

Restoring Virginia Beach Waters

2019-2020 Annual report



Resolution

August 12, 2019

Honoring the victims of the tragic shooting in Virginia Beach, Virginia

Whereas Lynnhaven River NOW was founded in 2002 to restore and protect the Lynnhaven River in Virginia Beach;

Whereas we have worked in remarkable partnership with city leaders and city staff throughout the past seventeen years;

Whereas together we have made significant strides toward our goal of a clean and healthy natural environment throughout our city, expanding our work to all the waterways in Virginia Beach;

Whereas the city staff have contributed meaningfully to that progress and are our valued partners;

Whereas the shootings that occurred in Building 2 on May 31, 2019 killed or injured sixteen highly valued city staff members and devastated their families and our entire community.

Now, therefore, be it Resolved, that the Board of Directors of Lynnhaven River NOW

(1) Honors all city colleagues for their service, dedication, skill and hard work for our community;

(2) Applauds and appreciates the skill and dedication of the first responders who came to the aid of wounded and distressed staff members and contained the dreadful situation;

(3) Supports all city leaders and city staff members as we regain our equilibrium and move forward as a community.

(4) Recognizes specifically those who worked tirelessly and unselfishly to help Lynnhaven River NOW to fulfill its mission over the years.

Mary Louise Gayle who was instrumental in the Lynnhaven River Eastern Branch sanctuary oyster reef grounds transfer by naming the reef to be constructed in the Eastern Branch the Mary Louise Gayle Reef.

Richard Nettleton and Tara Gallagher who have worked closely with Lynnhaven River NOW staff in the implementation of numerous water quality improvement projects by dedicating a commemorative plaque in their memory in the Lynnhaven River NOW office at the Brock Environmental Center.

(5) Reaffirms its long standing affection and admiration for all city employees, especially those lost in this tragedy, by creating in partnership with the city, a Memorial Garden in the Municipal Center complex accessible to all city staff, families, and citizens at a location selected by the City.

Our community has been forever changed by the catastrophic events of May 31, 2019. It will take time for us to heal, but we are Virginia Beach Strong and we will move forward with even greater strength, compassion, and resolve while remembering and honoring those who perished.

The Lynnhaven River NOW Board of Directors

Dear Members,



his 2019-2020 edition of our Annual Report is dedicated to our Virginia Beach City Staff.

From the beginning of our organization in 2002, our most important partner has been the City of Virginia Beach. Together we have dug in and learned about our problems, developing a better understanding of the challenges we face in restoring and protecting our waterways. We have worked together to develop ways to educate our community members and engage everyone in this important work. And we have depended upon our city leaders to enact informed policies that reflect the high value that Virginia Beach residents place on clean water and access to natural areas.

The tragic shooting in Building Two on Friday, May 31, 2019, impacted all of us. Our city is changed forever by this event. But for those in Building Two it still resonates through their lives on a daily basis. The shooting took eleven lives and gravely injured four others. This alone is a huge loss, but the losses do not stop there. All of their fellow city staff members across the city also suffered terribly from this tragedy.

Nevertheless, we are Virginia Beach Strong and we will heal and move forward. We will be smarter and stronger because of what we have endured. Perhaps one of our lessons is to take the opportunity to thank the people who do so much every day to make our city the best it can be. Thank you to all of our city staff members. We look forward to continuing to work with you to make Virginia Beach the cleanest most resilient city on the East Coast.

Everything we have accomplished at LRNow and in Virginia Beach is because of the support of many and we offer our gratitude to all of you.

We are grateful to you who are part of our Pearl programs and are adopting sustainable practices in our homes, neighborhoods, businesses and faith communities.

We are grateful for our teachers and students who give us hope for the future. We are grateful to everyone who takes the time to understand what are often complicated policy issues and communicate your ideas and values to our elected officials.

We are grateful to everyone who participates in our monthly cleanups and our restoration projects building wetlands, oyster reefs, and planting native plants and trees.

And we are grateful to our donors for the financial support that makes all of this work possible.

Together we are making a difference!

Thank you,

aren

Karen Forget Executive Director

2019-2020 Board of Directors

Robert Wells - President Andrew Fine - Co-Chairman Harry Lester - Co-Chairman Karen Forget – Secretary Michael Barrett Craig Cope Jan Dillard Lisa Eure **Barry Frankenfied** Lillie Gilbert Steve Herbert **Brent James** Dave Jester George Kotarides Cathy Maston **Bob Miller** Gene Ross **Richard Serpe** Joan Spore **Emily Steinhilber Robert Taylor**

Cover photo courtesy of Robert Brown



LYNNHAVEN RIVER NOW



Staff

Karen W. Forget – Executive Director Helen Kuhns - Assistant Director and Pearl **Programs Coordinator** Terri Gorman – Office Manager and Event Coordinator Emily Bodsford Hatfield - Communications Coordinator Alyssa Muhlendorf - Development Director Vince Bowhers - Pearl Businesses Morgan Schmidtendorff - Pearl Homes, Neighborhoods and Faith Communities Barbara Duke - Sustainable Yard Program Jody Ullmann - Pearl Schools Dana Sizemore - Pearl Schools Brent James - Oyster Restoration Tom White – Save Oyster Shell Program Clay Bernick - Restoration Karen W. Forget - Advocacy

rom our beautiful ocean and bay beaches and the Lynnhaven River to Back Bay and the North Landing River, our waterways define our lives in Virginia Beach. They are a large part of why we chose Virginia Beach as our home. We love to kayak, surf, fish, swim, and simply enjoy a sunset over our favorite body of water while savoring some delicious local seafood.

Founded in 2002, Lynnhaven River NOW is dedicated to restoring and protecting our beautiful Virginia Beach waterways. We began with a singular focus on the Lynnhaven River watershed, but over the years, our programs have grown to include all of the watersheds in Virginia Beach. We are truly blessed with miles and miles of beaches and the busy Rudee Inlet and Owl Creek; the bountiful and accessible Lynnhaven River which winds through the entire northern part of our city from the resort area to Town Center; the magnificent North Landing River "Green Sea;" and the renowned Back Bay.

From the beginning, our work at LRNow has been shaped by these three strategic objectives:

- 1. Identify and reduce sources of pollution in our waterways.
- 2. Restore vital habitat like oyster reefs, wetlands, riparian buffers, underwater grasses, native plants, and forested lands.

3. Educate and engage the community and partner organizations in this work. For eighteen years, Lynnhaven River NOW has provided community education

and outreach opportunities to all Virginia Beach residents, teaching and inspiring adults and students to take steps to improve water quality in our Virginia Beach waterways. We have been honored to receive a Governor's Award for Environmental Excellence, a Coastal America Award, and the Dugdale Award from the Garden Club of Virginia among other recognition.

We work actively with many partners to help citizens learn how we can each contribute to conserving our valuable natural resources. LRNow has six key programs that help us to reach our goal of healthy and clean waterways: Pearl Homes and Neighborhoods, Pearl Businesses, Pearl Schools, Pearl Faith Communities, Restoration Programs, and Advocacy.

You can read about all of these programs and more on our newly updated website, LRNow.org, and in our regular newsletters, the E-News. Sign up for our newsletter on the home page of our website and learn about the many opportunities to get involved and be a part of this dynamic team.



Watersheds of Virginia Beach

irginia Beach has a very complex system of watersheds. Each has its own history and beauty and form the network of waterways that shape our land and our lives. We have eight watersheds that make up three major watersheds, the Chesapeake Bay, Atlantic Ocean,



and Albemarle-Pamlico. The Lynnhaven, Little Creek and Elizabeth River watersheds make up approximately 30% of Virginia

Beach's land area and are part of the Chesapeake Bay watershed.

The Back Bay, North Landing River, and Northwest River watersheds make up approximately 67% of Virginia Beach land area and are part of the Albemarle-Pamlico watershed.

The coastal areas and the Rudee/Owl Creek watershed flow directly into the Atlantic Ocean.

Little Creek

The Little Creek waterways were historically part of the Lynnhaven River system. Over time, some were cut off from the river to provide a source of fresh water. Today, Lake Smith and Lake Lawson are beautiful recreation and fishing areas.

Lynnhaven River

The three branches of the Lynnhaven River system, the Western Branch, the Eastern Branch, and Linkhorn and Broad Bays, and all of the coves and creeks that feed them, wind throughout the northern part of Virginia Beach. The Lynnhaven watershed is the second largest watershed in Virginia Beach and home to more than half of the city's population. This watershed contains most of the city's strategic growth areas and is densely developed with both urban and suburban areas. The Lynnhaven is a salt water estuary renowned for its delicious oysters.

Atlantic Ocean

The areas of our city that drain directly into the Atlantic Ocean are small but important. The resort area hotels and destinations are a critical part of our local economy.

Rudee and Owl Creek

Owl Creek runs behind the Virginia Aquarium and Marine Science Center and joins the Rudee Inlet to flow into the Atlantic Ocean. Rudee and Owl Creek are salty like the ocean and the home to many ocean going boats. This watershed contains several neighborhoods and forms the southern part of the resort area.

Back Bay

The Back Bay watershed contains suburban development in the northern areas and farmland and protected areas to the south. Back Bay flows into Currituck Sound and is part of the Albemarle-Pamlico system. Over its history, Back Bay has fluctuated from fresh to brackish and back to fresh. It is part of the important east coast flyway and home to many migrating waterfowl in the winter months. Back Bay is renowned for its bass fishing and duck hunting and is subject to strong wind tides.

North Landing River

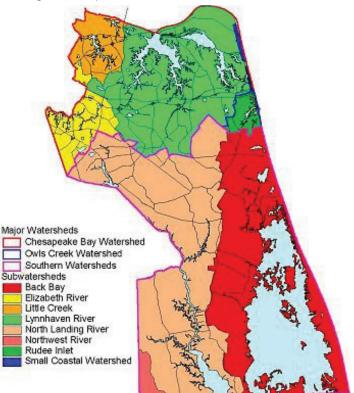
The North Landing River watershed is the largest in the city and the North Landing is Virginia Beach's only State Scenic River. This watershed contains suburban development in the northern parts, farmland, and large areas of protected forests. With its dense poccosins and many acres of protected forests, the North Landing watershed has an amazing diversity of flora and fauna and is mostly undiscovered by the residents of Virginia Beach. Like Back Bay, the North Landing flows into the Albemarle-Pamlico system in North Carolina.

Eastern Branch of the Elizabeth River

The Eastern Branch of the Elizabeth River flows from Norfolk into the Kempsville area of Virginia Beach. This is a highly developed area of our city with mostly suburban style development but some aging infrastructure. This far from the mouth of the Elizabeth River, the salinity levels and tidal influences are lower than in the Lynnhaven and Rudee/Owl Creek systems.

Northwest River

One small area in the southwest corner of Virginia Beach is in the Northwest River watershed. Most of the Northwest River is in Chesapeake and like the Back Bay and the North Landing River are part of the Albemarle-Pamlico Watershed.



The Virginia Beach Notable Tree Program

his has been a banner year for the Virginia Beach Notable Tree program (VBNT). In only the second year of its existence, the VBNT has been recognized by Virginia Living Magazine in its "Best Of Virginia 2019" edition, as well as being given an "Award of Excellence" by the Hampton Roads Association for Environmental Education. The program is approaching 200 trees, so far nominated, with 109 selected and six pending evaluation. Of that total, one of our trees (a Cherrybark Oak in Blackwater) has been placed on the State Champion Big Tree list (3rd place) by Virginia Tech, one (a Southern Magnolia in Pungo) has been declared a State Champion, and one (a Black Oak in Rosemont Forest) has been submitted as a possible State Champion and is awaiting further measurement. The program has discovered numerous historically significant trees, the oldest two of which are both approximately 450 years old. Those trees were both about 40 years old when John Smith arrived and settled Jamestown in 1607. The 2020 Virginia Beach Winter Wildlife Festival featured a lecture on the VBNT program as well as a tree tour to visit several of our Notable Trees. Of all the programs featured in the Festival, the VBNT portion was the first to sell out the available seats.

"The creature at your feet dismissed as a bug or a weed is a creation in and of itself. It has a name, a million-year history, and a place in the world."

Edward O. Wilson

Southern Magnolia in Princess Anne

Seaboard Road

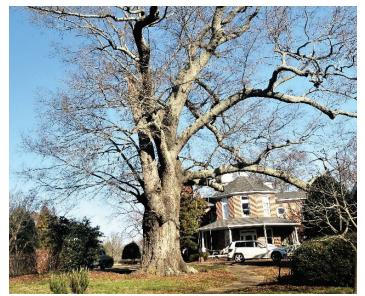
Southern Magnolia tree stands 80 feet tall in a front yard, nestled inside a small family cemetery located in the Southern part of the city. This hidden "little" gem is in fact a state champion, meaning it's the largest southern magnolia on record in the Commonwealth of Virginia. The estimated age of this amazingly healthy tree is around 300 years-old. During the warmer months, its large white flowers open sporadically and release a pleasantly fragrant smell. Magnolias are among the most primitive plants we see in landscapes and developed their organs or flowers long before bees and butterflies came on the scene. For this reason, the magnolia flowers grew to attract a different kind of pollinator: beetles. These insects may not realize the valuable service they provide while chowing down on sweet pollen from one magnolia flower to the next.

Willow Oak at Church Point Manor

Church Point Road

f this tree could talk, it would undoubtedly have some rich history to share. This 250 year old stallion sits on what was once farmland owned by Adam Thoroughgood. In front of it lies a Victorian-style farmhouse famously known as Church Point Manor, a unique bed and breakfast nestled in the Church Point Neighborhood. This Civil war era farmhouse once served as a temporary hospital for confederate soldiers. It was later renovated and became a local restaurant and event venue. A wooden swing dangles from one of the tree's mighty branches and looks like something you'd see in a story book. Oyster Restoration Coordinator, Brent James, used to bring his daughters there to swing when they were young. Brent said that "Vultures used to nest in the large crevice, leaving bones and other remains at the base of the trunk of this lighteningstricken beauty." This willow oak has experienced happy times, sad times and everything in between. A notable tree indeed.





"Then here's to the oak, the brave old oak, that stands in his pride alone; and still flourish he, a hale green tree, when a hundred years are gone." J. F. Corley

Live Oak at Bayville Golf Club

First Court Road

s you enter Bayville Golf Club, it is certainly hard to miss this eye-catching plump princess on the right hand side. At 450 years old, this live oak has persevered during the many shifts in landscape over time. She stands alone on a piece of property that was once a dairy farm purchased in 1919 by Charles F. Burroughs, Sr., a successful Norfolk businessman, who had a niche for both farming and oyster harvesting. Years later, in 1995, the farm became Bayville Golf Club. While standing under the tree's broad trunk, you will see the clubhouse and pro-shop that once served as the farm's milking plant. If you look up at the base of the trunk, you will find a long wire which protects the tree from lightening strikes, and of course a small green rectangular notable tree plaque.



Virginia Beach Notable Pecan Tree

Located off of Thomas Bishop Lane stimated age: 200 years-old. This is the last standing pecan tree of what once was a colonial pecan grove.



The Root of Tree Health: Fungi

Pe often forget about the incredible network that exists underground, "the wood wide web." Connected to the stem of mycorrhizal fungi is an intricate web of fungus root extensions, called mycelium. Mycelium interact with the roots of plants and trade nutrients for carbon, sugars produced by photosynthesis. Mycorrhizal fungi provide many benefits, just like trees and plants provide to us. Some benefits include water and nutrient uptake by breaking down soil compounds into forms that are easier for trees to absorb and use. Others include, pest and disease resistance, survival in harsh soils and food for wildlife.



Trees - Wonderful Trees

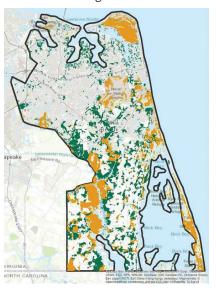


ost of us have a favorite tree. Maybe it was one you climbed as a kid. Maybe it is the one you watch through the seasons from your kitchen window or one you pass on your daily walk. Imagine for a minute the world without trees. It would be a desolate place. It would also be a place devoid of all life as trees are what support all life on our planet.

What if you could build a machine that would take carbon dioxide out of the air helping to moderate climate change. And this machine would release oxygen back into the air to support animal life. It could also clean our water, provide food and homes for multitudes of species, help control flooding, shade our homes in the summer keeping them cooler, and it was self-sustaining. This machine, once planted, needed virtually no care to continue to provide these benefits for hundreds of years. Trees do all of this and basically just ask us to leave them alone and let them continue their great work.

For these reasons, LRNow is celebrating trees. You will see

this focus throughout the next year and beyond in all of our programs. We kicked this off with our 2019 Fall Festival at Mt. Trashmore Park. Throughout the next year, we are offering multiple workshops for teachers on teaching about and with trees at all levels: we are making trees available to our businesses, residents, and faith communities to plant and nurture; we are partnering with Virginia Tech and the Nature Conservancy



Conserved forestland Forest cover not under conservation

to study the value of conserved forestland in managing flooding; we are celebrating our Notable Trees; we launched our new Tree Blog by Mary Reid Barrow; and so much more.

Water and trees are integrally linked. The trees on our land intercept the rain keeping some on the leaves and branches to evaporate into the atmosphere and soften the rain that falls to the ground. They hold the soils in place and reduce erosion and the runoff of sediments into our waters. Trees can store many gallons of water helping to keep our lawns and streets from flooding. They take up nutrients and keep them from polluting our waters and causing excess algae. Trees take in carbon dioxide that could otherwise be dissolved in the ocean, making the ocean waters more acidic and damaging marine life including our oysters.

Photosynthesis is the cornerstone of all life on our planet. Photosynthesis removes carbon dioxide naturally – and trees are especially good at storing carbon removed from the atmosphere by photosynthesis. For example, every acre of land restored to temperate forest can sequester about three metric tons of CO2 per year.

For all of these reasons and that they add beauty to our world and nurture our spirits, we are celebrating trees!

"The forest is far more than a source of lumber. It is our lungs. It cleans the atmosphere. It recycles water. It is our collective medicine cabinet. It is the regulatory system for our climate and feeds our oceans. It is the cooling mantle of the planet. It is the health and well-being of our children and grandchildren. It is our salvation.

"Trees offer us the solution to nearly every problem facing humanity today, from halting global temperature rise to defending against drug-resistant bacteria. And trees affect our lives, our cultures and spirit in many other ways. The tapestry of life, worldwide, depends on trees." Dianna Beresford-Kroeger

New Pearl Homes December 1, 2018 – November 30, 2019

Pearl Homes are residences in which our Virginia Beach citizens are asking what they can do to make our city more sustainable and keep our waterways clean. We are happy to have welcomed over 400 new residences to our Pearl Homes program during the past year, bringing the total to 5,040. Congratulations to our new Pearl Homes!



Being the First

When Lynnhaven River NOW started the Pearl Home program, there was one household in Virginia Beach who rushed forward to be the very first. We asked Kevin and Kathi Dubois what it had meant to them when they signed up to be the first Pearl Home. "We had been longstanding supporters of the organization since its Lynnhaven River 2007 days and felt very strongly that the health of the River is the personal responsibility of all the residents in the watershed. By signing up as a Pearl Home, we were demonstrating our commitment to the ongoing restoration of the Lynnhaven River and acknowledging our responsibility as stewards of its natural resources."

Since then, Kevin and Kathi have continued to be a model Pearl Home keeping the principles of the program in mind. When asked, they explained, "We keep expanding our gardens while reducing lawn area, reducing fertilizer, adding compost and improving soil health, increasing native plant diversity, installing pollinator plants, little things that hopefully have a cumulative effect. Both of our cars are fuel efficient and low emission and when replacing our appliances, we always purchase energy efficient models. We are rabid recyclers and make a point to recycle plastic bags and sheeting at the grocery store. We've installed low flow toilets and shower heads. We pick up after our dog and others. We've installed a geothermal heating/cooling system. We're always looking for ways to decrease our energy and water footprint and volunteer in our community."

Kevin and Kathi finished up saying, "Our commitment over the years hasn't changed, but the yard flag is a daily reminder of our responsibility to our home river. It makes us think about what else we can do to support the restoration of the River. It's important to us, to lead by example, but more importantly, we're showing our friends and neighbors that this is what's expected as a Lynnhaven River watershed citizen. We're doing our best to normalize Pearl Home behaviors."

BACK BAY WATERSHED Creeds: Lori Hood

Lago Mar: Aimee McCarthy Mariangela DiCroce

Ocean Lakes: Benjamin Hazlett Caitlin Brunetta Hillary Plate

Milton & Belindo Torres

Carolyn Lyle

Redwing: Hannah Cochran

The Sanctuary at False Cape: Denise & Mark Makowski

BAY COASTAL WATERSHED Baylake Beach: Kat Barefoot

Chicks Beach: Laura Dickson

Lynnhaven Dunes: Abbie & Robert Korman Arendt Betty Silvia , Beverly Flaschentrager Bob & Becky Catlin Charles & Mary Cureton Connie Breslau Cynthia White Don & Lin Runyon Elizabeth Hill George & Terry Driscoll Gerhard Reikersdorfer Ginny & Lino Bordi James Carter Jim Lant Joseph & Cathy Janes Larry & Barbara Parker Lillian Akers Lvnn Bauer Mathew Foreman Pat & Sue Rosier Rod Turpin Roger & Frances Bowen Stan & Michelle Clark Suzanne Duncan & Gene l ewis

ELIZABETH RIVER WATERSHED

Diane Blincoe Harpreet Kaur Mark Stakes Nang Herrell

ARA-POV: Mike Heath

Carolanne Farm/ Arrowhead: Brenda Barrett

Huntington: Sarah Harbin

Kempsville Greens: Robert Rodriguez

Lake Edwards: Claudia Matthews Micah Galloway Sheila Wiggins

Abingdon Village: Janet Marie Gidley

Ballylinn Shores: Sabrina Ricketts

LITTLE CREEK WATERSHED Bayside: Lisa Hulme

Chic's Beach: Michele Anderson

Governor's Square: Deborah Moye

Lake Shores: Diane Hughes Claudia Croneberger

Lakeview Park: JoAnna Bender

Lakeview Shores: Leon & Laurrana Cohen

Port Lyautey: Wilson Family Tameka Weaver

Shelton Circle: Katharine Reeder

Thoroughgood: Matt Robertson

LYNNHAVEN RIVER WATERSHED

Alexandra Oglesby Amy Townsend Andrew Reshefsky Annette Austin Brad & Stephanie Hermann Charlene Brehl Charles Drummond Ball Chynyiah Brown Clark Cundiff Dawn Hall Erica Putnam Jan Dillard Jeff Horneff Judy Carson Karlene Studley Kathy Eaton Kevin Edsall Kevin Lystad Kingston Harris Marie Culver Marley Fenley Mike & Erica Bengtsim Obadiah Henderson Olivia Holman Paige Simmons Sandra Bridgman Sarah Combs Sebastien Simko Sharon Darling Sue Dye Tammy Grant Tracey Parr Troy Poulin

Eftyhia Pepe

Alanton: David & Valerie Arias Robert Norville

Bay Colony: Beverlee Woodington Michelle Fletcher

Bay Island: Courtney & Colin Kelly

Baylake Pines: Alyn Caulk Edward Gormley

Baycliff: Steve Magula

BBIGC: Trish Elkins

Bellamy Estates: Justin Pendergrass

Birdneck Apartments: Audrey Klanga

Birdneck Point: Lisa Eure

Cape Henry Shores: Morgan Phillips

Cape Story: Leah Rowland Cassie Hillian

Colonial Oaks: Rozalia Tadjer-Young

Eastwind Apartments: Christine Allen Carmen Troche



So much of the progress made restoring our waterways is a result of the work our residents are doing to change their practices and adopt more sustainable behaviors. These Pearl Homes are located all over Virginia Beach and are places where people care about our community and our environment.

Our daily habits and decisions make a difference. Whether you have installed a rain garden, made a pledge to "Scoop the Poop" or switched to a reusable water bottle, YOU are helping to bring our waterways back to life. We would like to recognize your efforts. Any Virginia Beach Home can be a Pearl Home. If you would like to join the community, please visit LRNow.org/pearl-homes/ to apply and become a Pearl Home today!

Thank you to all our Pearl Homes for your sustainable efforts and actions that make you part of the solution!

Great Neck Meadows: JoAnn Clarkson

Great Neck Point: Stephanie McSweeney

Green Run Homes Association: Emily Morgan Monica Carr Leslie Dickens Renee Rivers Sandra Rowley

Grobeland Park: Robin Chapman

Inlynnview - Southern Points: Stacy Dohse

Kempsville Lake: James Carroll

Kings Forest: Ryan Mingin

Kings Grant:

Cody Geroux Emily Balke Karen Costa Laura Solomon Linda & Burl Self Susan Hampton Tom & Karen Prochilo Veronica Byng Wesley Latchford

Kings Point: Sherry Tiaba

Lakes: Molly Buehl

Larkspur: Maureen Humphreys Miriam Meeter

Laurel Cove: Michelle Smith

Linkhorn Estates: Jennifer Phan

Linkhorn Park: Worth Remick

Little Neck Core Civic League: Mark & Amy Bondi

Lynnhaven Colony: Ericka Miller

Lynnhaven Woods: James A. Christopher Sheila Coffelt Danielle Byrum Paulette Loghides

Magic Hollow:

Malibu: Larry Korn

Mariners Mark Condominiums: Bob Krout

Ocean Park: Carolyn Burbank Christine Brown Elise Sedlack Randy Gentner

Page Avenue: Monique Wallace

Plaza: Heather Weaver

Princess Anne Carriage Hill: Christopher Felton

Shelly Evans

Sea Breeze Farms: Jennifer Kiggans

Thalia: Joann Cooper Michelle Exum

Thalia Farms: Natalie Brogan

The Lakes: Judy Krampen

Thoroughgood: Elizabeth Trahadias

Upton Area: David Gilbert

Vineyards at Seashore Condos: Jean Bonar

Westminster Canterbury:

Anne LeVirio Anne Lewis Arlene Bryce Barbara & Tom Briggum Barbara K. Wagner Barharn Otto Becky Hubiak Betsy & David Via Betsy Durrant Betty Clarke Betty M. Perry Beverly Reynolds Bill & Neola Waller Bill Motley Camol Walters

Carol Ormond Carol & Tom Scarfato Carole Brinkley Carolyn Franz Carolyn Lammers Caryl Felty Charlyne Whitte Cindy Sanoba Craig & Karen Bisek David Carre David Van Hook Des Dandalida DH Watts Diane Seidel Dick & Betty Binford Doris Dorle Doris Johnson Dottie Seward Gene Dr. Brigitte de La Burds Dr. Tricia Colby E. Anne Keller Eleanor Irvin Electra Julias Elizabeth Barton **Flizabeth Miklos Flizabeth Thaden** Ellen Stott Eve McGregory Flo Mann Fran & Jack Huenerberg Frank Wool Fred Schultz Gloria D. White Helen Henrich Helen Kattwinkel Inez Windley Isabelle Hallam Jack Armstrong Jacqueline Hamilton James Riess Jane Gresham Janet & Micheal Pawlukieuicz Janie Blassingham Jean Resch Jean Ruffin Lills Jill Byerly Jim Dacone Joan & Darrel Kenndy Joan Averette Joan Brown Ioan Kaiser JoAnn MacGougall Joanne Ferrell John & Linda Creed John & Mary Wolfe John Beers lovce W Peckiel Judie Boerger June H. Myers Karen Dickerson Kay Roberts Kenneth Scott Kurt & Frau Rohdenburg Larry & Bey Ambrose Leslie Langley Lorrie Ames Louise & Frank Peele

5,000, 5,001...but who's counting?

RNow was very excited to welcome its 5,000th Pearl Home this year, but the task turned out to be harder than expected. Instead, we are celebrating both Claudia Matthews and Sheila Wiggins. You see, Claudia and Sheila are next door neighbors and friends. They both signed up to be a Pearl Home at the same time, at the same event. Knowing who was number 5,000 may simply have come down to whose application ended up on the top of the box. However, this doesn't diminish the impact that these two civic minded ladies are having on their neighborhood. Sheila mentioned that "often the people in our neighborhood are distracted and litter, or don't notice they are letting trash out of their cars when they get out." She says, "I like to keep my neighborhood neat and tidy. I like to come home to a clean street." She also makes sure leaves are raked and out of the storm drains, and trash cans are managed properly. "Helping take care of our neighborhood makes us feel good. Some of our neighbors may not think it's important but we do." LRNow appreciates the hard work Sheila and Claudia are putting in to keep our streets and our waterways clean.





Louise Costenbader Louise Schellhammer Lynne Coates Margaret Cruman & Fran Garrou Marge & George Galgon Maria Atherton Mariettta Connor Marigrace Thomas Martha Cain Martha Hortenstine Mary Ann Williams Mary Belle Quesenberry Mary C. Robertson Mary F. Daniels Mary Jane Watts Mary M. Foreman Mary Q. Hormell Mary V. Karaugeler Michael & Stuart Lee Coyle Molly Firey Nancy & Bill Wood Nancy Cole Nancy M. Black Nancy York , Nina Garry Noel Zirpolo Ola Krueger Orua Sponaugle Pam Coerse Pat Arant Pat Hayward Patrick Deans Pearl N. Moyers-Dean . Peggy Wilkinson Penny & Larry Moulis

Pete & Joan Bondi Pete Costenbader Phillip Haug Phyllis Freeman Richard Rudibaugh Robert & Anita Taylor Roderick & Margaret Gilmour Rosalee & Lou Evans Rosemarie Hughes Rosemary V. Griffen Ruby Ann Pritchett Sallie Jacob Salrla P. Patel Sandra & Dick Hanna Sandy Baylor Sherry D. Gilson Shirley Bigney Shirley Bueche Shirley Ventura Shirley Wratten Sidney Berz Stuart & Shelba Bossom Susan O'Neal Susan Hubbard Suzanne Garschinetz Sylvia Pakradooni Sylvia Maume Trish Noden Ty & Penny Brown Vera Jean Russell William D. DeWeese

Windsor Woods:

Cynthia & Larry Ugarte' Melissa Ebersole Stephanie Slaughter Witchduck Point: Ron & Susan Dillon

NORTH LANDING RIVER WATERSHED

Ashleigh Fischer Darla Johnson Hillary Anderson Kristine Neronski Madelyn Rini Maz Bergen Megan Beling Rhonda Scott Sondra Crandell Tasia Sparks Castleton: Joan Dean Krista Spence Lisa Clark

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Charlestowne Lakes

South: Emily Lessig

Courthouse Estates:

Heather Bogatho Maria Nielsen Vicki Pennington Holland Pines: Kathy Allen Bennett

Hunt Club Forest:

Anna Simon Margaret McAllister Jodi McLennon **Indian Lakes:** Nylea Johnson

Kempsville: Eileen Ecalnea Stephen M. Coari

Lake Placid: Drew Petzold Landstown Meadowns: Christina Kormanis

Pine Ridge:

Carol & David Fleming Christine Williams Jane Camp Jason Labott Karen Silvers Lauren Mowbray Nikki Wolfe Philippe & Gay Bulan Robert & Sandra Barnes Steve Kirby Terry Walburn Tim & Kelly Merrick Tim Evans

Prince George Estates: Amanda Anderson Melanie Butler

Rock Creek: D. Williams Pete Van Heest

West Neck: Betty Lake Frances & Tom Rayburn June & John Kates Ruth Conover Tim & Sharon Ryan

Weybridge: Via Iris Pete

OCEAN COASTAL WATERSHED North End:

Belynda Meehan John & Kim Milleson Taylor Webber

RUDEE INLET

WATERSHED Kim Whitesell Thomas Dunaway

Croatan: Liz Seigler Robert Lougen

Salt Marsh Point: Michael T. Moore

Shadowlawn: Monique Werby

Pearl Neighborhoods

he Pearl Neighborhood program recognizes an entire community for their cumulative effort to improve the footprint of their neighborhood. Since this program was launched in 2018, four communities have been able to accomplish the requirements. To qualify as a Pearl Neighborhood, the following were able to recruit 30% of their neighbors to be Pearl Homes; offer one environmental education opportunity to the community, and complete one environmentally focused community project.

Congratulations to our newest Pearl Neighborhood - Lynnhaven Dunes - Bay Coastal Watershed

Lead by Don Runyon and Libba Hill, Lynnhaven Dunes became a Pearl Neighborhood May of 2019. This condo association sits directly on the Chesapeake Bay. Don and Libba were motivated by the importance of spreading awareness to their neighbors of the impact each individual has. They joined together to make a beautiful bird sanctuary with native plants but their work doesn't stop there. The residents at Lynnhaven Dunes are currently working with LRNow to remove all invasive plants and replant with natives in the dunes that lead to the beach.

Pearl Neighborhoods: Pine Ridge, Atlantic Shores Retirement Community, Lynnhaven Dunes Condominiums, and Westminster-Canterbury on the Chesapeake Bay.





PEARLNEIGHBORHOOD

Sustainable Yards Program

ince the start of the Sustainable Yards program in January 2018, Lynnhaven River NOW has worked with homeowners to install **60 rain barrels, 19 rain** gardens, and 7 infiltration trenches on their properties. These best management practices help homeowners manage stormwater runoff from patios, rooftops, driveways and lawns so that it infiltrates back into the soil on the site. Infiltration from these best management practices reduces the total amount of runoff leaving the site as well as the pollutant level in that runoff during each rainstorm. We estimate that 14 pounds of nitrogen and 1.8 pounds of phosphorous have been reduced in the stormwater runoff through these best management practices.

A main source of pollution for the Lynnhaven River is excess fertilizer from home lawns that runs off during rainstorms. Another best management practice that we offer through our Sustainable Yards program is the **Pearl Lawn Plan**. Since January 2018, we have helped 60 homeowners learn how to properly fertilize their lawn to be healthy, green and river friendly. By knowing what nutrients are lacking in the soil and then choosing the right type of product for the type of grass you love, you can



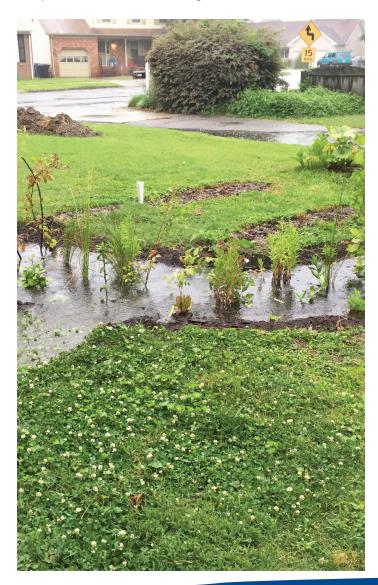
Newly Installed Rain Gardens



make a big impact on water quality. Homeowners also learn when to fertilize and how much product to use to maintain a vibrant lawn without worry that excess nutrients will travel downstream to the Lynnhaven River. We estimate that the Pearl Lawn Plans we have provided to homeowners have the potential to reduce 22 pounds of nitrogen and .5 pounds of phosphorous in the stormwater runoff every year that the plans are implemented.

These numbers are proof that individuals can make a powerful positive impact on the health of the Lynnhaven River with a little help from their friends at Lynnhaven River NOW. We have partnered with 146 homeowners over the past two years, a small fraction of the thousands of homes in the Lynnhaven River watershed. Imagine if every homeowner utilized a best management practice in his or her own yard!

We appreciate the assistance of our landscape and lawn care experts and our volunteers for helping to plan, design and install these projects and we are grateful to the City of Virginia Beach for providing funding for this important program. We are excited to be able to offer this program to homeowners within the Lynnhaven River watershed again in 2020.



Pearl Faith Communities

t takes a community to restore and protect our waterways. We know we are blessed to live in this beautiful place. Water is a large part of our daily enjoyment, recreation, local food, and even our livelihoods. We all want to do our part to restore the health of our sacred waters and protect them for future generations to enjoy. One of LRNow's goals is to help people of faith recognize and fulfill their responsibility for the care of these gifts with Simple Acts of Stewardship. All faiths are welcome, and it is free to become part of the Pearl Faith Community. All we ask is that within a year your congregation will complete the following:

Make a difference inside your buildings. Examples include installing occupancy sensors, programmable thermostats, sealing ductwork, recycling at events, greening your coffee hour by purchasing reusable or biodegradable products.

Make a difference outside your grounds. Examples include replacing turf grass with mulched beds and native plants, reducing pesticides and fertilizer, resurfacing parking lot areas with permeable pavers, installing rain barrels and rain gardens to reduce storm water runoff.

Make a difference with an educational activity. Examples include inviting LRNow to give a presentation before or after services, host a Day of Service for the community and include area environmental organizations, host a lecture or film series on relevant topics, host educational activities for day school or Sunday school students.

We welcome to our newest Pearl Faith Community Members and congratulate each on completing these goals:

- Baylake United Methodist Church
- Thalia United Methodist Church

Visit these Pearl Faith Community Members to see what exciting things they are continuing to do to be good stewards of the Virginia Beach watersheds!

- All Saints' Episcopal Church
- Bayside Christian United Church of Christ
- Baylake United Methodist Church
- Church of Holy Family, Roman Catholic
- Community United Methodist Church
- Coastal Virginia Unitarian Universalists
- Eastern Shore Chapel Episcopal Church
- First Presbyterian Church of Virginia Beach
- Friends Meeting, Quaker
- Lynnhaven Colony Congregation United Church of Christ
- Ohef Sholom Temple, Reform Jewish
- Old Donation Episcopal Church
- St. Aidan's Episcopal Church
- Thalia United Methodist Church

There are an abundant number of congregations in the Virginia Beach area that are making a positive environmental

impact. In our search for environmental stewards, LRNow was introduced to Nimmo United Methodist Church nestled in the Back Bay watershed. Striving to become a Pearl Faith Community and share their works, Nimmo UMC hosted the LRNow workshop Connecting Communities through Gardens. They have a bountiful community garden that is breathtaking to walk through, provides the surrounding community with handson experiences in nature, and food for those in need. Throughout the workshop they discussed their trials with creating the garden, how it is the blooming success you see today, and the benefits of answering the call to be stewards of the earth. Nimmo UMC is a wonderful example of how a community working together through small changes can make a big difference. If you have a chance, take time out of your day to walk through the garden. See the swallowtails on milkweed, bees and grasshoppers, take it all in. This community garden does not only provide food for people, it brings communities, volunteers, multiple cultures together to protect the native ecosystem.



Volunteers of the Year

Overall Volunteer of the Year: Sharon Nieto

This year's Volunteer of the Year, Sharon Nieto, is an energetic and dedicated LRNow volunteer. She has paddled our local waters picking up trash during waterway cleanups with LRNow's Stewardship & Access Committee. Sharon graduated as a Virginia Master Naturalist this year which propelled her to



get involved with other projects such as helping with program data in the office, instructing students through our Pearl School programs, and working with our Restoration Program on the oyster SPAT collection project.

Pearl Business: Zach Roberts

The first ever Pearl Business of the Year is Great Outdoor Provision Company. Their team, led by Store Manager Zach Roberts, not only helped build the new Pearl Business program, but they stayed engaged in many other volunteer efforts including participating in every waterway cleanup, hosting



fundraising events, working the fall festival, and having team member Courtney Miltz serve on our Stewardship and Access Committee. Great Outdoor Provision Company proved to be the MVP in supporting our local community.

Pearl Schools: JoAnne Hart

JoAnne brings to LRNow her background as a librarian, her creativity and her love of children. This wonderful combination has added greatly to the Science Preschool Adventure Time (SPAT) program for the past few years, as she not only taught classes, but suggested books, developed programs



and prepared all the materials as well. She also assisted in the Growing Wetlands in the Classroom Program and stepped up for other outreach events. We are so pleased to have her receive the Pearl School Volunteer of the Year for 2019.

Pearl Neighborhoods: Lin Rose

Lin Rose was chosen as this year's Pearl Home Volunteer of the Year for her determination and efforts towards achieving Pearl Neighborhood status for her community, Pine Ridge. She hosted countless Pearl Home Campaigns and continued to educate her neighbors on ways they can make an environmental difference.



Pearl Faith Communities: Melody Jeffery

Melody Jeffery was chosen as this year's Pearl Faith Volunteer of the Year. Melody has been the lead for her congregation, Nimmo UMC, to incorporate a beautiful community garden for 10 years. In 2019, she helped coordinate the Pearl Faith Connecting Communities through Garden workshops and



she continues to inspire her congregation to work towards their goal of becoming a part of the Pearl Faith Community.

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Office Assistant: Dee Steinberg

Dee Steinberg was a faithful office assistant this past year, rarely missing a volunteer day. Always eager to help with a smile and a kind word. Sadly, Dee passed away in fall 2019. She will be greatly missed.



PR and Marketing: Debbie Blankman

Debbie Blankman works as a real estate agent with Howard Hanna, but fortunately for us, she also is a graphic designer. After our wonderful pro bono PR and Marketing firm, DIA, closed its doors last year, Debbie stepped up to the plate and designed Lynnhaven River NOW's new Plant for the Future



tree logo. For that creative and professional contribution, Debbie is our Public Relations and Outreach Committee's Volunteer of the Year!

Stewardship and Access: Pamela Jacobson Bowhers

Pamela Jacobson Bowhers, the Stewardship and Access Committee 2019 Volunteer of the Year, spends much of her time with LRNow on the water working hard for our local rivers and marshes, and engaged in committee events and projects. She has a gift for empowering children to make a difference through cleanup work. When she isn't working with LRNow,



Pamela is supporting the First Colonial High School theater department and other community causes.

Advocacy: Jim Deppe

If you are really, really lucky, you have the chance to work with a volunteer who is professional, efficient, smart and has a true passion for the work we are doing. I have been blessed to work with Jim Deppe on our Advocacy work. Whether it is opposition to offshore drilling, programs to help keep our water



clean, or the tools we need to deal with the effects of climate change, Jim is knowledgeable, articulate and a pleasure to have on our team. Thank you Jim for all that you do for LRNow and our natural resources.

Oyster Restoration: Dan Allen

The 2019 Oyster Restoration Volunteer of the Year is Dan Allen. When LRNow's Save Oyster Shell (SOS) pickup driver left unexpectedly for a new job, Dan volunteered to help with the shell pickup at numerous Virginia Beach restaurants. Although he originally signed up to help for about a month while



we looked for a replacement employee, he ended up doing the majority of the restaurant pickups for over two months. Without his incredible labors, our important SOS Program would have ground to a halt. His selfless daily efforts make him most worthy of this award recognition.

Pearl Yards: Greg Golden

Greg Golden is an enthusiastic volunteer for our Pearl Yards program that helps homeowners implement storm water best management practices in their own back yard! Greg meets with homeowners at their homes to discuss their needs and help them through the process. He is particularly passionate about rain



barrels, and can help homeowners with any of their questions because he himself had one installed through this program. We appreciate Greg and are excited to continue to work with him as a volunteer next year.

Highlights from 2019

109 Notable Trees identified with three potential state champions • Over 1,000 children reached through our Reading for the Rivers program • **100**% of the Virginia Beach Public Schools are Pearl Schools • Over **5,000** Pearl Homes across the city • Almost 12,000 students and teachers participated in our Pearl School programs and activities • Forty waterway cleanups - over 8,000 pounds of marine debris removed • Ninety-two acres of restored and functioning oyster reef in the Lynnhaven River • **Twenty-two** water quality testing sites – **245** water samples tested last year • Four neighborhoods have met all the requirements to be Pearl Neighborhoods • Sixty rain barrels, nineteen rain gardens and seven infiltration trenches installed in the Lynnhaven watershed • Sixty Pearl Lawn Plans completed • Fourteen faith communities have met all the requirements and joined our Pearl Faith community • Received funding to plant **ten** acres of trees in the Ocean Lakes neighborhood in 2020 • Received funding to build **twelve** acres of oyster reef in the Western and Eastern branches of the Lynnhaven River in 2020 • Thirteen businesses have met the requirements and joined our Pearl Business network • Held 257 events, workshops, and presentations in 2019 in-



volving **6,737** Virginia Beach residents • Volunteers contributed **4,390** hours to LRNow during 2019• Launched Mary Reid Barrow's Tree Blog

Save Oyster Shell: From Restaurant to Reef

ne of the many things that makes our beautiful and bountiful city so unique is the availability of fresh, local and sustainable seafood. What began as a pilot program in 2008, Save Oyster Shell (S.O.S), has blossomed into an ongoing program and partnership with the City of Virginia Beach.

Fourteen local restaurants have made an environmental commitment to recycle and donate oyster shell from your meal. In 2018, we collected 2,700 bushels of oyster shell. In 2019, we exceeded last year's amount, collecting over 4,000 bushels of shell, the most amount of shell collected through the S.O.S program on record.



The Process: After recycled shell is picked up at each restaurant and public drop off site by an LRNow staff member, it is taken to a storage site to sit and cure (rid of any potentially harmful bacteria). After several months, the cured shell is placed back into the water to build sanctuary reefs in Virginia Beach's waterways. Sanctuary oyster reefs create habitat for hundreds of marine species, filter and clean surrounding water and provide a new home for baby SPAT (oyster larva) to settle and grow new shell.



Each S.O.S participant is inspiring our Virginia Beach Community to restore the native oyster population, one bushel at a time! We hope you will patronize them and thank them for their participation:

1608 Crafthouse

1608 Pleasure House Rd, Virginia Beach

Abbey Road Restaurant 203 22nd St, Virginia Beach Captain George's Seafood

Restaurant 1956 Laskin Rd, Virginia Beach CP Shuckers (Oceanfront) 2407 Pacific Ave, Virginia Beach CP Shuckers (Bayside) 3232 Shore Dr, Virginia Beach Dockside Seafood & Fishing Center 3311 Shore Dr, Virginia Beach

Lucky Oyster 2165 General Booth Blvd #154, Virginia Beach

Ocean Eddie's Seafood Restaurant

1415 Atlantic Ave, Virginia Beach

Rockafeller's Restaurant 308 Mediterranean Ave, Virginia Beach

Sheraton Oceanfront Hotel 3501 Atlantic Ave, Virginia Beach Steinhilber's Restaurant 653 Thalia Rd, Virginia Beach Tautog's 205 23rd St, Virginia Beach The Atlantic on Pacific 3004 Pacific Ave, Virginia Beach Simple Eats Restaurant 3152 Shore Dr, Virginia Beach

In addition to the shell recycled by our committed S.O.S. participants, community oyster roasts collectively add several hundred bushels of shell each year. If you or a friend is hosting an oyster roast, several shell drop off sites are located at The Virginia Aquarium & Marine Science Center, Brock Environmental Center, and LRNow's Pleasure House Road office. OR let us come to you and collect the shell. We will provide you with collection baskets for used shells before the event and will come and pick them up afterwards. Contact us at office@Irnow.org or call (757) 962-5398 to schedule a pick-up.

Lynnhaven River NOW is a proud partner of the Chesapeake Oyster Alliance: A coalition of over thirty partner groups including nonprofits, community organizations, oyster growers, and others dedicated to helping recover the Bay's oyster population by putting 10 billion oysters in the Bay by 2025. Currently the Oyster Alliance is at 1.5 billion building toward 10 billion.



Advocating for Good Environmental Policy



nvironmental planning, regulations, and funding for our natural resources directly affect our efforts to restore and protect our natural resources. Through our advocacy work, LRNow works with our elected officials and community leaders to advocate for good environmental policy at the local, state and federal levels.

Candidates Forums

Good public policy starts with understanding the positions of our candidates on the issues that are most important to you. Our Candidates Forums each fall give voters a chance to listen to the candidates and ask questions to determine who will represent their priorities on the City Council or in the General Assembly. With city offices and every state delegate and state senator on the ballot this fall, we held three Candidates Forums at Zeiders Theater in Town Center. Fall 2020, we will be hosting City Council candidates.

Federal Level

We have worked to prevent action to weaken the protections for our local waters under the Clean Water Act and advocated for funding for Chesapeake Bay restoration, but preventing seismic testing and drilling for gas and oil in the Atlantic Ocean off of our coast is our most important federal issue. We continue to work with our Congresspeople and our Senators to prevent the issuance of seismic testing permits and the sale of gas and oil leases in the Atlantic while the federal administration continues to move ahead with plans to allow both seismic testing and drilling.

There is widespread consensus in our area that oil and gas drilling off of our coast would not be good for Virginia and Virginia Beach. It is opposed by our tourist businesses; would interfere with Naval training activities in the Atlantic; and have detrimental, possibly catastrophic, impacts on our waterways,

beaches, wetlands, marine animals, and our delicious local seafood. We will continue to work on this issue as long as it continues to be a threat.



State Level

Each year, our Board of Directors adopts a list of priorities for the General Assembly session. In the 2020 session, we will be working on issues related to flooding resilience; funding for stormwater improvements; a study of the Albemarle-Pamlico watershed; actions to prevent offshore drilling; and controls on single-use plastics. On all of these issues, we join with partners from across the state through the Virginia Conservation Network.

Local Level

At the local level we engage with our City Council members and other local leaders to understand our local challenges and opportunities, our budget choices and the best policy decisions for all of the watersheds and residents of Virginia Beach.



Hands Across the Sand to prevent offshore drilling



Our way of life in Virginia Beach is tied to our natural resources. We love our beaches, our beautiful waterways and our extensive parks. We are very fortunate to live in such a beautiful place that offers year-round opportunities to enjoy the outdoors. Our work is to restore and protect those natural resources. With 450,000 people in our city and all of the development that comes with that population, our waterways and natural areas have all been impacted. But with good policy choices we can protect our natural resources, develop smartly and deal with our biggest challenge: climate change and sea level rise.

Sea Level Rise and Increased Flooding

Sea level rise, increased precipitation, and land subsidence are all contributing to the increased flooding that we are experiencing in Virginia Beach. The nature and frequency of our storm events is changing rapidly. In every day's news, we learn more about the devastating impacts of climate change. This presents us with two sets of challenges, adaptation and mitigation.

Adaptation

As a coastal region already experiencing increased flooding, we have to take actions to adapt smartly to a future that will be very different. This is complicated in Virginia Beach by our various watersheds. We have water on all four sides of our

city. The northern third of Virginia Beach is part of the Chesapeake Bay watershed and subject to lunar tides and storm surges. The Lynnhaven River watershed makes up most of that area, but on the west side there are also the Little Creek and Elizabeth River watersheds.

About 5% of our land area drains directly into the Atlantic Ocean. The largest part of that watershed is the Rudee/Owl Creek





watershed. These areas, like the Chesapeake Bay watershed, are subject to lunar tides and storm surges.

The largest land area in Virginia Beach is in our southern watersheds, 67% of Virginia Beach. The North Landing and Back Bay watersheds make up this part of our city. It includes the farm areas we value in Pungo, Blackwater and Creeds, but it also includes developed areas in Red Mill, Salem, Centerville and even Kempsville. These areas of our city drain south into the Albemarle and Pamlico Sounds and are subject to wind tides that can blow water up from the Albemarle and Pamlico and are generally low elevation with a high ground water table.

Each of these areas of our city have different challenges and different strategies for successful adaptation to the threat of increased flooding. Improved stormwater management, strategic development decisions, restoring our wetlands and oyster reefs, and conserving and expanding our conserved forests are all strategies that we need to employ in all areas of our city.

Many of the strategies that we have promoted to help clean up our waterways: installing rain barrels, rain gardens, and infiltration trenches as well as reducing impervious surfaces and turf grass, installing vegetated roofs, and planting trees also help control flooding.

Mitigation

Mitigation is all of the ways that we can be a part of reducing greenhouse gas emissions and slowing climate change. It is imperative that we take bold actions as individuals, as a city, as a state and as a nation, if we are going to have any effect on the alarming climate changes the entire planet is experiencing.

LRNow is committed to working with all of our members, residents, businesses and faith communities, to discover ways to reduce our energy use and greenhouse gas emissions. We are offering financial support for energy audits and encouraging all of our members to examine ways to reduce energy use and greenhouse gas emissions.

Trees are one of our most important tools for reducing greenhouse gas emissions and managing water. We are promoting tree planting with all of our partners and actively looking for opportunities for larger forest restoration projects. We are all discovering and celebrating the power of trees. LRNow has partnered with the Nature Conservancy and Virginia Tech University to study the benefits of conserved forest land and to plan carefully and smartly to protect and expand our conserved forest lands in Virginia Beach.

Hope in moderating the effects of climate change lies in every person's individual commitment to make changes that can have large cumulative impacts.

Pearl Business

he Pearl Business Program followed in the footsteps of our other successful Pearl Programs and became fully operational in July of 2019. After more than a year of development with the help of pilot program businesses Runnymede, Edgar Cayce's A.R. E., Wetland Studies and Solutions, Matt Abbott State Farm, L.L. Bean, MSA, P.C., Westminster Canterbury, and Great Outdoor Provision Company, the Pearl Business program is open for business.

The program was launched because of the important role local businesses play in the vitality of our beautiful city. The Pearl Business Program strives to help Virginia Beach businesses of all sectors have a lasting positive impact on our local waterways. Whether a business manufactures goods, sells as a retail establishment, or provides important services to our neighbors, it impacts the health and well-being of our community.

Businesses within our city are already changing how they work and becoming more sustainable. Five additional businesses achieved their Pearl Business certification in the first six months since expanding the program, and more are currently working through the certification process. We welcome Flint Marine, Long and Foster Coastal Properties, Eco Maniac, 1701 Coworking, and The Nature Bus to the Pearl Business community.

To be recognized as a Pearl Business, Virginia Beach businesses must show that they are doing their part to help keep our waterways and watersheds clean and healthy. The certification includes efforts to reduce waste, avoid hazardous materials, be energy efficient, and restore habitat. It is the double bottom line - good for business, good for the environment.

The businesses listed above are taking the lead in adopting a culture of sustainability and becoming better stewards of our waterways. They are recognized for their efforts to restore our waterways and sustain the natural beauty found throughout our city.

For more information, contact Vince Bowhers, Pearl Business coordinator, vince@lrnow.org.

There are links to all of the Pearl Businesses on the Pearl Business web page lynnhavenrivernow.org/pearl-businesses/.













Oyster Restoration

estoring our Lynnhaven River native oyster population has been an important part of our restoration efforts from the beginning of our organization. Surveys have identified approximately 92 acres of baseline restored oyster reef in the Lynnhaven River including Broad Bay, Linkhorn Bay, the Inlet and the Eastern and Western Branches. About 56 acres is subtidal restored reef constructed over the past fifteen years and the remaining 36 acres are constructed over natural shoreline or intertidal reef. The goal is 152 acres of restored oyster reef. This has been determined to be the acreage needed to sustain a healthy oyster population in the Lynnhaven. Working with our federal, state, and local government partners – along with our educational and nonprofit partners – we are making steady progress toward reaching our goal.



Oyster Castle before it goes in the water

Eastern and Western Branch Reefs planned for Spring 2020

The plans have been made, the grant funds obtained and the partners are all in place to build at least twelve acres of restored reef at various locations in the Western Branch of the Lynnhaven in spring 2020. The Witchduck reef locations will be the first subtidal reef work in the Western Branch of the Lynnhaven. We hope to see results that match the tremendous growth we have seen in the Eastern Branch. Working with the same grant funds and partners, we will build an additional acre of sanctuary shell reef in the Eastern Branch of the Lynnhaven River in spring 2020 also. This reef will add to our previous sanctuary reef project undertaken in the spring of 2017. This new reef will be named in honor of City of Virginia Beach employee Mary Louise Gayle as a living memorial. Ms. Gayle had worked closely with us to have the reef's lease location successfully transferred from the City for restoration purposes. All of these oysters are helping to clean the water and provide habitat not only for baby oysters to attach and grow, but for sponges, worms, crabs, and juvenile fish to shelter and grow. Each reef becomes an ecosystem supporting a healthy marine environment.



One adult oyster can filter 50 gallons of water per day





Young Environmental Stewards Dive in to LRNow's newest Educational Programs:

his past year, the Pearl School department implemented four new programs. Together, these programs have given students all over Virginia Beach the opportunity to connect with nature as well as better understand the importance of having a voice to help make positive changes in the environment and ensure a healthier and more sustainable future.

Reading for the Rivers:

Since March of 2019, LRNow staff and volunteers have helped increase students' awareness about marine debris by visiting schools and other child-centric community programs all over Virginia Beach. The book, *All the Way to the Ocean*, by

Joel Harper was read to over 1,000 children from pre-k to third grade. The illustrations explain how trash and other pollutants end up in our waterways and how each of us can help prevent this by making small changes in our daily habits. After reading the book, students decorated reusable bags with messages and illustrations focusing on marine debris.

Partnerships have been key to making this program a major success. We are incredibly grateful for the generous support from the Chesapeake Bay Wine Classic Foundation, the City of Virginia Beach, AVEDA and author Joel Harper.

We look forward to continuing this program in 2020 and are excited to introduce *We Planted a Tree* by Diane Muldrow. This new book explores the many benefits of trees and the importance of planting and maintaining urban forests.

Watt is Your Schools Energy Footprint?

LRNow's new energy audit kit provides students, teachers and other community members with the proper tools to help access energy usage in buildings. This kit gives people the ability to investigate the following: energy load of appliances,



Schools by Watershed Lynnhaven River Watershed

Adult Learning Center Alanton Elementary School All Saints Day School Bayside 6th Grade Campus Brookwood Elementary School Cape Henry Collegiate Catholic High School (formerly Bishop Sullivan Catholic High School) Cox High School **Dey Elementary School** First Colonial High School Great Neck Middle School Green Run Collegiate Green Run Elementary School Green Run High School Holland Elementary School Independence Middle School

King's Grant Elementary School Kingston Elementary School Larkspur Middle School Linkhorn Park Elementary School Lynnhaven Elementary School Lynnhaven Middle School Malibu Elementary School Norfolk Christian School-Beach Lower School Old Donation Episcopal Day School *Old Donation School (aka Brickell Academy) Pembroke Elementary School Pembroke Meadows Elementary School Plaza Middle School Prince of Peace Preschool Princess Anne High School **Rosemont Elementary School** Thalia Elementary School Thalia Day School

Trantwood Elementary School Virginia Beach Friends School Virginia Beach Middle School White Oaks Elementary School Windsor Oaks Elementary School Windsor Woods Elementary School **Elizabeth River Watershed** Arrowhead Elementary School Brandon Middle School

College Park Elementary School Fairfield Elementary School Hebrew Academy of Tidewater (now part

of Strelitz International Academy) Kempsville Elementary School Kempsville High School Kempsville Meadows Elementary School Kempsville Middle School Norfolk Academy Lower School Point O' View Elementary School Providence Elementary School light levels, and possible leaks around windows and doors. Equipment used to carry out an energy audit include: Digital thermometers, FLIR thermal Imaging camera and Kill-O-Watt Meters. Conducting an audit and observing a building's energy usage will help you learn where you can make changes that possibly leave more money in your wallet and a smaller carbon footprint.

Storm Drain STEM

Flooding and sea level rise will continue to be an issue we all will have to deal with throughout our lifetime. It is important for students to understand how the city currently deals with stormwater and how storm drains function. Storm drain STEM provides teams of students with materials which they use to design a filter that will remove pollutants from a water sample. Through collaboration, students have learned the principals of design and modeling as well as the functions of a watershed, how storm drains operate, common pollutants in the waterway in Virginia Beach and the difference between point and nonpoint pollution. Perhaps one day, one of their designs will be the solution we all have been looking for!

Shifting Sands: A Project Based Lesson at Pleasure House Point

Students from Bayside Highschool's environmental Science classes braved the cold to observe certain areas at Pleasure House Point Natural Area that have significant erosional problems. They used scientific equipment to measure wind speed/direction, current flow, salinity, and tidal changes; as well as observe sediment composition and origin of erosional and depositional forces. Overall, students learned valuable lessons in teamwork, preparation, data collection and collaborative reasoning.

What Does 100% Look Like?

he 2018-2019 school year was a banner year for Lynnhaven River NOW Pearl School department. We had 100% of the Virginia Beach City Public Schools receive the Pearl School Award, many for more than 10 years in a row. We also had 100 schools, public and private, achieve this award. What does that mean for the environment and for the mission of Lynnhaven River NOW, to "Restore Virginia Beach's Waterways?" It means that there are more schools than ever that are teaching about the environment and our role, as humans, in the future of our planet. It also means that many more children are connected with nature (some for the first time), more trees were planted, more trash was removed from school grounds and waterways, more pollinators were able to find food, more items were repurposed, less waste happened during lunches, more worms were fed, more oysters were grown to filter the water, more plants were planted along shorelines to slow erosion and flooding, more empty spaces were turned into beautiful gardens, less energy was used in our schools and homes, more poop was scooped and there were many more stewardship and sustainability projects. All of these projects have led us closer to a healthy environment and demonstrate that when we work together towards a common goal, the impossible does seem possible and great things can happen. Thank you to all the teachers, parents, students and staff of the Virginia Beach Schools for taking the time from your busy schedules to help Lynnhaven River NOW follow our mission of cleaner waterways for all of Virginia Beach. You are all valuable partners in this goal and together we have made a difference and will continue to do so, being "Pearl School Proud." So what DOES 100% look like? It looks like a cleaner world for all of us.

Renaissance Academy

Strelitz International Academy (formerly Strelitz Early Childhood Education Center wand Hebrew Academy) St. Gregory the Great School Tallwood Elementary School Woodstock Elementary School **Little Creek Watershed Bayside Elementary School Bayside High School** Bayside Middle School **Diamond Springs Elementary School** Haygood Preschool Hermitage Elementary School Luxford Elementary School Newtown Elementary School *Old Donation School (aka Brickell Academy) Shelton Park Elementary School Thoroughgood Elementary School

Williams Elementary School **Owls Creek/Rudee Inlet Watershed** Birdneck Elementary School **Cooke Elementary School** Seatack Elementary School **North Landing Watershed** Advanced Technology Center Barefoot Kids Christian Day School **Centerville Elementary School Christopher Farms Elementary School Creeds Elementary School Glenwood Elementary School** Indian Lakes Elementary School Kellam High School Landstown Elementary School Landstown High School Landstown Middle School New Castle Elementary School North Landing Elementary School Parkway Elementary School

Princess Anne Elementary School Princess Anne Middle School **Rosemont Forest Elementary School** Salem Elementary School Salem High School Salem Middle School Strawbridge Elementary School Tallwood High School **Back Bay Watershed Corporate Landing Elementary School** Corporate Landing Middle School Ocean Lakes Elementary School Ocean Lakes High School Red Mill Elementary School Three Oaks Elementary School **Small Coastal Watershed Beach Day School**

*In more than one watershed



or 40+ years Mary Reid Barrow, freelance writer for *The Virginian-Pilot*, has continued to connect, educate and engage the community through her captivating columns about nature, healthy living, sustainability and the environment. Her columns are a great reminder for us to slow down, untangle our busy minds, and just stop and notice the world around us, the little things as well as the big.

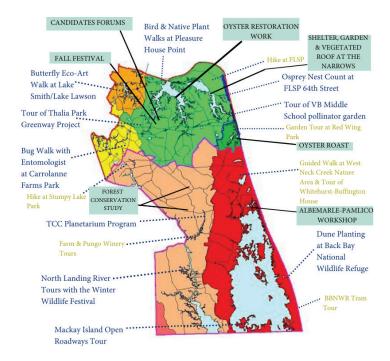
Although she has recently retired from the *Pilot*, she is continuing to share her love for nature and highlight Virginia Beach's beautiful and bountiful natural resources. In honor of our "Celebrate Trees" campaign, Mary Reid is focusing much of her blog writing around trees. LRNow is beyond thrilled and incredibly honored to have her continue to connect the community with nature through her new blog which is featured on the front page of our current and our soon-tolaunch new website! Mary Reid Barrow is a passionate conservationist, dedicated volunteer, member and supporter of Lynnhaven River NOW and has been from the very beginning. She is a true asset to this organization and to our entire community.

"If Mother Nature ever had a best friend, her name would be Mary Reid Barrow." - Hayes & Walker The Virginian-Pilot Visit lynnhavenrivernow.org to read her most recent blog.





2019 Program Highlights











Individual Donors & Family Foundations

Hats Off to Our Donors. Without you our work would not be possible. Thank you for everything that you do to support LRNow.

Individual Donors and Family Foundations

Leadership Level -- 10,000+ Andrew & Barbara Fine Dave Jester Gene & Sharon Ross Richard Serpe

Bob & Janice Wells

Sustaining Level -- 2,001-5,000

Brent & Cris James

Barbara Timperlake and Bob Perrine

Bob & Marion Taylor John "Dubby" & Susan

Wynne

Pearl Level -- 1,001-2,000

Michael J. Barrett Mary Reid Barrow John Costenbader Karen Forget Donald Gratton Steve & Sally Herbert Ann Korsak Bill Wells & Susan Lyon Dick & Shirley Roberts Ken & Shirley Sutton

Reef Level -- 501-1,000

Kay Abiouness Jane Batten Bruce & Lilly Bradley Joan Brock Keith & Kim Curtis Jan Dillard John Drescher Ann Farley Peter Fisher Bill Ford Barry & Patti Frankenfield Terri Gorman Bobbi Gunn Zeb & Beth Holt Eleanor Irvin Cathy Maston Tim & Renee McCarthy John & Julia Parker Louis & Pru Ryan Jim & Karen Sparks Jim & Joan Spore Bob & Pam Thornton Robert Waddell John & Nancy Watters Merry Watts Preston & Catharine White Steve & Kathryn Whitten Jarrett Zoby

Oyster Level -- 251-500

David & Valerie Arias Chris & Terri Beale David & Helen Bernd Ty & Penny Brown Charlotte Caplan & Michael Brubaker Hunter Burt L. Clay Camp Craig & Gail Cope Matt & Karen Fine F. Dudley & Connie Fulton Jeff & Debbie Lou Hague Leslie Hodeen Bob & Carolyn Jones George Kotarides Ola Krueger Marina Liacouras John & Patricia Litz Bob & Donna Magoon John & Ruth Martin Colin & Patt McKinnon Oriana McKinnon Mary Ann McNeil William & Joan Miller G.P. and Leslie Neatrour Alexandra Oglesby Vincent & Patricia Olivieri

Philip & Kay Richardson Tom & Rebecca Robinson Paul Schellhammer Peter & Lynn Schultz Bill & Lynne Shepherd Anthony & Allison Sitar Mary Jo O'Connor & Robert Steinhilber Howard & Kathleen Weinberg Karen Wolff Bob & Marion Zabot

Supporting-- 101-250

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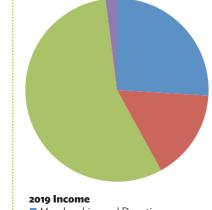
Janet & Jim Ramsey **Richard & Robin Ray** Durk & Kathy Rigney Virginia Cochran & Hugh D. Ruesegger John & Ann Schmidt Dana Sizemore Brooks & Darcel Stephan Mike & Mary Taylor Peter & Jo-Anne Tempest James R. Early & J. Garland Tillery Diona Torres Milton & Belinda Torres Jo Tydings Bill and Jody Ullmann Jim & Mahala Vail Mac & Susie Walston Terry Perrel & Sidney Wenger Clyde Wilcox Dix & Jane Wilcox Christine Work Demaris Yearick Kelly and Paul Young Dave & Joanne Young Connie Zuidema



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Tommy & Miriam Callahan Jill Campbell John Campbell-Brockman Carola Carlisle John & Jeanne Carlock Norman & Bernadette Carrick Glenn & Lynn Carwell David Cary Robert Catlin Peggy Caverly Carolyn Caywood Debra Chako Cynthia & Dave Chapman Ernie & Joyce Chapman Mary Lane and Phil Cheney Carol & Al Chewning Rosemary & Frank Harker Jim & Carole Christopher Karen Cifranick Betty Clarke & Marc Neal Jeremiah Clark Susan Clements Jim Lowe and Susan Compton-Lowe Val Comstock Carol Conaway Jessica Copeland David & Nadine Costenbader Pete & Ann Costenbader Paul & Rena Coughlin Bert Crawford Linda Crovatt William Cryan Kay & Maurice Cullen Gael Daugherty Steve & Lyn Davidson Sperry and Betsy Davis Ann Deel Dave & Betty Demko John & Paula Demosthenes Martha Dennis



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Ken & Cindy Hartfelder

Bill & Barbara Hearst

Dana Henning

Patrick Herman

Anne Heyniger

Joey & Heber

Himmelwright

Dottie Holtz

Carol Hooker

Jeff Horneff

Horvath

Dell Young & Laurence

Kam Hitchcock

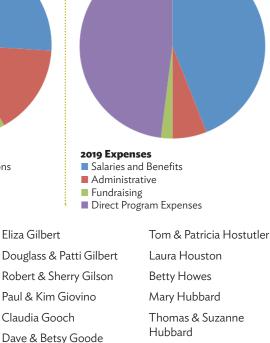
Jill Gurley

Charles Hall

Hamberg

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Blaine & Mary Denny James & Ellen Deppe Ann DeTorres Tim & Sharon Devlin Jill Dinkler Patricia Dolan Barry Dorsk Bruce & Debbie Drees Barbara Duke Ron & Jan Eaton Hollis & LaVonne Ellis Phyllis Elms Julia Engelund **Richard & Janice Felker** Rebecca Fenska Lawrence & Charlotte Field Liz Figari Mike & Blair Fine Mark Fink Madeline Finney Joanne Fish Luke Fisher Rosemary Flamman Gina Foresta Chris Forget LaFrancis & Denis Francis Fred Freeman Brian & Inger Friedman William & Crystal Fuller Michael & Michelle Gauthier James Gentry



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Susan Kaufman Frank Kay Huib & Ankie Keizer Tom & Lisa Kennedy Tim & Sara Kidd Elizabeth Kidd Ingolf & Anne Kiland Lloyd & Patricia Kimball Dennis & Deborah Kinzig Paul Kist Raymond Kuhel Lilla Kuper Dorothy Landreth James and Judy Laster Skip LeGault Alice Leggett Mary Lewis Suzanne Duncan & Gene Lewis Linda Lilley Jean Lills Shelley & Jeff Loeb George Londeree Madison & Adam Longwater Fred & Nancy Lowe Carter & Sylvia Luck Reese Lukei **Rick Lutz** David & Carolyn Lyle George & Joy Lyon Christine Macchia Edgar & Julie MacKinlay

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John Olivieri

Adam Olver Michael & Audrey Owens Jan Pace Abbey Pachter Sylvia Pakradooni Cindy Pare Linda Paul John Payne Keren Perrnini Amy Petersen **Cheryl Petticrew** William & Aileen Petty Winston Polhamus Juan & Pamela Ponce Robert and Bonnie Prestridge Walter & Barbara Priest Lisa Prough Anne Ramsey Davis Reed Carmela & Lyn Reid Arlene & Jack Repham Jim & Linda Richards Terri & Linda Ritter Frances Robins Cutler & Beth Robinson Nancy Ronald Kaen Rooney Sue & Bryceleigh Royster Don & Lin Runvon Charlie Russ Bryon Russell Thom & Pat Sare Wayne & Theresa Sawyer Bill & Linda Schafer Aida Schimmel Curtis & Diane Schmidt Morgan Schmidtendorff Manfred and Ann Schwarz Caroline & Bill Scullion Edward & Kay Shiflett Diana Shocket Marc & Cindy Shook

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Clyde W. Wilcox, Jr.

COMING SOON

18th Annual Oyster Roast, April 4th

Our 18th Annual Oyster Roast will be held on April 4th at "The View" at Rudee Inlet. Tickets are available now. Many new activities and great silent auction and raffle items! See you there.

VB SEAS

Lynnhaven River NOW is looking forward to its first Virginia Beach Student Environmental Action Showcase (VB SEAS) on the evening of May 7th at the Virginia Museum of Contemporary Art (MOCA).

Select student projects from elementary school through high school will be showcased by their student teams, classes, or green clubs showing sustainable and environmentally focused actions or project that could improve our impacts on our natural systems. Virginia Beach's public, private, and home-schooled students are invited to apply. Application information will be available on our website soon.



April 22, 2020 is the 50th Anniversary of Earth Day. Watch for exciting celebrations!

Oyster Restoration in Lynnhaven River

In spring 2020, LRNow in partnership with the City of Virginia Beach and the Chesapeake Bay Foundation will be building 12 acres of new sub-tidal oyster reef in the Eastern and Western Branches of the Lynnhaven River. Shell from our shell collection program (SOS) will be used in the Eastern Branch. This exciting project will get us over 100 acres of sanctuary oyster reef in the Lynnhaven River and closer to our goal of 152 acres.

Tree Planting in Ocean Lakes

We are excited to undertake our first large scale tree planting project. With funding from the Virginia Department of Forestry, we are partnering with the Ocean Lakes Homeowners Association to plant ten acres of trees in their neighborhood. These trees will enhance the neighborhood and as they grow help to manage water in this low lying area.

2020 Fall Festival

We will be back at Mt. Trashmore Park for an even bigger and better Fall Festival on October 10, 2020.

2021 Environmental Film Festival

Thank you to Zeiders Theater, our partners and our movie goers for a successful first year of our Environmental Film Festival. We will be back in January and February of 2021 with a great new selection of movies. Watch for announcements at the end of the year so you can buy the Movie Pass as a holiday gift for yourself and your friends and family.



LYNNHAVEN Ríver NOW

Restoring Virginia Beach Waters

Program Office: Brock Environmental Center 3663 Marlin Bay Drive, Virginia Beach, VA 23455

Administrative and Pearl School Office: 1608 Pleasure House Road, Suites 108 & 109, Virginia Beach, VA 23455

757-962-5398 LynnhavenRiverNow.org