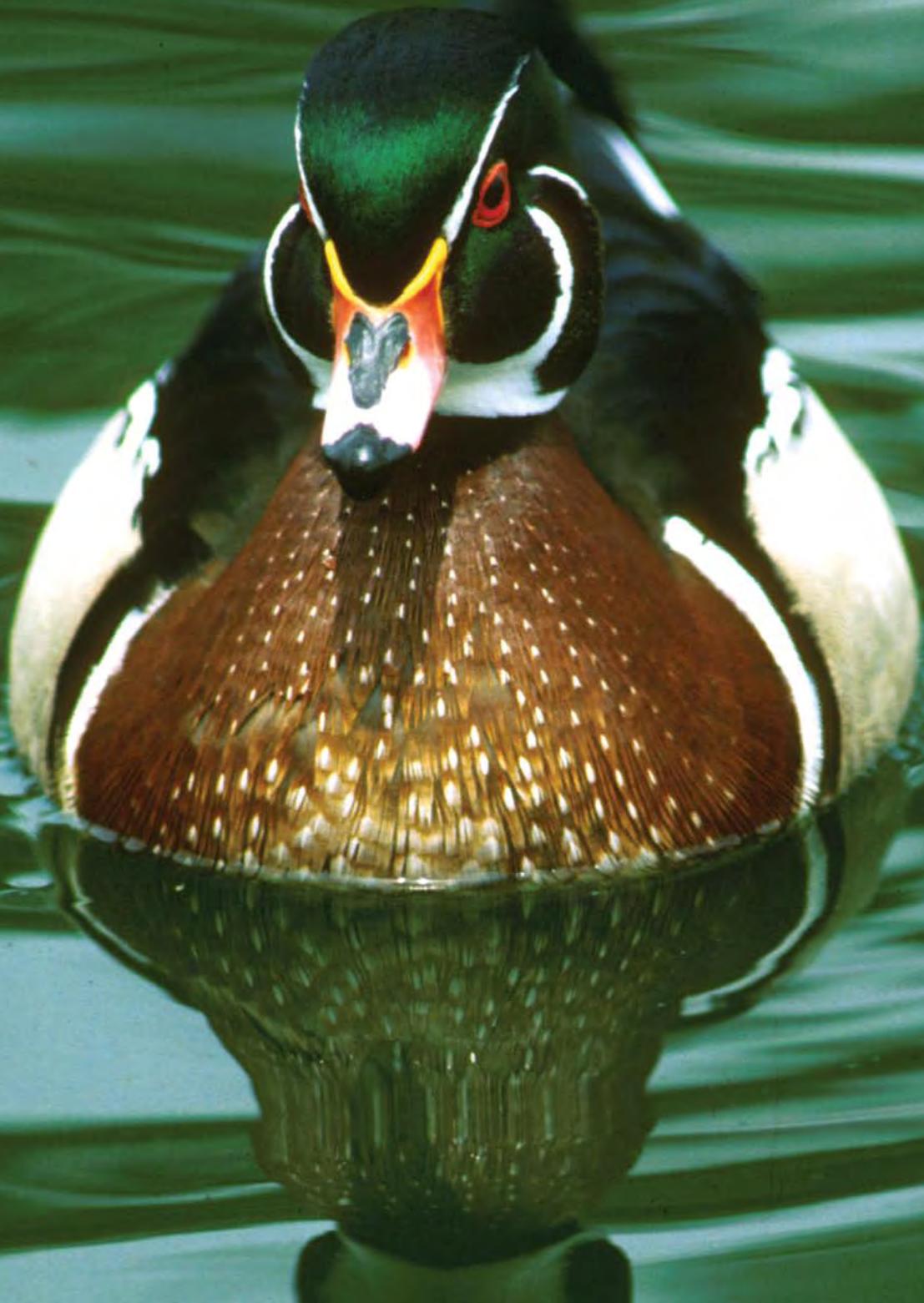


the  
Maryland  
natural resource

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Natural Resources**

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**The Maryland Natural Resource**

*...Your guide to recreation &  
conservation in Maryland*

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John Cornell

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**Donna Tolbert-Anderson**

# THE COMMON GOOD



**A**t this writing, members of my cabinet and I continue to work closely with members of Maryland's General Assembly to adjust our State's budget in the face of the nation's ongoing economic crisis and declining revenue estimates here at home.

Yet even as we make these increasingly painful, albeit necessary decisions that are impacting programming and services across our State, our unwavering commitment to managing and preserving our natural resources stands firm. While it is true that our dollars are few and our needs are many, we cannot lose sight of the fact that our planet is what sustains us, and that healthy, productive natural resources will be vital to the recovery of our economy.

There are many tangible cost benefits of conservation. By choosing to grow greener, smarter and more sustainably, we are increasing opportunities for green jobs, preserving our most valuable resource lands, and making available smarter housing and transportation choices that are helping us reduce our energy usage and restore the health of the Chesapeake Bay.

Current fiscal conditions mandate that we strategically invest our limited resources to receive the highest rate of return on our collective investment. Working together, we began making changes to the way we focus our natural resource investments just over two years ago. Today, targeting and tracking systems like BayStat and GreenPrint are providing decision-makers and citizens with up-to-date information on where and how our dollars are being spent and what kind of return we're getting for our money.

By maintaining our commitment to a Smart, Green & Growing Maryland, together we can create a future where our citizens live in cleaner, healthier and more vibrant communities; where resource-based economies flourish; and where green technologies have injected new resources into our economy, our homes and our methods of transportation.

Even as we make the decisions needed to carry us through this fiscal storm, we cannot abandon our efforts to create a smarter, greener and more sustainable future or our responsibility to Maryland's fragile, finite resources.

Martin O'Malley  
Governor



Please visit our new website: [www.green.maryland.gov](http://www.green.maryland.gov) to experience **GREENPRINT** and learn more about Maryland's Smart, Green & Growing initiatives.

# CONSIDER THE ELEMENTS



John Griffin

Lately, “sustainability” has become quite a buzz word. It is hard to pick up a newspaper or listen to the news without hearing someone somewhere talking about “sustainable this or sustainable that.” Interestingly, research has shown that many people are not sure exactly what sustainability means. A recent survey by the Hartman Group shows that just over half of those interviewed had any familiarity with “sustainability”, and even those that had heard the term could not define it appropriately.

At its core, the definition of sustainability as it pertains to the natural world is pretty simple.

Sustainability is meeting the needs of the present without compromising the ability of future generations to meet their needs.

Those of us who are fortunate enough to call Maryland our home have more opportunities than ever to make the changes in our own lives that will help create a healthier, more sustainable state, nation and planet.

Under the leadership of Governor Martin O’Malley, we recently launched the Marylanders Plant Trees Initiative with the goal of planting 50,000 trees by 2010 and planting 1 million new trees across Maryland by 2011. Planting a tree is an easy way for each of us to get personally involved in creating a more sustainable future.

Even though you and I may not get to enjoy the shade of the trees we plant today, they will be there for our children and grandchildren in the years to come. In fact, Nelson Henderson’s well-known quote, “The true meaning of life is to plant trees, under whose shade you do not expect to sit,” is a true message of sustainability.

Another way that homeowners can lessen their impact on the Chesapeake Bay is to improve the way we treat waste from our homes – for free! Since 2004, all Marylanders have contributed to the Chesapeake Bay Restoration Fund, which provides funding to upgrade wastewater treatment plants and to plant cover crops.

Homeowners with septic systems can now receive free upgrades that will help keep harmful pollutants out of our waterways. Through this program, administered by the Maryland Department of the Environment, 100 percent of costs for equipment, installation, and five years of maintenance are paid for through the Fund.

This program is another example of meeting the needs of the present while protecting our natural resources for those generations to come.

A big part of understanding the natural legacy we will leave to future generations is to stay informed. I encourage you to visit the State’s new Smart, Green & Growing website often, and to sign up for the BayStat monthly newsletter. These two tools will inform you about state programs available to you, inspire you to get involved in citizen stewardship activities, and allow you to track the progress we are making at the State level.

Now, more than ever it is imperative that each one of us stay engaged in and informed about what is happening in our state. Working together we can improve the health of the Chesapeake Bay today and learn how to live in a sustainable way that leaves a legacy for those that are counting on us to protect the natural world they will inherit.

  
John R. Griffin  
Secretary

# America in Miniature...

## *A Year of Fly Fishing* By Don Cosdon

*From the clear mountain streams of Western Maryland to Unicorn Lake on the Eastern Shore, the oft-quoted idea that Maryland is "America in Miniature" comes into sharp focus when one is traveling the state with a flyrod in hand. There is a vast array of waters and fish waiting outside every door in every part of the State and anglers in Maryland can enjoy fly fishing year round.*

*A* season by season trip across the Free State reveals the wealth of fly fishing opportunities.

### *Winter*

While some may believe that winter is only for watching football and hunkering down indoors, diehard anglers know that there is some quality trout fishing to be had this time of year.

Maryland's Savage River below the Savage River Reservoir and the Gunpowder

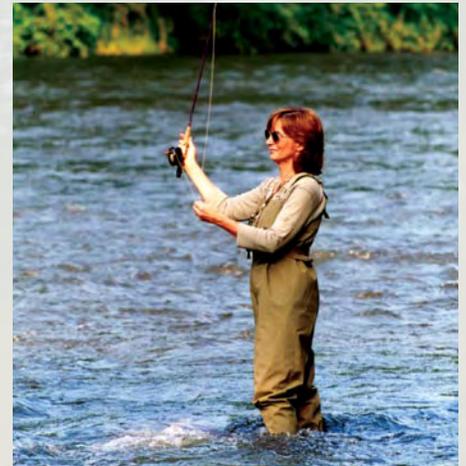
Falls between the Prettyboy Reservoir and Falls Road both benefit from relatively stable water temperature due to reservoir discharges.

Washington County's Beaver Creek from the Fly Only area upstream to the Albert Powell Hatchery also has moderated temperatures from the influence of springs in the area.

These areas are well known, so anglers should expect to have company even on cold and seemingly inhospitable days.

Delayed harvest areas are managed to provide trout fishing in all but the warmest months and there are several wintertime sleepers.

Town Creek on the western edge of Greenridge State Forest has some great runs in the upper stretch. The Middle Patuxent River in Columbia and a new stretch on Catocin Creek in the town of Myersville will all hold fish from the fall stocking. Some of the larger streams in central Maryland like the Patapsco River below Daniels Dam and the Little Patuxent near Savage Mills will still hold trout despite the prevailing wisdom that they are 'all fished out' two weeks after stocking.



Michael Eversmier



Winter is typically a time to drift nymphs, and a good go-to rig is a large dark stonefly with a hare's ear dropper and an indicator set far enough up the leader so that the flies occasionally hang on the bottom. Keep an eye out for the telltale dimples and swirls on the surface which means a hatch is on. Most likely a small black stonefly will do the trick but a midge pattern can also be deadly. If you have trouble seeing your midge on the water, try it on about 18 inches of tippet tied to the bend of a floating attractor pattern like a stimulator or Chernobyl ant.

Some of the stocked ponds in the southern or eastern part of the state will also still have trout. This region is also blessed with some great pickerel waters. Pickerel are happy when the water is 40 to 50 degrees and are a favorite flyrod target.

St. Mary's Lake in St. Mary's County, the Loch Raven Reservoir just north of Baltimore and Johnson Pond, Smithville Lake, Unicorn Lake and other mill ponds on the Eastern Shore all have fine pickerel fishing. Many tidal rivers also have great pickerel populations. Pickerel are suckers (pun intended) for a slow striped streamer with lots of action any time of year. The old saltwater "seaducer" pattern can be deadly. Another favorite is a narrow strip of rabbit fur twice the length of the hook shank with a hackle



The Savage River is one of Maryland's gems for wild trout.

collar and a white chenille or silver tinsel body. Move the fly slowly to coax as much action out of it as possible. It's a good idea to occasionally strip a little faster.

On a nice day pickerel may find a shallow sunny spot where they can warm up a little and will be surprisingly active. If the fish are deep, you may have to use a weighted pattern. One trick is to use a sinking or sink tip line, short leader and a floating pattern. This will get the fly down but it will still ride a little off the bottom where the fish can see it and it won't be as easily fouled with algae and debris.

## Spring

Spring is the time of year when fly anglers are really bitten by the fishing bug.

One of the first opportunities for truly non-stop action is the shad run. Hickories move in first followed by American shad a few weeks later. Shad show up as early as late March on the Potomac River and early April in the Susquehanna. The mouth of Deer Creek at Susquehanna State Park in Harford County is a well-known hot spot, but try to get away from the crowd and find an eddy where you can get the right drift.

Fish may be caught anywhere along the Harford County shoreline of the Susquehanna River from the boat ramp at Lapidum to Angler's Park below the Conowingo Dam. The access at Angler's Park has recently been improved, and there is excellent handicapped accessibility. If the fish are deep, try a sinking line, short leader and the tiniest spoon you can find. This is not the most aesthetically pleasing rig to cast but a good fast action 6 to 8 weight rod can lob it far enough across current to get a good swing.

Anglers will also find a great new area at the mouth of Ocotararo Creek off of Rt. 220 on the Cecil County side of the river this year. This area has a good parking lot and a trail that provides access to the lower portion of the creek as well as the river. There aren't a lot of deep runs here, so the shad usually move through during low light periods. Very sparse clouser minnows and weighted bright colored streamers will take both hickory and American shad.

If you have a shallow draft boat you can try out the "Susquehanna 30-30 Slam". Hit the Flats in the morning with big streamers and poppers on an eight or nine weight rod for some catch and release striper fishing. You'll have a good chance at getting fish well over 30 inches.

Then run upriver during mid-day and anchor somewhere below the mouth of Deer Creek for some shad action. On a good day you can catch 30 shad or more in two or three hours. Then, run back down to the Flats and catch the evening bite. When water conditions are right - it just doesn't get much better than this.

Spring is also the time for trout. No matter where you live, there are probably stocked waters within a half hour's drive.

Good spots in a traditional mountain stream setting include Big Hunting and Little Hunting Creeks and Owens Creek in Frederick County. On the other side of the mountain in Washington County, Antietam Creek at Devils Backbone Park is great place for a picnic and it gets a lot of trout during spring stockings.

Gunpowder Falls and the Savage River are Maryland's gems for wild trout. On the North Branch of the Potomac below Barnum and the Youghioheny between Hoyes and Sang Runs heavy stockings of fingerlings augment the limited natural reproduction and produce populations of beautiful fish that are virtually wild. These fish are wily and challenging.

## Bluegill

By late April, the bluegill move to shallow water to spawn in Eastern Shore and Southern Maryland ponds. Wye Mills and Unicorn Lakes on the Eastern Shore and St. Mary's and Wheatley Lakes in Southern Maryland see fish as early as mid to late April.

The spawn starts later in the west and will be as late as June in Deep Creek Lake. Little Seneca Lake in Montgomery County, Cunningham Falls Lake in Frederick County, Lake Habeeb in Allegany County and Broadford Lake in Garrett County all have good blue gill populations.

Deep Creek Lake is home to some of Maryland's biggest bluegills, including the state record; a 3 lb. 7 oz. monster.

A small nymph or wooly worm allowed to slowly sink is dynamite on bluegill. Watch your line closely; most takes will be subtle. The most exciting way to catch these great flyrod fish is with a small popper or foam spider. Either will work as long as it has rubber band legs of about an inch. Float it right over the fish's head. Some days a little twitch or two is necessary, but leaving it motionless so that those legs dance with the ripples on the water is the most deadly tactic.

## Summer

In the Maryland summer, water levels drop angler's thoughts turn to smallmouth bass and rocky rivers.

The Potomac from Chain Bridge to Keyser West Virginia is loaded with smallmouth. The C&O Canal National Historic Park from Georgetown in the District of Columbia to Cumberland in Allegany County offers easy access to smallmouth fishing which rivals any in the country for numbers of bass. Park at any access point and walk up or down the canal towpath until you see a shallow riffle and wade in. This is not the time of year to be looking for trophies, but the



wading angler will find plenty of fish in almost every riffle and at the head and tail of every pool.

A four or five mile float in a canoe or small cartop boat can produce 50-plus fish days. On the rare occasion that the bass aren't hungry, the redbreast sunfish, rockbass and fallfish will usually take up the slack. Dark weighted wooly buggers and similar patterns which imitate the abundant crawfish, sculpins and hellgrammites are good.

A muddler style tie with marabou, flashabou or rabbit strip wing or a simple cork or foam popper with hackle tips and a little flash for a tail and a hackle collar work great here. The popper will often bring smallmouth rocketing out of the water and is especially effective in late July when the white miller mayfly starts to hatch on the river. These patterns are made twice as effective with a well tied weed guard. Use stiff, 20 to 30-pound monofilament. Tie it in just behind the hook eye to form a U perpendicular to the shank so that when bent backward it's just short of the hook point.

On poppers you should poke a couple of holes in the cork with a needle or tiny drill bit and epoxy the mono in place. If constructed right you can actually cast this fly right into a deadfall or stick pile and slide it over the branches. Watch out when it slips back into the water! Bass will come

All of the locations mentioned in this article have public access. Some require a small boat, canoe or kayak to get to some of the hot spots, but most have paths and good bank access.

To access the DNR Fishing report, updated weekly, or for questions about fishing in Maryland, visit the DNR website:

[www.dnr.maryland.gov](http://www.dnr.maryland.gov)

under and sometimes even over a log to grab what looks like a meal about to get away.

## Fall

As late summer and fall approach, schools of breaking stripers and blues call fly fishers back to the Chesapeake Bay. Find a way to get out on the water; when this fishing heats up the action is as fast as you can cast.

Clouser minnows or small very sparsely dressed streamers with a couple of strips of flashabou will imitate the bay anchoys which are often the main forage. This fly on an 18-inch leader tied to the bend of a popper will often result in doubles. Many times these are small sub-legal size stripers, but you can usually get a few keepers and enough blues for a couple of meals. Bluefish are excellent eating when quickly iced and filleted and skinned. They are great marinated and smoked on the grill or rolled in cornmeal and fried.

This fishing usually continues right into November.

There you have it. A whole year's worth of world-class fly fishing without ever leaving the Free State. ■

**Don Cosden** is the Assistant Fisheries Director and Chief of Inland Fisheries of the DNR Fisheries Service.

# Maryland's Freshwater Mussels

## A Declining Resource

By James M. McCann



James M. McCann

The eastern elliptio (top right) and eastern floater (bottom right) are among the largest freshwater mussels in Maryland and the only species that remain relatively common and widespread. The small bivalve on the left is the Asiatic clam, an invasive non-native species that can displace native mussels.

In recent years, scientists have learned that freshwater mussels — seemingly unremarkable animals and distant cousins to the beleaguered eastern oyster — play an amazingly vital role in freshwater ecosystems, one that is intricately tied to the health of our watersheds. They also have unique life cycles, behavioral adaptations and evolutionary histories.

Sadly, freshwater mussels are one of the most endangered groups of animals in the world. In the United States, over 70 percent of the approximately 300 species are declining, endangered or extinct. Compared to other major animal groups (e.g., birds and mammals), they are by far the nation's most imperiled species. Here in Maryland, freshwater mussels show a similar trend,

one that sends a clear message about the state of our streams and rivers.

### Just the Facts

Freshwater mussels belong to the order Unionoida, a subgroup of bivalves (animals with a single pair of hinged shells or valves) comprising 840 species worldwide. They are distinguished from all other bivalves by a unique shell structure, pearly nacre on the inside of the shells, lack of byssal threads (fibrous strands used by some bivalves like the zebra mussel to permanently attach themselves to substrates), and a unique life history that requires a host fish.

North America supports the greatest number of freshwater mussels in the world with 297 species. Most of this diversity lies in the southeastern U.S., a region with unrivaled

mussel diversity and among the world's great centers of freshwater biodiversity.

Freshwater mussels exhibit a variety of shapes, sizes and colors, a reflection in part of their physical adaptations to different aquatic habitats. At maturity, they range in size from 1.5 to 11 inches in length and can weigh as much as 3 to 5 pounds. They are among the longest-lived animals in the world. The lifespan of most species range from 8 to 100 years with a maximum recorded age of 150 years. Adult mussels are generally sedentary, spending most of their lives filter-feeding partly buried in a stream or lake bottom.

### Part of the Plan

Freshwater mussels play important roles in aquatic food webs, nutrient cycling



A DNR team of biologists spend a day in the “office” conducting freshwater mussel surveys.

and water quality. Like oysters in coastal waters, mussels have an enormous filtering capacity. A single mussel can filter 0.5 to 1.25 gallons of water per hour. This may not seem like a lot until one considers that even in a small stream just 10 to 15 feet wide, a thriving mussel population can number in the tens of thousands with densities exceeding 30 animals per square foot.

In a study on the lower Hudson River, researchers found that mussels filtered an astounding 5.3 million gallons per day, roughly equal to the river’s daily summer discharge! As mussels filter-feed, they ingest large quantities of algae, bacteria, zooplankton, sediment and suspended organic matter. In doing so, they reduce stream turbidity and convert organic matter into forms that can be utilized as food and nutrients by a greater variety of animals and aquatic plants.

### Healthy Mussels, Healthy Rivers

In a healthy stream or river, the total biomass of freshwater mussels can be tremendous, exceeding that of all other aquatic animals including fish. With such high biomass and longevity, mussel populations provide important long-term storage of huge quantities of nitrogen, phosphorous and calcium.

Mussels also represent an important food source for a variety of animals including muskrats, raccoons, otters and great blue herons. Small juvenile mussels are eaten by crayfish, waterfowl and fish species such as freshwater drum, suckers and catfish.

Mussels also enhance stream and river bottoms for other aquatic life. Like earthworms in our soils, mussels gently mix and churn the substrate, filter sediment and

add organic matter. Scientists are finding that other aquatic animals such as caddisflies, mayflies, and juvenile fishes can be more abundant in the vicinity of mussel beds and that mussels can increase growth rates of submerged aquatic vegetation (SAV).

### A Complicated Life

Perhaps the most fascinating aspect of freshwater mussel ecology is their complex life cycle. Mussels have a unique



DNR biologists mark, age and measure mussels as part of long-term population monitoring efforts for rare, threatened and endangered species. The mussel on the left is the state endangered triangle floater; the four mussels on the right are dwarf wedgemussels, a federally endangered species.



The Creper Mussel

larval stage during which the larvae, called glochidia, must attach to the gills, fins or scales of an appropriate host, usually a fish. This host fish relationship allows the glochidia to successfully metamorphose into adult mussels and, importantly, to disperse.

Different mussel species require different host fish species. Some mussels can utilize a variety of fish species. Others, including some of our most endangered mussels, are limited to just one or two hosts, which may also be rare. The glochidia, about the size of a tiny grain of sand, remain attached to the host, typically for 2 to 3 weeks, during which they metamorphose into juvenile mussels. Following metamorphosis, the juvenile mussel drops off the host and burrows deep into the sediment where it remains for 2 to 4 years until sexually mature.

Female mussels have developed elaborate behaviors and tissue modifications to help ensure that glochidia successfully attach to the correct host. Some mussel species release their glochidia in stringy mucous webs that attach to the fins of the host fish as they swim by.

In other species, the female's mantle tissue is modified to resemble the natural prey of their host fish, such as worms, insect larvae or small fish. These lures, containing a hidden packet of glochidia called a conglutinate, are waved or dangled in the current to entice unsuspecting host fish. As it is seized, the conglutinate bursts and releases the glochidia that then attach to the host.

## Fighting to Survive

To determine the status of freshwater mussels in Maryland, DNR's Natural Heritage Program has conducted over 1,300 surveys in streams, rivers and impoundments throughout the state. These data along with historical records and other sources reveal that although none of the State's 16 native species have been extirpated, most have declined and 56 percent (9 of 16 species) are now rare. Today, four species are listed as endangered in Maryland including the federally endangered dwarf wedgemussel. Two other species, the Atlantic spike and creeper, are state listed as in need of conservation.

Among the most imperiled species are the endangered brook floater and green floater. Although once fairly widespread in the Piedmont and Ridge and Valley physiographic regions, only a few small populations of each species remain. Similar declines have occurred in surrounding states.

Maryland's most common and widespread mussel is, by far, the eastern elliptio. Although it occurs nearly statewide, this species too has declined in some watersheds, particularly in the more developed counties.

## Disappearing Habitat

The greatest threat to Maryland's freshwater mussels is the loss and degradation of their aquatic habitats due

to suburban sprawl and poor farming practices. Non-native species can also impact mussels through competition, predation and by altering aquatic communities. Of particular concern are recent invaders like the zebra mussel, Asiatic clam and rusty crayfish.

Dams too can have a profound impact on mussels and have led to the extinction of some species in southeastern states. Dams not only inundate stream and river habitat but also block host fish movement, particularly those of migratory host fish such as shad, herring and eels. Poorly designed stream culverts can have a similar effect on fish movement.

Climate change poses yet another threat. With projected sea-level rises of as much as 2 to 3 feet by 2099, the lower nontidal sections of many coastal streams and rivers, including sections that support rare and endangered mussel species, will become increasingly saline, eliminating mussel populations.

## Familiar Challenges, Familiar Answers

For those familiar with the problems facing the Chesapeake Bay, these are all well-known themes. Freshwater mussels remind us that much is at stake in the Bay's tributaries. DNR continues to work on a variety of fronts to protect and restore our streams and rivers, including those that support rare or endangered mussels. These efforts include working with land planning agencies to protect watersheds from development impacts, establishing forest buffers along streams, removing or redesigning dams and culverts to restore fish movement, and protecting endangered species habitats through acquisition, conservation easements and appropriate management of DNR lands.

How freshwater mussels fare reflects the condition of our streams and rivers and, in turn, how we treat our watersheds and ultimately the Bay. ■

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**James M. McCann** is a Maryland State Zoologist with DNR's Natural Heritage Program at the UMCES-Appalachian Lab in Frostburg, Md.

# The “Corps” of the Matter

## Reconnecting Today’s Youth with the Natural World

By Captain Peyton Taylor

**T**hey came for a variety of reasons.

“I love to be outside,” said many applications.

“I love to work with my hands,” said others.

“I want to learn to be a team player... discover more about nature...help my family pay bills... improve my community...”

Some young adults were hoping to learn more about green jobs; others just wanted to meet new people and have fun.

### Lofty Goals and High Aspirations

Where could a teenager go and hope to accomplish all of these things and more?

The Maryland Civic Justice Corps (CJC) is one place that offers an opportunity for motivated young people to learn valuable skills, give back to the community and have a great time doing it.

Last spring, Governor Martin O’Malley tasked the Maryland Park Service with the challenge of realizing his vision of a new kind of conservation corps; one specifically geared toward providing employment opportunities for underserved Maryland teens and beginning the important work of reconnecting today’s youth with the natural world.

For six weeks last summer, some 200 youth reported to Gunpowder Falls and Patapsco Valley State Parks to take part in conservation service projects like restoring state park facilities and wildlife habitat. During the course of the six-week program, the participants painted and restored over 28 public buildings in Maryland State Parks, improved more than 11 miles of hiking trails, removed tons of trash and debris from parks, rivers and streams and planted over 100 trees.

While doing the work, the teens learned basic carpentry, landscaping and additional valuable job skills, including those that would help prepare them for work in an increasingly green economy. They also participated in enrichment activities aimed at building self-confidence, team work and other important life lessons. At the same time, they learned about the natural world and truly enjoyed their time in the outdoors.

### More than Just the Numbers

Although the amount of work completed by the CJC was extraordinary, the success of the program should not just be measured by the numbers. The real value lies in the many ways that the young people involved matured during their time as Corps members. Comparisons of surveys taken by participants before and after their Corp experience revealed that the number of youth who envisioned themselves completing college more than doubled during the six weeks that they were a part of the program.

Getting to know these remarkable teens, hearing their stories, and watching them grow through the summer was an inspiring and unforgettable experience for everyone involved.

Corps members were expected to abide by a code of conduct that upheld the principles of respect and honesty. They committed to a program structure that required compliance

to Corp policy, punctuality and regular attendance. Even with the growing pains that are expected when dealing with teens — many of them having their first work experience — they rose to meet every test and every participant’s sense of accomplishment increased with every challenge that they met.

### Working Hard...Playing Harder

Even while they were tackling jobs that challenged them mentally and physically, CJC youth learned to enjoy the great outdoors.

Research has shown that time spent in the outdoors is vital to the healthy development of children. Time in nature



CJC youth learned how to be better stewards of the environment by improving hiking trails and other facilities in Maryland State Parks.



Landscaping is rewarding work that can lead to a great career in the outdoors, making communities healthier and more beautiful.

is instrumental in building cognitive and creative skills, and helps to combat serious health risks such as childhood obesity, diabetes and depression.

Learning to paddle a canoe, camping in tents under the starry skies of Garrett County or simply marveling at the delicate detail of a butterfly's wing were considered important business at CJC. When a Corps member discovered a snapping turtle egg in a pile of warm mulch, the work of mulching the hiking trail came to a stop, so that the business of appreciating a tiny miracle of nature could take place. Even veteran park rangers were deeply moved when they experienced nature through the wide eyes of a fascinated teenager seeing it all for the first time. Experiences like these will help nurture and grow a new generation of youth who are willing and able to advocate for a healthy environment and healthy natural resources as adults.

## Magic

There was a special feeling in the air on the August day when the 2008 Maryland Civic Justice Corps class graduated. Governor

O'Malley delivered the commencement address and personally recognized the CJC youth for their tremendous accomplishment. A sense of magic filled the air as staff, Corps members, parents and others gathered under the trusses of the pavilion at North Point State Park to celebrate these special young people. Everyone present knew that the source of that magic was each and every proud graduate of the Maryland Civic Justice Corps.

## Moving Forward

After such a successful year, it was obvious that the work of the CJC would continue. Recruitment has started for the 2009 class. Interested young people may complete their applications by going to [www.dnr.maryland.gov/cjc/](http://www.dnr.maryland.gov/cjc/). Interested adults can also find descriptions of positions available with the CJC.

CJC will be returning to Gunpowder Falls and Patapsco Valley State Parks again this year. The program is also expanding into Harford and Prince George's Counties and is recruiting for positions at each of

these locations. This year's emphasis is on tree planting as part of Governor O'Malley's Marylanders Grow Trees initiative. The Maryland Civic Justice Corps also welcomes Maryland Park Service's Outdoor Discovery program, who will be joining CJC this year, to plan and provide enrichment activities for youth.

The Maryland Conservation Corps and the Maryland Park Service (MPS) work with many partners in the community to make this program a reality. The Parks and People Foundation, the Baltimore City Public School System, the Mayor's Office of Employee Development and the Maryland Department of Juvenile Services are just a few of the key partners who contribute valuable time and expertise to the effort.

The results have been, and will continue to be, truly remarkable. ■

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**Captain Peyton Taylor** is the Executive Director of the Conservation Corps and Interpretation for the Maryland Park Service. Capt. Taylor also took the photographs for this article.

# MARYLAND WOOD DUCK INITIATIVE

## *An Ongoing Success Story*

By Linda L. Wiley and Bill Harvey

When Cliff Brown approached the Maryland Department of Natural Resources' (DNR) Wildlife and Heritage Service (WHS) about becoming a partner in the newly-formed Maryland Wood Duck Initiative (MWDI), few sitting at the table in September 2004 would have predicted the impact this man from Washington, D.C. would have on Maryland's wood duck population.

Wood ducks nest in tree cavities. Natural cavities are formed when limbs break

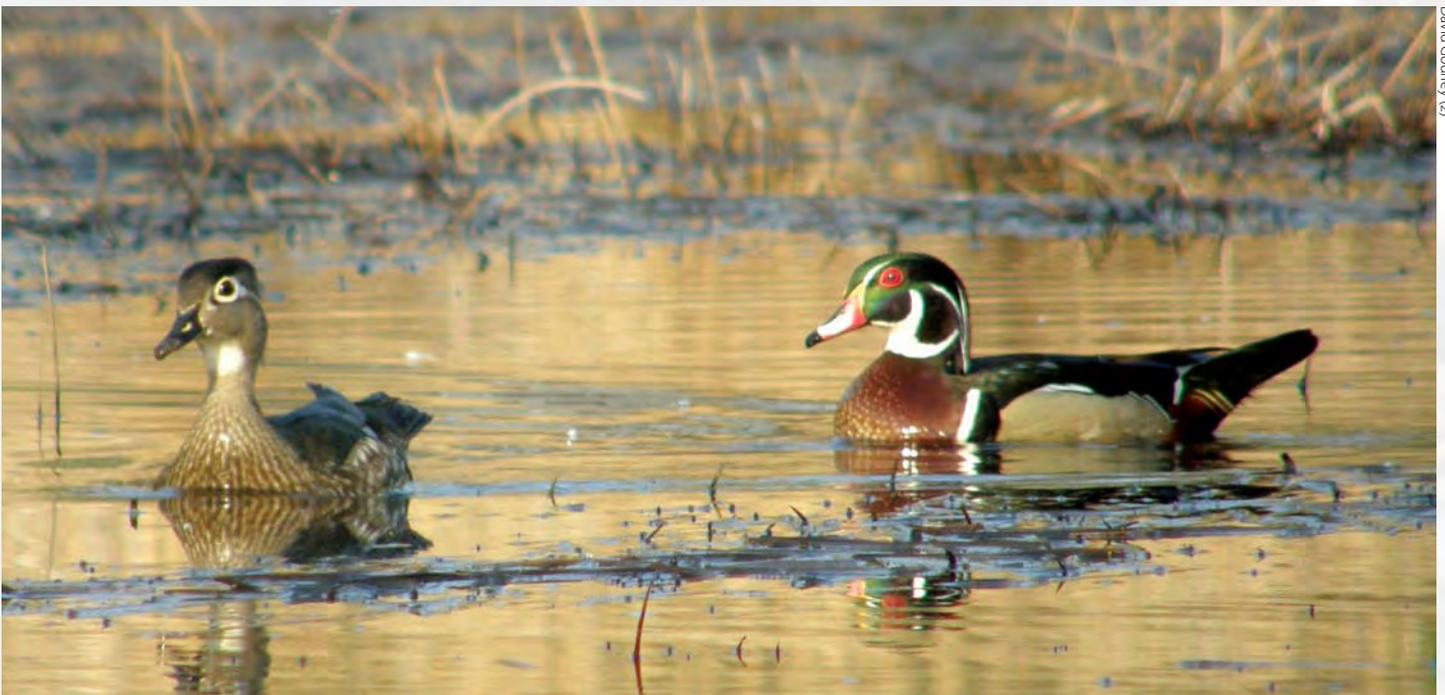
artificial cavity. However, despite the best of intentions, many wood duck boxes are not put up properly or quickly fall into neglect. Cliff's plan was to focus on managing existing boxes as well as adding new boxes.

### *Off and Running*

In Mr. Brown's MWDI Activity Report #1 of September 28, 2004 - the first of many to follow - he discussed MWDI's goals and objectives, DNR's possible advisory role,

property in Kent County, a meeting at Millington Wildlife Management Area, a date to record box location data at Eastern Neck National Wildlife Refuge, and plans to hook-up with a Greenwing Ducks Unlimited (DU) group within the coming week. Mr. Brown was off to a running start in a sprint to create partnerships and recruit volunteers on behalf of the wood duck.

In March 2005, using funds from Maryland's duck stamp sales, 10 MWDI volunteers and six DNR staff spent more



David Godfrey (2)

A pair of wood ducks enjoying the water at Wye Island NRMA.

or when the work of woodpeckers leads to hollow trees or limbs. Humans have been helping wood ducks for decades by building nest boxes that provide an

and what kind of cooperation he might receive from Wildlife Management Area (WMA) staff. He noted a planned visit to Chesapeake Farms, Dupont's conservation

than 200 hours repairing, assembling and installing 105 wood duck nest boxes, 70 of them new, at the Millington WMA as an expansion of what was considered to



Executive director of MWDI Cliff Brown inspects a wood duck nest box.

be at the time the Kent County wood duck initiative.

Subsequently, after further deliberation about the merits of a statewide effort, DNR's W&HS agreed to enter into a more formal partnership with MWDI and support the initiative by purchasing materials for boxes, poles and predator guards for use on public lands and by helping to evaluate habitat opportunities, provide field support and website administrative services. Other statewide collaborating partners initially included Ducks Unlimited and the US Fish & Wildlife Service (USFW).

### *An Army of Volunteers*

Mr. Brown's solo sprint has become a long-distance marathon, with an army of volunteers cutting wood, building, installing, inspecting and cleaning nest boxes, and monitoring nest results at more than 60 public project sites across the state. Benefiting from all this effort is Maryland's wood duck population. Hatch success in 2008 is projected at 6,600 ducklings compared to 1,910 in 2004. Cumulative incremental duckling production since the 2004 nest season exceeds 9,700 and

is growing at a rate of approaching 4,000 ducklings annually.

Volunteers are always welcome. You can volunteer for a day or for a lifetime. A schedule of activities with volunteer opportunities noted can be found on the initiative's website at [www.MWDI.net](http://www.MWDI.net)

### *A Record of Success*

By the 2009 nest season, MWDI will have initiated, supported, built, or installed more than 2,500 new boxes on public sites and in privately sponsored programs. Public lands boxes total 1,545, up from 874 in 2004. Most of this capacity is also now relatively high quality compared to its initial condition. New boxes have been erected to upgrade housing quality, to achieve easier access and improve monitoring efficiency, to increase use and to expand programs where suitable habitat exists. In fact, removing nest boxes is often necessary to improve nesting productivity by "de-clustering" box placement at certain sites where too many boxes are too close together which causes excessive nest dumping, related nest strife and nest failures. Adding and replacing predator

guards has also been an important component of revitalizing certain public sites. The goal has always been increased wood duck productivity per box, not necessarily more boxes.

Most indicative of the success achieved, is the number of successful hatchlings per box, which has leaped from 2.2 to 4.3 in the past four years. Mr. Brown's early field observations indicated that over 65 percent of Maryland's nest boxes were either in poor condition, were not cleaned or monitored annually, were exposed to predators or were not effectively located. MWDI's insistence and early focus on best practices included properly built and

placed nest boxes with secure predator guards and the removal of low-hanging branches and tall weeds that allowed snakes and raccoons easy access to nests.

### *A Who's Who of Supporters*

Early supporters of the new volunteer Initiative were Chip Heaps, of the Mid Atlantic Field Office for Ducks Unlimited, and Rich Mason, USFW – Chesapeake Region. Along with the significant involvement of many DNR departments and field offices, there are a growing number of individual volunteers across the state embracing the initiative and who now manage the ongoing nesting programs. Organizationally, the breadth of support has been nothing short of phenomenal, including operational field support and project funding from a "Who's Who" of wildlife conservation and other public organizations.

### *Children in Nature*

A big part of Mr. Brown's vision involves getting children outdoors on what he calls the "total wetland experience", which



A Wood Duck hen rests on her downy nest.

includes the plants and animals that live and grow in wooded wetlands and ponds and freshwater marshes where the wood ducks come to breed and raise their ducklings.

The MWDI, under Cliff's leadership, has become more and more involved in outdoor education. The MWDI has partnered with various educational programs, such as the National Wildlife Federation which provides funding for box kits to be used at various youth events and provides free subscriptions to their acclaimed Ranger Rick magazine to kids who participate in any MWDI outing.

Young student interns have also conducted research projects, such as the Freon Canister study by Donny McKnight,

a student at Harford Christian School. Mr. McKnight confirmed that heat buildup inside recycled Freon canisters used as nesting structures at Maryland's latitude is not excessive if placed in the shade.

For the last two years MWDI volunteers have assisted at the Maryland Envirothon, a state-wide competition among high school students, providing an overview of the project and a box building session for students. Youth oriented box building events are also routinely held at DNR's National Hunting and Fishing Day and the Chestertown Wildlife Exhibition & Sale in addition to two or three other special event sessions held elsewhere each year.

MWDI has partnered with the J.M. Tawes Technology and Career Center in Somerset

County and the Maryland Waterfowlers' Association (MDWFA) to help sell student-constructed nest boxes to private programs. The proceeds go back into school funding for lumber, saws, and other tools needed to perpetuate the program. MWDI and MDWFA also partnered with the CTE welding class at Parkside High School in Wicomico County, where students fabricated 25 nesting structures from recycled Freon canisters. MWDI volunteers have supported several Eagle Scout projects by supplying materials, instruction and supervision, with the scouts building and installing over 100 nest boxes in five counties.

### *A True Leader*

A husband and father of two, Cliff Brown also operates a successful business and spends time on his Rock Hall farm working on its wildlife habitat and managed wetlands, in addition to serving as Executive Director for MWDI. Whether slogging through the marsh in search of the ideal project site, showing a child how to use a hammer and apply the glue needed to make a nest box, or tirelessly crunching out numbers at the end of a long day, Mr. Brown continues to lead by example, showing up on time and doing what he set out to do - during his "free time."

What Cliff brought to the table that memorable day in September 2004 was not just an ambitious idea, but a well-thought plan with lofty goals, and insistence on science-based best management practices and solid data collection methods. What he has added since is his uncurbed enthusiasm and seemingly boundless energy, which never ceases to amaze those around him. Mr. Brown has proven to be an environmental leader with a true gift for bringing people together for a common cause.

If you would like to receive e-mails of activity reports, send an e-mail to Cliff Brown at [Cliftonabrown@aol.com](mailto:Cliftonabrown@aol.com) ■

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**Linda L. Wiley** is the MWDI Website Coordinator and **Bill Harvey** is the Game Bird Program Manager of DNR's Wildlife and Heritage Service.

# A Green Oasis in the Heart of Maryland

## Patapsco Valley State Park

Established in 1907, Patapsco Valley State Park is one of Maryland's first state parks. The valley and its natural resources have been enjoyed by the Native Americans, explorers, settlers and present-day citizens. With its source in Frederick and Carroll Counties, the Patapsco River serves the Port of Baltimore, and empties into the Chesapeake Bay.

Patapsco Valley State Park extends along 32 miles of the Patapsco River, encompassing 14,000 acres and five developed recreational areas. Recreational opportunities include hiking, fishing, camping, canoeing, horseback and mountain bike trails, and picnicking for individuals or large groups in the park's many popular pavilions. Patapsco is nationally known for its trail opportunities and scenery.

The Avalon Visitor Center houses exhibits spanning over 300 years of history along the Patapsco River. Housed in a 19th century stone dwelling in the Avalon Area, the center includes a re-creation of a 1930's forest warden's office.

Nearby attractions include historic Ellicott City and the B&O Railroad Museum. Enjoy lunch or dinner at the historic Elkridge Furnace Inn, located on



The Thomas Viaduct is the world's longest multiple-arched stone railroad bridge.

state park property on Furnace Avenue in Elkridge.

### The Patapsco River/ Avalon Area Historical Tour

Hikers should try the Patapsco River/Avalon Area Historical Tour; a driving and walking tour of a steep wooded ridge and valley area of the Patapsco River. The tour includes a scenic overlook, an optional hike to Union Dam and a visit to the historic milltowns of Daniels and Ellicott City. Ellicott City's water-powered mills included cotton, grist, saw, and silk mills along old Baltimore National Pike.

To get started, visit the Patapsco River History Visitor Center located off of Route 1 South near Elkridge, Maryland for an orientation or start at the park headquarters in Hollofield for a trail map.

### Accessibility

All developed areas of Patapsco Valley State Park have facilities that are accessible to the disabled. Most picnic pavilions and rest rooms are accessible.

A one-acre pond in the Avalon Area is restricted to fishing by those people under 16, over 61, or disabled with an Access Maryland Pass. The pond is accessible by wheelchair.

The scenic Grist Mill Trail in the Avalon Area is a 1.5 mile paved multi-purpose trail along the Patapsco. The trail is wheelchair accessible. A wheelchair accessible platform for fly fishing is available to anglers at Morgan Run Natural Environment Area off Klee Mill Road.

### Six Areas of interest in Patapsco Valley State Park

- View the **Thomas Viaduct**, the world's longest multiple-arched stone railroad bridge.
- Hike the **Grist Mill Trail**; a 1.5 mile paved and accessible trail for the disabled along the river.
- Walk across the **Swinging Bridge**, a 300-foot suspension walkway over the river.
- Hike to **Bloede's Dam**, the world's first internally housed hydroelectric dam.
- Hike the **McKeldin Area** trail system for unparalleled scenery of the valley and river rapids.
- Play on a two-acre tire playground in the **Hilton Area**.

### Pets

Pets are welcome in some sections of Patapsco Valley State Park, but are not allowed in the day-use areas. For the safety of your pet, other visitors and the park's wildlife, please comply with the park's requirement that all pets remain on a leash. For specific rules regarding pets, directions and other information about Patapsco Valley State Park, visit [www.dnr.maryland.gov](http://www.dnr.maryland.gov) ■

## Patapsco Valley State Park

## Trail Guide

Available this Spring

Updated  
in 2009!

order it today online

[www.dnr.maryland.gov](http://www.dnr.maryland.gov)



# PLANT & BE COUNTED!

**W**hen it comes to decreasing our negative impact on the planet and reaping a whole litany of personal and public benefits, Maryland has an important new goal, one in which every Marylander can play an important role!

Citing the importance of trees to our environment, our quality of life — and even our pocketbooks — last fall Governor Martin O'Malley offered up a commitment and a challenge: The State of Maryland has committed to a program to plant one million new trees by 2011. The Governor is challenging Maryland citizens to join in reforesting our state by planting 50,000 of those trees in our yards and communities each year.

"All things being equal, forests are by far our most strategically important natural resource," says Governor O'Malley. "In addition to protecting water quality, cleaning our air and providing wildlife habitat, one large tree can eliminate 5,000 gallons of stormwater runoff annually, and well-placed trees can help reduce energy costs by 15 to 35 percent."

Through Marylanders Plant Trees — a new program under the Governor's Smart, Green & Growing initiative — State agencies are partnering with businesses, communities and citizens to help fund and plant new native tree cover. The program offers Maryland citizens a \$25 discount on the purchase of select trees through participating vendors, as well as an opportunity to calculate the benefits of the trees being planted and register them on line to help track our progress.

Appropriately enough, the \$480,000 being used to initially fund the program is part of a regional settlement by a major power

generator for clean air act violations. Provided through a cooperative agreement with the Office of the Attorney General and the Maryland Department of the Environment, this income from environmental fines must be used for environmental projects — like tree planting — that benefit air quality. For each \$25 coupon redeemed, the State will reimburse participating businesses \$20; those businesses have generously agreed to absorb the additional \$5 value of the coupon.

So in addition to providing citizens with a terrific discount, this program will be putting money straight back into Maryland's economy — helping keep businesses going and workers employed.

From advice on what, where and how to purchase and plant trees, to printable coupons and calculating benefits, citizens will find just about everything they need at the Marylanders Plant Trees website. Participants are asked to register the trees being planted and identify planting locations on our interactive map.

Trees provide so many benefits. They help clean the air, conserve soil and water and moderate temperature. They can improve property values by as much as 20 percent and reduce energy consumption.

Planting a tree is one more way that Maryland citizens can play an active role in creating a smarter, greener and more sustainable future, for today and tomorrow.



*"He who plants a tree... Plants a hope."*  
— Lucy Larcom



Jay Baker (2)

## PLANT & BE COUNTED!

Visit the Marylanders Plant Trees website at [www.trees.maryland.gov](http://www.trees.maryland.gov) for help determining what kind of tree (or trees) to plant and where and how to plant them.

Print your coupon (or clip the one from this page), and check the list of participating tree vendors to find one near you (all Maryland nurseries have been invited to participate in this program).

After planting your trees, register them online, site them on the interactive map and calculate your benefits.

Kick back and enjoy everything your new trees bring to your life...you'll have it made in the shade!



# Did you Know? TREES...

- Absorb CO<sub>2</sub> and other dangerous gases
- Act as noise and privacy barriers
- Beautify our landscape
- Control and filter rainwater
- Enhance our sense of community
- Filter dust, smoke, odors and pollen from the air
- Improve water quality
- Increase property values as much as 10% to 20%
- Make business areas more attractive places to shop and work
- Replenish the atmosphere with oxygen
- Prevent soil erosion
- Provide food and habitat for wildlife
- Reduce cooling and heating costs

✂ clip this coupon

This coupon valid for:

**\$25 Off**  
the purchase of one tree\*

\* This coupon is worth \$25 off the purchase of one tree with retail value of \$50 or more at all participating retail nurseries and garden centers. The discount is taken at the register at the time of the sale. One coupon must be filled in for each tree purchased. Coupon must be filled in completely and signed by the customer to be valid. Coupon reimbursement is for retail sales only. Wholesale tree sales do not qualify. Coupon is valid for trees listed on the Marylanders Plant Trees Recommended Tree List, found at [www.trees.maryland.gov/pickatree.asp](http://www.trees.maryland.gov/pickatree.asp)

Please register you trees at:  
[www.trees.maryland.gov/register.asp](http://www.trees.maryland.gov/register.asp)



Terms and conditions of use:

Coupon will be honored for sales between April 1 and November 30 of each year, while supplies last. • Coupon has no cash value and can only be used at participating vendor locations in Maryland. • Customer information must be completed in full then signed by customer. Providing an email address is optional. • Coupon may not be used for purchase of trees for resale, or for planting outside of Maryland. • One coupon per tree. Extra coupons may be presented for additional trees. • No maximum number of coupons per participant. • Coupon cannot be used with other coupons, specials, or discounts except with Baltimore County's Growing Home Campaign. • Trees must be planted in Maryland at address stated on coupon. • Trees may be planted on residential or non-residential properties. • Government agencies not eligible. • Trees must be selected from Marylanders Plant Trees Recommended Tree List. • Property owners are encouraged to use web content at [www.trees.maryland.gov](http://www.trees.maryland.gov) to learn "right tree right place" and proper tree planting and care. • Owner will contact Miss Utility before digging.

expires 11/30/09

Name of Purchaser: \_\_\_\_\_

Street Address (where tree will be planted): \_\_\_\_\_

County/City: \_\_\_\_\_ State: **Maryland** Zip Code: \_\_\_\_\_

Phone Number: \_\_\_\_\_ Email (optional): \_\_\_\_\_

Tree Species: \_\_\_\_\_ Size (caliper/height): \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

For Office Use Only

Store \_\_\_\_\_

Price \_\_\_\_\_

Receipt# \_\_\_\_\_

# CLEAN BOATING

Everything Counts By Donna Morrow



## **M**aryland boaters experience year round **our State's unique and special waterways.**

Watching the ospreys return in March, a summer day's fishing with friends and family or anchoring in a quiet cove on an autumn evening are just a few of the idyllic moments that boaters in Maryland are lucky enough to enjoy.

Responsible boaters are always careful to operate and maintain their crafts in ways that will not harm the very aquatic resources that they care so deeply about. Boats require a great deal of attention; hulls must be scraped, painted, and cleaned; engines need to be lubricated and cared for; and a sea worthy vessel

must be winterized. Each of these chores has the potential to introduce pollutants into the environment.

### **CLEAN MARINAS**

To help minimize the environmental impact of these activities in boatyards and marinas in Maryland, the Department of Natural Resources (DNR) and the Marine Trades Association of Maryland developed the Clean Marina Initiative. Created in 1998, the Clean Marina Initiative (CMI) provides marina and boatyard operators with technical assistance through the

*Clean Marina Guidebook*, site visits, and mentoring aimed at implementing methods to reduce pollution from routine operations.

Marinas that meet all applicable environmental regulations and adopt a significant portion of the recommendations in the *Clean Marina Guidebook*, are certified by DNR as Maryland Clean Marinas. As of February 2009, 133 marinas have been certified as Clean Marinas in Maryland. All DNR owned boating facilities and boat ramps are certified.

Recreational boaters should make it a point to patronize certified Clean Marinas and encourage other marinas to join the Clean Marina Initiative.



Many boaters do their own fueling, cleaning and maintenance, so here is a list of clean boating practices that all boaters should follow:

## PETROLEUM CONTROL

Gas or diesel fuel is often spilled while fueling, either as backsplash from the fuel intake or as overflow out of vent fittings. Spills harm aquatic life, waste money and result in stains on the hull and damage to the boat's gel coat and striping.

## FOLLOW THESE TIPS TO AVOID PROBLEMS:

- Fill tanks to no more than 90 percent capacity; gas drawn from cool storage tanks will expand as it warms up onboard your vessel.
- To determine when the tank is 90 percent full, listen to the filler pipe, use a sounding stick, and know your tank's volume.
- Instead of filling your tank upon returning to port, wait and fill it just before leaving on your next trip. This will reduce spills due to thermal expansion. Fuel will be used before it has a chance to warm up.
- Fill portable tanks ashore where spills are less likely to occur and easier to clean up should they happen.
- Use oil absorbent pads or containment jugs to catch all drips.
- Slow down at the beginning and end of fueling.

## VESSEL MAINTENANCE AND REPAIR

- Wash your vessel with a sponge or nonabrasive pad and plain water. This is an effective way to remove salt.
- Practice dry cleaning methods to remove stains. Spray the stain and spot scrub as needed. Rinse with a cloth instead of hosing cleansers overboard.
- If detergents are necessary, use phosphate-free, biodegradable, and non-toxic soaps (look for EPA or Green Seal certified products). Soaps should be used sparingly and recovered by rinsing with a cloth or collecting sudsy water in a bucket for disposal ashore.
- Collect all paint chips, dust, and residue for proper disposal.
- Share leftover paint and varnish to avoid waste.
- Use less toxic propylene glycol antifreeze.
- Select a bottom paint developed for the mid-Atlantic region.
- Recycle used oil, oil filters, and antifreeze.
- Bring used solvents and waste gasoline to local hazardous waste collection days.
- Call 1-800-4-RECYCLE or visit [www.menv.com](http://www.menv.com) for locations of free public recycling centers.



DNR has a complete boating section on its website offering many more Clean Boating tips, locations of sewage pump-out stations, a list of certified Clean Marinas, and the Maryland Clean Boater Pledge. The Pledge allows boaters to learn about pollution prevention and commit to following those practices. Those who take the Pledge will receive a free thank you gift while supplies last. Visit [www.dnr.maryland.gov/boating](http://www.dnr.maryland.gov/boating).

## EVERYTHING COUNTS

Everyone who enjoys Maryland's waterways can play a part in protecting them. Whether it's a kayaker who snags a piece of trash and carries it ashore or a power boater who is meticulous in their fueling practices, each effort contributes to improved water quality. Governor Martin O'Malley's Smart, Green and Growing initiative is designed to involve every Marylander in efforts to restore the health of the Chesapeake Bay. Boaters are on the front line of those efforts.

Maryland boaters are keenly aware of just how precious and fragile our aquatic resources are and they are equally aware of just how vital it is for each of us to work to protect them even as we enjoy all they have to offer.

Jim White



# TIGER SALAMANDERS

## A Living Litmus Test

By Scott A. Smith

It was a cold, sunny February day in 1997 when Maryland Department of Natural Resources (DNR) Ecologist Kathy McCarthy and I broke through the skim ice covering a small Kent County pond.

Clumsy in our boots and chest waders and numb from the cold, we were nonetheless filled with a sense of anticipation.

After all, we were searching for tigers!

### Tigers? In Maryland?

No, not big cats escaped from the zoo. We were hunting something considerably smaller - but equally as rare; the elusive, endangered Eastern Tiger Salamander (*Ambystoma t. tigrinum*).

We each carried a 5-gallon bucket, the plastic bottom replaced with Plexiglas. We peered through the newly translucent undersides, searching for tigers in the icy water. Our chance of actually seeing an adult salamander was low; what we

really hoped to observe and count were their gelatinous egg masses attached to vegetation and woody debris near the pond bottom. This would give us some idea of annual reproductive effort and a rough idea of the number of females who bred that year.

On this particular day, we did not see any signs of adult salamanders or their eggs. We did, however, see evidence of fish in the pond. That was bad news, salamander-wise.

The ponds that tiger salamanders use for breeding are shallow wetlands known as vernal pools.

On the Eastern Shore, these seasonal ponds are called "Delmarva Bays." Most years, the ponds fill up during fall or winter rains and dry out by summer. This seasonal hydrology normally results in an absence of predatory fish, which eat larvae and adult salamanders. During excessively wet years when the ponds do not dry out, fish

can become temporarily established. That is what Kathy and I found on that cold day in 1997. Sometime later that winter, 2 egg masses were observed in the pond. That was the total output in this particular pond for the year. Where were the tigers?

### What's in a Name?

The Eastern tiger salamander is the largest terrestrial salamander in North America. It reaches a maximum length of 13 inches, with an average adult length of 7 to 8 inches. The amphibian's back, sides and tail are covered in irregular patches of alternating dark brown/black and olive-yellow, sometimes arranged like "tiger" stripes, hence its common name.

The tiger salamander is a member of the mole salamander family, so called because adults are primarily subterranean and live most of their lives in the underground burrows of moles and other small mammals. They also dig their own tunnels. Their above ground habitat is mature hardwood and mixed forest.

### A History of Scarcity

The tiger salamander is one of 21 salamander species known in Maryland. They were first discovered in Maryland in 1933 at Vienna in Dorchester County. Since then, they have been recorded in Caroline, Charles, Kent, Queen Anne's, Somerset and Worcester Counties. The only known Western Shore population, a site near LaPlata in Charles County, was discovered in 1953. It was destroyed in 1963 to make room for a golf course.

### The Dean

The dean of Maryland tiger salamander researchers, Dr. Charles Stine, began his lifelong passion in the early 1950s when he discovered a number of tiger salamander breeding ponds in Kent County. Additional field work by Dr. Stine and his students, most notably Robert Johnson, turned up a handful of sites. DNR funded much of Dr. Stine's research, including population assessments starting in 1977. Dr. Stine's work has greatly increased knowledge and understanding of this species in Maryland.



Massey Pond, late January 2009; Do tiger salamanders lurk under the ice? Only time and a thaw will tell!

By 1984, only seven ponds in two Eastern Shore counties (Caroline and Kent) held tiger salamanders, down from a total of 18 historic sites. This decline was attributed to wetland loss, deforestation, water pollution, and vegetative succession (pond basins becoming dominated by

Charles County in 1982. Both efforts were unsuccessful.

### Cold Weather Breeding

Though the tiger salamander is what is referred to as a cold-blooded creature, it is one of the earliest breeding animals in

on rainfall, humidity, air temperatures and the availability of water deep enough for egg laying.

Males leave their underground burrows after a few days of warm winter weather. In their quest to mate, they will often cross ice-encrusted ponds and slip into frigid waters where ice has melted. Females follow within a few days to two weeks. Reproduction may take place under the ice in some years.

After a nuptial dance by the males, which includes snout rubbing the female's body and grasping her side, the male deposits a pyramidal-shaped gelatinous spermatophore (a capsule or mass containing spermatozoa created by males of various animal species) on the pond bottom. If the female is receptive, she will lower herself over the spermatophore and insert it into her cloaca (the common cavity into which the intestinal, genital, and urinary tracts open in vertebrates), fertilizing her eggs.

Within 36 hours the female attaches a number of egg masses from 20 to 125 eggs each onto the stems of herbaceous or woody vegetation. The eggs expand as they fill with water, usually to 2 by 4-inch oblong gelatinous masses.

It is believed females leave the pond soon after they deposit their eggs. Males stay in the pond for weeks, attempting to mate with every female that presents herself,



Jim White

External gills identify this larvae as a salamander (frog gills are internal). Eastern Tiger Salamanders have a long larval period of from 75 to 205 days. Survival is low due to diverse predators and the drying out of seasonal ponds.

woody species).

DNR attempted to establish new tiger salamander populations by relocating egg masses and/or larvae at Aberdeen Proving Ground in Harford County in 1977 and 1978, and at Myrtle Grove Wildlife Management Area (WMA) in

Maryland. Egg-laying has been recorded on the Eastern Shore as early as late November and as late as mid-March. Peak breeding usually takes place during the January thaw. Breeding may last only a few nights a year. It is more common for it to continue for some weeks, depending

and depositing many spermatophores on the pond bottom in the course of one breeding season.

Tiger salamander eggs normally hatch in about 30 days. The incubation period depends on water temperature, turbidity and the amount of shading. The larval period is highly variable — anywhere from 75 to 205 days depending on



DNR Biologist Jenny McClune surveys Massey Pond in Kent County for tiger salamander egg masses. This March 2008 day was a success with 23 egg masses counted.

temperatures, water levels and food availability. Survival rates of larval tiger salamanders are extremely low due to predation by other salamander larvae, diving beetles, other amphibians, reptiles and wading birds. Ponds may also dry out before larvae fully develop.

Tiger salamanders compensate for low survival of larvae by having amazing adult longevity. They have been recorded to live as long as 25 years, with the average lifespan believed to be about 18 years.

### A Maryland Tiger Safari

In an attempt to monitor tiger salamander populations and find new breeding ponds,



Recently laid tiger salamander egg masses viewed through thin ice in January 2008.

DNR visited 74 historic or potential breeding ponds on the Eastern Shore from 1997 to 1999. During that period, breeding could only be confirmed at three historic sites, but three new breeding ponds were discovered. All of the sites were in Caroline and Kent Counties.

A population crash we discovered at Massey Pond in Kent County was extremely troubling; the pond had historically been the mainstay of Maryland's tiger salamander population. The forest around the site had been logged in 1996 by the landowner, one year before it was purchased by The Nature Conservancy for DNR. In the breeding season prior to the timber harvest, 178 egg masses were counted. The year after the harvest, only 2 egg masses were found. The count had only risen to 8 by 2002. Following woody and herbaceous vegetation management in the pond basin from 2004 to 2007 by DNR Restoration Ecologist Dr. Wayne Tyndall and his assistant Pat Groller, 25 and 23 egg masses were logged in 2007 and 2008, respectively — an encouraging sign.

Tiger salamanders also colonized 2 new sites in Caroline and Kent Counties immediately following similar restoration efforts.

From 2000 to 2006, most of DNR's work on this species was limited to monitoring known tiger salamander breeding ponds or piggy-backing tiger surveys with other amphibian studies.

In 2007 and 2008, another intensive tiger survey was mounted by DNR. Sixty historic or potential breeding ponds were visited at the same time that Towson University graduate student Duncan Simpson was monitoring 55 ponds in Caroline, Kent, and Queen Anne's Counties as part of DNR-funded research on amphibian assemblages in Delmarva Bays. Tiger salamanders were confirmed as breeding at 9 ponds, including 2 new ponds in Caroline County. Tiger egg masses were also found for the first time since 1990 at historic Golts Pond in Kent County.

As of the end of the 2008 season, tiger salamanders were breeding in 11 ponds in Maryland. However, historic population levels

# MARYLAND'S SALAMANDERS

## Giant Salamanders

Common Mudpuppy	<i>Necturus maculosus maculosus</i> ( <b>Endangered-Extirpated</b> )
Eastern Hellbender	<i>Cryptobranchus alleganiensis alleganiensis</i> ( <b>Endangered</b> )

## Mole Salamanders

Marbled Salamander	<i>Ambystoma opacum</i>
Jefferson Salamander	<i>Ambystoma jeffersonianum</i> ( <b>Watchlist</b> )
Spotted Salamander	<i>Ambystoma maculatum</i>
Eastern Tiger Salamander	<i>Ambystoma tigrinum tigrinum</i> ( <b>Endangered</b> )

## Newts

Red-spotted Newt	<i>Notophthalmus viridescens viridescens</i>
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## Lungless Salamanders

Eastern Red-backed Salamander	<i>Plethodon cinereus</i>
Wehrle's Salamander	<i>Plethodon wehrlei</i> ( <b>In need of conservation</b> )
Northern Slimy Salamander	<i>Plethodon glutinosus</i>
Valley and Ridge Salamander	<i>Plethodon hoffmani</i>
Seal Salamander	<i>Desmognathus monticola monticola</i>
Northern Dusky Salamander	<i>Desmognathus fuscus</i>
Allegheny Mountain Dusky Salamander	<i>Desmognathus ochrophaeus</i>
Northern Red Salamander	<i>Pseudotriton ruber ruber</i>
Eastern Mud Salamander	<i>Pseudotriton montanus montanus</i>
Northern Spring Salamander	<i>Gyrinophilus porphyriticus porphyriticus</i>
Northern Two-lined Salamander	<i>Eurycea bislineata</i>
Long-tailed Salamander	<i>Eurycea longicauda longicauda</i>
Four-toed Salamander	<i>Hemidactylium scutatum</i>
Green Salamander	<i>Aneides aeneus</i> ( <b>Endangered</b> )

David Mosner

at all but one site in Kent County are severely reduced. All of the known occupied ponds are in Caroline and Kent Counties. There are also signs that breeding sites could be found in Dorchester and Queen Anne's Counties in the next few years. Tiger salamanders are completely missing from the Western Shore.

## The Bottom Line

A key, and often overlooked, conservation issue for pond-breeding salamanders is

the protection of the upland areas where they spend the majority of their lives. We all have heard of wetland buffers; for amphibians like the tiger salamander these buffers are "life zones" which themselves need to be buffered.

Current wetland regulations in Maryland provide only a 25-foot buffer for most wetlands, while the buffers for Wetlands of Special State Concern are only 100 feet. A total of 12 current or formerly occupied

tiger salamander ponds are designated as Wetlands of Special State Concern.

In an oft-cited 2003 paper, Raymond Semlitsch and Russell Bodie from the University of Missouri summarized the results of 40 papers describing "biologically relevant" core habitats surrounding amphibian breeding sites. They determined conservation of core upland amphibian habitats required a radius of 521 to 951 feet from the wetland, which should then have a 150 foot buffer.

While the buffer widths recommended by Semlitsch and Bodie are politically unattainable, they illustrate the disparity between current Maryland regulations and ecological realities. Expanding current regulated buffers to 300 feet at known tiger salamander breeding ponds, where no commercial timber harvesting would be allowed, would be a step in the right direction. The main hope for maintaining tiger salamanders in Maryland is by protecting large interconnected complexes of seasonal wetlands and forests.

## A Living Litmus Test

Tiger salamanders are hanging on in Maryland, but just barely. They are still critically endangered, but the population responses to restoration efforts are very encouraging. Lessons learned from these projects will aid in speeding the recovery of this enigmatic creature. A Tiger Salamander Working Group, made up of experts and citizen scientists, has also been formed. The group is currently helping DNR develop a statewide conservation strategy. Amphibians like salamanders act as a living litmus test of the health of our environment. Their double lives – born in the water, living on land – expose them to the challenges that both environments have to offer. ■

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**Scott A. Smith** is the Eastern Region Heritage Ecologist for DNR's Wildlife & Heritage Service. Scott has worked for DNR since 1989. Except where noted, Scott took the photos for this article.

# Venturing Crew 202

## *Working Hard, Playing Hard*

By Rosemary McCann



### *Venturing In*

**F**ew groups are as passionate about what they do as the young men and women of Boy Scout Venturing Crew 202. Whether elbow deep in mud looking for endangered bog turtles with a Maryland Department of Natural Resources (DNR) monitoring team, teaching the public about environmental issues at the Maryland State Fair, competing at the Maryland Envirothon, or backcountry backpacking above 10,000 feet in the Tetons, one thing is certain; these youth work hard, play harder, and love every minute of it.

Founded in 2000 as a group of five teenagers interested in high adventure and the environment, the Westminster-based crew now has 22 members, a growing number of alumni, and increasing national recognition for its many environmental achievements.

### *Passion in Action*

Over the years, the crew has consistently worked to improve water quality in the Chesapeake Bay by planting trees along streams. The Crew has planted well over 8,000 trees on some 40 acres of mostly



TOP: Crew 202 members pose with brown pelican chicks on a 2-day banding trip in the lower Chesapeake.  
ABOVE: Members of Crew 202 paddle at a relaxed pace on 7-day sojourn on the Allagash River in northern Maine. Loons, moose and bald eagles were common sightings, as were really big leeches.

DNR-owned land in Carroll County. And they have taken care of them as well.

In addition, the crew has done a wide range of monitoring and restoration work, from counting timber rattlesnakes to removing invasive water chestnut. A detailed list would stretch on for pages, but some of the highlights from 2008 include helping to

band 2,700 brown pelican chicks on the Chesapeake Bay, monitoring bog turtles as part of a very messy bog turtle restoration project, doing a small tree planting, conducting annual tree maintenance and volunteering with DNR's statewide stream monitoring program.

Last year was also a very good one for the Crew's public education and outreach efforts. Activities included briefing two of Carroll County's state legislators about the need to support energy conservation and greenhouse gas reduction, and soliciting similar support from voting citizens

on Election Day. Ten members of the Crew also became Leave No Trace (LNT) instructors, taught by Master LNT Educator

Garrett Werner, a long-time member of the Crew.

The Crew also unveiled a series of sustainability displays last year. The displays, constructed by Crew youth with adult guidance, include: solar electricity generation, solar hot water, a solar oven, reusable grocery bags, green building materials, reused materials, lighting, an electricity-generating bicycle, native plant landscaping, a functional model hydrogen car, an environmental commitment booth, energy conservation (including a thermal imaging camera and Kill-a-Watt units), and a pervious concrete and asphalt display. In total, the crew talked to more than 5,000 people at the Maryland Heartland Sustainability Fair, the Maryland State Fair, and the Great Frederick Fair.

This year is off to a brisk start; the crew recently hosted a sustainability evening at New Germany State Park, followed two days later by an energy conservation workshop for juvenile offenders at Meadow Mountain. Four other fairs are currently on the agenda along with a large tree planting (to offset the carbon from Crew travel), implementation of the Low Carbon Diet program featuring Crew youth as facilitators and many other activities.

As a way to give back to the Scouting community, the Crew shares its environmental expertise by hosting an annual Merit Badge Camp. Each summer, 50 to 75 scouts converge to be taught some 10 to 15 badges. The program is highly rated and many scouts come back year after year.

The new Merit Badge for 2009? Energy, of course.

## *Secrets of Success*

A vital aspect of Venturing Crew is that the youth take a primary role in planning and carrying out activities. In Crew 202, new members have the opportunity to learn from older youth, and the entire crew benefits from a wide variety of guest speakers and subject area experts such as Dr. Rich Raesly of Frostburg State University. Each winter, the Crew spends a day caving with Rich and profits from his wealth of knowledge about caves, bats and conservation biology. In addition,



ABOVE: Dr. Rich Raesly of Frostburg State University uses a Little Brown Bat to instruct the Crew about bat biology and bat conservation needs.  
BELOW: Members of the 2008 Crew 202 Envirothon Team determine soil texture during the state competition.

the Crew periodically participates in organized team building activities at the Broad Creek Scout Reservation and organizes environmental leadership training retreats that are taught by previous graduates of the training. And, it doesn't hurt that eight current members of the Crew are either Eagle Scouts or Girl Scout Gold Award recipients.

The experience and exposure to the natural resources field has played a major role in the career choices of Crew members. One parent, Mr. David Bittler, had this to say about his daughter's plans for the future: "I know firsthand that Kimberly decided to pursue her career based on her experiences with the Crew. The outdoor events are fun and the



still find time for their main goal — having fun. When asked why he participates in the Crew, Treasurer Leland Baldwin says “because it *is* fun!”

Every month there is a high adventure activity scheduled, with a Crew youth as the activity chair. Anything is fair game, and the adult leaders sometimes struggle to keep up. July is supertrip time, a two-week long expedition away from family and the comforts of civilization. Destinations have included the Adirondacks, the White Mountains, the Allagash River, the Grand Tetons, Philmont Scout Ranch in New Mexico, British Columbia, Colorado, West Virginia and Death Valley (the latter led by a youth who desperately wanted a trip with no rain). In 2009, the Crew is heading to the Everglades and Florida Keys.

## Recognition

The Venturing Crew has received numerous honors and gained the respect of the community at large. At the state level, these include a Baysaver Award, the Millard Tawes Award, a Stream ReLeaf Award, and the Margaret Rosch Jones Award. The Crew has also earned two national awards; the Sea World Busch Gardens Environmental Excellence Award and the highly prestigious William Hornaday Award.

Mr. Steve Heacock, distinguished Principal of the Carroll County Outdoor School and long-time resource for the crew, summarized his feelings this way: “More than any other group of people I work with as a teacher and mentor, the Crew convinces me that our work is worthy and productive. They truly are the next generation of environmental leaders and advocates. It is important to consider that their efforts are not just about ‘the environment’ or some abstract scientific thought. They are committed to environmental justice and equity. They care deeply not just about nature, but the people who live in it as well. They are our hope for the future.” ■



ABOVE: Crew members act as a team to get everyone over a 7-foot high log at the Broad Creek Scout Reservation COPE (Challenging Outdoor Personal Experience) course in Harford County.

BELOW: Crew youth staff their sustainability booth at the 2008 Maryland State Fair. Previous fair display topics have included the effect of urbanization on streams, aquatic biodiversity, and global climate change.

community service is commendable, but guiding these young people to pursue the environmental field as a career has to be the biggest reward.”

The list of college majors being pursued goes on — conservation biology, fisheries, environmental education, outdoor recreation, vertebrate zoology and teaching high school science, to name a few.

Paul Kazyak, a DNR employee and

long-time Crew Advisor, remarks, “Some of the really active kids in the Crew have several meaty pages of volunteer activities by the time they graduate from high school — this has led a number of them to be offered full four year scholarships.”

## Making it Fun

In addition to all of the service projects and volunteer activities, Crew members

**Rosemary McCann** is a 4-year member of the crew, an avid backpacker and current Crew secretary. Photos for this story were provided by the Venturing Crew.

## CHESAPEAKE MOMENTS IN TIME

A TALE OF THE BAY, THEN AND NOW By Michael English



The year was 1965 and Holly Fisher couldn't pass up the adventure of a new story to tell. As an aspiring young New York filmmaker with a love of boats, she'd heard about the annual skipjack races on the Chesapeake Bay. She and filmmaking partner Romas Slezas packed their car with rented cameras and lights, grabbed their film, and drove south toward the Chesapeake Bay.

Her first taste of Chesapeake life was a sunny, windy day on the water near Deal Island in 1965. Race organizers agreed to put Fisher and Slezas on board the boat of Captain Art Daniels. Fisher said that as she stood on the dock and listened to the reading of the rules, she felt that there was more of a story here than just the race.

"It was all new to us," said Fisher of the legendary culture of life on the Chesapeake, "And it was amazing."

But what she remembered most was the boat's captain, Art Daniels. "He was a profound person," Fisher continued. "The type of person I think who made this country; a man who looked you in the eye - someone you could count on."

Art Daniels won the race that blustery day, and over the next three years Fisher and Slezas returned to the Eastern Shore to film the life of Daniels, his colleagues and his family.

In 1968, Fisher and Slezas finished their film project, and called it *Watermen* - a cinema-verite story-telling of oystering and crabbing and living on the Chesapeake Bay in a time when many families still made a living from fishing.

"It was a very simple film, very straightforward," Fisher said of *Watermen*, which she shot on 16mm film. Selzas ran camera, and she conducted interviews

and recorded sound. Fisher said she knew even then, in the mid 1960s, as did most of the watermen that she spoke with, that the Chesapeake Bay was in trouble.

"We knew fertilizers were polluting the bay. Everything was known then - the interdependence of farming, land use, water use, the need to preserve marshland. It was all very clear."

But she avoided turning the film into a political discussion about the bay, choosing instead to tell the simple but powerful story of watermen's lives.

"We wanted a different kind of film," she said. "I wanted to convey Art's closeness to nature, and his work and his religion," she said of Daniels, who today is the oldest active skipjack captain on the Chesapeake. "He's iconic, I think."

The National Geographic Society

premiered the film at Constitution Hall in 1968, but it has never before been broadcast on television - until now. The world broadcast premiere of *Watermen* will be on April 23, 2009 at 9:30 pm on Maryland Public Television during its annual Chesapeake Bay Week.

Immediately following the broadcast of *Watermen*, MPT's own *Chesapeake Crossroads* will be broadcast. It tells the story of Chesapeake watermen, as well - but from 2005 - and includes Captain Art Daniels, piloting his skipjack some 40 years after Holly Fisher and Romas Slezas followed him with their cameras to tell his story in *Watermen*.

Broadcasting both programs back-to-back draws a striking comparison between current conditions on the Chesapeake Bay and those in the 1960s.

## CHESAPEAKE BAY WEEK SCHEDULE

**On the Trail of Captain John Smith:  
Rediscovering Chesapeake Bay**  
April 19, 10:30 pm

**EcoViews:  
Restoring Chesapeake Bay**  
April 19, at 11:30 pm

**Chesapeake Wine Country**  
April 22, 11 pm

**Watermen**  
April 23, 9:30 pm

**Chesapeake Crossroads**  
April 23, 10:30 pm

**Eatin' Crabs:  
Chesapeake Style**  
April 23, 8:30 pm

**Eatin' Crabcakes:  
The Best I Ever Had**  
April 23, 9 pm

**Bugeye:  
A Chesapeake Legacy**  
April 23, 11 pm

Marion Warren



# SHORT TAKES

For a complete list of events happening in Maryland State Parks, visit

[www.dnr.maryland.gov/calendar](http://www.dnr.maryland.gov/calendar)

## Breaking the Ice

**Chester, Md.** — Maryland Department of Natural Resources (DNR) Hydrographic Operations crew broke ice this past winter aboard the A.V. Sandusky along the coastline of Kent Narrows.

“Our work of deicing Maryland’s waterways allows accessibility to a variety of people,” said Captain Shawn Orr. “If we let the ice build up on some of these areas for too long, it can

inhibit the daily lives of many that rely on our State’s iconic aquatic resources.” Deicing allows law enforcement units, such as the Maryland Natural Resources Police, commercial watermen using pound nets and public service vessels, such as fuel barges, to operate during winter conditions.

The Smith Island community of Maryland relies heavily upon this service to allow boats to transport students to school, the U.S. mail to be delivered and commerce on the island to occur.

The diesel-powered A.V. Sandusky has 700 horsepower and can operate in up to 8 inches of ice. The vessel was built in 1989 and is 80 feet long. When not performing this seasonally important responsibility, Hydrographic Operations manages about 2,500 floating and 360 fixed navigational and regulatory aids with a staff of 22 across the entire state of Maryland.

The three ice-breaking vessels serve as buoy tenders and their other tailored outboard boats mark safety hazards near dams, as well as state and county lines. ■



Kara Turner

## New Opportunities for Recreational Anglers

**Annapolis, Md.** — The Maryland Department of Natural Resources (DNR) recently released new regulations designed to ensure sustainable yellow perch populations and create new opportunities for recreational yellow perch fishing.

Under the new laws, the daily recreational creel limit increased from 5 fish per day to 10 fish per day. The changes also opened some previously closed watersheds to recreational yellow perch fishing. The Patapsco, Magothy, Severn, South, and West River watersheds on the western shore, and the Nanticoke River watershed on the Eastern Shore are now open to recreational yellow perch fishing. ■



Duane Raver/USFWS

## Graduating Class of 2009

**Easton, Md.** — Earlier this year, the Maryland Natural Resources Police (NRP), the law enforcement arm of the Department of Natural Resources (DNR), recognized the 51st graduating class of the Maryland Natural Resources Police academy. The last class to graduate from the academy was in January 2007.

“The Maryland Natural Resources Police are the protectors of our most important land and aquatic resources,” said Governor Martin O’Malley. “Whether on the Bay ensuring that

anglers return home safely, or in our forests protecting our native wildlife, these men and women of law enforcement perform an irreplaceable service.”

DNR Deputy Secretary Eric Schwaab attended the ceremony along NRP Superintendent Col. George F. Johnson, IV, Maryland Park Service Superintendent Nita Settina, and other NRP and DNR officials. NRP Capt. Robert Davis was the emcee and Rev. Dartanyon Hines gave the invocation and benediction.

“You are the chosen few out of



James R. McKnight

many applicants,” Superintendent Johnson said. “We welcome you as a member of the Natural Resources Police family, and we look forward to your contributions as you protect Maryland’s citizens and preserve its natural resources.” ■

## Life Guards Needed

**TO APPLY:** Applicants may apply to any park listed below by contacting the park directly. Positions will remain open until filled. Full and part-time positions are available.

**SALARY:** \$7.50 - \$12.00/hour  
(Salary varies by location)

**CONTRACT PERIOD:**  
May-September



Mark Odell

### Western Maryland State Parks:

Cunningham Falls State Park  
301-271-7574

Deep Creek Lake State Park  
301-387-5563

Greenbrier State Park  
301-791-4767

Herrington Manor State Park  
301-334-9180

New Germany State Park  
301-895-5453

Rocky Gap State Park  
301-777-2139

### Central Maryland State Parks:

Gunpowder Falls State Park  
410-592-2897

### Southern Maryland State Parks:

Point Lookout State Park  
301-872-5689

Sandy Point State Park  
410-974-2149

### Eastern Maryland State Parks:

Assateague State Park  
410-641-2120

Pocomoke River State Park  
410-632-2566

For more information about opportunities at the Department of Natural Resources, visit [www.dnr.maryland.gov/hr/jobs](http://www.dnr.maryland.gov/hr/jobs)

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## DNR @ WORK

### Martha Anderson

Trail Grant & Guide Manager/Maryland Park Service

Describe what you do at DNR.

Two major functions of my role at DNR are to help manage over 140 National Recreational Trail Grant Projects and coordinate the re-printing of the Maryland Park Service, Natural Environmental Area, Natural Resource Management Area and Forest Trail Guides.

What is the most important point you would try to relate to Maryland's citizens?

To share our resources with our diverse users — equestrians, joggers, mountain bikers, hikers — and to leave the trails as you found them. I want future generations to be able to experience the parks, the forests and all of our natural lands. I am proud to be a part of the Leave No Trace initiative.

What are some of the projects you have worked on?

I currently serve on the Maryland Recreational Trail Grant and Byways Committees. A major responsibility of working with grants is seeing them through all phases of the process and assuring that they meet a real need — often one that may not be all that obvious. I am also involved in the re-printing of the DNR trail guides.

What is the best part of your job?

The best part of my job with the Park Service is going out into the field and verifying the completed National Recreational Trail Grant projects. I am usually in the field once a month working on the verifications.



Paul Anderson

Martha Anderson (right), pictured with Maryland State Parks Superintendent Nita Settina and Patrick Miller, was recently recognized as Land Manager of the Year by the Mid-Atlantic Off Road Enthusiasts.

What do you like to do when you are not working at DNR?

When I am not working I might visit Gambrills State Park with my 2-year old grandson or I may be almost anywhere at a yard sale or an auction. My husband and I have collections that range from costume jewelry to old vinyl lps.

Tell me about the last book you read.

A book I had to check out twice from the library is the "Last Child in the Woods - Saving Our Children from Nature Deficit Disorder" by Richard Louv. I am deeply saddened at the number of children who have never had an outdoor experience.

Any closing thoughts, ideas or comments you'd like to include?

I am a simple person who strives for balance in my life. I believe our children and grandchildren are the future stewards of our natural heritage and, with our guidance, they will learn to love and respect the world around them. Happy Trails! ■



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