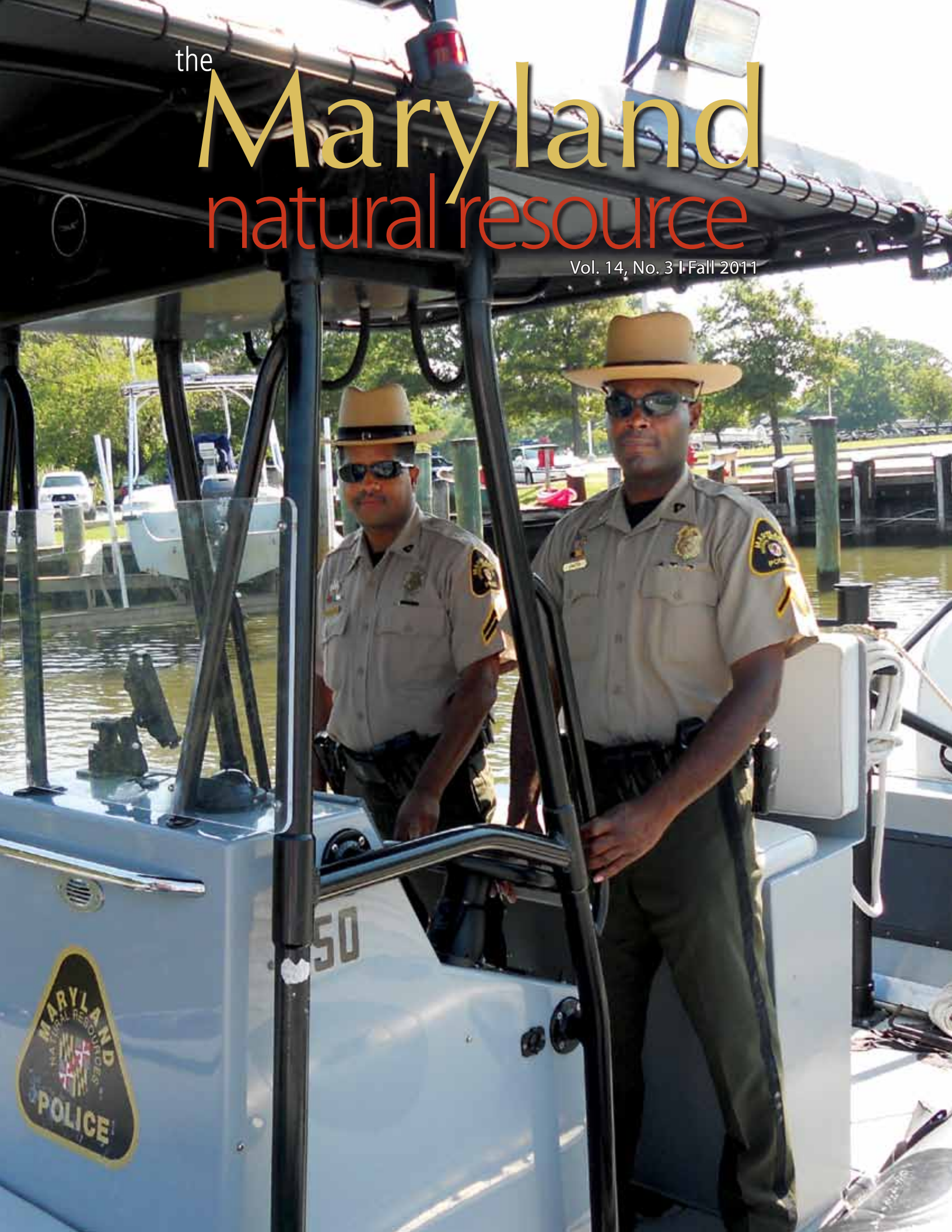


the

Maryland natural resource

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Martin O'Malley
Governor

**Maryland Department of
Natural Resources**

John R. Griffin
Secretary

The Maryland Natural Resource
...Your guide to recreation &
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Colorful Farmland and Mountains
Shannon Carroll

the

Maryland natural resource

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On the cover: *Cpl. Cameron Brown and Officer First Class Rodney Smith*
Heather Canoles

Fall 2011

THE COMMON GOOD



Tom Nappi

Our State, our citizens and our natural resources took a big hit from this summer's storms. In addition to damaging property, power lines and homes, Hurricane Irene and Tropical Storm Lee left their mark on our land and water, downing trees and driving sediment and debris into our waterways. While we continue to monitor the Bay and its tributaries for what will most certainly be long term impacts, the time to respond to the loss of our trees is now.

Given their positive effects on the environment as a whole, trees are arguably our most important natural resource. They protect water quality, clean our air and support our wildlife. One large tree can eliminate 5,000 gallons of stormwater runoff each year and well-placed trees help reduce energy costs by 15 to 35 percent. Trees also help beautify communities and parks, provide sound barriers and shade, and increase property values.

This fall, I hope every Marylander will take advantage of an ongoing statewide initiative to plant new trees in our communities. We launched *Marylanders Plant Trees* in 2009, a two-pronged program to help reforest our communities and our public lands.

By visiting our *Smart, Green & Growing* website, citizens can receive planting advice, register plantings to contribute to our goal of 100,000 new trees, and download a \$25 coupon, good toward the purchase of

native trees at more than 85 participating nurseries across our State.

The State cost of \$20 per coupon is funded through a settlement from a major power generator for Clean Air Act violations, in partnership with the Office of the Attorney General. Maryland's participating tree vendors generously absorb the remaining \$5. Since 2009, citizens have planted and registered more than 61,000 trees under this program.

Groups interested in planting trees on larger tracts — in communities, or at schools, churches and parks — can acquire trees at a significant discount through *Tree-Mendous Maryland*.

Through the Maryland Forest Brigade, a partnership of the Departments of Natural Resources, Transportation, and Public Safety and Corrections, I recently joined Maryland inmates in planting the program's one-millionth tree on public lands.

As Marylanders, we take pride in our natural world. We understand the value of stewardship and the importance of creating a more sustainable future. Given all the challenges facing our natural world today, trees are an easy, long-term fix. They are a renewable resource, which will never be depleted as long as we continue to work together.

There is an old adage about a young girl of about 5 or 6 who, gazing at a large tree in the front yard of her home, asks her grandfather when is the best time to plant a tree.

"The best time to plant a tree is 20 years ago," responds Granddad.

"Then when is the next best time?" the girl asks.

"The next best time is now."

*Please join us — plant and be counted at
trees.maryland.gov.*

A stylized, handwritten signature of Martin O'Malley.

Martin O'Malley
Governor

CONSIDER THE ELEMENTS

Maryland is no stranger to the challenges of Mother Nature. We weather droughts, blizzards and the occasional earthquake. We withstand hurricanes and tropical storms. Whatever forces of nature are thrown at us, we do what is necessary to protect ourselves, our loved ones, our neighbors and our homes. It is during times like these that we best work together toward a common goal — our spirit, compassion and instinct for self-preservation propelling us to unite and do what needs to be done.

While the Department of Natural Resources (DNR) may not be the first place citizens think of during an emergency, our workforce was, as usual, front and center during the two recent storm events that lashed at the Eastern Seaboard.

With nearly a half-million acres of public land and 17,000 miles of waterways under our purview, preparation and response are key to our mission. Across our agency and across our State, DNR teams mobilized — before, during and after Hurricane Irene and Tropical Storm Lee — to protect citizens and resources, and to get programs and services back to normal as quickly as possible.

While strong winds whipped and a deluge of rain fell, our first concern was the safety of our fellow citizens.



Prior to Hurricane Irene, NRP Patrol Boat *Chesapeake* took Smith Island evacuees to safety in Crisfield. A total of 75 people were evacuated.

Lt. Robert Kersey, NRP

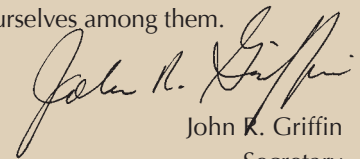
Once the storm clouds cleared we hit the ground running to repair, restore and recover.

From the Natural Resources Police to the Maryland Park Service... from boating services to resource assessment... from forestry to engineering & construction and everywhere in between... staff joined forces to tackle all manner of storm-related activities head on.

They kept watch over the Conwingo Dam. They evacuated citizens from Smith Island. They monitored water quality in the Bay and its tributaries. They alerted citizens to dangerous water levels. They cleared debris from land and water (and provided emergency grants to hard-hit local governments to do so). They provided vital information to citizens through social media. They began reparations to property and buildings even before the storms departed. And they got our State Parks back up and operating in time for Labor Day, summer's last holiday weekend.

Of course there are countless other Marylanders — both public and private sector employees who leave their own homes and families for days at a time to help the rest of us come through emergencies like these safely. Our police, fire and rescue personnel, doctors and nurses, those who work the power lines, the chain saws and the snow plows, all come together as One Maryland in times of crisis.

All of us at DNR are extremely grateful for their efforts, and are honored to count ourselves among them.


John R. Griffin
Secretary

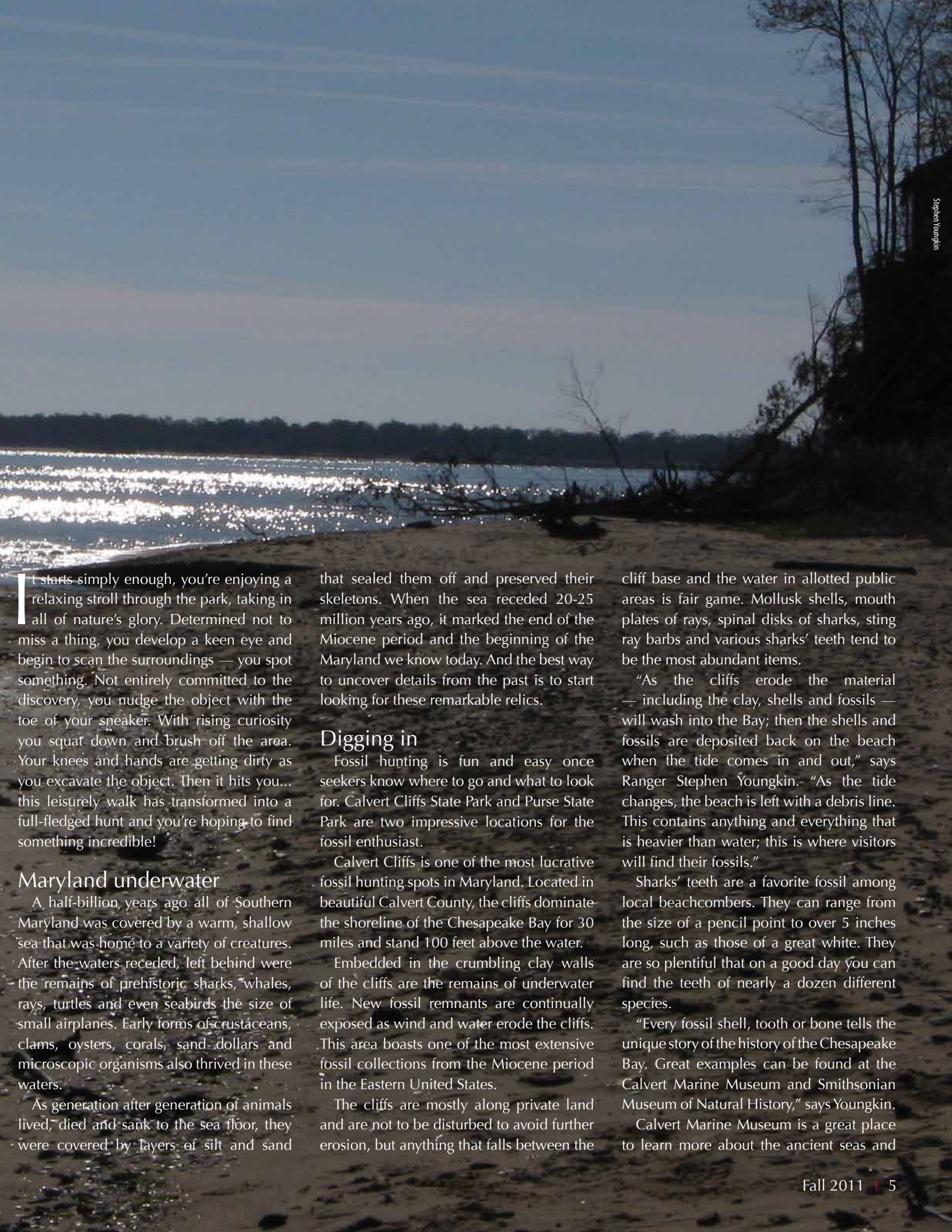


Brandon Linton

UNEARTHING A NEW HOBBY

A Guide to Fossil Finding in Maryland State Parks

By Karis King



It starts simply enough, you're enjoying a relaxing stroll through the park, taking in all of nature's glory. Determined not to miss a thing, you develop a keen eye and begin to scan the surroundings — you spot something. Not entirely committed to the discovery, you nudge the object with the toe of your sneaker. With rising curiosity you squat down and brush off the area. Your knees and hands are getting dirty as you excavate the object. Then it hits you... this leisurely walk has transformed into a full-fledged hunt and you're hoping to find something incredible!

Maryland underwater

A half-billion years ago all of Southern Maryland was covered by a warm, shallow sea that was home to a variety of creatures. After the waters receded, left behind were the remains of prehistoric sharks, whales, rays, turtles and even seabirds the size of small airplanes. Early forms of crustaceans, clams, oysters, corals, sand dollars and microscopic organisms also thrived in these waters.

As generation after generation of animals lived, died and sank to the sea floor, they were covered by layers of silt and sand

that sealed them off and preserved their skeletons. When the sea receded 20-25 million years ago, it marked the end of the Miocene period and the beginning of the Maryland we know today. And the best way to uncover details from the past is to start looking for these remarkable relics.

Digging in

Fossil hunting is fun and easy once seekers know where to go and what to look for. Calvert Cliffs State Park and Purse State Park are two impressive locations for the fossil enthusiast.

Calvert Cliffs is one of the most lucrative fossil hunting spots in Maryland. Located in beautiful Calvert County, the cliffs dominate the shoreline of the Chesapeake Bay for 30 miles and stand 100 feet above the water.

Embedded in the crumbling clay walls of the cliffs are the remains of underwater life. New fossil remnants are continually exposed as wind and water erode the cliffs. This area boasts one of the most extensive fossil collections from the Miocene period in the Eastern United States.

The cliffs are mostly along private land and are not to be disturbed to avoid further erosion, but anything that falls between the

cliff base and the water in allotted public areas is fair game. Mollusk shells, mouth plates of rays, spinal disks of sharks, sting ray barbs and various sharks' teeth tend to be the most abundant items.

"As the cliffs erode the material — including the clay, shells and fossils — will wash into the Bay; then the shells and fossils are deposited back on the beach when the tide comes in and out," says Ranger Stephen Youngkin. "As the tide changes, the beach is left with a debris line. This contains anything and everything that is heavier than water; this is where visitors will find their fossils."

Sharks' teeth are a favorite fossil among local beachcombers. They can range from the size of a pencil point to over 5 inches long, such as those of a great white. They are so plentiful that on a good day you can find the teeth of nearly a dozen different species.

"Every fossil shell, tooth or bone tells the unique story of the history of the Chesapeake Bay. Great examples can be found at the Calvert Marine Museum and Smithsonian Museum of Natural History," says Youngkin.

Calvert Marine Museum is a great place to learn more about the ancient seas and

State Fossil Shell

What Maryland fossil collection would be complete without the State's fossil shell? Designated as the official State Fossil Shell in 1984, the *Ecphora quadricostata* inhabited the Chesapeake Bay 5 to 12 million years ago. First found in St. Mary's County in 1685 the *Ecphora* is believed to be the first North American fossil illustrated in scientific works. The shell has four protruding "ribs" and is russet in color, unlike most other mollusks, which are white. Some of the best specimens have been found along Calvert Cliffs north of Little Cove Point.



marine life that once thrived, and view various ancient fossils excavated from the park. There is also an area in the museum where visitors can search for 8- to 20-million-year-old fossils that can be taken home.

Of course, the scenery and wildlife at Calvert Cliffs is worth the visit in itself, providing visitors with multiple habitats featuring a wide range of plant and animal species.

"Hiking along the Red Trail you will travel from a dense wooded forest along a meandering stream down to a large freshwater swamp, then finally to the beach. You have a good chance of seeing lots of wildlife along the way," says Youngkin. "The forest supports many species of song birds, mammals

and birds of prey, like hawks and owls. You can also see turtles, snakes, ducks, beaver and muskrat living in the swamp, and at the beach you can see bald eagles, waterfowl and aquatic life along the shore."

Meteoric find

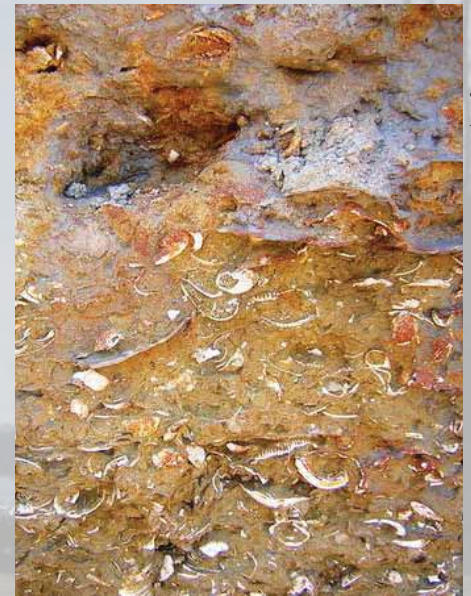
Purse State Park is another great spot to fossil hunt. This little-known park is a wooded, undeveloped area located on the Potomac River on Wades Bay in Charles County. Purse is a part of the Aquia Formation which developed about 60 million years ago during the Paleocene Era after a gigantic meteor hit the earth.

This area was covered with warm shallow water, making it the ideal habitat for sand tiger sharks, mackerel sharks,

snails and eagle rays. Fossilized sharks teeth, bones and shell fragments are often found at low tide in the rocks and sand along the waters edge. At high tide there is very little beach area so visitors should check the tides before venturing out.

Fossil Hunting 101

"Usually there is someone around that can identify a discovery," says Butch Norden, Maryland Park Service Chief of Resource Management. "Or folks can



Mid Atlantic Hiking Group

A sea of fossils at Calvert Cliffs State Park

take a digital photo and email it to Calvert Marine Museum where the resident paleontologist can offer an explanation."

Fossil hunting is an exciting, inexpensive and informative recreational activity.

"This is a chance to enjoy our beautiful natural resources, get fresh air and exercise and bond with our children and families," says Norden. "Not to mention an educational look into the past."

And remember, many of these historic finds have been unearthed by amateur paleontologists and artifact hunters! ■

dnr.maryland.gov/publiclands
CalvertMarineMuseum.com
dnr.maryland.gov/fisheries/tides

Karis King is a Communications Specialist with DNR's Office of Communications.



Laura Koontz

Scallop shell fossil

SETTING RECORDS

Enjoying the outdoors

By Jill Zarend-Kubatko

This summer, adventure-seeking Marylanders took a trip back in time on the grounds of Fort Frederick, performed chores at a historic mill at Susquehanna State Park, learned about meteorology at Assateague, hunted letterbox clues at Martinak and rode bikes along the Western Maryland Rail Trail. These are just a few of the activities enjoyed by 2011 Park Quest teams at 24 of Maryland's State Parks.

A record 1,000 teams registered for this year's Park Quest, of which 465 teams tallied their completed quests online at the Park Quest Leader Board. These 465 groups finished a remarkable 3,969 quests, with 26 teams fulfilling all 24 challenges.

Bearing monikers such as Team Bay Bougheys, Brannon Braves, Team Spirit Sing, Team Mixon, the Greenplate Gang, Crazy Kin and Sand Crabs, these families and hundreds of others came away from the experience declaring "WE HAD FUN!"

The Park Quest theme is *Where a Family Becomes a Team*. A team consists of at least one adult and one child 16 years of age or younger, and can be as large as 10 people. Each group's goal is to complete at least 10 quests between May 7 and September 5.

Families and teams expressed their exuberance by posting their experiences on the official 2011 Park Quest Facebook.

"We are no longer PQ newbie's and will be back next year. Thanks to everyone we met!"

"Thank you to everyone who worked so hard to make this program happen. What a grand way to spend the summer! The Sprinkle Family can hardly wait until next season!"

Two teams expanded their roster during this year's quest and shared their exciting news: "We had a great summer of questing that also included welcoming our third little boy on June 24. It's been a BUSY summer!"

"Teams Crazy Kin and Sand Crabs completed all 24 quests! Whooo



Park Quest teams' Facebook postings

hooo!!!! I had in my mind that it would be so cool to do them all...while pregnant. Our newest quester came on August 24 and joined us on some of our final quests!"

To cap off the successful season, nearly 200 teams came together at Gunpowder Falls State Park to celebrate at the Park Quest Rendezvous. The Rendezvous featured a mixture of physical and memory-oriented

competitions, festival activities, vendors and of course, more family-oriented fun. Prizes were given to Park Quest winners and accolades were doled out to participants. Registration will begin in the spring for the 2012 Park Quest. ■

dnr.maryland.gov/parkquest

Jill Zarend-Kubatko is the Publication Manager in DNR's Office of Communication.



AN EXERCISE IN FALL BEAUTY

Maryland's foliage by land & water

By Jonathan Howard

Our State looks remarkable in the fall, its hillsides and waterfronts awash in amber and crimson hues, the glorious finale for our deciduous trees. It is a splendid time to spend in peaceful reflection, while the cooler temperatures and colorful scenery make it ideal to get outdoors and get active in Maryland State Parks. With school back in session, crowds drop considerably, allowing for a more private experience in many activities.

Multi-hued adventures

Fall first takes hold in the mountains of Western Maryland and moves east. For hikers, trail runners and mountain bikers, New Germany State Park offers 10 miles of multi-use trails that wind their way through dense hemlock forest, colorful mixed hardwoods, rhododendron-choked stream valleys and towering pine and spruce plantation sites.

Fishing is permitted year-round with a non-tidal fishing license. Expect to find bass, catfish, bluegill and trout. Boats without gasoline motors are permitted to launch from New Germany's free ramp. Rowboats, paddleboats and open kayaks are available for rental until October 1. Overnight accommodations include full-service cabins, campsites, and the Alpine Lodge, a three-sided Adirondack shelter.

Scenic trails

Those looking for an excellent autumn mountain hike a bit closer to central Maryland should explore the South Mountain Recreation Area, which is comprised of four State Parks, the Maryland portion of the Appalachian National Scenic Trail and the South Mountain State Battlefield.

Visitors can access the sights via a moderate to difficult hike featuring

wonderful vistas on the Appalachian Trail at Annapolis Rock, White Rock and Weverton Cliff. Hikers can find rustic accommodations at backpacker campgrounds along the way. The view from the Washington Monument, completed by the citizens of Boonsboro in 1827, is spectacular and requires only a half-mile walk. The lakeside trail at Greenbrier State Park is also easy to access and affords spectacular views and reflections.

Water reflections

Seneca Creek State Park also offers hiking with wonderful scenery and many opportunities to spot migratory birds. Flat-water paddling on Clopper Lake is especially enjoyable in the fall when the lovely colors reflect off the water. There is also a hand launch area where visitors may bring their personal small recreation boats (electric motors



Fall kayaker

only). The major fall event is the winter lights display beginning after Thanksgiving.

Butterfly splendor

Brilliant autumn colors are not limited to central and Western Maryland. Witness a different kind of fall color at Assateague State Park: The migration of monarch butterflies. Set against a backdrop of blooming goldenrod, the orange and black wings of the monarch butterflies make lovely scenery to walk or bicycle through as they cruise down the coast on their long migration to Mexico. Enjoy great camping opportunities just a few sandy steps away from the ocean until October 31.

Waterfront grandeur

At the confluence of the Potomac River and the Chesapeake Bay, Point Lookout State Park offers a unique and

enjoyable waterfront fall experience as well. Spot songbirds, hawks, eagles and Monarch butterflies as they travel their lengthy migration to the south.

Fall fishing is also popular at Point Lookout; October is known locally as "Rocktober" due to the number of trophy rockfish caught. Paddling in the park's Lake Canoy offers changing fall colors in the marsh, and canoe and kayak rentals are available on weekends through October. Fall is also a great time to spot a bald eagle! Tent and cabin camping are available through October 31.

Sandy surprises

The winds of fall make Sandy Point State Park a very popular place among sailors, kite boarders and windsurfers. Flying a kite on the shore is also a popular activity. For anglers and boaters, Sandy Point marina and boat

launch offer excellent access to the Chesapeake Bay.

When the ticks and chiggers settle down in late fall, the Symbi trail offers excellent bird watching opportunities and a unique perspective of the Bay Bridge. In the adjacent Corcoran Woods Environmental Study Area, a peaceful easy 4.5-mile walk around the loop trail, affords lovely views of changing leaves and their reflective ponds. Don't miss the famous Lights on the Bay holiday light display, beginning around Thanksgiving. ■

Call 1-800-LEAVES1 for weekly updates on the best fall foliage across Maryland, from September through mid-November.

Jonathan Howard is a volunteer ranger at Patapsco State Park.

BREAKING TRADITION

Women hunting in the wild

By Patricia Allen

If asked to envision what a typical hunter looks like, the first image that comes to most peoples' minds is that of a man in the woods decked out in camouflage with a shotgun poised for the hunt. Why not a woman?

I'm a woman hunter, and I still picture a man with a gun in the woods. This image has been embedded into my brain since childhood; it's what we are taught and exposed to. Why not visualize me instead?

The same thing goes for most other outdoor recreational sports such as fishing, shooting, hiking, mountain biking, etc. If a woman cannot envision herself partaking in outdoor activities, then she most likely will not gain knowledge of or participate in those skills.

This perception is strongly linked to alleged barriers such as tradition, peer pressure and intimidation, with the added difficulty of finding clothes and equipment and a lack of opportunity for women to learn outdoor skills.

Not just for men

It's time to break the tradition that hunting is just for men. To steal a line from sharpshooter Annie Oakley in the musical *Annie Get Your Gun*, "I can do anything you can do better!"...Maybe I can't do everything better, but hunting is something I can do just as well!

It appears that I am not the only woman thinking this way. According to a national five-year census conducted by the U.S.

Fish & Wildlife Service, females are gaining momentum in this pursuit, recreationally and economically.

What's in season?

Growth for women on a national scale includes muzzle loading (up 134.6 percent), bow hunting (up 30.7 percent), and hunting with firearms (up 3.5 percent). Data also indicate women outpace men among net newcomers by 4.1 percent in target shooting with a rifle.

Women are making a positive economic impact as well, having generated \$420 million in the sale of guns, clothing and female-specific products including recoil reduction pads that fit onto bra straps, portable urinals, scaled-down sporting arms and camouflage apparel tailored to the female form.

Maryland bucks trend

Despite this growing national trend, Maryland's female hunters growth may not be as prevalent as in other states. It's difficult to know where Maryland stands compared to the national level because our licensing system does not require indicating the gender of the licensee. The 2006 National Survey of Fishing, Hunting and Wildlife-Associated Recreation indicated males represented 97 percent of the hunters in Maryland.

In 2006, women known to have purchased a hunting license was 1,396, while this year, 1,145 bought a license. The highest level of known female participants was in 2007 with 1,399.

Getting educated

Female hunter safety course participation in Maryland reflects nearly the same amount of women who purchased licenses. The totals of those taking classes over the past five years are: 755 in 2010,



Patricia Allen

Goose hunting from a ground blind

1,391 in 2009, 1,511 in 2008, 1,348 in 2007, 1,425 in 2006 and 1,209 in 2005.

Anthony DeFazio

Deer tale

Hunting has become a passion of mine and of many of my peers. It's an opportunity to experience nature in a wild and totally natural setting that is also part of our history and heritage.

I remember growing up where the boys told stories of their hunting experiences and the girls just sat there listening. In my case, I was envious of their tales. In my hometown, Richfield Springs, NY (dairy farm country), it was unusual for a girl to go hunting and I grew up in a non-hunting family. So the possibility of going on a hunt as a young person was nil.

It wasn't until adulthood that a friend and mentor took me and three other women deer hunting. I was ecstatic, nervous and scared. I didn't own any of my own equipment, so I had to borrow what I needed. After all, I didn't know if I'd actually like hunting.

We headed to Snow Hill on the Eastern Shore and once there, I sat in a hunting blind with snowflakes falling and my gun at the ready. I sat and sat for what felt like hours, waiting for a deer to come out of the loblolly pine forest and into my shooting lane.

I finally started to relax and just enjoy my surroundings; watching the birds, the squirrels and the snow. Then, a doe



ABOVE: Christina Holden and her hunting companion, Gauge

BELOW: Novice hunters enjoy a moment during a Beyond BOW Deer Hunting Clinic.

appeared out of nowhere at the end of the lane, about 175 yards away. I slowly aimed the rifle and looked through the scope. I was shaking so badly with excitement that I wasn't sure I could make the shot. I slowed my breathing and said to myself "You can do this!"

The shaking ceased and the doe was still in my sights. I took aim, slowly let out a breath and squeezed the trigger. BANG! After putting the safety on the gun and setting it down safely, I grabbed my binoculars (the one piece of equipment that was actually mine) to see if I had gotten my first deer. I did!

I was shaking from the adrenaline and grinning from ear to ear. My elation was shared by everyone on our hunting trip. The women greeted

me with high fives and bear-sized hugs of congratulations. I had harvested my first deer and I was hooked!

Bear of a hunt

Women have also ventured into hunting territory typically out of the norm for many females. First time hunter, Leslie Nightingale, decided to try bear hunting. During the opening minutes of Maryland's black bear season in November 2010, she was the first hunter to arrive at the check-in, boasting a 234-pound black bear. Among Nightingale's firsts: it was the first time she had fired a rifle at anything other than a fixed target.

"I wanted to go bear hunting because typically men go hunting and not women," she said at the time, adding the outing was on her bucket list. "I wanted to do something men think we can't do, maybe other than observing."

Hunting for a cause

Christina Holden, an avid hunter who works for the Maryland Department of Natural Resources (DNR) Park Service Volunteer and Citizen Advocacy, has



Fran Dover



Deer/Pike

Patricia Allen and friends on her first deer hunt



Patricia Allen

Beyond BOW Deer Hunting Clinic participants enjoying the camaraderie of a hunt

taken her love of the sport in an altruistic direction. She grew up on the Eastern Shore and learned how to hunt with family members during those early trips. In 2006, while attending Maryland's Grand National Waterfowl Hunt, she met a group of disabled veterans who changed her life.

She then began organizing hunting trips for her new friends. Holden has taken soldiers on more than 40 hunts from Africa to Alaska to Colorado and to many other

states. Most of these hunts were with Jim Zumbo as he filmed *Jim Zumbo Outdoors*, a television program on the Outdoor channel. Other times she invited the veterans to accompany her and her family. Holden has taken war heroes on safari and to hunt elk, deer, dove, goose and duck.

BOW-ing to women

So, what is DNR doing to help encourage women's hunting? DNR coordinates a

program that is specific to women who are open-air enthusiasts. Maryland's Becoming an Outdoors-Woman program (BOW) offers outdoor skills workshops, specifically for women 18 years of age and older, although men are welcome to participate.

The workshops enable women to learn about a wide variety of outdoor recreational opportunities in a casual, non-threatening environment. The classes are designed to be as hands-on as possible, giving participants enough knowledge to further pursue their interests once the workshop is over.

There is also Beyond BOW programs that focus on specific activities. Currently Maryland BOW offers two Beyond BOW hunting clinics including goose and deer hunts. DNR has facilitated quality outdoors experiences to more than 4,000 women since BOW began in Maryland in 1996.

Conserving wildlife

New hunters and shooters, whether male or female, not only lead to more participation in the sport, they also help with conservation funding. Most people don't realize that it's the hunters and shooters of Maryland that support most of the wildlife conservation programs in our State. These folks also are the main funding source for protecting Rare, Threatened and Endangered Species.

The majority of financial support for Maryland's wildlife programs comes from hunting licenses and fees, and federal funds, such as Wildlife Restoration which are derived from an excise tax on sporting arms and ammunition.

When being fortunate enough to spot a North American porcupine waddling through the forest or a bald eagle soaring through the sky, thank a huntsman or woman. And, the next time a hunter crosses a nearby woodsy path, look closely; it may be a member of the fairer sex taking aim at new opportunities! ■

dnr.maryland.gov/wildlife/education/bow

Patricia Allen is the Information & Education Program Manager with DNR's Wildlife & Heritage Service.

HARRIET TUBMAN HONORED

New State Park planned

By Jill Zarend-Kubatko

Through the collaborative work of Governor Martin O'Malley, the State of Maryland, Congressional representatives, local officials and the Harriet Tubman Organization, the long-awaited Harriet Tubman Underground Railroad State Park and Visitor Center will come to fruition.

The U.S. Department of Transportation has awarded the State of Maryland \$8.5 million in Federal Transportation Enhancement Program funding for construction of the Harriet Tubman Underground Railroad Visitor Center in Dorchester County, thus furthering the creation of the new State Park. This is the final funding component necessary for the \$21 million project of national significance to move forward.

The construction phase will support as many as 225 local jobs over the course of a year.

In addition, Harriet Tubman Underground Railroad State Park, the site of the center, will directly support 10 full-time employees as well as spinoff jobs related to hospitality, tour guides and recreational activities.

Upon completion of the center, visitation to the park is anticipated to



Governor Martin O'Malley, Donald Pinder, president of the Harriet Tubman Organization and Cambridge Mayor Victoria Jackson-Stanley at the Harriet Tubman Museum in Cambridge.

grow to more than 200,000 annually, with a long-term economic impact of \$20 million annually.

The Visitor Center, 10-miles south of Cambridge on Maryland's Eastern Shore, is the key component of an effort to create a Scenic Byway and National Historical Park honoring Maryland native Harriet Ross Tubman. This historic endeavor is extremely important to Eastern Shore residents

and is of local, regional, national and international significance. Groundbreaking for the center will take place next year, with completion slated for 2013, the 100th anniversary of Tubman's death.

The project has been made possible through the collaboration at the federal, state and local levels. The Maryland Departments of Natural Resources, Business and Economic Development, Transportation via the State Highway Administration and General Services are all project partners.

Senator Barbara Mikulski played a critical role in obtaining nearly \$1 million in Housing and Urban Development grants for the project.

Senator Ben Cardin is currently pursuing a National Historic Park designation that would create a National Park Service unit comprising significant lands in Dorchester, Caroline and Talbot Counties. ■

dnr.maryland.gov/publiclands/eastern/tubman.asp

"Once complete, the Visitor Center will honor one of our nation's great and courageous heroes. Like Marylanders today, Harriet Tubman understood that we progress as a people not on the weakness, but on the strength of our neighbors."

This Visitor Center is a step forward in promoting Maryland's critical role in the fight for freedom, in recognizing the efforts of a remarkable Marylander, and for creating new jobs on the Eastern Shore. Together, we can educate and share the story of how Tubman and those like her changed the course of American history, bending the arc toward justice."

Martin O'Malley, Governor

CONSERVATION ENFORCEMENT



A new focus on justice

By Karis King

We, as American citizens, are afforded the right to feel safe and secure. We entrust our well-being into the hands of the law and put faith in our justice system. We reach out for help when we feel threatened and expect that it will be available. However, how do we protect life that cannot speak out? Who do we entrust to safeguard our waterways and forests, our fish and our wildlife?

Each time our environment is compromised, it affects those who hike, swim, fish, play, live and breathe in those surroundings — each and every one of us. It is Maryland's Natural Resources Police (NRP) that are vital to keeping our natural world safe, as is, a justice system that reflects the importance of these resources.

In recent years, it became apparent that the way natural resource cases had historically been handled was outdated and in need of some revamping.

"Before, natural resource violations were intermixed with other civil and criminal court cases such as traffic violations and domestic issues," says Sgt. Art Windemuth. "The prosecutor was either not present or unfamiliar with natural resource cases, so the cases weren't getting the proper attention and ruling that they deserved."

With the Maryland Department of Natural Resources (DNR), the Office of the Attorney General and the District Court of Maryland all in agreement, a collaborative effort to establish a more efficient and functional program became a primary focus. Trying all natural resource cases together, on a single

docket, seemed like a perfect way to keep jurisdictions focused on the topic at hand by overseeing all relevant cases in the same light, under the same terms, in the same day.

The agencies decided to step-up the enforcement and prosecution of illegal fishing, hunting and other natural resources violations by setting aside specific days to try only them.

the third Friday of each month to try only natural resource related cases.

"The program has helped strengthen natural resource regulations," says Sgt. Art Windemuth. "It has shown lawmakers, prosecutors and offenders that these crimes are serious. Our State's resources are beyond valuable and deserve respect and protection."



Illegally harvested striped bass

"Our natural resources belong to everyone, and we must all work together to ensure that they are protected," says DNR Secretary John Griffin. "Those who violate the public trust must be prosecuted in an efficient manner to the full extent of the law and this program is an important mechanism in this effort."

Up and running

In January 2010, the program took shape in the form of a pilot in Anne Arundel County. Since its inception, the Maryland District Court, in Annapolis, has reserved

With the program running as planned and enhanced fishing and shellfish legislation in the works, it was time to consider expanding the program to other parts of the State.

Reason to expand

The idea to expand the program was in direct response to an increased number of striped bass poaching cases, specifically more than 10 tons of illegally netted rockfish in January 2011.

"There were just so many repeat offenders who had no regard for our

Tony Friedrich, Executive Director CCAMD



Tom Darden

An NRP officer makes a routine check.



Mark Odell (2)

ABOVE: Officers during an NRP mock training mission
LEFT: NRP K-9 Unit



a single conviction. The State also increased the penalty for engaging in commercial fishing with a suspended license, a revoked license or without a license, by establishing a fine of up to \$25,000 and imprisonment for up to one year.

"The program's expansion supports DNR's plan to step-up enforcement of fishery poaching violations, as recommended by the Maryland State Task Force of Fishery Management," says DNR Deputy Secretary Joe Gill. "With our Natural Resources Police officers doing a terrific job of catching these offenders, and the courts prosecuting them swiftly and justly, this has developed into a great operation."

Eastern Shore expansion

The Anne Arundel County program became a model for Maryland's lower Eastern Shore. In August 2011 the system expanded to include Worcester, Dorchester, Wicomico and Somerset Counties. The cases are heard in the county where the case originated, on a certain day each week or month. For example, all Worcester County cases are heard every Friday at 1 p.m. at the Snow Hill courthouse in Worcester County.

In both Anne Arundel and the lower Eastern Shore counties, a representative from the State's Attorney's Office is on hand during each of the designated days as requested by the arresting officers. While not usually necessary in routine cases such as boating and fishing violations, the State's Attorney's presence is extremely helpful in preparing and presenting more serious cases like oyster and deer poaching.

"This exciting model for wildlife conservation enforcement is a program to be proud of," said Secretary John Griffin. "We plan to work with other counties to expand the program further if we see such continued success." ■

State's fauna or fowl," says Sgt. Art Windemuth. "We would catch a lot of the same people committing the same offense once every few months."

In May 2011, Governor Martin O'Malley signed into law legislation to protect Maryland's fisheries and encourage shellfish aquaculture. As part of an overall focus on enforcement efforts to better protect Maryland's public fishing resources, DNR also established a tougher penalty system for commercial fishing violations.

For example, previously a waterman had to receive multiple convictions before DNR could impose a suspension. But under the new State law, a suspension could be issued for



2011 MARYLAND

Lucky anglers win big

More than \$70,000 in cash, prizes and merchandise was awarded at the 2011 *Maryland Fishing Challenge* grand finale.

Once again, a youngster captured the grand prize boat, motor and trailer from Bass Pro Shops and Tracker Boats at the event. Robert Hamilton, 12 of Silver Spring, was the envy of the huge crowd of anglers. Last year's grand prize winner was a 13-year old from Carroll County.

DNR Secretary John Griffin and fishing legend Lefty Kreh had the honor of presenting the coveted cash and prizes to dozens of lucky anglers during the ceremony.

Nearly 2,000 people attended the 7th annual contest's finale at Sandy Point State Park, a highlight of the 44th annual Maryland Seafood Festival. Next year's event will honor the life and times of Lefty Kreh, who is considered to be one of the pioneers of saltwater fly fishing.

Between Labor Day 2010 and 2011, more than 1,300 citation-award winning anglers became eligible to participate in the grand prize drawing. Eleven anglers also qualified for the *Diamond Jim* component of the *Challenge*. Youth winners from 20 fishing rodeos across the State were awarded exciting guided fishing trips.

Other big winners included Kenny Reasin of Hanover, Pa., with an all-expenses paid fishing trip to the Bimini Game Club on Bimini Island from World Fishing Network; Dickie Russell of Valley Lee, John Brittan, Jr. of Hagerstown and Joe Sanbower of New Windsor, each took home fishing rods, reels and tackle worth thousands of dollars from Bill's Outdoor Center in Oakland.



FISHING CHALLENGE

By Jill Zarend-Kubatko



Brandon Linton (4)



LEFT: Maryland Fishing Challenge emcee Paulo McKenzie and 12-year-old grand prize winner Robert Hamilton.

TOP: Eleven lucky *Diamond Jim* winners split \$25,000 in cash.

LOWER LEFT: MacKenzie Boughey, granddaughter of the late outdoor writer Bill Burton, draws winning raffle tickets.

LOWER RIGHT: Fishing legend Lefty Kreh addresses the crowd.

All contestants received a commemorative T-shirt, courtesy of Under Armour. Marty's Sporting Goods in Edgewater, Angler's Sport Center in Annapolis and Kent Island Kayaks donated raffle prizes. MacKenzie Boughey, granddaughter of the late outdoors

writer Bill Burton, assisted emcee Paulo McKenzie of WQMR in pulling the drawing's winners.

Of the lucky anglers who caught tagged rockfish this summer, four caught *Diamond Jim* imposters during June and July, the remaining seven

anglers learned their fate at the event. After all corresponding envelopes were opened, no authentic *Diamond Jim* was discovered. The 11 lucky anglers split the contest's cash prize of \$25,000.

Taking home \$2,272.73 each were: Jeffrey Fennell of Colmar Manor; Justin Kerstetter of Spotsylvania; Emidio Ciccanti of Baltimore; Nick Szokoly of Cockeysville; Glenn Gross of Baltimore; Rick Ashley of Edgewater; Mike Little of Great Cacapon, W. Va.; Thom Davis of Keedysville; Dan Turner of Ellicott City; Jonalyn Denlinger of Severna Park and David Huffman of Jersey Shore, Pa. Each *Diamond Jim* contestant also was awarded a blue topaz from Zachary's Jewelers of Annapolis.

At the event, the Maryland Legislative Sportsmen's Foundation presented Natural Resources Police with a \$4,741 check, the proceeds from the sale of two Maryland lifetime hunting licenses.

Three batches of nearly 200 specially tagged striped bass with one genuine *Diamond Jim* and 199 imposters were released into the waters of the Chesapeake Bay and its tributaries this summer. *Diamond Jim's* value increased each month: from \$10,000 in June to \$20,000 in July and to \$25,000 in August. The 600 *Diamond Jim* imposters were worth at least \$500 each for the duration of the contest.

The 2012 Maryland Fishing Challenge began on Labor Day 2011. ■

dnr.maryland.gov/fisheries/challenge

RAISING FISH

Cultivating citizens

By Mike Dean

What do natural resource management, juvenile offender rehabilitation and children's fishing rodeos have in common?

It may seem like an odd combination, but in fact it's a win-win-win situation for all involved. The Maryland Department of Natural Resources (DNR) and the Maryland Department of Juvenile Services (DJS) have partnered to meld their mission objectives — providing accessible fishing opportunities and assisting youth in becoming successful members of society — to create a unique opportunity.

The result? An innovative aquaculture center that provides environmental education to troubled teens by creating workforce development opportunities and supplying DNR with fish products to meet State management needs, including stocking statewide youth rodeos.

Raising hope

In 2005, DNR and DJS staff contributed to developing a curriculum for an Aquaculture Technician certification program at Garrett College in McHenry. Through this inter-agency collaboration, DNR Fisheries Service learned that DJS was raising tilapia at Meadow Mountain Youth Center in Garrett County.

Meadow Mountain Youth Center is a residential facility run by DJS that serves delinquent juveniles, ages 14 to 18, with a history of substance abuse. The Youth Center is a certified Maryland State Department of Education school offering young people a wide variety of educational opportunities including planning for a return to public schools and preparing for the General Education Diploma test and the Scholastic Aptitude Test.

Russ Metz, a fellow biologist and friend of mine, was hired to teach the aquaculture program at the Center. We discovered an opportunity to teach the art of aquaculture to incarcerated youth and expand rearing opportunities to raise fish for angling events in Maryland. With the support of Tom O'Connell, DNR Fisheries Service director and Mike Lewis, principal of the four Western Maryland DJS centers, the project was off and running.

"We are extremely appreciative of the enthusiasm and cooperation exhibited by the leadership and staff at the DJS aquaculture centers," says O'Connell. "This program promotes fisheries resources through public outreach and education and also enhances fishing access and



These striped bass will be used to enhance fishing opportunities for Maryland anglers.

houses a classroom and an aquaculture room consisting of two 1,000 gallon recirculating systems, one 500 gallon recirculating system and tilapia spawning tanks. In addition to tilapia, the facility can raise 600 striped bass and 700 hybrid sunfish.

Students perform daily water quality monitoring for dissolved oxygen, pH, temperature, alkalinity, total ammonia, nitrate and nitrites. The teens are tested on hypothetical fish culture situations, carry out the duties of aquaculture technicians and assist with loading and stocking activities. Other tasks include the identification of local reptiles and amphibians, planting trees for reclamation and stream assessment surveys.



Students transfer fish between a transport truck and the fish culture facility.

opportunity, which are two of the essential functions of the Fisheries Service."

Building a program

In 2009, DJS and DNR constructed a fish culture building at Meadow Mountain Youth Center. This building now

Spawning ideas

The program was expanded to the Backbone Mountain Youth Center when two floating net pens were installed in a facility pond that is 3,000 feet above sea level at the summit of the mountain. This spring-fed pond was originally built by the

Crystal Adkins (4)



TOP: Daily water quality monitoring at the aquaculture facility

BOTTOM: Stocking striped bass into Garrett County's Broadford Lake to provide an exciting opportunity for future anglers

Civilian Conservation Corps in the 1930s to provide water for drinking and fire suppression.

Unfortunately, many Garrett County streams and springs are impacted by acid mine drainage from abandoned coal mines, with some being naturally acidic. Therefore, they do not support fish culture in their natural state. This condition can be helped through supplementation to raise pH levels.

This drawback gave the students an opportunity to understand the alkalinity/acidity relationship, and its impact on aquatic communities in nature. The water quality was closely monitored and treated to raise the pH level. The pond gradually increased to a pH that was acceptable for hybrid sunfish culture.

Today, more than 1,500 hybrid sunfish are raised annually for statewide childrens fishing events and production is on pace to increase in the future.

Hybrids & kids

There is a clear benefit to youth rehabilitation through the project, but an

added bonus is that it supports fish management in Maryland. DNR stocks 68 children's fishing rodeos statewide each year. Although trout have been the historical mainstay of the program, many rodeos have begun to shift to hybrid sunfish.

These hybrids are produced by spawning bluegill with green sunfish at DNR's Joseph Manning Hatchery in Cedarville State Forest. The hybrid sunfish grows quickly, survives well in warm water, readily bites all basic fishing tackle and fights like a champion when hooked.

Last year DNR Fisheries Service launched the *Backyard Fishing Program* to give children in underserved areas the opportunity to fish in local

community ponds. Each year, 2,100 hybrid sunfish are transferred to DJS facilities in Western Maryland to mature and then are stocked the following spring and summer.

The teens at the centers provide a product and service for the benefit of all kids throughout Maryland. Fishing access, outreach and opportunities for children are all facilitated by this cooperative project.

Children in nature

DJS operates four youth centers on State forest property in Western Maryland. There, students are involved in educational programs with a strong focus on environmental sciences. Most students come from the inner cities of Baltimore and the District of Columbia. When they are transferred to the Western youth centers, the juveniles literally live and learn in the natural surroundings.

"This is not a one dimensional program. Every aspect of every activity is designed to facilitate personal change while providing opportunities to give back to their communities — redemptive

justice through service," says Lewis. "We have witnessed tremendous behavioral and academic changes in our students springing from their involvement in the aquaculture program and their newfound sense of stewardship and environmental literacy."

This process helps improve the students' quality of life by creating academic, vocational and therapeutic programs based on an understanding of the natural world. It also creates an alternative learning environment that provides access to information and opportunities to discover new interests.

Kids learn the advantage of becoming a life-long learner, versed in the power of observation and analysis. The program emphasizes the value of hard work and character, and the benefits of social action help students realize their potential as citizens for change.

Through this progression of activities, students become invested in the educational process and recognize the academic, vocational, financial and personal benefits of these programs. These young people gain valuable job skills in the environmental technical field, which helps transition them from camp to the productive workforce.

Slam dunk

Both Metz and the program are nationally recognized as unqualified successes within the corrections industry. Metz was spotlighted in *Best in the Business*, a feature of the June 2010 *Corrections Today*, the professional membership publication of the American Correctional Association.

The program fosters a passion for the natural world and encourages natural resources stewardship. This cooperative effort has demonstrated that students, many from inner cities and lacking contact with the natural world, respond with enthusiasm and excitement to hands-on learning experiences. It can't help but have a positive impact on their future. ■

Mike Dean is a biologist and hatchery manager with the DNR Fisheries Service.

MARYLAND IS... SMART, GREEN

Maryland adopts Environmental Literacy requirements

The Maryland State Board of Education recently approved an Environmental Literacy Graduation Requirement, making Maryland the first State in the nation to pass such a policy.

The requirement, which takes effect for students entering high school in 2011-2012, will not involve additional courses. Instead, all public schools are required to infuse core subjects with lessons about conservation, smart growth and the health of our natural world. Every five years, school systems will report to the State to guarantee that students are meeting the requirements.

Research has shown that environmental lessons integrated into a standard curriculum have a positive impact on student achievement in core subjects such as reading, math and social studies and that student overall health is improved by taking the classroom outside.

The new guidelines will also provide critical tools for a 21st century workforce, giving students not only the skills they need for green jobs, but a broader understanding of the problems our natural world faces and how they can take action through their daily lives to become responsible stewards.

The State can implement the new requirement without additional funding or staff. Partner groups like the Governor's Maryland Partnership for Children in Nature (co-chaired by the State Superintendent of Schools and the Secretary of Natural Resources) and the Maryland No Child Left Inside Coalition are collaborating to provide resources and tools to make this transition easier for local school systems. The new requirement will position the State for much-needed federal funding through the No Child Left Inside Act before Congress.



Celebrating Children in Nature

Jay Baker (2)

SGG website redesigned

The State recently launched the redesigned Smart, Green and Growing website. The user-friendly format allows citizens, businesses and partners to access important resources and information.

green.maryland.gov

Forest partnership expands

The Baltimore Washington Partners for Forest Stewardship recently expanded to include The City of Greenbelt, University of Maryland, U.S. Secret Service, U.S. Forest Service and the U.S. Geological Survey, expanding the area of contiguous managed landscape by nearly 7 square miles.

The Stewardship is a federal-State-nonprofit partnership to advance strategies for the restoration, conservation and stewardship of the combined landscape they manage.

The original partners, including DNR, formed the group through a Memorandum of Understanding in 2006. Collectively, these agencies own and manage over 40 square miles of land, 64 percent of which is either forested or wetlands.

These unique ecological resources are among the last significant tracts of contiguous forest land in this highly urbanized region, providing Marylanders with clean air and water, soil erosion and flood control, biodiversity and recreational and educational opportunities.

Together, with these new partners, the group will enhance its environmental efforts including expanding tree canopy cover, conserving and improving wildlife habitat and offering environmental education opportunities to the public. They also continue to seek out new collaborative partnerships with additional agencies, landowners and interested citizens, expanding this effort throughout the Baltimore-Washington Corridor.

bwforestpartners.org

Assateague named Maryland Green Center

The Maryland Association for Environmental and Outdoor Education recently named Assateague State Park a certified Maryland Green Center, the first of Maryland's State Parks to be awarded this prized designation.

The State Park was recognized for demonstrating best environmental management practices, supporting community environmental learning and facilitating development of Maryland Green Schools within their service area.

Some of the park's best management practices include: energy saving on-demand hot water heaters, an in-park recycling facility, rain barrels, reforestation of more than two acres of park property, an electric-powered ATV and foot and bicycle patrols of the campground. These practices help lower greenhouse gas emissions, reduce pollution to local waterways, reduce solid waste and increase wildlife habitat.

Located along the Atlantic Ocean and Sinepuxent Bay, the park serves more than 45,000 visitors each year with camping, hands-on learning, outdoor exploration and use of natural play and classroom spaces.



Camping at Assateague State Park

Susquehanna State Park celebrates new green features

The Maryland Park Service recently reopened the Susquehanna State Park campground, which was closed for eight months while undergoing upgrades. DNR partnered with the Maryland Department of General Services to complete the eco-friendly renovations to restrooms and shower buildings in the campground, featuring energy-reducing green technologies with solar panels, on-demand hot water heaters, occupancy sensors, an insulated metal roof and clerestory windows.



The operational 200-year-old Rock Run Grist Mill

Also incorporated into the design are low-flow faucets and dual flush toilets powered by small solar panels. The park salvaged old fixtures to be reused and all concrete and metal from the old building was recycled.

On the exterior, workers installed pervious paving that allows storm water to be filtered back into the surrounding area.

The renovations also provide ADA accessibility and include two new campsites with 30 amp electric hookups for campers with RVs.



Tracking massive storms

By Tom Parham

When Maryland is hit with a massive storm, suffers an extended drought, or dead zones occur, scientists and citizens alike have a one-stop-shop for getting a first-hand look at what's happening in our waterways. EyesontheBay.net provides water quality monitoring information about the Bay and its tributaries 24/7, offering real-time, historical and mapped water quality data for Maryland's Chesapeake Bay and Coastal Bays.

Eyes on the Bay provides water and habitat data (including water temperature, salinity, dissolved oxygen, nutrients, water clarity, pH and chlorophyll) from 34 continuous monitors, 70 fixed station sites and numerous water quality mapping regions. The site also includes updates on current algal bloom events, satellite photographs and provides lesson plans on water quality for the classroom.

Significant effects

Most recently, Hurricane Irene and Tropical Storm Lee had significant impacts on Maryland's Chesapeake and Coastal Bays. Flooding from these storms sent large amounts of debris,

nutrients and sediment pollution from farms, cities, suburbs and sewage plants rushing into the bays. Tropical Storm Lee also carried so much freshwater into the Bay, that it ranks 2nd all-time in recorded Susquehanna River freshwater flow behind Tropical Storm Agnes in 1972.

These high-levels of polluted runoff can fuel late season algal blooms in rivers and in the bays, reduce water clarity and impact the growth of underwater grasses, smothering aquatic habitat and curtailing boating and fishing activities.

Hurricane Irene

On August 27-28, 2011, Hurricane Irene ran up the Atlantic coast of Maryland impacting not only the State's coastal areas but also the Bay and its tributaries as far west as Frederick County.

While the storm tracked east of the Chesapeake Bay, it kept the highest winds and storm surge off the coast. The Eastern Shore and counties west of the Bay saw high winds and locally heavy rains. Unlike the large spring floods of 2011, the Susquehanna River levels did rise, but did not reach flood stage.

All U.S. Geological Survey (USGS) stream recording gages in the Maryland Bay watershed showed peak flows from the heavy rains. More dramatic readings were reported on the Eastern Shore. The USGS stream gage on the Choptank River near Greensboro recorded the highest stream flows in more than 60 years.

So long, dead zone

As part of the long-term Chesapeake Bay water quality monitoring effort, DNR staff conducted two surveys of the Chesapeake Bay immediately following Irene's passage. Results included widespread turbidity or cloudy conditions in the upper Bay as a result of runoff from some flooded streams.

Results also indicated that during the storm, long periods of high northerly winds and open stretches of Bay waters, created a turbulent mixing of currents. This allowed well-oxygenated surface water to mix with low-oxygen waters in the deeper portions of the Bay and its tributaries, all but eliminating the Bay's dead zone - an area in the deep, cooler waters of the Bay where oxygen conditions are so low that few animals, if any, can survive.



Lon Livingston (4)

Monitoring the water quality of the Chesapeake Bay aboard the R/V Kerhin

In fact, oxygen levels were higher after Hurricane Irene in areas along the bottom of the Bay from the Susquehanna River to the Maryland-Virginia line, except in one very deep site just south of the Patuxent River, which may have been too deep to be affected by this storm.

Coastal Bays

Hurricane Irene moved along the Mid-Atlantic coast just west of the Delmarva shoreline, producing the storm's highest winds and storm-surge along the coast. The storm-surge increased water levels in Isle of Wight Bay and caused ocean waters to cross over parts of Assateague Island.

The Coastal Bays were spared the heaviest rainfall, although rainfall amounts of 4 to 8 inches were measured in the watershed. Water levels at the Ocean City Inlet were up two feet.

Like the Chesapeake Bay, DNR monitoring data in the Coastal Bays showed a strong decline in salinity as a direct result of runoff and high stream flow. At some sites algal blooms occurred as a direct response to elevated nutrient concentrations carried in runoff from Irene's rains.

Initially this will increase algae producing oxygen during photosynthesis. However, once the bloom begins to die back, decomposing algal cells may produce low-dissolved oxygen conditions that are unfavorable to fish and shellfish.

Hurricane Irene's surge washed over several areas on Assateague Island along the north end across from Snug Harbor, as well as in the Chincoteague Wildlife Refuge on the southern part of the island. Such barren, sandy habitat is preferred by the threatened piping plover.

Tropical Storm Lee

Tropical Storm Lee was the second part of a one-two punch that slammed the area just after Irene, dropping large amounts of rain in the Bay watershed. While flows resulting from Hurricane Irene did increase flows on the Susquehanna River at Conowingo, these flow levels were dwarfed by those from Tropical Storm Lee.





Members of the media join DNR staff to observe monitoring operations.



A satellite image shows sediment flowing from the Susquehanna River to the Chesapeake Bay.

On the Susquehanna River, the massive flows peaked at Conowingo Dam at about 778,000 cubic feet per second on September 4, 2011, lower than the 1.1 million cubic feet per second flows from Tropical Storm Agnes, but resulting in all spillways of the dam to be opened. Based on USGS estimates, more than twice as much flow entered the Bay from the Susquehanna during Tropical Storm Agnes. Maryland DNR's real-time monitoring showed peak turbidity levels exceeding 50 times normal conditions.

This muddy water contained large amounts of nutrients capable of fueling large algal blooms which could rob the waters of dissolved oxygen when the algae would die and settle to the bottom to decompose. The large discolored freshwater plume could have major impacts to the Bay's fish, shellfish and underwater grass communities by smothering habitat, blocking light and decreasing salinity levels for an extended time.

In addition, at such high flows, both storms caused the movement of sediments and nutrients behind Conowingo Dam into the Bay which was visible in satellite photos for weeks. Large amounts of floating debris also made boating difficult.

Eyes on the storms

The longer-term effects of these two storms may not be evident until 2012. Still, Maryland citizens can rest assured that DNR is continuing extensive monitoring throughout Maryland's streams, rivers and bays to better understand the storms impacts. And, as always, results are available on Eyes on the Bay. ■

eyesonthebay.net

[twitter@eyesonthebay](https://twitter.com/eyesonthebay)

For monthly updates on
Chesapeake Bay Health, sign-up for
the Eyes on the Bay newsletter
at baystat.maryland.gov

Tom Parham is director of Tidewater Ecosystems Assessment for DNR.

Outdoor appetit: **Blackened Snakehead with Piña Colada Salsa**

Get “invasive” with Executive Chef Chad Wells of Alewife in Baltimore and his original recipe for Maryland’s “most wanted” fish, the snakehead. This predator, which is invading the waters of our fair State, is a delicacy in Chinese and Thai recipes. Snakeheads are native to Asia and Africa, but here in Maryland, they are destructive to the ecosystem and the best way to beat ‘em is to eat ‘em. Diners who have tried them swear they are a surprisingly delicious treat!

BLACKENED SNAKEHEAD WITH PIÑA COLADA SALSA

Blackening seasoning

In a mixing bowl combine the following:

- 1 1/2 tablespoon paprika
- 3/4 tablespoon granulated garlic (or 1 tablespoon garlic powder)
- 1 tablespoon onion powder
- 1 tablespoon dried thyme
- 1 teaspoon black pepper
- 1 teaspoon cayenne pepper
- 1 teaspoon dried basil
- 1 teaspoon dried oregano
- 1 teaspoon of kosher salt

This spice works great with all fish, game and poultry for blackening and smoking. It can also be stored for quite some time.

Piña Colada Salsa

- 1 pineapple
- 1 can cream of coconut
- 1/2 of a bunch of cilantro
- 1 Habañero pepper (optional)

Peel the pineapple and discard the skin.

Slice the pineapple length-wise into slices about 1/4 inch thick. Dice the pineapple into 1/4 inch squares. Place pineapple squares into a mixing bowl.

Remove leaves from cilantro and roughly chop, then add them to the mixing bowl with the pineapple squares.

In a separate bowl add the cream of coconut and stir with a fork until smooth, it should be white in color. Set bowl aside. Combine 6 tablespoons of the cream of coconut to the pineapple cilantro mixture. If you'd like it spicy, add 1 diced Habañero pepper. Place salsa in refrigerator.

Preparation

Preheat oven to 400 degrees

1 snakehead filet skinned and cut into 4 pieces.

With a dry towel pat the flesh to remove excess moisture.

Coat each piece of fish on one side with a generous amount of blackening seasoning. Place a tablespoon of cooking oil into a cast iron skillet or sauté pan and place over high heat. Once the pan has heated (you'll know its hot when the oil is about to smoke and slides freely across the pan). Place each piece of fish (seasoned side down) on the pan and press gently with a spatula.

Allow the fish to sear for approximately 3 minutes.

Gently turn fish over and sear for 1 minute. Place the fish in the oven and cook until desired temperature is reached (about 3-5 minutes depending on the thickness of the filet).

To plate

Slice avocado and place on a plate, gently season the avocado with kosher salt. Place Piña Colada Salsa on the center of the plate then put blackened snakehead on top of the Piña Colada Salsa. Garnish with roasted red pepper and strawberries.

“This recipe should work great with most fish,” says Chef Wells. “I have used it in the past with scallops and shrimp as well. You can also mix Maryland crab meat with the salsa and it goes great with plantain chips or even tortillas.”



Chad Wells

Win prizes for snakehead demise

In an effort to stop the spread of the invasive snakehead fish Maryland DNR, the Potomac River Fisheries Commission and the U. S. Fish & Wildlife Service are offering prizes for anglers who catch, kill and enter photos of the snakeheads through the Angler's Log website.

Through December 31, 2011, anyone who catches a Northern snakehead with a hook-and-line and posts the catch, including a photo of the dead fish on DNR's Angler's Log, will be entered into a year-end drawing.

Anglers should report the location of their snakehead catch as specifically as possible and include a ruler or another measuring device in the photo to indicate the size of the fish.

Prizes include a \$200 rod and tackle package, a Maryland State Park Passport and a 2012 Potomac River fishing license. The park passport allows unlimited day-use entry for up to 10 people in a vehicle, unlimited boat launching at all State Park facilities and a 10 percent discount on State-operated concessions and boat rentals.

The Northern snakehead is a non-native fish species that was illegally introduced to the Potomac River, moved to its tributaries and was recently found in the Rhode River. As top predators, their negative impacts to the ecosystem and other important recreational and commercially valued fisheries could be significant.

dnr.maryland.gov/fisheries/fishingreport/log.asp

Alewife, 21 N Eutaw Street,

Baltimore, MD 21201 • 410 545-5112

alewifebaltimore.com

SHORT TAKES

Turtles released at Point Lookout State Park

When you think of sandy beaches and hot summer days, creatures with names like Donner, Blitzen, Rudolph, Frosty and Buddy the Elf don't usually come to mind. No, it's not an early visit from Santa's reindeer, a friendly snowman or the awkwardly tall elf.

These visitors to Point Lookout State Park are Kemp's ridley sea turtles. Kemps are the most endangered, the smallest of all the sea turtle species and are particularly vulnerable to severe changes in water temperature. The four hard-backed friends originally came from Cape Cod, Mass. where they all suffered from cold stunning, the sea turtle equivalent of hypothermia.

The Baltimore National Aquarium began caring for the foursome around the holidays last year, hence the winter character names. The turtles were treated for cold-stunning and various other problems such as bacterial infections and lacerations. In late June they were sent off to paddle to the sea from Point Lookout State Park. This is the second year for the Kemp's ridley sea turtle release at this State Park.

"The sandy beaches at Point Lookout are perfect for the release of the sea turtles and the park location is ideal in the mid-Bay where food is abundant and temperatures are ideal," says Melissa Boyle, assistant park manager at the Point Lookout State Park Complex.

Additionally, having the sea turtle release in the park, allowed for the public to be part of the event.

The aquarium staff provided Spanish speaking interpreters for visitors, as well as an education booth and children's activities.

"We estimate 200-300 folks lined-up along the beach to watch the sea turtle release. Some were even lucky enough to touch a turtle's flipper before it was released," says Boyle.

Tagging the sea turtles helps researchers learn more about their migration and travel patterns. The public is invited to follow Frosty and Rudolph's progress by viewing a satellite map of their travels at the Aquarium's website, http://aqua.org/oceanhealth_animaltracking.html. The information will be gathered until the adhesive fails and the tag falls off.



Melissa Boyle (2)



TOP: Rudolph makes his way into the Chesapeake Bay
BOTTOM: Hundreds of people came out to see the turtle release

280 graduate from CJC

Young people from across Maryland graduated from the Conservation Jobs Corps (CJC), formerly known as the Civic Justice Corps, at North Point State Park in Baltimore County in August. During the 5-week summer jobs program, which targets at-risk youth, Corps members worked in State Parks across Maryland learning green jobs, team building skills and developing a stewardship ethic.



Tom Happt

and appreciation for Maryland's natural resources. Governor Martin O'Malley gave the keynote address to the graduates and their families who gathered to celebrate this special achievement.

CJC projects included trail maintenance, removing invasive species, planting trees, installing trail signs, building deer and turtle enclosures and many other basic landscaping and construction jobs. In conjunction with all of their hard work, the kids also go on kayaking, canoeing, fishing and camping trips to experience nature first-hand.

In 2008, Governor O'Malley expanded the Maryland Conservation Corps (MCC) to include the Civic Justice Corps — a summer employment program designed to provide at-risk youth with service opportunities in Maryland State Parks. The name has been changed to the Conservation Jobs Corps to better reflect the goals of the program. Now in its fourth year, the program has graduated a total of 820 kids.

New fishing club for kids

This summer DNR launched a free online fishing club for anglers ages 5 to 15. The club allows agency staff to interact with young anglers and their mentors to promote youth fishing events across Maryland, share fish stories on the youth anglers' log and access tips on fishing.



Membership in the *Maryland Youth Fishing Club* is free and subject to parental approval. New members receive a *Maryland Youth Fishing Club* patch and access to helpful tips from DNR and experts from partner fishing organizations across the State.

To join the *Maryland Youth Fishing Club*, visit dnr.maryland.gov/keepfishing. For more information on youth fishing, contact Letha Grimes at lgrimes@dnr.state.md.us.



And the Emmy goes to...

Outdoors Maryland, the nature and recreation series, co-produced by Maryland Public Television (MPT) and DNR, has won two regional Emmy awards. The program, broadcast each Tuesday night at 7:30 on MPT, is considered the Mid-Atlantic's premiere video guide to nature and recreation.

The Emmy Award is the industry's benchmark for the recognition of television excellence. *Outdoors Maryland*, now in its 23rd season on public television, has won 32 Emmys since it began its run in 1988.



The 2011 Emmy award for Best Magazine Program Feature went to a segment entitled, *The Sacred Places*. The story follows three friends as they explore the wilds of the Chesapeake Bay by kayak. The story captures the extraordinary beauty of the remote islands in the south-central Bay, showcasing the vibrant life of rare salt-marshes, and seeking inspiration in dazzling sunsets and sunrises.

The series also won a second Emmy for Best Magazine Program. Episode 2204 featured the *Maryland Fishing Challenge*, the controversy surrounding the Tiger Beetle habitat at Calvert Cliffs and the State's purchase of pristine shoreline and open space in Southern Maryland.

video.mpt.tv/program/1100712969/

Foursquare available at State Parks

To expand DNR's social media efforts, Maryland State Parks are using the social networking platform, Foursquare, to stay connected to park visitors. Foursquare is a mobile-web application where members share their location and what they are up to with others.

Park visitors can download the Foursquare app using any GPS-enabled mobile device. After a visitor has checked in at the park using Foursquare, they can interact with other users that have checked in at the same location by sharing tips, fun ideas and photos. Users are also able to send that information to their Twitter and Facebook accounts using the Foursquare app.

Although the social networking site is mostly for fun, it can also be a lucrative competition. Some places give the most frequent users an opportunity to earn prizes and rewards. In the future, Maryland State Parks will offer incentives to those who check-in.

foursquare.com/mdstateparks

THE RADFORD BECOMES A REEF

Creating fish habitat

By Jill Zarend-Kubatko

What was once a 553-foot Navy destroyer has become the East Coast's largest artificial reef. This summer, as tourism and natural resources officials from Delaware, New Jersey and Maryland looked on, the new "reef," slowly sunk to the bottom of the Atlantic Ocean. The Del-Jersey-Land reef, (named for the three states involved in the project) took about four hours to make its 138-foot descent.

The USS Arthur W. Radford's final resting place is roughly 28 miles northeast of the Ocean City inlet, midway between the Indian River and Cape May. The Del-Jersey-Land reef is a cooperative venture between the three states to enhance fisheries habitat through decommissioned and retired ships, and railway and subway cars.

"It's going to be a huge economic boost for Ocean City," says Erik Zlokovitz, the artificial reef coordinator for DNR. "It is expected to attract bluefish, sea bass, weakfish, sharks and tuna, and that will attract charter fleets."

The Radford was commissioned in 1977 and held a crew of more than 300. It patrolled Venezuela, Panama, Argentina, Brazil, Senegal, Oman, Bahrain, the Azores, Nova Scotia, Italy and Turkey. One of its final missions was deployment during Operation Enduring Freedom. The Radford's homeport was Norfolk, Va.

The ship was named for Admiral Arthur Radford who served in three wars. He was onboard the USS South Carolina during World War I, in the Office of the Chief of Naval Operations during World War II and was Commander in Chief of the U.S. Pacific Fleet at the outbreak of Korean hostilities. ■



Tom McCarthy (3)



Taking nearly four hours to sink, the USS Radford is the largest ship to become a reef.

Corporal Cameron Brown and Officer First Class Rodney Smith

By Heather Canoles

The job of a Maryland Natural Resources Police (NRP) Officer can never be said to be dull. Upon arriving for his interview at Sandy Point State Park for this article, Officer First Class Rodney Smith announced that his partner, Corporal Cameron Brown, had been called away to a report of a possible abandoned torpedo. It turned out to be nothing more than an old sunken buoy.

"That's what makes this job interesting," says Smith. "You never know what the day will bring. Abandoned boats, intoxication calls and wildlife complaints are just the beginning."

Cpl. Brown and Officer Smith patrol the NRP Southern Region which spans from Anne Arundel County south to the tip of St. Mary's County. During the summer, their busiest season, they spend much of their time working out of Sandy Point State Park.

"We get a lot of water calls here, but we like being on the boat," says Officer Smith.

The 'boat' that they use for such calls is a 20-foot inflatable Zodiac. It has a 250 horse-power engine and rubberized pliable sides that allow it to pull close to other vessels without damaging them.

It was on the Zodiac last year that the pair received the call that would garner them an Award of Merit for responding in perilous conditions to rescue two stranded kayakers during a storm near the Chesapeake Bay Bridge.

"I knew it was going to be a bad day. It was windy on land, but it's always worse on the water," recalls Brown.

He and Officer Smith were working at Sandy Point State Park when they got

the call: Two kayakers in distress near the Bay Bridge. A driver traveling across the bridge spotted the men bobbing in the water below and alerted NRP.

Upon arriving on the scene, the officers spotted the two anxious kayakers clinging to rocks near a bridge piling. In the face of overwhelming currents, waves and wind, the boaters had abandoned their kayaks to swim to the nearest safe haven, the pilings that hold up the bridge. Officers Brown and Smith cautiously used their boat to get close to the rocks and pull the two to safety.

The drenched kayakers were relatively unharmed, bearing only minor scrapes. The officers administered first aid, but the shaken duo refused an ambulance. The situation could have been dire had the kayakers not been wearing personal floatation devices or if trained professionals weren't nearby.

"People should always exercise caution on the water and on land," says Brown. "But if something does happen, we're here to help."

Officer Smith, a five-year veteran of NRP, always knew he wanted to be a police officer. After high school, he worked security with the Baltimore School Police. He then became a Department of General Services officer before finding his place at NRP.

His partner, Corporal Cameron Brown, a 16-year NRP veteran, was less certain of his career path. He completed an Associate's Degree in Emergency Medical Services at Baltimore County Community College hoping to one day become a physician's assistant, but a chance meeting and discussion with an NRP officer changed his mind.



Heather Canoles

"I enjoy being outside and helping people," says Brown, who in addition to his police work volunteers his time to citizen outreach. "That's why I'm one of our Community Oriented Police Officers. It allows me to interact with and educate the public."

Part of the satisfaction from the officers jobs is being on the go outdoors and never knowing what will happen next.

"We want people to continue to come out and enjoy the State," says Brown. "We'll be here making sure they have a safe time. That's our job." ■

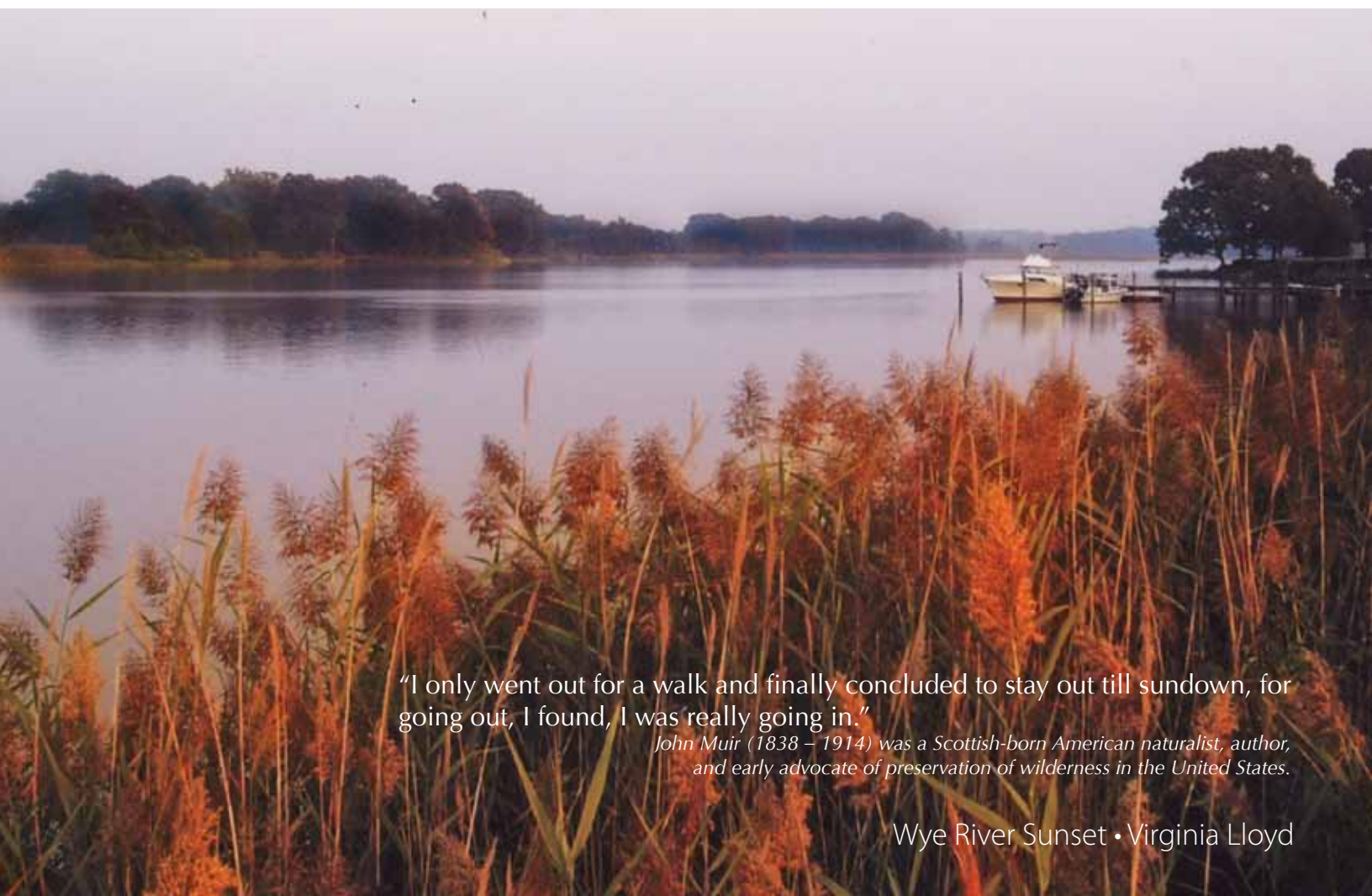
Heather Canoles was a summer intern in DNR's Office of Communications. She attends the University of Maryland and is majoring in English.



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"I only went out for a walk and finally concluded to stay out till sundown, for going out, I found, I was really going in."

John Muir (1838 – 1914) was a Scottish-born American naturalist, author, and early advocate of preservation of wilderness in the United States.

Wye River Sunset • Virginia Lloyd