

POLLUTION

INDICATOR	2014 GRADE	2013 GRADE	WHERE WE ARE IN 2014	WHERE WE WANT TO BE
BACTERIA	C+	C+	42% of the river meets the shellfish harvest standard, 91% meets the swimmable/fishable standard	100% of river meets the shellfish harvest standard and 100% swimmable/fishable
NITROGEN & PHOSPHORUS	D	D	Nitrogen & Phosphorus levels are too high for SAV to thrive.	Nitrogen & Phosphorus levels that meet SAV habitat requirements
DISSOLVED OXYGEN	D	D	7.9 impaired sq. miles (approx.. 90% of the river) 4.26 acres of underwater grasses	0 impaired square miles
WATER CLARITY	F	D-	Although anecdotal evidence indicates that water clarity has improved, it still fails to meet the standard for SAV.	Sediment & Algae levels that meet SAV habitat requirements

POLLUTION CONTROL

CLEAN BOATING	A-	A-	NDZ in effect, 4 certified marinas, 3,224 gallons of sewage pumped out.	NDZ in effect, 8 certified marinas, annually increasing gallons pumped out
NEW FUNDS FOR WATER QUALITY	A	A	\$3,672,266 in water quality improvements in 2014	\$3 million per year
STORMWATER TREATMENT	C-	C-	23% of the watershed treated	100% of total watershed treated with stormwater management
SANITARY SEWERS	A-	A-	7 sanitary sewer overflows, 680 total gallons spilled, 211 remaining septic systems	0 sewer overflows per year, 0 gallons spilled, & 0 septic tanks remaining of 11,600

HABITAT

OYSTERS	A-	A-	277,899 oysters transplanted, 63 acres of sanctuary reef, 261 linear feet of new oyster shoreline in 2014	250,000 oysters per year transplanted, 100 total acres of sanctuary reef, 300 linear feet of new oyster shoreline per year
OPEN SPACE & PUBLIC ACCESS	B-	B-	3,104 acres of open space, five public access sites	Open Space: 4,000 acres, Public Access: 15 Public Access Sites
WETLANDS	A	A	Net gain of 6,685 square feet of wetland, 8 living shoreline projects	0 permitted losses per year, increasing number of living shoreline projects each year
UNDERWATER GRASS BEDS	F	F	0 acres	175 total acres

AWARENESS

EDUCATIONAL PROGRAMS	A	A	135 Programs four new Pearl Faith Communities Annual Fall Festival, Watersheds Forum and Candidates Forum	80 programs per year, 5 Pearl Faith Communities per year, Annual Fall Festival, Watersheds Forum and Candidates Forum
MEDIA ATTENTION	A	A	Coverage 12 times, 24 E-News pubs, 8 new print publications, 395 new Facebook followers, 2000 blog views, 423 Twitter followers and 48 Instagram followers	Coverage 18 times per year, 10 new publications per year, Facebook followers: 400 new per year E-News Subscribers: 400 new per year
MEMBERSHIP & INVOLVEMENT	A	A	Membership: 6,254 Involvement: 24,032 2,867 volunteer hours 767 new Pearl Homes	Membership: 5,000 Involvement: 30,000 3,000 volunteer hours 500 new Pearl Homes
SCHOOL PARTICIPATION	A	A	58 Pearl Schools, 9 Teacher Trainings, Participation from all watershed schools.	50 Pearl Schools per year, 10 Teacher Trainings per year, Participation from all watershed schools

LYNNHAVEN RIVER NOW PRESENTS THE

2014 State of the River Report



We continue to make progress in reaching our goal of a cleaner, healthier Lynnhaven River. With the help of our partners and the commitment of many, we are restoring and protecting the Lynnhaven River

With the gains and challenges of 2014, our overall water quality and outreach grade is a B.

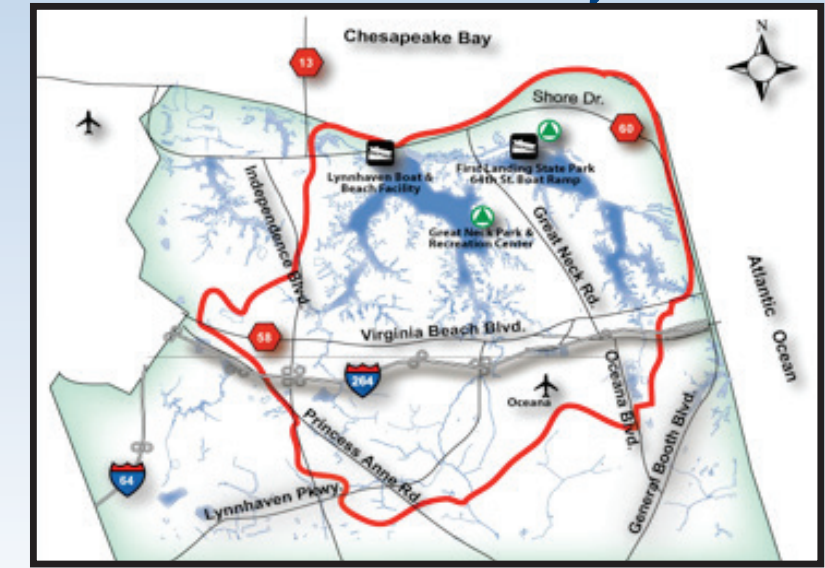
The Lynnhaven River watershed is 64 square miles and is home to

250,000 Virginia Beach residents. Our watershed includes the most densely developed areas of our city: the Shore Drive area, much of the Resort area, Hilltop, Town Center, Lynnhaven Mall, Princess Anne Plaza, and Green Run. We have 38% impervious surface and 30% managed turf. In other words, every time it rains, only 68% of the rain water has optimal conditions for soaking into the ground, being filtered by the soil and taken up by plants. The remaining water is collected by the stormwater system and carried to the nearest surface water: creek, lake or directly into the river. Less than 25% of that stormwater goes into a stormwater pond or other system for pre-treatment.

Stormwater is the main way that pollutants enter the river. There are two ways to reduce pollutant loads. One is to reduce the stormwater flow and keep pollutants out of the water that runs off. That is the goal of many of our community programs that we hope are familiar to you. As you read this report, you will see *What You Can Do* at the end of each of the areas we track. This section shows you how you can help us to make gains in this area. We hope you will take special note of new practices that you can adopt. Whether it is "scooping the poop," planting a tree, installing pervious pavers or other practices, they are all contributing to reducing pollutants in our stormwater and a cleaner river.

The second way we can reduce pollutants in stormwater is to treat the stormwater before it enters the surface water. In a fully developed watershed like ours that is challenging and expensive. The City continues to use all available opportunities to retrofit and improve our stormwater system. Three projects designed and/or built in 2014 are improving stormwater management.

- The Laskin Road improvements included stormwater retention both reducing the amount of stormwater going directly into Little Neck Creek and improving the quality of that runoff.
- Rebuilding of one section of Mill Dam Creek is increasing water flow capacity, adding wetlands and slowing the velocity of the water in the creek during rain events. Mill Dam Creek flows directly into Broad Bay.
- A parking lot retrofit at Princess Anne High School designed in 2014 and being built in 2015 will reduce stormwater runoff into Thalia Creek.



The other notable accomplishment of 2014 is the implementation by the City of the new stormwater regulations requiring increased on-site management of stormwater for all new development and redevelopment.

Another area of focus for Lynnhaven River NOW has been shoreline management. The choices we make in managing our shorelines have both immediate impacts on water quality and marine life, and also contribute to our readiness for sea level rise. In 2014, we again saw a net increase in wetlands and more oyster castle shoreline. Design and permitting work was also completed in 2014 for several important shoreline projects that will be constructed in 2015. We continue to work with homeowners who are interested in knowing more about how to use living shorelines and oyster castles to protect their properties from erosion at the same time they are adding wetland and oyster habitat to the river.

A fully developed and densely populated watershed continues to present challenges to restoring and maintaining a clean and healthy river. This is not easy. Any progress we are making is a result of the involvement and commitment of our community. Our Pearl Homes, Pearl Schools and Pearl Faith Communities programs continue to thrive. In 2014, we surpassed our goal of 2,014 Pearl Homes, had 58 Pearl Schools where amazing work is being done, and five active Pearl Faith Communities.

As we move into 2015, we know that many challenges lie ahead of us. But we also know that together we will continue to make progress and protect the river we love and is such an important part of our City.



Stormwater runoff is the main vector that brings **POLLUTION** to the Lynnhaven River. During rain events, pollutants are washed from the watershed and carried by rain water into storm drains that dump directly into the river.

BACTERIA

C+

Bacteria testing is done regularly in the Lynnhaven River by the Virginia Department of Health, Shellfish Sanitation Division. Bacteria levels determine what areas of the river are open to shellfish harvest. We have maintained 42% of the river open. Vigilance and commitment are required to keep these areas open. Expanding open areas is critical to our growing commercial oyster businesses. 91% of the river meets the swimmable/fishable water quality standard.

What you can do to help: always scoop the poop even in your own yard; do not feed wildlife including ducks, geese and sea gulls; regularly pump out your boat's holding tank; if you have a septic tank, have it maintained regularly.

DISSOLVED OXYGEN

D

The Virginia 303(D) list of impaired waterways released in 2014, again lists 7.9 miles of the Lynnhaven as impaired for dissolved oxygen. This constitutes approximately 90% of the river. The keys to increasing dissolved oxygen are to reduce sediment runoff allowing our underwater grasses to return and to reduce excess nutrients entering our river and stimulating the growth of algae that both reduces water clarity and increases aquatic bacteria that consume oxygen. All marine animals require dissolved oxygen to live. Dissolved oxygen is produced when underwater plants photosynthesize and oxygen is removed when aquatic bacteria decompose dead algae, plants and animals.

What you can do to help: reduce or eliminate your use of lawn fertilizer; reduce sediment runoff by keeping the gutter area in front of your home free of soil and sand; never put grass clippings or leaves down the storm drain.

Water quality can be improved through **POLLUTION CONTROL** measures that treat or reduce the sources of sediments, nutrients and bacteria before these pollutants reach the river.

CLEAN BOATING

A-

Six pump-out facilities are available on the Lynnhaven including a self-service pump-out at the City Marina that is free and available 24 hours and 7 days per week. In addition, HRSD continues to offer a free pump-out once each season to any boat owner. Through HRSD, 3,224 gallons of boat sewage were pumped out in 2014. This is a 56% increase over the 2013 gallons. The total gallons that have been pumped out since the No Discharge Zone (NDZ) took effect is 14,084 gallons of highly potent waste. The Lynnhaven NDZ continues to be one of the only No Discharge Zones in Virginia.

What you can do to help: pump out your boat's holding tank regularly; never fill your boat's gas tank more than 3/4 full to avoid spills; use only marine approved cleaning products on your boat; have your boat motor/engine maintained regularly; adhere to no wake zones.

SANITARY SEWERS

C-

In 2014, \$3.95 million was spent to complete 32 projects within the Lynnhaven watershed. Projects include complete replacement of aging infrastructure to smaller find and fix projects to correct immediate problems. Since 2003, \$84.7 million has been spent on retrofits that contribute to improved water quality. Even with these extensive improvements, we still experienced sanitary sewer overflows during the past year. In 2014, there were seven sanitary sewer overflows, more than in 2013, but fewer total gallons than 2013, 680 gallons in 2014.

What you can do to help: make sure the lateral line that connects your house to the sanitary sewer pipe in the street is in good condition; if you have a septic tank, have it maintained regularly.

NITROGEN & PHOSPHORUS

D

Nitrogen and Phosphorus come from a variety of sources. Nitrogen is the main ingredient in lawn and garden fertilizer; nitrogen is also air-deposited in the river with car exhaust as the major source in our watershed; in addition nitrogen is present in animal and human waste. Once in the river, excess nitrogen and phosphorus negatively impact water quality because they promote algae growth and algal blooms which reduce water clarity and ultimately remove dissolved oxygen from the water. For the Lynnhaven, excess nitrogen remains the most destructive and the hardest to effectively reduce.

What you can do to help: reduce or eliminate your use of lawn fertilizer; reduce the turf grass area of your yard and replace it with planted beds; plant a buffer garden between your lawn and the street or the waterway; use native plants in your landscape; plant a tree; never put grass clippings or leaves into a storm drain.

WATER CLARITY

F

Though anecdotal evidence suggests that water clarity in the Lynnhaven is improving, until it reaches a level that supports the growth of underwater grasses it is still inadequate. Sedimentation occurs whenever there is a land disturbance without proper management of the runoff including what runs off our own residential lots. Water clarity is also affected by the growth of algae in the water especially during the summer months.

What you can do to help: reduce or eliminate lawn fertilizer; handle sediments from any land disturbance properly keeping them out of the storm drain and our waterways; keep the gutter area in front of your home free of sand and sediment; plant a tree.

NEW FUNDS FOR WATER QUALITY

A

During 2014, \$3.7 million dollars was allocated for water quality improvements. Since 2003, the total is \$18.1 million dollars. During this past year, funds were concentrated on development of the Bay Total Maximum Daily Load program, Mill Dam Creek and Thalia Creek retrofits and implementation of the new stormwater regulations.

What you can do to help: become informed about legislation affecting our watershed; attend the Candidates Forum to see where our elected officials stand; talk to your city council representatives and your state delegates and senators about your interest in clean water. They need to know that you support efforts to restore and protect all of our waterways.

STORMWATER TREATMENT

A-

In rain events, water drains rapidly off hard surfaces (rooftops, roadways, parking lots, driveways, and turf areas) carrying with it all the pollutants it encounters along the way. Currently approximately 23% of our stormwater is treated or retained before being dumped into the river. Many of these improvements have been completed on private property through redevelopment and improved stormwater management. A new tracking system is being developed and more extensive data on the pounds of sediment and nutrients being removed through low impact development methods will be available soon.

What you can do to help: be careful about what runs off your property; install a rain barrel, a rain garden or a buffer garden between your property and the street or creek; keep your gutters clear of leaves, grass clippings and litter; keep pollutants like dog waste, fertilizer, cleaning products, and pesticides out of our stormwater.

Protection and restoration of beneficial natural **HABITAT** is critical for a healthy Lynnhaven River. These natural habitats improve water quality in the river by filtering out pollutants and they provide homes for the river's marine life.

OYSTERS

A-

Oyster Castle projects continued to be a major area of growth in our oyster restoration efforts. We completed the third and final phase of the Laila Reef on the northwest shoreline of Broad Bay Island and worked with nine homeowners to design, permit, and build projects on their own shoreline or to complete the design and permit process for construction in spring 2015. We now have a total of 1,133 linear feet of oyster castle shoreline with several exciting projects in the planning stages. And 2.8 million baby oysters were transplanted in the Lynnhaven during the past year. On a darker note, we are monitoring some problems with wild harvest of oysters that is not being done in a sustainable manner and are working with the Virginia Marine Resources Commission on problems of poaching from our sanctuary reefs.

What you can do to help: if you have a waterfront lot, evaluate it for an oyster castle project; talk with your child's teacher about helping them become oyster gardeners; consider becoming an oyster gardener or participating in our spat catcher program; buy sustainably harvested local Lynnhaven oysters.

WETLANDS

A

Exciting progress continues to be made in shoreline management practices. Two years ago, we turned the corner on wetland loss. In 2014, 8,939 square feet of wetlands were lost to development, but 15,554 square feet of new wetlands were created for a net gain of 6,585 square feet or 0.15 acre. Eight living shoreline projects were permitted during 2014, twice the number in 2013. Our marsh islands constitute a large percentage of our total wetlands. LRNow is concerned about increased erosion of the marsh islands and is working on strategies that assist the marsh islands to survive higher sea levels.

What you can do to help: if you live on the water, please consider a living shoreline as an alternative to a bulkhead or rip rap; consider installing oyster castles on your shoreline; make sure you are not moving a natural wetland area on your property; support a strong Wetlands Board and a strong Chesapeake Bay Protection Act Board and good regulatory processes.

Lynnhaven River NOW is raising environmental **AWARENESS** in the watershed because community education is one of the only strategies for reducing pollution from private residential and commercial properties in the Lynnhaven watershed.

EDUCATIONAL PROGRAMS

A

Community education remains at the heart of Lynnhaven River NOW's work. Raising awareness and helping the community adopt more sustainable practices is the primary way progress is made. In 2014, LRNow completed 149 programs with a total of 12,847 adult participants and 11,185 students. Our Pearl Homes program continues to grow, passing the 2014 mark this past year by adding 767 new Pearl Homes this past year. We worked actively with five Pearl Faith communities and expanded our outreach through social media. We had a successful tree campaign that placed 500 new trees with homeowners in 2014.

What you can do to help: subscribe to LRNow's newsletter and E-News; attend an LRNow workshop or event; volunteer to help with one of LRNow's events; attend the Watershed Forum, Candidates' Forum and Fall Festival.

MEDIA ATTENTION

A

Electronic media is expanding rapidly as the preferred method for obtaining information. LRNow has been responding to this by increasing our social media presence. In 2014, we distributed 24 editions of our E-News to 5,247 recipients. We have 1,574 Facebook followers and post almost every day. In addition, our blog was viewed 2,000 times and we have 423 Twitter followers and 48 Instagram followers. In addition, we published three print newsletters, a State of the River Report and a new Pearl Faith Community flyer, a Tree brochure and Lynnhaven River Now was featured in the book, A Case for Collaboration.

What you can do to help: subscribe to our E-News and our print newsletter; follow us on Facebook, Twitter, and Instagram; subscribe to our blog; read our publications and pass them on to a friend.

OPEN SPACE & PUBLIC ACCESS

B-

No new open space was acquired in 2013 in the Lynnhaven watershed. However, the addition of the Pleasure House Point property in 2012 gave us the capacity to offer several new programs during the past year and educate the public about the wetlands, native plants and the variety of wildlife supported by the open space at Pleasure House Point. The Pleasure House Point property also gives us another kayak launch site and access to the river for hikers, fishermen, bird lovers and everyone. A new kayak pier was constructed at First Landing State Park, but no new access sites were added in 2013. Additional public access to the river is needed. During the past year, LRNow completed 17 cleanups on our waterways.

What you can do to help: evaluate your neighborhood for available land that may be suitable for a public kayak launch site; support efforts to expand public access to the river; volunteer for one of our cleanups; use our natural areas responsibly by keeping your dog on a leash, scooping the poop, removing all trash and staying on designated paths.

UNDERWATER GRASS BEDS

F

In 2014, surveys of the river did not show any underwater grasses, submerged aquatic vegetation (SAV). SAV is an important habitat for many species of marine life. In addition, they soften wave activity and keep sediments on the bottom and out of the water column. Like all plants, SAV need light to grow. If the water is too cloudy with sediment and algae, SAV cannot grow. The fact that we have small beds of grass appear occasionally indicates that there is still a viable seed bed in the sediment and if conditions improve, grasses could thrive again. The thicker, wider bladed grass that grows in this region is eel grass. The smaller leaved, wispy grass is widgeon grass. At this time, no known beds currently exist.

What you can do to help: reduce or eliminate your use of lawn fertilizer; reduce sediment runoff by keeping the gutter area in front of your home free of soil and sand; never put grass clippings or leaves down the storm drain; handle sediments from any land disturbance properly keeping them out of the storm drain and out waterways.

MEMBERSHIP & INVOLVEMENT

A

I am pleased to say that our membership continues to grow to over 6,000 members in Virginia Beach who are committed to working with us to restore and protect the Lynnhaven River. In 2014, our members donated over 2,879 volunteer hours to assist our staff in the development and implementation of a wide variety of programs. All of our programs and outreach depend on the support of our active committee members and other volunteers.

What you can do to help: become a member and support our Annual Giving Campaign; join a committee; become a Pearl Home; encourage your faith community to become a Pearl Faith Community; volunteer to help with one of our events; attend an LRNow educational program; invite LRNow to do a presentation for your civic league, garden club or other community organization.

SCHOOL PARTICIPATION

A

Our school programs continue to grow. In 2014, we brought nine new schools into the Pearl School program and placed an emphasis on high schools and on expanding environmental education across the curriculum into diverse subject areas. Highlights of 2014's school programs include planting 142 linear feet of shoreline at Mt. Trashmore Park and 100 square feet of wetlands with Ocean Lakes High School; two new native plant gardens at Providence Elementary School and Kempsville Middle School; six capstone projects with Kemps Landing Magnet School students; working with the Green Teens on their oyster castle shoreline project at Great Neck Park, and the first Lynnhaven Trashion Show with Lynnhaven Mall. Our watershed stewards of the future are engaged and committed.

What you can do to help: encourage your child's school to become a Pearl School; volunteer to help with one of our school programs; participate as a family in a river cleanup or other event; attend our Fall Festival.