As we start the 2013-2014 school year I would like to reflect on a busy summer for MAMEA. This summer was a blur to me as I fall into the category of the summer being my busiest time of the year. I took 120 Baltimore middle and high school students to locations from Maine to Georgia to learn about the aquatic environment (I have a different group each week in the summer, so they aren’t all with me at the same time in case you were wondering). So now, I am just now getting my feet back under me!

In the middle of all of the amazing educational opportunities for my students I was able to attend the 2013 National Marine Educator’s Association (NMEA) Conference in Mobile, AL. With MAMEA hosting the conference in 2014, our chapter members were buzzing around in Dixie cup hats and scarves as a nod to the NMEA 2014 conference location in Annapolis, MD (home of the US Naval Academy). In case you didn’t hear, the NMEA pike made a comeback. We were the highest bidder, taking home the pike! Also, our own Beth Jewell was honored as the first recipient of the Johnette Borsarge Memorial Scholarship, the start of a tradition that NMEA feels will honor Johnette for all she did for NMEA. Our chapter meeting was highly attended by 22 folks from our region!

With Tami Lunford’s term as MAMEA representative to NMEA coming to an end, we are in search of a new representative. The position is a two year position and requires participating in two in-person meetings, the National Science Teacher Association (NSTA) and NMEA per year as well as several (continued on page 2)
From the Captain's Quarters

(continued from page 1) conference calls. Please contact me if you are interested in this position.

We also announced that since we are hosting the 2014 national conference the MAMEA Board has decided not to hold a regional MAMEA conference in 2014. Instead we would like to have a larger presence at the NSTA conference in 2014 which will be held in our region in Richmond, VA.

The MAMEA Board has put aside funds (revenue from when we hosted the 2003 NMEA conference) to fund both full and partial scholarships for MAMEA members to attend the 2014 national conference. These funds are only available to current MAMEA members, so make sure you pay your dues on time!

The next NMEA 2014 Conference Committee meeting is September 14, 2013 in Suitland, MD. Contact Tami Lunsford (tami.lunsford@gmail.com) or David Christopher (dchristopher@aqua.org) for more information.

Our state representatives have been hard at work putting together some amazing opportunities for MAMEA members and others who would like to join us. Make sure you look for upcoming opportunities, and let your representative know what you may be interested in participating.

Sarah McGuire Nuss and her conference committee have been working hard putting together our MAMEA Annual Conference which will be held November 1-3 in Gloucester Point, VA.

Also nominate a MAMEA member for one of our marine educator awards. Applications are due by the end of August. Look for the application for the Grant to be awarded up to $1,000 for your aquatic education project. Grant applications are due September 30. Check out www.mamea.org for more information.

I look forward to seeing everyone in November!

Best,
Kathy Fuller
MAMEA President
MAMEA Conference Updates: Registration Open & Auction Alert

Celebrate the 35th Anniversary of MAMEA!
The 2013 MAMEA conference is right around the corner! We hope that you will join us to celebrate the 35th anniversary with some exciting professional development in marine science.

The MAMEA conference will be held at the Virginia Institute of Marine Science (VIMS) in Gloucester Point, VA from November 1-3, 2014. The conference promises to highlight the latest marine research in the Mid-Atlantic region and how educators can use the new information in their classrooms and programs. For an up-to-date schedule for the conference, please visit http://www.mamea.org/schedule.html.

Tentative Conference Schedule

Friday: Tour of VIMS
Welcome reception 'Mexican Fiesta' w/ invited speaker

Saturday: Keynote address by Dr. Victoria Hill of Old Dominion University (ODU)
Concurrent sessions
Business meeting and awards
Book signing
Dinner and auctions

Sunday: Optional field experience

Registration opened September 1 at www.mamea.org!
Early bird registration of $125 will go from September 1 through September 30. Regular registration will begin October 1 through October 25 for $140. Day rates and guest tickets will also be available.

Lodging:
http://www.mamea.org/lodging.html
Hampton Inn
Gloucester, VA
804-693-9393
$77/night (plus taxes)

Book your hotel by October 1, 2013 to get the conference rate!

Alert: Calling for Awesome Auction Donations!
The MAMEA auction is the highlight of our annual conference and it’s all for a good cause ... Auction proceeds support MAMEA conference scholarships. Whether you’re clearing out shelf space, sharing the fruits of your craft skills, or know how to bargain for great deals – make a donation!

Every necessity of life is welcome and invited at the MAMEA auction, including:

• Gently used books, posters, curricula, field guides. All can go into our Book Sale and find new and appreciative owners.
• Jewelry, art, toys, home décor, clothes – whether they’re gorgeous or goofy! We love anything with an aquatic or nature theme.
• Food & drink. Single items or a basket of treats, gourmet or homemade. Food and beverages are always favorites among MAMEAns – especially if they are hungry or thirsty.
• Science equipment and supplies, teaching kits - for teachers or whole classrooms. Give your under-utilized resources a new lease on life.
• Gift certificates for products, services or experiences like restaurant meals, get-away weekends, tickets to attractions, kayaking or diving experiences, sporting events, concerts. MAMEA members are active people, they love a good time!

To donate an item, please visit http://www.mamea.org/conf/2013AuctionDonationForm.pdf. You can send your donations to the Committee or bring them with you. All donors will be acknowledged in the Conference program. If you have any questions about the auction, please contact Auction Co-chair Carol Hopper-Brill at chopper@vims.edu or 804-684-7735.
2013 NMEA Conference Updates: A Final Report & MAMEA Members Present at NMEA

A Final Report from MAMEA Representative to NMEA
Thank you to any NMEA members who voted for me, as I will now be an elected member of the NMEA Board of Directors for three years, am on the Executive Committee this coming year, and a new MAMEA member will become your NMEA representative!

The NMEA 2013 conference was a great week in Mobile, AL. After the insane heat wave we had here in the Mid-Atlantic in July, it actually felt cooler in Mobile than it was at home. Plus, they love air conditioning in the south! There were 23 MAMEA members there and we attended fabulous talks, including one by author Richard Louv, had great discussions, made friends and colleagues who will last a lifetime, tweeted like crazy, attended a faux-Mardi Gras parade, and helped raise thousands of dollars in the annual NMEA auction. Did you hear that the Pike is back? It was tradition for years that a big stuffed Pike (yes, we know a Pike is not a marine fish—we didn’t start the tradition, we are just maintaining it) was paraded throughout the conference and then bid on by chapters at the auction. Part of that tradition was that the chapter hosting the next year’s conference was SUPPOSED to win the Pike and take it with them. In 2005, the Pike was sacrificed to the goddess Pele in a Hawaiian volcano, but, like the phoenix, it rose out of the ashes and returned this year, and MAMEA brought him home for the small bid of $400.

Do you want to read more about MAMEA at NMEA 2013 or re-live it in an innovative way? Read Delaware Representative to MAMEA and NMEA Board member, Chris Petrone’s Storify at http://storify.com/cpetrone/mamea-at-nmea2013! Now, we need to think about how to match all this fun, enthusiasm, and professionalism in 2014!

MAMEA Contribution Ideas to NMEA Conference
For many marine educators, professional development is driver for their attendance at conferences and institutes. This year’s NMEA conference in Mobile offered...
A wealth of excellent concurrent session presentations to choose from and MAMEA members contributed several presentations. If you weren’t able to attend NMEA, or if you attended NMEA, but missed these presentations, here’s a summary of sessions that MAMEA members had to offer. Connect with your fellow MAMEAns if you want more information about their topic or resources!

A PERFECT Interpretation – Grad Students Design Activities to Convey Cutting-Edge Science
Carol Hopper-Brill, VIMS
Graduate fellows from VIMS have taken cutting-edge research into secondary classrooms, this session shared examples of their inventive activities. Explaining research using creative lessons, they highlight real world applications of science - How are ecological models like board games? Do worms stir up buried chemicals? How is searching for biomarkers in the sediment like a scavenger hunt? What does fracking look like?
Contact: chopper@vims.edu

Benefits of Scientists Engaging in Education and Outreach: Scientists’ Perspectives
Beth Day-Miller, BridgeWater Education Consulting
This presentation provided data and perspective on the benefits scientists gain from participating in formalized education and outreach activities. Results from scientists participating in two very different programs that link scientists with students or the public were showcased.
Contact: bethday-miller@comcast.net

Engaging Gifted and Talented Youth to Take Action in Environmental Issues through a Summer Enrichment Program
Kathy Fuller, National Aquarium-Baltimore
Using the IEEIA model, the National Aquarium created a Maryland Summer Center for Gifted and Talented Youth to connect high achieving middle school students from low-income families with rigorous, experimental summer learning opportunities. Session participants learned how the National Aquarium recruited, selected, engaged, and retained underrepresented populations through discussion and education model simulation.
Contact: kfuller@aqua.org

MORE UPDATES FROM NMEA
1) They just hired, and will announce soon, a new Online and Social Media Community Manager.

2) The NMEA website and membership database are being moved to www.yourmembership.com, and chapters are expected to be able to move there next year, too.

3) A new scholarship was created in honor of our dear Johnette Bosarge, who passed in February. By the NMEA conference, over $12,000 was raised (including over $750 from MAMEA and its members!) so that the $500 scholarship can be awarded each year FOREVER! And, even better for us, the very first awardee of this scholarship was our own Beth Jewell. Beth embodies everything Johnette believed in and was a dear friend of Johnette’s, and we are proud she was able to start this wonderful tribute.

4) NMEA will be undertaking a major strategic planning effort in 2014, but specifics are yet to be determined.

5) The communications and marketing revamp and plan by Julie Henry Childers is still underway and going strong, and big moves are expected once the new Community Manager is set.

Are you a member of NMEA?

Questions, comments, or thoughts about NMEA?

MAMEA members get $5 off their NMEA membership, so join today at www.marine-ed.org, or contact your out-going NMEA representative, Tami Lunsford, at tami.lunsford@gmail.com, for more information!
Marine Mammals and Climate Change, Reaching Middle and High School Students Through a Geodome
Andy Gould, NC Aquarium at Fort Fisher
With the North Carolina Museum of Natural Sciences, they are taking on the challenge of teaching middle and high school students about the effects of climate change - through the use of immersive theaters and footage of marine mammals in the Arctic and Antarctic, along with current research about how climate change will impact these species, students gain a better understanding of how climate change will impact their own lives.
Contact: andy.gould@ncaquariums.com

Bridge Data Activity: Sea Level Trends
Lisa Lawrence, VIMS
Showcased a classroom activity that explores sea level rise, with access to real online scientific data from ocean observing systems to investigate and compare long-term changes in sea level from different coastal locations around the United States including the Gulf of Mexico.
Contact: ayers@vims.edu

Badges? Improving Environmental and Ocean Literacy Through Boy Scout Merit Badges
Chris Petrone, University of Delaware Sea Grant
Oceanography and Environmental Science are two of the many merit badges the Boy Scouts offer. As a way of increasing interest in marine science, improving ocean literacy, and showcasing our research, we have begun an oceanography badge program.
An update on the approach, the steps taken to get there, and the evaluation plan were shared.
Contact: petrone@udel.edu

Sea Turtle Science & Stewardship
Rachel Riesbeck, Virginia Aquarium
Virginia Aquarium educators worked with aquarium research staff to develop educator curriculum materials on sea turtle research and conservation. This session highlighted the materials developed for informal and formal educator workshops including background information on sea turtles, current research and hands-on activities.
Contact: rriesbec@virginiaaquarium.com

2014 NMEA Conference Updates
The 2014 NMEA Conference (planned for July 21-25, 2014) was officially launched at the 2013 NMEA Conference in Mobile, AL with the showing of the official promotional conference video.

The Conference Planning Committee is pleased to announce the speakers for the 2014 NMEA Annual Conference in Annapolis, MD:
- Rita Colwell: Chairman of Canon US Life Sciences, Inc. and Distinguished University Professor both at the University of Maryland at College Park and at Johns Hopkins University Bloomberg School of Public Health (Former National Science Foundation Director)
- Mike Wysession: Chair for Earth and Space science writing team for the Next Generation Science Standards
- Edie Widder: Former senior scientist at Harbor Branch Oceanographic Institution and co-founder of the Ocean Research and Conservation Association

Tentative Conference Schedule
Monday:
- Possible pre-conference field trips
- Evening welcome tentatively scheduled at the United States Naval Academy

Tuesday:
- Plenary & concurrent sessions
- Evening event at the National Aquarium in Baltimore, MD (featuring Donegal X-Press, local Celtic rock band)

Wednesday:
- Plenary & concurrent sessions
- Annual awards banquet & auction

Thursday:
- Plenary & concurrent sessions
- Stegner lecture
- Closing event

Friday:
- Post-conference field trips
Grants Committee Update

Need Funds for Your School Year 2013/14 Projects? Apply for a MAMEA Grant by September 30!

The MAMEA supports its members’ innovative marine and aquatic education projects each year through its Educational Project Grant Program. Two grants (up to $1,000 each) are available annually, one for formal educators and one for informal educators (museum, aquarium, zoo, science center, government agency staff).

In the past, successful MAMEA grantees have developed recycling programs for their schools, purchased equipment for studying aquatic and marine science in classrooms or conducting environmental monitoring projects. Funds have supported the development of new curricula, field research programs for students, and maintenance of public outreach efforts. To read about these examples of successful projects, please visit www.mamea.org/pastgrants.html.

To be eligible for a MAMEA Educational Project grant, applicants must be current MAMEA members with at least one year’s membership. Grant applications are due by September 30, 2013 and awardees are announced at the annual conference in November. The funding period is November 1, 2013 to October 31, 2014. Reports are expected at the mid-year and completion milestones.

For further information about the Grant application process, please visit www.mamea.org/minigrant.html. If you have any questions about the grant or application process, please contact Grants Chair Carol Hopper-Brill at chopper@vims.edu or 804-684-7735.

Grant applications are due by September 30th!

Awardees will be announced at the annual conference in November.

To be eligible for a MAMEA Educational Project grant, applicants must be current MAMEA members with at least one year’s membership.

Election Updates

Congratulations New Board Members!

Online elections were held over the summer for the open positions on the MAMEA Board. Those who attended NMEA 2013 heard the news at our chapter meeting, but we are very pleased to announce the results to the entire membership here. Congratulations to those elected, and welcome to our new officers:

• Dawn Sherwood: President-elect
• Carol Hopper-Brill: Secretary
• Maria Madero: MD Representative
• Andy Gould: NC Representative

The newly elected board members will take office at our annual conference at the beginning of November.
Delaware

1) 37th Annual Coast Day
Delaware’s Annual Coast Day highlights how the University of Delaware scientists, staff, and students are improving understanding of ocean environments and serving coastal communities. Coast Day attendees can interact with researchers, tour ships, try hands-on activities, and attend presentations on a range of topics.

Family-friendly activities include an event-wide treasure hunt for answers to questions about the environment and Coast Day exhibits. Children can meet sea-dwelling animals such as horseshoe crabs and dogfish sharks at the critter touch tanks. Everyone can enjoy live music, vendor displays, and seafood favorites showcased by local chefs at the Crab Cake Cook-Off and the Seafood Chowder Challenge. Coast Day also features a fifth grade essay contest, as well as a middle and high school-level video contest in the weeks leading up to the event.

This year’s Coast Day will also feature over 30 ships from the TEACH FLEET, an initiative that uses Lego® replicas of working ships to teach history, diversity, and STEM topics to at-risk and under served students. For more information about Coast Day, please visit http://www.decoastday.org. To learn more about TEACH FLEET, visit http://communitylightship.org.

WHEN: Sunday, October 6
WHERE: University of Delaware Hugh R. Sharp Campus (Lewes, DE)
COST: Free

2) Delaware Invasive Species Council (DISC) Annual Conference
Featuring a keynote presentation, concurrent and poster sessions, and great networking opportunities, the DISC annual conference has something for scientists, resource managers, educators, and master gardeners and naturalists.

For more information, please visit http://delawareinvasives.net.

WHEN: Wednesday, October 23
WHERE: Delaware Agricultural Museum (Dover, DE)

North Carolina

1) North Carolina Catch Workshop
CATCH is an education program focusing on aquatic environments through fish studies, outdoor ethics, water safety, and fishing skills. It is open to all interested educators including school teachers, park and nature center personnel, and scout leaders. The workshop will include a morning classroom session, and an afternoon fishing experience. Participants will receive the CATCH activity guide and qualify for CEU and NC OEE credits. This workshop is for ages 16 and up. For additional information, call 910-458-7468.

WHEN: Tuesday, September 17
TIME: 9:00am – 3:30pm
WHERE: North Carolina Aquarium at Fort Fisher
COST: Free (Lunch is not provided; please bring a bagged lunch or plan accordingly.)

2) Methods of Teaching Environmental Education (EE) Workshop
This workshop, hosted by Grandfather Mountain Stewardship Foundation, will be facilitated by Kelly Hoke, with Catawba Soil and Water Conservation District, and Tanya Poole, with North Carolina Wildlife Resources Commission. The focus of this 10 hour workshop is to prepare participants from a variety of educational backgrounds and experiences in both the formal and non-formal sectors to use exemplary Environmental Education teaching methods.

Participants will learn about a variety of teaching
State Chapter Updates

techniques, as well as methods and instructional strategies. The workshop is designed to include multiple interactive components. This is a required workshop for all North Carolina Environmental Education Certification candidates who enrolled in the program after January 1, 2009. It may also count as Continuing Education for those who are already certified.

WHEN: Thursday, October 3 - Friday, October 4
WHERE: Grandfather Mountain (Linville, NC)
COST: Free
REGISTRATION: Pre-registration required by calling 828-733-3224 or email Jesse Pope at naturalist@grandfather.com. All participants must complete and receive credit for the Basics of EE Independent Study by September 20th, to be eligible to attend this workshop.

Virginia

Thanks to all who were able to attend the Virginia events this summer. Several of us enjoyed a baseball game at the Richmond Flying Squirrels in June. Also, in August eight members went paddleboarding in Virginia Beach, VA. We had a great time with Beach EcoTours and highly suggest them to anyone!

1) Virginia Environmental Education (EE) Conference

Registration for the 2013 statewide EE conference is now open! Full registration includes meals, lodging, conference registration, and field trips. In addition to the EE Conference, the Virginia Master Naturalists are holding their conference immediately following this event from October 18 - 20. Our field trips are offered jointly and attendees are encouraged to enjoy both events. If you attend both conferences, you will get a $15 discount per person per conference! For more information, please visit http://www.dcr.virginia.gov/virginia_naturally/events/virginia-environmental-education-conference.shtml.

WHEN: Wednesday, October 16 - Friday, October 18
WHERE: Shrine Mont (Orkney Springs, VA)

2) Students Collaborating to Undertake Tracking Efforts for Sturgeons (SCUTES) Educator Workshop

Atlantic and shortnose sturgeon are two sturgeon species that can be found in coastal waters, estuaries, and major rivers along the East coast of the United States. Because of overfishing for sturgeon eggs which were processed into caviar, shortnose and Atlantic sturgeon have been listed throughout their range under the Endangered Species Act (ESA).

The SCUTES program is the collaboration between NOAA Fisheries, sturgeon researchers, teachers, and informal educators to bring more awareness about sturgeon and the ESA to the classroom. NOAA Fisheries has worked with educators to develop lesson plans and activities relating to sturgeon. These lesson plans meet the National Education Standards, and cover a variety of subjects including language arts, science, social studies, and math. These lesson plans are generally for grades 3-12, but they can be adapted to fit your students’ needs. Teachers are invited to borrow SCUTES kits that contain lesson plans and activity supplies from NOAA Fisheries and other SCUTES partners. The goal of this workshop is to introduce new SCUTES formal and non-formal educators to the educational kits and elementary level activities. Educators will participate in the activities, and are welcome to provide any constructive feedback. Each teacher will receive a SCUTES disc that contains all the lesson plans and various handouts. For a preview of the lesson plans and activities, please visit http://www.nero.noaa.gov/prot_res/scutes/teachers.htm.

Hosted by James River Association, NOAA Fisheries, USFWS, Virginia Commonwealth University – Rice Center, and the Virginia Department of Game and Inland Fisheries.

WHEN: Saturday, September 21
TIME: 9:00am - 3:00pm (Please note, the boat leaves for Presquile National Wildlife Refuge at 8:30am)
WHERE: USFWS Presquile (continued on page 12)
On Saturday, June 8, 2013, nine classroom teachers and three informal educators set off on a 12-hour adventure through eastern Sussex County, DE.

The adventure began as most well-planned, outdoor programs do … with pouring down rain and plenty of cloud-to-ground lightning. After two 30-minute thunder delays, the group and our two guides decided to cautiously move ahead with the kayak portion of the program, and get as far down the Broadkill River as we could before it was time to head back to the boat ramp. Soon after launching and getting used to our fluorescent vessels, the rain ended, the clouds parted, and blue skies appeared. In their best balancing acts possible, folks were de-layering and removing the rain gear as the air temperature continued to climb; it was finally the June weather we had prepared for. Turtles, fish, and plenty of birds were seen as we glided through the Broadkill. Conversations began and fun ensued.

Upon returning to land, we took a pit stop for some appetizers and a quick, refreshing beverage and made our way up the road to the microbrew-Mecca - the Dogfish Head Craft Brewery - or a lesson on the science of making beer. After a quick introduction and orientation, the tour guide soon realized that her group was comprised of nothing but science educators; which apparently was too much for her. She turned beet-red and froze for a few seconds in what we can only assume was some sort of traumatizing high school science flashback. After finally composing herself, she apologized in advance in case she got any of the science wrong - she thought we were going to test her at the end - and then continued on with the tour. We saw miles of pipe, stacks and stacks of empty bottles ready to be filled, huge fermenting tanks (including several made from Paraguayan Palo Santo wood, one of the densest woods on Earth) and so much more. As we stood around the table, sampling the craft beers at the end of the tour, the conversations continued and we all agreed to quit our jobs and start working at the brewery.

Our next step was a local eatery for some delicious subs and salads, and more networking. After dinner, in the restaurant parking lot, mini-conference goers participated in a share-a-thon where we each had a few minutes to describe and exchange our favorite lesson plans, activities, and resources - everything from a hydraulic arm to 3-D paper models to student field-experiences!

From there, we drove 25 minutes north to South Bowers Beach, on the shores of the Delaware Bay, just in time for the 10:00pm high tide. Every year in May and early June, the bayshore beaches are the place to find spawning horseshoe crabs, *Limulus polyphemus*. Delaware Bay holds the largest population of horseshoe crabs on the planet - of all four species in the world - and the Delaware Bay beaches are chock full of these ancient critters attempting to pass their genes on to the next generation.

At one point, we started to explore the strand line and found literally millions of little green horseshoe crab eggs that were uncovered by eroded sand. Included were many transparent, later-stage eggs where the larval horseshoe crab was clearly visible, and spinning around and around inside - absolutely amazing! You can see a quick video of this at [https://vimeo.com/6892585](https://vimeo.com/6892585).

After almost sixty minutes of headlamp-lit walking, up and down the beach, looking for more aggregations; a few impromptu ecology and biology discussions; some flipping of stranded horseshoe crabs; as well as some just-plain-staring in amazement of what we were witnessing, we walked back to our vehicles and parted ways.

One of the participants, Lisa Tossey, a skilled educator, photographer, and journalist, put together a video of the day which can be found at [https://vimeo.com/69140764](https://vimeo.com/69140764).
Captions (clockwise): Millions of little, green horseshoe crab eggs found along the strand line uncovered by eroded sand; DE MAMEA members enjoy kayaking down the Broadkill River; An aggregate of headlamp-lit horseshoe crabs. All image (c) Lisa Tossey.
State Chapter Updates

(continued from page 9) National Wildlife Refuge
(Chester, VA)
COST: Free (Parking provided)
REGISTER: To register, please provide your name, school system, and grade/subject to Suzie Gilley at 804-367-0188 or Suzie.Gilley@dgif.virginia.gov.

3) Teacher Enrichment Program (TEP): Bite of Science
Sponsored by the Center for Excellence in Education (CEE), come for an interactive, cost free dinner event bringing together 25 high school teachers with two leading scientists and/or engineers from industry, academia, or government. Attendees will have the opportunity to:
• Learn from the scientist and/or engineer about their research area
• View models, simulations, videos, and/or a laboratory demonstration
• Explore ways to connect the research to the high school classroom and laboratory
• Ask questions, network with peers, and interface with the scientist and/or engineer
• Learn how to access the free resources available in the TEP Clearinghouse and Lab Bench
• Hear about opportunities for students from CEE's Research Science Institute and USA Biology Olympiad
• Receive professional development points for attending

Participants who commit to follow-up meetings of online discussions and in-person sharing of the implementation/application of Bite of Science in their classrooms will receive admission to the Fall 2014 VAST PDI Conference with the opportunity to present their work at the conference! More information about the event can be found at http://www.cee.org/bite-science.
WHEN: Wednesday, October 9
TIME: 4:30pm - 7:30pm
WHERE: MathScience Innovation Center (2401 Hartman Street, Richmond, VA 23223)
COST: Free (Dinner included)

4) Virginia Association of Science Teachers (VAST) Annual Conference: Sustaining Science!
As teachers of science, we need to continue to support and encourage one another to create quality lesson plans, activities, and experiments to be used in all teaching environments. Our goal, as teachers, is to help all students fall in love with learning and to encourage these students to ask questions about how things work and how they make these things better. By doing this, we can create a sustainable future through science education. PDI strands addressed include:
• Understanding Environmental Literacy Across the Disciplines
• Empowering Science Learning through STEM
• What Works in Today's Science Classrooms
While at the conference (or even if you cannot make it), be sure to join the conversation on Twitter at #2013VASTPDI.
WHEN: Saturday, November 14 - Monday, November 16
WHERE: Waterside Marriott (Norfolk, VA)
REGISTERATION: For more information and to register online, please visit www.vast.org/annual-pdi.html.

Acknowledgements and Feedback
This issue of the Masthead would not have been possible without contributions submitted by David Christopher, Andy Gould, Carol Hopper-Brill, Kathy Fuller, Tami Lunsford, Sarah McGuire Nuss, and Chris Petrone.

Please feel free to email comments, questions, or concerns about 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

Maryland Sails East to Find 'Green' Energy
The research vessel Scarlett Isabella got underway today on a six-week mission off the coast of Maryland to gauge the viability of generating electricity from wind turbines. Two University of Maryland - Eastern Shore students were aboard the 136-foot ship headed to the “Maryland Wind Energy Area,” where detailed measures of the continental shelf will be taken.

Private-sector and university researchers working for the Maryland Energy Administration will be trying to determine what it would take to build and maintain wind turbines 10-to-30 miles offshore.

Pollution-fighting Algae
A hardy algae species is showing promise in both reducing power plant pollution and making biofuel, based on new research at the University of Delaware (UD). The microscopic algae, Heterosigma akashiwo, grows rapidly on a gas mixture that has the same carbon dioxide and nitric oxide content as emissions released from a power plant. A UD-led optoelectronics breakthrough may advance the development of mid-infrared light sources and lasers.

“The algae thrive on the gas,” said Kathryn Coyne, associate professor of marine biosciences in UD’s College of Earth, Ocean, and Environment. “They grow twice as fast and the cells are much larger in size compared to when growing without gas treatment.”

Study Shows “Dead Zone” Impacts Bay Fishes
A 10-year study of Chesapeake Bay fishes by researchers at VIMS provides the first quantitative evidence on a bay-wide scale that low-oxygen “dead zones” are impacting the distribution and abundance of demersal fishes - those that live and feed near the Bay bottom. The affected species - which include Atlantic croaker, white perch, spot, striped bass, and summer flounder - are a key part of the Chesapeake Bay ecosystem and support important commercial and recreational fisheries.

When Sandy Is the Norm: Are We Prepared for Hurricanes of the Future?
Just before the turn of the last century, Diamond City was a thriving coastal town of some 500 souls along the southern edge of the Outer Banks in North Carolina. Then came the Great Hurricane of 1899. Sometimes called that era's "storm of the century," it washed away nearly everything that made life possible on the island - most of its homes, stores and its school were flooded, fertile land was made useless by salty water, and cemetery graves were ripped from the ground, leaving behind a grisly aftermath of scattered bones and remains.

How did the survivors respond to nature's fury? They left. By 1902, all of the town's inhabitants had abandoned Diamond City for good, settling mostly on nearby Harker's Island and in Morehead City on the mainland.

"At the very least, we can expect what we've had during the last 10 years -- which is events like Katrina and Sandy," said Dr. Robert S. Young, a professor of geology at Western Carolina University and director of the university's Program for the Study of Developed Shorelines.

"We're not making ourselves less vulnerable," he added. "In many cases, we're rebuilding in the same locations that were destroyed by those storms, and as sea level continues to rise, the impacts of those events are just going to be greater."
2014 NOSB Regional Competitions Offer Your Students a Marine Science Challenge

Three Mid-Atlantic regional competitions of the 2014 National Ocean Sciences Bowl (NOSB®) provide opportunities for you to energize and challenge your students. This national program tests knowledge and critical thinking skills in marine-related science, policy and other subjects. NOSB inspires educators, too, giving you a rationale for incorporating more marine and aquatic science into your curricula, as well as chances to demonstrate the highly integrated nature of these fields. Plus, MAMEA offers awards to first-time and winning coaches of all three Mid-Atlantic regional competitions.

Teachers act as coaches, preparing a team of 4-5 students to go head to head in quiz-bowl competition. Students are tested on their knowledge of scientific and technical disciplines through rapid-answer buzzer responses as well as more complex analytical questions. The 2014 regional bowls will be held on either February 1 or March 1. The winning team from each regional competition receives a trip to the National Finals in April.

For more information about the NOSB Competition in your area, check out the Regional Competition profiles below and visit the NOSB website at http://www.nosb.org/competitions-2/regional-competition-map/. Deadlines for registering your team are different for each Bowl, so check with the Regional Coordinator to sign up.

The Chesapeake Bay Bowl, will take place February 1 at the Virden Center of UD in Lewes, DE. This contest draws schools from Delaware, Maryland, the DC-metro area, as well as selected cities in nearby Pennsylvania and Northern Virginia. For information, contact Regional Coordinator Christopher Petrone at petrone@udel.edu or phone 302-645-4308.

Virginia’s Blue Crab Bowl is coordinated by VIMS and ODU’s Department of Ocean, Earth, and Atmosphere. Teams are drawn from Virginia, with the exception of Northern Virginia’s DC Beltway region. Deadline for submitting a statement of intent to compete is October 14. This year’s contest will be held February 1 at the ODU in Norfolk, VA. Visit the Blue Crab Bowl website at www.vims.edu/bcb or contact Regional Coordinator Carol Hopper-Brill at chopper@vims.edu or 804-684-7735.

The Blue Heron Bowl in North Carolina rotates between institutions. In 2014, the competition will be hosted by North Carolina State University, in Raleigh, NC. For the competition date and more details, contact the NC Regional Coordinator Dr. Janelle Fleming at janelle.fleming@gmail.com or phone 252-726-6823.

Are you on Pinterest?
Check out this featured Pinterest board created by MAMEA member, Megan Ennes, to keep the bright ideas flowing throughout the school year: http://pinterest.com/afishnamedmeg/stuff-for-the-aquarium/. Please submit ideas for featured Facebook pages, Twitter handles, or Pinterest boards to Ann McElhatton, Masthead Editor, at info@beachchairscientist.com.
For more social media suggestions, please visit http://mameamasthead.wordpress.com/2013/09/18/social-media-segment-3/
Experiences of a 2013 Educator at Sea: Bethany Smith, Chesapeake Bay Governor’s School

As a marine science educator, I often feel one of my most important jobs is to impress upon my students how unexplored our planet’s oceans truly are. We’ve sent humans to the moon more often than we’ve been to the deepest parts of the oceans! I find myself repeating that mantra frequently. A simple comparison of the NASA and NOAA budgets also drives home the point. This is not to say that space exploration is not important or exciting, because it is. However, I believe we should know the most we can about our own inner space, before venturing into outer space. There are in fact, groups and people working hard to provide access to ocean exploration for students, teachers, and even armchair explorers around the globe.

I was lucky enough to spend part of my summer with one such group, the Ocean Exploration Trust. I joined Dr. Robert Ballard’s Corps of Explorers as a 2013 Educator at Sea Science Communications Fellow. Sixteen new educators and a handful of veterans from around the world were selected for the program. These included both formal and informal educators who teach all ages from elementary through college. Virginia was well represented this year with five educators. As an Educator at Sea, my main responsibility was to communicate the events of the expedition to the world via the Nautilus Live website, as well as through live ship-to-shore interactions with aquariums and science centers across the United States. On my expedition I had the pleasure of joining an expert team of archaeologists, scientists, video engineers, data loggers, remotely operated vehicle (ROV) pilots and other educators aboard the E/V Nautilus for an 8 day mission exploring an early 19th century copper-clad shipwreck in the western Gulf of Mexico.

The Monterrey Wreck was originally identified as an unknown target in a 2011 Shell Oil survey of their Monterrey lease tract. The Okeanos Explorer visited the target in 2012 and during a 2-hour ROV dive verified that it was in fact a shipwreck. Video taken during that initial investigation served as the starting point for future investigation. The E/V Nautilus returned in 2013 to complete the deepest systematic investigation of a shipwreck ever done in the Gulf of Mexico. The shipwreck lies in 1,330 meters of water, 170 miles from Galveston, TX.

The early 19th century was an interesting time in the Gulf of Mexico as new nations were forming and the Texas Revolution, Mexican War, and the War of 1812 were being fought. Gulf waters were a dangerous place as pirates, smugglers, and the slave trade were also emerging. This historical context provided the basis for many of the research questions asked about the wreck. While sitting two 4-hour watches a day in the Nautilus control room, I watched in awe as the ROV Hercules worked with almost surgical precision, retrieving artifacts from the wreckage. Artifacts included bottles and glassware, pottery, ceramics, navigation equipment, muskets and cutlasses. Many artifacts were carefully documented and left in place on the seafloor. These included large artifacts such as cannons, anchors, and the ship’s stove, and delicate artifacts such as leather bound books and slate tablets.

Perhaps the best part about this expedition was that people all over the world were able to participate in real time via the Nautilus Live website (continued on page 16)
2013 Educator at Sea

(continued from page 15) (www.nautiluslive.org) Video and audio of ocean exploration is transmitted live from E/V Nautilus 24 hours a day, 7 days a week, as long as the ship is exploring. Viewers can also interact with expedition scientists and educators by sending in questions to the watch team and hearing their questions answered live. As a marine science educator, this was my utopia. It was truly shouting about ocean exploration and research from the mountain tops, or rather, from a shipwreck 1,330 meters below the sea surface. This was getting people all over the world excited about our oceans and the possibilities they hold, without that person ever leaving their recliner! This was immersing our students in real life exploration without ever having to leave the classroom or schedule a bus!

The expedition ended with the discovery of two additional shipwrecks in the nearby area. These shipwrecks were also classified as unknown targets on the original 2011 survey. They were discovered and verified live, with countless students, educators, and armchair explorers along for the ride. The two new wrecks seem to be similar to the first in size, construction, and types of artifacts. It’s possible that all three vessels were traveling together and were wrecked during the same event. These two new wrecks beg for even more questions to be asked. This is ocean exploration at its finest!

The opportunities for education are equally exciting. In addition to the live video and audio feed from the ship, the Nautilus Live website has pictures and video highlights of previous expeditions, educational games and info about the ship and technology used onboard. Even better, the Exploration Now website (www.explorationnow.org) is set up to provide access to other ships of exploration around the world.

If you’re interested in learning more about how you can incorporate ocean exploration into your STEM classroom, I’ll be giving a talk at the upcoming VAST Professional Development Institute, in November 14-16, in Norfolk, VA. And if you’ve been bitten by the bug, I’ll also be highlighting how you can pursue becoming a 2014 Ocean Exploration Trust Educator at Sea.

5 Featured Resources

1) Aquatic Food Webs
This NOAA Education Resources website offers an exploration of aquatic food webs. Check out the Real World Data investigations, Who’s Eating Whom, and more. http://www.education.noaa.gov/Marine_Life/Aquatic_Food_Webs.html

2) Invertebrates of Alaska Posters
The NOAA Fisheries Alaska Fisheries Science Center has a new set of posters featuring chitons, sea stars, and shrimp from Alaska. One set of posters can be ordered free for your school or classroom. http://www.afsc.noaa.gov/education/oceanlife/invertebrates.htm

3) Map of the Month
The Earth Institute State of the Planet blog produces a new map each month filled with interesting data and includes an in-depth article explaining what is being shown on the map. http://blogs.ei.columbia.edu/tag/map-of-the-month/

4) NatureBridge
NatureBridge provides hands-on environmental field science education for children and teens through National Park-based overnight field science programs. Parks include Channel Islands, Olympic, and others. NatureBridge provide scholarships to more than 35% of their participating schools in order to reach more students from underserved communities. http://www.naturebridge.org/

5) State of the Planet
The State of the Planet is a forum for discussion on varying viewpoints, hosted by the Earth Institute of Columbia University. Blog topics include Climate & Energy, Water, Eco Matters, Millennium Villages, and Education News. Categories include natural disasters, economics, earthquakes, and more. http://blogs.ei.columbia.edu/

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