

# The Masthead

Summer, 2003



Mid-Atlantic Marine Education Association

## From the Captain's Quarters

Busy and exciting times are ahead in MAMEA land! With the excellent leadership of Terri Hathaway and Andy Wood, MAMEA has been working hard to get ready for this summer's NMEA conference in Wilmington NC. In addition, Richmond Virginia will be the site for a National Science Teachers Association's (NSTA) regional conference in 2004. MAMEA is making plans to host a share-a-thon and possibly a day of sessions. MAMEA will be recruiting other chapters in the cause. NMEA does this at the NSTA national convention each year so why not start a new trend for the regional? We feel we have a great deal to share with folks and want science educators to get to know us.

Before we know it the fall MAMEA conference will be upon us. Lewie Lawrence is planning an exciting weekend of activities in Chincoteague VA. See page three for conference details. Now is also the time for you to consider running for an elected position. President, secretary, treasurer, NC and MD representative positions are open for nominations. Susan Haynes ([shaynes@vims.edu](mailto:shaynes@vims.edu)) is our nominations chair this year and will be happy to take your nominations. John Chubb, our awards chair, ([jchubb@broadwater.esva.net](mailto:jchubb@broadwater.esva.net)) is always looking for nominations for our Outstanding Classroom and non Traditional Educator Awards and Barry Fox, grants chair, ([bfox@vsu.edu](mailto:bfox@vsu.edu)) will gladly take your grant proposals. These are all benefits of being MAMEA members. Take advantage of them! I am looking forward to seeing you all in Wilmington! Have a restful and rewarding summer!

Beth Jewel  
MAMEA President



## NMEA 2003

For more information about the 2003 NMEA Conference, log on to [www.marine-ed.org/nmea2003](http://www.marine-ed.org/nmea2003).

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You should be receiving this issue of the *Masthead* just before the NMEA Conference in Wilmington, N.C. The MAMEA Board hopes that many of you will take advantage of this conference and attend all or part of it. The planning committee has done a marvelous job in putting together a tremendous program. We just hope and pray that the theme for the conference does not bring the real thing.

Marine/aquatic education initiatives are expanding as more and more important issues are coming into public awareness. The contentious Mattaponi dam project by Newport News Virginia, the Asian oyster experimental trials in the Chesapeake Bay, political changes in the environment/natural resource agencies in Maryland are a few of the events that are shaping or are the result of our natural resource policies.

Stay informed, get involved and help students comprehend the short and long term implications of these events.

Barry Fox, Editor ([bfox@vsu.edu](mailto:bfox@vsu.edu))



## Call for Nominations for 2004 MAMEA Board

This year we will be accepting nominations for the following positions on the MAMEA Board: North Carolina and Maryland Representatives, Secretary, Treasurer, and President elect. **Please send your nominations to Susan Haynes on or before August 29 to PO Box 1346, Gloucester Point, VA 23062 or [shaynes@vims.edu](mailto:shaynes@vims.edu).** An announcement of candidates will be posted on the website and sent to the MAMEA list serve by September 2. Voting will take place at the October conference. We look forward to seeing you there!

**The National Geographic Society Foundation's** teacher grants are awarded to educators to facilitate their work in the classroom, school, district, and/or community. Projects that feature outreach to urban areas are particularly encouraged. In accordance with its mission, the foundation seeks to fund projects in either of two broad categories: 1) promoting geographic knowledge through education, and 2) promoting stewardship of natural and cultural resources.

Applications are accepted from any current teacher or administrator in an accredited K-12 school within the United States. For more information, visit:

[http://www.nationalgeographic.com/education/teacher\\_community/get\\_grant.html](http://www.nationalgeographic.com/education/teacher_community/get_grant.html)

**The Help Us Help Foundation** assists K-12 public schools and youth organizations in economically challenged communities to obtain information technology tools. The foundation will donate new Internet appliances and laser printers as well as all the ancillary equipment necessary to connect the devices, including network hubs, cables, and electrical surge protectors. The application deadline is August 31st. For complete guidelines and application forms visit: [http://www.helpushelp.org/pages/grant\\_index.html](http://www.helpushelp.org/pages/grant_index.html).

**The Renewable Energy Trust**, administered by the Massachusetts Technology Collaborative (MTC), is inviting applications from math, science and social studies teachers, grades 4-12, to submit proposals that describe how they can develop curricula enhancements to bring renewable energy issues and concepts into their classroom teaching. Teachers may submit individual proposals, but the Trust is keenly interested in receiving proposals from teams of teachers across disciplines. For more information, visit: [http://www.masstech.org/Grants\\_and\\_Awards/EPA/03EPA03Info.htm](http://www.masstech.org/Grants_and_Awards/EPA/03EPA03Info.htm).

**Adopt-A-Watershed** has released a new middle school curriculum *Wade into Watersheds*. Students learn how water supports living things and how humans affect water quality. Activities focus on the importance of water quality and ways students can protect it. Among the curriculum supplements included are: *Where Does Your Water Come From? The Source Water Book* - Water Education Foundation; *Aquatic Habitats: Exploring Desktop Ponds*, GEM Guide, UC Berkeley; *Give Water a Hand* - University of Wisconsin; *Water Wisdom* - Alameda Office of Education; and *Hands On Save Our Streams* - Izaak Walton League. For more information, visit: <http://www.adopt-a-watershed.org/matrix/wiw.htm>.

A new, reasonably priced booklet is available entitled ***Common Stream Invertebrates: An Illustrated Field Guide to the Larvae and Adults***, produced by Frank Taylor's Biology Classes at Radford High School. The booklet is 29 pages and has very basic but accurate black and white drawings of larva and adults on facing pages along with some descriptive text. This could be a useful tool for teachers or other audiences. Please help spread the word to your colleagues and other educators and consider supporting the efforts of these students. The booklets are \$4.00 for 1-4 copies, \$3.00 for 5-20 copies, or \$2.50 for 20+ copies. They have also produced booklets on Trees, Woodland Wildflowers, and Meadow Flowers. For more details, please contact Frank Taylor directly at [ftaylor@rcps.org](mailto:ftaylor@rcps.org), or go to: [www.rcps.org/rhs/rhsbio/Taylor/biology/fieldguide.htm](http://www.rcps.org/rhs/rhsbio/Taylor/biology/fieldguide.htm).

The ***Virginia Coastal Management Magazine*** Fall 2002/Winter 2003 issue is now online at: <http://www.deq.state.va.us/coastal/publicat.html>. The magazine is published twice a year by the Virginia Coastal Program to highlight coastal resource management issues and activities. This issue describes the new Virginia Seaside Heritage Program, and provides updates on Virginia's Oyster Heritage and Clean Marina Programs. Other articles of interest are also included.

**FishAmerica Foundation** supports projects to restore coasts, wetlands, and other fisheries habitat; to improve fish migration routes, and build reefs and other structures in marine areas. They support projects that involve citizen conservationists, ranging from Boy Scouts to sportsmen's clubs to local conservation group chapters, helping communities revive degraded habitats and bring fisheries back to healthy waters. The FishAmerica Foundation is the conservation and research arm of the American Sportfishing Association. Competitive grants range from \$5,000 to \$30,000. The announcement and full grant package are available on <http://www.fishamerica.org>.



**PDF insert**

## Around the Association

### MARYLAND (Kathy Siegfried)

#### National Aquarium in Baltimore: *AquaPartners for the Bay*

The NAIb's Conservation Education Department has just completed the first year of *AquaPartners*, a new education outreach program made possible by a grant from the Howard Hughes Medical Institute. Targeting fourth and fifth graders in eleven Baltimore City schools, *AquaPartners* aims to increase knowledge of the Chesapeake Bay and foster behaviors that will benefit the watershed. Each *AquaPartners* school is visited by the Aquarium's Outreach department in the fall and winter, followed by a field excursion in the spring. More than 1,500 students and their teachers participate in this multi-year program.

#### New Conservation Education Director at the National Aquarium in Baltimore

With Valerie Chase's retirement, NAIb's Education Department was left with huge shoes to be filled. After a long search, Nancy Hotchkiss has been named the new Conservation Education Director. Nancy actually has returned to the NAIb's Education Department after spending time at the Miami Metro Zoo, American Wilderness Experience, and NAIb's Exhibits and Design Department. Please welcome Nancy next time you see her.

### NORTH CAROLINA (Amy Sauls)

#### The Albemarle-Pamlico National Estuary Program

APNEP, a federal/state funded partnership between the Environmental Protection Agency and North Carolina, focuses on the preservation, protection and restoration of the natural resources in northeastern North Carolina and southeastern Virginia. One of 28 such programs around the three US coastlines, the APNEP region extends to the 36 most northeastern counties in NC and 19 counties and incorporated cities in southeastern VA. Formerly known as the Albemarle-Pamlico Estuarine Study (APES), it was the first to have its Albemarle and Pamlico sounds declared "an estuary of national significance." Like its 27 sister programs, the APNEP is a member of the Association of National Estuary Programs (ANEP), a non-profit organization headquartered in Washington, DC, and is engaging in that organization's national outreach campaign entitled *What's an Estuary?*

Designed to involve a critical mass of individuals, organizations and businesses in creating public

awareness about what an estuary is and why it's important to protect them, the campaign will incorporate mass and electronic media. Partnerships with businesses and a community outreach project are also part of the effort. The campaign will be launched on National Estuaries Day, September 27<sup>th</sup>, 2003 and will be accomplished in two phases. The campaign in NC also coincides with APNEP's partnership with the Rachel Carson National Estuarine Research Reserve (NERR) in bringing the fall broadcast of *EstuaryLive!* to the Internet. For more information about the campaign contact Joan Giordano, APNEP Outreach Coordinator, at: joan.Giordano@ncmail.net, or by phone at 252-926-6481.

*EstuaryLive* at [www.estuarylive.org](http://www.estuarylive.org) will appear on September 23 - 26<sup>th</sup> with a special showing on September 23 - 24<sup>th</sup> from the Rachel Carson site of the NCNERR featuring topics such as introduced species. A national broadcast on September 25 - 26<sup>th</sup> will have live field trips from across the country including Washington, Oregon, Florida and other states. Check out the Web page for details on how to watch and participate in this live interactive, Internet field trip, as well as new resources and lesson plans to integrate into your programs.



The Rachel Carson site of the North Carolina National Estuarine Research Reserve hosts public field trips weekly through September. Check out the Web page for dates ([www.ncnerr.org](http://www.ncnerr.org)) or call for details (252-728-2170) and ask for Pam. These are 2-hour ecology based trips guaranteed for fun and possibly some mud! If you are interested in Currituck Banks NCNERR site or Zeke's Island NCNERR site trips through August, contact Sean at the same number.

#### North Carolina Maritime Museum (Jeannie Kraus)

Visitors to the North Carolina Maritime Museum this summer will be treated to a commemorative exhibit of the 30<sup>th</sup> anniversary of the **USS Monitor** discovery off Cape Hatteras. The history of the ironclad vessel and memorabilia of the expeditions to locate the Civil War-era shipwreck by the Duke University Marine Lab are displayed around a turret-like facade. The public is

### (NCMM - continued)

invited to hear renowned speakers and go on special tours during the *Monitor* Symposium on August 28-29.

For those interested in **Blackbeard and the Queen Anne's Revenge shipwreck**, the museum features an exhibit plus weekly tours to the Repository of artifacts. Two traveling exhibits, *Down to the Monitor* and *The Search for Queen Anne's Revenge*, are available by request.

Museum sponsored **environmental field trips** will be conducted for the public and school groups to observe marine and bird life and coastal plant communities on barrier islands. Participants can collect marine life on a research vessel and pull nets in estuaries.

The **Cape Lookout Studies Program** promotes environmental education, research and conservation on the coastal waters and islands near Beaufort, NC. Groups use the former US Coast Guard Station on Cape Lookout National Seashore for overnight programs to study barrier islands, dolphins and sea turtles.

**Boating enthusiasts** may register for classes in boat building, adult sailing, traditional boat handling, and sea kayaking. The Junior Sailing Program uses the fun of sailing to teach seamanship to children.

Children of all ages enjoy **Summer Science School** classes on seashore life, saltwater science, kayaking, fishing, fossils, pirates, maritime archaeology, and camps at Cape Lookout.

The **Fall Lecture Series** features *The Lost Light of Cape Hatteras Lighthouse* (Sept. 19), *Tuna Traps of Italy* (Oct. 27), and *The Bumblebee, the first helicopter in Beaufort* in conjunction with North Carolina's First in Flight celebration (Nov. 14).

Some programs may qualify for teacher renewal credit and NC Environmental Education Certification. College interns may receive credit as they plan activities and programs for summer visitors. Teachers may make reservations for group tours and field trips. For program information, view the calendar of events and education services on [www.ah.dcr.state.nc.us/sections/maritime](http://www.ah.dcr.state.nc.us/sections/maritime). Email [maritime@ncmail.net](mailto:maritime@ncmail.net) or telephone 252-728-7317 for information.

### VIRGINIA (Lisa Ayers Lawrence)

MAMEA's president-elect **Lewie Lawrence**, Director of Regional Planning at the Middle Peninsula Planning District Commission, was honored with the **2003 Virginia Environmental Stewardship Award** presented by Virginia's Department of Environmental Quality and the Virginia Petroleum Council. This award recognizes his significant contributions to Virginia's water quality and quality of life through his innovative projects to improve failing wastewater systems, to preserve the 90,000 acre Dragon Run Watershed, and to provide residents of the Commonwealth with hundreds of public access waterway sites. Congratulations Lewie!

### National Ocean Sciences Bowl

This spring, students from Thomas Jefferson High School in Alexandria, Virginia descended upon the Scripps Institution of Oceanography to match marine science wits with students from around the country at the National Ocean Sciences Bowl. The two-day competition challenged students' knowledge of oceanography and the influence of oceans on national and international economics, history and culture. Thomas Jefferson High, winner of the regional Blue Crab Bowl, placed fifth at nationals. Congratulations TJHS!

### Grant Opportunity

The Virginia Resource Use Education Council and the Virginia Department of Environmental Quality have available small grants for teachers up to \$1,000 for the purpose of conducting meaningful outdoor watershed experiences with their students. For more information, visit: [www.vanaturally.com/classroomgrants.html](http://www.vanaturally.com/classroomgrants.html). Application deadlines are July 15 and January 15.

### Teacher Workshops

Are you looking for a workshop that will help you design a Meaningful Bay Experience for your class? If so, sign up for one of the Virginia Resource Use Education Council's Meaningful Watershed Educational Experience Symposia at [www.vanaturally.com/mwee](http://www.vanaturally.com/mwee)

Congratulations to the **Virginia 4-H Water Wizard Van** for winning the 1890 Association of Extension Administrators Innovative Program Award presented in Atlanta, June 24, 2003. For more information about this program, contact Barry Fox or go to: <http://www.ext.vt.edu/resources/4h/wizard/>.

The *Masthead* is the official newsletter of the Mid-Atlantic Marine Educators Association (MAMEA) and produced quarterly. The Association is an affiliate of the National Marine Educators Association and dedicated to the advancement of marine and freshwater education curricula, programs, and events that foster effective instruction, learning and environmental stewardship. Annual dues are \$10.00. For membership application, send your name, institutional affiliation, address, telephone/Fax numbers and e-mail address with payment to Andrew Wilson, MAMEA Treasurer, 1004 S. Dickenson Ave., Sterling, VA 20164 (e-mail: [underthesea@erols.com](mailto:underthesea@erols.com)). For more information, contact any Board member.

## **York County Mosquito Fish Hatchery (Associated Press, May 5, 2003)**

Mosquitoes that spread West Nile virus, malaria and other illnesses have met their match in a tiny fish with a voracious appetite, the mosquito fish. York County, Virginia has opened a hatchery to raise the fish, which are given free to any Virginia locality that obtains a state permit to release them. So far, Henrico, Southampton and Gloucester counties are the only applicants, but Chesapeake and Virginia Beach say they have used the fish for years. "They were first used in mosquito control back about the turn of the century," said James K. Rindfleisch, York County's mosquito biologist. "We started using them here in 1985 and then we took a hiatus for a while. We started up again last year. They're top feeders and that just so happens to be where mosquito larvae like to hang out," Rindfleisch said. "They act like a bunch of piranhas. Really, they're quite vicious. Each mosquito fish can eat 250 or more mosquito larvae a day, quite a feat for a fish only 1½ inches long." The species that York County is raising, *Gambusia holbrooki*, is native to Virginia. Another species, *Gambusia affinis*, has been stocked around the world for mosquito control since the early 1900s.

The Virginia Department of Game and Inland Fisheries requires a permit to raise or release mosquito fish, to ensure that no threatened or endangered species will be affected. However, mosquito fish occur naturally in many places and some localities may have started using the fish before permits were required. "We've been using these fish for years," said Gene Payne, interim director of Chesapeake's mosquito control commission. "We have them established in several areas. Once they're established, they really don't need stocking unless it dries up." Virginia's West Nile virus surveillance and response plan for 2003 suggests stocking the fish in such places as retention ponds, stagnant ditches and ornamental pools.

The state Health Department has tested 19 humans and 39 dead birds for the virus this year, and the virus was not found in any of them. Last year, 29 Virginians were diagnosed with West Nile, and two died. "Using mosquito fish helps reduce the need for pesticides," Rindfleisch said, "and kills mosquitoes before they mature into biters." The fish are free to York County residents. Residents of other localities should contact their local mosquito-control agency to ask about obtaining mosquito fish.

## **Albemarle-Pamlico National Estuary Program (APNEP) Oil Recycling Project**

Following initiation by the APNEP, a Memorandum of Agreement (MOA) between the State of North Carolina and the Commonwealth of Virginia was signed in October 2001. Specifically, the MOA pledges support by the NC Department of Environment and Natural Resources (NCDENR) and the Virginia Department of Conservation and Recreation (VADCR) for cooperation and coordination in protecting the natural resources in the river basins the states share.

Realizing the rural nature and predominately agricultural land use of the area, the group recognized the possibility of water pollution being caused by improper storage of used motor oil and hydraulic fluid on farms. The group spearheaded an oil-recycling program aimed at reducing the storage, transportation, and improper use of the abandoned fluids on the farms of those interested in participating in the program.

The program is voluntary and offered through Soil & Water Conservation Districts to the agricultural community in the bi-state Chowan basin (hopefully soon, in the Pasquotank, as well). After farmers register to participate, a commercial oil recycler/hauler visits the farms on a regular circuit, collects the used fluids and transports them to its recycling center. The recycler's effort is provided free of charge to the program, since it retains possession of the oil.

The farmers are offered amnesty from prosecution for any improperly stored or utilized oil, as well as a 75/25 percent cost-share arrangement for purchase of environmentally approved, double-walled 275-gallon plastic containers designed for appropriate handling/storage of the used oil. These containers take the place of open 55 gallon drums, 5 gallon buckets and other unsuitable containers being used and thereby reduce the possibility of spills and ruptures. To date there are 85 farms participating in the program. In addition to funds provided by the APNEP, the group applied for, and received, grant money from the NC Division of Pollution Prevention and Environmental Assistance. Local governments, through their Soil & Water Conservation Districts, provide the needed "match" money, while area Cooperative Extension Service and Soil & Water Conservation District personnel handle the necessary technical assistance. An outreach and education component rounds out the program. For more information on this project contact Joan Giordano, APNEP Outreach Coordinator, [joan.Giordano@ncmail.net](mailto:joan.Giordano@ncmail.net) or at 252-946-6481.

## **Pew Oceans Commission Report (June 4, 2003, Washington, D.C.) (Richard Rich, VA Tech)**

Over fishing at sea, over-development along the coasts, and increasing pollution from cities and fields are leading to decline of ocean wildlife and the collapse of ocean ecosystems, according to a landmark report released by scientists, fishermen, conservationists, business leaders, and elected officials. The independent Pew Oceans Commission calls for immediate reform of U.S. ocean laws and policies to restore ocean wildlife, protect ocean ecosystems, and preserve the ecological, economic, and social benefits the oceans provide. The comprehensive report, entitled *America's Living Oceans: Charting a Course for Sea Change*, is the result of a three-year, nationwide study of the oceans, the first of its kind in more than 30 years.

"For centuries we have viewed the oceans as beyond our ability to harm and their bounty beyond our ability to deplete. The evidence is clear that this is no longer true," said Leon Panetta, chair of the independent, bipartisan commission. "The good news is that it is not too late to act. This report offers practical solutions for bringing ocean management into the 21st century to ensure that future generations will be able to enjoy clean beaches, healthful seafood, abundant ocean wildlife, and thriving coastal communities."

The Commission calls for a bold, new conservation ethic that embraces the oceans as public trusts, recognizes our dependence on healthy marine ecosystems, and practices precaution as we manage ocean resources. The report presents a number of important findings and recommendations. The Commission also urges the doubling of the federal ocean research budget, which for more than a decade has hovered near 755 million dollars, less than four percent of the nation's total research budget. Citing the need to build a national constituency for the oceans, the Commission calls for a new era of ocean literacy to inspire the next generation with a greater understanding of and appreciation for the oceans. In response to the environmental risks associated with the emerging aquaculture industry, the Commission calls for a moratorium on the expansion of finfish aquaculture (including salmon) until national policies and standards are in place.

"A century ago, President Theodore Roosevelt instilled a conservation ethic for our land that resulted in such national treasures as Yellowstone, Yosemite and the Grand Canyon. Today, we extend this ethic to the oceans and pledge to meet our responsibility to provide for the coming generation a bountiful ocean legacy," said Leon Panetta. Members of the independent, nonpartisan commission were in Washington, D.C. to present *America's Living Oceans* to members of Congress and the Bush administration. The Commission is distributing the report to governors and to citizens in all 50 states and territories, and in over 30 countries. The public may download or order *America's Living Oceans* at [www.pewoceans.org](http://www.pewoceans.org). Additional media materials, including facts sheets, commissioner bios, facts and figures, and images are available at [www.pewoceans.org](http://www.pewoceans.org). For more information, contact: Justin Kenney at 703-516-0605 or [kenneyj@pewoceans.org](mailto:kenneyj@pewoceans.org)

The Pew Oceans Commission was funded by a grant from the Pew Charitable Trust, which supports nonprofit activities in the areas of culture, education, the environment, health and human services, public policy, and religion. The David and Lucile Packard Foundation, the Rockefeller Brothers Fund and Oxford Foundation provided additional funding.

## **State to study foreign oysters in bay (Mike Unger, Capital Gazette)**

Maryland Governor Robert L. Ehrlich Jr. announced that the state would begin a comprehensive study of the risks and rewards of introducing Asian oysters into the bay. "Something needs to be done, and it needs to be done now," Mr. Ehrlich said during a news conference at Pusser's Landing restaurant in downtown Annapolis. "If we do nothing, we will have lost our responsibility to pass a healthy bay onto future generations."



The study will be directed by the state Department of Natural Resources, with the cooperation of the Army Corps of Engineers, state officials said. The governor also has asked the DNR to contact the appropriate agencies in Virginia and North Carolina to seek their help in the research. Watermen quickly hailed the study, saying Asian oysters would be a great way to increase the bay's decimated oyster population. Larry Simms, president of the Maryland Watermen's Association, said the study will be conducted "with an eye toward" stocking the bay with the oysters. "If we're going to get oysters back in the bay, it's almost something we have to do," Mr. Simms said. "They're important to not only watermen, but to the whole bay because they filter the water." State officials said the study could be completed within a year. They estimate it will cost \$1 million to \$2.5.

Asian oysters, *Crassostrea ariakensis*, appear to be resistant to the oyster diseases MSX and Dermo, which have killed a large percentage of oysters native to the bay, *Crassostrea virginica*. Scientists also have found that they grow quickly to large sizes, and taste testers have raved about their flavor. However, they are an exotic species, a fact that has some environmentalists worried. "All of the experience we have with non-native species boils down to two things," said Bill Goldsborough, a senior scientist for the Chesapeake Bay Foundation. "They are unpredictable and irreversible." He pointed to mute swans, non-native birds that eat bay grasses, and nutria, an aquatic mammal which eat marshes "to the root." The National Academy of Sciences is in the midst of conducting a study of Asian oysters. Its roughly 1,500-page report is due out this summer, Mr. Goldsborough said. "That will be pivotal," he said. "We feel that ought to be the basis for any decision." Virginia officials have approved a test plan to place some sterile Asian oysters in its portion of the bay. However the Virginia Seafood Council has agreed to wait until the academy is finished.

While Mr. Goldsborough called some early studies of Asian oysters "encouraging," he maintained that not enough is known about the species to introduce them now in Maryland. One fear of opponents is that the foreign oyster could not only muscle out the native species, but also spread up and down the East Coast if it is able to reproduce in the bay. Because one of the two parasitic diseases crippling the native species likely came from another non-native mollusk that was deliberately released into the Chesapeake two decades ago, many scientists want to proceed with caution.

This year's oyster harvest was a dismal 53,000 bushels, the smallest since Maryland began keeping records in 1870. Maryland once produced between 1 million to 2 million bushels a year. Last year the harvest was 148,155 bushels. This spring, watermen and environmentalists reported finding an abnormally high number of dead oysters in the bay. Heavy spring rains and a record winter snowfall were seen as likely culprits. Mr. Simns said the long-term oyster decline has forced the governor to act.

### **Storms Stir Caldron of Troubles (Griff Witte, Washington Post Staff Writer)**



After all the misery endured on land during the region's aquatic spring, when the never ending rain made it tempting to sprout gills and swim away, you'd think at least the fish would be happy. Well, they're not. The crabs aren't exactly thrilled, either. And the people dedicated to protecting plant and animal species in local streams, rivers and especially the Chesapeake Bay are downright gloomy. That's because the spring's record-breaking rainstorms could have far-reaching environmental implications, many of them negative, for the region's waterways.

The storms, in all their fury, created a giant water slide for pollutants, sending fertilizer, sewage and other pollutants churning toward the Chesapeake. It wasn't just this year's pollution, either. Because of the droughts of the past few years, harmful doses of nitrogen and phosphorus that had been sitting idly on stream banks during the dry spell got caught up in the torrent. As a result, scientists expect some of the underwater bay grasses, which are the cornerstone of life in the Chesapeake, to die. "They've come up pretty well in the past few years, because of the improved water clarity that comes with the lower flow," said Michael Fritz, living resources coordinator for the Environmental Protection Agency's Chesapeake Bay Program. "But now, it's all turned the other way." Reduction in grasses causes a ripple effect that spells trouble for the bay's animals, which use the grasses for food and for protection. "It's just crawling with life in there," Fritz said. "The loss of the grasses leaves the juvenile fish and crabs more exposed to predators and with poorer quality habitat for them to feed in."

Scientists do not yet know exactly how much phosphorus and nitrogen reached the bay during this spring's storms, but there is little doubt based on water flow levels that the amount was massive. Nitrogen and phosphorus are nutrients that spark algae growth. In large quantities, the nutrients can lead to algal blooms that blanket the water surface and prevent the sun's rays from getting through to the grasses. The blooms can suck the oxygen out of the water at night, resulting in fish kills. "I would expect to see some very, very low oxygen levels this summer," said Stuart Freudberg, director of environmental programs at the Metropolitan Washington Council of Governments. "And the fish won't like it."

The globs of sand, mud and silt that accompanied the nutrients downstream won't help, either. Since the heavy rains began early in the spring, the Potomac and other local streams and rivers have better resembled gurgling vats in a

Hershey's factory than they have waterways. Of the seven Potomac River sites monitored for water clarity, three were at their lowest levels for June since 1985, when the Maryland Department of Natural Resources began keeping records, according to a Web site maintained by the department. The other four sites test cloudier than average for this time of year. The Chesapeake Bay also has experienced record-low clarity, and that sediment will take a long time to settle out. For the plants and animals beneath the water's surface, "it's like having cloudy days for four months," said Christopher Conner, Chesapeake Bay Program spokesman.

The problem with the spring rains starts on land, where development limits where storm water can go. In each of the past two months, the region received more than seven inches of rain. The water that can't be absorbed into the ground runs off into a limited network of streams. During an intense storm, channels overflow quickly. The absence of wetlands where the currents settle down and sediment filters out means that the water hitting the streams during a rainstorm is running straight off the street, filled with debris and moving fast. Ultimately, the stream gets blasted out, to the point where it no longer supports fish or other populations. "You have trees falling down, banks eroding and some of the habitat disappearing for the local critters," said Normand Goulet, senior environmental planner with the Northern Virginia Regional Commission.

In Arlington County, watershed planner Jason Papacosma said that most of the county's 30-mile-long stream network is in fair condition at best, with some streams suffering from severe erosion. This spring's storms hastened that process, but at least one section of Four Mile Run seemed to weather the storms intact. That section had been bolstered this year by a stream restoration project, Papacosma said, in which grasses and water-loving trees, such as willows and dogwoods, were planted beside the current. During this spring's storms, the plants not only held the bank in place but also absorbed many of the nutrients that could prove harmful when they accumulate farther down the line. "The roots do your work for you," Papacosma said.

Many streams in the region are collapsing on themselves, spewing even more sediment into the Potomac and out to the bay. Mixed in with the water and the sediment is a fair amount of sewage. With all the rain, older municipalities such as Washington and Alexandria that have combined sewage and storm water disposal systems in certain neighborhoods can't handle the high volume. Even cities that have more modern, separate systems had trouble this spring, with storm water infiltrating the sewage pipes and overloading treatment plants. When that happens, untreated sewage gets dumped directly into the Potomac and other waterways. In Maryland, for example, sewage systems across the state discharged nearly 300 million gallons of untreated or partially treated water during the first five months of 2003, compared with about 75 million gallons over the same period in 2002, according to the Maryland Department of the Environment.

Since the Washington area's sewage discharge points are downstream from the region's intake points for drinking water, supply managers said the sewage releases don't hinder water quality. "We're happy to see the rain," said Tom Jacobus, general manager of the Washington Aqueduct, who noted that this spring's rains were vastly preferable to the droughts of recent years. "We're operating very well." Still, because of high bacteria levels, the sewage discharge isn't good for swimmers, boaters and others who come into contact with the polluted water. Last week, the D.C. Water and Sewer Authority settled a lawsuit brought by environmental groups and agreed to improvements designed to bring annual sewage overflow down 40 percent by 2008. The authority's long-term plan, subject to EPA approval, is to reduce annual overflow levels from 3 billion gallons to 138 million over the next 20 years, according to spokeswoman Libby Lawson.

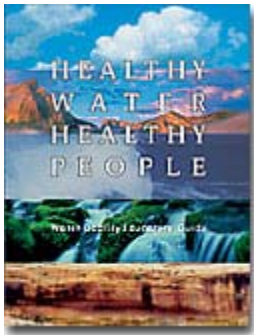
### **Volunteers clean tons of trash from Chesapeake Bay (Associated Press, June 15, 2003)**

Thousands of volunteers on the Peninsula and Southside collected more than 128,000 pounds of debris Saturday, June 14, during Clean the Bay Day, according to the Chesapeake Bay Foundation. The figures were preliminary and were expected to rise, said Sharon Smith of the Foundation's Norfolk office. Smith said approximately 4,200 volunteers covered at least 213 miles of waterway.

Cigarette butts topped the trash list. Neck-and-neck for second place were plastics and foam often the kind of items used for fast food. A huge majority of the trash is washed from roadways into storm drains and then into waterways, Smith said. Saturday was the 15th annual Clean the Bay Day, an event started by boaters who were concerned about environmental pollution. Volunteers who have cleaned the same sites over a number of years have noted a reduction in debris, Smith said.

## New Curriculum

### **Healthy Water, Healthy People:** Water Quality Educators Guide and Testing Kit Manual



This 200-page activity guide is for educators of students in grades 6 through university level. The purpose of this Guide is to raise the awareness and understanding of water quality topics and issues and their relationship to personal, public, and environmental health. *Healthy Water, Healthy People* will help educators address science standards through interactive activities that interpret water quality concepts and promote diverse learning styles, with foundations in the scientific method. This Guide contains 25 original activities that link priority water quality topics to real-life experiences of educators and students.

The 100-page technical reference manual serves as a technical reference for the *Healthy Water, Healthy People Water Quality Educators Guide and Testing Kits*, providing in-depth information about eleven water quality parameters. The manual answers questions about water quality testing using technical overviews, data interpretation guidelines, case studies, chemical formulas, testing kit activities, laboratory demonstrations, and much more. For more information, visit: <http://www.healthywater.org/>.

## New Book

### **Great Waters - An Atlantic Passage**

by Deborah Cramer

**A remarkable scientific meditation on and spiritual exploration of one of our least appreciated natural resources—the Atlantic Ocean.**

”Not since Rachel Carson's brilliant classic *The Sea Around Us* fifty years ago has a writer been able to give voice so compellingly to the ocean—its mythic history and its precarious future. In the course of an ocean voyage, Deborah Cramer weaves the details of the history and science of the Atlantic into a brilliant tapestry that documents our many-faceted reliance on the sea, our betrayal of that bond, the changing landscape of the ocean floor, and the threatened life of its inhabitants.”



## Places to Go

<http://coralreef.gov/index.cfm>: US Coral Reef Task Force.

<http://www.epa.gov/waterscience/beaches/>: US-EPA Beaches Web page.

<http://www.epa.gov/safewater/kids/wsb/index.html>: On-line Water Sourcebooks curriculum, grades K - 12.

<http://wow.nrri.umn.edu/wow/under/primer/index.html>: On-line introductory course to limnology.

<http://www.nfwf.org/programs/tnol.htm>: The Nature of Learning start-up grants program for schools and non-profit organizations.

<http://www.iisgcp.org/edu/escape/>: ESCAPE, Exotic species curriculum and ordering information.

<http://ga.water.usgs.gov/edu/>: the USGS Water Science for Schools Web page.

<http://www.bayweekly.com/year03/issuexi23/leadxi23.html>: An interesting commentary newsletter about happenings around the Chesapeake Bay.

## ***Paul Standish Scholarship***

The ***Paul Standish Scholarship*** is awarded annually to one MAMEA member interested in attending the regional conference but in need of financial assistance. The Scholarship covers the full registration package excluding field trips and other additional fees. Applicants must have at least one year of membership in the Association prior to application. To apply, submit a letter of application justifying the need for the scholarship and explaining how the conference will benefit you and your students. Application deadline is **September 1, 2003**. Include on your application letter: **your full name, years of MAMEA membership, institutional organization, subjects/grades taught, address, home and work telephone, Fax and e-mail.**

Mail, Fax or e-mail your application to: Barry Fox, Box 9081, Virginia State University, Petersburg, VA 23806 (804-524-5848) (Fax: 804-524-5057) Email - [bfox@vsu.edu](mailto:bfox@vsu.edu).

*This scholarship was started in 1998 in memory of Paul Standish, a dedicated educator from Williamsburg, Virginia. He served as the VA Representative and MAMEA Treasurer for many years. Paul valued the stimulating exchange of ideas and camaraderie this conference provides and wanted to encourage marine educators to attend.*

## ***MAMEA Educational Project Grant Program***

### **Purpose:**

The MAMEA Educational Project Grant Program provides funding to classroom teachers and other educators for marine and aquatic educational projects.

### **Eligibility:**

Any MAMEA member (individually or through a fiscal agent) may submit one proposal per year.

### **Program Structure:**

- Projects must focus on marine or aquatic topics. Applicants are encouraged to plan innovative projects that conform to grant guidelines.
- One \$500 grant will be available for the 2003-2004 year.
- Cost sharing (match, in-kind, cooperative funding) is encouraged.
- Institutional indirect, overhead costs or personal compensation (other than honoraria) should not be included.
- Up to 80% of the total amount of the grant may be available to the grantee at the beginning of the grant period. The remaining 20% is issued subject to Board acceptance of the final report.
- Original material produced should be in the public domain and prominently display credit to MAMEA.
- Proposals must clearly describe plans for ownership and continuing management, distribution, and post-grant use of products and equipment purchased through the grant. After the grant period, the grantee may continue to produce and distribute project products at cost.
- Project staff should include an advisor from the target user group and receive input from knowledgeable professional educators (and/or scientists) other than the applicant.
- Grant application deadline is **September 1, 2003**. Applications are accepted year-round. The application form is available at <http://www.vims.edu/adv/mamea/minigrant.html> or contact the Grants Chair.

Send **five copies** of the completed application, with attachments, to:

MAMEA Grants Committee Chair

Barry Fox, Box 9081, Virginia State University, Petersburg, VA 23806 (804-524-5848) (Fax: 804-524-5057)

E-mail: [bfox@vsu.edu](mailto:bfox@vsu.edu)

### **Evaluations of Proposals:**

The Grants Committee consists of 5 individuals appointed by the President with staggered 3-year terms. The Grants Committee makes decisions on proposals, notifies awardees as soon as possible, and announces recipients of awards at the fall conference. Applications are evaluated using the guidelines as presented in the Grant Application.

### **Obligations of Grantee:**

- Applications must include all requested information in the sequence indicated on the application form. The application (excluding letters and optional materials) should not exceed **five pages**.
- Grantees will submit a final report to the Treasurer of MAMEA within 90 days of the end of the funding period. The report (no more than **five pages**) should include the following items: project title, project staff's names and titles, description of activities completed and/or copies of materials produced, audience numbers and description, evaluated impacts and user comments, copies of news articles and/or pictures and plans for project continuation (if applicable).
- Grantees will present a seminar or poster session at a MAMEA conference (regional or local) and/or submit an article to an environmental or science education newsletter (i.e.: *Masthead*) or publication about the funded activity.

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**Be sure to**

- **Attend one of the programs and use the resources described in this issue,**
- **Apply for the MAMEA mini-grant,**
- **Consider submitting an article for a future *Masthead* issue,**
- **Ask your students to research the *Out and About* topics in this issue of *Masthead*,**
- **Renew your MAMEA Membership!!**