

2013  
BUSINESS

# RIVER STARS

**SALUTING  
THE FINEST  
ENVIRONMENTAL  
STEWARDS ON THE  
ELIZABETH**

Elizabeth River  
*Making restoration a reality.*



Project



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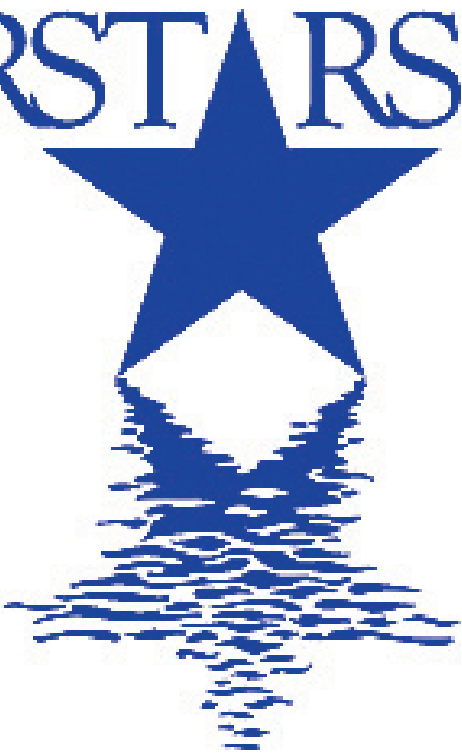
Congratulations, River Stars!

The Elizabeth River Project launched River Stars for business partners in 1997. Since then, River Stars have become the finest environmental stewards on the Elizabeth.

- Pollution reduced: 281 million pounds.
- Wildlife habitat restored, conserved: 1,247 acres.
- Other materials reduced, recycled or reused: More than a billion pounds.

RIVERSTARS

Business partners  
*‘Doin’ right by the river’*



You, too can be a star

**B**ECAUSE THE ELIZABETH is one of the mightiest military and industrial ports in the world, restoring this urban river to health depends for leadership on the business and government facilities that line its shore.

The nonprofit Elizabeth River Project is proud to announce the latest 52 facilities that are making environmental stewardship the business standard on the Elizabeth, through its voluntary program, River Star Businesses.

All told, more than 100 facilities have now documented reducing pollution by 281 million pounds since the program began in 1997. On Jan. 24 the organization celebrates the latest stellar results at its annual River Star Businesses Recognition Luncheon, held this year at the Renaissance Portsmouth Hotel & Waterfront Conference Center – a “Virginia Green” hotel.

Free for any facility in the Elizabeth River watershed, River Star participation is most successful where it can make the most difference – with sites presenting large opportunities to reduce toxic pollution or restore and conserve wildlife habitat.

You’ll see this focus on big results throughout this special report. Whether you’re Hampton Roads Transit, with a new 50,000-gallon rain cistern and Virginia’s first light rail, or a small marine transport company like Marine Oil Service, you’ll see there’s a starring role for you in the restoration of your home river.

Together, River Star facilities are restoring vital wetlands for fish, urban forests to filter pollution on the shore and oyster reefs to bring back the native oyster. They’re inventing new ways to reduce or prevent pollution and treat stormwater runoff. In return, they routinely discover cost savings, reduced liability, improved worker safety and morale.

Norfolk Naval Shipyard, for instance, last year discovered that replacing just two parking lot lights with LED lights will save \$650,000 in electricity over the next 15 years, plus \$43,000 a year in material and labor.

Recognition is awarded once a year by peer review of documented results. And recognition is just part of the program. The Elizabeth River Project also provides free assistance to help you identify and carry out projects. Find out if your company is right for River Stars. Contact Pam Boatwright, River Stars Program Manager, Elizabeth River Project: 399-7487, pboatwright@elizabethriver.org.

THE EVENT

Annual River Star Recognition Luncheon

When Thursday, Jan. 24, from 11:30 to 2:00 p.m.

Where The Renaissance Portsmouth Hotel & Waterfront Conference Center

Tickets \$20 per person

To register Call Katie Duckett at 399-7487 or email kduckett@elizabethriver.org

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## ADVANCING TO MODEL LEVEL 2013 | ★ ★ ★

This year's best of the best... These River Star facilities lead the community in environmental stewardship through exceptional results in pollution prevention and wildlife habitat – and mentor others.

### Chesapeake Sheriff's Office

WHEN IT COMES to pollution prevention, you don't normally start the list of stars with folks in jail. Our peer review committee is super-impressed, however, with the achievements of inmate work crews of the Chesapeake Sheriff's Office, as well as with conservation-conscious upgrades to the jail.

As an example, a special inmate crew is detailed to help beautify South Norfolk. In the last two years, they have picked up 488 tons of debris while logging 85 miles that included helping plant trees and shrubs along Freeman Avenue, near Elizabeth River Project's Money Point focus area, and keeping Elizabeth River Project's Oscar's Landing Wetland litter-free. At Chesapeake City Jail, comprehensive upgrades for energy conservation have reduced air emissions by 191,804 pounds – air pollution is the third-leading source of pollution in the Elizabeth River – while reducing water use by more than a million gallons from 2010 to 2011. These above-and-beyond inmates don't just mow medians and road-sides. In Greenbrier and Great Bridge areas, a street sweeper follows behind to collect the grass clippings too – an essential but unusual step to reduce this source of excess nutrients in stormwater runoff. Crews clean out stormwater ditches and help other municipal River Stars with conservation projects, including Chesapeake Arboretum and Great Bridge Battlefield & Waterways History Foundation.



Inmates play an important role in area conservation, while upgrades at the jail have reduced electricity use by 170,640 kWh per year. Air pollution is the third leading source of excess nitrogen in the Elizabeth.

### Hampton Roads Transit

WHEN JUST ONE COMMUTER switches to mass transit, this can reduce CO2 emissions by 20 pounds a day. Thus Hampton Roads Transit made a landmark contribution to reduce air pollution, and thus runoff to the Elizabeth, with the debut of Virginia's first light rail system and the ability to "Ride the Tide."

Every day HRT reduces pollution by promoting multiple alternatives for mass transit, including not just light rail but ridesharing, buses – 26 are hybrid – ferries and bicycling. But HRT also incorporates pollution prevention into all aspects of its operations, best exemplified with a state-of-the-art "green" maintenance complex for buses, built in 2011.

A 50,000-gallon cistern now gathers rain to wash HRT buses at the new facility. A 10,000-square-foot "green roof" absorbs pollutants on top of the administration building there, with an additional roof-top garden watered with condensation from the air conditioning. Locally sourced recycled content concrete and steel were used in construction, along with use of Forest Stewardship Council certified wood-based materials and products. Throughout, HRT followed guidelines for a "gold" rating through the Leadership in Energy and Environmental Design certification program.

In terms of urban wildlife habitat, HRT used native plants at the new facility and built a mitigation wetland at Grandy Village. About 0.21 acres was above the mitigation requirement.



A 50,000-gallon rain cistern captures water for washing buses at HRT's super-green maintenance complex. HRT is lowering air pollution around the region with innovations including Virginia's first light rail.



## Lafayette Wetlands Partnership

THE LAFAYETTE BRANCH of the Elizabeth is showing historic levels of improvement – and no group has done more, with less, to help bring back Lafayette wetlands than a super-committed group of 50 volunteers, calling themselves the Lafayette Wetlands Partnership.

The partnership's handiwork can be seen up and down the Lafayette, wherever citizens or organizations have thought about a greener shore. The volunteer group in 2007 began developing a tool box of guidance and technical assistance to make wetland restorations doable on their home river. Since then, the Lafayette Wetlands Partnership has served as a catalyst for multiple sites.

"The before and after photos are stunning" for the group's latest wetland restoration, says Pam Boatwright, River Stars program manager. At Holly and Columbus avenues in Riverview, the partnership helped the community and the city restore 1,350 square feet of wetlands and 3,125 square feet of uplands previously covered in the invasive reed, *Phragmites australis*. Volunteers installed coconut fiber logs to reduce erosion, added sand, graded and planted 1,300 native wetland plants and shrubs.

Other projects include transformation of a storm drainage area with native plants to absorb runoff, working with Fairmount Civic League; a rain garden that treats runoff from a full block along 47th street by Norfolk Master Gardeners and the city; a wetlands at 46th Street; and work with Larchmont Elementary, Christ & St. Luke's Episcopal Church, the Hermitage Museum & Gardens, Kinder Morgan and Highland Park. The group has published a manual to doing these projects and started a web site, "Eyes on the River," to encourage citizens to report wildlife and algae blooms on the Lafayette.



Lafayette Wetlands Partnership's 50 volunteers are the catalysts for multiple wetland restorations across the Lafayette branch of the Elizabeth. Here, they gather to revitalize a degraded ditch in the Fairmount neighborhood.

## Norfolk Department of Planning and Community Development

THE CITY OF NORFOLK, with leadership from the Department of Planning and Community Development, is setting a precedent in the region for promoting wetlands and other forms of "living shorelines." The department leads Hampton Roads in the number of wetland restorations, contributing to the improving health of the Lafayette branch of the Elizabeth. Meanwhile, city planning staff have been pro-active in working with many partners to provide education and technical assistance with other forms of shoreline improvements and pollution prevention.

When you visit The Haven Creek Boat Ramp on the Lafayette, admire the new "living shoreline" that stretches the length of the adjacent shore. The planning department built a 4,618-square-foot oyster reef as part of the project, then contributed excess shell to a nearby oyster reef between the Granby and Willowood bridges.

Department staff have designed area wetland restorations including for the Hermitage Museum and Gardens and Lafayette Wetlands Partnership. Kevin DuBois of the department authored a guide to native wetland plants, much used by area partners. The department teaches Citizen Wetland Workshops, shoreline buffer workshops and how to control invasive phragmites.



Norfolk Department of Planning's Kevin Du Bois leads a wetland education workshop. Norfolk leads the region in wetland restorations, most on the Lafayette. (Photo courtesy Norfolk Bureau of Environmental Services)



**ADVANCING TO ACHIEVEMENT LEVEL 2013 | ★ ★**

Achievement Level River Stars document significant results in both pollution prevention and wildlife habitat.

## Culpepper Landing



Next to the Dismal Swamp, Culpepper Landing has conserved 150 acres of wetlands and forest and recently planted 3 more acres of wildlife habitat.

THIS CONSERVATION-MINDED housing development on the edge of the Dismal Swamp previously placed 150 acres in permanent conservation. More recently, Culpepper added almost 3 more acres of protected wildlife habitat, as a “buffer” along an edge of the development, planting the buffer with native pines, maples, wax myrtles and magnolias. In addition, among pollution prevention measures, a section of the development features ENERGYSTAR® certified homes, 30 percent more energy efficient than standard residents. An “Earth Craft” house, exemplifying conservation, won the “People’s Choice” award at Homearama.

## Great Bridge Battlefield & Waterways History Foundation



The new park at Great Bridge Battlefield includes “permeable paving” in part of the parking lot, to keep runoff out of the Elizabeth River.

THE BRITISH WERE CHASED out of Virginia during an historic battle of the Revolution, occurring on the Elizabeth River at Great Bridge. The foundation is commemorating the battle with a park – now open – and a coming visitor’s center, all with the health of the river in mind. Almost 5,000 native trees and shrubs have been added to the park along with 900 square feet of “permeable” paving that lets the rain soak in at the parking lot, rather than causing runoff. Curbing is made of reclaimed cobblestones from the 1700s. Benches and picnic tables are made of recycled plastic. An exemplary stormwater pond includes an “aquatic bench” with plants to absorb nutrients.

## Norfolk Stormwater Management Program



“Stormy,” the mascot for Norfolk’s Stormwater Management Program, delights children at Lafayette RIVERFest.

THE CITY OF NORFOLK’S PROGRAM is playing an essential role in bringing back the health of the Lafayette River through wide-ranging efforts in stormwater management. Achievement Level River Star is awarded for innovative projects including a “living shoreline” to control erosion along Haven Creek with 0.16 acres of new wetlands, restored oysters and elevated walkway. With Elizabeth River Project, Norfolk Stormwater Management installed six “tree box filters” along busy streets near the Lafayette to absorb runoff pollution. The department is a leading partner in Lafayette RIVERFest, donating in-kind services for a free education festival attended by 2,000 last year.

## Ocean Marine Yacht Center



Jennifer Hale helps Ocean Marine Yacht Center grow oysters for restoration. The Portsmouth center promotes “green” yacht repair on an international level.

WHEN MEGA-YACHTS COME TO PORTSMOUTH for repairs at Ocean Marine Yacht Center on the Elizabeth, they experience a super-green approach to boat repair. The yacht center is promoting environmental stewardship at the local and international level.

Built with pollution prevention in mind, Ocean Marine collects all wash water for treatment, one example of practices the company described in “Moving Towards a Greener Yacht” at an international conference.

Recently the company took the lead to ensure Portsmouth’s participation in OpSail met Virginia Green Event standards, and added pet waste stations, more oyster growing, a cigarette-butt litter campaign and cleanups at Paradise Creek Nature Park.

## Portsmouth Parks, Recreation and Leisure Services



The City of Portsmouth opened its third largest park on Dec. 28 – a “super-green,” 40-acre nature park with features like this pervious-paving parking lot.

ON DEC. 28, PORTSMOUTH OPENED its third largest public park: Paradise Creek Nature Park, a partnership with Elizabeth River Project and the Virginia Port Authority. The park includes 40 acres of revitalized forest and restored wetlands, an oasis of nature in the heart of the working harbor. The park will serve as a regional showcase for urban river restoration.

The Portsmouth Department of Parks, Recreation and Leisure Services worked with Elizabeth River Project for years to guide effective development of site improvements, which now include two miles of hiking trails, a “pervious” parking lot to absorb pollution, an “Earthworks Mound” that re-uses material excavated to create the wetland and a pedestrian bridge. Phase II will include outdoor classrooms and more. Pre-K through university students already use the park for lessons.



ENTERING AT COMMITMENT LEVEL 2013 | ★

Commitment Level River Stars documented significant results in either pollution prevention or wildlife habitat.

Bay Environmental



This speckled trout was a reassuring find in a new wetland at Money Point. Jim Cahoon of Bay Environmental, pictured, helps monitor for fish and educate students throughout the watershed.

THE ENVIRONMENTAL CONSULTING FIRM “walks the talk.” Bay has added native plants to its new site at Money Point, subsidizes supervision of Wetlands in the Classroom plantings, volunteers services to monitor fish populations and train volunteer stewards. Jim Cahoon, vice president, volunteers on many environmental committees.

Doody Calls - Hampton Roads



Doody Calls offers a professional solution for people who don't like to “scoop the poop.” The company takes the mission to heart with activities like a Scoop the Poop relay race at RIVERFest.

CAN'T QUITE BRING YOURSELF to “scoop the poop”? Never fear, there's always Doody Calls, a professional pet waste removal service. Company officials make it their duty to help above-and-beyond, so far donating 32,200 pet waste bags, 7 pet waste stations and twice-weekly pick-up along the Lafayette River for Elizabeth River Project's River Star Homes program.

East Coast Bicycles



East Coast Bicycles is playing a leadership role to promote biking as a non-polluting transportation alternative. The bike shop built this bamboo star to promote River Stars and offer “bike valet parking” at RIVERFest.

BIKING IS A GREAT WAY to avoid air pollution, which can make its way to the river. East Coast Bicycles in Norfolk takes a leadership role in promoting biking as alternative transportation. Working with the nonprofit Bike Norfolk, the company holds bike outings, works with the city to establish bike paths and donates “bike valet” services at Lafayette RIVERFest.

Marine Oil Service



Here's America's first double-hulled small tanker for oil transport, operated on the Elizabeth by Marine Oil Service.

MARINE OIL SERVICE on the Elizabeth's Southern Branch operates America's first double-hulled small tanker for transport of oils. The double hull helps protect against the possibility of spills. The company recently improved stormwater controls at the industrial yard and added automated monitoring to improve energy efficiency in managing lubricants.

O'Sullivan's Wharf



River Star Businesses now touts its first restaurant: O'Sullivan's Wharf, where you can arrive by boat to dine on the Lafayette branch of the Elizabeth. Look for the aeration fountains that the restaurant added in Knitting Mill Creek.

THIS IS THE ONLY restaurant on the Lafayette River where you can arrive by boat – and the owner takes this seriously. O'Sullivan's Wharf is the first stand-alone River Star restaurant. With oysters popular on the menu, O'Sullivan's saves the shells for restoration reefs, installed aeration fountains to improve oxygen in Knitting Mill Creek and conducts regular litter cleanups.

South Norfolk Jordan Bridge



Hampton Roads' highest bridge features a special coating that absorbs air pollution. (photo courtesy of FIGG Bridge Builders)

TOUTED AS “the short cut you've been longing for” across the Southern Branch of the Elizabeth, the new Jordan Bridge also models pollution prevention with the use of a coating on the retaining walls that absorbs air pollution. Called “nanobarrier coating,” the substance decomposes pollution through a photocatalytic reaction.

Top Rack Marina



This new marina on the Southern Branch is designed to minimize stormwater runoff.

MOSTLY PROVIDING storage for pleasure boats, this marina on the Southern Branch uses multiple pollution prevention practices. The site slopes away from the river to reduce runoff. A street sweeper picks up pollutants regularly. Boat maintenance is conducted inside to reduce escape of pollutants and the company recycles oil and fuel.



## SUSTAINED DISTINGUISHED PERFORMANCE 2013

Sustained Distinguished Performance is awarded when a River Star completes a significant new initiative with no change in recognition level. The stars reflect their level in the program.



**\*\*\* BAE SYSTEMS NORFOLK SHIP REPAIR**  
The inaugural Inside Business Hall of Fame winner reduced total energy (electricity, natural gas, LPG) by 9 percent and reduced waste by 25 percent in 2012.

**\* CAPE HENRY AUDUBON SOCIETY WEYANOKE WILDLIFE SANCTUARY**

Added 113 native species, eradicated nearly 2 acres of English ivy and restored an eroding bank at this oasis in Norfolk.

**\*\*\* CHESAPEAKE ARBORETUM**

Reached a new level of education programming (examples, "Walking in the Winter Wonder Woods" and a summer camp in nature and science), thanks to a new partnership with Virginia Museum of Natural History.

**\*\*\* CITGO PETROLEUM CORP. CHESAPEAKE TERMINAL**

CITGO's new high-tech "floating roof," suspended with cables and double-sealed in one of its larger petroleum storage tanks, reduces air emissions by 2,849 lbs. per year.

**\* COLONNA'S SHIPYARD**

This shipyard installed the

largest travelift in the world (1,000 tons), achieving improved control of wastewater and stormwater, while adding more resource-efficient pumps, lighting and faucets.

**\*\*\* ENVIVA PORT OF CHESAPEAKE**

The wood pellet exporter planted 243 native trees and shrubs along a border with Paradise Creek Nature Park, added a stormwater pond and grew 3,000 oysters for the Paradise Creek reef, and hosted a groundbreaking event for the new park.

**\*\* GENERAL DYNAMICS NASSCO-NORFOLK (FORMERLY METRO MACHINE)**

Replaced most light fixtures with a lower wattage for energy reductions of 57 percent; added 8 waterless urinals and converted other toilets to low-flush and recycled 4 million lbs. of abrasive blast grit.

**\*\*\* HERMITAGE MUSEUM & GARDENS**

A new 1,400 sq. ft. rain garden at the museum's art studio treats rain from .25 acres of paving before it enters the Lafayette River. The museum hosted an environmental session as part of the Norfolk Home and Garden Tour.

**\*\* HESS CORP. CHESAPEAKE TERMINAL**

The terminal began using wind power to run an air injection system for removing old contamination from the site, a key part of community-wide cleanup of Money Point. A boiler conversion, meanwhile, reduced air emissions by 198,000 lbs.

**\*\*\* HOFFLER CREEK WILDLIFE FOUNDATION**

Completed an innovative "Grasses on the Halfshell" project to protect an eroding shoreline with 30 tons of oyster shell, contained in open-mesh bags and planted with 900 wetland grasses.

**\*\*\* HRSD VIP PLANT**

Added another 5,900 sq. ft. of green roof to a previously installed green roof to filter pollution from rain. HRSD also became a partner in Elizabeth River Project's River Star Homes program to help homeowners reduce pollution.

**\*\*\* KINDER MORGAN/ ELIZABETH RIVER TERMINALS**

Hosted a 3-acre oyster reef, built by Elizabeth River Project off-shore at Money Point as part of a "living cap" to address an area of mild contamination. Oys-

ter shell adds habitat value while helping secure clean sand and wetlands.

**\*\* LYON SHIPYARD**

Added numerous stormwater improvements including a new street sweeper, complete with magnets to recover ferrous metals. The indoor blasting facility has a new dust collection system.

**\*\*\* NAVAL MEDICAL CENTER PORTSMOUTH**

Reduced medical waste by 88,169 lbs. and recycled more than 331 tons of metal, cardboard, paper, and batteries. In 2011, 225 volunteers picked up 4,000 lbs. of trash over 1.5 miles of shoreline for Clean the Bay Day.

**\*\*\* NAVAL STATION NORFOLK**

Initiated a recycling program to recycle 13,400 mattresses, saving \$24,000 and 91,000 cubic feet of landfill space. The Navy continues to add innovative stormwater and energy efforts.

**\*\*\* NOAA MARINE OPERATIONS CENTER - ATLANTIC**

Through continued energy management, this small site near downtown Norfolk has reduced electricity use by half. Hosted environ-

mental vessels for OpSail and helped with education for a summer camp with the Learning Barge.

**\*\*\* NORFOLK ENVIRONMENTAL COMMISSION**

A nationally selected host for the 2012 Great American Clean-up, conducting cleanups at 92 sites engaging 1,781 volunteers to pick up 124,862 lbs. of litter, plant 904 trees and shrubs, and collect 515 lbs of hazardous waste.

**\*\*\* NORFOLK NAVAL SHIPYARD**

Replacing just two parking lot lights with LED will save \$650,000 in electricity over the next 15 years, plus \$43,000 a year in material and labor! New fluorescent bulb recycling resulted in 1,500 more pounds of metal recycled per year.

**\*\*\* NORFOLK SOUTHERN CORP.**

Lambert's Point – New digital cameras and scanning equipment at Norfolk Southern's intermodal terminals have slashed dwell time for dray truck drivers by a third – from 36 minutes to 22-24 minutes, saving time, fuel and air emissions.

» CONTINUED ON NEXT PAGE

**RECERTIFYING** These River Stars "recertified" achievements documented three years ago by peer review. The stars reflect their level in the program.

**\* ALLIED CONCRETE PRODUCTS**

**\* BANK STREET ASSOCIATES**

**\*\* CHRISTIAN BROADCASTING NETWORK**

**\* COLONIAL PIPELINE**

**\* HAMPTON ROADS BEHAVIORAL HEALTH**

**\* ISLAND PROPERTIES/ISLAND ESTATES**

**\* RENAISSANCE PORTSMOUTH HOTEL AND WATERFRONT CONFERENCE CENTER**

**\*\*\* SKANSKA USA CIVIL SOUTHEAST**



INSIDE BUSINESS | RIVER STAR HALL OF FAME

The Inside Business River Star Hall of Fame recognizes one business each year that best exemplifies the spirit of the River Star business program. Results of “Doin’ right by the river” can be cumulative.

Kinder Morgan/  
Elizabeth River Terminals

WHEN ELIZABETH RIVER Project set out to clean up one of the most contaminated stretches of the Elizabeth River, at Money Point in Chesapeake, we faced one big hurdle. The shoreline is lined with privately owned industries, all of whom would need to agree to be part of a comprehensive restoration effort. We could not have hoped for a more can-do response than came from Kinder Morgan/Elizabeth River Terminals. The bulk terminal not only welcomed the large clean-up alongside its operations, but donated seven acres of waterfront to enhance habitat further with a new wetland. The largest voluntary wetland restoration on the Elizabeth was constructed at the terminal in 2009, and has been enhanced each year since with oysters, more plants and an occupied osprey platform. Not only that, but the wetland has become a popular outdoor classroom, at Kinder Morgan’s instigation. For the last two years, every student at Deer Park Elementary Magnet School (about 1,200 total) has come to Kinder Morgan to plant wetland grasses grown

in their classrooms in a partnership with Elizabeth River Project and the terminal. “It’s like ‘mi casa, su casa,’ with that wetland,” says Pam Boatwright, manager, River Star Businesses Program. “They welcome everyone from school kids to other River Stars that are interested in wetland restorations, to scientists doing research.” Wildlife must have gotten the word. More than 20 species of fish have returned to the wetland, in an area once almost devoid of life. The biggest surprise: Last year when engineers checked on plant growth, they spotted a river otter swimming towards them. Otters only show up in relatively clean habitats. Our Hall of Fame winner keeps the river clean in other ways. A storage building, added the same year as the wetland, includes a computerized loading system estimated to reduce product waste by 400 tons a year. And Kinder Morgan in 2011 became the first industrial site in the watershed to add a “Floating Wetland” in one of its stormwater ponds to absorb nutrients.



Kinder Morgan/Elizabeth River Terminals not only donated 7 acres for the largest voluntary wetland restoration on the Elizabeth River, the bulk terminal has turned the wetland into an outdoor classroom, welcoming students and researchers.

- Inside Business River Star Hall of Fame
- 2011 Inaugural Winner – BAE Systems Norfolk Ship Repair
  - 2012 Winner – Virginia Port Authority
  - 2013 Winner – Kinder Morgan/Elizabeth River Terminals

SUSTAINED DISTINGUISHED PERFORMANCE 2013 | CONTINUED



**\*\* NORFOLK TUG CO.**  
Another of the company’s tugs has been repowered with low emission equipment, reducing fuel consumption by 20% (75,000 gallons a year). More than 200,000 bricks and 100,000 board feet were salvaged from an old building for reuse.

**\*\*\* NRHA’S GRANDY VILLAGE AND LEARNING CENTER**  
Every 4th-grader in Norfolk Public Schools is visiting the restored wetland at this center this year, as well as the Learning Barge docked there, in a new education partnership with Elizabeth River Project.

**\*\*\* OLD DOMINION UNIVERSITY**  
Students built a Solar Decathlon House, placing 14th in a competition by U.S. Department of Energy for the most attractive and affordable energy-efficient solar house. A second solar house is in design.

**\*\* PERDUE AGRIBUSINESS CHESAPEAKE PLANT**  
A new streetsweeper keeps pollutants out of the river. Inlets feature sediment inserts and “BioBlocks” to absorb organics. More shoreline was enhanced with plantings.

**\*\*\* SPSA OPERATIONS**  
A program to collect household hazardous waste for proper disposal had

its best year ever, receiving 42,000 gallons of liquid and 33,000 lbs. of waste in 2011. New mobile collection events contributed to the success.

**\*\*\* US COAST GUARD - BASE PORTSMOUTH**  
New stormwater improvements include four “Filterra” boxes, also known as tree box filters – underground containers filled with an engineered soil mixture, a mulch layer, under-drain system and a shrub or tree.

**\*\*\* VIRGINIA PORT AUTHORITY**  
A new “GO” Vessel program encourages ships to use alternative fuel/hybrid technology to reduce emissions in port. Maersk Line was the

first participant with 41 ships making over 210 port calls, reducing air emissions by 47,510 pounds in 2012.

**\*\*\* VIRGINIA ZOO**  
Working with Eagle Scout Troop 24, the zoo constructed a 3,240 sq. ft. rain garden to treat stormwater runoff from the event pavilion.

**\*\*\* WHEELABRATOR PORTSMOUTH**  
The waste-to-energy plant installed four stormwater treatment areas using a variety of approaches to treat about 16.8 acres of stormwater runoff. The plant won Portsmouth Economic Development’s inaugural Environmental Award in 2012.