

**MAMEA 2022 Annual Conference
Concurrent Sessions
Saturday, October 29th**

10:00am-10:45am:

1. The Making and Sharing of Tidal Alert

Presenter(s): Riley Lewis

Location: Ocean Room

Description:

Follow up to the plenary session "Tidal Alert: The State of Water Quality and its Impacts on Coastal Fisheries." Coastal Carolina Riverwatch will discuss the making of their film "Tidal Alert" and share how they use the film to educate politicians and the public.

2. Staying afloat with B-WET: Navigating a meaningful watershed educational experience (MWEE) during the pandemic

Presenter(s): Shantelle Landry, The Mariners' Museum and Park

Location: Bogue Room A

Description:

Providing a meaningful watershed educational experience (MWEE) is already full of exciting challenges. However, when factoring in a global pandemic, educators alike are constantly pushed in new ways. Luckily, at The Mariners' Museum and Park, we have a strong network of support to help navigate through the turbulent waters of teaching project-based, hands-on curriculum during the COVID pandemic and beyond. In this presentation, we will discuss how The Mariners' is engaging Newport News ninth graders through our B-WET program on watershed health and the restoration of Mariners' Lake. We will share our experiences on pivoting to virtual learning, shifting evaluations and activities, improving our programming, and have an interactive activity for participants!

3. Shifting Sands & Deep Sea Killers: Research Translated to K-12 Classrooms

Presenter(s): Lisa Lawrence & Celia Cackowski, VIMS/VA Sea Grant

Location: Bogue Room B

Description:

Graduate students at the Virginia Institute of Marine Science have translated their research into hands-on activities for K-12 classrooms as part of the VA SEA (Virginia Scientist & Educator Alliance) Project. This session shares two newly developed lesson plans that use engaging activities to make real-world connections to the coastal and ocean environments.

The first activity, based on research conducted in OBX, examines how sand dunes change due to storms and sea level rise and how communities can improve their coastal resiliency. Students learn about coastal dunes, how they form and what processes change them over time. Using before and after dune profiles, students identify how the dune has changed, hypothesize what forces caused the change and advise on what steps can be taken to prevent dune loss.

The second activity explores deep-sea adaptations to solve a murder mystery of which predator killed the copepod. Students investigate how environmental parameters change with depth, learn about diel vertical migration and practice their graphing skills as they evaluate the motive, means and opportunity of different “suspects” and determine who the “killer” is.

Both activities are suitable for middle and high school students. Find these and 52 other lesson plans in our VA SEA Lesson Plan Collection at vims.edu/vasea.

11:00am-11:45am:

4. Teachers as Learners: Empowering Educators through Hands-on Conservation Work

Presenter(s): Gail Lemiec, NC Aquarium at Fort Fisher

Location: Ocean Room

Description:

Learn more about the North Carolina Aquariums’ Ecological Edventures. These courses are designed to take educators into the field, giving participants experience in a conservation area of focus for the Aquariums. Conservation work may include collecting data on sharks, monitoring sea turtle nests, and restoring critical habitat. Educators become the learners themselves in these courses and discuss ways to bring conservation into their classrooms. Join us for a look at this new initiative and see how you can get involved!

Short hands-on activities will be utilized to get participants up and active during the presentation.

5. Surveying horseshoe crabs: science, education and outreach around a keystone species

Presenter(s): David Christopher, Delaware Sea Grant / Univ. of Delaware

Location: Bogue Room A

Description:

Horseshoe crabs (*Limulus polyphemus*) are an ecologically, economically, and medically important species. Each spring, millions of horseshoe crabs come to the beaches of the Delaware Bay to lay their eggs. This is the largest known spawning population of horseshoe crabs in the world! Since 1990, citizen scientists and researchers have surveyed the spawning horseshoe crabs along the beaches of Delaware and New Jersey. The data from this survey is then used to make important management decisions.

In this session, representatives from Delaware Sea Grant will provide participants with a background on horseshoe crabs and the spawning survey. The session will also highlight various engagement tools and education materials created by Delaware Sea Grant to educate the public and school students in Delaware and beyond about this important keystone species and their habitat. Participants may also get to take part in a model horseshoe crab survey!

6. Terrapins in the Classroom: Introducing Students to the World of Wildlife Conservation

Presenter(s): Aidan Murphy, National Aquarium

Location: Bogue Room B

Description:

The Terrapins in the Classroom program hosted each year by the National Aquarium is part of a larger species head start program that involves research, conservation, and education centered around Maryland's own protected state reptile. This seminar will detail the partnerships involved in the program, describe the process of operating it, and highlight specific successes as well as potential areas for innovation if replicated by other organizations.

Presentation Components:

- Introduction: Program Overview
- Training and Preparation – Working together with animal care and welfare professionals, state organizations, and other non-profits. Preparing teachers for the responsibility of long-term animal care.
- Making an Impact on People – How teachers can utilize the terrapin to incorporate conservation messaging in their lessons.
- Making an Impact on the Environment –Introducing students to fundamentals of scientific investigation and contributing to ongoing research. The effect of the terrapin head start program on wild populations.

2:00pm-2:45pm:

7. Citizen science: plastic pollution, storm water and drains

Presenter(s): Liz DeMattia, Duke University, Nicholas School of Environment, Duke Marine Lab

Location: Ocean Room

Description:

This hands-on session will walk you through our AdoptADrain app that allows citizens to quantify the amount of plastics and trash accumulating near storm drains. We will also highlight our associated high school water quality curriculum that supports the citizen science app and provides additional opportunities to engage students and community groups with water quality and stormwater programming.

8. A Curriculum of Resilience: Increasing personal resilience through environmental education

Presenter(s): Rory McCollum

Location: Bogue Room A

Description:

Coastal communities in the eastern US are prone to hurricanes and flooding, and Carteret County in eastern NC is no different. Over the past four years this area has been hit with two hurricanes (Florence and Dorian) which were immediately followed by the COVID-19 pandemic. This compounding of stressors has impacted the community's socio-emotional health. Knowing that natural disasters are increasing in both frequency and intensity, we brought together educators and researchers to create (and eventually evaluate) a middle school curriculum that would address: "what can we do to increase the personal, ecological and social resilience of middle school kids?" Over the summer, researchers and middle school teachers from Carteret County co-created a resiliency framework for curriculum that will be piloted through the 2022-23 school year. We are measuring the efficacy of this environmental education curriculum with an evaluation approach that uses a mixture of pre and post quantitative surveys, focus groups, and a qualitative analysis of an embedded classroom assessment. In this session we will discuss the benefits of co-creating curriculum with educators, discuss the impact of the curriculum to date, and discuss the benefits of embedded assessment.

9. The Oceans and Human Health

*Presenter(s): Kristi Walters, Pitt Community College and
Dr. Anika Dzierlenga, Division of Extramural Research and Training at the
National Institute of Environmental Health Sciences*

Location: Bogue Room B

Description:

Human health is intimately connected with the well-being of the oceans and local marine ecosystems. Many benefits to our health are derived from marine organisms, including treatments for pain, asthma, inflammation, cancer, and antibiotic resistant infections. We also obtain nutritional benefits from many healthy proteins, fatty acids, minerals, and vitamins from ocean sources. Finally, the shore and open water are valuable retreats with a wide variety of recreational and relaxing activities that benefit us in mind and body.

Conversely, due to a combination of population increase, human negligence, and climate change, the oceans present hazards to human health through contaminated seafood, poor water and air quality during a harmful algal bloom, release of water-borne toxins and pathogens, and rampant plastic pollution.

In this presentation, we will discuss current research into the positive and negative impacts of the ocean on human health. We will also introduce ideas on how to incorporate this information into lesson plans and activities for students and families. Enriching our understanding and appreciation of how the ocean influences our health is

one way to improve stewardship of the ocean for future generations to enjoy the incalculable physical and spiritual benefits of open water.

3:00pm-3:45pm:

10. The Power of Your Ideas: Advocating for marine education (and anything else)

Presenter(s): Margot Lester, The Word Factory

Location: Ocean Room

Description:

Advocacy plays a crucial role in growing our profession and encouraging civic action to protect the marine ecosystem. Award-winning journalist and author Margot Lester helps you capture the power of your ideas using proven strategy to make your point, make it fast and make it matter. With a deeper understanding of successful persuasive and opinion content and a strategy to produce it, you become a more effective communicators empowered to influence others, advance the profession and increase relevance and reach.

The Power of Your Idea introduces an audience-centered framework that's an effective antidote to polarized and contentious debates. We learn to anticipate questions and objections, identify and deploy effective supporting details, and focus on desired outcomes. Through a mix of mini-lessons, models, whole-group discussions and writing time, you explore the topics you care about most, get constructive feedback (if requested) and walk out with talking points or a working draft. You also get a digital playbook and one- free email follow-up review.

Using a strengths-based approach, the workshop builds on your talents, experience and ability to learn. Instruction is based on proven practices, such as 6 Traits of Good Writing, created Education Northwest; writing strategies developed in collaboration with a master educator; and tips and tactics from 40+ years working in newsrooms, classrooms and organizational communications.

This session equips you with strategies, tools and training to engage new audiences, discuss controversial issues, identify common ground, and increase awareness of issues that are under the radar.

11. The Wicked Problem of Phosphorus: Education for Healthy Marine Environments

Presenter(s): M. Gail Jones, NC State University

Location: Bogue Room A

Description:

Participants will learn about the role of phosphorus as an essential element to life that underpins many critical biological processes and yet this important element contributes to eutrophication of water systems. Current food production systems rely on phosphorus fertilizers, most of which originate from non-renewable phosphate deposits that are mined outside of the U.S. Once in the food system, only 20% of the input phosphorus is ultimately incorporated into the human diet due to multiple system losses

and inefficiencies. The “lost” phosphorus accumulates in terrestrial systems such as soils and freshwater sources. As a consequence, increased eutrophication with its associated algal blooms impairs safe drinking water and marine life. The increasing flux of phosphorus to oceans also leads to an expansion of coastal dead zones. Without intervention, the environmental, economic, and sustainability issues involving phosphorus will escalate as the world’s population grows by another 2 billion persons by 2050. In this session, new educational materials will be shared that can be used to teach about phosphorus sustainability for middle and high school youth. These activities include a mystery investigation to determine non-point phosphate pollution, a modeling activity to determine point sources, and an introductory “Fact or Fiction” interactive presentation. Join us in exploring this wicked problem and take away ideas for educating others about phosphate sustainability.

