Grand Opening:
The Nature Preserve at Waysons Corner

By Shelby Cross, 2018
Chesapeake Conservation Corps Member, JBWS

On Saturday July 7th, Jug Bay Wetlands Sanctuary unveiled the Nature Preserve at Waysons Corner, featuring a Nature Discovery Place, over one mile of trails, a picnic area, geocaches, and two parking locations. With help from the Capital Gazette, the Baltimore Sun, and awesome weather, the day was a huge success. While park staff don’t have an exact count, we estimate that over one-hundred community members visited the park on the day of the grand opening.

The Nature Discovery Place was funded by a grant through the Chesapeake Conservation Corps (CCC), an annual program funded and organized by the Chesapeake Bay Trust, that gives young environmental professionals a year of paid experiences at a mutually chosen environmental organization. Every Corps member must meet certain CCC program requirements, including the submission and completion of a mini-grant. The mini-grant sponsors a year-long capstone project and has a maximum reward of up to $1,250.00. The Nature Discovery Place received the maximum allowable grant award of $1,250.00, and the project also received an in-kind donation from the Friends of Jug Bay of $1,500.00.

Ground was originally broken on the Nature Discovery Place in the fall of 2017; however, many challenges delayed the project. Untimely findings in documents from the Maryland Department of the Environment from previous years brought the project to a halt in January; soil tests had to be conducted to disprove previous reports of soil contamination. The project resumed after the lab reported good news in March.

Although the Maryland Department of the Environment documents brought delays, they also provided insights into the 30-acre parcel in Waysons Corner, particularly documents reviewing the history of the property. In the early 1900s–1950s, the land was used for agriculture. From 1960 to 1980, three dwellings were located on the property along the northern section that borders Sands Road. The foundation and gardens of the dwellings can still be seen in the northeastern section of the property, as well as an old truck that was used to deliver bread in the mid 1900s. After the demise of the dwellings, the property sat vacant, and a large amount of dumped materials continued to accumulate; however, a pioneer forest also developed during this time. The pioneer forest can be identified by the massive number of Virginia Pines (Pinus virginiana) and also by aging the older deciduous trees on the property. The majority of the deciduous trees appear to be under 100 years old, and the forest is heavy in understory.

Several clean-ups were scheduled to prepare the property for the grand opening. These clean-ups were necessary due to the large amount of trash that had been dumped over the years. Unidentified individuals also continued to dump furniture and other household garbage in the

Trash picked up in April by the Maryland Geocaching Society. This was one of five piles of trash that was picked up and collected during the scheduled three-hour clean-up. Several volunteers stayed after to help further. Photo by Shelby Cross.
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, environmental education, and protection. The Sanctuary is a limited-use park. Groups are requested to make a reservation by calling the office before planning a visit.

Jug Bay Wetlands Sanctuary is a component of the Maryland Chesapeake Bay National Estuarine Research Reserve, which along with 27 other Reserves around the country promotes scientific research, public education, resource management and stewardship in estuaries across the nation.

SANCTUARY STAFF
Patricia Delgado, Superintendent
Liana Vitali, Education Coordinator
Debra Gage, Office Manager
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Diane Benedetti, Naturalist & Outreach Coordinator
Shelby Cross, Chesapeake Conservation Corps Member
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Comments and suggestions are welcome.
Editor: Darcy Herman
Graphic Design: Liz Fisher, EC Fisher Design
contact: liz@ecfisherdesign.com

A school group (accompanied by 2018 FOJB/JBWS intern Alec Jacobsen) volunteered their time and helped spread donated wood chips at the Nature Discovery Place and picnic area. Photo by Shelby Cross.

parking lots of the Nature Preserve throughout the timeline of this project. A clean-up was orchestrated by the Maryland Geocaching Society in April, and other clean-ups were facilitated by Jug Bay volunteer coordinator Melinda Fegler. In addition to removing dumped materials, property fencing and signs were also installed in April, May, and June.

Features of the Nature Discovery Place finally began to be constructed in late April and early May and did not end until the first week of July. The design goal of the playspace was to remain as natural as possible and to utilize repurposed or recycled materials. In theory, areas designated for natural play should direct and encourage children to explore the natural environment; they are important in helping children discover the functionality and importance of nature, but they also aid in the discovery of the profound diversity between all of the varying organisms in the outdoors. A successful playspace should encourage play and learning while also challenging children cognitively and physically; mental and physical growth are equally important, and both should be challenged at young ages.

The features of the Nature Discovery Place include:
1. Streambed with rock donated by Garner Exteriors, 12+ CCC Volunteer hours;
2. Rope bridge, 15+ Volunteer hours;
3. Footbridge built by JBWS staff, Donald Smith;
4. Tires removed from onsite, including a large tractor tire moved by Richard Chaney and Donald Smith, JBWS Staff;
5. Balance beam featuring painted handprints from children who attended the grand opening. This feature was built with the help of Bob Williams, FOJB Member and volunteer, and Nick Scaggs, JBWS Volunteer; 20+ Volunteer hours
6. Bird nest made from grapevine and invasive bittersweet; 40+ CCC Volunteer hours
7. Xylophone made with invasive bamboo, and constructed by Donald Smith, JBWS staff;
8. Climbing tower made from fallen logs. The tower was constructed by Bob Williams, FOJB Member and volunteer; 10+ Volunteer hours
9. Sunken canoe donated by the Chesapeake Bay Foundation; 8 Volunteer hours.
10. Chalkboard for visitors to write, draw and count their sightings, painted by JBWS staff Liana Vitali;
11. Custom wood-burned signs made by a full-time student and aspiring entrepreneur Brooke Wiseman from Burnt Timber Creations, PA.

The grand opening agenda included an introduction by JBWS Superintendent Pati Delgado, a project overview, hand-painting of the balance beam, a guided hike, free-play, Continued on page 5
Dear Friends,

The FOJB is at a tipping point with emerging priorities requiring changes in its approach and actions. Accordingly, I would like to report the major findings of a FOJB Board Retreat held at the JBWS Center on the 30th of July.

The purpose of the Retreat was twofold: to review the present FOJB Board and Committee structure and functions and determine Board and Committee realignments needed to accommodate emerging priorities; and to identify actions to implement the realignment, including Committee assignments and provision of an action plan detailing follow-up measures and responsibilities.

In an opening plenary session, participants identified the following challenges: ensuring better communications between the Board and FOJB members; increasing funding to support JBWS projects and programs; providing advocacy to ensure the integrity of the Sanctuary and acquire more land when opportunities arise; strengthening/diversifying the Board to enable it to be more proactive in taking on additional responsibilities and better addressing emerging issues; strengthening outreach and communications; and updating the FOJB mission statement.

The participants then broke into the following Working Groups: Strategic Planning and Programming, Fundraising, and Membership and Communications to agree on priority challenges facing the Sanctuary and the role of the Friends; consider the feasibility of establishing the Working Groups as constituting FOJB Committees, including assignment of chairpersons and membership; define objectives, actions, and implementation and monitoring arrangements, including responsibilities; and develop an action plan spelling out the priority activities and how these might be sustained. Each group reported their recommendations back to a plenary session:

**Strategic Planning and Programming.** Priorities of the FOJB include providing assistance to the JBWS by helping with hiring more full-time staff; funding research interns; enhancing outreach, especially with the local communities, schools, etc., and publicizing events; and advocating the exceptional value of the JBWS. FOJB should look into partnering with colleges/universities, high schools, and church groups to look for seasonal volunteers.

**Fundraising.** Major challenges include: lack of a designated FOJB person to focus on fundraising, absence of a fundraising budget, and need to acquire FOJB Board members experienced with fundraising. A Fundraising Development Plan is needed to promote the following activities: marketing, promotion, and customer service.

**Membership/Communications.** Strategic challenges include: recruiting more members through outreach and meeting membership needs; enhancing the role of the FOJB Board in acquiring more members and communicating benefits of membership; driving to increase diversity of the Board (expertise, ethnicity, younger members, etc.); developing a Communications Plan; using advancing technology to communicate with members and the general public through the media.

Each group developed an Action Plan outlining objectives, action needed, performance indicators and responsibilities and appointed the following chairpersons: Strategic Planning, TBD; Fundraising, Marilyn Baker; Membership, Darcy Herman; and Communications, Blythe Alexander. An Advocacy plan and chair will be appointed later. Each chair will meet with their Committees to review and report progress in implementing the recommended actions. A follow-up Board meeting will be convened on September 10.

Comments and suggestions will be gratefully received as well as expressions of interest in becoming a FOJB Board member or identifying potential candidates. Progress continues to be made with the Friends assuming the management of the Rigglemann property (Jug Bay Farm), and I shall provide an update in the next Marsh Notes. Clearly, there are many opportunities before us. Do join in making them a reality.

Colin Rees, President, Friends of Jug Bay
Study of Native Bees Along the Patuxent River in the Area of Jug Bay

By Timothy McMahon and by Don Harvey, Department of Entomology, National Museum of Natural History

The land on the east side of the Patuxent River in the area of Jug Bay has been described as being a “micro-desert.” The phrase “micro-desert” is somewhat of a misnomer as clearly the rainfall in this area is well above what would occur in any desert, but the soil drains rapidly. The area was prairie-like for several thousand years, by some estimates starting during the Hypsithermal period 4 to 6 thousand years ago. It is characterized by deep sandy soils and classified as the “Evesboro and Galestown” sandy loams soil series. The unusual soil type has led to the local flora and fauna being very different from surrounding areas. Although the flora is relatively well known, our knowledge of the bees lags far behind. Records from the U.S. Geological Survey’s Native Bee Inventory and Monitoring Lab, maintained by Sam Droege, indicate that of the currently known 440 species of bees found in Maryland, over 240 species of bees have been found.

Our study, in collaboration with the Smithsonian Institution, and approved by Jug Bay Wetlands Sanctuary, is to survey the native bees in this unique area. We collect bees using passive trapping methods (“bee bowls”) and active netting. We also record, photograph, and identify all flowers on which we collect bees. We have been out most weeks since early spring and have already found some rare and unusual species. The most fascinating find so far is a large aggregation of nests of a very small bee in the sand barrens in Glendening Nature Preserve. This bee, *Perdita bradleyi*, has been found only once before in Maryland, in sand dunes on Maryland’s Eastern Shore. It occurs from Connecticut to the deep south of the eastern U.S. The thousands of nests we found seem to be the largest nesting aggregation known. No one has clearly established the plant(s) from which these tiny bees collect pollen (most *Perdita* species are pollen specialists), but the best guesses from other researchers are that it may be either *Rubus* (raspberry) or *Ilex* (holly). We hope to identify their pollen source next spring.

Most female bees collect pollen to feed to their young. The mother bee will form a pollen ball, lay her egg on it, and then close up the cell (normally underground) and start on her next cell. Many bees collect pollen from a variety of plants, but about 30% of bee species are pollen specialists—females collect pollen from one or only a few closely related species of plants. Some of these specialize on spring ephemerals (plants that bloom in the understory before trees have fully leafed out), while others use plants later in the year.

There are specialist bees that “should” be here that we have not seen yet. Next spring, we will be looking for populations of *Uvularia*, *Claytonia*, *Viola*, and *Geranium* and later *Salix*, *Lyonia*, *Vaccinium*, *Agalnisc*, *Passiflora lutea*, *Lysimachia*, and *Physalis* to document if their specialist bees are present. We would appreciate knowing exact locations of populations of these plants in Jug Bay and Glendening Nature Preserve—with so much ground to cover, those with more botanical knowledge of the area could be a great help in our search for the more rare bees.

Some bee species, the cleptoparasites, have forgone collecting pollen. Instead, their females sneak into the nest of another bee and lay an egg on the other bee’s pollen ball. After the larva hatches, it kills the host bee larva and consumes its food. About 15% of all bee species are cleptoparasites, but in overall numbers they are very uncommon. We found hundreds of the tiny, rare cleptoparasite *Sphecodes brachycephalus* flying over the nesting area of its host, *Perdita bradleyi*. This bee, our rarest find so far, is a new record for Maryland. We expect our survey will turn up more surprises in the future.

*Perdita bradleyi*, one of the bees caught in the sand barrens habitat at Jug Bay, with pollen loads on her hind legs. Photo by Sam Droege (USGS BIML).
Results of FOJB Spring 2018 Member Survey

By Darcy Herman, Vice President and Membership Chair, Friends of Jug Bay

Last spring, the Friends of Jug Bay piloted an online survey to help us learn more about our members’ interests and values and their level of satisfaction with our work. We sent a link to the survey in an email and received 83 responses, a response rate of 20%. Here are some key results.

Reasons for FOJB Membership

We asked several questions about members’ reasons for joining FOJB, the other groups they are a part of, the types of activities they participate in most frequently, and what kind of activities they’d like to see more of. The top reasons respondents gave for their FOJB membership were to enjoy the outdoors (93%), to learn more about the natural world (63%), to participate in stewardship activities (31%), and for friendship and socialization (28%). Members described themselves most often as outdoor enthusiasts (87%), members of one or more local (48%) or national (43%) nature/environmental organizations, and as academic/government professionals (40%). The most popular FOJB-sponsored activities for members were Soup & Science (47%), the Native Plant Sale (33%), and guided hikes (33%). We asked an open-ended question about the types of activities members would like to see more of at Jug Bay, and the top three “themes” were speaker series, guided hikes, and workshops on various natural history subjects.

FOJB’s Performance and Future

The final section of the survey asked members to rate FOJB’s work in several categories and express the most important priorities for the Friends’ work at Jug Bay in the future. Many members rated FOJB’s performance as “excellent” (scale with choices of “excellent,” “good,” “fair,” “inadequate,” “poor,” and “not sure”) in promoting stewardship of Jug Bay, protecting species and their natural habitats, and promoting/supporting scientific research. Many also chose “not sure” about the Friends’ efforts to address climate change, increase membership, or use funds appropriately.

Members indicated that the top three most important elements in their relationship to Jug Bay were conserving species and habitats (65%), maintaining/promoting the mission of a wildlife sanctuary (62%), and promoting scientific research (41%). In order for FOJB to remain relevant over the next three years, members indicated that we should focus on supporting environmental education at Jug Bay (59%), advocating for species and habitat conservation (52%), supporting scientific research onsite at Jug Bay (49%), and conserving and protecting open space in Anne Arundel County (46%).

Next up on the docket for the FOJB board: ensuring that we are supporting and funding the kinds of programs, activities, and priorities our membership values most, and addressing the gaps and shortcomings our members identified. Didn’t receive the survey but still want to take a look? We’ve closed the online form for now, but please feel free to email me at dherman@friendsofjugbay.org to receive a PDF of the questions, ensure that your email address is added to future survey lists, or to let me know your thoughts on these or other issues. We plan to develop a follow-up survey to delve deeper into what we learned from our members this spring and better serve you and the Sanctuary’s mission.
Even for the most avid lovers of all creatures great and small, the mere mention of ticks can trigger an involuntary chill up your spine. Unfortunately for anyone who has spent time outdoors this year, it is more likely that the creepy crawling feeling was an actual tick crawling up your spine.

Increases in tick populations are on the rise, and consequently so is the spread of tickborne diseases. According to the Centers for Disease Control and Prevention (CDC), the number of reported tickborne diseases more than doubled from 2004 to 2016. During the same period of time, seven new germs were discovered in the U.S. that can be spread to humans via tick bites.

Jug Bay is certainly no exception to the spread of ticks and the diseases they carry. If you plan on visiting the Sanctuary, or spend any time outdoors, we strongly encourage you to take the following steps recommended by the CDC to help reduce tick exposure:

Before you go outside,
• Know where to expect ticks (grassy, brushy, or wooded areas) and avoid those areas;
• Treat clothing and gear with a product like permethrin; and
• Use insect repellents.

When you come inside,
• Check clothing, gear, and pets for ticks;
• Shower within two hours of being outdoors; and
• Check your body for ticks, particularly your head, in and around ears, under arms, inside your belly button, between your legs, and the back of your knees.

Also bear in mind that while ticks are most active during warm months, tick exposure can occur any time of the year. For more information about tick borne diseases and how to protect yourself, visit the CDC’s website at www.cdc.gov/lyme.

Jug Bay Staff Are Now Project Wild Facilitator Certified!

Look out teachers, parents, and aspiring environmental educators. Jug Bay has not one but two staff members who have become certified as Project WILD facilitators. Project WILD is an environmental education program that emphasizes the learning and conservation of wildlife through interdisciplinary lessons and activities. As Project WILD facilitator, Jug Bay Wetlands Sanctuary staff can begin hosting workshops that lead educators of all kinds through the dozens of award-winning lessons and activities designed to engage K-12 learners in the natural world. Each hands-on workshop will engage participants in several activities selected from the Project WILD collection from start to finish. Workshops will be organized by theme (i.e., adaptation, grade level, local species) and will highlight how each activity is correlated to state and national learning standards including Next Generation Science and Common Core Standards to name a few. Every participant who successfully completes a workshop will receive his or her own copy of the latest Project WILD K-12 Curriculum & Activity Guide book—a prized possession of any environmental educator.

Jug Bay staff plan to begin hosting workshops in Spring of 2019. Workshops will be advertised in the Anne Arundel County Recreation & Parks Program Guide and in the Jug Bay e-newsletter. For more information, please email Naturalist & Education Coordinator Liana Vitali at rpvita23@aacounty.org or call the Sanctuary at 410-741-9330.
Photo of focus
While the dog days of summer may be behind us, a trip down recent memory lane can help to bring back those feelings of warm and wonderful summer days spent outdoors. This photo taken during the stream walk portion of the Where the WILD Things Are summer camp captures a moment of literal immersion in nature! All it took was for a camper to choose a simple brave act of lying down in the cool Two Run stream waters and many of the remaining campers followed suit, each letting the creek waters wash over them. Smiling faces inevitably followed and were luckily caught on camera. Photo by Diane Benedetti.
Hmm...something’s different around here... Looking for Jug Bay Public Programs? In order to ensure that you have access to the most timely program information (including new program additions, cancellations, or other unforeseen changes)—and to increase the space we have available for communicating more Sanctuary news and accomplishments—we’ve decided to make the online Sanctuary Calendars (Public Programs and Volunteer Opportunities) the place to go to find out how you can get involved with Jug Bay. Visit www.jugbay.org and find links to these calendars on the home page.

JBWS Open Hours:
Sanctuary Wetlands Center: Wednesdays, Fridays, Saturdays, and (Mar-Nov) Sundays 9:00 am - 5:00 pm
Glendening Nature Preserve: Wrighton Road entrance daily, gate open 9:00 am - 5:00 pm; Plummer House entrance Monday to Saturday, gate open 9:00 am - 5:00 pm (trails, Butterfly Garden, dogs on leash)
Patuxent Wetland Park: daily, dawn to dusk (fishing, hand-carried boat launch)
Wootons Landing Wetland Park: daily, dawn to dusk (fishing, loop trail, hand-carried boat launch)
Sanctuary Wetlands Center admission fee: $6/vehicle
Free for current Friends of Jug Bay members, active volunteers, and active military and their immediate families.
There are no fees to visit our other sites.
Visit www.jugbay.org for directions, information and updates to our schedule.
Registration is required for all programs. Please call 410-741-9330 or e-mail programs@jugbay.org to register, or, in the case of ActiveNet programs, register online at https://apm.activecommunities.com/aarecparks. All programs meet at the Wetlands Center at 1361 Wrighton Road unless otherwise noted. An adult must accompany children under 13.

Visit www.jugbay.org and follow links to public programs offered at JBWS.

Mural Showcases Sanctuary’s Natural Treasures and Artist’s Gifts

Erin Engstrom, Jug Bay volunteer extraordinaire, recently painted a beautiful mural on the wall of the women’s restroom at the Wetlands Center, depicting some of the iconic species of the Sanctuary. We invited her to tell her story in this issue.

By Erin Engstrom
While studying zoology at Humboldt State University, I took a beginning paint class. Toward the end of that semester I came upon a display from the scientific illustration class of beautiful jewel-colored beetles, and my interest was piqued. After graduating, I finished a Scientific Illustration program at University of Washington and have since been creating art to communicate scientific information. I came to Jug Bay to get out in nature during my kids’ school day and felt immediately connected to the property and staff. I was able to find a variety of volunteer opportunities at Jug Bay that fit my interests and schedule.

The art mural was a collaborative idea between myself and the Jug Bay staff. The mural is designed to look like the page of a journal offering information on plant and animal species found at the Sanctuary. It is also meant encourage individuals to use curiosity, make observations, and record findings in fun ways.

I’m happiest when immersed in activities, and that was easy to do at Jug Bay. I spent my time at JBWS identifying butterflies, caring for goats, leading school groups, enjoying lunchtime banter with the staff, and going on unique ventures like trying to catch snakehead in the beaver pond from a paddle board. JBWS has a simple magic that I did my best to soak in with every visit, and the mural is a way for me to share that magic with others.

Women’s restroom mural painted by Erin Engstrom. Photo by Debra Gage.

Detail of mural depicting Marbled Salamander (Ambystoma opacum) life stages. Photo by Debra Gage.
Liana Vitali to Receive 2018 Jan Hollmann Environmental Education Award

Liana Vitali, Jug Bay Wetlands Sanctuary’s Education Coordinator and Naturalist, has been chosen to receive the 2018 Jan Hollmann Environmental Education Award. The Award, managed by a volunteer committee and administered by the Scenic Rivers Land Trust (SRLT), was established in 1994 to recognize an individual or organization that has been especially effective in achieving environmental education in Anne Arundel County.

According to the SRLT website, Liana was nominated by Tanya Marushak of Arlington Echo Outdoor Education Center, who describes Liana as a tireless educator who works to maximize the number of students reached through a variety of educational programs with schools in Prince George’s and Anne Arundel Counties. Liana has helped schools with financial challenges apply for scholarship opportunities sponsored by the Friends of Jug Bay, developed summer camp and internship opportunities for students that allow for a more in-depth exposure to local environmental issues, and provided workshops for teachers and volunteers.

The Anne Arundel County Department of Recreation and Parks, Jug Bay Wetlands Sanctuary, and the Friends of Jug Bay join the celebration of Liana’s recognition for her accomplishments in outdoor environmental education. Our community is very proud of her and will continue to support the great work she does. It is thanks to dedicated people like Liana that we can provide an opportunity for our children to connect with nature!

I am beyond thankful for the experience I gained from working with the staff at Jug Bay Wetlands Sanctuary and hold many of the relationships I built while there close to my career and heart. I owe each and every one of the staff members and volunteers a huge thank-you for their time and patience while mentoring me over the last year. With the help of the staff at Jug Bay, I am continuing my career on the river where I was raised, and am very grateful for the opportunities Jug Bay Wetlands Sanctuary provided me.

Ode To Jug Bay

By Shelby Cross, 2018 Chesapeake Conservation Corps Member, JBWS

Over the last year, I have met a countless number of individuals who have smiled in response to anything I have said related to Jug Bay. If I had a dollar for every individual who followed that smile with a statement similar to “Jug Bay has a special place in my heart,” I probably could have doubled my salary last year. All of those individuals were right, and Jug Bay and the Chesapeake Conservation Corps (CCC) program taught me many lessons that will continue to follow me throughout my career.

The biggest perk of the CCC program is its smooth immersion of a new professional into an already performing work environment. It allows timid, young, and inexperienced college graduates to gain confidence, professional skills, and experience in the environmental field. Through professional development training, I learned how to network with other professionals in my field, including those who I work with on a daily basis. It also taught me that the professionals in my field are some of the most caring, hard-working, innovative, and intelligent individuals I will likely ever have the pleasure of working with.
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).

**STAFF**

Jennifer Raulin, Reserve Manager  
410-260-8745  
jenennifer.raulin@maryland.gov  

Sasha Land,  
Coastal Training Program Coordinator  
410-260-8718  
sasha.land@maryland.gov  

Kyle Derby, Research Coordinator  
410-260-8724  
kyle.derby@maryland.gov  

Chris Snow, Stewardship Coordinator  
410-260-8731  
chris.snow@maryland.gov  

Coreen Weilminster,  
Education Coordinator  
410-260-8744  
coreen.weilminster@maryland.gov  

Trystan Sill, Education Assistant  
410-260-8827  
trystan.sill@maryland.gov  

Becky Swerida,  
Research and Stewardship Assistant  
410-260-8762  
rebecca.swerida@maryland.gov  

Website: http://dnr2.maryland.gov/waters/cbnerr

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**On the Front Lines of Climate Change: Sentinel Sites and CBNERR-MD**

By R. Kyle Derby, *CBNERR Research Coordinator*

Situated all around the coasts of the United States, National Estuarine Research Reserves (NERRs) are located in the best position to witness and measure the ways climate change impacts our coastal resources. To this end, the federal parent organization of the NERRs, the National Oceanic and Atmospheric Administration (NOAA), identified “Sentinel Sites” within the nation that represented diverse environments, each having strong connections to the coastal areas and estuaries that defined them. Five sites across the country were ultimately chosen, the Hawaiian Islands, San Francisco Bay, the Northern Gulf of Mexico, the North Carolina Coast, and our own Chesapeake Bay. Each of these sentinel sites have formed a cooperative network of expertise that understands the needs of each region. The Chesapeake Bay National Estuarine Research Reserve of Maryland, as well as its companion reserve in Virginia, are active members of the Chesapeake Bay Sentinel Site Cooperative (CBSSC), which is coordinated by the Maryland Sea Grant. This cooperative also includes several members from local universities and federal agencies in the Chesapeake region.

The goals of the CBSSC [https://oceanservice.noaa.gov/sentinelsites/chesapeake-bay/](https://oceanservice.noaa.gov/sentinelsites/chesapeake-bay/) are to use collected data to inform management decisions. Products currently in development include an inventory and map of all elevation study sites in the Chesapeake Bay to show the long-term trends of the data collected there, as well as a mapping project, led by the US Geological Survey, that will help identify wetland areas that are priorities for study or even restoration. The CBSSC also plans to

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A diagram of how rising sea level’s impact on marsh elevation is measured. A stable reference point with a known elevation (called a benchmark) allows elevations to be transferred to the changing water levels and wetland surfaces to monitor long-term changes. Establishing known elevation networks within a reserve is crucial to monitoring changes in wetland systems. Image credit: NOAA/NGS.
host a marsh summit in 2019, which will bring together scientists, local governments and other stakeholders in discussions on how to best protect marsh resources in the Chesapeake.

In addition to the Sentinel Site Cooperatives, NERRs also uses its sentinel sites to answer specific scientific and management questions. Reserves are using current sentinel sites to monitor how climate change, specifically rising sea levels, impact coastal habitat. In order for a NERR to become a sentinel site, it must develop a plan describing how it plans to utilize its current and future research infrastructure to answer how rising sea levels impact marsh habitat. Currently, the Jug Bay component of CBNERR participates as a sentinel site, and we are currently planning to achieve this status for the Monie Bay component of the reserve by the end of this year. Once completed, Monie Bay, as is already happening at Jug Bay, will be able to better see how its wetland habitats change as sea level rises.

Both of these Sentinel Site efforts further the Reserve’s ability to measure how rising waters impact the marshes, waterways, and upland areas of the Chesapeake Bay. Our increased understanding of these processes is critical in determining how we will be able to adapt to them in the future. Both the partnerships created through the CBSSC and the answers to the questions posed through the reserve system will ensure that the research being done at all of CBNERR will keep us on the front lines of our ever-changing estuary.

A newly installed concrete benchmark at the Monie Bay Component of CBNERR-MD. To install the benchmark, reserve staff excavated a 4.5-foot deep hole, which was then filled with concrete and capped with a bronze survey marker, inscribed with reserve information. This mark, in addition to the others installed in the reserve, will be surveyed using GPS units to determine its elevation. After surveying, this mark will be used to determine sea-level rise within the Monie Bay component of the reserve. You can find benchmarks near you online at: https://www.ngs.noaa.gov/NGSDataExplorer/. Photo by Chris Snow, CBNERR-MD.
DEPARTMENT OF RECREATION AND PARKS

Jug Bay Wetlands Sanctuary
1361 Wrighton Road
Lothian, MD 20711
410-741-9330

FALL 2018

For more information and to register, visit www.paxcon.org

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CLIMATE CHANGE & THE PATUXENT RIVER: LOCAL IMPLICATIONS OF GLOBAL ISSUES

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