DELAWARE CENTER FOR THE INLAND BAYS

INLAND BAYS JOURNAL

Summer 2024





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From the Director

30 years. The point in many of our lives where we have made the leap from impulsive and impetuous to confident and capable. Granted, not all of us have fully succeeded in that transition, but the assumption is that we've had time to learn some things and put them to good use.

That is the story of the Center for the Inland Bays. Over our first 30 years, we've gotten to know our Bays and their watershed in the



most intimate of ways—spending the night with them on our midnight horseshoe crab surveys, poking and prodding into its soils and waters to learn its chemistry and biology, and witnessing in awe how this intricate and delicate system produces fish, shellfish, osprey, bald eagles, and all the other plants and animals that sustain it—and us.

How do they do it? It's a partnership. The waters and lands sustain each other; the land and its trees and grasses filtering pollutants out of rainwater before it reaches the water. The waters produce fish and shellfish that nourish our wildlife and sustain a substantial recreation economy.

How do we know this? It's a partnership. Our 30 years of maturation have taught us that it takes a lot of hands to care for this special place. And we know it's special because over that time, thousands of our neighbors, friends, and visitors have pitched in with money and time as volunteers to survey our fish, count our diamondback terrapins, tag our horseshoe crabs, plant our trees, and do all the other things that keep this ship from running aground. Another way to look at it is that thousands of people have monitored and cared for this patient of ours—taking its temperature and bandaging its wounds.

Looking to our next 30 years, all these natural and human partnerships will be even more critical. If we love what we have, we will have to work together to save it. Seas around us are rising, storms are packing a bigger punch, temperatures are soaring, shorelines are eroding, and salt marshes and our small islands are disappearing before our eyes. All this threatens the delicate web of life that sustains this treasure we love and the 4.5 billion dollar-a-year economy it drives.

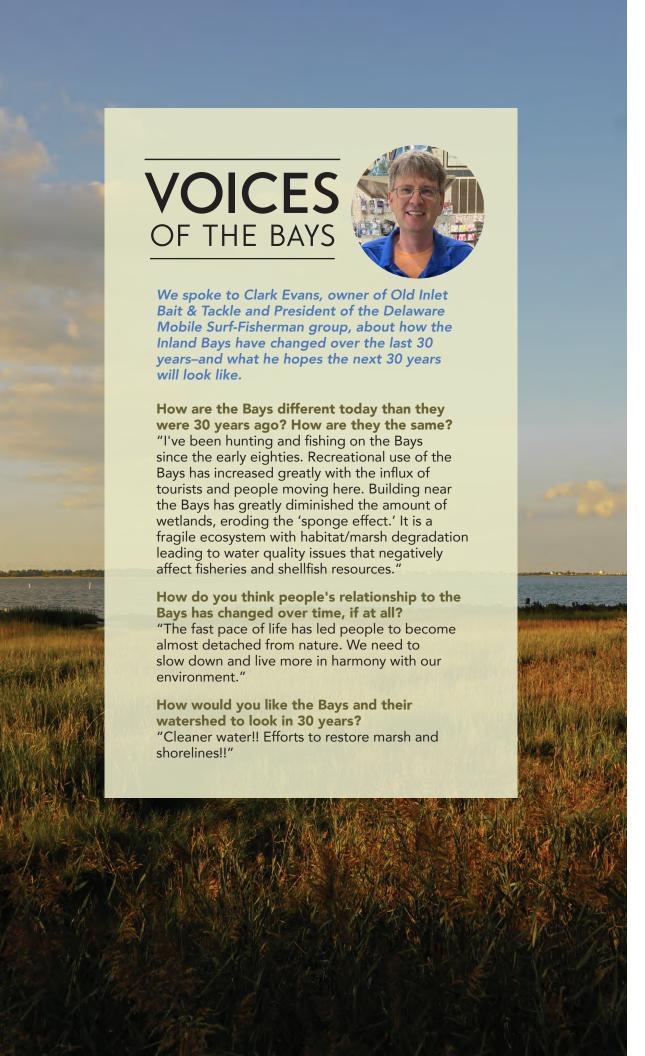
The good news is that our Bays have taught us much about what they need in this changing world. Like what, you might ask?

First, we need to assess the Inland Bays watershed's vulnerabilities, which—thanks to language Senator Carper has included in the Water Resources Development Act now winding its way through the United States Congress—we hope to do with the assistance of the U.S. Army Corps of Engineers. With that knowledge, we can better target our efforts to restore salt marshes, our first and best line of defense against the ravages of coastal storms and flooding and ensure critical habitat for our nesting birds and many of the fish and shellfish we relish.

We will also have much better ideas of where and how to expand living shorelines throughout the watershed. Unlike bulkheads, these natural features not only protect our properties and communities from erosion and flooding, but also provide home to bay grasses, nurseries for diamondback terrapins, and prime horseshoe crab territory—a boon for shorebirds that thrive on their eggs.

Indeed, we have learned much over our first 30 years. And working with our land and water and the many partners who've helped us learn so much, we are ready to tackle—with their and your help—the challenges of our next 30 years.

Christophe Tulou, Executive Director





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We spoke to Aimee Isaac, educator and Center Board Secretary, about what we can all do today to help preserve, protect, and restore the Bays for another 30 years.

Get Outside

"My biggest piece of advice for future generations is to get outside and experience all the Bays have to offer. When we spend time in nature, we learn to cherish it and it motivates us to do our part to protect it, and protecting it looks different for each of us. It's important to choose activities that are meaningful to you."

Changes on the Horizon

"I'm optimistic that more and more people care about our local environment. Change is never fast. Part of the problem is that even though most people do care about the environment, they're not sure what they can do to make a difference. We all have a part to play."

30 Years Ahead

"In 30 years, wouldn't it be wonderful if the Bays and their watershed saw a vast improvement in their connected habitat? Imagine if we slowed development and increased our buffers along waterways, while at the same time reducing impervious surfaces. Imagine if we reforested critical habitats and gave wetlands room to grow in others. What if every HOA had environmental committees that required homeowners to use safer lawn care, allowed weeds, and pushed for homeowners to clean up dog waste?"

It's Everyone's Responsibility

"I wish people understood just how connected their backyard is to the watershed and to each other. Whether you live here, recreate here, or work here, how you care for your lawn, what you plant, how you dispose of your waste, how you commute and shop, and the local farming practices, all impact which nutrients are lingering nearby, waiting to be washed away when it rains. Each of us is responsible for the health of the watershed. Caring for the Bays doesn't just happen when we are standing on the shore.

VOICES OF THE BAYS

As some of the original stewards of the watershed, the Nanticoke Nations have a unique perspective on the issues facing the Bays. We asked four Nanticoke youths about their connections to, viewpoints on, and hopes for the Inland Bays.

Charlotte Cline Age: 12

Tribe: Nanticoke Indian Tribe

"My hope for the Inland Bays in the future is that there is more education provided and more work done to keep it clean and healthy and to keep the ecosystem alive and safe. Looking ahead I would love to see different community members taking roles in which they teach people about the history of our Inland Bays and surrounding tributaries, and that we have checkups every once and awhile on how everything is going. Also, maybe plant some different plant species that are native to that area to make it more sustainable for a well-fed and protected environment. I could see myself helping in lots of different ways and am very excited to learn more and help preserve our land and water for the future!"

Maehawiaki Ridgeway Age: 13

Tribes: Nanticoke, Nanticoke Lenni-Lenape

"I would say I connect with our Inland Bay by just spending time near it. One of my favorite things to do is to collect sea shells from the sand and the shallow parts of the water. Just looking at how perfectly those shells slightly reflect the sun, making them shine beautifully makes me want to just stare in awe at their beauty for hours on end. I'm truly thankful that we've been able to keep our land and sea nice enough, as I know many people have done their absolute best at trying to clean out the pollution from many things nearby. I'm so proud that we can say we've truly tried to help the bay and forest from pollution and that we'll continue to help for generations to come."

My community
has a STRONG relationship
with the nearby Inland Bays

Artwork by Osahpekwe Ridgeway

Age: 7

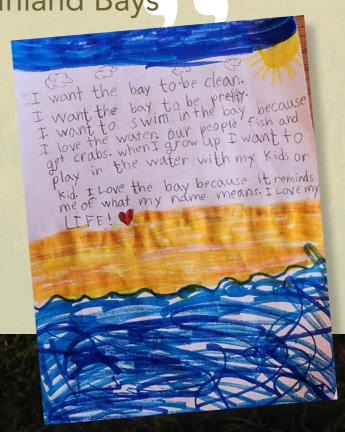
Tribes: Nanticoke, Nanticoke Lenni-Lenape

Delilah Rose Jackson

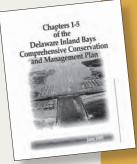
Age: 9

Tribes: Nanticoke, Lenape, Cherokee

"My community's relationship to the Inland Bays is we have always lived by the water and are called the "Tide Water People". I hope to protect and learn more about Inland Bays so people after me can have them to go to."



What is a CCMP?



In the simplest of terms, a CCMP is a roadmap for protecting and restoring the estuary, developed through the collaborative efforts of various agencies and groups. Every NEP must develop and implement a CCMP. All of the Center's work is linked to actions identified in the Inland Bays CCMP.

Much was done to ensure that the original CCMP reflected the public interest, noting the importance of identifying actions "directly linked to the needs of people living, working, and playing in the watershed." Subsequent addendums and updates to the CCMP carried forward this intention, with a diverse group of partners and the public engaged through surveys, workshops, and public forums. The Inland Bays CCMP was last revised in 2021.

Total Maximum Daily Loads (TMDLs) for nitrogen and phosphorus established for Indian River, Indian River Bay, and Rehoboth Bay.

Inland Bays Tributary Action Team formed, representing the beginning of Volunteers for the Bays.

The Center assumes management of the James Farm Ecological Preserve through partnership with Sussex County.

1998

Education begin at a Ecologica

Environmental Study of Rehoboth, Indian River, and Assawoman Bays commissioned by Governor Russell W.

Peterson.

1969

US Congress establishes the National Estuary Program via section 320 of the Clean Water Act.

Governor Michael N. Castle nominates the Inland Bays to the National Estuary Program.

1987

Center for the Inland Bays established as an independent nonprofit by the Delaware General Assembly and then-Governor, Tom Carper, via the Inland Bays Watershed Enhancement Act.

1994

State of Delaware designates the Inland Bays and their tributaries as waters of Exceptional Recreation or Ecological

Significance (ERES).

1985

Inland Bays officially designated as a National Estuary Program.

1988

The first Comprehensive Conservation and Management Plan (CCMP) for Delaware's Inland Bays submitted to Governor Tom Carper and the US Environmental Protection Agency.

1995

Delaware Nutrient Management Program established by the Delaware General Assembly to reduce nutrient pollution from farmland.

1999

Volunteers for the Bays



In 1998, citizens from all parts of the watershed formed the Tributary Action Team and worked for years to develop Pollution Control Strategies for the Inland Bays. Since then, thousands of Center volunteers have given countless hours to participatory science, outreach and education efforts, shoreline and habitat restoration projects, management of the James Farm, service on committees and the Board of Directors, and so

much more. Many of the Center's major accomplishments over the years wouldn't be possible without their help.





Bob Collins, winner of 2005 Friend of the Bays award and now Manager of Programs and Facilities, pictured in 2004.



tion Programs at James Farm gical Preserve.

Inaugural "Gardening for the Bays" Native Plant Sale held.

Volunteer Bob Collins wins "Friend of the Bays" Award.

TMDLs established for Little Assawoman Bay and the major tributaries of the Inland Bays. Photo by John Hoyt



Horseshoe Crab Survey Launched

DNREC develops the Inland Bays Pollution Control Strategy. Inland Bays Tributary Action Teams coordinated by the Center helped gather public input to inform the plan.

Salt Marsh Monitoring program launched.



Addendum to the Inland Bays CCMP completed.

Inland Bays Shellfish Aquaculture Tiger Team established to consider the opportunities and challenges of allowing commercial shellfish aquaculture in the Inland Bays.



Statewide Living Shoreline Committee convened to promote and facilitate the use of living shoreline practices along Delaware's waterways.

Don't Chuck Your Shucks (oyster shell recycling) program created.

Master Plan for the James Farm Ecological Preserve completed.

 2001
 2006
 2011
 2013

 2005
 2008
 2012
 2014

Newly elected Governor Ruth Ann Minner performs her inaugural Wade-In in Rehoboth Bay to raise awareness for the Inland Bays.



Photo credit: Ron MacArthur

The Center relocates into a new facility on the Indian River Inlet.

Inaugural Decked Out fundraiser held.

Sudden marsh dieback affects 40% of salt marshes in the Inland Bays.

Slough's Gut, adjacent to James Farm Ecological Preserve, restored with meandering tidal creeks, mudflats, and pools to benefit wildlife.



The Center's office before renovation.

2011 State of the Delaware Inland Bays report characterizes the trends in bay health as mixed.

Inshore Fish and Blue Crab Survey launched by the late Ron Kernehan, volunteer fish biologist. 47 species of fish were identified.



Ron Kernehan (right) launched the Inshore Fish and Blue Crab Survey in 2011

Delaware Aquaculture Act signed into law by Governor Jack A. Markell, permitting shellfish aquaculture in Delaware's Inland Bays.



First Living Demonstrate completed Canal in Be





2016 State of the Delaware Inland Bays report finds that water quality in the Inland Bays remains fair to poor, though Little Assawoman Bay and open waters near the inlet are showing some improvements

37 acres of former cropland reforested at Bullseye-Ferry Landing Preserve in partnership with Austin (Pete) Okie, The Nature Conservancy in Delaware and DNREC Division of Parks and Recreation.



Ribbon cutting ceremony for the Rehoboth Beach ocean outfall, which marked the removal of the last point source to the Inland Bays

Watershed Reforestation Plan for the Inland Bays developed in partnership with Sussex Conservation District.

Last point source of pollution removed from the Inland Bays.

Implementation of the James Farm Ecological Master Plan begins with Phase I groundbreaking.



A record 15 fish kills occur, indicating that water quality challenges in the Bays persist and progress on pollution control is stalling.





2021 State of the Delaware Inland Bays assigns the waters of the Inland Bays a "Poor" or "D" rating, the same as the 2016 report.

 15
 2017
 2020
 2022
 2024

 2016
 2018
 2021
 2023

Shoreline tion Project on Loop thany Beach. Wastewater treatment system at Mountaire's Millsboro facility fails. Ad hoc Committee on Mountaire Pollution formed.

First leases for shellfish aquaculture in the Inland Bays issued.

First successful acquisition coordinated by the Sussex Conservation Partnership on Ware Cove Road near Piney Point.

Terrapin Survey launched.

Continuous Water Quality Monitoring program launched.



Water Quality Monitoring



The Economic Value of the Delaware Inland Bays report finds that the Inland Bays support \$4.5 billion in economic activity each year.

Delaware Botanic Gardens Living Shoreline receives Best Restored Shores Awards from the American Shore and Beach Preservation Association.

Native Plant Sale merges with DNREC's Water Family Fest, adding a suite of environmental exhibitors, educational tours, and hands-on activities to the beloved community event.

Implementation of the James Farm Ecological Master Plan continues with Phase II construction.



Delaware Botanic Gardens Living Shoreline

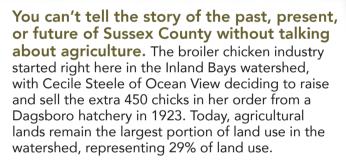


Sowing Seeds of Change: The Future of Agriculture in the Bays

The beginnings of the broiler chicken industry in Sussex County. Cecile Steele with her flock.



Photo Credit: Delaware Public Archives



Given the storied history of agriculture and its continued influence on the way we interact with the land, working together with the agricultural community is the key to success for the Bays. Farmers have the opportunity to implement conservation practices that can help limit the amount of nutrient and sediment pollution entering the Bays from croplands, while not negatively impacting their yields—a win-win for everyone.

Photo Credit: Driscoll Drones



Photo Credit: Delaware Public Archives

The Center has recently increased its focus on this community, working to identify partnership opportunities that benefit both the Bays and farmers. In partnership with the Sussex Conservation District, the Center helped to plant 1,000 acres of cover crop in 2023 by providing \$50,000 in funding for the District's Cover Crop Program. As a member of the Delmarva Land and Litter Collaborative, the Center co-hosted a listening session during the 2024 Delaware Ag Week to learn more about impediments to implementing conservation practices and how we can be better partners to the agricultural community.

This critical work will continue as the Center enters its third decade as an organization, with more listening sessions and partner engagement that will ultimately lead to more projects implemented throughout the watershed.



Storytelling Education

"An understanding of the natural world is a source of not only great curiosity but great fulfillment."

As we navigate environmental threats around the Inland Bays and the globe, education is more important than ever.

Extending beyond simply equipping individuals with the knowledge and skills to make informed decisions, fostering personal connections with the environment is at the core of this education. As Sir David Attenborough once said, "An understanding of the natural world is a source of not only great curiosity but great fulfillment." This sense of wonder further empowers individuals to take responsibility for the care of what sustains them—nature.

During 2023-2024, the Center launched its first school-year-long marine debris education program. Working along the environmental education continuum—from awareness to problem-solving to stewardship, and everything in between—the Center infused a student action component, engaging a combined total of 559 K-5th grade students from Sussex Academy of Arts & Sciences

and Phillip C. Showell Elementary Schools. Following the multi-year hiatus of the Indian River School District's (IRSD) large-scale engagement in the Student Estuary Education Program, the Center celebrated the re-establishment of its partnership with the IRSD in the spring of 2024. Staff delivered a series of environmental education activities to the district's entire 8th grade, reaching 716 students between March and April. The highly-anticipated education building at the Preserve will undoubtedly support further enhancement of the Center's youth education efforts.

The Center is also committed to raising environmental awareness and engagement with residents, starting right in their own neighborhoods. Alongside its partners, the Center is developing a recognition program to promote responsible activities within residential communities that supports healthy people, water, and wildlife. This pilot program is set to launch 2024–2025.







To ensure a sustainable future, nurturing a community of environmental stewards—both the young and seasoned—is key, and will remain a Center priority over the next 30 years.



Living shoreline at Angola by the Bay, Lewes

So, what is the alternative? Can small-scale, nature-based strategies compete with traditional engineering? Can strategies that offer ecological benefits also protect our communities? At the Center, we believe the answer is a resounding "yes!". While nature-based alternatives won't stop storms from eroding our shores or the sea levels from rising, they will build resilience and help preserve our community in tandem with nature. Here are some ways the Center is working to implement nature-based strategies:

Plant a Forest: Forests offer a long list of benefits to our environment. They filter stormwater runoff, decrease air temperature, improve wildlife habitat, remove greenhouse gasses from the atmosphere, and provide recreation opportunities. So far in 2024, the Center has planted over 29,000 trees.





completed living shorelines



3 artificial Grow a Shoreline: Traditional shoreline hardening methods, like bulkheads and seawalls, push wave energy away, intensifying it. This energy must go somewhere, and it does—eroding the coastline elsewhere, worsening the problem in the long run. Created through the careful placement of logs, plants, oyster shells, sediment, and more, living shorelines absorb and soften wave energy. Along with creating better coastal resilience, these shorelines also restore natural habitat and reduce nutrient pollution. Since 2011, the Center has completed six living shoreline projects around the watershed. There are two more currently planned.

Develop a Reef: Our Bays have soft, sandy bottoms that make it difficult for oysters to build sustainable reefs. With a single oyster able to filter up to 50 gallons of water daily, these bivalves are invaluable allies in our quest for cleaner waters. Artificial reefs provide habitat for oysters and offer refuge for other aquatic species that congregate around structures, like blue crabs and striped bass. A dynamic environment, healthy reefs can add to their structures as sea levels rise, helping them keep up with changes. The Center is currently monitoring three artificial reefs we have installed in the Bays and has plans to construct two more in the future.

Thank you to all who have supported so far!

Sussex County Council
State of Delaware
Sussex County Representatives and Senators
of the Delaware General Assembly
Outdoor Recreation Parks and Trails Program
Longwood Foundation
Crystal Trust
Welfare Foundation
Starrett Foundation
Carl M. Freeman Foundation
Rock Harbor Foundation
Farm Credit Foundation
Buckey-Clark Family Foundation
Dogfish Head
and all of our generous individual donors



Bob Collins and Mark Carter work together to erect the fundraising indicator sign for the James Farm Ecological Preserve Master Plan. At the time of publication, \$1.6 million of the needed \$2.8 million has been raised.

Why should you support the capital campaign?

Learning beyond the classroom is a portal to the wider world. New facilities at the Preserve will improve and expand environmental education programs, which heighten imagination, increase critical thinking, and empower students to take responsible action.

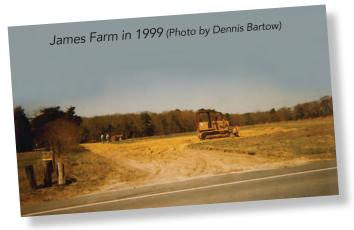
Outdoor recreation creates healthier communities. Improving access to the Preserve ensures that Delawareans have the opportunity to further develop their relationship with the natural world while reaping the health benefits of time spent outdoors.

Your support today means a brighter future for the Inland Bays. Realizing the full potential of the Preserve will give rise to more successful restoration of the Inland Bays through increased awareness of and philanthropic support for the Center's mission.



To view more details about Phase II and visuals of the planned improvements, and to donate to the Preserve, scan this code.

VISION TO REALITY:



The 150-acre bayfront property was once a working farm tended by the James Family. In 1992, Mary Lighthipe, a descendent of the family, donated James Farm to Sussex County in memory of her son. In the deed, she stipulated that the land be preserved for environmental education and outdoor recreation.

By doing so, Ms. Lighthipe created a wonderful, lasting opportunity for the community. Mature maritime forests, expansive marshes, and a serene sandy beach make James Farm an oasis where you can immerse yourself, appreciate the wonder of wild places, and feel connected to the world around you. It is nature's classroom.

Jim Alderman, former Restoration
Coordinator for the Center,
recognized this when the Center
assumed management of the
Preserve in 1998. With his boundless
passion for nature and education,
he worked every angle he could
to make the Preserve a publicly
accessible natural resource and a hub for
environmental learning.

Over the years, staff and volunteers alike have strived to build upon Jim's vision for the Preserve. More than 20,000 students have participated in immersive environmental education and we've expanded programs to include new topics for intergenerational audiences. We've taken special care of the ecosystems on site, continually working on removing invasive species, planting natives, and restoring marshes. It's become a popular outdoor destination, welcoming tens of thousands of visitors from near and far each year.

The Preserve's popularity is exciting because more visitors means more people connected to the Inland Bays. But more visitors also means that more thoughtful attention must be paid to their safety, their experience, and the protection of ecosystems.

In 2014, the Center and Sussex County sought input and ideas from Center staff, elected officials, community leaders, educators, volunteers, donors, and other

Phase II of the James Farm Master Plan

1998 was one of the most important years in the Center's history. That's when an agreement with Sussex County placed the stewardship of the James Farm Ecological Preserve in the Center's hands. The Preserve has played a key role in connecting people to our estuary ever since.



Bird's eye view of the Preserve during the 2024 Water Family Fest and Native Plant Sale. Photo Credit: Angela Vinson



Ecobay Kayak & SUP—20 seasons of exploring the Bays!



Over 20,000 students have visited James Farm since 2000

community members. The resulting James Farm Ecological Preserve Master Plan identified a series of enhancements to better serve residents and visitors of Delaware while protecting the Preserve's ecosystems and improving education and outreach opportunities.

Implementation of the Master Plan began in 2017 with Phase I, which expanded the parking lot, added sidewalks and designated school bus parking, and created a multi-purpose event lawn for community events and public recreation.

Now, we're implementing Phase II, which focuses on the Preserve's education "campus." The gem of this phase is the Susan K. Ball Environmental Education Center, named posthumously for the Center's late Board Chair. There will also be new maintenance facilities, storage for our paddlesports concessionaire, trail renovations and relocation, and new interpretive and wayfinding signage.

This tangible progress will create a vibrant community hub connecting people to nature as the Center embarks on its next 30 years of work to protect, restore, and preserve our Inland Bays. And we need your help to finish the work. Please, consider a gift to the James Farm Master Plan Capital Campaign today!



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