Happy Summer to the Mid-Atlantic Marine Education Association!

With the summer solstice just days away many of us are saying goodbye to our students or preparing for the summer rush! The longer days and warmer weather has lent many opportunities to me and my students, and I hope everyone is taking advantage of such opportunities. Just last weekend we were helping Phillips Wharf Environmental Center with their oyster restoration project. We collected countless oyster cages with seed oysters, piled the oysters into approximately 90 bushel baskets and “planted” the oysters on a restoration site in Harris Creek off the Chesapeake Bay. I was amazed at the sample from years past to see what nature had produced vs. what human efforts had produced in the creek. It was very fulfilling to see the students know that they had just directly helped the Chesapeake Bay even if we were covered in dirt, hot, and stinky! Whether you are planting marsh grasses, witnessing the phenomena of the horseshoe crab spawning on Delaware Bay, or just taking in the outdoors, the mid-Atlantic is a special place to be in the summer.

I encourage all of you to participate in one of the upcoming MAMEA events. All of the MAMEA state representatives have been hard at work planning field trips, talks, and social events. I have heard that you could see the horseshoe crab spawning in Delaware, paddleboard in Virginia or go osprey banding in Maryland, just to name a few! Make sure you take advantage of these opportunities. I also encourage you to attend the National Marine Educator’s Association (NMEA) conference in Mobile, AL. MAMEA is usually one of the biggest regional chapters present at the national conference. We will be in full force this year as we are previewing the 2014 NMEA conference that MAMEA is hosting in Annapolis, MD next July. Be sure to see that update for more information.

I hope to see you soon at one of our MAMEA events and at the NMEA conference in Mobile, AL!

Best,
Kathy Fuller
MAMEA President

"Whether you are planting marsh grasses, witnessing the phenomena of the horseshoe crab spawning on Delaware Bay, or just taking in the outdoors, the mid-Atlantic is a special place to be in the summer." - Kathy Fuller
NMEA Conference Updates

2013 Conference

The Southern Association of Marine Educators (SAME) is hosting the NMEA in beautiful Mobile, AL from July 22-26, 2013. Registration is still open and is $450 for NMEA members and $500 for non-member (includes one year of NMEA membership). The keynote speaker will be Richard Louv, author of "Last Child in the Woods" and fun events include a Mardi Gras style parade, dinner and dancing on the Delta, and the famous NMEA auction. Concurrent session strands include Combating Nature Deficit Disorder, Ocean Change, STEM, Teaching Across Diverse Perspectives, and Education, Research & Evaluation. There is always a strong MAMEA contingent present, so we hope you will join us!

We are currently gathering items for the MAMEA auction basket at the 2013 NMEA conference. If you have anything you would like to contribute to an auction basket (specifically with an Annapolis and sailing theme), please contact your NMEA representative, Tami Lunsford at tami.lunsford@gmail.com. We welcome any and all new and well-loved items that will fit the theme!

Are you looking for a way to get more involved on a national level? Please consider joining an NMEA committee: awards, communications, education research, expanding audiences, international, ocean literacy, outreach and marketing, social media, and more! For more information see https://sites.google.com/a/marine-ed.org/nmeaoffice/committees.

For more information on the 2013 NMEA Conference please visit nmea.disl.org.

MAMEA is one of 17 regional NMEA chapters. To become a member of NMEA, please visit www.marine-ed.org.
MAMEA Conference Update: Request for Proposals & Scholarships Available

Celebrate the 35th Anniversary of MAMEA!
Please join us November 1-3, 2013 on the campus of the Virginia Institute of Marine Science (VIMS) for our annual conference in Gloucester Point, VA.

Conference highlights include:
Friday: Optional tour of the Institute and welcome reception with invited speaker Dr. John Graves of VIMS
Saturday: Keynote address by Dr. Victoria Hill of Old Dominion University, concurrent sessions, business meeting and awards, dinner and auction
Sunday: Optional field experiences

The call for proposals, lodging information, and scholarship information (registration is coming soon!) are all listed on the website, http://www.mamea.org. If you have additional questions or comments, please contact Sarah (McGuire) Nuss, MAMEA President-Elect, at mcguire@vims.edu or 804-684-7878.

Call for Proposals for MAMEA 2013
We’d love to hear about all the cool and exciting things you’ve been working on this year. If you are interested in presenting at the conference, please complete the form online at http://www.mamea.org/callforpapers.html. Presentations will be approximately 45 minutes long and should either be a hands-on workshop, a demonstration, or disseminating research/information. All proposals must be received no later than 5 p.m. July 29, 2013 – no exceptions. We hope to hear from many of you who are excited to present and we look forward to a great MAMEA conference! If you have questions on the proposal process, please contact Jaclyn Miller at jacmil@vims.edu or 804-684-7877.

Scholarships Available for MAMEA 2013
Scholarship applications are now available for the MAMEA 2013 Conference in Gloucester Point, VA held from November 1-3, 2013. Five Paul Standish Scholarships will be awarded to MAMEA members who are interested in attending the MAMEA conference but are in need of financial assistance. The scholarships cover up to $300 of expenses directly related to participation in the conference. Applicants must have at least 6 months of membership in MAMEA prior to application or must have attended a MAMEA-sponsored state event by the time of application.

For more information and to apply, go to http://www.mamea.org/scholarship.html to download the application form, sending both the application form and a letter of justification to Sarah (McGuire) Nuss at mcguire@vims.edu. The deadline for applications is August 23, 2013. Applicants will be notified by September 1, 2013. We look forward to seeing you at MAMEA 2013.

If you have any questions about the application process, please Sarah (McGuire) Nuss, at mcguire@vims.edu or 804-684-7878.
Awards Committee Update

August 1, 2013 Deadline for Award Submissions

It’s time to think about all the wonderful marine educators in your life. MAMEA sponsors two annual awards to recognize outstanding efforts by marine educators in our region. One award honors a formal classroom teacher (K-16) and the other award acknowledges an educator in an informal setting (e.g., museum, aquarium, zoo, science center staff, or employees with government agencies). 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

Nominations should be submitted by August 1. This is a new deadline this year! Nominators are encouraged to use the on-line form http://web.vims.edu/mamea/awardform.html, or you may send nominations materials to Megan Ennes, MAMEA Awards Chair, NC Aquarium at Fort Fisher, 900 Loggerhead Rd., Kure Beach, NC 28449.

If you have additional questions or comments, please do not hesitate to contact Megan Ennes at megan.ennes@ncaquariums.com or 910-458-8257 X234.

Social Media Segment

Did you know MAMEA has a Facebook page?
Click 'Like' at www.facebook.com/teachmamea to stay up to date on deadlines for events, read updates on what members are up to at their organizations or schools, and see fun pictures to spark your curiosity!

Are you on Twitter?
Here are handles of MAMEA on Twitter and others that you might be interested in following for the latest and greatest in marine science news and education:
@mamea78
@bcsanswers
@jacmiii88
@JimWharton
@LisaMummichog
@NOAAfisheries
@SCAquarium
@SeaPetrone
@slm0713
@SmithsonianEducation
@TamiTeach
@tossey
@VIMS_News

Are you on Pinterest?
Check out this featured board, ‘Marine Science for Kids’, to keep the spirit and love of the oceans inspiring you throughout the summer!

http://pinterest.com/creeksidelearn/marine-science-for-kids/

Please submit ideas for featured Facebook pages, Twitter handles, or Pinterest boards to Ann McElhatton, Masthead Editor, at info@beachchairscientist.com.

Grants Committee Update

Congratulations to 2013 Winners of Mid-Atlantic Regional NOSB Competitions!

Top honor for North Carolina’s Blue Heron Bowl was claimed by Raleigh Charter High School again this year. Led to victory by science teacher and veteran competition Coach Whit Hames (far left), team members include (not in photo order): Team Captain Jonathan Tseng, Dan Qu, Ben Whitfield, Ben Hames, and Jonathan Cookmeyer. The 2013 Blue Heron Bowl was hosted by the Marine, Earth, and Atmospheric
On behalf of the MAMEA board, all winning NOSB coaches will receive complementary registration to the 2013 MAMEA conference! See page 6 for a list of those recipients.

Sciences Department of North Carolina State University in Raleigh, NC. Regional Coordinators Janelle Fleming and Paul Liu conducted the February 23rd competition. For more information about the Blue Heron Bowl, contact Janelle Fleming at janelle.fleming@gmail.com.

Competing teams from Maryland, Washington, DC, Delaware, as well as parts of Pennsylvania and Virginia attend the Chesapeake Bay Bowl. This year, the Chesapeake Bay Bowl took place on February 23 at George Mason University in Washington, DC. For the second year in a row, State College Area High School in State College, PA took first place, coached by Nell Herrmann, Learning Enrichment and Gifted Support Specialist at the school. Team members include (left to right): Carol Hundal, Eli Jaenicke, Team Captain Alicia Lai, Coach Nell Herrmann, Anna Whitaker, and Nathan Arnett. For more information, contact Co-Regional Coordinator Lisa Des Jardins at ldesjard@gmu.edu. The 2014 Bowl is slated to take place at the University of Delaware. For more information, please contact Co-Regional Coordinator Chris Petrone at petrone@udel.edu.

Continuing its winning streak for another year, Bishop Sullivan Catholic High School in Virginia Beach, VA was the winner of Virginia’s Blue Crab Bowl. Science teacher and Coach Bill Dunn (far left), with Assistant Coach Carol Stapanowich (far right), took their team to the top again. This year’s winning team includes (left to right): Will Harris, Team Captain Cameron Forren, Anna Chang; Josh Taylor, and Lorenza West. The Blue Crab Bowl took place on February 9 at VIMS in Gloucester Point, VA. Next year’s competition will take place at Old Dominion University in Norfolk, VA. For more information, please visit http://www.vims.edu/bcb or contact Co-Regional Coordinators Carol Hopper Brill (VIMS) at chopper@vims.edu or Victoria Hill (ODU) at vbill@odu.edu.

(top to bottom): The Blue Heron Bowl in North Carolina was won by Raleigh Charter High School, Raleigh, NC. Image (c) Blue Heron Bowl. State College Area High School from State College, PA won the Chesapeake Bay Bowl. Image (c) Chesapeake Bay Bowl. Blue Crab Bowl winners from Bishop Sullivan Catholic High School in Virginia Beach. Image (c) Vivian Hollingsworth, Virginia Sea Grant Photo Intern.
Grants Committee Update

Winning NOSB Coaches Receive Complementary Conference Registration

The MAMEA Board is also pleased to again award each of the coaches of the winning team’s complementary registration for the MAMEA 2013 Conference in Gloucester Point, VA held from November 1-3, 2013. We are excited to invite these stellar teachers to take advantage of our Association’s professional development opportunities and we hope these talented educators will share their enthusiasm and their ideas for teaching marine science at the conference this fall. Congratulations to Whit Hames of Raleigh Charter High School (Blue Heron Bowl), Nell Hermann of State Area College High School (Chesapeake Bay Bowl), and Bill Dunn of Bishop Sullivan Catholic High (Blue Crab Bowl)!

MAMEA further recognized the efforts of these seven teachers (listed below) who coached a NOSB team for the first time this year. These teachers receive a one-year MAMEA membership. Our aim is to encourage and support these teachers, connecting them with the active community of marine educators represented by MAMEA.

BLUE CRAB BOWL
• Charlotte Embrey of Patrick Henry High School, Ashland, VA
• Airlia Gustafson of the Broadwater Academy in Exmore, VA

BLUE HERON BOWL
• Darlene Lannon of Camden High School in Camden, NC

CHESAPEAKE BAY BOWL
• Herbert Edelstein of Richard Montgomery High School in Rockville, MD
• Katie Grenchik of St. Vincent Pallotti High School in Laurel, MD
• Virginia O’Donoghue of Richard Montgomery High School in Rockville, MD
• Elizabeth Nohelty Romano of the Governor’s School at Innovation Park, Manassas, VA

2012-2013 Grant Update

Informal Education Grant awardee Sarah (McGuire) Nuss has been putting her MAMEA Grant funding to work! As Education Coordinator for the Chesapeake Bay National Estuarine Research Reserve (CBNERR-VA), Nuss coordinates several public outreach programs at the VIMS in Gloucester Point, VA. Among the most popular are the free Discovery Labs which provide educational science experiences for a largely family audience. Held in the evening once a month, each lab focuses on a specific Bay-related topic using hands-on activities that engage both youngsters and adults. Faculty, professional staff, and graduate students from VIMS or other institutions contribute their expertise, talk about research and engage the public in a relaxed, up-close-and-personal setting.

A Discovery Lab focusing on sturgeon started off the 2013 New Year on January 15. VIMS faculty member and international expert on the species, Dr. Eric Hilton, shared amazing sturgeon specimens with a crowd of more than 60 folks. The audience learned about sturgeon biology and ecology within the Chesapeake watershed and along the Atlantic coast, and about the endangered status of these fascinating living fossils. February’s focus was mammals with featured speaker Sandra Erdle from the CBNERR-VA staff. Close to 70 people attended the February 26 event. They enjoyed detailed views of common mammals from Mid-Atlantic region thanks to specimens provided by Virginia Commonwealth University (VCU) and York River State Park. In March, nearly 90 participants crowded in again for Sharks Lab with VIMS Fisheries Specialists, Evan McOmber and Kevin Spanik. Co-hosted by the Williamsburg Montessori Middle School, the Shark Lab brought in an added dimension - the middle school students helped create displays, games, and information cards. These students also volunteered to monitor the stations they had created and were able to therefore, teach the public about their topic on sharks.

Nuss’s MAMEA Grant also provides funding for supplies and “take-home” materials that support each of the labs. This MAMEA support will also allow Nuss to pilot expanded hours for the Labs and to test the potential for traveling Discovery Lab Boxes.
local schools. We look forward to hearing more about Sarah’s productive use of her MAMEA Grant in a future issue of Masthead!
State Chapter Updates

Delaware

1) Delaware Estuary Workshop
Educators from all walks of life are invited to attend one, or both, of the Delaware Estuary workshops during summer break. Gain professional instruction in environmental education, receive free educational and classroom materials, explore exciting field-trip locations in Delaware, New Jersey, and Pennsylvania and earn approximately 15 professional development hours per workshop!
WHEN: July 10 – 12 (Estuary Explorers), July 16 – 18 (Urban Waters)
REGISTRATION: For more information, please visit http://www.delawareestuary.org or contact Cheryl Jackson at cjackson@DelawareEstuary.org.

2) MADE CLEAR Climate Science Academy
MADE CLEAR is pleased to offer Middle and high school science teachers from Maryland and Delaware are invited to participate in a five-day professional development experience on climate science. Professional development will be targeted at providing guidance around the implementation of the Next Generation Science Standards (NGSS) and Environmental Literacy Standards, in addition to existing science standards. In addition, you will be introduced to the Learning Progression approach for the systematic design of coordinated curriculum and assessment products. Teachers will receive a wealth of content, resources, room and board, and a stipend.
WHEN: July 14-19
WHERE: Virden Center (Lewes, DE)
REGISTRATION: For more information and an application, please visit http://www.madeclear.org/climate-academies/.

3) Delaware’s MOST WANTED Invasive Species
The Delaware Invasive Species Council is calling all science curriculum administrators, science specialists, and K-12 grade teachers! This workshop will engage participants through hands-on activities and interactive presentations by state natural resource instructors, focusing on the top terrestrial and aquatic, regional invasive species. Included are freshwater, marine, insect, and plant species. Following this briefing on invasive species, educators will participate in an on-site invasives removal project and learn how to conduct a similar project on school grounds. A wealth of classroom resources and other materials will be provided. Please dress accordingly for outside activities. Credit: 5 clock hours.
WHEN: Tuesday, August 13
TIME: 8:30am – 1:30pm
WHERE: Aquatic Resource Center (Smyrna, DE)
COST: Free
REGISTRATION: To register, please visit http://delawaresmostwanted.eventbrite.com.

4) Getting Down with Data
Want to use real data and student-driven inquiry in the classroom? This free, hands-on session is designed for you! You’ll learn where to find and how to use online data tools including sources of real time, local water quality and meteorological data. This session will equip you with the knowledge, tools, skills, and confidence to use the local environment in your classroom. This workshop is appropriate for 7-12 grade teachers.
WHEN: Tuesday, July 30
TIME: 9:00am – noon
WHERE: St. Jones Reserve (Dover, DE)

5) Project WET (Water Education for Teachers)
Water is fundamental to life here on earth. Come explore the physical, chemical, and biological properties of water through interdisciplinary, hands-on activities. This workshop will provide you with the Project WET Guide which includes 64 activities developed by teachers, resource managers, and scientists and tested by hundreds of educators and thousands of students. Project WET is a water education program for K-12 educators and students.

Discover water resources through outside field experiences and Project WET activities and leave the workshop with numerous materials for you and your students! Be prepared to learn and have fun! Please
State Chapter Updates

bring your own lunch.

WHEN: Wednesday, July 17
TIME: 9:00am – 3:30pm
WHERE: St. Jones Reserve (Dover, DE)
COST: $25
REGISTRATION: To register please visit https://www.surveymonkey.com/s/ProjectWET2013.

North Carolina

1) Observing Regional and Global Water Resources
Using remote sensing and field data to better understand the hydrologic cycle
WHEN: Tuesday, July 30 and Wednesday, July 31
TIME: 8:30am – 5:00pm both days
WHERE: North Carolina Botanical Garden (UNC-Chapel Hill)
COST: Free
REGISTRATION: For more information, please contact Michele Drostin at michele.drostin@unc.edu or call 919-966-9802.

2) Project WET Generation II Workshop
WHEN: Friday, August 9
TIME: 9:30am – 4:00pm
WHERE: Cape Fear Botanical Garden (Fayetteville, NC)
COST: $30 includes curriculum guide, program fees, and snacks. Advanced payment required (payable to Cape Fear Botanical Garden).
REGISTRATION: Pre-registration required by August 2. To register please visit http://www.capefearbg.org/pgrm_services.php or call 910.486.0221 X27.

Virginia

1) Chesapeake Bay National Estuarine Research Reserve in VA - Discovery Labs
The monthly Discovery Lab series provides fun, family-friendly experiences, and lifelong learning. Each lab focuses on a specific topic through a series of stations that provide hands-on activities for kids and adults. Participants look through microscopes, observe live animals, partake in crafts and games, and view research posters. Both VIMS faculty and students participate as speakers, sharing their research with the general public in an intimate setting.
WHEN: Sportfishing on June 11 (Sportfishing), July 16 (The York River), August 20 (Submerged Aquatic Vegetation, i.e., SAV)
TIME: 6:00pm - 8:00pm
WHERE: CBNERR - VA
REGISTRATION: To register, please visit http://www.vims.edu/cbnerr/education/public_programs/index.php. For more information about the Discovery Lab program, please contact Sarah (McGuire) Nuss at mcguire@vims.edu.

2) Estuaries Day at York River State Park
Please join us for this family event where the river meets the sea – Estuaries Day! Event will include a 5K race, canoeing, kayaking, geocaching, fossil hikes, VIMS research boat tours, Butterflies in Flight, hands-on displays, great food, and more!
WHEN: Saturday, August 24
TIME: 9:00am – 2:00pm
WHERE: York River State Park (Williamsburg, VA)
COST: Free (Parking is $3.00/vehicle)
REGISTRATION: Please call ahead for race registration and boat tour registration. For more information, please call the park at 757-566-3036.

3) Nauticus To Open Community Sailing Center
The countdown has begun for the launch of Sail Nauticus (Norfolk, VA), a community sailing initiative of the Nauticus Foundation. Grand Opening celebrations are scheduled for Wednesday, June 12 (A festive launch party for supporters and sponsors, including Norfolk Mayor Paul Fraim and philanthropist Jane Batten, is planned). With offices in the former rear annex of Nauticus, the sailing center will feature a fleet of Harbor 20 sailboats equipped with small motors for safe maneuverability out of shipping lanes and into recreational sailing areas of the river and bay. These sailing workhorses will be used in the SailQuest youth summer camp program, for adult sailing lessons and certifications, and for leisurely "Sail Abouts," two-hour sailing trips on the Elizabeth River. Most importantly, they will be used...
in the afterschool Sail Nauticus Academy program, which is designed to enable youth, who may not otherwise have the opportunity, develop academic and leadership skills through sailing and maritime sciences. Nauticus tapped the talented Bill Bahen, founder of Hudson River Community Sailing in New York City, for the new director position at Sail Nauticus. Passionate about "out of the box" experiential learning, Bahen brings 15 years of successful business experience and a heart for mentoring youth to Sail Nauticus. He expects the organization, with its underlying goal of enabling disadvantaged youth new paradigm-breaking opportunities to grow and develop, to thrive here in Hampton Roads. SailQuest summer camp is for children ages 10-14. It will be held over the course of eight weeks, from June 17 - August 9. This hands-on camp includes water and shore-based activities led by certified instructors. Each day at SailQuest will involve sailing on the Elizabeth River, as well as fun-filled activities that teach maritime sciences, including weather, aquaculture, modeling and robotics. Sailors will also tour the Battleship Wisconsin and learn of the ship's historic engineering and technological marvels. Each camper will experience the water in a whole new way, while learning the principles of science, sailing and water safety. Sessions will be Monday through Friday from 9:00am - 4:00pm. The cost is $245 per camper, with a discount for Nauticus members. Call 757-823-4242 or find more details and register for SailQuest Summer Camp, Sail Academy, Adult Lessons & Certifications and Sail Abouts at http://www.sailnauticus.org.

4) Tentative Paddleboarding
Virginia is planning for a paddle boarding mini-conference with a tentative date scheduled for August 17, 2013. Make sure to Like MAMEA on Facebook, so you can receive and view updates to all the Virginia sponsored events. We are trying to build up the membership around the state. If you could share the MAMEA information with others through email or fliers that would greatly be appreciated. Or if you have ideas on how to increase membership from around the state, I would love to hear from you. Please email Carrie Bateman, VA State Representative, with any questions cbateman@bcps.us.

If you have an upcoming event that you would like to share with MAMEA members please submit relevant details, including:
• Host and/or sponsors
• Where
• When
• Cost
• Credits
• Significance
to Ann McElhatton, Masthead Editor, at info@beachchairscientist.com.

Always Happy for Masthead Feedback
I hope you all enjoyed this edition of the Masthead from me, Ann McElhatton - the new editor of the Masthead. If we didn’t have a chance to meet at the regional conference this fall in Cambridge, MD, let me take the time to introduce myself. I have been the Program Manager for a fisheries data collection program, the Atlantic Coastal Cooperative Statistics Program (www.accsp.org), since 2008. This position affords me the opportunity to delve into science communication. However, much of my background is in environmental and marine science education. So about four years ago, I started a blog (www.beachchairscientist.com) as an outlet for my EE/marine science conservation.

Please feel free to email comments, questions, or concerns about the blog or this issue of the Masthead to info@beachchairscientist.com. After all, this newsletter is for YOU, the members of MAMEA! Remember, the most recent edition can be found online at mameamasthead.wordpress.com.
Mid-Atlantic Research Updates

1) Expedition Journeys into World’s Deepest Hydrothermal Vents

Researchers are exploring the deepest known set of hydrothermal vents in the world, at a site in the Caribbean nearly 5 kilometers (3 miles) beneath the ocean surface.

They've discovered a new vent there that is deeper than any previously known, said Duke Marine Lab’s Andrew Thaler, a researcher on the expedition. The group explores the area using a remotely operated vehicle (ROV) named Isis, which just completed its first dive Wednesday, Thaler said.

The site, known as the Beebe Hydrothermal Vent Field, lays in the Cayman Trough, a deep section of the Caribbean south of Cuba. It lies about twice as deep as most known hydrothermal vents. Hydrothermal vents are fissures in the seafloor where geologically heated water spews forth.

For more information, please visit http://science.nbcnews.com/_news/2013/02/21/17048309-expedition-journeys-into-worlds-deepest-hydrothermal-vents.

2) Partners Collaborate on Largest Release of Endangered Mussels in Powell River

This past fall, Virginia Tech’s Freshwater Mollusk Conservation Center, in partnership with Lincoln Memorial University in Harrogate, Tenn.; the Tennessee Wildlife Resources Agency; and the U.S. Fish and Wildlife Service, released 7,086 juvenile mussels into the Powell River, the largest number of endangered mussels planted in the history of the river restoration project.

The one-year-old mussels were propagated and raised at the mollusk center a cooperative research and propagation facility to restore and recover endangered freshwater mollusks (basically shell-covered invertebrates) in Virginia and adjacent states.

For more information, please visit http://www.vtnews.vt.edu/articles/2012/10/102612-enre-powellmusselrelease.html.

3) Tidal flow, Sediment Movement Studied in a Delaware Salt Marsh

According to a 2007 report by the Intergovernmental Panel on Climate Change, global sea level is expected to increase one half meter or more over the next century. Along the Mid-Atlantic coast of the United States, relative sea-level rise is about two times higher than the global rise.

In Delaware, nearly 371,000 acres of contiguous tidal wetlands surround the Delaware Bay. Studies indicate that the proportion of wetlands that were degraded increased from 25 percent in 1984 to an alarming 54 percent in 1993.

Three University of Delaware scientists are studying tidal water flow and sediment movement in a Kent County salt marsh to better understand changes to the marsh ecosystem due to a rising sea level.


4) Research on Fracking Best Management Practices wins President’s Award

Dr. Keith Eshleman, a professor at the Appalachian Laboratory and an expert in the field of watershed hydrology, has been honored by the University of Maryland Center for Environmental Science with the President’s Award for Excellence in Application of Science. Eshleman was recognized for his leadership in preparing a landmark report on best management practices for unconventional natural gas extraction, also known as fracking, as part of the Marcellus Shale Safe Drilling Initiative established by Governor Martin O’Malley.

For information, please visit http://www.umces.edu/al/project/dr-keith-eshleman-honored-umces-presidents-award.

This update was prepared by Chris Petrone, University of Delaware and Delaware Sea Grant. For questions or comments please email petrone@udel.edu.
Environmental Education: The Dream That Is Becoming a Reality

A new report is the latest milestone in a growing movement to provide more environmental education at schools throughout the Chesapeake Bay region. The Mid-Atlantic Elementary and Secondary Environmental Literacy Strategy is the federal government’s plan to support state efforts to transform schools and provide the next generation of citizen stewards with the knowledge and skills they need to make informed environmental decisions.

The effort emphasizes federal-state-nongovernmental coordination and builds on a tradition of strong environmental education in the region. Since the late 1990s, forward-thinking states and the federal government have worked through the Chesapeake Bay Program partnership to support environmental education. In 2000, they committed to inquiry-based, outdoor meaningful watershed educational experiences for every student in the watershed. Forces rallied behind the commitment; federal, state, and local governments; schools; universities; and non-profits offered a broader suite of outdoor field experiences and the essential teacher training needed to integrate those experiences with classroom learning.

Despite a challenging economic climate, Americans overwhelmingly support environmental education. According to a study by Roper Reports, approximately 95% support environmental education and 85% agree that government agencies should support environmental education. These statistics are playing out in our nation’s schools, where there has never before been so much attention focused on how to systemically embed environmental literacy requirements and activities. More than 40 states have in place or are actively working on environmental literacy plans that draw on the collective strengths of a variety of partners to enhance environmental education in schools.

The Environmental Literacy Strategy—developed by the Chesapeake Bay Program’s Education Workgroup in an effort led by the National Oceanic and Atmospheric Administration (NOAA)—sets high-level environmental education goals—each supported by detailed approaches and methods:

1) Every student to graduate with knowledge and skills they need to make critical environmental decisions.
2) Environmental educators—including traditional classroom teachers as well as educators who work in locations like museums,
Twitter, Human Impacts, & Marine Education

In a society when the traditional number sign is commonly referred to as a hash tag, and using 140 characters or less to get a message out to a mass audience is now relatively easy, we as educators must adapt. A Teens and Technology Report from 2013 stated that 95% of teens use the internet and a Pew Research Report from 2012 said that 67% of online adults are using social media. Social media is a popular and effective way to disseminate information out to the public, or your “followers.” Tell any class to pull out their cell phone, Ipod, Ipad, Nook, or whatever media device they may have, and you are sure to get their attention.

Seventh graders from Queens Lake Middle School, in York County Virginia, were one of six middle schools that participated in the Chesapeake Studies program this year with the Chesapeake Bay National Estuarine Research Reserve (CBNERR) in Virginia. The Chesapeake Studies program, funded through a NOAA BWET grant, provided every seventh grader at Queens Lake with two classroom visits from the CBNERR Education Specialist, a field experience at the Virginia Institute of Marine Science (VIMS) in Gloucester Point, Virginia, and classroom aquaria. The students were exposed to many hands-on activities ranging from testing water samples from different reserve sites, building a buoy, seining and dip netting in the York River, using microscopes to observe organisms living in an oyster reef habitat, to studying the Chesapeake Bay report card to determine human impacts on the bay, just to name a few! The seventh grade Life Science teacher, Jamiee Buckley, said, “At each step of the Chesapeake Studies program, the students were reminded the program was established so that teachers and students could pass on the information that they had learned and share it with others.”

Recently, CBNERR educators have been keeping a close eye on Twitter. At the completion of the Chesapeake Studies program, Buckley turned to social media and had her students share their knowledge gained from their experience with others via Twitter. Students brainstormed in groups what they could write, and then with their parent’s permission, were able to tweet their ideas in class. Buckley’s students tagged their Chesapeake Bay related tweets with the hashtag #qlmscbv (Queens Lake Middle School Chesapeake Bay VIMS). “My students were so excited to use social media in the classroom,” Buckley said. “Every time they would get retweeted by VIMS, or the hashtag would get mentioned by people they didn’t even know, you could see and feel the excitement in the classroom. Many of the students said they felt like they had been heard and thought they’d made a positive impact on Chesapeake Bay.” A student tweeted, “Hey guys, the Chesapeake Bay has a lot of habitats that we should protect. Protect the Bay!” Some tweets pleaded with followers to volunteer to clean the bay and not to litter, while others shared information about aquatic life. One tweet said, “Oysters filter the water! Take care of them!” Other teachers from the school and their principal “retweeted” back to the students. The students’ tweets were even shared by the accounts for VIMS and the Chesapeake Bay Foundation, reaching their combined audiences of 8,939 followers.

The students at Queens Lake Middle School definitely reached a wide audience, using less than 140 characters, to influence people to have a positive impact on the Bay. Jamiee Buckley was able to engage her students in a very fun way, while having them share their knowledge through social media. After the success had by Buckley’s class, CBNERR educators have been sharing this exciting story with the other middle school teachers in their program, showing classroom teachers that social media is a great way to have students share their knowledge in a fun and stimulating fashion. We would like to thank the students of Queens Lake Middle School for becoming more aware of their impact on the Chesapeake Bay and it’s watershed, and for spreading the word about the Bay in such a modern-day way! To read the entire story of tweets, check out our Storify at http://storify.com/cbnerr/queens-lake-bwet-twitter.

This article was prepared by Jaclyn Miller, Education Specialist, CBNERR - VA. For questions or comments please email jacmil@vims.edu.
Environmental Education: The Dream That Is Becoming a Reality

(con. from page 12) aquariums, outdoor schools—to receive the professional development they need.

3) Every school to maintain its buildings, grounds, and operations in a way that supports healthy students, teachers and staff, as well as a healthy environment.
4) The region’s education community—including national, regional, and state programs—to work together so all information and opportunities are used to maximum potential.

The next challenge is to ensure that environmental education and outdoor learning are woven into instruction as new curricular frameworks are implemented, including Common Core for mathematics and English language arts, the Next Generation Science Standards, and the new national social studies standards. This and other important issues related to implementation will be addressed at the biennial Mid-Atlantic Environmental Literacy Summit to be held this winter in Annapolis, Maryland.

The work is essential to the long-term protection and restoration of the Chesapeake Bay. The progress is real. The dream is becoming a reality.

To download the The Mid-Atlantic Elementary and Secondary Environmental Literacy Strategy, please visit http://www.chesapeakebay.net/publications/title/mid_atlantic_elementary_and_secondary_environmental_literacy_strategy_execu. This article was prepared by Shannon Sprague, Environmental Literacy Manager - NOAA Chesapeake Bay Office. For questions or comments please email shannon.sprague@noaa.gov.

Goals of Environmental Literacy Strategy

1) Every student to graduate with knowledge and skills they need to make critical environmental decisions.

2) Environmental educators—including traditional classroom teachers as well as educators who work in locations like museums, aquariums, outdoor schools—to receive the professional development they need.

3) Every school to maintain its buildings, grounds, and operations in a way that supports healthy students, teachers and staff, as well as a healthy environment.

4) The region’s education community—including national, regional, and state programs—to work together so all information and opportunities are used to maximum potential.
In early June the highly anticipated book, *North Carolina’s Amazing Coast: Natural Wonders from Alligators to Zoeas* hit bookstore shelves! A delight for learners of all ages, the book is a true partnership of the North Carolina and Georgia Sea Grant programs. Terri Kirby Hathaway, MAMEA member and marine education specialist with NC Sea Grant, and Kathleen Angione, a writer and former Coastwatch senior editor, teamed with Georgia writers David Bryant and George Davidson, and illustrator Charlotte Ingram.

“Fun and learning come together in North Carolina’s Amazing Coast, an inviting collection of one hundred short, self-contained features about the flora, fauna, and natural history of that fascinating place where land meets sea. Each page includes a full-color illustration and breezy, fact-filled commentary on coastal wildlife from fifty-foot-long northern right whales to single-cell plankton, from shy red wolves to overbearingly sociable sand gnats,” states University of Georgia Press.

"We are thrilled to introduce readers to incredible animals, plants and ecosystems," notes Hathaway, who also will be working with teachers to develop lesson plans based on the species in the book. More than two dozen new North Carolina entries — such as the red wolf, margined sea star, blanket flower and maritime forest — join a selection of southeastern species that also appeared in Georgia’s Amazing Coast.

To order directly from the University of Georgia Press, go to www.ugapress.org.

More about Author and MAMEA Member, Terri Kirby Hathaway

Terri Kirby Hathaway joined Sea Grant in 2003 and brings a breadth of experience to her position as marine education specialist. Prior to joining Sea Grant, Hathaway spent 18 years as the education curator with the North Carolina Aquarium on Roanoke Island. Early in her career, Hathaway worked as a biological technician and researcher in Florida, Louisiana and Texas.

Besides being a published author, Hathaway identifies and coordinates coastal curricula for use in classrooms across the state, as well as organizes teacher workshops and serves as an education associate with the Center for Ocean Sciences Education Excellence - Southeast, serving North Carolina, South Carolina and Georgia. Her marine education newsletter, Scotch Bonnet, is published three times a year.

In addition, Hathaway has presented at conferences for various education organizations, including Environmental Educators of NC, the Mid-Atlantic Marine Education Association, the NC Science Teachers Association, the National Marine Educators Association, and the North American Association for Environmental Education.

Hathaway holds a master’s in science education from East Carolina University and a bachelor’s in marine biology from the University of North Carolina Wilmington.
10 Featured Resources

1) Alliance for Climate Education (ACE)
ACE is dedicated to educating America’s high school students about the science behind climate change and inspiring them to do something about it.
http://www.acespace.org/

2) Field Trip Finder
Visit this website to help find educational field trips. It's easy to use and offers links to the websites of the field trip locations matching your selected criteria.
http://fieldtripfinder.com/

3) Fishinars
REEF continues to add new material to this series of short, free webinars to help teach the finer points of identifying fish and invertebrates underwater. Upcoming topics include Diving the Northeast, Safety Stop Survey, and more. Archived episodes are available.
http://www.reef.org/resources/webinars

4) FloodSafe
This online game created by Australia’s Victoria State Emergency Service can show kids exactly what might be lurking in flood waters. Players are challenged to find the dangers hiding under the water where they might otherwise want to wade. The game is quick and easy to play, and there are lessons and classroom activities to go along with the game.

5) Ocean Conservation Careers
The Speak up for the Blue website hosts weekly videos with tips on building a career in ocean conservation, interviews with industry professionals, and more.
http://www.speakupforblue.com/category/ocean-conservation-careers

6) Response and Restoration Education
NOAA's Office of Response and Restoration (OR&R) offers educational materials to explore efforts to protect and restore the nation's waters from pollution.

7) Sanctuary Videos
Flower Garden Banks National Marine Sanctuary offers short videos about the coral reefs and other aspects of the sanctuary, targeting upper elementary and middle school students. Topics include coral spawning, sharks and rays, and more.
http://flowergarden.noaa.gov/image_library/video.html

8) STEM Supplement to the Washington Post
The Washington Post published a special supplement on STEM Education, and it is available as a free download. Check out Adding STEAM to STEM, A Blossoming Career Field, and more.

9) Water Cycle Game
NOAA's OR&R offers the Water Cycle Game which offers players the chance to role-play as a water molecule of water to gain a better understanding for the complexity of the movement of water. Participants identify the states of water, where pollutants can enter the water cycle, and more.
http://response.restoration.noaa.gov/watercyclegame

10) Winged Ambassadors: Ocean Literacy Through the Eyes of Albatross
Winged Ambassadors is a set of five lessons that use data from current research tracking albatross migrations and ocean plastic pollution. The lessons use inquiry based science instruction, aligned to standards for grades 6-8 with extensions for grades 9-12.
http://www.downloadwingedambassadors.org/

Please submit ideas for featured resources to Ann McElhatton, Masthead Editor, at info@beachchairscientist.com.