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Jug Bay Wetlands Sanctuary NEWS

MARSH NOTES

Summer Interns' Projects Focus on Jug Bay Habitat and Species

Each summer, Jug Bay benefits from an infusion of enthusiasm and talent as we host interns who tackle projects that help us better understand the Sanctuary, its habitats, and its residents. Let's hear from our summer 2026 interns about what they explored.

Will Greene


WILL GREENE

I am a rising sophomore at Bucknell University majoring in animal behavior with a minor in environmental studies. I completed an insightful project that aligns with my academic career in animal conservation.

My research involved a population assessment of the common snapping turtle (*Chelydra serpentina*), working with a local waterman. Snapping turtles are a keystone species, contributing by scavenging decaying matter and providing a food source through their eggs.

However, snapping turtles have been legally trapped in Maryland over the years for the meat market.

To better understand local impact, data collection occurred during June and July at four study sites within the Jug Bay Wetlands Sanctuary network. The primary objective was to characterize the local snapping turtle population and tag individuals for long-term monitoring. Evaluations included turtle density, sex demographics, overall health, and morphological characteristics across distinct lotic (flowing/tidal) and lentic (still/non-tidal) habitats. Other study goals were to gain insight into commercial trapping methods and trends. Sampling locations included Jug Bay and Mark's Pond at the Sanctuary Proper, as well as the Patuxent River and Wetland Park at Wootons Landing.

Field sampling used commercial hoop nets and steel-wire pot traps baited with chicken backs. To ensure regulatory compliance and animal safety, traps were outfitted with flotation blocks to provide breathing room and were checked daily. Trap placement relied on targeted sampling and varied between habitats; traps were ideally submerged near structural cover, travel corridors, and channel mouths. All captured individuals underwent rigorous health and morphometric evaluations, including straight-line carapace measurements, body mass determination, and sexing. Adult specimens (straight carapace length > 20.32 cm) were tagged along the right posterior marginal scutes (R10 or R11) using stainless steel hardware and orange flexible tags.

Key Findings

- *Catch Dynamics:* Across 60 total trap-days, 16 healthy individual turtles were captured and tagged (12 males, 4 females), alongside 16 non-target bycatch organisms.
- *Catch-Per-Unit-Effort (CPUE):* Lentic systems yielded higher success rates (0.40 turtles/trap-day) at both Mark's Pond and Wetland Park at Wootons Landing compared to the lotic Jug Bay (0.17 turtles/trap-day) and Patuxent River (0.31 turtles/trap-day).
- *Sexual Dimorphism:* Structural dimorphism was present. Males exhibited greater average carapace and tail metrics alongside a notable body mass (7.9 kg vs. 3.3 kg) relative to females.
- *Harvest Insights:* Long-term trapping trends reflect a shift from international to domestic demand and a significant drop in overall harvest.

This study establishes crucial baseline mark-recapture data for *Chelydra serpentina* populations along the upper Patuxent River. These findings provide essential monitoring metrics to inform local regulatory organizations and evaluate the ecological sustainability of Maryland's commercial snapping turtle harvest.

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INSIDE THIS ISSUE:

Jug Bay Wetlands Sanctuary
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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.

Marsh Notes **is produced quarterly by Jug Bay Wetlands Sanctuary and Friends of Jug Bay.**
Comments and suggestions are welcome.

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Cynthia Bravo Honored with the 2026 Jug Bay Award

By Allison Burnett, President, Friends of Jug Bay, and Debra Gage, Volunteer and Program Coordinator

Cynthia Bravo is not a person who enjoys the spotlight, but we couldn't let another year of her dedicated service to Jug Bay Wetlands Sanctuary pass without recognizing her contributions. The 2026 Jug Bay Award was presented to her during a private ceremony while she was "on the job" designing yet another beautiful brochure and interacting with visitors.


LYDIA FRAVEL

Cynthia Bravo (center), a most deserving Jug Bay Award recipient!

Cynthia's volunteer work for the Sanctuary and her support of the Friends of Jug Bay have been steadfast and highly impactful for over 20 years. She has volunteered hundreds of hours at the Visitor Center checking in guests, performing office and staff support tasks, designing educational brochures, and updating kiosks across all the Sanctuary's properties. Her vast knowledge of the native flora and fauna has been shared with countless visitors. She remains a steadfast year-round volunteer at the Glendening Butterfly Garden, the Emory Waters Pollinator Garden, and as a trail monitor.

Cynthia gives her time, vast environmental knowledge, and many talents freely to Friends of Jug Bay and the Sanctuary staff, making her an ideal candidate for this conservation award. Knowing Cynthia, she probably completes numerous other tasks on behalf of other organizations along the Patuxent River, quietly and consistently doing her part to ensure our watershed remains healthy. Thank you, Cynthia!

THANK YOU!

The Jug Bay team would like to thank the following supporters for their recent donations:

- **Crystal Blake**, for an office chair for the Ranger Station at Emory Waters
- **Jill Twetten**, for pots and pans for the Ranger Station at Emory Waters
- **Debbie Drobek**, for a sleeper sofa and chair for the Ranger Station at Emory Waters
- **Ryan Horan** and **Bartlett Tree Experts**, for removing several hazardous trees at Jug Bay's new campsite, and for providing us with mulch
- **Dan Kazmierczak**, for handcrafted wooden coat hooks for JBERD cabins
- **Friends of Jug Bay**, for the purchase of bunkbeds and futons for JBERD cabins

We could use some additional items!

Please reach out to us if you could donate:

- Board games (complete and in good condition)

LETTER FROM THE PRESIDENT

Greetings all,

In case you missed my blurb in the last issue, my first official act as the newly elected president of Friends of Jug Bay was to deliver a speech during the ribbon-cutting ceremony for the Jug Bay cabins and bath house. I absolutely loathe public speaking, but for this Sanctuary and the dedicated people who maintain the mission and vision for the future, I was surprisingly calm and felt honored to be given the opportunity to speak. I knew exactly what I wanted to express about this special place and the big changes I can see on the horizon with the addition of the Jug Bay Education Research and Discovery (JBERD) Field Station. **My love and appreciation for Jug Bay runs deep**, and from reading the sentiments expressed by our dedicated volunteers in the fall 2025 *Marsh Notes*, I am in good company! Our connection to this sacred space and each other will keep the Sanctuary thriving for decades to come. And with the addition of the field station and cabins, we'll be able to expand and deepen those important connections to new volunteers and friends.

For those who don't know me, I am a single mother to three sons and a Southern Maryland (SOMD) resident. I live on the middle of the Patuxent River in Benedict (Charles County). I have driven up and down the River many many times over the past decade and a half of living here. I have built relationships with people from the Patuxent Research Refuge in Laurel to the University of Maryland Center for Environmental Sciences (UMCES) in Solomons. I was the office manager at Jug Bay Wetlands Sanctuary through the COVID years from 2020–2022. I also volunteer for several citizen science programs, stop by for the 100 Mile Hike Club, occasionally show up for Fieldwork Friday, and volunteer to help run special programs and events when I can. I am also the executive director of another environmental nonprofit that serves the five-county area of SOMD and have been involved with the Sanctuary and FOJB through planning the Patuxent River Conference, among other projects. I also have ties to the agricultural community, regional conservation partnerships, and watershed restoration collaboratives throughout SOMD.

What I hope to bring to the Sanctuary community in my new role is specific knowledge regarding nonprofit management and a greater connection to the rest of Maryland's 5th Congressional district. My future letters will contain "Downstream Reports" of any big issues and opportunities we're seeing down south and how FOJB might be affected or get involved. I hope to leverage my existing relationships and partnerships to draw in more SOMD resources, visitors, members, partners, and volunteers. You can also expect to see some additional information in the visitor center about Jug Bay's connections to SOMD. For example, did you know that the Sanctuary is the only site in Anne Arundel County within the **Southern Maryland National Heritage Area**? Jug Bay is part of Southern Maryland…and I know SOMD!

FOJB has also celebrated our 40th anniversary! Now that we're "middle-aged," we are taking stock of where we have been and where we want to go. Over the coming year, we'll take the opportunity to check in with our FOJB members and volunteers about where they would like to see FOJB in the near future. **We will give you multiple methods and opportunities to provide feedback** to the Board of Directors as we develop a strategic plan for the next five years.

The Sanctuary community is a vast landscape that we're hoping to learn from and offer more ways to stay connected to each other, the Friends of Jug Bay, and the Jug Bay Wetlands Sanctuary properties. One thing we have learned so far is that a majority of our members live north of the Sanctuary, driving from high-density suburban and urban areas to find much needed peace and access to nature.

You are part of our mission and vision! If you'd like to be more involved with planning and implementing our efforts, contact me about becoming a Board member. We especially need help with marketing, outreach, and fundraising. If you have a background in any of those areas and would be willing to lend us your expertise, please don't hesitate to reach out.

Allison Burnett, President, Friends of Jug Bay
aburnet@friendsofjugbay.org

VOLUNTEER AT JUG BAY

Discover opportunities at jugbay.org/volunteer. For more information, contact Volunteer & Program Coordinator Debra Gage at 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.

UPCOMING PROGRAMS

FRIDAY, SEPTEMBER 11, 2026

Mysteries of the Marsh Sunset Kayak-Mataponi Creek

5–9 p.m.; Jug Bay's Emory Waters Nature Preserve; 6032 Pindell Road, Lothian, MD 20711

Discover Jug Bay Wetlands Sanctuary's newest property, the Emory Waters Nature Preserve. We will launch kayaks from the Emory Waters pier and paddle south on the Patuxent River, exploring wetlands and shoreline as we go. We will paddle up beautiful Mataponi Creek looking for beaver, otter, birds, and flowering wetland plants. Paddlers can expect to actively paddle for about 2.5 hours.

Ages 16 or older (under 18 with a parent). For more information, go to the Event calendar at www.jugbay.org.

SATURDAY, OCTOBER 17, 2026

Jug Bay Ghost Paddle

5–9:30 p.m.; Jug Bay Wetlands Sanctuary, 1361 Wrighton Road, Lothian, MD 20711

Up for a SPOOKY but fun evening on the water? Join volunteer Philippe Hensel and Park Superintendent Patricia Delgado for a one-of-a-kind evening paddle along the Patuxent River. During our paddle, we will look for beaver, otter, muskrat, birds, and other wildlife along the shoreline. We will make one stop by the water's edge, where Philippe will share local legends and ghost stories around a campfire. We'll enjoy hot cider, a light dinner, and s'mores. It will be an evening to remember!

For more information, visit the Event calendar at www.jugbay.org.

SATURDAY, OCTOBER 24, 2026

Women on the Water (WOW) Kayak

9:30 a.m.–3:30 p.m.; Jug Bay's Emory Waters Nature Preserve; 6032 Pindell Road, Lothian, MD 20711

Enjoy a day of serenity spent with other women, immersed in the peacefulness of nature. We will enjoy a leisurely kayak paddle on the Patuxent River, where we will look for wildlife and flowering wetland plants along the shoreline. We will enjoy a catered lunch at the historic Riggleman House, located on Jug Bay's newest property, Emory Waters Nature Preserve.

Fee includes naturalist kayak guides, all kayak equipment, lunch, and park admission. For more information, go to the Event calendar at www.jugbay.org.

Summer Interns *(Continued from page 1)*

Owen Koser

OWEN KOSER

I am a rising junior at the University of Maryland, College Park. I am pursuing a major in environmental science and a minor in GIS. Professionally, I'd like to work as a wetland ecologist, particularly in the sphere of conservation or restoration.

I spent the summer researching the amphibian communities of a variety of wetland types across Jug Bay's properties using rapid assessment. Prior to my project, wetland amphibian data at Jug Bay was sparse, and conducting this investigation not only collected novel data, but contributed to a fuller image of the biodiversity and ecology of Jug Bay's wetlands.

My methodology employed visual encounter surveying and natural cover searches along line-transects across 11 sites, which spanned from Wootons Landing to Glendening to Sanctuary Proper; The wetland types assessed were vernal pool, forested, riverine, scrub-shrub, and high-marsh wetlands. Each transect was surveyed in the morning and in the afternoon, with 12 transects mapped at each site. Fieldwork spanned six weeks from early June to late July, and in total, 132 transects were each surveyed twice.

Across all sites, 10 amphibian species were observed, including one salamander species, one toad species, and eight frog species. Highlights of my observations included the presence of green tree frogs at Glendening high-marshes, an abundance of spring peepers at Wootons scrub-shrub wetlands, and a spotted salamander in Two-Run Branch's floodplain. Pielou's evenness index and Shannon's diversity index were run to assess species dominance and richness respectively. Riverine wetlands in Two-Run Branch were by far the most diverse, with a total of eight species observed. Vernal pool sites at Sanctuary Proper were only observed to host two species of frog, with a significantly dominant presence of green frogs over wood frogs.

Lastly, I ran single-factor analysis of variance (ANOVA) tests to determine whether the adults, juveniles, and density of individuals observed at each wetland site were statistically significant from one another. All three metrics were observed as highly significant between wetland sites, emphasizing the importance of further research of these communities. A strong, seasonal, vernal pool monitoring protocol already exists for the vernal pools at Sanctuary Proper, and monitoring for an expanded range of wetland types could significantly benefit our understanding of the ecology of amphibians at Jug Bay.

Cassidy Martin

CASSIDY MARTIN

I am an upcoming junior at St. Mary's College of Maryland, and I have really enjoyed my time at Jug Bay this summer. Since the start of June, I have been collecting data on the box turtles of Emory Waters Nature Preserve, specifically in the eroded areas that will soon be the site of a stream restoration project. I was particularly interested in the health of these turtles due to the agricultural history in the area. Many pesticides that have been banned since the 1980s are still readily found in the environment. Organochlorines are known to negatively impact the ability for box

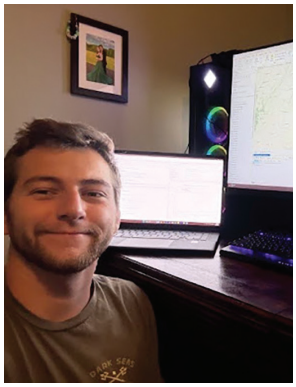
turtles to metabolize vitamin A, leading to visible health issues.

I am happy to report that out of 51 turtles, only four of them had notable health issues. All four of these turtles were active and appeared otherwise healthy despite signs of upper respiratory distress exhibited by two of the turtles and aural abscesses present in the other pair. These four turtles were found in various parts of Emory Waters and were not concentrated in a single location.

56.9% of the turtles found were male; only 25.5% were female and 17.6% were juveniles whose sex could not be identified. This male-biased sex ratio is also present in the population of the Sanctuary proper. It has been speculated that male-biased ratios are due to wandering females being more prone to crossing roads, but after reviewing the many records in the Sanctuary database I determined that only 5% of confirmed notched turtle deaths are vehicle related.

Another interesting finding was a significant correlation between juvenile turtles and floodplain habitats, suggesting that the stream restoration may provide better habitat for young turtles. I would be very interested in future data gathered after the stream restoration. Easier access to water, improved coverage of dense foliage, and the removal of steep cliffs will likely improve the quality of this habitat for all box turtles.

Nathan Peisinger


NATHAN PEISINGER

I first want to thank Dr. Patricia Delgado for mentoring me through my internship as well as the Friends of Jug Bay for making the summer internship program possible. I'd also like to thank the volunteers of the waterbird survey for their consistent work in conducting bird counts of the species that utilize the sanctuary.

For those that don't know, volunteers at Jug Bay conduct surveys every other Thursday morning at four locations within the Sanctuary. They identify the species of waterbird they observed, as well as how many of each species were seen. This survey has been conducted since 1990 and has been run exclusively by volunteers since 2000. The survey is ongoing and allows us to monitor changes in bird populations over time. My research focus for the summer was to create statistical models for the 20 taxonomic families that are the focal point of these surveys. In addition to the bird counts, I also incorporated historic temperature data and changes in the land cover surrounding Jug Bay.

For those that don't know, volunteers at Jug Bay conduct surveys every other Thursday morning at four locations within the Sanctuary.

Before running the models, I had to first create maps of the area around Jug Bay for each year the survey has been conducted. The area selected for the study was a 30-mile radius around Jug Bay, as royal terns will travel up to 30 miles from their nesting site to feed—the farthest of any bird in the survey—and thus 30 miles would encompass all habitat potentially used by species studied in the survey. The maps were created in ArcGIS and utilized the National Land Cover Dataset produced by the U.S. Geological Survey. These maps allowed us to classify land as either developed by humans or natural. This allowed us to determine that 3% of the total land (5% of the remaining natural land) that was present in 1992 has since been developed, totaling nearly 57,000 acres.

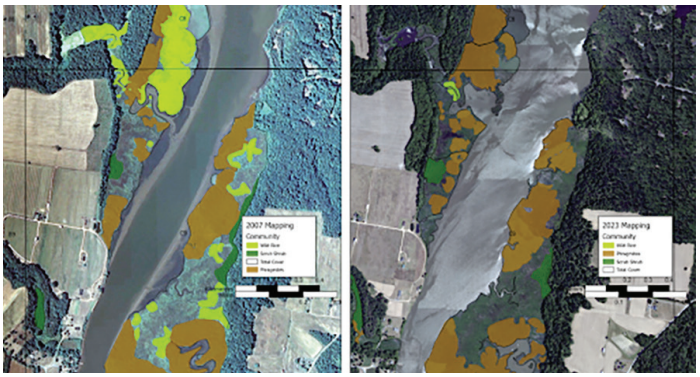
Family	Annual Population Tren
Accipitridae	6.39%
Alcedinidae	-0.36%
Anatidae	0.08%
Ardeidae	-0.12%
Charadriidae	-10.43%
Falconidae	16.66%
Gaviidae	-1.44%
Icteridae	-1.29%
Laridae	1.56%
Pandionidae	2.19%
Parulidae	4.21%
Passerellidae	3.85%
Phalacrocoracidae	3.80%
Podicipedidae	1.58%
Rallidae	-2.50%
Regulidae	28.07%
Scolopacidae	-8.68%
Troglodytidae	19.08%

Following the mapping, Poisson generalized linear models were created for each taxonomic family that is a part of the survey. This allowed us to determine how the populations have changed over the course of the survey and predict future trends, as well as model the historic populations. Out of the 20 families, two were excluded due to a lack of observations, and only two families, Charadriidae and Scolopacidae, experienced significant declines. The models that were created will continue to update and run, providing Jug Bay with new and improved models each time new survey data is collected.

Angela Sullivan


ANGELA SULLIVAN

Tracking changes in tidal wetland plant communities is an important part of wetland management. As part of my capstone project for my master's of science in biodiversity conservation management at the University of Wisconsin - Green Bay, I partnered with Dr. Patricia Delgado to map historical vegetation shifts across a 46-kilometer stretch of the Patuxent River tidal wetlands. Using ArcGIS Pro, I expanded on a 2007 wild rice (*Zizania aquatica*) mapping project and added 2023 NAIP imagery



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Restoring Shorelines and Streams at Emory Waters Nature Preserve

By Patricia Delgado, Park Superintendent

A project to restore of 530 linear feet of living shoreline and a total of 7,100 linear feet along three stream reaches requires years of planning, designing, and construction. While this major project officially started in 2023 with the design phase, we're delighted to share the news that construction broke ground this July at the shoreline site and this August at the first stream reach.

The main restoration project objectives include:

- Restore and enhance shoreline and stream habitat at the Jug Bay Emory Waters Nature Preserve (EWNP);
- Reduce sediment and nutrient pollution to the Patuxent River and hence to the Chesapeake Bay;
- Enhance the Sanctuary's resilience to sea level rise and increased rainfall intensity;
- Protect critical infrastructure for the long term at EWNP; and
- Provide meaningful engagement opportunities to enhance public understanding of habitat and ecosystem restoration.

P. DELGADO

Filling material being delivered and distributed at the shoreline restoration site by Environmental Quality Resources, L.L.C.

The shoreline area and stream reaches were selected for restoration due to their highly eroded and degraded state compared with other streams and shoreline sites within the Sanctuary. For example, habitat and biological assessments conducted in the EWNP stream area showed a decline from 2013 to 2021 (Table 1). This restoration effort is intended to improve this aquatic habitat by reducing shoreline and stream bed and bank erosion and optimizing stream floodplain reconnection.

Habitat and Biological Monitoring			
Monitoring Year	**Measurement Method**	**Pre-Restoration Rating Value**	
2013	RBP Score	141	Supporting
	MPHI Score	92.74	Minimally Degraded
	BIBI Score	**4.43**	**Good**
2021	RBP Score	111	Partially Supporting
	MPHI Score	73.95	Partially Degraded
	BIBI Score	**3.29**	**Fair**

CAITLIN SPORIC, BAYLAND CONSULTANTS & DESIGNERS, INC.

Table 1. 2013 and 2021 scores from three different habitat and biological indicators (a) U.S. EPA Rapid Bio Assessment Protocol (RBP), (b) Maryland DNR Physical Habitat Index (MPHI), and (c) Benthic Index of Biological Integrity (BIBI).

The shoreline restoration piece of the project involves the creation of a living shoreline (planted with tidal freshwater marsh plant species) that will stabilize the area by providing a vegetated transitional zone between the water's edge and the upland. This work has already started, and it is expected to be fully completed by the beginning of November.

The multi-stream restoration part of the project is more involved and will take more time to complete. Including construction, plantings, and preliminary monitoring, project completion is expected in 2028. The stream restoration work involves the use of step pool systems (including cascades or riffle-weirs) in the most eroded upstream areas and valley restoration in the downstream areas.

Sanctuary staff, volunteers, research interns, and partners have dedicated a significant amount of effort to collect prerestoration baseline data on the habitat and biological communities of the proposed restoration sites. To date, four summer research interns have completed projects that include collecting information on stream habitat health, water quality (including turbidity), erosion, invasive species, aquatic salamanders, and box turtles. Additional data has been collected by volunteers on water quality, aquatic salamanders, and fish. Sanctuary partners from the Maryland Chesapeake Bay National Estuarine

P. DELGADO

Volunteers collecting prerestoration data on stream salamanders (left), and CBNERR-MD staff sampling soils at the shoreline restoration site (right).

Research Reserve (CBNERR-MD) have led the effort to collect prerestoration data on the shoreline site including surface elevation, soil characteristics, and aquatic and marsh vegetation. The commitment of collecting monitoring data will continue postrestoration because comparing data from before and after restoration is vital to evaluate restoration success.

The project will also support outreach and education. Members of partner organizations such as the Patuxent Riverkeeper, the Anacostia Watershed Society, the Mount Rainier Nature Center, and others will have the opportunity to participate in workshops, field experiences, and plantings to learn about stream restoration science.

As the restoration project advances we will continue to provide updates, so please stay tuned!

Thanks to project funders:

NOAA National Oceanic and Atmospheric Administration U.S. Department of Commerce

Chesapeake Bay Trust

Maryland CB TRUST

Anne Arundel County Bureau of Watershed Protection & Restoration

Chesapeake Bay National Estuarine Research Reserve Maryland

Maryland

Maryland's Chesapeake & Atlantic Coastal Bays Trust Fund

Summer Interns *(Continued from page 5)*

to evaluate changes in wild rice, scrub-shrub, *Phragmites australis*, and total marsh area.

To make the spatial data more accessible, I generated maps labeled with a grid system throughout the mapped area. Statistical analysis in RStudio showed the changes in terms of acreage and percent of total plant coverage. The 2007 imagery had been completed on historical Google Earth imagery on a portion of the area mapped for this project. I expanded on that project to map additional wild rice beyond the scope of the original project using historic NAIP imagery taken during the same month. Mapping the remaining vegetation cover and plant communities in both sets of imagery was based on visits to Jug Bay to validate identification of *Phragmites* specifically.

Satellite imagery limitations (such as resolution, seasonality, and tidal stage) required conservative mapping, especially of wild rice in 2023. However, *Phragmites* was much more identifiable. Based on this analysis, between 2007 and 2023, *Phragmites* expanded from 2.59% (132 acres) of total cover to 7.99% (381 acres). Even with conservative mapping and the low fidelity of wild rice identification in 2007, 2023 *Phragmites* distribution clearly intruded into previous wild rice habitat as is shown in the accompanying map. This reflects the results of similar studies in East Coast wetland regions. Between 2012 and 2023, there was a marked increase in quality of satellite imagery, during which time there was a significant conversion of high marsh to *Phragmites*. This project highlights the need for periodic high-quality aerial imaging to track changes in plant communities as introduced species become a greater threat.

Fun and Learning at 2026 Summer Camps and a Farewell to Camp Counselor Cecilia

By Elizabeth Sieglinger, Education Coordinator

Like every summer before, June, July, and August greeted Jug Bay with a cacophony of activity. The end of June welcomed our youngest campers (ages 5–7) to Forest Discovery camp. It was a great week of exploration, mini adventures, and oftentimes, firsts—like their first frog catch, first homemade popsicle, and first tie-dye experience. In July, we hosted our two camps for older kids: Nature Explorers (ages 8–10) and Wild Adventurers (ages 11–13). The older camps are packed with all-day, outdoor activities like orienteering, dip netting, fish seineing, playing, learning, and—if we're lucky—expanding our comfort zones.

For the last two years, our camp counselor, Cecilia, has greeted our campers with smiles and patience, acceptance and joy. She's been instrumental in creating engaging activities and injecting happiness into our camps. Sadly, this is her last summer with us as she's decided to pursue more field-based opportunities as she works toward her degree. We will miss you Cecilia!

Volunteers Test Drive the New JBERD Cabins

By Kara Bourland, Management Assistant

The construction of the cabins at the new Jug Bay Education, Research, and Discovery (JBERD) Field Station has been completed, and test runs are underway! The complex includes eight cabins, a restroom facility, a multi-use pavilion, and shared fire pit. Volunteers were invited to spend a weekend testing out the facilities, attending a night hike, and exploring the new orienteering course at Emory Waters.

COURTESY JBWS STAFF

A lot of hard work went into building the JBERD cabins.

Thanks to volunteers Matt Holly and Wayne Bierbaum for sharing these photos from the test-run weekend. nto building the JBERD cabins.

As the first visitors to stay overnight, volunteers provided invaluable feedback on the comfort of the cabins, restroom facilities, and trails, and offered future programming ideas. While the cabins do not have an official opening date, the test runs have helped staff work out the kinks and troubles that come with brand-new facilities and the transition to hosting overnight stays at Jug Bay. This kind of weekend, full of time spent outdoors, is the first of many to come, and we can't wait to host more volunteer campouts and other visitors in the future.

Eagle Scout Project Additions at Jug Bay

By Gregory Imhoff, Seasonal Park Ranger, and Elizabeth Sieglinger, Education Coordinator

We're delighted to highlight the hard work of two Eagle Scouts. Their projects provide improvements to Jug Bay Wetlands Sanctuary that we can all benefit from.

The Moss House offices got a mini facelift thanks to local Eagle Scout Andrew Bisang. He was tasked with replacing the front lawn with conservation landscaping. Beyond fundraising for and sourcing all the materials, Andrew removed the remaining turf, replaced the deteriorating rail ties, added river rock, redid the walkway, installed native landscaping, and mulched. He also installed six untreated 4x4 posts as an alternative habitat for our resident carpenter bees. We are tremendously grateful for Andrew's work and can't wait to watch these plants grow.

Moss House Garden- Andrew Bisang

Jug Bay Wetlands Sanctuary

2026 EAGLE SCOUT PROJECTS

JBERD Camp pads- Roger Bredenkamp

Roger Bredenkamp, a Lothian local and a newly awarded Eagle Scout, volunteered to create campsite pads for Jug Bay's JBERD Cabin Complex at Emory Waters. He placed five pads along the Cordwinder Trail. After lots of project planning and sourcing of the needed materials, Roger worked tirelessly with several other scouts and volunteers in order to construct all of the pads and fill them with gravel. We are incredibly proud of and thankful for Roger's work. He has truly left a lasting mark on Jug Bay and created a wonderful resource that folks will use for years to come.

Welcome to Park Ranger Victor Jones

Ranger Victor joins the team as Jug Bay's newest park ranger. A science teacher turned environmental educator, Victor brings about 10 years of park experience to Jug Bay. His first park position was actually just across the Patuxent River as a park naturalist at Merkle Wildlife Sanctuary, but the bulk of his career has been spent as a ranger at Beverly Triton Nature Park. Besides long walks along the marsh, Victor enjoys all types of foraged foods, especially mushrooms. Ranger Victor looks forward to helping with Jug Bay's fantastic existing programs and building new ones in the future.

COURTESY VICTOR JONES

Chesapeake Bay
National Estuarine Research Reserve
Maryland

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.

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NOAA National Oceanic and Atmospheric Administration U.S. Department of Commerce

Maryland Department of Natural Resources

How Do Animals Use SAV Habitat at Jug Bay?

By Ally Kido

I'm Ally Kido, a Ph.D. candidate at University of Maryland, Baltimore County (UMBC), and the Margaret A. Davidson Fellow working with the Chesapeake Bay National Estuarine Research Reserve Maryland (CBNERR-MD) for the last two years. I'm in the middle of my second and final sampling season as a Davidson Fellow. I can't believe that I'm at the end of the fellowship already!

ALLY KIDO

Ally collects water samples for eDNA analysis.

I remember my first time at Jug Bay helping out with the emergent vegetation surveys a few years ago and being amazed at all the plant diversity in the marsh. We were walking through the marsh and it felt like we were in a different world with the plants towering over our heads. Shortly after the survey, I began planning for my first field sampling the following summer—but instead of emergent vegetation, I was looking for submerged aquatic vegetation (SAV).

My project focuses on SAV in CBNERR-MD and asks how it has changed over time, as well as what animals might be using SAV for habitat. The first part involves a lot of time staring at code and working with large environmental datasets to see what the main drivers of SAV change have been in CBNERR-MD. I'm still working through the analysis of this and will keep everyone updated once I have final results.

ALLY KIDO

A variety of species use Jug Bay for habitat, like this shy raccoon spotted during an SAV Watchers session.

For the part of my project that is looking at what animals use SAV for habitat, I am using environmental DNA (eDNA) to sample animals that are present in areas with SAV. Animals leave behind DNA through scales, skin, and mucus, and I'm able to collect that DNA through water

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samples and extract the DNA. For eDNA sampling, I collect water samples from different sites at Jug Bay where CBNERR-MD has their SAV monitoring transects. I then take the water samples back to the lab where I filter and extract DNA. We send the DNA off to get sequenced, and I assign species to the sequences and analyze different patterns.

Unfortunately, at Jug Bay, SAV occurs in small patches and is sometimes nonexistent where I was sampling, but the data will still be helpful in creating a baseline of what animals are present at Jug Bay. Last year, eDNA data picked up on fish species like white perch (*Morone americana*) and yellow bullhead (*Ameiurus natalis*), and I'm excited to see what we'll find this year.

Field work has been a much-needed break from computer work, and it has been great being outside and on the water. I've enjoyed getting to spend time at Jug Bay from field sampling to coming out for SAV Watcher events, and I am looking forward to coming back to Jug Bay without the worry of sampling!

ALLY KIDO

Ally searches for SAV as part of her fellowship work.

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

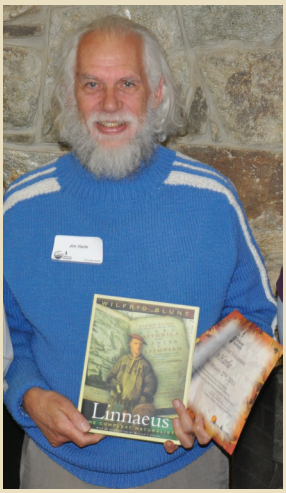
Remembering Jim Harle

By Liana Vitali, Citizen Science and Stewardship Coordinator

Jug Bay Wetlands Sanctuary mourns the passing of Jim Harle, a longtime volunteer, Friends of Jug Bay member, and Board member who held a deep love for nature and supported the Sanctuary from its earliest days. Our records show Jim was among the early members of the Friends, joining shortly after the organization was formed in 1986. He soon became a Board member; when I joined Jug Bay in 2015, he was serving as treasurer.

Jim worked closely with staff to ensure our research and education programs had the supplies needed to engage children, support field and research efforts, and carry out important stewardship work. Whenever Jim visited the office, he had an amazing story to share about his latest exotic adventure. And many of us will fondly remember his smoked almond and pea salad at Sanctuary potlucks.

Jim's commitment reminds us of the profound difference that dedicated supporters can make to local environmental organizations and the special places they protect. His generosity, curiosity, and willingness to invest his time and resources in Jug Bay set an example of what it means to be a true steward of the places we love. We are grateful for the many ways Jim helped Jug Bay thrive, and his presence will be deeply missed.



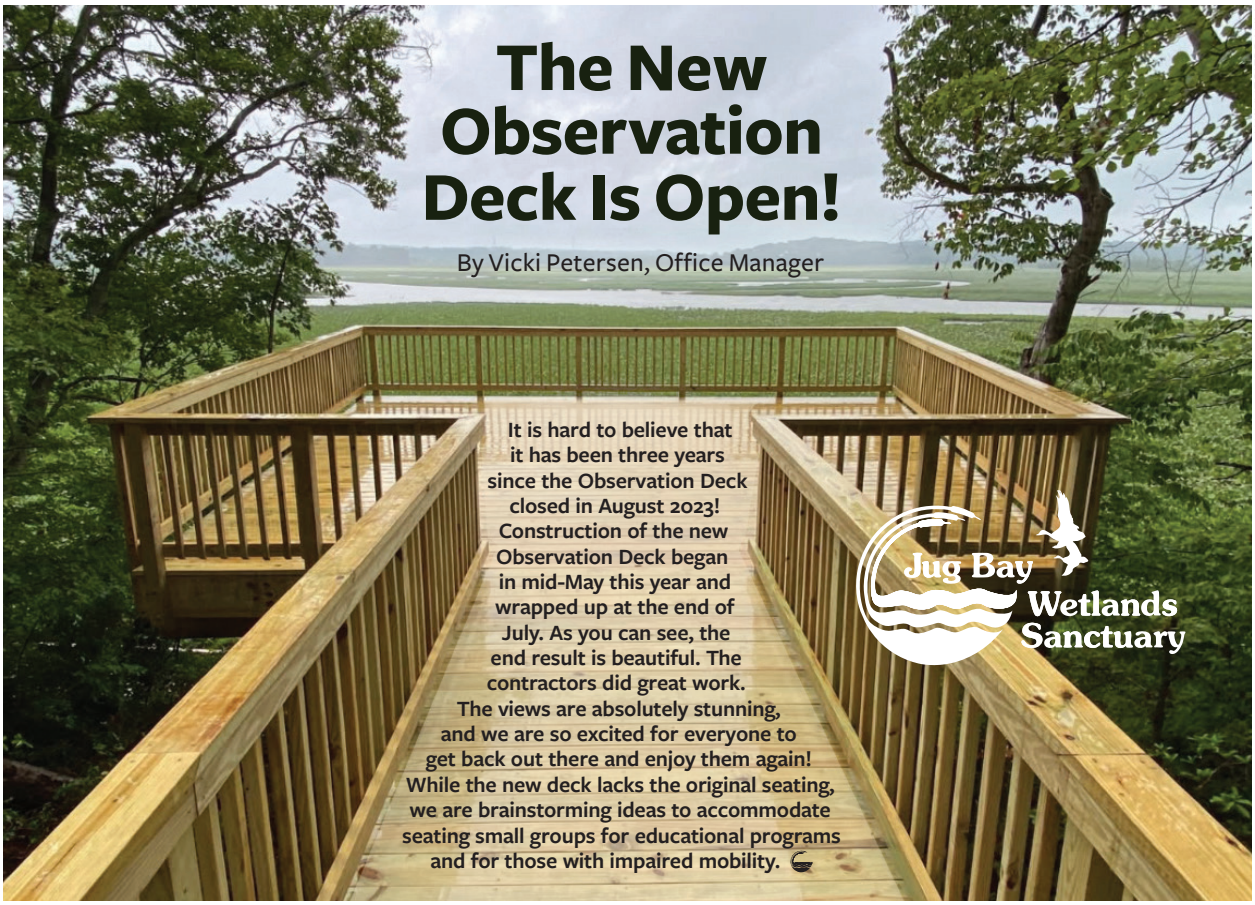
Jim was honored as a 25-year volunteer at the 2011 Volunteer Appreciation Social.

FALL 2026

VOLUNTEER AT JUG BAY!

Discover opportunities at jugbay.org/volunteer

For more information, contact Volunteer & Program Coordinator Debra Gage at rpgage00@aacounty.org or call 410-222-8006.



WAYNE BIERBAUM

The New Observation Deck Is Open!

By Vicki Petersen, Office Manager

It is hard to believe that it has been three years since the Observation Deck closed in August 2023! Construction of the new Observation Deck began in mid-May this year and wrapped up at the end of July. As you can see, the end result is beautiful. The contractors did great work. The views are absolutely stunning, and we are so excited for everyone to get back out there and enjoy them again! While the new deck lacks the original seating, we are brainstorming ideas to accommodate seating small groups for educational programs and for those with impaired mobility.

Jug Bay Wetlands Sanctuary