school activities. Now we are looking to develop virtual and in-person trainings based on the content developed in this manual.

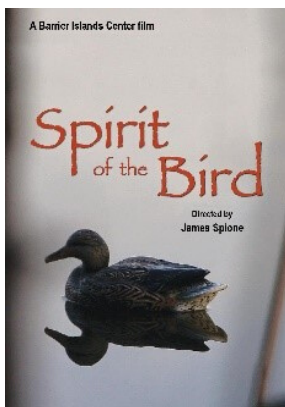
The Barrier Island Center

The Barrier Islands Center is very pleased to announce that all five of our documentaries are now available online (YouTube) to stream to your TV, tablet, computer or phone! Use the links below. ENJOY! Please SHARE this with your friends and family!



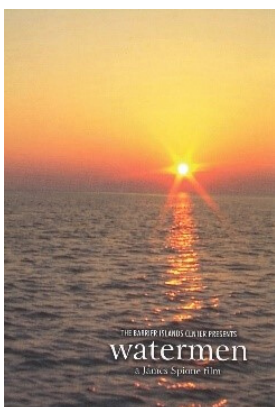
The first of the BIC's documentary films produced in partnership with filmmaker James Spione, *Our Island Home* was released in 2010. In this poignant documentary, three former inhabitants of the long-lost settlement of Broadwater recall their unique way of life on Hog Island, a remote barrier island off Virginia's Eastern Shore. Featuring rare archival photographs of the evocative landscapes and sturdy families who once inhabited this austere and beautiful are, *Our Island Home* provides a moving, eye-opening account of a little known chapter in American coastal history. The film also includes bonus footage about the history and ecology of Virginia's Barrier Islands.

<https://youtu.be/QkwYtx05cCo>



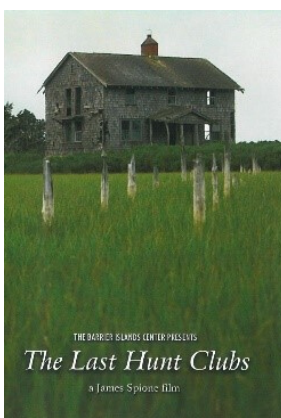
In this second of three documentaries produced in partnership with Academy Award-nominated filmmaker James Spione, the focus turns to waterfowl hunting traditions and the craft of decoy carving. On the remote barrier islands of Virginia's Eastern Shore, generations of decoy carvers have honed their craft and passed it down to their children. From mere subsistence tool to market hunting yield booster, and finally to rarefied art object, *Spirit of the Bird* explores how this uniquely American folk tradition has evolved over the centuries. A remarkably thoughtful cast of rough-hewn coastal characters offers a poignant meditation on the myriad ways hunting, art and memory intersect in the lives of those keeping the tradition alive.

<https://youtu.be/gkhk0iBEJ10>

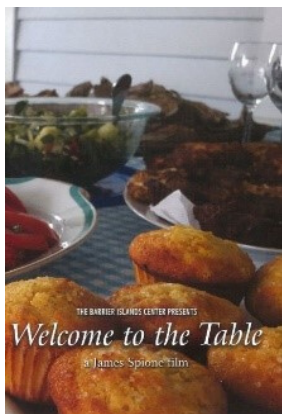


This third chapter of the Eastern Shore series of documentary films produced in partnership with Academy-Award nominated filmmaker James Spione explores the lives of the last independent fishermen to work the waters of the Atlantic and Chesapeake Bay. Told exclusively in the voices of the hardy individuals that have made a life's work of fishing, crabbing and oystering off Virginia's wild coast, Spione's intimate first-person stories bring us inside the deeply personal challenges and triumphs that define life on the water. Despite hardships and an uncertain future, the film richly captures the fierce pride and enduring optimism of the Eastern Shore's watermen.

<https://youtu.be/SEqLlBJeHY>



This fourth BIC documentary film by Academy Award-nominated director James Spione takes us on an extraordinary journey through the evocative ruins and little-known history of the great hunting clubs of Virginia's barrier islands. Between the Civil War and the Great Depression, hundreds of sportsmen's lodges, built by wealthy industrialists and staffed by Southern locals, dotted the American coastline. In this intimate recounting, regional historians, as well as shore residents with deep family connections to the clubs, bring their heyday to vivid life. But the shifting sands of these dynamic islands are no place to build a permanent structure, and Spione's film details how powerful storms and economic stress brought the era of the clubs to a close. <https://youtu.be/vhd1UsQKkN4>



The Barrier Islands Center presents *Welcome to the Table*. Academy Award-nominated director James Spione continues his acclaimed series of Eastern Shore documentaries with a touching exploration of the distinctive foodways that define this unique coastal region. Shaped by European, Native American and African culinary traditions, the mouth-watering dishes featured in *Welcome to the Table* reflect the rich and complex heritage behind this deceptively simple cuisine. But food is much more than sustenance to the residents of the Shore. Through candid interviews, historic photos and gorgeous cinematography, the film reveals how the food we eat provides a powerful connection to our families, our communities, our ethnic and cultural histories. <https://youtu.be/SKfVAP9Pz5o>

Science Museum of Virginia Lunchbreak Science

Wednesdays noon - 1:00 PM

<https://smv.org/upcoming-events>

- April N. Harper presents *The Salty Frog: Exploring Salt Tolerance, Sea Level Rise, and Citizen Science* in our digital Lunch Break Science series on June 3!
- Ken Wilson presents *Tidal Tidings: Astronomical Causes of Earth's Tides and Beyond* in our digital Lunch Break Science series on June 10!

VIMS Educators Take Outreach Programming Online

Tara Rudo, Education Specialist at CBNERR and Celia Cackowski at VIMS MAP

Due to the COVID-19 pandemic, universities in Virginia began closing on March 13th followed by K-12 schools soon after. With in-person programs cancelled for the remainder of the spring semester, the Chesapeake Bay National Estuarine Research Reserve in Virginia (CBNERRVA) and the Virginia Institute of Marine Science's Marine Advisory Program (VMAP), developed virtual learning programming and resources for students, teachers, and the general public. CBNERRVA developed two new online programs that were posted on their Facebook page and the Virginia Institute of Marine Science's (VIMS) Multimedia Resources page located on the VIMS website. "Story Time" is geared towards younger audiences and includes a reading of a marine related children's book followed by a demonstration, activity, or craft for participants to do at home. "What's Going On At CBNERR" shares resources and informational videos on current projects conducted by our research and stewardship departments. Educators with VMAP shared digital resources from their popular Bridge website as well as highlighting numerous webinars and virtual field trips that came across Scuttlebutt on their social media channels. A joint project of both CBNERRVA and VMAP educators was the annual Virginia Scientist and Educators Alliance (VA SEA) Lesson Plan Expo. This event showcases standards-aligned lesson plans that VIMS graduate students have developed based on their research. This year, the VA SEA Expo went virtual with 11 students presenting on topics from zooplankton to harmful algae blooms. Over 50 teachers were in attendance and both a recording of the presentations and all of the lesson materials were made available for download after the event. CBNERRVA will continue to develop summer content for the public from mid-June through August. Every week will be a marine science theme and will have video demonstrations and resources shared via the CBNERRVA Facebook page. Overall, both CBNERRVA and VMAP have seen greater views on posts and events over the past few months. While informal environmental education values hands-on learning, CBNERRVA and VMAP have been successful in continuing to connect with our audiences through virtual programming.

VIMS Multimedia Resources page: <https://www.vims.edu/public/online/index.php>

The Bridge Ocean Education page: <https://masweb.vims.edu/bridge/index.cfm>

The Chesapeake Bay National Estuarine Research Reserve-VA page: <https://www.vims.edu/cbnerr/>

Real World Science: Engaging youth in a large-scale mock stranding event

Rachel Clark, Virginia Aquarium

If we want to plan for a more sustainable world, we must foster stewardship in the next generation. The youth today are the caretakers of our future earth and will be making decisions on how we manage our resources for the next 50 years. Helping them to understand how they are connected to their environment and giving them the tools to be successful in living sustainably is paramount. Students can often feel disconnected from the world and nature in a classroom setting memorizing information¹. Cultivating a connection to nature is important to developing pro-environmental behaviors and attitudes as adults². It's not only important for youth to know how our actions affect ecosystems, but also how we can reduce that impact and communicate the science effectively to others.



Example of authentic learning at the Virginia Aquarium & Marine Science Center. Youth testing water samples from Owls Creek in the Water Quality Lab. Source: Virginia Aquarium

Researchers agree that involving students in authentic learning is a way for students to be connected to their own bio regions¹. Therefore, the Virginia Aquarium & Marine Science Center has developed a Youth Conservation Series (YCS) intended to engage youth in local conservation efforts to build their understanding of the natural world while developing skills such as teamwork, scientific inquiry, and communication. As part of the 2020-2021 YCS offerings, youth will be invited to participate in a mock event at a local beach that models how scientists respond to cold-stunned sea turtles. Scientists begin to see more stranded sea turtles when the weather cools in Virginia, between October and December, when sea turtle body temperatures drop too low causing turtles to go into shock. Participants will work alongside scientists to respond, rescue, research, and rehabilitate these mock cold-stunned sea turtles using real scientific data, making this an authentic learning opportunity. Middle and high school students can sign up for this event that is scheduled as a two-day series on September 18-19, 2020. Stranding scientists and education staff will provide an overview of sea turtle anatomy, life history, and conservation status during a Friday evening event open for the participants and their parents. They will have the opportunity to gain valuable knowledge about these keystone species and the challenges they face. Participants will also have a chance to practice the skills they will need at stations with stranding scientists and volunteers during the evening's event.

The second day of the event will take place on a local beach and will highlight four components of a stranding response team's roles when working with stranded sea turtles: rescue, rehabilitation, research, and education. Participants will be divided into four teams, and rotate through 45-minute stations, each replicating a component of a stranding response. The rescue component will include responding to a mock call for stranded sea turtles, locating the animals, collecting data, and identifying next steps. Animals that are alive will be taken to a mobile triage center to determine their health. Participants will learn how to analyze heart rates, take blood samples, and evaluate other measurements. For those sea turtles identified as dead, participants will participate in the research component of a stranding scientist's job and perform a necropsy on the sea turtle. Finally, participants will have opportunities to educate the public by engaging with beach goers and being interviewed by the media.



Sea Turtle Rehabilitation. Stranding technician providing treatment and care to a juvenile sea turtle during rehabilitation at the Virginia Aquarium's Marine Animal Care Center. Source: Virginia Aquarium

One goal of this event is to highlight all that is required when responding to large scale stranding events including the coordination of multiple agencies, the various resources, from personnel to supplies, as well as the importance of collecting data on an endangered species. But more importantly, it will provide youth with a real-world experience in field research that leads to conservation action for sea turtles, a valuable keystone species that needs protection. For more information on this event and the Youth Conservation Series at the Virginia Aquarium, please contact us at programs@virginiaaquarium.com or (757)-385-0278.

Literature Cited

1 Shume, T. (2016). Teachers' Perspectives on Contributions of a Prairie Restoration Project to Elementary Students' Environmental Literacy. *International Journal of Environmental and Science Education*, 11(12), 5331-5348.

2 Janis, S., Birney, L., & Newton, R. (2016). Billion Oyster Project: Linking Public School Teaching and Learning to Ecological Restoration of New York Harbor Using Innovative Applications of Environmental and Digital Technologies. *International journal of digital content technology and its applications*, 10(1).

Acknowledgements

I would like to thank my colleagues with the Virginia Aquarium's Stranding Response Network for designing and implementing the mock stranding event in September. This work was conducted as a part of graduate work through Project Dragonfly at Miami University in Oxford, Ohio in conjunction with the Virginia Aquarium & Marine Science Center.



PROFESSIONAL DEVELOPMENT

at Virginia Aquarium & Marine Science Center

Summer 2020

COLORS IN NATURE (pre-K – 5th grade)

Wednesday, June 17th 9:00AM – 3:00PM | Virginia Aquarium, Classroom

Bring a packed lunch. Wear comfortable closed-toed shoes.

We live in a vibrant world filled with an endless array of color. In this teacher training we will explore properties of light and the biological, structural, and chemical sources of color found in nature. Educators will engage in hands-on activities and demonstrations related to how animals use color to communicate within and between species, as well as how different animals perceive color.

SEA TURTLE SCIENCE (3rd – 5th grade)

Wednesday, July 15th 9:00AM – 3:00PM | Virginia Aquarium, Promenade

Bring a packed lunch. Wear comfortable closed-toed shoes.

This teacher training focuses on the many types of turtles found in Virginia including freshwater turtles, land turtles, and sea turtles. We will provide instructions for hands-on activities to use in the Classroom, hear from our Stranding Response team about sea turtle strandings, and finish with a behind-the-scenes tour of the sea turtle exhibit and Marine Animal Care Center.

MARINE MAMMAL SCIENCE (3rd – 7th grade)

Wednesday, July 22nd 9:00AM – 3:00PM | Virginia Aquarium, Promenade

Bring a packed lunch. Wear comfortable closed-toed shoes.

This teacher training focuses on marine mammals found along the coast of Virginia. We will begin with an introduction to marine mammals and classroom activities that highlight their anatomy, feeding structures and adaptations. We will enhance teacher’s knowledge of marine mammals by searching for dolphins on our research vessel, going behind the scenes with our harbor seals, and touring the Marine Animal Care Center.





PROFESSIONAL DEVELOPMENT at Virginia Aquarium & Marine Science Center Summer 2020

CLIMATE SCIENCE (6th– 12th grade)

Thursday, August 6th 9:00 – 3:00PM | Brock Environmental Center

Lunch provided.

This teacher training focuses on the difference between weather and climate, how our climate system works, how our climate is changing and its impacts, and student focused solutions. Teachers will enhance their knowledge of the climate system and impacts through various hands-on activities, group discussions, and demonstrations.

WETLANDS & WATERSHEDS (4th – 6th Grade)

Monday, August 24th 9:00AM – 3:00PM | Virginia Aquarium, Classroom

Bring a packed lunch. Wear comfortable closed-toed shoes.

This teacher training focuses on how watersheds work and what role wetlands play in keeping water clean. We will explore a saltmarsh looking at zonation patterns, identify plants and animals, and take measurements. Get a closer look at animals in the surrounding habitat by trawling off our research vessel. Test your water samples in our certified water quality lab and learn how to get your students involved in citizen science. We will finish the day with lab activities to use in the classroom that helps demonstrate concepts about watersheds and wetland characteristics.

CONSERVATION IN THE CLASSROOM (pre-K – 2nd grade)

Friday, September 4th 9:00AM – 3:00PM | Virginia Aquarium, Classroom

Bring a packed lunch. Wear comfortable closed-toed shoes.

Meet with researchers and scientists that are involved with conservation around the world and learn how the Virginia Aquarium is involved. We will provide lesson plans and ideas to incorporate conservation into your classroom with experiments, collecting and interpreting data, and conservation action. Your students will become better stewards of their resources and help protect habitats and animals.

REGISTRATION

There is no fee to participate in these workshops, but spaces are limited. Please register by emailing the School & Youth Program Specialist, Rachel Clark at rriesbec@virginiaaquarium.com with the following information: your name, school, grade level/subject you teach, and your summer contact phone number.

Professional development opportunities are generously underwritten by Bob & Leslie Fort.

Virginia Aquarium and Marine Science Center 2020 Summer Virtual Offerings

Program Cost

To schedule a virtual program, please contact our Outreach Coordinator at ashlnbee@virginiaaquarium.com.

Program Type	Length	Cost
Toddlers	30 minutes	\$80 per program
Preschool & Kindergarten	30 minutes	\$80 per program
School-Aged	50 minutes	\$100 per program

**Recommend 1 – 2 classes max per program.*

Toddlers (Ages 2-3)

Tiny Tot Sea Turtles

Join us for a virtual exploration of sea turtles by observing our Light Tower Exhibit and identifying sea turtle body parts and behavior. Program will include a song, letter of the day, and ideas for additional activities at home.

Tiny Tot Sharks

Join us for a virtual exploration of sharks by observing our Norfolk Canyon Exhibit and identifying shark body parts and behavior. Program will include a song, letter of the day, and ideas for additional activities at home.

Preschool and Kindergarten (Ages 4-6)

Turtle Tales

Join us for a virtual exploration of sea turtles by observing our Light Tower Exhibit and identifying how sea turtles move, get their food, protect themselves, and grow. Program will include a song, up-close look at sea turtle biofacts, and ideas for how you can protect sea turtles through conservation action.

Shark Senses

Join us for a virtual exploration of sharks by observing our Norfolk Canyon Exhibit and identifying shark senses. Program will include a song, up-close look at shark biofacts, and ideas for how you can protect sharks through conservation action.

Seal Splash

Join us for a virtual exploration of seals by observing our Harbor Sea Exhibit and identifying seal behaviors. Program will include an up-close look at harbor seal biofacts, role playing behaviors and training, and ideas for additional activities at home.

School-Aged (Ages 7-11)

Sea Turtle Survivor

Join us for a virtual exploration of sea turtles by observing our Light Tower Exhibit and identifying the life stages of a sea turtle. Program will include an up-close look a sea turtle biofacts, discussion of threats to sea turtles, and ideas for additional activities at home focused on conservation action.

Shark Survivor

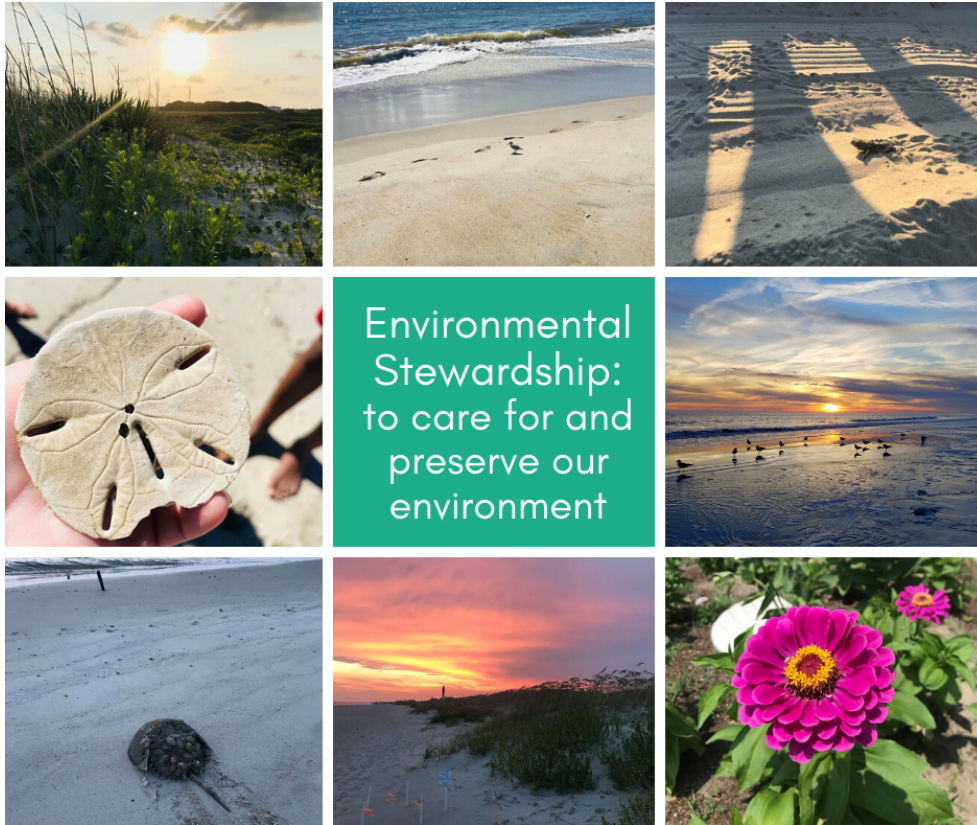
Join us for a virtual exploration of sharks and rays by observing our Norfolk Canyon Exhibit and identifying the role sharks and rays play in the ecosystem. Program will include an up-close look a shark and ray biofacts, discussion of threats to sharks and rays, and ideas for additional activities at home focused on conservation action.



North Carolina Chapter

Brittany Pace

North Carolina State Representative



An Update from Fort Caswell

As schools closed and field trips were cancelled for the whole Spring Season, the wave of online content began. Distance Learning was in full swing and everyone was just trying to figure it out. Most museums and aquariums and other marine science education organizations took to social media to keep the education going. Here at Fort Caswell we created a theme for each day and

posted on our Facebook page: <https://www.facebook.com/caswelled/>.

We also celebrated 50 years of Earth Day with an online poster contest for the first time. It was a fun way to engage our local elementary school students. Here are some other Facebook pages that have great content for North Carolina:

- UNCW's MarineQuest <https://www.facebook.com/marinequestuncw/>
- North Carolina Coastal Federation <https://www.facebook.com/nccoastalfed/>
- North Carolina's Fort Fisher Aquarium <https://www.facebook.com/NCAquariumFF/>

North Carolina Sea Grant "Education Resources for At-Home Learning"

(For All Ages)

Check out articles on coastal flora, fauna, and phenomena here at:

<https://ncseagrants.ncsu.edu/program-areas/education-training/education-resources-at-home-learning/?fbclid=IwAR3Q2925CU3xyhnyTtd1kidaYoB4LF4AlyVF3k3VR9HfTc21EJ7Vd8FAH-G8>

Animal Societies

BY EMILY WHITE • ILLUSTRATIONS BY CHARLOTTE INGRAM

Emily White is a former North Carolina Sea Grant communications intern. She is a senior at NC State University, majoring in science, technology and society. Page excerpts from North Carolina's Amazing Coast: Natural Wonders from Alligators to Zoegas.

MONOGAMOUS PAIRS. FATHERS WHO CARRY THE EGGS. MURDEROUS SIBLINGS.

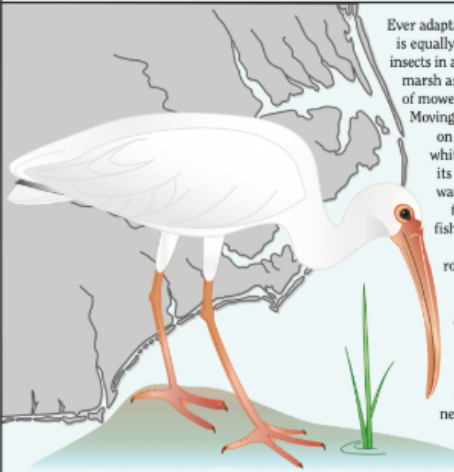
North Carolina is home to animals that have developed a multitude of ways to care for their young. Some of these adaptations are well known to humans. Others? Not so much.

These behaviors and social patterns, the familiar and the unfamiliar, are part of what makes North Carolina's coastal species so intriguing and diverse.

Much of the species variety can be attributed to how our coast is situated, explains Terri Kirby Hathaway, North Carolina Sea Grant's marine education specialist. "Cape Hatteras is the boundary between two biogeographical regions. We are the northern extent of many southern species' range and the southern extent for many northern species' range."

A wide range of family and group dynamics among species is featured in *North Carolina's Amazing Coast*. Hathaway is a co-author of the book that introduces 100 of North Carolina's flora and fauna by describing some of each species' unique attributes.

WHITE IBIS



Ever adaptable, this wading bird is equally at home foraging for insects in a swamp or a saltwater marsh as it is probing clumps of mowed grass in a city park. Moving slowly and studiously on long orange legs, the white ibis carefully pokes its curved bill into mud, water, and grass looking for crustaceans, small fishes, or insects. Social by nature, white ibis roost and feed in flocks and nest in large colonies, often with other wading species. Mating pairs are monogamous, and these "love birds" cooperate in building nests of sticks, grass, or reeds to prepare for their young.

White Ibis *Eudocimus albus*

NATURALIST'S NOTEBOOK

Moving Through the Marsh

BY REBECCA NAGY • NORTH CAROLINA'S AMAZING COAST ILLUSTRATIONS BY CHARLOTTE INGRAM

COLD OUTSIDE? PRETEND IT'S SUMMER AND JOURNEY THROUGH A COASTAL SALT MARSH. LEARN ABOUT THIS HABITAT NOW AND BE THAT MUCH MORE KNOWLEDGEABLE WHEN THE WARMER WEATHER ROLLS AROUND.

The salt marsh is a fascinating habitat teeming with creatures big and small. These plants and animals depend on — and thrive in — the mixture of salt and fresh water that continually flows in and out of the area.

This habitat extends hundreds of miles along the intertidal shore of sounds, estuaries, creeks and rivers. Water can range from very salty to almost fresh, depending on tides, rainfall and other factors. In North Carolina, marshes occur between North Carolina's barrier islands and the mainland.

MARSH PERIWINKLE



Common to North Carolina's salt marshes, the marsh periwinkle is no flower but instead is a member of a group of marine gastropod mollusks that are characterized by their conical, spiraling shells. At low tide these snails can be found at the base of one of their favorite foods, the smooth cordgrass, *Spartina alterniflora*, which is the predominant plant in North Carolina marshes. However, as the tide rises, so does the periwinkle. Up the cordgrass stalk it goes, where in tides, it sometimes becomes food for sharp-eyed egrets and herons.

Marsh Periwinkle *Littoraria irrorata*

in and out. They also provide habitat for many species of fishes, and other animals, such as the marsh periwinkle.

- **Smooth cordgrass**, or *Spartina alterniflora*, is the predominant plant in North Carolina's salt marshes. This salt-tolerant plant makes the marsh look like a "sea of grass." The plant can grow as tall as 8 feet. At high tide, the marsh periwinkle sneaks up the base of the smooth cordgrass toward the top to escape rising water, and predators such as shore birds and blue crabs.
- Named for the bright

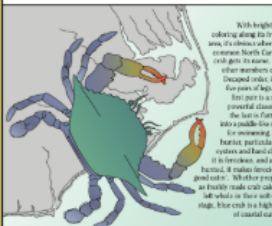
SMOOTH CORDGRASS



If you've seen North Carolina's salt marshes, you've seen cordgrass. It is the predominant plant in the region's coastal marshes that grow between North Carolina's barrier islands and the mainland. Its temperature-tolerant nature is suited to the coastal environment. Cordgrass often grows in a narrow strip of water and mudflats, and gives refuge to waterfowl and other birds. Its marshy roots stabilize the soil and, ideally, hold the marsh together. When the tide is in, it may grow up to 10 feet tall. In North Carolina, it may only grow to a foot or so. Regardless of size, cordgrass is the indispensable thread in the marshy web of coastal ecosystems.

Smooth Cordgrass *Spartina alterniflora*

BLUE CRAB



With bright blue coloring along its frontal area, the blue crab is the most common North Carolina crab. Other members of the Decapoda order, it has four pairs of legs. The first pair is a set of powerful claws and the last is flattened into a paddle for steering. As a fierce predator of worms and mollusks, it is ferocious, and as the harvest of crabs has increased, it is being prepared to be eaten. Blue crabs are popular in the South and are a staple of the seafood menu. Blue crab is a highlight of coastal cuisine.

Blue Crab *Callinectes sapidus*

blue coloring on its claws and legs, the **blue crab** is actually olive-green on much of its body. You can spot this species' five pairs of legs as it scuttles around the waters along the Atlantic Coast. The



North Carolina Coastal Federation

Working Together for a Healthy Coast

North Carolina Coastal Federation

Welcome to our Distance Learning Lab! With help from our wonderful partners, we have compiled educational resources which allow you to dive deeper into the world of coastal sciences and solutions. Due to the Coronavirus, many of us are staying home to prevent the virus from spreading. If you're looking for ways to continue learning during this time of uncertainty, start by clicking the links below. Scroll down to find resources on Clean Water, Coastal Investigations & Exploration, Oysters, Estuaries & Living Shorelines, and Marine Debris.

[Our Partners and Contributors:](#) Hammocks Beach State Park, Jennette's Pier, Lady Swan Tours, NC Coastal Reserve, Albemarle Pamlico National Estuaries Partnership, North Carolina Sea Grant, Duke University Marine Lab, UNCW Marine Quest, NOAA Marine Debris Program, Clean Water Education Partnership and University of Nebraska-Lincoln

[Check it out here:](https://www.nccoast.org/distance-learning-lab/?fbclid=IwAR022vdZ5Qe52XkHsurJEQ3kzSN3ghaiHuAkZj7OWvM80n6vjcVdB0MUVJ0) <https://www.nccoast.org/distance-learning-lab/?fbclid=IwAR022vdZ5Qe52XkHsurJEQ3kzSN3ghaiHuAkZj7OWvM80n6vjcVdB0MUVJ0>

Questions about the Distance Learning Lab? E-mail Rachel Bisesi at rachelb@nccoast.org

NC Aquariums Virtual Summer Camp Experiences

Dia Hitt

NC Aquariums

In the world of Covid 19, everything has changed including how summer camps are held. This summer the North Carolina Aquariums will host their first ever virtual summer camps that take you on a sweeping journey along the coast. Our camp, Adventuring up the Coast with the North Carolina Aquariums includes virtual learning as well as hands-on activities.

Campers will have the opportunity to virtually travel to all four North Carolina Aquarium sites - Fort Fisher, Pine Knoll Shores, Roanoke Island and Jennette's Pier - where they will meet animals and the staff that make each location special! Campers will have the chance to virtually experience some amazing natural destinations in each region of our coast and learn about animals that can be found in each habitat.

From the Venus fly traps and gopher frogs along the Cape Fear coast to the sea turtles and pelicans that need a helping hand along our Outer Banks' beautiful beaches, campers will learn how they can join the efforts of the North Carolina Aquariums to protect wild habitats and the amazing wild creatures that call our coast home.

Virtual week-long camp opportunities will be limited to 15 campers per session, with sessions planned for June, July and August. Morning sessions will be held from 9:00 a.m. to 12:00 p.m. for Grades 3 - 5, while afternoon sessions will be held from 1:00 p.m. to 4:00 p.m. for Grades 6 - 8. Camps will be held June 15-19, June 29-July 3, July 13-17, July 27-31, August 10-14.

At this time, we do not have a date for public registration but stay tuned to share with the community!

Educator Awards – Call for Nominations!

Rachel Clark
Awards Committee Chair

MAMEA sponsors TWO annual awards to recognize outstanding efforts by marine educators in our region:

One award honors a formal classroom teacher, K-16, primary through college;

The other acknowledges an educator in an informal setting, such as museum, aquarium, zoo, science center staff or employees with government agencies.

Eligibility Criteria

Nominees should be individuals who have:

- Been a MAMEA member for at least one year
- Demonstrate a commitment to marine education
- Excel as educators
- Develop and use innovative marine education materials
- Share information with colleagues
- Promote marine education professionally

To see past recipients and to nominate an outstanding educator, check out the Awards page on www.mamea.org.

Nominations will be accepted through September 15, 2020.

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