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# Citizen Science “eSummit” Means Updates and Results Are Available to All

By Sam Elliott, Former Jug Bay Wetlands Sanctuary Maryland Climate Corps Member



It's no secret that volunteers are an integral part of Jug Bay. During my time as a Climate Corps member, I had the pleasure of working with many volunteers and seeing this for myself. Since the Sanctuary's founding in 1985, citizen scientists have taken samples, tracked migrations, and helped monitor all aspects of the ecosystem. Certain projects have been running continuously for nearly 30 years with meticulous research and true dedication.

I will never forget going through the earliest records of the Eastern Box Turtle Telemetry project and looking at all the individual turtles that have been reencountered. It takes real commitment to Xerox a turtle! From pulling up trash and invasive species with the Field Work Friday team to unhooking tiny channel catfish from nets with the Fish Biodiversity Survey, it was incredible to see so many people with a passion for protecting and understanding our land and waters. In addition to volunteer appreciation events, we wanted a way to recognize our community and their accomplishments. To celebrate the 2025 achievements of our diverse array of volunteer research efforts, we launched our first Citizen Science eSummit.

## Celebrating Citizen Science at Jug Bay

With so many things happening across the Sanctuary's 1,700 acres, it can be hard to keep track of every survey and project. For me, the sheer number of people who come to Jug Bay to research, recharge in nature, and connect with others at programs was overwhelming to learn about. Many volunteers interact with multiple projects, yet can be surprised to learn about a group researching something in the same corner of the Sanctuary. This is why Liana Vitali, the Citizen Science

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Jug Bay Wetlands Sanctuary (JBWS) is owned and operated by Anne Arundel County Department of Recreation and Parks, with support from the Friends of Jug Bay. Established in 1985, our mission is to increase awareness, understanding, and appreciation of estuarine and other natural ecosystems and their conservation through outdoor education, research, stewardship, and volunteering.

#### SANCTUARY STAFF

Patricia Delgado, *Superintendent*  
 Joseph Carl Brown III, *Maintenance*  
 Debra Gage, *Volunteer and Program Coordinator*  
 Gregory Imhoff, *Seasonal Park Ranger*  
 Dave Linthicum, *Naturalist*  
 Vicki Petersen, *Office Manager*  
 David Rose, *Maintenance*  
 Elizabeth Sieglinger, *Education Coordinator*  
 Liana Vitali, *Citizen Science and Stewardship Coordinator*

#### FRIENDS OF JUG BAY BOARD OF DIRECTORS

Allison Burnett, *President*  
 Crystal Blake, *Treasurer*  
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 Gwen Brewer  
 Elaine Friebele  
 Colin Rees  
 Al Tucker

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# Welcome Kara Bourland!

**K**ara is Jug Bay’s new management assistant. She will oversee the new Jug Bay Education, Research and Discovery (JBERD) Field Station cabins and campground at Emory Waters. Kara earned a bachelor’s degree from Central Michigan University in Recreation, Parks, and Leisure Services. Originally from Michigan, Kara has lived and worked in Nevada, Maryland, Utah, and Wyoming with the National Park Service and Bureau of Land Management. With a love of nature and working in parks, Kara is excited to join the Jug Bay team and get the JBERD Field Station at Emory Waters up and running. 🌲



KARABOURLAND

# Introducing Allison Anderson!

**A**llison Anderson joins Friends of Jug Bay as Director of Operations, bringing more than 25 years of experience in Maryland’s environmental nonprofit sector. With a career that includes leadership roles at the Howard County Conservancy and Chesapeake Conservancy, Allison has deep expertise in grant management and site-based operations. A Maryland Master Naturalist, she was drawn to Jug Bay’s mission and to its unique focus on scientific research, which sets it apart as a leader in conservation. Allison is excited to apply her background to help guide Friends of Jug Bay as they begin their next 40 years. Outside of work, she stays connected to the natural world through hiking, strolling through gardens, and doing yoga. She particularly enjoys encouraging others to experience the outdoors and often invites friends to join her for an outdoor adventure! 🌲



ALLISON ANDERSON

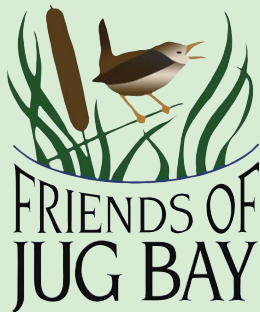


# LETTER FROM THE PRESIDENT

Fellow members,

**Happy anniversary of Friends of Jug Bay Wetlands Sanctuary—we're celebrating 40 years!**

This will be my last President's Letter, as my two-year term as president ended at the FOJB's annual meeting on May 17. I also stepped down from the Board due to my need to attend to other commitments. I want to thank all of my fellow Board members present and past for their help and inspiration on my journey on the Board. These are people who believe wholeheartedly in the FOJB mission and who continue to do the best they can.



I also want to thank Pati Delgado for all the support she has given me as well as her staff. Both Debra Gage and Vicki Petersen were most helpful in helping me with what needed to be done for several annual events. I have learned a lot about Jug Bay and nonprofit organizations.

FOJB sponsored a very successful Brewgrass festival on May 9 (see photos on page 8). One week later, FOJB held its annual meeting.

Our keynote speaker was Josh Kurtz, Secretary of Maryland's Department of Natural Resources (DNR). He has done a wonderful job in furthering Maryland's environmental habitat. A handful of new state parks were recently opened. Another success is DNR's plan to connect wild and green spaces throughout the state. I invite you to look at DNR's website ([dnr.maryland.gov](http://dnr.maryland.gov)) to see all that is happening. Secretary Kurtz also noted the importance of non-governmental environmental groups in achieving DNR's goals, including land conservation. He noted that while that public funding was sufficient, budgets are tighter for purchasing land for conservation, and a program such as Open Space is a likely target of budget-cutting-minded people. Regarding advocacy, Secretary Kurtz had an interesting story about how some people are considered "trusted messengers" and can sway other people, but they may not actually have the facts. So it is important for people to speak up and challenge "trusted messengers" who do not really know the situation.

Also at the annual meeting, Pati Delgado gave a wonderful overview of JBWS happenings over the last year. The cabins for the Jug Bay Education, Research, and Discovery Field Station (JBERD) are almost ready. The ribbon cutting was Monday, May 18. In addition to serving the communities of Anne Arundel County, Pati hopes that local universities that lack outdoor research areas will come to JBERD. FOJB Treasurer Crystal Blake gave a presentation of FOJB's finances. Members of the audience asked questions about FOJB membership levels and legacy giving. Yes, FOJB has a permanent endowment with the Community Foundation of Anne Arundel County (CFACC) that can accept a wide range of investments and assets as gifts and legacy endowments. Yes, FOJB has had some gifts for the endowment but we would like to see more.

Finally, I presented an overview of 40 years of FOJB achievements and advocacy. This includes FOJB actively preventing development in and around JBWS: a sand mining operation; houses along the Patuxent River in Prince George's County in protected areas; a horse riding rink and equestrian center on Glendening; a shopping mall on Route 4 across from Glendening; a private school and residential development; and the Renaissance Festival from locating near JBWS. Advocacy is just part of FOJB's mission.

As JBWS has grown, so has the need for FOJB to become a more professional organization. FOJB recently hired Allison Anderson as a part-time contractor to perform project management of grants and help with Board governance issues. She brings extensive experience from her career with other nonprofits. She is doing a wonderful job!

John Norris, a former president, stepped down from the Board at the Annual Meeting. Thank you John for coaching me in the culture of FOJB. Our new FOJB president is Allison "Allie" Burnett. The other Board members are Crystal Blake, Gwen Brewer, Elaine Friebele, Jonathan Pettit, Colin Rees, and Al Tucker.

For the immediate future, the Board needs new members to fill spots that are vacant and to expand our capabilities.

**I am urging you to help FOJB!** You can serve on the Board, help us in executing our events such as Soup & Science, or support our advocacy. Let us know what is going on. You can always talk to us!

I wish you the best JBWS and FOJB!

**Immediate Past President, Friends of Jug Bay**  
[dennisfravel@friendsofjugbay.org](mailto:dennisfravel@friendsofjugbay.org)

Hello, everyone! My first day as FOJB president was the day of the ribbon cutting for the JBERD Field Station cabins and campground, including giving a speech. Straight into the fire! I can't wait to meet more of our members and have the opportunity to work with you all to bring FOJB and JBWS additional critical resources. More details to come!

**Allie Burnett**  
**President, Friends of Jug Bay**

## VOLUNTEER AT JUG BAY

Discover opportunities at [jugbay.org/volunteer](http://jugbay.org/volunteer). For more information, contact Volunteer & Program Coordinator Debra Gage at [rpgage00@aacounty.org](mailto:rpgage00@aacounty.org) or call 410-222-8006.

## DONATIONS

If you are interested in making a donation, please contact Debra Gage.

For Jug Bay Wetlands Sanctuary's hours of operation and event calendar, visit [www.jugbay.org](http://www.jugbay.org).

## UPCOMING PROGRAMS

**SATURDAY, AUGUST 1, 2026**

### Mysteries of the Marsh, Wootons Landing Kayak

**9 a.m.–1 p.m.; Jug Bay's Wootons Landing,  
4550 Sands Road, Harwood, MD 20776**

Enjoy kayaking on a narrow, tree-lined section of the Patuxent River. The paddle will start and end at Jug Bay's Wootons Landing Wetland



JUG BAY WETLANDS SANCTUARY

Park. This park is mile marker 49 on the Patuxent Water Trail, which means it is about 49 miles from the mouth of the Chesapeake Bay. There are no water or toilet facilities available on site.

The Patuxent River is a relatively slow-moving river, but paddlers must be able to propel the canoe or kayak through the water. Participants must be able to:

- Independently participate in all activities while maintaining an appropriate and safe body position,
- Manage all personal care and personal mobility independently, and
- Effectively communicate with leaders and other participants.

**For your safety you are required to have plenty of water (at least 32 oz per person), sunscreen, sun hat, sunglasses, and closed-toe shoes that can get wet and muddy. Bring lunch and/or snacks. Prompt program start time, so please arrive by 8:45 a.m. Ages 13 and older. Fee: \$25. No refunds after July 25. Proceeds benefit the Friends of Jug Bay. Registration is required and is limited to 10 participants. To register, go to [www.jugbay.org](http://www.jugbay.org) Event Calendar and click on the event. Call 410-222-8006 or email [rpgage00@aaacounty.org](mailto:rpgage00@aaacounty.org) with questions.**

**SATURDAY, AUGUST 8, 2026**

### Archaeology of the Patuxent River: Canoeing through History

**9 a.m.–1 p.m.; Jug Bay Wetlands Sanctuary,  
1361 Wrighton Rd, Lothian, MD 20711**

Explore the archaeological and cultural history along the Patuxent River with Anne Arundel County's Cultural Resources Archaeologist Drew Webster. Drew will share



SAKI SAKI

how archaeological sites inform us about past ways of life from early occupations more than 10,000 years ago to historic times.

**Registration is required and is limited to 14 participants. \$20 per person. Ages 13 and older; under 18 with a parent/guardian. For more information and to register go to <https://apm.activecommunities.com/aarecparks/Home> and search for Activity #44470. With questions, call 410-222-8006 or email [jugbay@aaacounty.org](mailto:jugbay@aaacounty.org).**

## Citizen Science "eSummit" Means Updates and Results Are Available to All (Continued from page 1)

and Stewardship Coordinator, and other staff members organized a way to bring everyone together.

On November 18, 2023, volunteers and staff hosted Jug Bay's first Citizen Science Summit. More than 50 people gathered in the Visitor's Center to listen to a keynote address from iNaturalist's Carrie Seltzer and learn about 14 different projects from around the Sanctuary. The following year, a summit was held on November 23, 2024, to specifically highlight herpetological research projects. The 2024 Citizen Science Summit featured an address by long-time Jug Bay collaborator Kerry Wixted. Project leaders presented findings from the Eastern Box Turtle Habitat and Population Study, Eastern Box Turtle Telemetry, Vernal Pool Monitoring, and Salamander Road Crossing Surveys. An online repository was created for these presentations and summary briefs for each year.



In holding the first two Summits, we learned a lot. Since then, we have adjusted the format to allow for teams to conduct more research between each major presentation and to foster deeper conversation. Starting with 2025, every year will have a virtual "eSummit" available on the Jug Bay website featuring that year's research, photos, and other project news. In addition, every project creates a summary report of their research for the previous year to ensure that important findings are shared and methods are kept consistent. Every five years, the Summit will convene in person for in-depth presentations on trends and to brainstorm new questions to pose to the Sanctuary.

## Taking the Summit Online

You may not know it, but data science has entered pop culture. For those of us who are music lovers, we wait each year for our Spotify Wrapped or Apple Music Replay to remind us what we listened to over the last 12 months. These fun summaries are statistics in disguise, and we enjoy their eye-catching design and ease of use. This idea is not exclusive to music streaming platforms. To better engage people in academic papers, some publishers like Nature and Elsevier have begun strongly encouraging featured articles in their journals to include graphical abstracts. A graphical abstract, also often called "one-pagers," are similar to infographics. Their purpose is to distill a complex paper, article, or opinion piece down into one easily digestible image. So I thought: How could we bring this concept to Jug Bay?



Attendees of the past, in-person summits highlighted the importance of connecting narratives and data to better understand the goals and objectives of each research project. Collaboration and intersection are at the core of our summits. We combined the fun and flexibility of an engaging virtual recap while keeping collaboration at the center. Thus, the eSummit was born!

By publishing “dashboards” that create interesting summaries of each project and housing them on the Jug Bay website, all the stories and findings from across the Sanctuary come together. The eSummit, published for the first time in January 2026 on the Jug Bay website, combines volunteer-written, year-end summaries with visual dashboards that present key at-a-glance results and data.

**At the end of 2025, the project had safely moved more than 500 amphibians from roads in the fall and spring migrations combined.**

My aim with this format is to communicate the achievements and complexities of each citizen science project in a bite-sized way to increase awareness among our research efforts and our amazing volunteers. By publishing yearly eSummits, data and successes of individual projects are shared more broadly with volunteers and the public, while still allowing for a deeper exploration of research through the in-person presentations.

**Highlights from 2025**

2025 was a year of firsts for our projects, and the stories mentioned here are just the beginning. The dashboards and reports from the 2025 virtual eSummit are published and available for download, along with presentations and reports from previous years. For more information about the eSummit and achievements from this year, please visit [jugbay.org/jbwscitscisummit/](http://jugbay.org/jbwscitscisummit/).

The American Kestrel Nesting Project began monitoring kestrels at Emory Waters Nature Preserve this year. After some success spotting kestrels, further monitoring will continue in 2026 with the potential for installing another box elsewhere.

The Monitoring Avian Productivity and Survivorship (MAPS) Songbird Population Study banded their first pileated woodpecker. Volunteers have captured this species in the past, but pileated woodpeckers have significantly larger legs than most songbirds MAPS encounters. With the proper band size, these striking birds have joined the ranks of the thousands of birds banded by MAPS at Jug Bay.

During rainy evenings in the spring and fall, the Salamander Migration and Road Crossing Monitoring Project ushered amphibians across roads around the Sanctuary. Volunteers carefully escorted their first red salamander in project history during this year’s migration. At the end of 2025, the project had safely moved more than 500 amphibians from roads in the fall and spring migrations combined.

Moving from the ground to the tree tops, volunteers braved nighttime at Jug Bay. The Acoustic Bat Survey recorded calls once a month between June and September, most often encountering evening bats and big brown bats. In another exciting discovery, two

calls were picked up for the federally endangered northern long-eared bat.

In addition to critter counting and salamander saving, there have been some updates in water quality monitoring at Jug Bay. The data collected for the Long-term Stream Water Quality Monitoring Project has leveled up! Beginning in 2024, the volunteer team behind the project began making changes to their methods and equipment calibration techniques in order to collect “Tier 2” rated data. This allows the project’s data to be uploaded into the Chesapeake Monitoring Cooperative website alongside other Chesapeake Bay watershed data sites. At the Tier 2 level, the data will contribute to annual state and Environmental Protection Agency reports, and will be used by other local water monitoring groups to assess the health of our waterways.

From birds to water quality and salamanders to acoustic telemetry, we are deeply grateful for the hard work of our citizen scientists. The understanding and breadth of knowledge we have about the species and habitats that encompass Jug Bay Wetlands Sanctuary would not be possible without our enthusiastic and dedicated community. We are always looking for more volunteers to help. If you think this could be you, visit [www.jugbay.org/research/](http://www.jugbay.org/research/) to learn more about our programs and get involved.

I know I will carry many of my adventures and skills gained at Jug Bay with me as I continue in my career. The deeper understanding and appreciation I have for our parks systems and for the art of environmental interpretation will be integral to communicating and informing the research I do in the future. Much like the way marsh grasses fix sediment in place, my experiences at the Sanctuary have reinforced my love for the environment and my passion to protect it. It was an honor to work with all the volunteers and staff behind the research, stewardship, and conservation at the Sanctuary and beyond. Ever flowing like the Patuxent, I cannot express my appreciation enough. Thank you, Jug Bay community! 🌊

*Sam is currently a seasonal natural resources technician with Maryland Department of Natural Resources’ Fishing and Boating Services.*



**Get Involved**  
**Ways We Can Save the Bay**

Everyone affects the Bay. Whether through volunteering or everyday choices, you can make a difference. Volunteers play a vital role in keeping the Reserve’s programs and projects thriving. Click the link below to explore how you can help!

[dnr.maryland.gov/waters/cbnerr/Pages/volunteer.aspx](http://dnr.maryland.gov/waters/cbnerr/Pages/volunteer.aspx)

# JBERD Has Landed!

By Patricia Delgado, Park Superintendent

**A**fter several years of being only an idea, the Jug Bay Education, Research, and Discovery (JBERD) Field Station is finally a reality!

The Anne Arundel County Department of Recreation and Parks and Jug Bay Wetlands Sanctuary, along with the Friends of Jug Bay and our partners from the Maryland Chesapeake Bay National Estuarine Research Reserve (CBNERR-MD), are excited to announce the completion—and soon the opening—of JBERD. Located at the Jug Bay Emory Waters Nature Preserve, the project officially started in 2021 with developing a master plan, securing architectural designs, and getting permits. Construction started in winter 2025. With financial support from Anne Arundel County and a NOAA (National Oceanic and Atmospheric Administration) Procurement, Acquisition, and Construction grant award (through the National Estuarine Research Reserve Program), the project became a reality.

On May 18, 2026, County Executive Steuart Pittman, Director of the County's Department of Recreation and Parks Jessica Leys, Maryland State Delegate Heather Bagnall, and representatives from the Friends of Jug Bay, CBNERR-MD, Sanctuary staff, and partners participated in JBERD's ribbon-cutting ceremony.

***The Swallowtail Trail, also created by David Linthicum, will take visitors through a 17-acre pollinator meadow, where native plants provide vital habitat for many species of insects and butterflies.***

JBERD is the first overnight facility of the Department of Recreation and Parks that will serve Anne Arundel County and the region. It is also the field station that will serve the community of researchers, students, teachers, and decision-makers of CBNERR-MD and its components: Jug Bay (Anne Arundel and Prince George's Counties), Otter Point Creek (Harford County), and Monie Bay (Somerset County). JBERD amenities include a complex of eight rustic cabins (each able to house five to six people), a restroom facility, a pavilion, a fire ring, public parking, a five-pad campground, and two new trails (the Cordwinder Trail and the Swallowtail Trail)



County Executive Steuart Pittman (sixth from left), Maryland State Delegate Heather Bagnall (seventh from left), and the Director of the County's Department of Recreation and Parks Jessica Leys (eighth from left) were among the celebrants at the JBERD ribbon-cutting ceremony.

that will join the existing 20-mile Sanctuary trail network. In addition, the property around JBERD provides access to a small cartop launch area leading to Jug Bay's shallow waters and tidal freshwater marshes of the Patuxent River.



An aerial drone view of JBERD Field Station shows the complex of cabins, restroom facility, pavilion, fire pit, parking, and surrounding area.



KARA BOURLAND

conservation through outdoor education, research, stewardship, and volunteering.

CBNERR-MD's mission: *To improve coastal resource management by increasing scientific understanding of estuarine systems and making estuarine research relevant, meaningful, and accessible to managers and stakeholders.*

Considering the operational and management interests of the Sanctuary—to protect and conserve one of the County's largest tracts of continuous native habitat left in South County and to provide a balance between passive recreation and natural resource preservation—JBERD will follow the Sanctuary's hours of operation. It will be open to the public on Wednesdays, Fridays, and weekends from 9 a.m. to 5 p.m. Cabin guests will be able to reserve the overnight facilities from April to

The JBERD cabins will open for overnight guests soon.

Participants in the ribbon-cutting ceremony had a sneak peak of the cabins, restroom facility, and enjoyed a short walk to the campground through the forested Cordwinder Trail. This trail was created and blazed by Sanctuary staff member David Linthicum, and the interpretive signage was developed by former Chesapeake Conservation and Climate Corps Member Sophie Coyne in 2024. The Swallowtail Trail, also created by David Linthicum, will take visitors through a 17-acre pollinator meadow, where native plants provide vital habitat for many species of insects and butterflies.

JBERD will be operated and managed by Jug Bay Wetlands Sanctuary to further the missions of the Anne Arundel County Department of Recreation and Parks, and the Sanctuary, and CBNERR-MD.

The Anne Arundel County Department of Recreation and Parks mission: *We create opportunities to enjoy life, explore nature, and restore health and well-being.*

The Sanctuary's mission: *To increase awareness, understanding, and appreciation of estuarine and other natural ecosystems and their*



G. IMHOFF

This tent pad, at JBERD's five-tent pad camping area, was built by Eagle Scout Roger Bredenkamp.

October, Thursday through Sunday. More information about the JBERD operation and reservation process will soon be available on the County and Sanctuary websites.

JBERD will enhance existing Sanctuary's public recreation programming, outdoor environmental experiential learning, and research and monitoring efforts about diverse Sanctuary habitats and wildlife. It will also support existing and new partnerships with



P. DELGADO

A sign informs visitors at the Cordwinder Interpretive Trailhead near JBERD Field Station at Jug Bay Emory Waters Nature Preserve.

County and regional academic institutions, nonprofit organizations, community groups, and more. JBERD is more than overnight facilities—it is a living space and laboratory where nature lovers, students, teachers, researchers, artists, citizen scientists, and others can explore, discover, learn, and create connections with the natural world.

As the Sanctuary enters this new and exciting chapter, we welcome anyone and everyone to come and explore JBERD—an opportunity to get closer to nature. The date of the Grand Opening will be announced soon!

# Celebrating Jug Bay at This Year's Brewgrass in the Barn

The weather was perfect for Friends of Jug Bay's third annual **Brewgrass in the Barn** at Glendening Nature Preserve (despite a sketchy forecast!). Visitors enjoyed bluegrass from returning musicians **Rockfish, Whiskey Narrows String Band, Geraldine**, and the **Library Jam All Stars**, as well as this year's new addition, **MooseJaw**.

Our sincere thanks to two generous event sponsors: **Environmental Quality Resources (EQR)** and **Baylands Consultants and Designers**.

FOJB also welcomed new partners this year: **South County Is Kind, Muddy Creek Artists Guild**, and the **Anne Arundel County Library**. Thanks also to the **Annapolis Jaycees**, who tended the Katcef truck and kept the beer flowing! —Vicki Petersen



TOM STATAS

Great music kept the party hopping all afternoon.



E SIEGLINGER

Jug Bay and great music greeted attendees to the Barn.



E SIEGLINGER

Tasty food and great coffee!



PAT DELGADO

An appreciative audience loved all the talented musicians.



E. SIEGLINGER

A little friendly cornhole competition was a great addition to the day.



LIANA VITALI

Some attendees went home with fun merchandise to help them remember the day.

# Welcome to Our Summer 2026 Interns

We're delighted to have four research interns with us this summer. Be sure to say hi if you run into these folks at Jug Bay!

WILLIAM GREENE



## William Greene

Hi! My name is Will, and I'm a rising sophomore at Bucknell University, majoring in animal behavior with a minor in environmental studies. As part of my research, I'll be conducting a population study on the common snapping turtle using morphometrics and capture-mark-recapture techniques. The ultimate goal is to establish a baseline of the local snapping turtle population to help develop an understanding of how commercial harvest is affecting the species' long-term health and stability.

CASSIDY MARTIN



## Cassidy Martin

I'm currently going into my junior year as a biology and marine science double-major at St. Mary's College of Maryland. I love spending as much time outside as I can, and Jug Bay has always been a wonderful place to do that!

OWEN KOSER



## Owen Koser

I'm Owen, and I am a rising junior at University of Maryland, College Park. I am majoring in environmental science with a minor in GIS. I'm an aspiring professional wetland scientist, and I would like to dedicate my future career to wetlands conservation, research,

NATHAN PEISINGER



## Nathan Peisinger

Hi! I am Nathan, and I am one of the summer research interns at Jug Bay this year. I'm pursuing a degree in wildlife and fisheries resource management with a minor in forensic science at West Virginia University. Over the summer, I will be conducting analysis on waterbird populations at Jug Bay and building statistical models to determine temporal trends of these species.

and protection.

Jug Bay Wetlands Sanctuary is a component of the Chesapeake Bay National Estuarine Research Reserve Maryland (CBNERR-MD). The mission of the 30 Reserve sites across the country is to improve coastal resource management by increasing scientific understanding of estuarine systems and making estuarine research relevant, meaningful, and accessible to managers and stakeholders.

## STAFF

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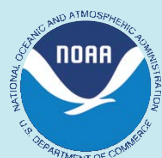
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## WEBSITE

<https://dnr.maryland.gov/waters/cbnerr/Pages/default.aspx>

## FACEBOOK

[www.facebook.com/CBNERR](http://www.facebook.com/CBNERR)



# A CBNERR Research Update

By Kyle Derby, Research Coordinator, and Chris Snow, Reserve Manager

Hello everyone! We wanted to share a bit of an update on some of the research projects that have been going on across the Chesapeake Bay National Estuarine Research Reserve (CBNERR) and around the Reserve system. We have been doing a lot of different work across all three of our components, including some new projects and some older ones. Here's a snapshot of what's going on!

## Project TeaTime

Back in 2021 and 2022, CBNERR-MD and the Delaware National Estuarine Research Reserve (DNERR) led a study with 19 other NERRs across the country to measure below-ground decomposition rates. Organic matter decomposition is an important process in tidal wetlands, and it informs things like carbon storage and accumulation, marsh resiliency, and ecosystem function. In order to assess how fast decomposition was occurring, we used a novel and reproducible approach: commercially available teabags.

During the two-year study, NERRs staff and volunteers buried more than 1,400 teabags in all of the different wetland environments across the system, from the freshwater wetlands of Jug Bay to the mangroves of Jobos Bay in Puerto Rico and beyond. Once we got the rates of decomposition, we compared them to the data we collect at our water-quality monitoring stations, and found some interesting correlations. In general, the sites with higher salinities had lower rates of decomposition, while fresher sites had higher rates. Unsurprisingly, our warmer sites also had the highest rates of decomposition, which could have larger implications for wetland health and function in a warming world. The full results of this work are currently in preparation for a scientific journal article, hopefully to be published this year.



Kyle Derby and Chris Snow

## Game Cameras across the NERR System

Results of another large-scale NERR-wide effort was recently published in the *Journal of Ecology and Evolution*. "The Secret Life of Tidal Marshes and Mangroves: Camera Trapping as a Window into Wildlife Using North American Coastal Wetlands" was the first assessment of animals using marshes in the North American continent, and used game cameras to document what uses our coastal wetlands. Monie Bay was selected as the CBNERR representative due to the lower and more open vegetation, as demonstrated by this awesome capture of a red fox mid hunt! The journal article is open access, and has lots of great photos of animals in action across the NERR system and beyond.



## Barn Owls at Monie Bay

For the past 15 years we have monitored barn owl boxes at the Monie Bay component of the reserve. In that time we have banded more than 300 juvenile barn owls before they fledged. There's a high fledging ratio, which lets us know the marsh is a productive place for the barn owls' preferred food source, meadow voles. In fact, when we dissected their pellets, we found their prey consisted almost exclusively of meadow vole. We have also captured about 30 adult owls at the nest boxes. Many of these are birds we banded in previous years, but a few have been banded at other locations and give us insight into dispersion from their natal grounds.



KYLE DERBY

In recent years we have been involved in a study of morphological characteristics of North American barn owls. Some of the nest boxes along the Patuxent near Jug Bay are also sites for this study. Barn owls have had significant population declines in Maryland, resulting in their status as a Species of Greatest Conservation Need in the state. While the population of owls we monitor in the marsh seems to be faring better than their upland nesting counterparts, the increases in sea level might ultimately prove challenging for them. We will continue to monitor the owls and maintain nest boxes and are partnered with groups like the Farmland Raptor Program so we can better understand this enigmatic marsh resident.

## Long-term Monitoring of Vegetation and Elevation

Finally, we wanted to update everyone on our long-term elevation and vegetation monitoring efforts. We monitor emergent wetland vegetation across all three components as well as wetland elevation at Jug Bay and Monie Bay, and we have been collecting that data for more than a decade. It takes a while to see changes in the environments we monitor, and discovering those changes is something the NERR system is heavily invested in. Through several projects, we are beginning to see some changes across all of these environments, both in the vegetation and elevation data. We are beginning to see a small increase in the amount of open space in our vegetation plots, meaning they have less vegetative cover, as well as a small decline in the amount of "high marsh" adapted plant species. This change is backed up by our long-term elevation monitoring, which shows that our wetlands (particularly in Monie Bay) may not be keeping up with long term sea level rise. Look for a more in-depth article on this in the future!



KYLE DERBY

As always, if you have any questions about the work we do here at CBNERR, please reach out! You can email Kyle Derby at [kyle.derby@maryland.gov](mailto:kyle.derby@maryland.gov).

## Creature Feature: Northern Short-tailed Shrew

By Nic Anderson, Former Jug Bay Wetlands Sanctuary Park Ranger

Meet one of the mightiest hunters in North America. This micromaster predator is the northern short-tailed shrew (*Blarina brevicauda*). These ferocious rodents are the only known venomous mammals in North America. Shrews can secrete a neurotoxin from shallow channels in their fangs. To facilitate their hunts, they also possess echolocation ability to navigate in their subterranean domain and locate their prey.

Shrews are armed with iron-coated fangs that allow them to shred the flesh of small mammals, amphibians, and birds. These tiny titans have one of the largest appetites in the animal kingdom; they eat up to three times their body weight daily. Their appetite is driven by their rapid heart rate, which is more than 800 beats per minute (faster than a hummingbird!). In addition to their appetite, shrews have made themselves unpalatable to the majority of predators. Shrews secrete a potent musk when attacked to ward off predators, and even if they are killed, their foul taste often teaches predators to avoid shrews in the future. Watch your step, you might be entering the domain of a tiny terror!



JAROSLAV HOLLY

# S U M M E R 2026

## VOLUNTEER AT JUG BAY!

Discover opportunities at [jugbay.org/volunteer](http://jugbay.org/volunteer)

For more information, contact Volunteer & Program Coordinator Debra Gage at [rpgage00@accounty.org](mailto:rpgage00@accounty.org) or call 410-222-8006.



# SAV

(submerged aquatic vegetation)

# WATCH-A-THON



Scan to learn more & register today!

### Paddle for Science!

At this one-day FREE event, volunteers will be trained to identify and count SAV and paddle into the Jug Bay estuary to collect valuable data on SAV growth and abundance. No prior scientific experience is necessary. However, prior experience paddling is helpful. Canoes, kayaks, and PFD's will be provided.



## Monthly Bird Walk

first Saturday of every month  
7:00am - 11:00am  
Ages 12 & Up  
\$8 per vehicle entrance fee

Join our next guided hike  
**FRIDAY, JUNE 26**  
2PM - 5PM

Learn more and register at [www.jugbay.org/100-mile-hike](http://www.jugbay.org/100-mile-hike)