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A view of part of the restored wetlands at Wootons Landing Wetland Park. Photo by Liana Vitali.

## Celebrating 35 Years with Jug Bay Wetlands Sanctuary!

This year, Jug Bay Wetlands Sanctuary is celebrating its 35th anniversary and there is much to be proud of as we continue to deliver high quality environmental education programming, offer engaging stewardship and citizen science projects, and provide exciting opportunities for outdoor recreation. We invite you to discover or rediscover who we are and what we have to offer by participating in our JUG BAY DISCOVERY CHALLENGE!

To be a winner for our challenge, each participant will have to be part of an activity/program at each of our properties. Suggested programs are listed below, but for additional activities visit our calendar of events at [www.jugbay.org](http://www.jugbay.org). Cut out the table below (or pick it up at our main office) to keep track of the properties you have visited and to have it validated by the program lead. The challenge should be completed by August 31st. *Sanctuary staff will offer a super fun VIP canoe excursion to all the winners on Saturday, September 13th, 2020.*

*Continued on page 2*

### JUG BAY DISCOVERY CHALLENGE PASSPORT

Participant Name: \_\_\_\_\_

Sanctuary Property	Suggested Program	Date	Time	Activity Validated
Sanctuary Proper	Awesome Osprey	03/22	1:00 pm	
Glendening Nature Preserve	The Archaeology of Glendening Nature Preserve: A Hike through History	04/04	9:30 am	
Patuxent Wetlands Park	Trash Clean-Up	05/02	9:00 am	
Wootons Landing Wetland Park	Free Paddle Play Day	06/13	10:00 am	
Jug Bay Farm Preserve	Mysteries of the Marsh: Sunrise Kayak	07/11	5:00 am	
Nature Preserve at Waysons Corner	Trash Clean-Up	08/22	9:00 am	



Jug Bay Wetlands Sanctuary  
 1361 Wrighton Road  
 Lothian, MD 20711  
 410-222-8006  
 e-mail: info@jugbay.org

[www.jugbay.org](http://www.jugbay.org)

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, *Citizen Science & Stewardship Coordinator*  
 Debra Gage, *Volunteer & Program Coordinator*  
 Sarah Kempfer, *Education Coordinator*  
 Richard Chaney, *Maintenance*  
 Donald Smith, *Maintenance*  
 David Rose, *Maintenance*

**FRIENDS OF JUG BAY OFFICERS:**

Colin Rees, *President*  
 Darcy Herman, *Vice President*  
 Peggy Hartman, *Treasurer*  
 John Norris, *Secretary*

**BOARD OF DIRECTORS:**

Blythe Alexander    Judy Hartman  
 Tor Bjerknes        Siobhan Percy  
 Gwen Brewer        Jeff Shenot  
 Elaine Friebele      Al Tucker  
 Jim Harle

**Marsh Notes** is produced quarterly by Jug Bay Wetlands Sanctuary.

Comments and suggestions are welcome.

Editor: Darcy Herman  
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*Celebrating 35 Years, continued from page 1*

Now, follow us on a virtual tour of the Sanctuary by reading some facts and information about each of our properties:

**Sanctuary Proper:**

In 1980 Anne Arundel County purchased 161 acres of uplands and wetlands in Jug Bay; five years later, it bought 10.4 more acres and established the land as a sanctuary. Today the Sanctuary Proper is 452 acres (including River Farm), with 11 miles of trails, including a scrub-shrub and a marsh boardwalk, which can take you through a natural experience of Jug Bay's forests, wetlands, creeks, meadows, and wildlife. Sanctuary visitors can also enjoy our nature play space, observation deck, and swamp blind. The Sanctuary Proper is home to the McCann Wetlands Center, which has an interactive wetlands exhibit and a conference room available for rent. A majority of our education and public programs, summer camps, canoe excursions, and research take place at the Sanctuary Proper.

**Glendening Nature Preserve:**

The 620 acres of Glendening Nature Preserve feature 4 miles of trails through some of the most unique habitats of Jug Bay Wetlands Sanctuary. Forest, meadow, pine and sand barrens, vernal pools, and tidal freshwater marshes traversable by the Chris Swarth Boardwalk offer a wide



**Visitors enjoying the iconic view from the observation deck at the Sanctuary Proper.**

experience of the Sanctuary's diversity in a single location. This property is the home of two restored farm buildings: Plummer House (used for meetings and some public programs) and a newly restored barn, which we hope to use to expand our environmental outdoor education and public programming in this property. Like the Sanctuary Proper and the Jug Bay Farm Preserve, Glendening also is home to a rich archaeological history. Many would agree, however, that the crown jewel of Glendening Nature Preserve is its butterfly garden (planted and maintained by dedicated volunteers), featuring both host and nectar plants, where over 45 different butterfly species have been recorded.

*Continued on page 7*



**The butterfly garden at Glendening Nature Preserve. Photo by Darcy Herman.**



## Dear Friends,

As intimated in my last note, I would like to begin by summarizing the major findings and outcomes of the FOJB Retreat held on November 16, 2019 (See sidebar to right).

A good many of the actions are well underway and will be reported in a later *Marsh Notes*.

As this is my last note as President, I would like to reflect on the almost daily accounts of humankind's deepening assaults upon the natural environment: forest fires blitzkrieging Australia; worldwide droughts and floods destroying; tornadoes ripping up the South and Midwest; and shrinking ice caps and rising sea levels. Ecosystems upon which life depends are now imperiled, and we have just learned that the past decade was the hottest ever on record.

There are many issues on our doorstep. A staggering 3 billion or 1 in 3 birds have been lost to North America since 1970, diminishing their important role in pollinating plants, dispersing seeds, and controlling pests. And in the last 20 years in Maryland, waterfowl have been disappearing from our creeks, swallows abandoning nesting sites beneath piers because of rising sea levels, and the Baltimore Oriole and other breeding birds advancing northerly from the state due to warming conditions. The disappearance of islands in the Chesapeake Bay and coastal bays and forest loss and fragmentation have seen precipitous declines in most wildlife. Wetlands are under threat from sea level rise, and the health of the Chesapeake Bay received a D+ grade in 2018.

True, there are valiant attempts to reverse these and other damaging trends, but the toiling wildlife conservation movement often faces hostility and outright skepticism or denial, and the wounds suffered run deep. There is also the fact that addressing environmental problems has been largely piecemeal and often fails to impact at a scale demanded if we are to effectively protect natural habitats and life-sustaining properties upon which we all depend. Placing a value on the goods and services provided by the natural world still gains little traction with economists, and there is surely an intellectual failure of governments and influential institutions to embrace compelling evidence of climate change.

Dr. Astrov in Chekov's *Uncle Vanya* listens to the axing of trees at a country estate and asks "One hundred years from now, the people who come after us, for whom our lives are showing the way—will they think of us kindly? Will they remember us with a kind word?" We must ask ourselves the same question.

I now hand over the Presidency to John Norris. John's service as Secretary to the FOJB Board has been outstanding, and his commitment to conserving the Sanctuary and the region will serve him well in the tasks ahead.

My best wishes to him and all FOJB members.

Colin Rees, *FOJB President*

## Findings and Outcomes from Retreat:

- Expansion and diversification of the Board with inclusion of expertise and experience in the priority areas of fundraising, marketing, and advocacy;
- Acquisition of an accountant to meet auditing and other federal and state requirements;
- Creation of finance plan to identify priority funding needs over a 3-year period;
- Enhanced communications/outreach with membership and general public to acquire more FOJB members and increase awareness of the Sanctuary; and,
- Updating of the Operational Guidelines to reflect the emerging FOJB agenda in support of JBWS.

### Actions to be taken:

#### A. Fundraising

- Support overnight cabins at the Jug Bay Farm Preserve and undertake improvements for the Riggelman House.
- Acquire additional kayaks;
- Fund staff visits to the Palo Verde National Park, Costa Rica;
- Garner county support for an additional JBWS full-time Naturalist;
- Hold a fundraising event at the RFP in 2020 and donors meeting in 2021; and,
- Revise the budget structure and align with the calendar year.

#### B. Communications/Outreach

- Develop a communications plan and undertake a campaign to acquire new members and improve communications with volunteers;
- Establish an Events Coordinator to heighten profile of the Sanctuary; and,
- Create and distribute a Friends' Annual Report and FOJB brochure in time for the FOJB Annual Meeting in April 2020.

#### C. Strategic Plan

- Update the Plan to reflect FOJB vision and goals and emerging agenda and priority needs of the Sanctuary; and,
- Affirm FOJB Committee structures.

## We welcome new and returning FOJB members:

*Blythe Alexander*

*Janine Barillot*

*David Chan*

*Lilliam Oliva Collmann*

*Jeffrey Davis and Jane Beard*

*Camilla Day*

*Maria B. Delgado*

*Janet and Carlo Echiverri*

*Michael Fritz*

*Chris Junkins*

*Mary McClellan and Tom Wiltshire*

*Laurie McGilvray and Walter Mulbry*

*Joseph Murias*

*Robert Schumann*

*Alex Schwam*

*Timothy Seeley*

*Shaun Snodgrass*

*Robert and Joyce Stark*

*Carol Walker*

*Suzanne Weber*

*The Sparrow-Wolf Family*

*Eron Worley*

# Using Citizen Science Data to Analyze Changes in Four Waterfowl Species at JBWS

By Sydney Naughton, *Jug Bay Wetlands Sanctuary Intern, Fall 2019*

Since 1990, citizen scientists at Jug Bay Wetlands Sanctuary have volunteered their time to hike throughout the sanctuary and record every bird seen or heard. My goal in 2019 was to organize the raw data to be able to analyze how different bird populations have changed throughout the years and

seasons, meaning that volunteers completed the survey at least once per month from November through April. Of the 94 species for which there was data, I analyzed a total of 10 species recommended to me by some of the citizen scientists themselves. Of the 10 species, I found four with interesting changes in their populations. These species included Osprey (*Pandion*

*haliaetus*), Double-crested Cormorant (*Phalacrocorax auritus*), American Black Duck (*Anas rubripes*), and Northern Pintail (*Anas acuta*).

Osprey have been on the rise at the national level since the banning of DDT. The results I found after analyzing their data collected at JBWS showed that their populations increased with significance

*Continued on page 8*



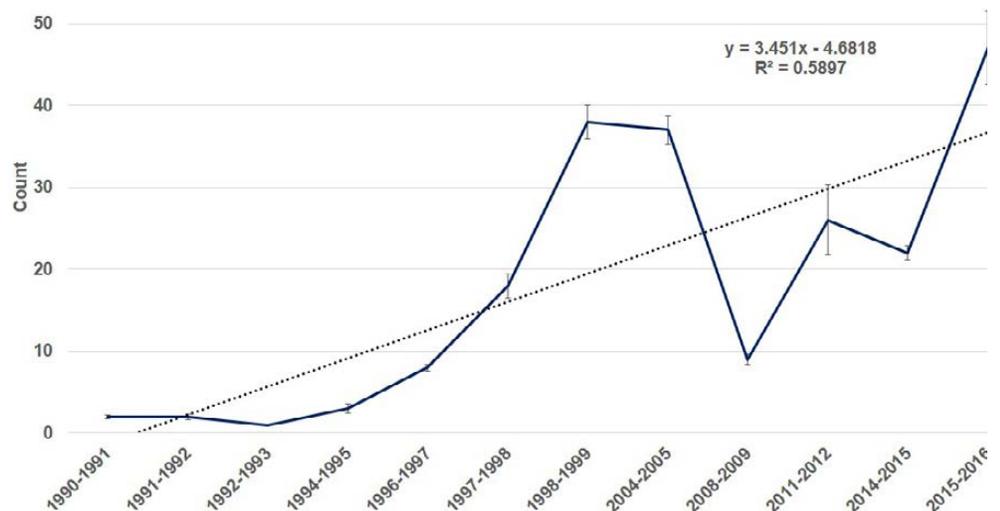
**Double-crested Cormorant**



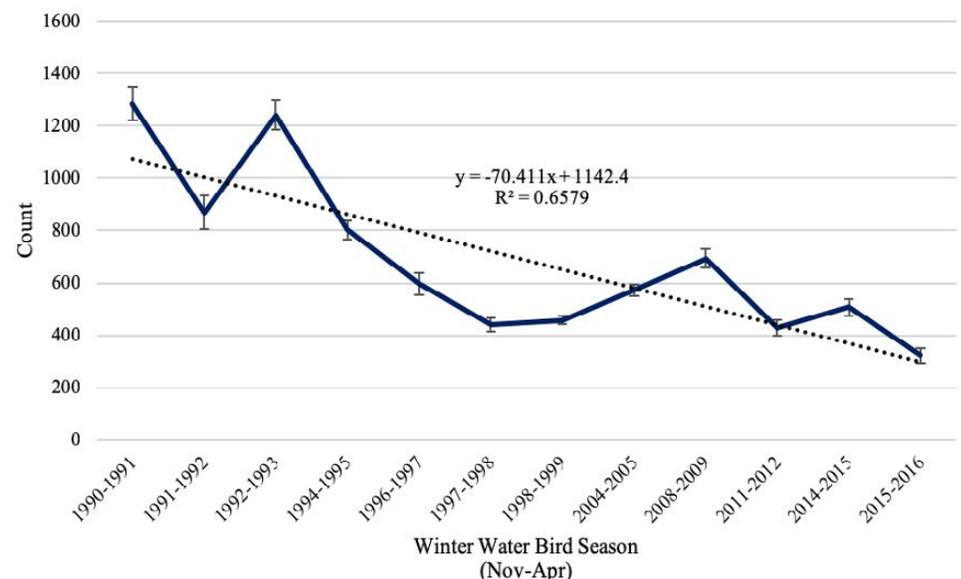
**American Black Duck**

to look at potential causes for these changes.

To gather the data, the citizen scientists walked the same path at the same time, which included several planned stops. However, birds were accounted for during the entirety of the hike, stopping mid-hike if necessary. The bird counts were conducted through the Winter Waterbird Survey season, which begins in November and runs through April. Between 1990 and 2018, there were a total of 12 complete survey



**Figure 1. *Phalacrocorax auritus*, or Double-crested Cormorant, showed a moderate significant increase in population from 1990 to 2016 ( $R^2 = 0.5897$  for a linear trend; dotted line).**



**Figure 2. *Anas rubripes*, or American Black Duck, showed a relatively significant decline in population size from 1990 to 2016 ( $R^2 = 0.6579$  for a linear trend; dotted line).**

# Monitoring Water Quality in Jug Bay’s Streams

By David Davis, Kim Elliott, Bob Smith, and Peter Uimonen (*Jug Bay Wetlands Sanctuary Water Quality Volunteer Team*)

Wetlands are among the most critical ecosystems in our region. They provide protection for our rivers and the Chesapeake Bay by trapping polluted runoff and slowing the flow of excess nutrients and sediment while also providing habitat for birds, mammals, fish, and insects. The wetlands of Jug Bay interact with both the Patuxent River and the three main streams that wind through the sanctuary—Galloway Creek, Pindell Branch, and Two Run Creek—which makes the water quality of those streams an important concern. Most of these streams’ watersheds lie within Jug Bay Wetlands Sanctuary (JBWS), but their headwaters lie outside it, and human activities in these areas can affect the water quality. Monitoring what is happening with these streams is one of Jug Bay’s ongoing citizen science projects.

Every month since 2010, Jug Bay volunteers have collected data and samples from two sites along each of the three streams. Upstream sites are near where the streams enter JBWS, which reflect water quality from the watershed. Downstream

sites represent water quality after passage through the Sanctuary. For each of the six sites, volunteers record data for dissolved oxygen, pH, conductivity, and water temperature and collect water samples for nutrient analyses. The levels of nitrogen, phosphorus, and ammonium are measured at the Chesapeake Biological Laboratory.

*Every month since 2010, Jug Bay volunteers have collected data and samples from two sites along each of the three streams.*

The origins of the three streams differ in size, extent of land use, and population density, which has important implications for water quality. The project’s design allows us to evaluate and compare the water quality across the streams as well as assess the impact of the natural habitat on improving water quality between upstream and downstream sites.

Our results show that none of the streams entering the Sanctuary is in pristine,

or “natural,” condition. The data for Two Run Branch show the best water quality and lowest nutrient concentrations. Earlier research on fish and macroinvertebrates in the streams confirms this. The data also show that Galloway Creek is the most degraded of the three streams. This is not surprising considering that it originates in the Waysons Corner area and receives relatively more stormwater runoff, as well as wastewater treatment effluent. Pindell Branch flows through the least-populated watershed of the three and is healthier than Galloway. Yet there is evidence of somewhat elevated nutrient levels that may originate from nearby agricultural land.

Figure 1 indicates that nutrient levels generally decline between upstream (1a) and downstream (1b) sites. Both phosphates and nitrates may be removed by being absorbed through processes occurring within the sediment and by being taken up by plants and other

*Continued on page 9*

Figure 1a. Upstream Nitrogen Levels, 2010 - February 2019

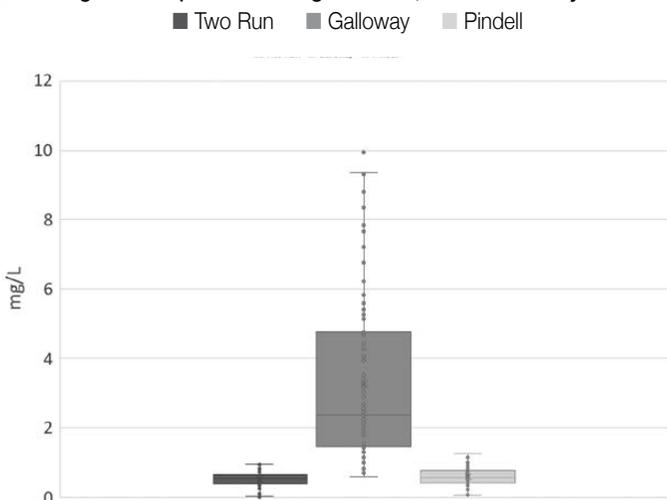


Figure 1b. Downstream Nitrogen Levels, 2010 - February 2019

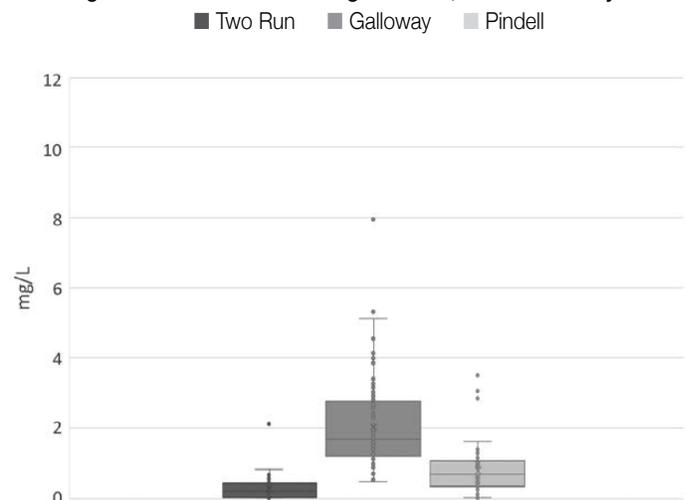


Figure 1. Nitrogen levels in three Jug Bay creeks upstream (1a) and downstream (1b), 2010–February 2019. Boxes in these plots represent the 25th to 75th percentiles of the data distributions, while outliers fall beyond the whiskers.

## Jug Bay Wetlands Sanctuary 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](http://www.jugbay.org) for directions, information and updates to our schedule.

**Registration is required for all programs.**

Please call 410-222-8006 or e-mail [programs@jugbay.org](mailto: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](http://www.jugbay.org) and follow links to public programs offered at JBWS.**



## Join the South County Community Garden at Jug Bay River Farm!

Work with others to grow a wide variety of organic produce for yourself and the local community. Yearly fee is \$200 per family to cover costs, and members help at the garden for 10 hours per month, usually on Saturday mornings.

It's a great way to eat healthy, get fit, meet new friends, introduce kids to gardening, and help out others! Sign up now by contacting Lloyd Lewis at [lewislf@msn.com](mailto:lewislf@msn.com). For more information, see the article in the fall 2019 *Marsh Notes*.



**JBWS Maintenance Worker David Rose.**

## Welcome David Rose!

I've only been a Maintenance Worker here at Jug Bay Wetlands Sanctuary for a few months now, but I've been coming here for as long as I can remember. My mom came here with me to walk around when I wasn't even big enough to walk yet, and ever since then I've always had a great appreciation for nature. Growing up, I would jump off the school bus and make the first thing I did when I got home a long walk in the woods. I've worked in Parks and Rec since I graduated college a few years ago, and I really enjoy it. I had the opportunity to do lab work or be shut up in an office after I graduated, but I knew I wouldn't be happy there. I enjoy working with my hands, working outside, and trying to be friendly to nature and the environment while I do that, and Jug Bay is a great place to do just that.



**View of the Patuxent River and wetlands from the small fishing pier at Patuxent Wetlands Park. Photo by Erika Zambello.**

### **Patuxent Wetlands Park:**

If you enjoy fishing or going out on the water you probably know or have been on this property, since it offers a small pier and a rugged canoe/kayak put-in. With 43 acres of forest and wetlands on the water's edge, Patuxent Wetlands Park is our second-smallest tract of land, but it is one of the most visited; about 16,000 people came to this park in 2019. Because of its high public usage and closeness to Route 4, this property faces large trash issues, thus Sanctuary staff often organize public clean-ups. We welcome you to participate in these clean-ups to help us keep this important habitat healthy for all the creatures that inhabit it.

### **Wootons Landing Wetland Park:**

Despite several attempts to engage the public in outdoor programs at Wootons Landing Wetland Park, it remains one of Jug Bay Wetlands Sanctuary best-kept secrets. Previously an old sand and gravel quarry, today Wootons Landing boasts 140 acres of restored wetlands and forests. Reptiles and amphibians from nearby habitats have eventually migrated into Wootons Landing establishing home ranges. A family of river otters have been observed frolicking in the wetlands at dusk. It seems that people are migrating to Wootons Landing as well. Over 40 people attend our annual Paddle Play Day at Wootons Landing, a free, four-hour program providing families and individuals with a chance to try different watersports including canoeing, kayaking, and stand-up paddleboarding. Take the path less traveled and visit Wootons Landing on your next outing.

### **Jug Bay Farm Preserve:**

Formerly the Riggleman Preserve, the now-renamed Jug Bay Farm Preserve was purchased by Anne Arundel County in 2004 from the Riggleman family, who continued to lease the land and acted as caretakers until April 2019, at which time Jug Bay Wetlands Sanctuary began its management. This 307-acre Patuxent riverfront gem hosts 225 acres of forests, 64.5 acres of farm fields, a 0.45-acre vineyard, two creeks, and a rich archaeological history. Recently, in an effort to provide some public access to this property the Sanctuary and Friends of Jug Bay volunteers established two canoe campsites and the new Farm Connector Trail, which links the Sanctuary Proper to this Preserve. We have also started offering some public programming at this site, so come and join us to discover this beautiful part of Jug Bay.



**View of the Riggleman house at the Jug Bay Farm Preserve. Photo by Darcy Herman.**

### **Nature Preserve at Waysons Corner:**

The Nature Preserve at Waysons Corner is a success story of community action. The property was once slated to be a Target store, but the community came together to protect the land. Ultimately the development was stopped and the property was purchased by Anne Arundel County in 2008. Now it provides habitat for many plants and animals and a greenspace for all who use it. This 30-acre corridor along Galloway Creek is on the west side of Route 4 adjacent to the Glendening Preserve. The Nature Preserve at



**Natural discovery area at the Nature Preserve at Waysons Corner. Photo by Patricia Delgado.**

Waysons Corner hosts a mile-long loop trail with a connector that leads to a picnic area and a natural discovery area that is wonderfully designed for the imaginations of young children. Visitors can park next to the Sunoco gas station or along Sands Road. Find younger woods on the north end and older growth to the south, along with the meandering Galloway Creek.

## Meet the Friends of Jug Bay Board: John Norris

I am a native of deep, south Texas where I was raised in the shadow of Mexico. I earned a B.S. in Biology at Southwest Texas State University, an M.Ed. in Science Education at The University of Texas at Austin, and my Ph.D. in Educational Curriculum and Instruction at Texas A&M University.

I began my professional career as a high school biology instructor, a position I held for ten years. While at Texas A&M working on my Ph.D., I became involved in international work for the university, which eventually led to serving as the director of a branch campus of TAMU in Koriyama, Japan. Following the directorship, I engaged in a number of leadership positions: Provost (CEO) of Minnesota State University in Akita, Japan; Regional Educational Director of CEDU Schools of Idaho; President of TransPacific Hawaii College; President of The Graduate Institute of Connecticut; Director of an M.Ed. program at Lipscomb University in Nashville, TN; and Graduate Instructor of Ed.D. Courses at The University of Maryland at College Park.

Throughout my career, I have been involved in a strong volunteering effort, with the two most notable efforts being five years with Hanauma Bay in Honolulu, HI, serving on the board of directors of the Friends of Hanauma Bay; and, most recently, seven years with Jug Bay Wetlands Sanctuary serving on the board of directors of the Friends of Jug Bay. I have a strong interest in ecological relationships as found anywhere in the world and in helping people to understand those relationships. In Hawaii my interest was centered around the coral reef, and in Maryland my interest is centered in the marshes of the Patuxent River, where I lead groups of visitors by canoe into the marshes to study the ecological relationships of the wildlife found there.

I and my wife, Dr. Donna Wiseman, formerly the Dean of the College of Education at The University of Maryland, enjoy life at our home in Bowie.



**FOJB Secretary John Norris.**

### *Waterfowl Species, continued from page 4*

( $R^2 = 0.8221$ ) between 1990 and 2016 at the local level as well.

Double-crested Cormorant populations have been increasing nationally since the 1970s. The data collected at Jug Bay proved they significantly increased here as well between 1990 and 2016 (Figure 1). Their local and national population increase can be attributed to the ban on DDT, their addition to the Migratory Bird Treaty Act, and water quality improvements.

American Black Duck populations significantly declined at Jug Bay from 1990 to 2016 (Figure 2.). They are losing coastal habitat as well as being a primary species for duck hunters. While hunting restrictions in Maryland are stricter for American Black Duck than for other waterfowl, with a shortened season, their populations are still declining, posing an interesting question as to what could be causing the decline at the local level.

Northern Pintail data did not show a significant increase or decrease; however, it did show extreme fluctuations. There was a big increase in the population from 1998 to



*Long-term studies such as this one are important to be able to compare population changes with environmental changes and to better understand how to implement effective conservation practices.*

2008 and a substantial decrease from 2008 to 2016. Hunting regulations for Northern Pintail in Maryland have become stricter,

going from a daily bag limit of two pintails in 2013 to the current daily bag limit of one pintail. Again this poses an interesting question as to what could be causing the more recent decline.

Long-term studies such as this one are important to be able to compare population changes with environmental changes and to better understand how to implement effective conservation practices. Proving conservation efforts to be unsuccessful is just as important as proving them to be successful to better understand how to adapt our protections to promote the success of future populations.



**Water Quality Volunteer Team. From left to right: Robert Smith, Peter Uimonen, Kim Elliott, and Dave Davis. Photo by Patricia Delgado.**

organisms. Further study of nutrient removal—and the exceptions to it—may reveal more about the value of the environmental services the streams provide.

You can learn more about water quality at the Sanctuary from a poster on display in the Wetlands Center. With the help of long-time volunteer Bob Smith, JBWS also presented the poster at the Maryland Water Monitoring Council annual conference in December 2019.

## Winter Donations:

**Doris Schmitz:** baskets and outdoor planting pots for Jug Bay Farm Preserve; **Dave Perry:** oak bookcase for new offices.

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



# 2019

## ACCOMPLISHMENTS

### SCIENCE & PROTECTED HABITATS



- 8,500 trees planted in impacted emerald ash borer forests
- 184 invasive ailanthus trees removed
- 120 PAXCON participants
- 6 research interns completed projects
- 4 mile new trail to Jug Bay Farm Preserve
- 1 native bee study completed

### OUTDOOR EDUCATION

- Total Sanctuary visitors: 37,666
- Student field trip participants: 2,078
- Children & adults canoed on the river: 488
- Canoe excursions offered: 50
- Classrooms in the Field trips provided: 59
- Camps offered: 8



**FIRST EVER**  
climate change field trip, forest pre-school camp, & grownup summer camp

### OUR VOLUNTEERS!



- 4,370 hours donated
- \$111,000 value of volunteer hours served
- 472 Volunteer naturalists spent leading field trips
- A poster presented at a professional meeting by our water quality volunteers!

### PROUD OF:

- Jim Harle:** Rec&Parks Ron Blake Outstanding Volunteer Award
- Al Tucker:** Rec&Parks Director's Citation Award

First international professional exchange with Palo Verde National Park in Costa Rica



The Sanctuary is now managing the Jug Bay Farm Preserve previously known as the Riggelman Property



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

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Check out the  
CBNERR-MD web page at  
[www.http://dnr.maryland.gov/waters/cbnerr](http://dnr.maryland.gov/waters/cbnerr)



Reserve Biologist Becky Swerida visually surveying SAV at Jug Bay without disturbing the silty creek bottom, with the help of Stewardship Coordinator Chris Snow. Photos by Kim Grubert.

## SAV at the CBNERR Sites

By Becky Swerida, Reserve Biologist, CBNERR-MD

Seaweed, seagrass, bay grass, that annoying green stuff, whatever you call it! Most people who live in the Chesapeake Bay watershed have heard of submerged aquatic vegetation (SAV) and how amazing and important it is to the ecosystem. It brings benefits like creating habitat for baby fish and crabs, improving water clarity, and taking up excess nutrients, among other things. In 2019 more freshwater flowed into the Bay than the Chesapeake has seen in 82 years, resulting in difficult conditions for sensitive SAV species. The diversity of species of SAV in the Bay helps the population to be extremely resilient, however, and several species adapted to lower salinity have done very well over the past year!

Despite the Bay-wide challenges, 2019 was a pretty great year for SAV in both the Otter Point Creek and Jug Bay components of Maryland's Chesapeake Bay National Estuarine Research Reserve (CBNERR). Both areas are populated by freshwater-

loving and lower-water-light-tolerant species such as Coontail (*Ceratophyllum demersum*), Spiny Naiad (*Najas minor*), and of course Hydrilla (*Hydrilla verticillata*). Although Hydrilla is an invasive species from Brazil that is less desirable, it performs many of the same positive ecosystem functions as its native counterparts. Both Reserve components had extensive, dense SAV beds this season with species diversity and visibly clearer water within the beds.

CBNERR's long-term SAV monitoring program allows the staff to learn a lot about the effects of unique weather events and shifts in habitat conditions like we saw last year. The program is growing and changing, too! After piloting the method in 2018, a new long-term monitoring protocol was introduced at both Otter Point Creek and Jug Bay. SAV species and percent coverage were observed along long-term transects by scientists floating on a paddle board (looking very dignified). Small samples of biomass

were collected to obtain more detailed information about the plants' productivity and morphology. This protocol is consistent with the monitoring conducted by the Maryland Department of Natural Resources' Resource Assessment Service, Chesapeake Bay Program's SAV Workgroup, and other NERR sites as well as most other SAV researchers in the mid-Atlantic area. This is a great example of how science and technology are constantly changing and improving. Historically, SAV rake sampling, tong sampling, and box core sampling have all been considered state of the art, but recently less destructive and more detailed visual methods like this one have been embraced.

More exciting improvements to our CBNERR SAV monitoring efforts are on the way in 2020! The Chesapeake Bay Program's SAV Workgroup has launched a new community science program that the



Reserve has the opportunity to participate in: the SAV Watchers. Through the power of paddlers we can get an even better picture of where the SAV is and how it's doing. Check out <https://www.chesapeakemonitoringcoop.org/chesapeake-bay-sav-watchers> to learn more and keep an eye out for a training and kickoff event this spring.

Both of these new monitoring programs are most exciting because they enable the work we do here at the CBNERR sites to be a part of the greater SAV community and connect with research from around the world. There's a lot going on out there in SAV land to help our ecosystems become happier and healthier places! In fact, CBNERR is also helping to plan the 14th World Seagrass Conference and International Seagrass Workshop happening this summer for the first time in the U.S., right here in Annapolis. This is a great opportunity for us to showcase the resilient wonder of the Chesapeake Bay's SAV successes and connect with the international seagrass community.

4 RESEARCH & EDUCATION INTERNSHIPS

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Internships are sponsored by: The Friends of Jug Bay and the Maryland Chesapeake Bay National Estuarine Research Reserve



# SPRING 2020



DEPARTMENT OF RECREATION AND PARKS

**Jug Bay Wetlands Sanctuary**  
**1361 Wrighton Road**  
**Lothian, MD 20711**  
**410-222-8006**



*Save the Date—coming up soon!*



## Friends of Jug Bay Annual Meeting

**Sunday, April 26, 2020**

Join the Friends of Jug Bay at their annual meeting for refreshments, an update on FOJB activities, and a presentation by Anne Arundel County Executive Stuart Pittman.

