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State of the Land = State of the Patuxent

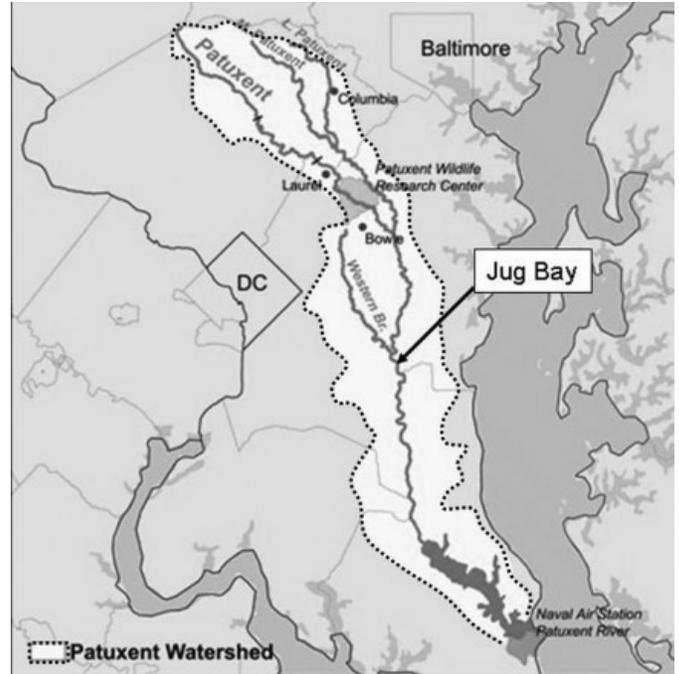
The Big Picture

D-minus. That's the grade given to the environmental health of the Patuxent River in the 2008 Report Card by the Patuxent Riverkeepers. This means that "some or few water quality and biological health indicators meet desired levels. Quality of water tends to be poor, often leading to poor habitat conditions for fish and shellfish," according to the report. Though an increase in the overall health was seen in 2008, all health index parameters are well below target levels—dissolved oxygen, water clarity, aquatic grasses, and benthic and phytoplankton communities. "This really should be a societal embarrassment that one of the richest countries in the world with all of our technological resources and skill can spend 40 years and billions of dollars trying to clean up the waterways, and still find ourselves worse off than ever," says Patuxent Riverkeeper Fred Tutman. He says we need to face the fact that "we've been had, or we've been kidding ourselves, or we've been doing too much of the wrong stuff."

Not that we haven't been trying. Consider that after upgrades were made roughly two decades ago to sewage treatment plants that empty into the Patuxent, both underwater grasses and overall water quality increased. But over time, as the population expanded, those gains were lost. "Chronic hypoxia in the lower estuary near Benedict," cites Solomons-based Chesapeake Biological Lab senior research scientist Dr. Walter Boynton as one example, and the influx of excess nutrients from the bay into the river as another. Those are just two of myriad problems.

The onus is on all of us—the government *and* the citizenry—to effect positive and permanent change. The good news: The plight of the Patuxent River estuary is comparable to that of the Chesapeake Bay in terms of negative human impact. But not in size. The Bay watershed crosses six states plus D.C.; the Patuxent,

By Lindsay Hollister and Volunteer Contributor, Shirley Grace
With contributions from
Dr. Walter Boynton, Frank Marzucco,
and Fred Tutman.



only seven counties within just one state—Maryland. Therefore, it is conceivable that we can resolve the pollution issues within the river—at least compared to the jurisdictional complexities of collaborating among state governments. Such has been the call from well-known Patuxent River advocate, former Senator Bernie Fowler.

We have picked the low hanging fruit of restoration. Reducing point source pollution from sewage treatment plants and factories has brought notable gains, and will need continued attention, but non-point source pollution—which is everything else—needs much more attention. Making progressive decisions about land use and water treatment, such as those described in this essay, can ensure the success of the river's restoration. Between action on land, and action on the water, the interconnectedness is taking root in our collective subconscious because we have proven that we can effect positive changes. Let's compare the restoration half with the preservation half of the watershed puzzle.

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Jug Bay Wetlands Sanctuary is operated by the Anne Arundel County Department of Recreation and Parks. It was established in 1985 with the goals of wetlands research and environmental education. The Sanctuary is a limited-use park. Visitors are requested to make a reservation by calling the office before planning a visit.

Jug Bay Wetlands Sanctuary is a member of the Chesapeake Bay - National Estuarine Research Reserve Maryland system, which promotes scientific research, public education, resource management and stewardship in estuarine reserves across the nation.

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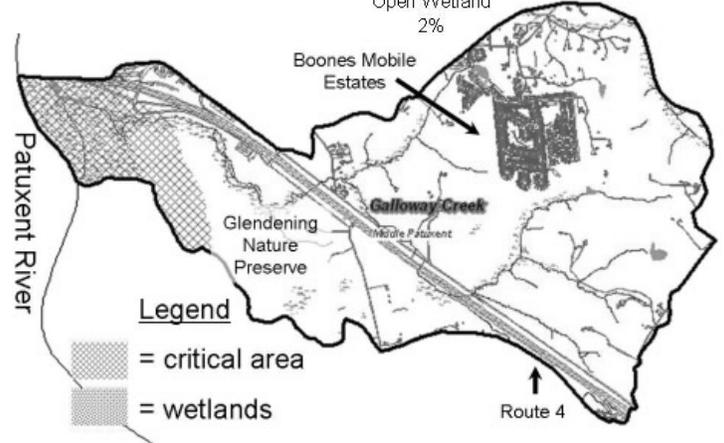
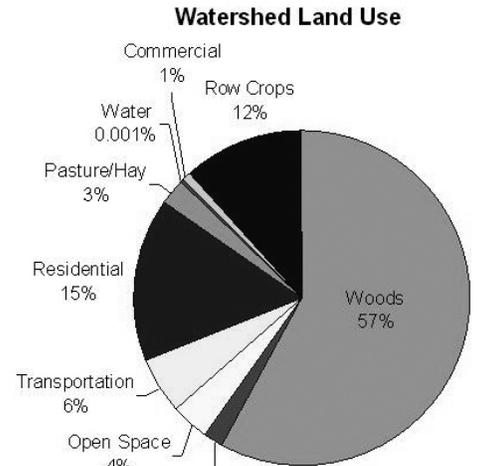
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Galloway Creek: Subwatershed Overview

- 1,406 acres in the Lothian/Bristol area (southern Anne Arundel County)
- 146 acres in the Critical Area
- 57 septic tanks in the watershed
- Storm drains: 49 inlets, 5 outfalls
- The top four land use categories in the watershed are:

- Forest cover - 57%
- Residential - 15%
- Row crops - 12%
- Road cover - 6%

Source: Geographic Information Systems data from Watershed Stewards Academy



The Galloway Creek Subwatershed

Stream Function: Green Filter or Gray Funnel

One form of restoration is taking on the challenge of addressing non-point pollution where it starts. The first graduating class of Master Watershed Stewards in Anne Arundel County has begun identifying the storm drains and backyard sources that have been delivering pollution to our waterways. The Stewards are partnering with government, business, and nonprofit organizations to educate homeowners and design projects to prevent the runoff of polluted water into our streams.

Over the decades, development has replaced open space in the Bay watershed, with compounding negative impacts on our streams—the gray funnel syndrome. One result of development is impervious surfaces. As paved roads, parking lots and rooftops cover natural areas, the rainwater sheets off instead of soaking into the ground. This stormwater runoff produces a steady supply of non-point source pollution—fertilizers, oil, pesticides, fecal coliform, lead, mercury, sediments, and more—to our waterways. In addition, pipes and culverts have been installed throughout the metropolitan Bay area. Designed to quickly move water away from developments, under roads, and into the nearest stream; the runoff picks up heat and speed along the way. Both are significant negative impacts because most aquatic life cannot tolerate warm streams and the unrelenting rate of stream flow is highly erosive to the stream banks. This has spurred a negative feedback loop whereby with each heavy rain, all the human detritus from our development speeds into the streams, causing more bank erosion and subsequent sedimentation. Erosion has become so severe that some stream channels are gouged out more than 30 feet deep. Do you know a tidal creek that needs dredging? Now you know exactly where that 30 feet of stream bank went!

By getting a handle on what our actions on land have been doing to our streams and how to stop it, we will improve the state of the Patuxent, and in turn, the state of the

Continued on page 9

A bird's eye view of the artists. (Photo: Colin Barnett)



Impressions of Nature: Art Festival

Sandy Barnett,
FOJB Vice President

After months of careful planning, we were well prepared on May 3 for the fundraising venture between the Friends of Jug Bay and the Sanctuary staff. About 50 visitors ventured to the Wetlands Center to view the beautiful photographs, paintings, hand-made jewelry, ceramics and native plants for sale by 12 local artisans, many of which were already affiliated with Jug Bay as a volunteer or a Friends member*. We also enjoyed the down-home acoustical music of the Rockfish band with Gary Pendleton, Chris Garret, Ray Saunders, and Gary Pape; along with several of their talented friends, Karyn Molines, Tom Goucher, and the Scrub Pines band Andrea Bassoff and Nelson Spangler.

Artists:

- Wayne Bierbaum - photography
- Tara Hamilton - watercolor paintings
- * Cynthia Bravo - photography
- * Sara Levin - photography
- * Kathy Chow - pottery
- * Gary Pendleton - oil paintings, scratch board drawings
- * Marty Barron - rock paintings and hand-beaded jewelry
- * Rogard Ross - photography
- * Alison Burbage - watercolor paintings
- Ross Geredien - photography
- * Mary-Stuart Sierra - native plants
- * Roxanne Weidele - pastel paintings

The silent auction included dozens of donated items from Jug Bay volunteers and Friends - everything from a stuffed ruffed grouse to a huge framed map of Maryland. There was something for every taste and wallet. We are particularly grateful to Greenstreet Gardens (Lothian) for their donation of a large hanging fuchsia and a \$50 gift certificate, and to the Wild Bird Center (Bowie) for an assortment of fun and useful auction items.

I want to extend a very special thanks to Cynthia Bravo and Lindsay Hollister who co-chaired the festival. Harry Coulombe, Dotty Mumford and Kathy Chow also provided much help to make sure everything was in place and the festival went smoothly.

The festival netted \$436.79 to support children's educational programs; bus fees, equipment costs, and summer camp tuition for underprivileged children.



The talented musicians. (Photos: Wayne Bierbaum)

Views From a Jug Bay Wife

Marilyn Fogel

Dana, my 21-year-old daughter, was barely a year and a half old when my husband Chris started as Sanctuary Director. He was following in the footsteps of immensely popular or immensely controversial former Director Christine Gault, depending on your political bent. My husband is, and has always been, a quieter person preferring to take the “right” path while not promoting himself or making a lot of waves. This nearly perfect job (it was not in California!) came with a “free” house, which as a suburban wife resembled something out of Little House on the Prairie.

The Sanctuary in those days was a smaller place in all ways: The expansions in size had yet to occur, the volunteers were a completely known group, and the Friends of Jug Bay, a local small organization. There were two cages housing rescued hawks, kestrels, and owls near the Visitor’s Center, which was filled primarily with stuffed animals, specimens in moth balls, and a lot of brown clip boards with data sheets. Chris inherited a small staff who attempted to maintain loyalty to the way things were done in the past. He waited a year or so before making the sweeping, yet subtle, changes that have formed the way Jug Bay has worked for the past almost 20 years.

Because of the aforementioned hawks,

*Over the years I have seen
Jug Bay go from being
beloved to detested
to a pain-in-the-neck
to a model park.*

our little house on the grounds became known to us as “Hawk House”. We had just purchased a new-to-us “colonial” in Silver Spring a scant few months before Chris won this position. I was, and am, a busy research scientist with a laboratory in Washington, DC, and a young mother, then, keeping Dana happy in daycare while working. Hawk House was remote for me: an hour and a half commute, no daycare that could rival the situation we had in Silver Spring, and not even a decent grocery store within 5 miles. And think of it, TWO houses: two houses of yard-sale furniture, nearly empty containers of milk, two piles of laundry, and two completely different sets of responsibilities.

Our first Christmas at Jug Bay was memorable. The local barbershop on Rt. 4 was then a nursery, where we bought a living Christmas tree, which fit nicely inside of the tall ceilings of the living room. We planted that white pine in the back

yard, where it now towers over the house, provides shade during summer, and a wind break in winter. Santa Claus found his way down there every year, somehow cleverly bypassing Silver Spring. Having two houses was then convenient, as Chris was able to hide the Christmas toys in his office. We held numerous Christmas Eve dinners; hosted family and friends there, and years ago went cross-country skiing.

By the time Evan, who is now 18 years old, was born, we knew all the paths, the secret passageways through the marshes and woods, and the Jug Bay routine. Our weekly schedule was the following: I would drive out on Friday afternoon with the toddlers in the back seat of the car to join Chris for the weekend. On Monday morning, I would load them up, drop them off at day care and head into work. Chris often stayed at Jug Bay on Monday night, coming “home” to Silver Spring on Tuesday evening after work. If you have or had small children and work full time, you can recognize the potential stress of such an arrangement. Fortunately, the kids loved being at Hawk House. They are slowly starting to realize that they grew up part-time in a biological wonderland of sorts.

We watched deer, wild turkeys, foxes, various snakes, blue birds, woodchucks,



Marilyn paddling with Evan.

beavers, insects, turtles, and frogs as part of our weekly routine. In the olden days, small animals were often caught, placed in aquaria, and shown to the public during special events. Children's Day was a particularly fun event, although a lot of work for volunteers and staff. When the kids were in elementary school, I had enough time and energy to hold a few fun events: one was a relay race that involved water balloons. Kids would race across the lawn in the form of a marsh or woodland animal, sit on a water balloon until it burst, then race back in animal form so the next kid could run. My other popular event was an obstacle course, which was held in the back yard at Hawk House, involved our sliding board, a pool, and other water features. Kids loved it!

During this time, I developed several research projects at Jug Bay. A scientist's mind is never inactive, they are thinking constantly of questions that are as of yet unanswered and experiments they might do to provide those answers. One of my favorite experiments took place at Doris's pier, a small ramshackle pier off the marsh boardwalk. The study included burying weighed plant samples in marsh mud, then exhuming them periodically for a period of 18 months, and examining the changes in their chemical and biological features. Spatterdock grew around the pier at that time, making it very difficult to dig in the black, anoxic mud for the samples. When Evan was a baby, Chris would climb into the muck, dig up the samples, then throw them to me on the dock. Evan narrowly escaped being pitched into the marsh one day as I leaned almost too far to make the catch.

Jug Bay is filled not only with animals, plants, and mud, but a lot of people—some people that I've known now for almost 20 years. Volunteers come and go, but there is something cool about the permanency of Jug Bay's volunteers, that has made my time as wife of the Director significant. Just last evening, many of us attended the memorial service for Bill Steiner, a past FOJB President, quiet volunteer, staunch supporter of Chris's work, and a great human being. As I sat on the deck overlooking the Patuxent, listening to some people who had never been to Jug Bay remark on how beautiful sunset was, I reflected on the gifts that many



Chris with Evan on his back and Dana in his arms.



The Hawk House.

of us have to give to each other, no matter how important or scientific our talents might be.

Jug Bay Wetlands Sanctuary is, however, not just nature, kids, and volunteers. Over the years county Executives are elected, new Park and Recreation Directors are appointed, and middle management has shuffled. Chris has survived through five county executives, six Department Directors, and probably more immediate managers. Over the years I have seen Jug Bay go from being beloved to detested to a pain-in-the-neck to a model park. Those "up" years are good ones, when the good works of Chris, the staff, and the volunteers are recognized and rewarded.

Fortunately for us, we're in one of those "up" phases even with the economic

downturn. Jug Bay has always operated on a shoestring with part-time employees, do-it-yourself attitudes, and no middlemen. The Sanctuary still provides the peace it always had, but continues to shine as a place that is relevant to society, where people can see and understand the value of wetlands, the value of preserving natural habitat, and the value of educating by example. These benefits, apparently, have outweighed Chris's daily commute on the Capital Beltway, consistent just-barely-enough funding, and the glacial speed at which new changes are sometimes adopted. As a wife, I've sat many a Saturday morning and listened about Jug Bay, its people, and helped Chris make decisions and take the place in new directions. It's been a good 20 years, and a time and place that has influenced my life probably more than I can recognize.

Summer 2009 Public Programs at Jug Bay

Join volunteer naturalists for nature programs.

- Reservations and entrance fees are required for all events, unless noted.
- Call 410-741-9330 or e-mail programs@jugbay.org
- Check www.jugbay.org for information, directions and updates to our schedule.
- Open to the public 9 am-5 pm Wednesday, Saturday, and Sunday
- Glendening Preserve open every day at Wrighton Road entrance.
- Programs are open to families and individuals. An adult must accompany children under 13.
- Please note age limits for each program.

Entrance Fees: Adults \$5; Children under 18 \$3; Over 60 \$3; FOJB family membership \$25.

Birding at Jug Bay

Saturday, August 1; 8:00-11:00 am

Learn the skills of identifying birds by sight and sound. Binoculars and field guides will be available to borrow. Not appropriate for children under 12.

Canoe Trip: 10,000 Years of History on the Patuxent

Saturday, June 20; 1:00-4:00 pm

This canoe trip will highlight the long record of human history during the leisurely paced paddle. The Patuxent River is rich in history, from Indian settlements, colonial towns, war battles, and a 20th century railroad. Experienced volunteers or staff naturalists lead trips. Canoe instruction and all equipment provided. Please arrive promptly at the starting time. Bring plenty of water, sunscreen, a lunch, and comfortable walking shoes that can get wet. Children must be at least 7 years old and accompanied by an adult.

To reserve a space, mail your payment of \$10 per person (including FOJB) in advance to the Sanctuary. Please include your names, address, daytime phone number, the number of people in your party and the ages of children as well as a first and second choice of dates.

Summer Solstice Hike

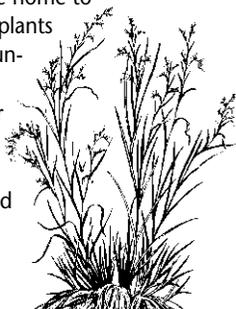
Sunday, June 21; 6:30-9:00 pm

Celebrate the longest day of the year and the start of summer by hiking the summer woods. We'll end the hike with a light snack. All ages; children should be able to walk up to 3 miles on natural surface trails at a moderate pace. Trails are not easily traveled by strollers.

Wonderful Wetlands

Saturday, June 27; 10:00 am-noon

Freshwater wetlands are home to a variety of fascinating plants and animals. Join a volunteer naturalist on a boardwalk tour to enter the wonderful world of wetlands. For adults and children 5 years and old.



Pine Warbler

Bird Banding Demonstration

Sunday, July 5; 7:00-9:00 am

Come out with volunteer Mike Quinlan and observe the techniques used by ornithologists to monitor bird populations. Bring cameras, as there should be an opportunity for excellent close up photos of birds. Ages 12 and up.

Our Local Bees

Saturday, July 11; 1:00-3:00 pm

Join entomologist Dr. Ben Hollister to learn about our local bee species and their importance to the web of life. Participants will also have the opportunity go into the field as assistants to see how bee researchers conduct their field work. The bees we will be working with are docile and stings are highly unlikely to occur. For adults only.

Discover Wetlands by Canoe

Saturday, July 11; 9:00 am-1:00 pm

Saturday, July 25; 9:00 am-1:00 pm

Saturday, August 22; 4:00 pm-8:00pm

Discover the abundance of wildlife in the Patuxent River wetlands. We'll paddle up some of the smaller branches of the river to look for beavers, turtles, birds, and flowering wetland plants. Bring plenty of water, sunscreen, a lunch, and shoes that can get wet. Children must be at least 7 years old and accompanied by an adult.

To reserve a space, mail your payment of \$10 per person (including FOJB) in advance to the Sanctuary. Please include your names, address, daytime phone number, the number of people in your party and the ages of children as well as a first and second choice of dates.

Rise and Shine

Saturday, July 18; 7:00-9:00 am

Beat the summer heat with a brisk early morning hike through the Glendening Preserve. Meet at the Plummer House. Carry water. Ages 10 and up.

Walk Like a Turtle

Saturday, August 1; 10:00 am-12:00

With volunteer naturalist Mike Quinlan we'll follow the footsteps of some of our well known resident box turtles and gain an appreciation for the varied habitat they use and sometimes difficult terrain they must traverse. We may even come across some turtles marked over 10 years ago. All ages.

Wooton's Landing Ramble

Wednesday, August 5; 9:00 am-12:00

Spend a late summer morning exploring this large created wetland. There should be an abundance of wildflowers, butterflies and birds to observe. Carry binoculars; cameras and water recommended. Meet at Wooton's Landing Wetland Park. Directions provided upon registration. Ages 10 and up.

Monarch Butterflies

Saturday, August 8; 10:00 am-noon

Learn about the life cycle of monarchs in this hands-on program. We will look for the monarch host plant, milkweed, and inspect plants for eggs, caterpillars, and other creatures that share the milkweed patch. Ages 8 and older. Meet at Plummer House at the Glendening Preserve.

September Equinox Hike

Sunday, September 20; 5:00-7:00 pm

Bid farewell to Summer and welcome Fall with a vigorous hike on the forested trails of the Sanctuary. This is a great time of year for interesting nature observations. We'll end on the Marsh Boardwalk, with a great view the setting sun. Light refreshments in the Wetlands Center following the hike. All ages.

Field Investigations for Teens

Entering at least 9th grade in Fall 2009

Marsh Plants and Fish

Thursday, July 2; 9:00 am-3:00 pm

If you have an interest in biology or ecology and enjoy the outdoors, this field investigation program is for you. Learn how field ecologists study plants and animals in the forests, wetlands, and rivers. Be prepared to get wet and muddy.

Fee: \$10



Upcoming Volunteer Opportunities

Volunteers are an essential part of the Jug Bay community; assisting in research, education, stewardship, and behind-the-scenes activities. All receive free admission to the Sanctuary and other benefits throughout the year.

MAPS bird banding

7:00 am-noon

Sunday, June 21; Tuesday, June 30

Sunday, July 12; Tuesday, July 21;

Friday, July 31

Walk through the forest while learning about and seeing up close some of our breeding birds.

For details, call the Sanctuary office (410) 741-9330 at least 48 hours in advance of the scheduled banding day to register, as we try to limit the size of the banding party to 8 - 10 people. For teens and adults. Bring water and binoculars.

Wetlands 101 for Volunteer Canoe Guides

Saturday, June 20, 10am - noon

Learn the basics of Patuxent River Ecology in this waterfront, but land-based class. We will tour the edge of the wetlands while discussing human history, identifying common plants and animals, and learning about the benefits of wetland ecosystems. Wear comfortable walking shoes and dress for the weather. For teens and adults.

Naturalist Training - Bugs

Saturday, June 20; 2:00-4:00 pm

Volunteers are needed to lead a variety of week-end programs for families. This workshop will focus on the basics of insect identification and provide activities that make a "Bug Hunt" fun and educational. For older teens and adults. Meet at Plummer House, Glendening Preserve.

Introduction to New Stream Water Quality Research

Saturday, July 11, 9:30 am - noon

Our long-term wetland monitoring program is switching gears. Come learn about our new stream-focused water quality research. The data collected will support other research initiatives such as macroinvertebrate sampling, fish identification, and watershed land use within the Two Run, Pindell, and Galloway creek subwatersheds. For teens and adults.

Canoeing and Rescue Skills Workshop

Saturday, July 18; 10:00 am-3:00 pm

American Canoeing Association certified trainer Frank Marszen will be leading a full day of intense flat-water instruction, classroom and rescue sessions. This workshop prepares you for conditions you might expect on open flat water or slowly moving water such as lakes, deepwater rivers, and estuaries. Learning basic strokes early translates into fluid maneuvers later in the day. We have canoes, paddles, life vests (PFD) and other equipment, but if you have it, please bring

your own PFD, fitted and sized properly. Plan to be in the water; a wet suit is optional. No experience needed. Wear footwear for wearing in the water (no Crocs); always dress for weather. Bring a complete change of clothes, warm fleece or rain jacket, and lunch. Class size is limited~advanced registration is required.

Naturalist Training - Plants 101

Saturday, August 15; 10:00 am - noon

If all trees look the same to you, then join us for this plant overview class to learn the basics. We will learn about different habitats that our plants live in, some of their adaptations, and learn a few tricks so that you will be ready to lead a group on a plant hike of your own. For teens and adults.

Watershed Advocates Tour

Saturday, September 19; 10:00 am-3:00 pm

Hop on the bus with Watershed Steward Lindsay Hollister to see how stormwater is affecting the bay and how area land owners are taking responsibility of their runoff and beautifying their grounds in the process. We will drive to Arlington Echo Outdoor Education Center for their Rooftop to Rivers tour. After that we will visit several area restoration projects, and conclude with the Open House at Chesapeake Ecology Center to see their Rainscaping Demonstration site and Native Plant sale. Space is limited. Bring a bag lunch. Call 410-741-9330 to reserve a space. Meet at the Park & Ride at Routes 424 and 50. Look for the white Department of Natural Resources van.



VOLUNTEER STATISTICS:

Spring Volunteers

During the spring volunteers logged 1310.5 hours

Joe Acton	Sara Levin
Lawrence Ash	Daniel Lind
Colin Barnett	Eric Lind
Sandy Barnett	Alec Loudermilk
Jimmy Beadenkopf	Cliff Loudermilk
Larry Beverungen	Erica Loudermilk
Mike Blackstone	Corey Mackall
Susan Blackstone	Patrick McConachie
Cynthia Bravo	Gene Meyer
Judy Burke	Lois Meyer
Rae Burns	Bill Miles
Jennifer Burroughs	Louise Miles
Jeff Campbell	Karyn Molines
Emmett Carstens	Anne Muecke
Karen Caruso	Manfred Muecke
Betty Chaney	Dotty Mumford
Ginger Chaney	Jennifer Muro
Kathy Chow	Tammy Newcomer
Joan Clinch	Sue Nugent
Cami Coblentz	Diana Ogilvie
Harry Coulombe	Dave Perry
Linda Coulombe	Willey Persaud
Kaitlin Creamer	Holly Ponder
Leanne Creger	Richard Ponder
Lynn Cush	Carol Quinlan
David Davis	Michael Quinlan
Mark Delfs	Becca Reeves
Rachael Dickey	Gordon Reynolds
Cathryn Dippo	Rico Rice
Suzahn Ebrahimian	Rogard Ross
Kim Elliott	Samantha Schott
Jack Filigenzi	Steve Schott
Jean Filigenzi	Jeff Shenot
Ric Foster	Les Silva
Robert Frezza	Bob Smith
Rosemary Frezza	Al Sutherland
Brian Gates	Liz Sutherland
David Gillum	Al Tucker
Joyce Gillespie	Peter Uimonen
Diane Goebes	Sara Van Schaik
Ernie Goins	Nancy Weber
Shirley Grace	Bruce Weidele
John Hanold Jr.	Kerry Wixted
Jim Harle	
Lynn Kenny	
Peter Kenny	
Elizabeth Kvech	
Dave Larrabee	

Thanks
to all!

**Volunteer Yuka Tasami
eradicating purple loosestrife,
an invasive plant species.**

Losses to Jug Bay Community

by Lindsay Hollister

Bill Steiner

When it feels like you've just lost a family member, that's when you realize how important the Jug Bay community is. Bill Steiner was one of those volunteers that gave of himself fully, loved the Patuxent river, and shared his passion. Just weeks before his unexpected passing at the age of 67 he was honored at the Friends of Jug Bay annual meeting with the Jug Bay Award; a conservation award to recognize individuals whose active involvement in the Jug Bay region has contributed to a better understanding and appreciation of the area's unique wetland ecosystem.

In the 5 years I knew Bill, I enjoyed the many postcards he wrote to us from his travels across our country and the souvenirs he gave to the staff. I got first pick of the homemade ornaments he brought in every winter to sell as a Friends of Jug Bay fundraiser for helping him set up the display. I have one of the whistles that he carved from native wood with fun facts for each species of tree used, and have tasted the delicious blueberry cattail muffins he made for canoers to convey the versatility of this marsh plant.

Bill first ventured south to the



Bill Steiner (fourth from left), is proudly displaying his Jug Bay Award, and his family. They include (left to right) Brad McLane, Amy McLane, Bette-Lynn Steiner, Linda Steiner, and Mike Ripley.

Sanctuary from his Edgewater home in 1996. His knowledge, enthusiasm and creativity quickly made him a valuable asset. Bill served as the President of the Friends of Jug Bay between 2002-2004 and was a board member for several years after. He assisted with construction projects, clean-ups and the protection of what is now the Glendening Nature Preserve. But perhaps most of all he loved being on the water. He was our famous volunteer canoe leader, and we vied for the chance to be a co-leader on his trips. When not sharing the wonders of the river he was assessing the submerged aquatic vegetation by canoe

as part of our research program. But his recorded volunteer hours reflect only a fraction of the time he spent preparing for programs; from collecting cattail pollen for his famous muffins, to cutting, drying, then soaking yucca leaves so the kids could weave rope just like the Indians did. And all those whistles he made to pass out at the end of a canoe trip! Bill was one of the most kind-hearted and generous people I have known, his impact at the Sanctuary will be lasting, as will his absence. We miss you, Patuxent Bill.

Buddy Sunderland

By Dave Linthicum with contributions from Ken Riggleman

The Jug Bay community lost a long-time friend and supporter recently when Buddy Sunderland passed away at the age of 80 on April 18. Buddy demonstrated his rail bird skiff at the Sanctuary in the 1980s.

Having grown up on what is now River Farm, Buddy would relate stories of the Chesapeake Beach Railroad trains "nudging" his family's cows off of the tracks before the big 1933 hurricane put the finishing touches on the profitability of the rail line. He also remembered fondly that, as a five-year old the day after that storm, his dad took him via rowboat across their lower fields, over the barbed wire fences, and that it was "the easiest year ever to harvest the watermelons 'cause we just tossed them in the boat".

The mid-century Bristol-Pindell area was primarily agricultural. A transcript of an oral history relates a visit Buddy made to a pond ten miles away in the 1940s to see beavers and a beaver dam for the first time. Today, beavers are common in the Jug Bay area. Buddy also spoke about how various storms had eventually caused the demise of the unusual building that his father built on the hillside behind their house: a combination corn crib and boat shed.

He is survived by his wife of 56 years, Mildred, who lived "next door" in what is now the main house at the Riggleman Preserve; her father Russell Anderson sold the land to the Riggleman's in 1942. He will be missed.

Brian Davis

We did not know Brian very long, but his jovial nature and good heart endeared him to us. Coming from his hometown of Chesapeake Beach, Brian was a 31 year old member of the ARC of Southern Maryland. Beginning in October 2008 he wheeled into the Wetlands Center each Thursday afternoon with his protective bike helmet on and his job coach Mabel. He enjoyed artwork and activities on the computer so we recruited him for the task of cataloging the many digital photos we have. He plugged away at the task diligently each week. Brian liked to have fun, and shortly after he began coming regularly



he presented us with a homemade pumpkin sachet for the office, then he made us take turns guessing his Halloween costume. With some helpful clues, he prodded each of us until we correctly identified him as Indiana Jones.

After getting through 2 years worth of picture naming, Brian was ready for something new, so he began creating bird identification drawings for us to use with groups. His focus on the field marks (unique identifying features) on his drawings make them easy to use with beginning birders. We had gotten accustomed to Brian's unique brand of humor, and will certainly miss his smiling face and generous spirit.

Chesapeake Bay. There is still much open space here in southern Maryland, but non-point source pollution still affects us—leaching septic tanks, fertilizer runoff, and animal waste pollution. “Sewage treatment is not enough. Non-point reduction is also needed. If sewage inputs [from wastewater treatment plants] were zero, there would still be too much nitrogen and phosphorus loading,” says Walt Boynton.

Part of the Sanctuary’s new research strategy is to better quantify the non-point pollution sources from our actions on land. We will compare Galloway, Two Run, and Pindell creeks; all of which have been potential victims of proposed development and increased exposure to nonpoint source pollution. For more than a decade, we have been gathering water quality, nutrient, macroinvertebrate, and fish data on Two Run creek. Our goal is to bring the data

“What if the nation’s president and Congress, who all sail, hunt, fish and flush in Chesapeake waters, take note?”

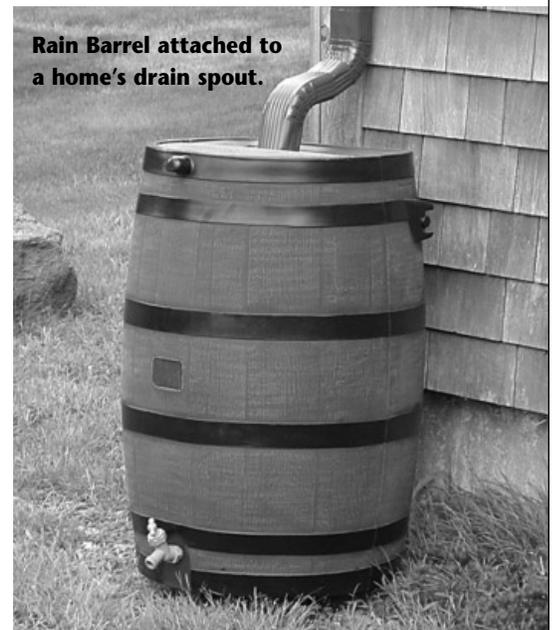
—Tom Horton

collection on the other creeks up to the same caliber to strengthen our long-term monitoring effort. And while Two Run and Pindell creeks can be treated as control streams with little human interference in their watersheds, Galloway creek has had more development pressure and better represents the negative human impact scenario playing out across other subwatersheds (see graphic on page 2). We will collect baseline data for these Patuxent tributaries so if large-scale development comes knocking again, we will be better-armed with facts showing the diversity that has been lost already in Galloway, and what would be lost in Pindell and Two Run.

As efforts by other watershed advocates expand, we hope to reduce pollution inputs, which will allow the streams to function properly again—a return to green filters. Restoration of stream function must be done on a statewide scale. In urban centers

Easy Ways to Lessen Our Negative Impacts

- Turn downspouts towards a garden or the lawn—away from driveways or other impervious surfaces.
- Pick up pet waste.
- Let grass grow to three inches. Mulch the clippings so they don’t form a mat—free fertilizer—and leave them in the lawn.
- Install a rainbarrel to capture roof runoff and water your plants during droughts.
- Reduce or eliminate petroleum-based fertilizers. Test soil for proper pH levels before spending the money. Then, use organic products.
- Reduce or eliminate anything ending in “-icide”—pesticide, herbicide, fungicide... These are designed to kill and can cause irreversible damage to aquatic life, as well as to pets and humans.



Rain Barrel attached to a home's drain spout.

impervious surfaces cover 20 percent to 30 percent or more of the subwatershed they drain. Helping water to infiltrate rather than run off rapidly is critical to stopping erosive pollution. Such non-point source reduction solutions include stormdrain retrofits, regenerative stormwater conveyance systems, septic tank upgrades, green roofs, rain barrels, and bayscaping.

Land Preservation

Anne Arundel County Recreation and Parks department has been addressing the preservation side of the puzzle through a concept known as greenways. The Department has preserved 2,700 acres of ecologically sensitive land in the past two years; adding adjacent property to the Sanctuary and beginning a greenway for the South River. Greenways are forest buffers along the waterways that boost water infiltration rates, maintain wildlife corridors, and provide recreational opportunities. County citizens have an administration that takes environmental

responsibility seriously, and much has been done in the past two years to embrace local government’s role as stewards of our natural resources. When Frank Marzucco became the head of the Recreation and Parks Department in 2006 he partnered with County Executive, John Leopold. One of Mr. Leopold’s top goals during his term is land preservation. Mr. Marzucco explained that his role is to balance the recreation side with the parks side. And what does he mean by balance? Consider that the county currently has more than 630 athletic fields. Demand for using these fields is high. But instead of funding the construction of new fields—a costly enterprise—Marzucco has chosen to upgrade and expand the existing fields at 12 high schools. The result: an increase to 7,000 games per year! Because of this upgrade, the Department can also invest in land preservation.

“It’s all about partnerships,” says Mr. Marzucco. Partnerships with resource managers such as Ron Bowen, director of

Continued on page 10

the Department of Public Works (DPW). Mr. Bowen understands the complex push and pull between land development and land preservation. He strives to make the right decisions from a public works perspective. This means gathering information, such as county-conducted watershed assessments and land use modeling predictions from various organizations (e.g., U.S. Fish and Wildlife Service and nonprofits such as Annapolis-based Biophilia). Senior DPW engineer Hala Flores underpins Bowen's knowledge with hard facts gleaned from Geographic Information Systems, to ensure sound decisions are made.

Closing the Loop

Progressive steps such as greenways and innovative stormwater management techniques are helping to stem the downhill slide of our natural resources. However, "the blind spot is our allegiance—some would say addiction—to perpetual economic growth" says Bay advocate and environmental writer Tom Horton. In his 2008 report titled, "Growing! Growing! Gone! The Chesapeake Bay and the Myth of Endless Growth," Horton echoes Fred Tutman's frustration in a clear outline of the contradictory path we have followed over the course of the "Bay restoration years" that has resulted in the continued degradation of natural resource and our quality of life. Counties are spending billions on new infrastructure each year, and to what end? Studies in Anne Arundel County found that for a new five-bedroom house, the cost to taxpayers is up to \$37,000 in infrastructure services, while the assessed impact fee covers less than \$5,000 for each new home.

But Horton—always optimistic—provides evidence that charting a new course can lead to a more prosperous future for all Bay inhabitants. We can learn from each other the best ways to address this multi-layered issue of land use and preservation. For example, Calvert county, has effectively curbed sprawl by rezoning its future housing capacity from 54,000 homes to 37,000 homes, increasing development rights to at least \$8,000 an acre, and by other creative legislation. When the housing market

nosedived across the country, Calvert's market had already dipped 3 percent—but on purpose. Also, new business has more than doubled in the past decade. In effect, Calvert County has stopped rampant sprawl by making it unattractive to developers. Calvert has taken the long view and has considered future quality of life in the county. From greenways and watershed stewardship to a steady-state economy; Tom

Horton asks "What if the nation's president and Congress, who all sail, hunt, fish and flush in Chesapeake waters, take note?"

You can help us take note by volunteering with our new stream monitoring program. Our July 11 workshop (see volunteer pages) will provide an overview of the new protocol. Call Lindsay Hollister at (410) 741-9330 for more details and to register.

Take a Closer Look...

By Sara J. Levin, volunteer contributor

This "creature feature" style column is devoted to things small or easily overlooked. Each edition reveals the answer to the last feature and offers a new mystery to intrigue. E-mail lindsay@jugbay.org to make your best guess!

Did you guess who was spying on you from the last photo? One of the so-called "true frogs", bullfrogs *Rana catesbeiana* are the largest of all North American frogs, growing to a length of 8 inches or more (legs add another 7-10 inches to length) - they are able to leap 3-6 feet in distance. They weigh up to 1.5 pounds. Females are slightly larger than males. The tadpoles can reach 6.75 inches in length, and can remain in this stage for two years. The longer the better; a bigger frog will have a better chance of survival. The average life span is 4 to 5 years, though there are records of bullfrogs living 6 or 7 years.

Bullfrogs are among the most wide-ranging of North American amphibians and are found in freshwater ponds, lakes, and marshes from Nova Scotia, Canada, throughout the continental United States, and as far south as Mexico and Cuba. They tend to live in vegetation along the edge of large, slow-moving bodies of fresh water.

Bullfrogs help keep down the mosquito and insect population. Insects are a staple for most frogs, but bullfrogs also eat fish, birds, snakes, baby turtles, newborn ducks, and other frogs. In areas where they have been introduced, their voracity can destroy local populations of native frog species. Their populations can bloom out of control because they don't really have natural predators. In fact, they can give off toxic secretions from their paratoid glands that could poison an animal the size of a dog.

Bullfrogs are typically green or gray-brown with brown spots and have easily identifiable circular eardrums, or tympanum, on the side of their heads. These are the better to hear with, my dear; chorusing at breeding ponds, the baritone call of the bullfrog—deep and resonant—resembles the bellowing of a bull, and hence its name. Only males emit this trademark "jug-o-rum" bellow, which can be heard day or night. Females give aggressive calls in response to the males. Bullfrogs are territorial and protect their territories by calls, displays, chases, jump attacks, and even wrestling. Females are attracted to males with territories that provide the most food. How that is determined by the male call is a mystery. Perhaps the loudest, most robust males give the best impression. Take a walk to the Otter Point Beaver Pond on your next visit to hear this charismatic frog of summer.

Now that your curiosity has been "whetted", let's see if you can guess the next Nature Mystery!



County Collaborations to Curb Bay Pollution

By Sasha Land

In the spring edition of Marsh Notes, we introduced bayscaping as one way we can all lessen our impact on waterways. Still a new concept for most people, bayscaping means landscaping in a specific way to create habitat for wildlife, conserve water, promote native plants, and reduce fertilizer and pesticide usage.

We should all learn about the benefits of bayscaping. Why? Because the health of the Chesapeake Bay Watershed literally touches each of us. Indeed, most Maryland residents live *less than one mile* from streams or other bodies of water that directly or indirectly feed into the Chesapeake Bay. It is our collective responsibility to minimize our impact on the Bay. We can achieve this partly through bayscaping.

Plummer House on the Glendening Nature Preserve has seen positive changes over the past several months. More than 40 community volunteers transformed the lawn into beautiful native gardens that will serve as demonstration plots for homeowners. The new gardens create wildlife habitat and help address water issues at the site. Rain barrels now capture rain water from the roof that can be used to water the garden when needed.

The garden's design was a joint effort between the volunteers, landscape design company Willow Oak Group, and Chesapeake Bay National Estuarine Research Reserve (CBNERR) staff. For the actual planting, veteran volunteers such as Ernie Goins led folks through the actual installation. The group—comprised of homeowners, concerned citizens, scouts, and others—completed the planting and in just one hour.

Then it was celebration time! We passed around the golden pitchfork and accepted a lovely framed print of the landscape design from Beth Ebersole, manager of CBNERR.

Participants then chose a family hayride



Top: Bayscape Planners from left, Karen Mullein (with baby Catherine and the golden pitchfork), Bart Merrick, Sasha Land, and Lindsay Hollister. (Photo: Beth Ebersole)

Bottom: In March, the woody plants and grasses were installed by our design participants from the Phase 1 workshop.

led by maintenance man Richard Chaney, a meadow birdwalk with volunteers JoAnna Leachman and Mikey Lutmerding, or a nature hike through the Preserve's varied habitats with naturalist Lindsay Hollister. All in all, a fun and productive day!

Come by the Plummer House to enjoy the beautiful gardens and learn more on how you can begin bayscaping at your own home or in your community. If you are interested in learning more about the Plummer House gardens, we will hold fall bed prep and spring clean prep each year to continue the educational role of the gardens, but in the mean time you can assist with weeding and watering through the summer to keep them looking beautiful. Call Lindsay Hollister at (410) 741-9330 to get involved. Special thanks to Bart Merrick of CBNERR and Karen Mullein



Jug Bay is one of the three components in the Chesapeake Bay National Estuarine Research Reserve, Maryland. The purpose of CB-NERR is to manage protected estuarine areas as natural field laboratories and to develop a coordinated program of research and education as part of a national program administered by National Oceanic and Atmospheric Administration (NOAA).

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Check out the
CBNERR-MD web page at
www.dnr.state.md.us/bay/cbnerr

and Julie Dieguez of Willow Oak for dreaming up and implementing the Plummer House BayScope project.

Our BayScope project also fits into other efforts ongoing in Anne Arundel County. This spring, the Chesapeake Ecology Center coordinated and launched a campaign to reduce polluted runoff:

RainScaping—Beautiful Solutions to Water Pollution. For more information, visit www.rainscaping.org

S U M M E R 2009



DEPARTMENT OF RECREATION AND PARKS

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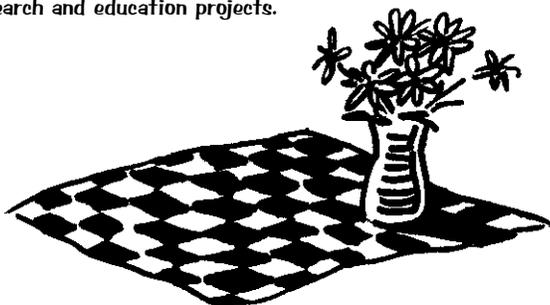
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Plummer Picnic & Intern Presentations

Sunday, August 15; noon - 4:00 pm

Bring your appetite for a good ol' barbeque at the Sanctuary's Plummer House. We will provide plenty of hamburgers, hot dogs and veggie burgers with all the trimmings, plus lemonade and ice tea. Please help make the picnic a gustatory delight! (last name A-G bring a salad, H-O bring an appetizer, P-Z bring a dessert.) Following the picnic, the 2009 Jug Bay Fellows will present the results of their summer science research and education projects.



Donations:

- **Cynthia Bravo** for the National Audubon Society Field Guide to Mushrooms.
- **Karen Caruso** for Eggs by Marilyn Singer, Marvels in the Muck by Doug Wechsler, Salamanders Life Cycle by Robin Nelson, Sparrows by Hans Post and Kees Heij, and two National Geographic's Field Guide to the Trees of North America.
- **Mike Quinlan** for Snakes of the Southeast by Whit Gibbons and Mike Dorcas
- **Bill Lauffer** for a microscope.
- **Lynn & Peter Kenny** for Ladybug Lifecycle Stages figurines.
- **David Laughlin** for a pair of Swift binoculars.
- **Sandy Barnett** for box turtle food.
- **The Lind Family** for box turtle feeding supplies.
- **Peter Givan** of the Wild Bird Center in Rockville for 2 bags of bird seed.
- **Mark Delfs** for two beautiful Kestrel kayaks with paddles and gear covers.

Thank you!