

# Essex County Countryside Alliance



## Will Essex County Do Away With Land Use Taxation?

Read why taxing property on what it produces instead of its market value helps preserve our agricultural heritage.

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**2016 Report**



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# Essex County Countryside Alliance 2016 Report

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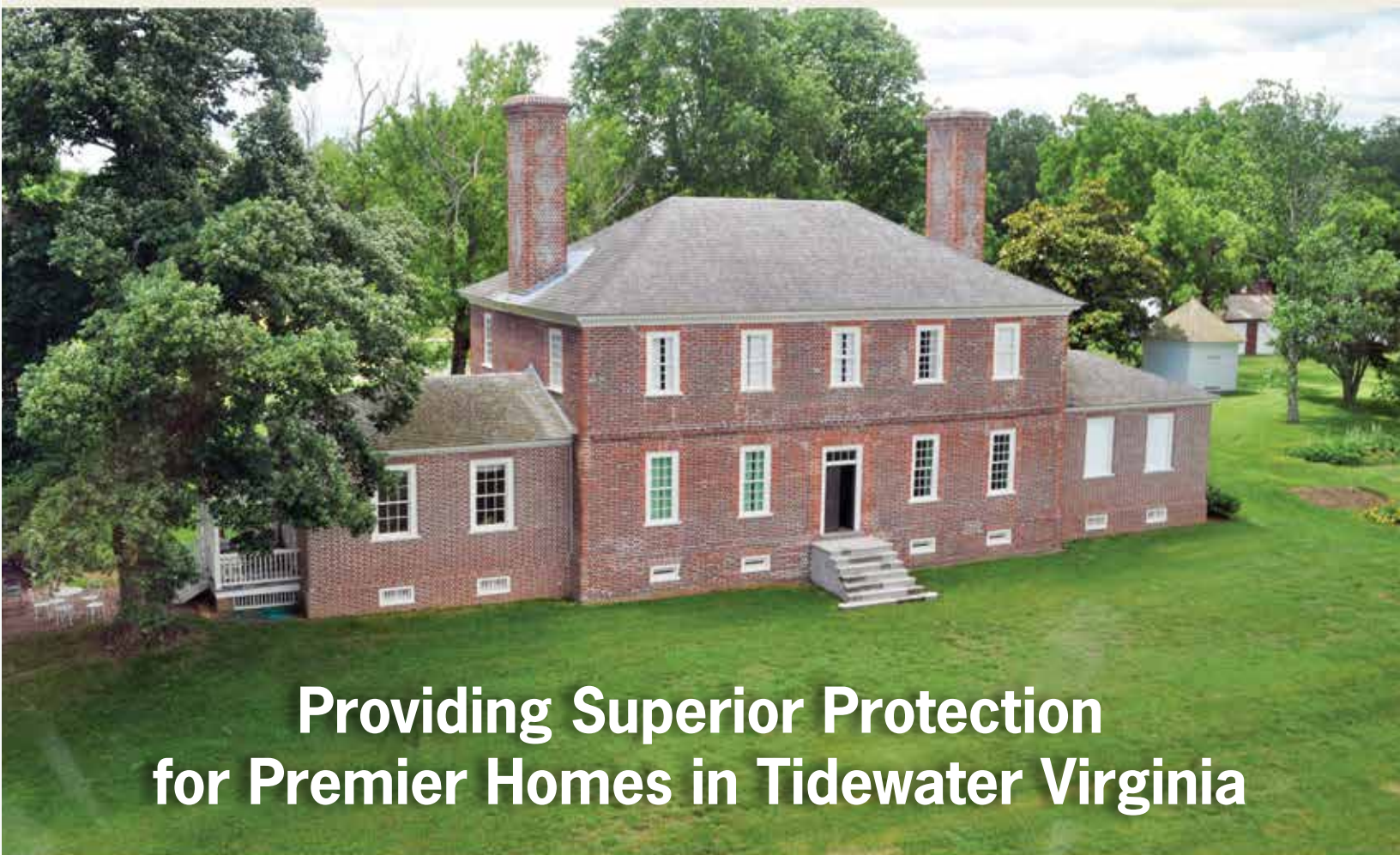
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# Letter From the President



Dear Friends,

Welcome to the ECCA's 2016 magazine, which is the eleventh to be published since our formation in 2006.

The challenges to our agriculture- and forestry-based way of life and to our Rappahannock River continue unabated.

The Fones Cliff development in Richmond County was approved in 2015 with the ultimate outcome yet to be determined. Will a consortium of the government and private money step in to try and save it?

Hylah Boyd and Suzanne Derieux report that the Millers Tavern Rural Historic Project will, hopefully, be wrapped up this year, and the ECCA has been given a \$10,000 anonymous gift, to be matched by county citizens, to begin the Rural Historic District Study of the Occupacia District at the upper end of the county.

Essex County's budget shortfall has led to a call by some residents to eliminate land-use taxation in Essex. Every county in the Northern Neck and the Middle Peninsula has land-use taxation available to their residents, except for King and Queen and Mathews. Land-use taxation is critical to allowing the agricultural/forestry economy, the economic backbone of our county, to thrive. With commodity prices projected to be flat for the next three years, and other costs to farmers rising, how can the county justify this? Taking away land-use taxation in Essex will force landowners to break up parcels of land by selling to developers, bringing more houses, a need for more schools, and another call for more tax money. It is very short sighted.

It appears fracking is on the back burner now, due to the low gas prices, so it remains to be seen what happens when the seven-year leases are due to expire. Shore Exploration has leased about 84,000 acres in five counties east and south of Fredericksburg. Landowners in the Taylorville Basin were paid a fee of \$15 per acre (versus \$5,000 per acre that residents in the Marcellus shale region received). In addition, they would receive 12.5 percent of any well's production revenue (after a heavy expense calculation). With the current low gas prices, and the seven-year-lease terms due to start to expiring, Taylorsville Basin residents will have the option to not renew if drilling work has not begun on the property.

Fifty-eight leases were signed in Essex between January 2011 and the end of 2014, and our residents should think very carefully about the consequences of any renewal of their leases. If you have any doubt, ask your friends who have tried to sell their property encumbered by an oil and gas lease. How many new buyers are interested in purchasing land that could have a ten-acre industrial location replete with drilling rigs and trucks?

In mid-September 2015, the ECCA sponsored a trip on the Captain Thomas from Saunders Wharf up the river past Portobago Bay. Twelve conservation organizations sponsored the trip and were represented on the boat along with Bill Howell, speaker of the House of Delegates, Tayloe Murphy, former secretary of Virginia's Natural Resources agency, and Molly Ward, secretary of Natural Resources. Joe Maroon, director of the Virginia Environmental Endowment, spoke of the challenges the river faces going forward.

In December 2015 the federal government made permanent the 30 percent federal tax credit for conservation easements. This, combined with the 40 percent state of Virginia tax credit, makes conservation easements very compelling for financial reasons alone. With the loss of land-use taxation a possibility in the future, only those with land in easement will have protection again the rising taxes. We encourage you to look at the chart showing possible tax increases if land-use taxation is voted down, and your land is not in a conservation easement.

Our fall meeting is planned for September 16 at the Welger-Merkels' beautiful Port Micou, and we look forward to seeing you there. Thank you for your continued support of our conservation efforts.

Sincerely,

A handwritten signature in blue ink that reads "Peter Bance". The signature is fluid and cursive, with the first name "Peter" and last name "Bance" clearly distinguishable.



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# Essex County Grain Farming: Dollars and Sense



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By David Taliaferro

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“There seem to be but three ways for a nation to acquire wealth. The first is by war, as the Romans did, in plundering their conquered neighbors. This is robbery. The second by commerce, which is, generally, cheating. The third by agriculture, the only honest way, wherein man receives a real increase of the seed thrown into the ground, in a kind of continual miracle, wrought by the hand of God in his favor, as a reward for his innocent life and his virtuous industry.”

—Benjamin Franklin

**T**he sage of Philadelphia made this observation in the eighteenth century and it still rings true today. As applied in the twenty-first century, his quip still makes sense. Wars fought to gain wealth and power rage on. While commerce today carries less of a stigma than in Franklin’s time, news stories of fraud and regulatory disregard permeate the evening news. His depiction of agriculture, however, is the mantra of those who are privileged enough to farm. On the one hand, production of beef, pork, and poultry has all but left the realm of the local producer because vast acreages are not necessary for optimal production. Due to the tight margins of feed cost versus weight gain and market prices, economies of scale have necessarily taken control of the meat sector in order to provide a stable, safe, and affordable national supply. On the other hand, grain farming remains primarily in the hands of individual farmers who have expanded acreage by purchasing larger machines capable of higher production. To purchase new machinery required for a typical grain operation in

Essex County, one would easily need over \$1 million dollars. Hence, the quip that a person can make a small fortune farming if he starts with a large fortune! The idea is to spread machinery and labor costs over more acres to reduce the per-unit costs. Often, it is simply regarded as the only way to grow the business amid the inflationary pressures of machinery and other input costs. There is but one critical element limiting the extent to which corporate farming will dominate the grain production complex. That is land.

There is no better place than Essex County to analyze and, ultimately, understand the role of land in grain production. The 2012 Agricultural Census<sup>1</sup> shows a total land area of approximately 164,559 acres, with 38,730 acres of crop land. Additionally, the county has 89,940 acres of pine and hardwood forests. Furthermore, the census figures reveal that farm operators own 15,650 acres of timberland in addition to their open crop acreage. The county's agricultural land is owned by farmers themselves or private citizens, most of whom either

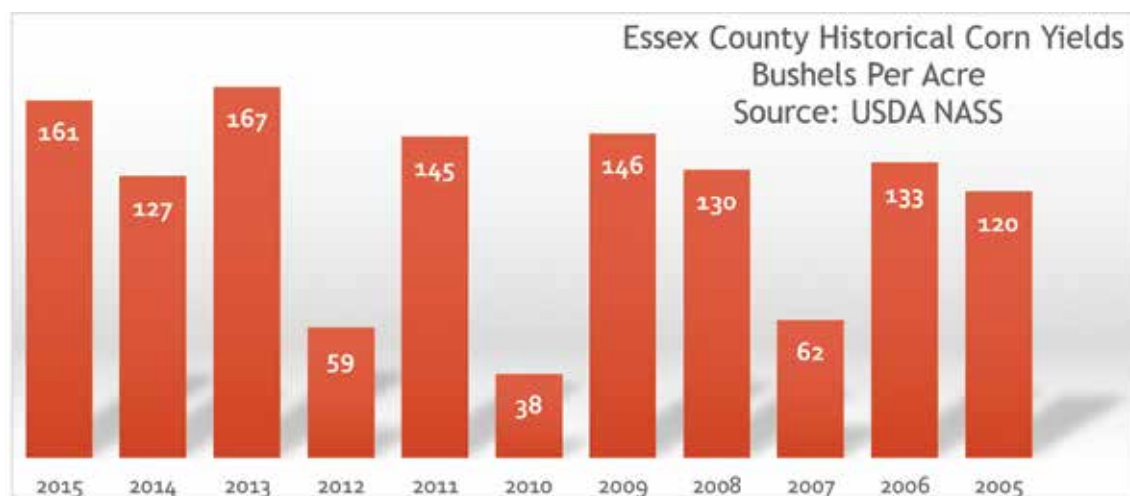
grew up in, or currently reside in, Essex. The majority of this land has been inherited. The relationship between the farmer and the owner of the land has always been personal and most gratifying to long-term renters and tenants. A farmer would probably say the land owners who rent to him are an extension of his own family. This kind of relationship would not exist between private land owners and a corporation. In 2012 the money from all land rents totaled approximately \$2,526,000. This income, along with rents for hunting rights, provides the means by which most of the landowners pay their county land taxes.

To Mr. Franklin's point, grain farming is miraculous unto itself. It is interesting to compare farming to the manufacturing of a finished product. In the auto industry, for example, the separate components of a car are brought together on the assembly line. The manufacturer knows the price and the availability of each item. Knowing the cost of labor and the rate of production along with overhead, the per-unit cost is easily calculated. The manu-

facturer then sets the manufacturer's suggested retail price (MSRP), which, in addition to freight, ensures a profit on each vehicle sold. In contrast, world supply and demand dictate grain prices, locally leading to the question of yield. Thus, farmers can bring all the components of a successful crop year together at planting, but once that seed is deposited into the ground, the farmer waits and, sometimes, is able to improve yields by observing good crop protection strategies. It is often said that the maximum yield is set at planting and subsequent actions by the farmer serve only to minimize losses from weed competition, disease pressure, and insect damage. In farming, the unit cost (or cost per bushel) is not determined until the final yield is known.

Corn yields, for example, vary greatly as shown below.<sup>2</sup> A low yield in 2010 of thirty-eight bushels per acre contrasted to a 2013 high of 167 bushels per acre shows the fickle nature of weather.

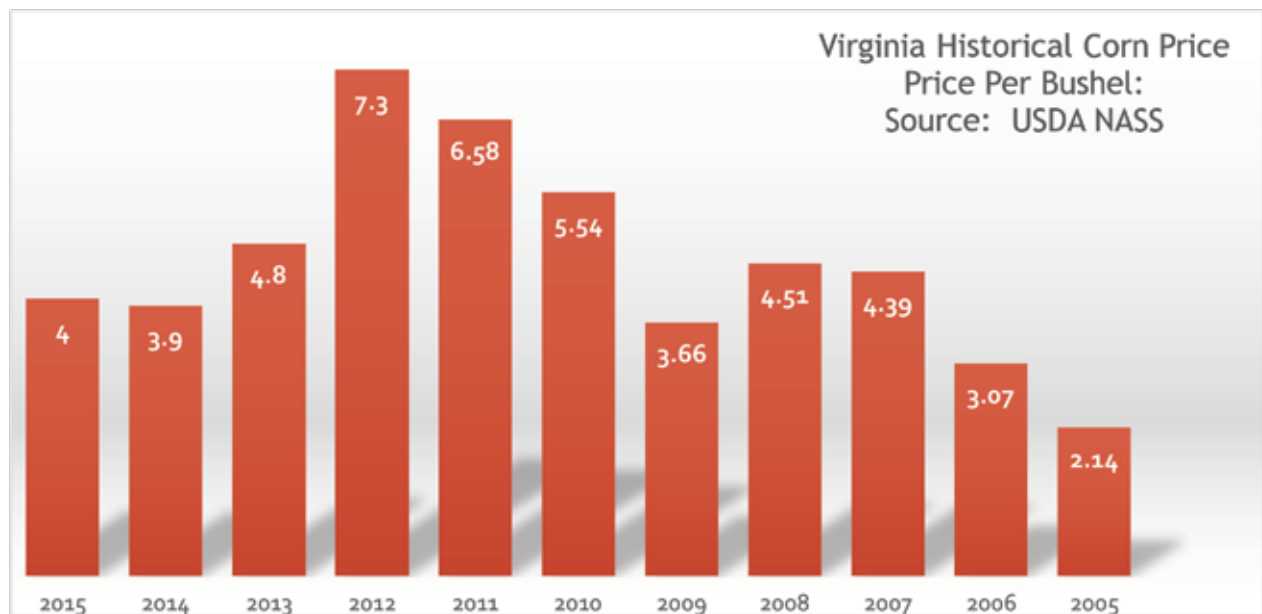
During this same time period, farmers were subjected to similar volatility in the market price.



<sup>1</sup><https://www.agcensus.usda.gov/Publications/2012/>

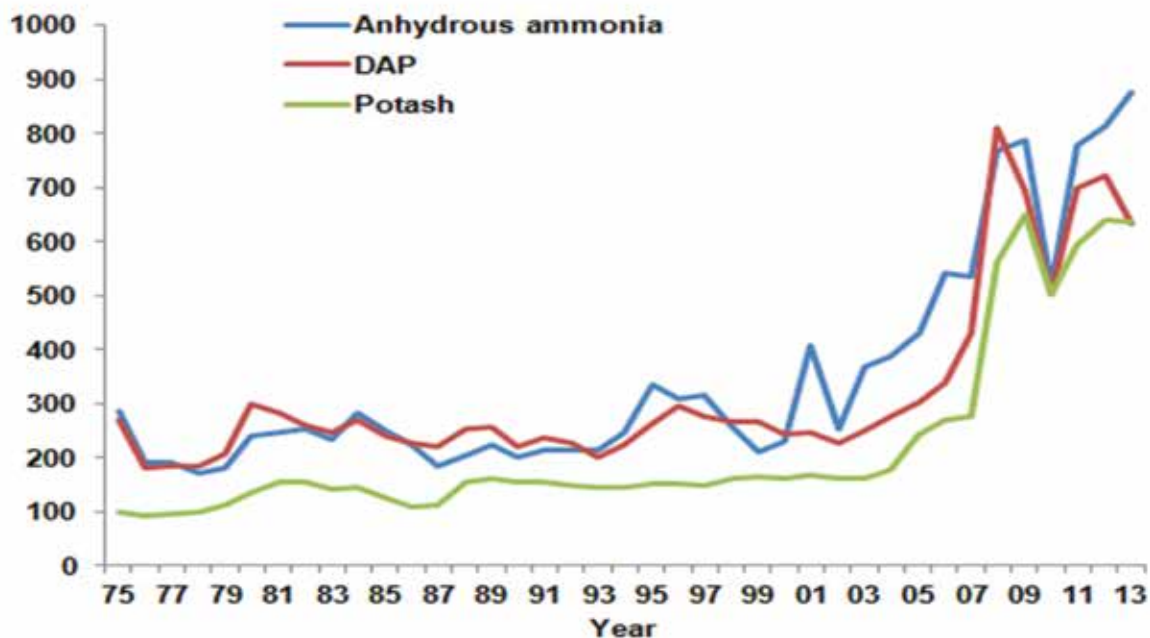
<sup>2</sup>Keith Balderson, Virginia Cooperative Extension Agent, "State of Agriculture in Essex County," April 12, 2016.





One could estimate the total revenue by multiplying the yield by the price for each year. For example, gross income for 2010 was \$211 contrasted to \$802 in 2013. Calculations for these two years show that farmers face uncertain times.

**Figure 2. Fertilizer Prices, Spring of Year, 1970 - 2013.**

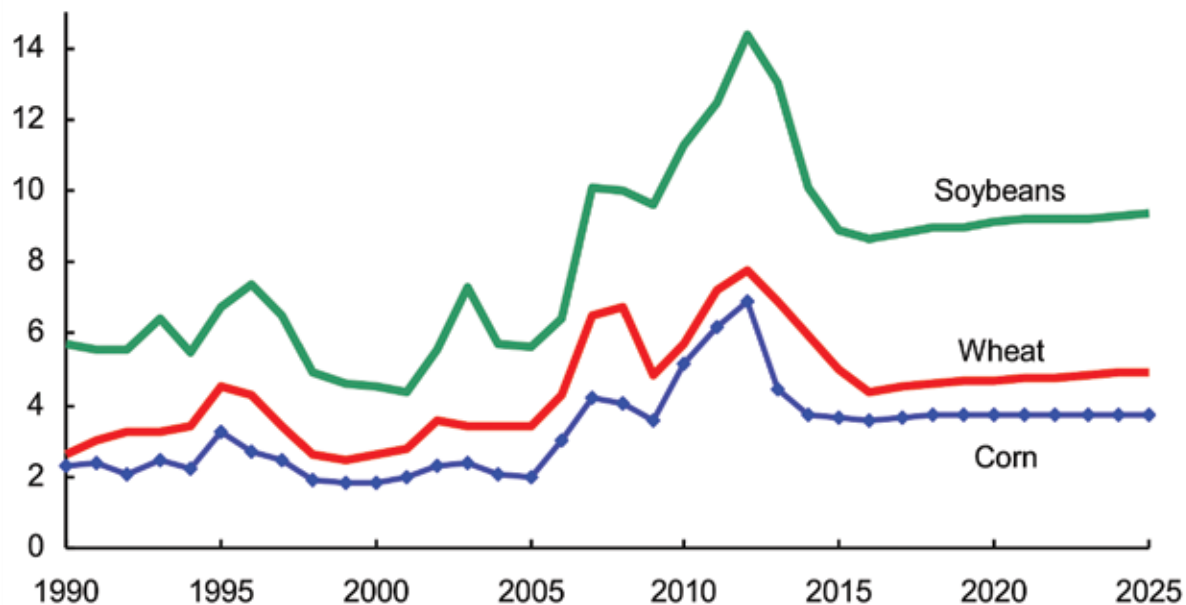


Source: U.S Department of Agriculture, *Agricultural Prices*, select issues.

The trends in fertilizer prices shown above indicate a new era of higher cost projections against the backdrop of uncertain commodity prices, as shown below. Only the most careful planners will remain solvent if the US Department of Agriculture (USDA) price projections prove accurate.

## U.S. farm-level prices: Corn, wheat, and soybeans

Dollars per bushel



In the years ahead for Essex County farmers, the trend toward larger and fewer family farm operations will continue.

Fields will remain in agricultural production provided the farmers can make profits on those acres. Land use planning and preservation must always be a priority for Essex County government. If taxes on specific properties rise without regard to their use, then the potential conversion of that land from agriculture to development becomes imminent. This is especially critical for those farms bordering the Rappahannock. For example,

an acre of land with waterfront might be appraised at \$250,000. Assuming a tax rate of \$0.88 per \$100 of assessed value, the annual tax bill would be \$2200. From the charts in 2015, the gross income would be \$644. Where would the money come from to pay \$2200? If the landowner has no other viable resource to pay the tax, he will be forced to sell.

The following statement is attributed to John F. Kennedy: "Farmers buy retail, sell wholesale, and pay the freight both ways." In spite of these economic ironies that make farming risky, Essex grain

producers are front-line observers of daily miracles as they place seeds in the ground and watch them mature into a healthy crop. While farming provides an income for the producer and his family, more importantly, it is in itself an intoxicating way of life. Ask any farmer how his growing season is going and he will tell you that he either needs rain or has too much of it. He will add that machinery and fertilizer costs are too high and commodity prices are too low. But if you ask him why he farms, he will admit that he loves it anyway.

**D**avid Taliaferro is part of the family business, Montague Farms, with his two brothers Bill and Bryan, his nephew Tom, and his son Jay. Montague Farms grows corn, wheat, soybeans, and barley and also exports food-grade soybeans to Japan and South Korea. David received his undergraduate degree in physics from Wake Forest University, his Master of Science degree in physics at the University of Virginia and served in the US Army in Germany.







A view of cropland at Kendale Farm bordered by the Rappahannock on the north and Occopacia Creek on the south.  
All photos by Hill Wellford

# Preserving Our Rural Lands and Scenic Landscapes

by Hill Wellford

**Article XI of the Virginia Constitution, in Section 1, entitled "Conservation," states that it "shall be the Commonwealth's policy to protect its atmosphere, lands, and waters from pollution, impairment, or destruction, for the benefit, enjoyment, and general welfare of the people of the Commonwealth."**

Virginia's citizens are privileged to live in a state noted for its remarkable natural resources, tidal and fresh water rivers, scenic vistas, and wildlife habitat. Prominent among these assets is the Rappahannock River, which, by all accounts, is one of the most pristine and scenic rivers in the Chesapeake Bay area. The residents of counties that border the Rappahannock should recognize that community and local government support for conservation programs, and particularly conservation easements, are essential if we are to preserve for future generations this natural resource treasure.

Just a few years ago, it was reasonable to assume that our state agencies and local governments were aligned in their commitment to preserve and protect our region's most critical natural resource areas. The commitment is clearly articulated in Virginia's constitution and various state code provisions, and in the comprehensive plans and zoning ordinances of local governments. Article XI of the Virginia Constitution, in Section 1, entitled "Conservation," states that it "shall be the Commonwealth's policy to protect its atmosphere, lands, and waters from pollution, impairment, or destruction, for the benefit, enjoyment, and general welfare of the people of the Commonwealth." While the stated commitment is clear, today the resolve of local governments to protect and preserve the environmentally sensitive lands and natural resources of their counties is by no means certain.

Perhaps, the best example of this is the recent decision of Richmond County's Board of Supervisors to grant a Florida developer's request to rezone approximately 1,000 acres on Fones Cliffs to accommodate a massive housing development and golf resort. Let's be sure that we understand the significance of the Fones Cliffs decision.





Captain John Smith's shallop sailing in front of the Fones Cliffs during the 2007 reenactment voyage.

## Fones Cliffs

There is no place on the Rappahannock more treasured for its natural resource importance than Fones Cliffs. At their highest peak, the cliffs rise over 150 feet and tower over a narrow stretch of the Rappahannock that is bounded on the opposite side by Beverley Marsh, an extensive freshwater tidal marsh. As the river winds its way north, it bends around Beverley Marsh and narrows to the point where, at the highest section of the cliffs, it is only a quarter of a mile wide. This is a spawning area for various species of anadromous fish, including striped bass, white and hickory shad, herring, and even sturgeon. It is also a wintering spot for many species of waterfowl including tundra swan and black ducks. It is, perhaps, best known for the fact that it is also a bald eagle "concentration area" and "communal roosting" site, which is used by bald eagles from the Northeast, the Southeast, and the entire Chesapeake Bay region. The Center for Conservation Biology, which tracks eagle migration and the location of eagle nests, has described Fones Cliffs as "one of the most important areas for eagle conservation throughout the Chesapeake Bay and by extension Eastern North America." Audubon has noted that in addition to bald eagles, it is a migration stop for hundreds of species of other birds and has designated it an "important bird area" of "global significance."

Fones Cliffs is also a site of immense cultural and historical importance. Three Native American villages were situated on the cliffs when Captain John Smith first explored the Rappahannock. It was from these cliffs that John Smith and his crew were attacked in August 1608 by braves from the Rappahannock tribe, a skirmish clearly described by Smith in the diary of his voyage up the Rappahannock. For these reasons, Fones Cliffs is a featured site on the Captain John Smith National Historic Water Trail and has been designated a Treasured Landscape on National Geographic's map of the Chesapeake.

It would be difficult to imagine a place more deserving of protection and less appropriate for development than Fones Cliffs. It is a unique and unspoiled natural resource area on the Rappahannock and the center piece of a fragile ecosystem that has withstood the test of time. The decision of Richmond County's Board of Supervisors to sacrifice this historically important natural resource landmark for a highly speculative housing development and golf resort reflects an alarming insensitivity to the conservation and cultural importance of Fones Cliffs. In making their decision, the supervisors disregarded the pleas of conservation groups, wildlife biologists, and hundreds of area residents who urged them to deny the developer's rezoning request. The supervisors also appeared to ignore the staff



report of the county's planning and zoning administrator, who cautioned that the development project would be "in direct conflict" with the "goals and objectives" of the county's comprehensive plan to protect its historic and natural resources, its rural character and the viability of farming, fishing, and forestry in the county. Among the conservation organizations that opposed the development project were Friends of the Rappahannock, the Northern Neck Land Conservancy, the Chesapeake Bay Foundation, the Chesapeake Conservancy, the Garden Club of Virginia, the Rappahannock Wildlife Refuge Friends, Audubon, Scenic Virginia, and the Essex County Countryside Alliance.

The Fones Cliffs rezoning decision should serve as a wake-up call to the residents of the Northern Neck and the Middle Peninsula and to conservation groups throughout Virginia. Today county governments are experiencing economic stress in the aftermath of the recession and they are searching for new sources of revenue to help them address budget deficits. This is a time when short-term economic agendas prevail as state and local governments focus their attention on the immediate needs of their constituents rather than the implementation of long-term goals. In this type of climate, local government representatives may lack the resolve to protect important natural resource areas from development projects that promise a short-term economic stimulus to the county.

We can hope that the Fones Cliffs decision does not signal a weakening trend in the commitment of local governments to preserve the remarkable and irreplaceable natural resources of our tidewater region. It would be naïve, however, to assume this. Developers, particularly those who represent money interests outside Virginia, understand the economic stress our local communities are experiencing and are likely to recognize the opportunity this presents for them.

For months prior to the public hearing before Richmond County's Board of Supervisors on the Fones Cliffs project, the representative of the developer orchestrated a communications campaign to convince residents of the area and local government representatives that conservation policies deprived the county of property tax revenue that was needed to help fund the costs of local schools and other county services. Properties on which conservation easements had been placed were targeted along with properties owned by the US Fish and Wildlife Service. The developer proclaimed that the Fones Cliffs project would add millions of

dollars to the tax base of the county and would create jobs for its residents. The developer also argued that zoning policies of the county unfairly held down the value of its property and violated its property rights and the property rights of other citizens.

Whether the Fones Cliffs project will be actually built, or if built, will be different from what has been proposed, is not clear. Will the project follow the path of other developments, which after many years, still lie idle because there is no true demand for the project? Will the owner of Fones Cliffs sell the property to another business group with a different plan, or does the Fones Cliffs owner have another objective? What is clear is that the owner has now been given a free pass to replace a unique and vitally important cultural and wildlife habitat area with a golf resort and housing development of over 700 residential units, and Richmond County has shown that its commitment to preserve a critical natural resource landmark on the Rappahannock is only as deep as its pocketbook.

### **Lessons to Be Learned from the Fones Cliffs Experience**

There are important lessons to be learned from the Fones Cliffs experience that conservation organizations throughout Virginia would do well to heed. One of the key lessons is to understand the importance of educating local communities and local governments on the true value, both short-term and long-term, of land conservation and the preservation of natural resource areas. If they do not understand the value, they are not likely to insist on the protection and preservation of their rural and scenic environment. Smart growth is a planning concept that focuses on land uses that should be encouraged and those that should be denied for the benefit of community residents. Many counties in Virginia have lost important natural resource assets as a result of population growth, urban sprawl, and poor planning decisions. These counties are now dealing with road congestion, pollution, and the spiraling cost of county services, which they cannot reverse or effectively control. Tidewater residents of the Northern Neck and Middle Peninsula need only travel between Fredericksburg and the District of Columbia to appreciate the scenic and rural environment in which they live.

A coordinated education initiative by conservation groups and state agencies is necessary to ensure that the residents of the counties that border the Rappahannock understand how rare the natural resource assets

**Mallards in the Beverley Marsh**



the tax revenue they generate. The opposite is true of farmland, forests, and open space land. An American Farmland Trust (AFT) study of the median cost of community services showed that for every \$1 of tax revenue produced by residential developments, the cost to county governments is \$1.16 for the services these developments require. The AFT study compared this with farmland and other open land, showing that for every \$1 of tax revenue farm and open land produced, the median cost of the county services they used was only 35 cents, a net revenue gain of 65 cents. A similar COCS study conducted in 2012 in Albemarle County, Virginia, found that for every \$1 of tax revenue generated, the cost of county services to residential properties was \$1.41, in contrast to agricultural land, where the cost of services was only 20 cents.

The reason that farmland and forests produce a surplus in revenue for counties is simple. They require very little in county services, yet they produce a steady and reliable stream of revenue, even in counties that have adopted land-use taxation, which provides net dollars to the county for the benefit of its residents.

In an effort to educate counties on the importance of land conservation, the Virginia Department of Conservation and Recreation (VDCR) issued an advisory bulletin in 2013 for county governments and Virginia citizens, explaining the full range of benefits county governments and their residents receive through conservation policies that protect and maintain agricultural lands, forests, and natural resources. With respect to the cost of county services, VDCR stated:

*Since the cost to a locality to provide services to undeveloped land is relatively low, a net positive tax cash flow is achieved. Conversely, the costs to provide schools for the children in housing developments plus other municipal costs may be much greater than the tax and non-tax revenue that residential lands provide ... [M]any local governments strongly support land conservation, understanding that protected, undeveloped land generates more direct tax revenue than the services it requires, and that residential development typically brings in less revenue than it costs to provide services.*

In addition to its comments regarding the comparative costs of community services, the VDCR advisory bulletin discussed the negative consequences that result from the failure to conserve and protect open-space lands, including degraded water quality and increased water runoff, loss of tree canopy, affecting ecosystems and soil stability, declining air quality, alteration of

of our region actually are and the importance of preserving them. The river and the farms, forests, and marshes along its banks have defined our counties for generations. These natural resource assets not only have aesthetic value for our citizens but are also essential to the economic health of our counties. If they are nurtured and protected, they will promote tourism and other business initiatives that are compatible with the rural and scenic character of our counties.

### **Land Uses and the Cost of Community Services**

Many studies of the cost of community services (COCS), applicable to different land uses, underscore the economic value of conserving rural, scenic, and undeveloped lands. These studies refute the attack on land conservation by developers and uniformly debunk the assertion of developers that the “best” economic use of the land for the county is a residential subdivision. The truth is that large subdivisions, particularly those located in remote areas of the county, typically burden county governments because the cost of the county services they require is almost always much greater than



traditional viewsheds and cultural landscapes, the destruction of historic sites, impact on plant and animal communities, and the overall impact on the quality of life of Virginia citizens. The VDCR also emphasized the economic importance to Virginia of conserving farming and forestry operations, which are our state's largest industries and provide approximately 500,000 jobs. The VDCR noted that thousands of acres of agricultural and forest lands are lost each year as a result of urban growth and development. Finally, the VDCR stated that conserving our natural resources, cultural and historic sites, landmarks, and scenic vistas is vitally important to tourism, which is a growing industry in Virginia and is becoming increasingly important as a revenue source to our counties.

The VDCR advisory bulletin should be mandatory reading for local government representatives and citizen groups. It should also be included in the course material taught in the earth science classes of our local schools.

The consequences of land-use decisions that local governments make may not be understood by citizens of the community or even fully understood by the local board members who have the responsibility to evaluate them. It is likely that most citizens have never heard of COCS studies and wrongly assume that population growth and residential development will invariably have a positive impact on the county's economic status. It is also probable that most county residents have no appreciation of the fact that farmland and forests placed in conservation easements generally help to increase the amount of state aid a Virginia county receives for its local schools. An excellent discussion on conservation easements and land-use policies' fiscal impact on localities can be found in a paper published by the Middle Peninsula Planning District Commission in December 2010.

Funding necessary for local county schools is always a large-budget item for county governments. Counties in Virginia receive funding from the state on a per-pupil basis pursuant to a complex formula that establishes for each county a composite index number that, theoretically, represents the county's ability to pay its education costs. The lower the composite index number, the greater the amount of state aid a county receives. The formula that determines the composite index number is based on the county's true value of real estate (weighted 50 percent), adjusted gross income (weighted 40 percent), and taxable retail sales (weighted 10 percent). Because a conservation easement is a permanent commitment that restricts the use of that



**Bald Eagles perched along the river edge near Fones Cliffs**

land, as opposed to a land-use commitment, which can be reversed, conservation easements, normally, have the effect of reducing the true value of the property that is reported to the state and this can result in an increase in state aid for local schools. On the other hand, when the local board of supervisors makes a decision to rezone farmland or forests to support a development proposal, the decision, typically, has the effect of increasing the value of the real estate that must be reported to the state. That can cause the county's composite index number to increase, which may trigger a decrease in the amount of state aid for the county's local schools.

The authorization in Virginia property law for use-value taxation has existed pursuant to Title 58.1, Section 58.1-3229 et seq. of the Code of Virginia since 1974, the tax year when it became effective. The intent of the law is to foster "the preservation of real estate for agricultural, horticultural, forest and open space use in the public interest." To accomplish this goal, counties are authorized to tax agricultural land, forests, and open space land based on the land's value in use (referred to as the use value) rather than the land's fair market value.

Land-use-value taxation has been adopted by sixty-nine counties in Virginia, including all the counties that border the Rappahannock. Use-value taxation is a state policy that is encouraged to help counties preserve their rural lands, scenic beauty, and natural resources in recognition that conservation of these assets directly affects the quality of life of county residents and enhances the environmental conditions of the county.

Although land-use taxation has traditionally been endorsed by almost all of the local governments in the Northern Neck and Middle Peninsula, it is now being challenged in some counties by residents who assert that it provides an unfair tax break to the owners of lands with acreage used for farming and forestry. A fair discussion of land use should point out that land-use taxation rates do not apply to the actual residences and personal property of the owners of rural lands but only to the unencumbered acreage they hold, on which few, if any, county services are required.

When viewed objectively, land-use taxation is not only fair but totally consistent with the long-term goals of a rural county where agriculture and forestry operations are the primary economic engines of the community.

To understand the economic contribution of farming and forestry to a rural community, it is important to realize that they are a source of employment and income not just for the residents who work the land or cut the timber but also for many other residents who work in area businesses that provide the services, supplies, and equipment necessary for farm and forestry operations, or who are involved in the transportation and marketing of the products of farming and forestry. Critics of land-use taxation should also understand that the owners of farmland who pay the property tax are often families who own small tracts of acreage that they lease to farm operators who cobble together the land on which crops are planted. The rent these families receive, which may be approximately \$70 to \$80 dollars an acre, is the only income they earn from their land.

Unfortunately, rural counties in Virginia are experiencing a decline in farm and forestry acreage each year. Farming and forestry are, by their nature, high-risk businesses due to unpredictable weather conditions, wide variations in crop prices, insect damage, changing market conditions both domestic and global, and the political environment, which impacts trade policy. Farmers cannot be certain they will make a profit in any given year. Today, for example, crop prices for corn,

wheat, and soybeans (the primary crops produced in the Northern Neck and Middle Peninsula) are substantially lower than they were three years ago, yet crop production costs remain high.

Land-use taxation recognizes that farming and forestry are essential to the economic health of rural counties and to the quality of life all residents of the county enjoy. Preserving forest lands, family farms, and farming operations also provides stability and continuity to rural communities and an awareness of environmental values, which is often lacking in an urban setting. Land-use taxation of farmlands, forests, and open lands is entirely consistent with a rural county's goal of conserving its rural lands, scenic landscapes, and natural resources.

## Conclusion

Conservation organizations should be mindful not only of the economic pressure that county governments are under in the current economic climate but also of their need for expert assistance to give them an accurate assessment of the consequences of the decisions they are being asked to make. Rezoning of property with significant natural resources may offer a short-term economic benefit to the county but impose economic consequences on a long-term basis that are very negative. When rural lands and natural resources are threatened by a proposed development or a change in the county's land-use policy, conservation organizations need to take an active role in the county's review process to ensure that the environmental consequences of the proposal are fully understood, and if necessary, to refute inaccurate or misleading information that may have been presented. Coordinated educational programs sponsored by conservation organizations are needed to inform local governments, community residents, and area students of the importance of conservation policies to protect rural lands, natural resources, cultural and historic properties, and scenic landscapes.

**H**ill Wellford and his wife, Alice, are co-owners of Kendale Farm in Essex County. Hill is a graduate of Davidson College and the University of North Carolina Law School. Upon his graduation from law school in 1967, Hill joined the law firm of Hunton & Williams and for many years held the position of Group Head of the firm's labor, litigation and antitrust attorneys. Hill is a member of the ECCA's Board of Directors. Hill and Alice are advocates for the use of conservation easements to protect critical wildlife habitat and natural resource areas.





# A Brief History of Land Use Values in Essex County

By Tommy Blackwell

**T**here has been/may be a misperception that the Essex County Commissioner of the Revenue (COR) has only recently decided to use State Land Evaluation & Advisory Council (SLEAC) values for land use taxation. A brief history of land use values in Essex County follows:

- For tax year 2008, COR had no SLEAC values for Essex County. Until recently, the SLEAC did not provide values for localities that had not adopted land use and/or agriculture/forestry districts. COR looked to neighboring localities (many had been in land use for decades) to determine the use values for agriculture, forest, horticulture, and open space categories. A composite value was established for each category; the value used in Essex County was somewhat higher than neighboring localities. The initial values were: ag=750 // forest=500 // horticulture=750 // open space=500. These values remained in effect through tax year 2012, as they could not be changed until a county-wide reassessment was conducted.
- For tax year 2013, COR now had SLEAC values for five tax years. However, SLEAC values are based on an Olympic moving average, where the highest and lowest values over the most recent seven-year period are excluded. Since Essex County still did not have a true SLEAC value, a composite value was again established; for agricultural land, the value was based on a combination of the capitalization of cash rents, the capitalization of net income, and “personal knowledge, judgment and experience.” The values were: ag=1125 (50% increase) // forest=575 (15% increase) // horticulture=1125 (50% increase) // open space=575 (15% increase). These increases in value also occurred in a year when the tax rate increased 14.5 cents (\$0.695 to \$0.84); this represented a significant increase in actual taxes levied on land use acreage (81.4% increase for agriculture/horticulture). These values will remain in effect through tax year 2016.
- For tax year 2017, COR now has SLEAC values for nine years, allowing a true seven-year Olympic average. In addition, COR is now able to integrate geographic information system (GIS) overlays with SLEAC values in order to establish use value estimates for each of the eight Soil Conservation Service land capability classifications. The SLEAC provides these values through the use of an approved index to adjust use values for the various land capability classifications. When the mix of land capability classes of an individual land parcel is known, using the adjusted use-value estimates allows the assessment to be based more on the actual productive capability of the land. Based on most recent SLEAC values provided for Essex County, COR anticipates that average values for tax year 2017 will be: ag=2250 (100% increase) // forest=625 (9% increase) // horticulture=1500 (33% increase) // open space=1500 (160% increase). Obviously, even with no increase in the tax rate (currently \$0.88 per hundred), there will be another significant increase in actual taxes levied on agriculture land (\$9.90/acre to \$19.80/acre). When tax year 2017 SLEAC values are released later this year, COR will advertise local values based on land capability classifications and host a town hall meeting to discuss with the public. Essex County land use values will be set and distributed to property owners with reassessment notices in mid-to-late fall 2016. Based on the estimated values above, COR anticipates that approximately \$300,000 less revenue will be deferred in tax year 2017; this reduced deferral has been included in the current FY17 budget.

There has been a significant impact of land use valuation on the taxation of over 550 families who own eligible parcels in Essex County. Analysis of the elimination of land use valuation has been performed on a representative sample of these families and is included in the table below. I invite anyone interested in discussing this issue to call me at 804-443-4737, or e-mail me at [cor@essex-virginia.org](mailto:cor@essex-virginia.org).

## Essex County Land Use Analysis: Market Value Tax vs Land Use Tax

Seq	District	Owner	Acreage	Market Value	Land Use Value	MV Tax	LU Tax	Tax Increase*	% Increase
1	Occupacia	Bance	14.7	54,200	16,493	\$ 476.96	\$ 145.14	\$ 331.82	229%
2	Occupacia	Blagmon	93.7	277,200	78,941	\$ 2,439.36	\$ 694.68	\$ 1,744.68	251%
3	Occupacia	Clarke	296.5	753,600	244,951	\$ 6,631.68	\$ 2,155.57	\$ 4,476.11	208%
4	Occupacia	E & F Enterprises	158.0	383,400	127,745	\$ 3,373.92	\$ 1,124.16	\$ 2,249.76	200%
5	Occupacia	Ellis	1,512.4	3,122,400	1,190,701	\$ 27,477.12	\$ 10,478.17	\$ 16,998.95	162%
6	Occupacia	Fortune	158.0	388,100	136,945	\$ 3,415.28	\$ 1,205.12	\$ 2,210.16	183%
7	Occupacia	Gardner	105.1	329,900	85,800	\$ 2,903.12	\$ 755.04	\$ 2,148.08	284%
8	Occupacia	Hicks (Haynes)	99.0	295,100	100,493	\$ 2,596.88	\$ 884.34	\$ 1,712.54	194%
9	Occupacia	Longest	122.4	227,300	68,339	\$ 2,000.24	\$ 601.38	\$ 1,398.86	233%
10	Occupacia	Payne	2,485.4	4,811,600	1,893,582	\$ 42,342.08	\$ 16,663.52	\$ 25,678.56	154%
11	Occupacia	Reynolds	368.0	904,700	310,275	\$ 7,961.36	\$ 2,730.42	\$ 5,230.94	192%
12	Occupacia	Sasser	274.5	871,200	221,301	\$ 7,666.56	\$ 1,947.45	\$ 5,719.11	294%
13	Occupacia	Sayles	68.2	255,000	71,613	\$ 2,244.00	\$ 630.19	\$ 1,613.81	256%
14	Occupacia	Sturt	298.7	673,500	298,875	\$ 5,926.80	\$ 2,630.10	\$ 3,296.70	125%
15	Occupacia	Wellford	701.8	1,062,700	499,435	\$ 9,351.76	\$ 4,395.03	\$ 4,956.73	113%
16	Central	Andrews	23.5	63,800	13,513	\$ 561.44	\$ 118.91	\$ 442.53	372%
17	Central	Brooks	270.6	655,200	164,978	\$ 5,765.76	\$ 1,451.81	\$ 4,313.95	297%
18	Central	Evans	90.0	260,000	74,475	\$ 2,288.00	\$ 655.38	\$ 1,632.62	249%
19	Central	Hickman	134.8	281,100	77,522	\$ 2,473.68	\$ 682.19	\$ 1,791.49	263%
20	Central	Hutchinson	413.2	1,087,200	399,071	\$ 9,567.36	\$ 3,511.82	\$ 6,055.54	172%
21	Central	Lane	207.5	539,600	198,607	\$ 4,748.48	\$ 1,747.74	\$ 3,000.74	172%
22	Central	Mann	185.5	473,100	149,546	\$ 4,163.28	\$ 1,316.00	\$ 2,847.28	216%
23	Central	Pollard	183.9	518,600	185,712	\$ 4,563.68	\$ 1,634.27	\$ 2,929.41	179%
24	Central	Tignor	86.5	259,700	76,420	\$ 2,285.36	\$ 672.50	\$ 1,612.86	240%
25	Central	Walker	453.3	721,200	274,421	\$ 6,346.56	\$ 2,414.90	\$ 3,931.66	163%
26	Rappahannock	Bacon	103.5	240,500	66,617	\$ 2,116.40	\$ 586.23	\$ 1,530.17	261%
27	Rappahannock	Bestland Farm	277.3	689,100	295,451	\$ 6,064.08	\$ 2,599.97	\$ 3,464.11	133%
28	Rappahannock	Dillard	278.1	488,600	182,058	\$ 4,299.68	\$ 1,602.11	\$ 2,697.57	168%
29	Rappahannock	Newbill	55.7	162,700	40,635	\$ 1,431.76	\$ 357.59	\$ 1,074.17	300%
30	Rappahannock	Rappahannock Industrial Academy	295.0	577,600	209,329	\$ 5,082.88	\$ 1,842.10	\$ 3,240.78	176%
31	Rappahannock	Southland Farm	528.8	1,215,700	440,759	\$ 10,698.16	\$ 3,878.68	\$ 6,819.48	176%
32	Rappahannock	Taliaferro	1,569.4	3,744,100	1,551,205	\$ 32,948.08	\$ 13,650.60	\$ 19,297.48	141%
33	Rappahannock	TFL Partners	494.6	1,201,600	406,880	\$ 10,574.08	\$ 3,580.54	\$ 6,993.54	195%
34	Rappahannock	Vandiver	92.2	266,900	109,325	\$ 2,348.72	\$ 962.06	\$ 1,386.66	144%
<b>Totals</b>			<b>12,499.8</b>	<b>27,856,200</b>	<b>10,262,013</b>	<b>\$ 245,134.56</b>	<b>\$ 90,305.71</b>	<b>\$ 154,828.85</b>	
<b>Average</b>			<b>367.6</b>	<b>819,300</b>	<b>301,824</b>	<b>\$ 7,209.84</b>	<b>\$ 2,656.05</b>	<b>\$ 4,553.79</b>	<b>171%</b>

Public information obtained from current Essex County land records.

\*Not applicable if land is in conservation easement.

**T**homas M. "Tommy" Blackwell grew up in Tappahannock. He attended the University of North Carolina at Chapel Hill on an NROTC scholarship and received his chemistry degree in 1974. He also earned a second degree from Mary Washington College in 1996. He currently serves as liaison to the State Land Evaluation and Advisory Council and is co-chair of the Virginia Association of Assessing Officers Use Value Committee.





## A Citizens' Guide to The Use Value Taxation Program in Virginia

*Dave Lamie, Extension Specialists, Agricultural and Applied Economics, Virginia Tech*  
*Gordon Groover, Extension Specialists, Agricultural and Applied Economics, Virginia Tech*

The purpose of this publication is to help farmland owners, farmers, and other interested citizens to better understand the use value taxation program in Virginia. The current farm crisis coupled with rapid growth at the rural-urban fringe has caused many to ask "How can we keep agricultural land in production?" Some are looking to their local governments' land use and taxation policy for solutions that might assist in answering this question. A local tax policy option that has been exercised widely in Virginia is use value taxation.

Since its 1972 inception into Virginia law, the stated intent of use value taxation has been to foster "the preservation of real estate for agricultural, horticultural, forest and open space use in the public interest." This is to be accomplished through the "classification, special assessment, and taxation of such property in a manner that promotes its preservation to help foster long term public benefits."<sup>1</sup> Virginia law allows for eligible open space, forested, and agricultural land to be taxed based on the land's value in use (use value) as opposed to the land's market value. Currently, agricultural land is assessed at its value in agricultural use in 69 counties and 18 cities in Virginia that have adopted local use value ordinances and in several other localities without use value taxation ordinances that have agricultural districts.

Virginia is not alone in providing preferential tax treatment of agricultural land. All fifty states have land use programs that provide property tax relief for agricultural land. These programs include the purchase of development rights, transfers of development rights, the donation of conservation easements, and use value taxation. Though the specifics differ substantially,

these programs all have in common the consequence of reducing assessment values for agricultural land to its value in agricultural use. One might conclude that there exists a broad general level of support for reducing the burden of local taxes on farmland owners across the country. But, it is unclear whether this support is directed toward the preservation of farmers, the preservation of farmland, or both.

The Virginia use value assessment taxation program has been in place for over 25 years. It has produced substantial tax savings for Virginia agricultural, horticultural, forest, and open space landowners in those jurisdictions that have adopted use value taxation programs. The land use taxation program works by allowing local jurisdictions to assess agricultural land at its value in a particular use, or "use value." If no local ordinance<sup>2</sup> has been adopted, landowners may still qualify for use value taxation if their land is in an Agricultural or Forestal District. To qualify for this special assessment, the agricultural land must be part of a *bona fide* farm operation.<sup>3</sup> Agricultural use value is the expected market value for a property in agricultural use and is estimated from its capitalized net agricultural income or rented payments for agricultural land.

### Use Value Differs From Fair Market Value

To better understand use value, making an analogy to fair market value is helpful. Fair market value is the value of a particular parcel in its "highest and best" use. Certain restrictions are placed on this use in accordance with the rules and conventions of society. For all practical purposes, these rules and conventions are spelled out in

1 Code of Virginia Section 58.1-3229

2 Virginia code actually allows for use value taxation in agricultural, horticultural, forestal, and open space uses. Local ordinances specify which of these uses qualifies in the jurisdiction.

3 For specific definitions of what constitutes a *bona fide* farm operation, see the *Manual of the State Land Evaluation Advisory Council*, available from the Virginia Department of Taxation.

[www.ext.vt.edu](http://www.ext.vt.edu)



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the local comprehensive plan and zoning ordinances and in case law. Therefore, fair market value is essentially the amount one could expect to sell a parcel for if no further restrictions were placed on its use other than those placed on the parcel through the local political process.

In contrast, use value is the amount that one would expect to sell the land for if it were restricted to a pre-defined use. For instance, agricultural use value is the amount one would expect to receive if the land were to be maintained solely in agricultural use. As the options for land use are restricted, one would typically find that use value is less than fair market value. However, for parcels where the allowed use is the same as the highest and best use, essentially no difference is seen in the values.

Examining which Virginia counties have adopted a local agricultural use value ordinance further illuminates this idea. Sixty-nine counties and 18 independent cities have local agricultural use value ordinances. The expectation is that those counties that have few viable alternative land uses besides agriculture would be less likely to have a local use value ordinance. Generally, most counties without a use value program would be found where development pressures are less dominant. Notice in Figure 1 that those counties that are near major metropolitan areas or interstate highways are more likely to have agricultural use value programs. Portions of Southwest, Southside, Northern Neck, and the Allegheny Highlands of Virginia comprise those counties without use value programs.

## The Role of Land Government Officials

In Virginia counties and cities, the local Commissioner of Revenue or duly appointed Assessing Officer is charged with the responsibility and empowered with the authority to set the assessed value for both real and personal property. Commissioners of Revenue are, therefore, responsible for assessing agricultural land. In those

counties *without* use value assessment, Commissioners of Revenue use only fair market value assessment. However, in jurisdictions with a local use value ordinance, agricultural land must be assessed at both its fair market value and its use value. Both assessment methods are required because the difference between use value and market value represents a “deferred” tax that must be repaid should the land be converted to an ineligible use. This deferred tax is referred to as the “rollback” tax and Virginia Code requires that landowners who convert their land to an ineligible use must pay back to the locality five years of rollback taxes plus interest.

## The Role of SLEAC

In order to help Commissioners of Revenue in the process of determining reasonable use values, the Virginia State Land Evaluation Advisory Council (SLEAC) contracts with personnel in the Department of Agricultural and Applied Economics at Virginia Tech to develop use value assessment estimates. These estimates are to “be considered”<sup>4</sup> in the local assessment of such land. Local Commissioners of Revenue are not required to use these estimates directly in arriving at assessment values for agricultural real property although many do. These estimates are, in fact, used directly by some jurisdictions while other jurisdictions choose to complement the estimates with other information. An informal survey of assessing officers conducted by the authors found that approximately half used these estimates directly while another 45 percent stated that they were a major factor in arriving at a final assessment value. Only 5 percent reported that these estimates were only a minor factor. No one indicated not considering these estimates at all. Even so, considerable debate occurs amongst Commissioners of Revenue on who should have final responsibility for assigning values and how the final assessment should be determined. However, the ultimate responsibility currently lies with the local Commissioners of Revenue or their duly appointed Assessing Officers.

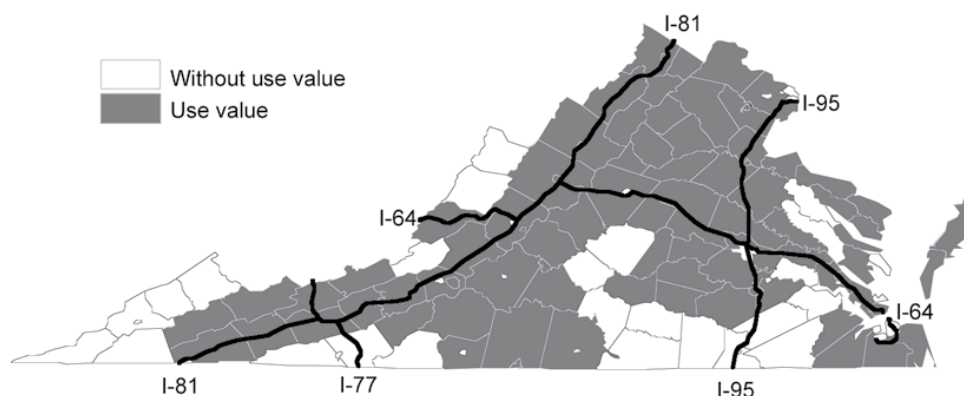


Figure 1: Location of counties with Use Value Taxation.

4 Virginia Code 58.1-3236



## Calculating the Estimated Use Value of Agricultural Land in Virginia

The methods used to generate these estimates for SLEAC are dependent upon the availability of various sources of published information. The amount of detailed information that would be required for these estimates to apply perfectly to every individually qualified land parcel in every jurisdiction would be enormous and costly. Therefore, the Virginia General Assembly has decided to let the final determination of assessed values rest with the locality and their duly enabled officers. For Commissioners of Revenue to make informed and sound decisions, they must be able to judge the applicability of the information provided by SLEAC to the situations within their jurisdictions.

As indicated earlier, most Commissioners of Revenue choose to base their use value assessment decisions largely upon SLEAC estimates. So that Commissioners of Revenue and other interested citizens might understand how these estimates are determined, the remainder of this publication explains the procedure.<sup>5</sup>

Section 58.1 – 3239 of the Code of Virginia requires the SLEAC to base their estimates of the use value of agricultural and horticultural lands either on the capitalization of cash rents or the capitalization of net income. This method is based upon the earnings or income capitalization approach to calculating the value of property (Sutter). Since rental markets are nearly non-existent in many jurisdictions and published rental data are unavailable, the SLEAC has elected to base their use-value estimates on the capitalization of net income. Also, there are numerous complications that arise in attempting to estimate the returns to land from livestock enterprises. Therefore, the SLEAC has decided to consider only returns to cropping.

The three basic components of the method used to estimate agricultural use values are determination of a typical farm enterprise, estimation of net income for this enterprise, and estimation of an appropriate capitalization rate. The estimated net income is divided by the capitalization rate to produce estimated use values for all jurisdictions. Once these estimated use values for agricultural land for each jurisdiction are determined, they are adjusted for differences in soil capability that occur within each jurisdiction.

## The Typical Farm Enterprise

The agricultural sector in Virginia is very diverse. A typical agricultural operation located in the Eastern Shore is very different from a typical operation located in the Northern Neck region. For this reason, the accurate estimation of agricultural use values requires developing a composite or typical farm for each jurisdiction participating in the use-value program. The U.S. Bureau of the Census provides county level data on the total number of farms and the total acreage harvested by crop in the Census of Agriculture. Dividing total acreage of each crop harvested by the total number of farms yields the composite farm for each county. For example, if a county has 300 farms with a total of 120,000 harvested acres of corn, 60,000 harvested acres of soybeans, 30,000 harvested acres of barley, and 12,000 harvested acres of alfalfa. The composite or typical farm would then consist of 400 acres of corn, 200 acres of soybeans, 100 acres of barley, and 40 acres of alfalfa.

## Net Farm Income

The next step in the procedure is to develop enterprise budgets for each of the primary crops comprising one or more acres of the composite farm.<sup>6</sup> These budgets are developed in cooperation with Virginia Cooperative Extension Farm Management Agents. In 1999, the primary crops used were corn, alfalfa, hay, wheat, barley, soybeans, cotton, and potatoes.<sup>7</sup> Although basing net returns on a single crop produced throughout the state (i.e. corn) would be simpler, an effort is made to incorporate at least some of the cropping mix and crop rotations used by *bona fide* commercial agricultural operations.

Net returns to pastureland are not explicitly considered. Data limitations coupled with the diversity of livestock operations make the accurate estimation of pastureland net returns difficult. Whether in crop or livestock production, it is the value of the land that is of interest in the calculation of use values. So, pastureland use values are imputed from cropland use values using a land capability index. For more information on how pastureland use values are calculated, refer to the most recent issue of the *Manual of the State Land Evaluation Advisory Council* referenced at the back of this report.

An important factor in the assessment process is how improvements on the land are valued. The value of farm homesteads and improvements, like confined animal feeding units, are assessed at fair market value. Only the

<sup>5</sup> More detailed information on the legal aspects of the use value program can be found in the *Manual of the State Land Evaluation Advisory Committee* available from the Virginia Department of Taxation. More on the methodology can be found in the publication titled "1999 Procedures Manual: Methodology for Determining the Use Value of Agricultural and Horticultural Land in Virginia, Tax Year 2000" by Ed Van Eenoo and R. David Lamie, April 1999, Virginia Tech Department of Agricultural and Applied Economics, Report to Virginia State Land Evaluation Advisory Committee (SLEAC)

<sup>6</sup> A complete listing of the enterprise budgets is available for public inspection at the Virginia Department of Taxation or from the Virginia Tech Department of Agriculture and Applied Economics.

<sup>7</sup> Structural changes in production agriculture necessitate occasional changes in the primary crops.

land beneath them is valued at its value in use. For those farm improvements that have no uses outside agriculture, fair market value is equivalent to use value. However, there may be instances where farm improvements may have non-agricultural alternative uses. Nonetheless, these improvements are taxed at fair market value, not their value in agricultural use. Thus, those farmland owners with substantial property values emanating from improvements, such as poultry houses, instead of from farmland, typically benefit less from use value.

The budgeting process produces an annual per acre net return for each crop grown on the composite farm. The annual per acre net returns from the past seven years are used to determine an Olympic average net return for each enterprise.<sup>8</sup> This averaging process helps to mitigate fluctuations in the annual use-value estimates caused by unusually good or poor years.

Federal payments are included as a source of revenue. The rationale for including federal payments is that the expected stream of revenue from these payments will be capitalized into the value of the land. Implicitly assumed is that the past flow of these payments is an indicator of future payments. Federal payments have been generally made to corn, barley, cotton, and wheat and are estimated on a seven-year moving Olympic average. The estimated federal payments are then added to the estimated net returns. Thus, even in years when crop incomes are low, federal payments may offset them. Thus, the use value estimates are based upon the total income from crop enterprises from both the selling of the crop and the transfers from the federal government. This procedure for calculating net returns is performed for each primary crop comprising at least one acre of cropland harvested on the composite farm.<sup>9</sup>

A weighted average<sup>10</sup> of the primary crop net returns provides the net income per acre of cropland harvested. The total acreage figures used in calculating the weighted average of net returns do not include acreage devoted to quota crops (i.e., peanuts and tobacco). Since quotas are not evenly distributed among farms, the use value of agricultural land devoted to the production of peanuts and tobacco is calculated independently of the use value of land devoted to primary crops.

## The Capitalization Rates

The income capitalization method of determining use values requires that the present value of a future stream of income likely to flow from an investment be estimated. Present value is the amount necessary to invest today in order to achieve a specific future stream of income. Present value depends upon both the specific nature

of the income stream and the time value of money or interest rate. In determining use value, the present value is calculated by dividing the expected dollar value of net income by a capitalization rate (Sutter, p. 217).

The capitalization rate used for the calculation of agricultural use values in Virginia is composed of a variety of components that vary depending upon the characteristics of the agricultural operation. The basic capitalization rate is the sum of a property-tax component and an interest-rate component. For certain real estate tracts with poor drainage that are at risk of flooding, the capitalization rate includes an additional risk component to account for the effects of weather-related risk. A component to discount the risk of quotas being removed from peanut and tobacco crops is added when estimating their use values.

## The Basic Capitalization Rate

The interest-rate component of the capitalization rate is a weighted average of *long-term* interest rates that are charged by the Farm Credit Associations (FCA) serving Virginia. The long-term interest rate reflects what an alternative to owning agricultural land would be expected to return over an extended period of time. To reduce the variability of the annual use-value estimates, the SLEAC has elected to average long-term interest rates over the past 10 years.

The real property tax component is a 10-year moving average of the effective-true-real-property-tax rates published annually for each jurisdiction by the Virginia Department of Taxation. The real property tax component utilized for agricultural land is also utilized for horticultural land. The sum of the interest rate and property tax rate equals the basic capitalization rate in each jurisdiction.

## Weather-Related Risk Component

Agricultural enterprises are subject to numerous risks. However, the risks associated with input costs, crop yields, and prices received are adequately accounted for by the procedures utilized since these risks occur on an across-the-board basis and do not reflect individual land risk situations. The two primary types of risks explicitly considered in the methodology are related to rainfall, either a shortage or excess. An important difference between the two is that the risk associated with drought is not land-related while the risk associated with an excess of rainfall is land-related. The risk of drought is typically distributed uniformly within a jurisdiction and, therefore, does not warrant special attention.

However, the risk associated with an excess of rainfall is typically land-related and, therefore, varies within a

<sup>8</sup> In an Olympic average, the highest and lowest values are dropped prior to calculating the arithmetic mean.

<sup>9</sup> Cropland harvested acreage is a subset of total agricultural acreage that does not include planted acreage that is not harvested.

<sup>10</sup> Total cropland harvested acreage devoted to each crop enterprise on the composite farm supplies the weights.



jurisdiction. The risks associated with excess rainfall are reduced crop yields or crop loss caused by flooding. The size of the risk component varies depending upon the period over which a total crop loss is expected on lands subject to the effects of excess rainfall. The use value estimation methods used in Virginia assume that a total crop loss will occur on land at risk of flooding once every 20 years. This means that the basic capitalization rate is increased by 0.05 for land that has poor drainage and is at risk of flooding. Separate use value estimates that incorporate this risk component are produced for use by the Commissioners of Revenue.

### Quota Crop Risk Component

Quota crops (i.e. peanuts and tobacco) present special problems because they are subject to output controls in the form of allotments and/or quotas. Quota crops contribute significantly to the productive earning power of a real estate tract devoted to agricultural use and the acreage of quota crops is not distributed uniformly. Real estate without a quota or allotment for a crop subject to output controls cannot be used to produce such crops.<sup>11</sup> This presents challenges in determining and applying use values for those jurisdictions where quota crops are common. For this reason, the portion of use value attributable to the value of the land (estimated using the primary crops) and that attributable to the value of the quota (estimated using the quota crops) are treated separately.<sup>12</sup>

The budgeting procedure used for the quota crops is similar to that used for each of the primary crops. However, in order to arrive at a figure representative solely of the value of the quota, net returns to cropland harvested are subtracted from net returns to quota crops prior to applying the capitalization rate. Furthermore, the capitalization rate used for quota crops is not the same as the rate used with the primary crops. There is a significant risk that allotments and/or quotas will be removed from the controlled crops. To account for this an additional risk component is added to the capitalization rate for quota crops. The estimation procedure assumes that there is a one in five chance that quotas will be removed from peanuts and tobacco within the next five years. Adding 0.20, representing this one in five probability, modifies the basic capitalization rate described above. This higher capitalization rate results in a much lower estimated value for the quota than would have been generated had it been assumed that quotas will be in place forever.

### Calculating Use Values

When per acre net incomes and capitalization rates for each jurisdiction have been estimated, calculating the

use values for each jurisdiction is straightforward. The basic formula is:

$$\text{Use Value} = \text{Net Income} / \text{Capitalization Rate}$$

From this formula factors affecting use-value estimates become obvious. For example, if the per-acre net income was \$24 and the capitalization rate was 0.08, then the use value would be \$300 as follows.

$$\text{Use Value} = 24 / .08 = \$300$$

This initial set of values is used as the basis for estimating a range of values to reflect differences in soil types.

An increase (decrease) in a jurisdiction's use-value estimate is caused either by an increase (decrease) in net income or a decrease (increase) in the capitalization rate.

### Adjusting for Variations in Soil Type

The initial use-value estimates do not reflect the fact that each jurisdiction and each parcel of land has different soil productivity characteristics. Section 58.1 – 3239 of the *Code of Virginia* directs the SLEAC to annually publish use-value estimates *for each of the eight Soil Conservation Service land capability classifications*. The most direct way to accomplish this would be to develop a separate set of enterprise budgets for each land class. Unfortunately, much of the data necessary is not reported in sufficient detail. Therefore, the SLEAC has approved the use of an index to adjust use values for the various land capability classifications.

When the mix of land capability classes of an individual land parcel is known, using the adjusted use-value estimates allows the assessment to be based more on the actual productive capability of the land. Many jurisdictions do not have this level of information. Therefore, they rely upon some form of weighted average value for the entire jurisdiction and assign this value to all agricultural land in the jurisdiction, regardless of the productive capability of any particular parcel.

### Discussion

Programs that allow preferential treatment of agricultural land exist in all 50 states. In most states this means that agricultural land may be valued for property tax assessment purposes according to its value solely in agricultural production. This represents a substantial tax savings for farmland owners who own land that has higher valued uses. Virginia has allowed the use value assessment of agricultural land for over 25 years. Currently, the use value taxation of agricultural land takes

<sup>11</sup> An exception exists for peanuts where additional may be produced without a quota.

<sup>12</sup> A minimum of one acre of a jurisdiction's representative farm must be committed to peanut or tobacco production in order for a separate value to be generated for the quota.

place in the 69 counties and 18 cities in Virginia that have adopted local use value ordinances. It also takes place in designated agricultural districts in jurisdictions without local ordinances.

Local Commissioners of Revenue in these jurisdictions are charged with the responsibility of setting assessment values to these properties. Virginia state code specifies that these locally elected officials *must consider* the values produced by the State Land Evaluation Advisory Committee (SLEAC) in the determination of use values for agricultural land. Other factors considered in the process are most likely a product of their particular knowledge of the local situation and their willingness and ability to justify other values. However, survey results indicate that most use the SLEAC estimates directly.

An important role of the State Land Evaluation Advisory Committee is to approve methods for estimating use values for agricultural land. Virginia Code allows for the estimation of use values by either the capitalization of cash rents or by the capitalization of net farm incomes. Currently, the SLEAC has approved the method of capitalizing net farm incomes. The method used has a long history in Virginia and is substantially similar to the methods used in many other states. The alternative of basing use values on cash rents will not likely be used extensively in Virginia unless a valid method for collecting cash rent data is established.

This report provides an overview of the procedures used to produce estimates of use value for agricultural land as reported by the Virginia State Land Evaluation Committee. This report also provides insight into the process that ultimately generates assessed values for particular parcels of agricultural land. It is hoped that greater knowledge of these procedures will provide the basis for a more informed dialogue on use value taxation in Virginia.

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**T**he world's biggest tourist attractions are historic towns and natural landscapes. Towns that are tourist attractions are also usually great places to live. Communities that preserve local history and timeless cultural traditions have their own special authentic identities. Indeed, saving history and nature is a tried and tested formula for creating nice places to live with good economic opportunities. (Note Virginia's long list of historic towns and destinations!)

Community pride and successful tourism go hand-in-hand. All of Essex County benefits when citizens and businesses collaborate to package and brand county history with projects such as the Millers Tavern and Occupacia rural historic landscape studies. These studies will increase local citizens' interest in the history that surrounds them while also helping to create opportunities for tour guides, artisans, caterers, bed and breakfast providers, and others in tourism-related sectors.

### **Do Historic Sites Really Bring in the Tourists?**

Yes. Over 80 percent of tourists are heritage tourists attracted to activities and places that *authentically* represent the stories and people of the past and present. Heritage tourists, on the average, spend 30 percent more than other visitors do.<sup>1</sup> These big spenders seek unique places and experiences. They want to taste sugar toads or muskrat for the first time and see how these traditional foods are caught and cooked. They want to visit ancient Native American sites they can't find anywhere

else, learn more about Virginia's farmers and watermen, and hear a local gospel choir. Heritage tourists spot fake places and avoid them. They don't visit subdivisions or spas that destroy historic sites and natural features. After all, when was the last time you heard someone say, "Hey let's go to Northern Virginia for the weekend"?

Heritage tourists, also called cultural tourists, shop for locally hand-crafted items, not imported imitations. Alaska promotes the creation of local jobs making souvenirs and artisan products through its Made in Alaska program. Virginia currently promotes its agricultural and film industries, but other industries focusing on locally made merchandise, ranging from clothing to manufactured goods, also need the same promotional boost.

### **Isn't the River Realm Marketing Program Enough?**

River Realm lays a great foundation to market Virginia's Tidewater region. However, counties and towns can increase tourism economic benefits by differentiating themselves from one another. There is no better way to brand a place than by preserving history and nature. After all, no two counties or towns anywhere in the world have the same histories, cultures, buildings, or landscapes. They are all special places on the map. There is no other Essex County, Virginia. When counties carelessly erase their historic buildings and landscapes with new development, they forever kill their chances of bringing in the tourists.

## How Else Does Historic Preservation Help the Local Economy?

Historic building repair, also called rehabilitation, creates skilled construction jobs and puts empty buildings back on the tax rolls. A 2013 Virginia Commonwealth University study estimated that bringing old buildings back to life injected \$3.9 billion dollars into the state's economy by adding 31,000 full- and part-time jobs and generating \$133 million in state and local tax revenues over the seventeen-year period studied.<sup>2</sup>

Virginia's 25 percent state tax rehabilitation tax credit encourages most of this historic economic development. The state credit can sometimes be combined with a 20 percent federal historic tax credit to reduce the cost of historic repairs by 45 percent! The credits offset HVAC, geothermal, solar, septic, well, some bathroom and kitchen upgrades, and a host of other costs necessary for modernizing old structures.

However, as evidenced by the number of decaying buildings across the nation, current incentives need to be improved and local governments need to put on the table property tax abatements and creative zoning solutions. The state and federal historic tax credit programs need to work better for average homeowners; most of the tax benefits currently go to developers. Some local governments encourage historic preservation by freezing property taxes for substantial repairs on historic properties. These localities recognize historic buildings for what they are: irreplaceable economic and community-defining assets.

### Summary

Heritage tourism is big business, but like a farm field, it needs careful cultivation. Rural historic districts combined with other projects, such as farmers' and watermen's oral histories, community-sponsored archaeological digs, and Native American and African American history

seminars, can help Tidewater counties document what makes each of them a special place.

More Americans are learning that traditions don't have to be routinely tossed aside for new things. Europeans and people of other cultures keep many of their traditions alive forever because that is their work, their worship, or their craft; that is who they are. Heritage visitors don't stop at strip malls and look-alike subdivisions where you can't even tell where you are, let alone who you are. Help preserve historic and natural Essex County, Virginia. Support ECCA and get involved!

## Virginia's Historic Towns and Destinations

Charlottesville	Aldie	Montross
Williamsburg	Abington	Irvington
Warrenton	Floyd	Reedville
Clark County	Blacksburg	Monticello
Millwood	Orange	Stratford Hall
Fauquier County	Upperville	George
Rappahannock County	Marshall	Washington
Sperryville	White Post	Birthplace Park
Little Washington	Purcellville	Tangier Island
Lexington	Leesburg	Onancock
Old Town	Shenandoah	Petersburg
Alexandria	Valley Civil War	Mt. Vernon
Waterford	Battlefields	Manassas Civil
Culpeper	Shenandoah	War Battlefield
Scottsville	Mountains	Yorktown
Staunton	Virginia's Eastern Shore	Battlefields
Richmond	Winchester	Tappahannock
Ashland	Natural Bridge	Fredericksburg
Chincoteague	Strasburg	Blue Ridge
Cape Charles	Northern Neck	Parkway
Middleburg	Matthews	Appalachian Trail

<sup>1</sup><http://culturalheritagetourism.org/>

<sup>2</sup> "Economic Impact of Historic Rehabilitation Tax Credit Programs in Virginia," report prepared by John Accordino, PhD, AICP, and Fabrizio Fasulo, PhD, for the VCU Center for Urban and Regional Planning, January 21, 2014.

**K**imberly R. Abe has over twenty-five years of professional community planning and historic preservation experience. After dealing with local land use and zoning dynamics in several fast-growing regions, she has a special perspective on the importance of preserving the natural world for its people. Kimberly Abe is a self-taught artist and great lover of Chesapeake Bay, who currently resides in Northumberland County.





# Creating Creative Economies Throughout Virginia

Will Tappahannock use their Main Street Program Affiliate status to apply for training and grants to improve the town?



VMS Designated Community,  
Farmville, Virginia

By Amanda Love, Virginia Department of Housing and Community Development

Communities must think creatively about what your community has to offer, be it natural, cultural or heritage assets, which will make people want to be there.

Have you ever thought about what makes your community special? There are things each community has that makes it unique and one of a kind, and your community is no different. From Southwest Virginia to the Eastern Shore, each of Virginia's regions has its own distinct character, a rich and complex suite of traits shared across communities. And, that unique identity may be a region's most important asset, a building block for retaining residents, attracting businesses and growing entrepreneurs.

There has been a shift in thinking from traditional economic development strategies. It is not just about attracting big businesses anymore. There is real value to any community to spur small business growth and encourage entrepreneurship. By looking at community and economic development as a creative economy, we open new doors to businesses, jobs, visitors and creating vibrant communities. Communities must think creatively about what your community has to offer, be it natural,

cultural or heritage assets, which will make people want to be there.

In December 2014, Governor McAuliffe announced his New Virginia Economy Strategic Plan to transform Virginia into the economic powerhouse we all know it is capable of being. The plan featured many pillars to success, and through the creative economy strategy, communities are wrapping their entire economic development strategy around asset-based economy and building upon small businesses.



Southwest Virginia is focusing on what they have and what makes them special. It is their music, art, natural beauty and so much more that is only found in Southwest Virginia.

Entrepreneurs are integral to the success of the new Virginia economy, as these businesses are filling empty downtowns in rural Virginia, and not only improving the quality of life for citizens, but also attracting larger businesses that are looking for a high quality of life for their employees.

Virginia is no stranger to this mindset. Southwest Virginia has been working regionally on this strategy for more than a decade. The region is completely different than 20 years ago. Although they have seen many hardships, including the loss of traditional businesses including rail, textile, furniture and resource extraction, they have reassessed their economic development future and modified it to be the most beneficial to the region. Southwest Virginia is focusing on what they have and what makes them special. It is their music, art, natural beauty and so much

more that is only found in Southwest Virginia.

We see the revitalization of so many downtowns across Southwest Virginia, and through different economic development efforts, Southwest Virginia is creating healthy sustainable communities for those to live, work and play. Southwest Virginia is turning coal towns into tourist destinations, and they are creating a business climate that welcomes businesses, both large and small. The economic strategy is truly creating a strong entrepreneurial ecosystem that is cultivating, supporting and expanding small business development. This has been evident with the many initiatives surrounding outdoor recreation. The region saw that it had something special that could not be duplicated. There is a large segment of people who want to be outdoors, and by



capitalizing, not only on the natural beauty of the region, but focusing on the trails and other recreational activities that already existed, they built their economic strategy around that. They have attracted new businesses and supported local entrepreneurs that are creating jobs to support the outdoor recreation sector.

This same philosophy and economic strategy is being duplicated across many rural and small towns throughout Virginia. With the assistance and support of many state agencies, including the Virginia Department of Housing and Community Development (DHCD), the creative economy strategy is being developed and implemented. DHCD has been working hand-in-hand with so many communities throughout the commonwealth from planning to capacity building and through the implementation stage of the programs and projects.

DHCD provides support through various programs that help with downtown revitalization, small business development, regional collaboration and so much more. One of the best known DHCD programs is the Virginia Main Street program. The Virginia Main Street (VMS) Program is a preservation-based economic and community development program. Virginia Main Street offers a range of services and assistance to communities interested in revitalizing their historic commercial districts. Currently, the program features 29 designated communities. Through VMS, DHCD is helping to revitalize these beautiful downtown districts to be the vibrant communities they once were. The program offers technical assistance to the designated communities, as well as a host of Commercial District Affiliates. Grants are awarded



**VMS Designated Community,  
Winchester, Virginia**



**Creeper Trail, Abingdon,  
Virginia**

yearly to communities to assist with planning initiatives and downtown improvements.

In addition, DHCD manages other programs that assist with small business development. Through the Community Business Launch (CBL) program, DHCD assists communities in taking a systems approach to defining and pursuing an asset-based small business development strategy. The program starts with a community's unique vision for its future and then uses a local business competition to find and foster the entrepreneurs that connect with that vision. CBL provides the tools to effectively prepare multiple entrepreneurs to operate successful businesses

in a downtown or neighborhood commercial district and allow them to compete for funding to start up their new endeavor. While only a limited number of entrepreneurs may win the business competitions, CBL has given rise to many budding entrepreneurs that have been prepared, through the CBL initiative, to be successful businesses. In addition, it helps communities begin to develop a coordinated, comprehensive sustainable environment that identifies, launches and supports community-based entrepreneurs and small business at all levels of development. A strong entrepreneurship mentality in any community is key to creating amazing things for the future.



**CBL Winners, Hopewell, Virginia**



**T**appahannock is a DHCD Commercial District Affiliate in the Virginia Main Street program. Commercial District Affiliates participate in the VMS program and have access to training by state and national downtown development experts, organizational structure development assistance and eligibility for DHCD grants as available. Affiliates have the opportunity to learn about best practices in the field and to network with peers from around the state. Designated community applications are accepted every few years, as the state decides to expand the number of communities. The last designation of new communities was in March of this year, and included Danville, Wytheville, Gloucester Courthouse and Lexington.

*Any community can apply to receive funding through the CBL or BEE programs.*

In addition to CBL, DHCD manages the Building Entrepreneurial Economies (BEE) program, which provides grants and technical assistance to nonprofit organizations and local governments that plan and implement innovative, comprehensive, strategic and sustainable business development strategies that support local and regional asset-based economic development. DHCD seeks to invest in strategies and projects that support entrepreneurs developing businesses. To deliver these services, these organizations also partner with banks, area businesses, educational institutions, each other and/or other private and public entities within the community. These organizations provide a

service that often is not otherwise available and are designed to support the entrepreneur, even after accessing capital. By supporting the entrepreneurial ecosystem in a community, we are contributing not only to the success of the entrepreneur, but to the success of the community.

DHCD also supports strategic, coordinated planning for development at the regional level. The state realizes the importance of regional cooperation. The region as a whole makes up a community. Businesses are looking at more than just the site when they are deciding on where to bring their business. They are looking to locate in regions that are vibrant and have high quality of life. By working through programs like Building Collaborative Communities (BCC), Virginia is promoting regional economic collaborations in economically-distressed areas to stimulate job creation, economic development and build community capacity and leadership. The program has brought together multiple state resources to create stronger regional collaborative partnerships that are truly benefiting so many regions across the commonwealth. These collaborative efforts pursue larger goals that would not be achievable for any community working alone. Investments become more efficient; limited resources go further; outcomes improve.

Looking forward, Virginia is staying committed to driving the new Virginia economy in all communities throughout the commonwealth. It cannot be done by utilizing just one resource. It takes collaboration, partnership and support from private and public investments. Strong, vibrant communities throughout Virginia have gone through many of these programs, and the communities are continuing to build upon that momentum.

Now is your chance to look at your community and what makes it special and one of a kind. Let's work together to build the next Virginia creative economy!

**T**he Virginia Department of Housing and Community Development (DHCD) is committed to creating safe, affordable and prosperous communities to live, work and do business in Virginia. DHCD partners with Virginia's communities to develop their economic potential, regulates Virginia's building and fire codes, provides training and certification for building officials and invests more than \$100 million each year into housing and community development projects throughout the state. By partnering with local governments, nonprofit groups, state and federal agencies and others, DHCD is working to improve the quality of life for Virginians.





# Where Do Our Ducks Come From?



Ring-Neck Duck

By John L. Devney, Vice President, US Policy Delta Waterfowl

**A**s duck hunters, we marvel at the fall migration. Watching a large flock of migrating ducks passing high overhead, we often wonder where the ducks were born, where they have been, and where they are off to. I think this is the magic of hunting waterfowl. Harvesting a wild duck that may have been born on the prairies of Canada, or in the bog lands of eastern Canada, or even in the marshes of the northeastern United States, provides a unique majesty and mystery to ducks and duck hunting. All farmers know the deer harvested on their farm likely spent the vast majority of their life on that farm or nearby land. Remember you saw, last May, a trail camera image of the big buck you harvested in the fall? And the big gobbler shot in April also never wandered far from where you took him. But ducks ... They are travelers.

What many hunters don't know is that ducks are among the most intensively studied and researched critters anywhere on the planet. As waterfowl managers, we have the benefit of this research: intensive surveys (both on the breeding grounds and on the wintering grounds) that provide the

annual and historic population status. We also have the benefit of long-running harvest surveys and, of course, banding. On the whole, while some mysteries about ducks still persist, we know a good bit about the life of ducks.

Virginia resides smack dab in the middle of the Atlantic flyway. And while the flyway system is most appropriate for managing harvest and regulations and for informing the migratory corridors of many species, they are not hard and fast boundaries to the ducks themselves. The canvasback born on a small prairie wetland in Saskatchewan (in the core of the central flyway) simply ignores flyway boundaries to get back to the hallowed wintering grounds of the Chesapeake. Commonly harvested duck species in Virginia have an incredible variety of origins.

When it comes to determining where ducks come from, there are a couple of methods waterfowl managers employ. The first is the review of raw banding data, which, in its simplest of terms, represents an analysis of where harvested banded birds are marked on the breeding grounds. The second method is a



Canvasback

more robust exercise called harvest derivation. Derivation analysis employs a greater number of inputs to provide a much more scientific and statistically valid means of tying together breeding and harvest areas. Derivation uses banding data and also population size, banding effort, and other inputs to provide a more scientific view. Currently, rigorous derivation work has been done for mallards, black ducks, and blue-wing teal, while for the other species, we rely on raw banding data to explore origins.

## Mallard

The mallard has the widest breeding range of any North American duck. It nests across nearly all the continent. And mallards are among the ducks most highly sought after by duck hunters. In the recent past, mallards have expanded their range eastward. Today a relatively large population of mallards exists





Mallard



Blue-Winged Teal



Ring -Necked Duck



Green-Winged Teal



Green-Winged Teal

in the northeastern United States and eastern Canada, which, not surprisingly, are the core areas for mallards that winter in Virginia. Harvest derivation work completed by Drs. Todd Arnold, a professor at the University of Minnesota, and his colleague, Christina de Sobrino, found that mallards harvested in the mid-Atlantic states (Virginia, Maryland, Delaware, New Jersey, and West Virginia) come from a number of locales in the east. Birds that were born in the region itself account for 39 percent of the mallard harvest, while 15.9 percent originate in Ontario, 11.7 percent in New York, 7.5 percent in Quebec and Atlantic Canada, and 7 percent in the northeastern USA. It is pretty clear that the majority of the mallards harvested in the Virginia region are produced in key eastern breeding areas.

### Black Ducks

The pattern described above is remarkably similar for one of the East's most iconic ducks: the black duck. Arnold and de Sobrino did derivation work for black ducks at the same time as they did their analysis of the mallard harvest. Black ducks harvested in the mid-Atlantic states primarily come from eastern Canada, specifically, Quebec (57 percent), Atlantic Canada (16 percent), and Ontario (10 percent), with eastern US sources contributing to the balance.

### Blue-Winged Teal

The other species for which we have the benefit of detailed derivation analysis is the blue-winged teal. Recent work done by Mike Szymanski (North Dakota Game and Fish) and Jim Dubovsky (US Fish and Wildlife Service) provides the most comprehensive assessment ever done

on the derivation of teal. Blue-wings patterns are far different from those of mallards and black ducks. While Virginia and other mid-Atlantic states harvest a number of blue-wings from the northeastern USA (29.1 percent), what is clear is how important the Prairie Pothole Region is for teal. Prairie Canada contributes 24.7 percent, while the eastern Dakotas contribute 24.5 percent, meaning nearly half the teal harvested in the mid-Atlantic states come from the prairies. The US Great Lakes region is also significant in contributing 12.8 percent.

When it comes to other species, we don't have a robust analysis to refer to, so we review raw banding data. The best way to link Virginia's harvest back to key breeding areas is to constrain our review to "hatch year" (juveniles) and direct recoveries (birds harvested in the first season after banding). The challenge is the relatively light banding effort focused on many species key to the bags of Virginia hunters. Species such as gadwall, wigeon, green-winged teal, ring-necked ducks, and canvasbacks simply don't have the huge banding record of a species such as the mallard. When you pool all these species and include wood ducks (which are also an important part of Virginia's harvest), there are only 600 banding records, total. So recognizing the data is limited, let's look at where these other species come from.

### Wood Ducks

Not surprisingly, the majority of wood ducks harvested in Virginia are produced in the Commonwealth or areas to the north and northeast. New York, Pennsylvania, and southern Ontario, coupled with local woodies, are key areas that contribute to the harvest in the state.

## Ring-Necked Duck

The sporty diver, common to many natural swamps, is also a bird of the eastern breeding grounds. Southern Ontario, Quebec, and areas of Atlantic Canada are key sources of ringnecks.

## Green-Winged Teal

The green-winged teal has a very different breeding distribution from that of its cousin, the blue-winged teal. While many of the blue-wings migrating to Virginia originate in the Prairie Pothole of the USA and Canada, green-wings primarily originate in southern Ontario, Quebec, and Atlantic Canada, overlapping the key breeding areas of ringnecks.

## Wigeon

Wigeon have a bit broader range, with some birds coming from Manitoba, Saskatchewan, and western Ontario, and some originating in southern Ontario.

## Gadwall

The patterns for gadwall are pretty difficult to define. Sparse banding data means we simply don't have robust data to describe any more than broad patterns. The core of the gadwall breeding range is, of course, in the Prairie Pothole Region, but there is some evidence of smaller breeding populations in the East.

## Canvasback

The king of the ducks makes a long journey to get to the waters

of Virginia. Canvasbacks breed in small, semipermanent prairie potholes in southern Manitoba and Saskatchewan and banding records document the linkage of birds harvested in Virginia back to the Canadian prairies.

So, as an answer to our primary question of where Virginia ducks come from, the definitive answer is that they come from many places. If you are holding a brace of ducks including a mallard drake and a black duck, they are pretty likely from core eastern breeding grounds areas such as Quebec or southern Ontario. If you are lucky enough to happen into a flight of blue-winged teal on a muggy day during the September teal season, there is a pretty good chance that they came off small potholes in the prairies or the marshes of the Midwest. And if you are lucky enough to collect the lordly bull canvasback, he likely made the long trek from Manitoba or Saskatchewan.

So continues the mystery of ducks. Those ducks you see overhead from your blind on the Rappahannock may have come from places as diverse as the open, wind-swept prairies and rocky Atlantic Canada.

**J**ohn Devney is vice president of US Policy for Delta Waterfowl, an organization that works on behalf of ducks and duck hunters across North America. John is a passionate waterfowl hunter who lives and works in the heart of the North American duck factory in Bismarck, North Dakota. John's lifelong passion of ducks and duck hunting brought him to Delta in 1998.

Black Duck

## How about Ducks Banded in Virginia? Where Do They End Up?

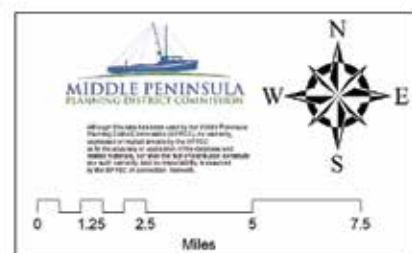
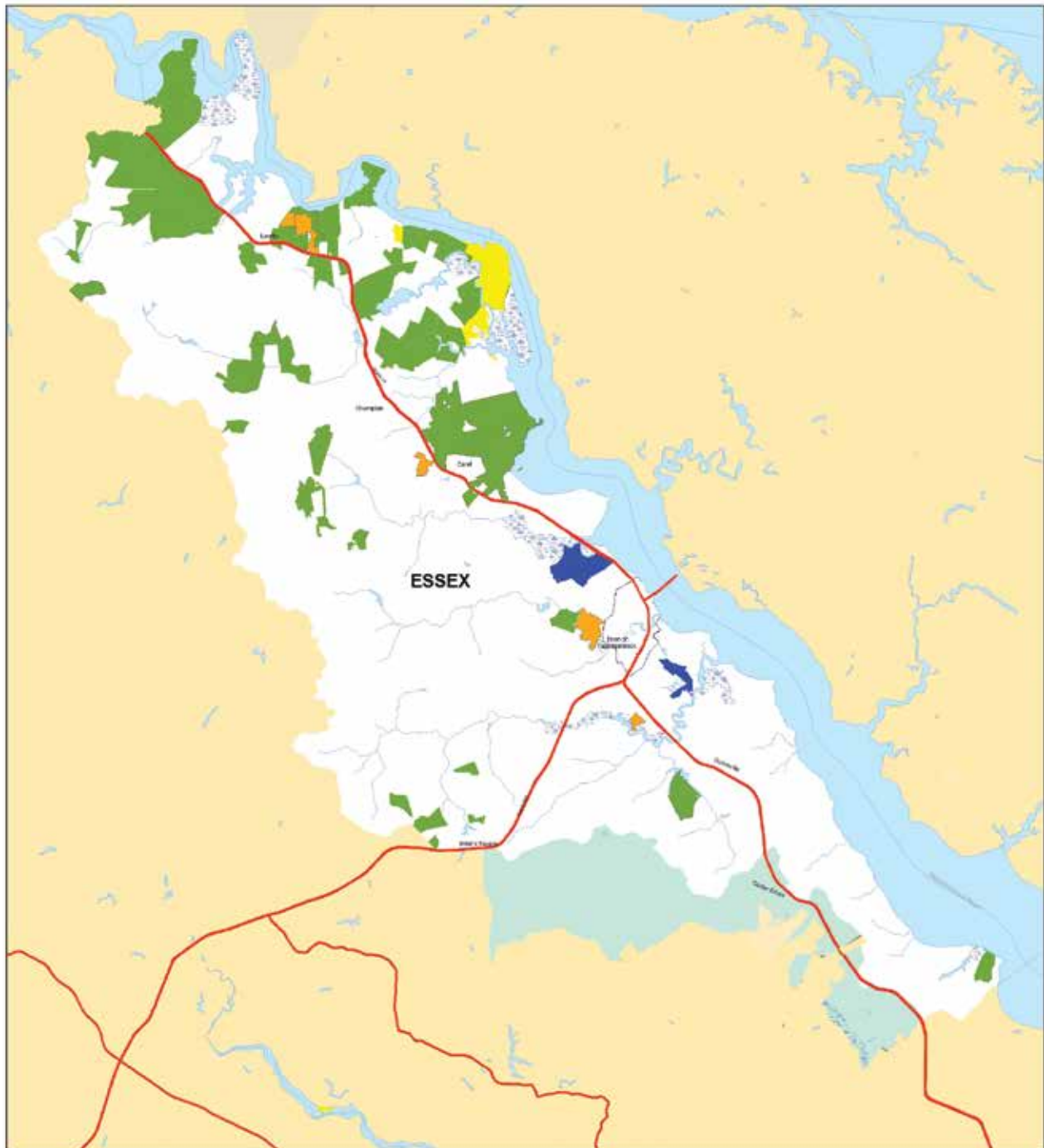
A number of ducks are banded each year in Virginia too. Where are they shot? A review of banding records shows some pretty amazing facts.

- Pintails banded in Virginia have been recovered as far away as the Central Valley of California and Queen Maud Gulf near the Arctic Ocean in Nunavut.
- Blue-winged teal marked in Virginia have been recovered in Nicaragua, Brazil, Haiti, and Saint Lucia.
- Canvasbacks from Virginia have been recovered as far away as the Salton Sea in southern California, Nevada, Oregon, and west of Mexico City.
- Greater scaup marked in the Commonwealth have been recovered along Hudson's Bay in Ontario, and the Yukon Delta National Wildlife Refuge in Alaska.





## Protected Lands 2016 Essex County, Virginia





### Virginia Counties with the Highest Percentage of Acres in Easement

County	Acres under Easement	Total Acres	% in Easement
Clarke	23,629.70	113,036.62	20.90%
Fauquier	91,212.39	449,699.00	20.28%
Albemarle	92,111.10	462,469.68	19.92%

### Non Tidal Counties Along the Rappahannock River

County	Acres under Easement	Total Acres	% in Easement
Fauquier	91,212.39	449,699.00	20.28%
Albemarle	92,111.10	462,469.68	19.92%
Rappahannock	32,125.53	170,604.53	18.83%
Orange	31,317.69	204,425.72	15.32%
Greene	10,019.66	97,920.00	10.23%
Culpeper	17,583.63	238,692.00	7.37%
Madison	14,657.06	204,937.78	7.15%
Warren	7,949.90	139,514.66	5.70%
Stafford	3,909.92	177,280.00	2.21%
Page	2,835.56	193,306.00	1.47%
Rockingham	6,918.68	543,360.00	1.27%

### Tital Counties Along the Rappahannock River

County	Acres under Easement	Total Acres	% in Easement
Essex	21,735.32	164,972.54	13.18%
King and Queen	22,508.46	202,406.08	11.12%
King George	7,810.26	115,199.82	6.78%
Richmond	6,617.27	122,534.21	5.40%
Westmoreland	7,502.61	146,674.97	5.12%
Northumberland	5,587.26	123,071.81	4.54%
Lancaster	3,336.41	85,208.47	3.92%
Middlesex	3,182.83	83,391.87	3.82%
City of Fredericksburg	254.86	6,711.00	3.80%
Spotsylvania	5,094.07	261,810.00	1.94%



# Conserving the Bay Watershed

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Millions of Virginians  
rely on the bay and its  
tributaries for jobs,  
drinking water, recreation,  
food, and other daily  
necessities.

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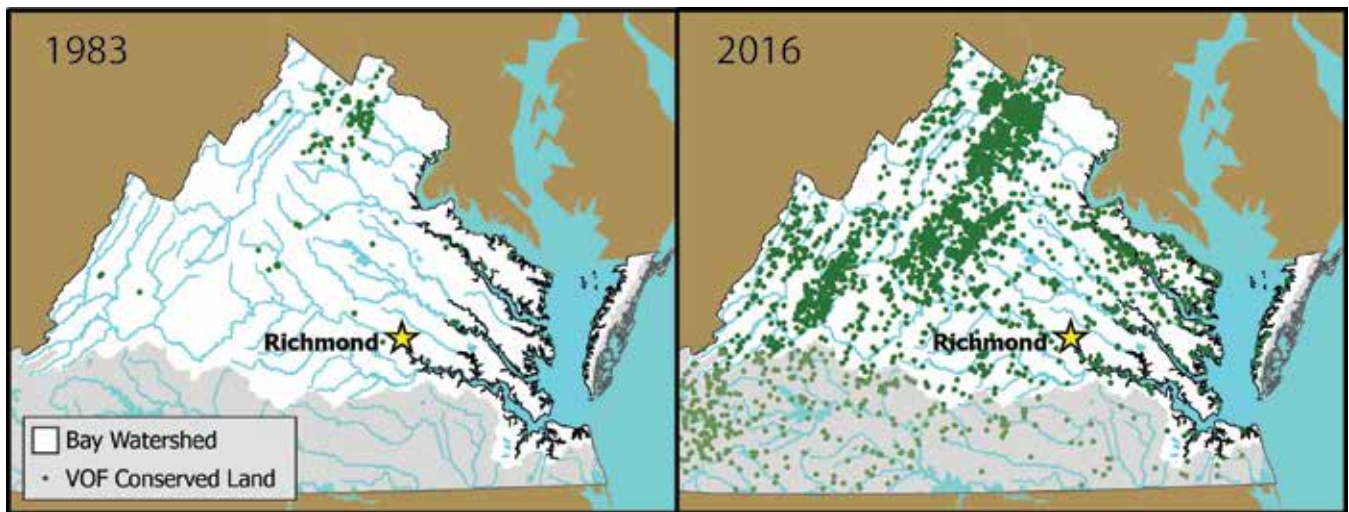
The Virginia Outdoors Foundation is playing a critical role in meeting the land conservation goals of the Chesapeake Bay Agreement.

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By Jason McGarvey

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**W**ith more than 11,000 miles of shoreline, 100,000 tributaries, and 2,700 species of plants and animals, Chesapeake Bay is the largest estuary in the world. Its forty-one-million-acre watershed covers portions of Delaware, Maryland, New York, Pennsylvania, Virginia, and West Virginia, as well as the entire District of Columbia. Approximately seventeen million people call it home.



Virginia contains about 13.8 million acres of the bay watershed, half of its land mass, and second only to Pennsylvania's 14.5 million acres. Millions of Virginians rely on the bay and its tributaries for jobs, drinking water, recreation, food, and other daily necessities.

In many ways, as the bay goes, so goes Virginia.

### The Bay Agreement

When Captain John Smith surveyed Chesapeake Bay in the early 1600s, he wrote of "grampus, porpoise, seals, stingrays ... brits, mullets, white salmon, trout, soles, perch of three sorts" and oysters that "lay as thick as stones." The bay and its rivers contained more sturgeon "than could be devoured by dog or man."

Four hundred years of exploitation and pollution, however, took a toll on the bay's rich wildlife. Populations of oysters, striped bass, perch, crabs, and other keystone species declined. Water quality diminished to the point that "dead zones" of oxygen-depleted water began to form in the spring and summer months. By the mid-twentieth century, it became clear that the bay states needed a conservation

plan to ensure the watershed's health for future generations.

In 1983 the bay became the first estuary in the nation to be targeted for restoration as an integrated watershed and ecosystem. Three states—Virginia, Pennsylvania, and Maryland—joined with the mayor of Washington, DC, the administrator of the US Environmental Protection Agency and the chair of the Chesapeake Bay Commission to sign the Chesapeake Bay Agreement. This one-page pledge recognized that a cooperative approach was necessary to address the bay's problems.

In 1987 the commission added specific goals to the agreement. Most goals focused on pollution reduction and restoration measures, but one goal called on states to "plan and manage the adverse environmental effect of human population growth and land development" by, among other things, promoting "the use of innovative techniques to avoid and, where necessary, mitigate the adverse impacts of growth."

In 2000 the commission updated the Chesapeake Bay Agreement again to include even more specific goals and deadlines. The new agreement addressed land conservation

head on. It called for expanding voluntary and market-based mechanisms such as easements, with a goal of permanently preserving from development 20 percent of the land area in the watershed by 2010. Six million acres were already protected across Pennsylvania, Maryland, Virginia, and the District of Columbia. To meet the goal, 800,000 more acres would need to be protected, or roughly nine acres every hour for ten years.

### Virginia's Secret Weapon

Among the states that signed the 2000 Bay Agreement, Virginia had to make up the most ground. Virginia and Pennsylvania together contained the vast majority of the watershed. But whereas Pennsylvania already protected about 19.6 percent of the bay watershed within its boundaries in 2000, Virginia protected just 15.3 percent. Most of that acreage had come during the expansion of public lands in the first half of the twentieth century, a scenario that was unlikely to happen again. It was evident that voluntary conservation of undeveloped private lands would need to play a larger role.





The Kendale easement is mostly flat agricultural land with steep cliffs along nearly two miles of Rappahannock River frontage.

Since 1966 Virginia has had a tool for conserving privately owned open space, the open space easement. Most open space easements were held by the Virginia Outdoors Foundation (VOF). It had taken the VOF nearly four decades to conserve 100,000 acres. Conserving 800,000 acres in one decade presented a daunting challenge.

Fortunately, the same year that the bay partners signed the agreement, the Virginia General Assembly established a new incentive that would fuel private land conservation as never before.

The Virginia Land Preservation Tax Credit, which allows landowners to recover up to 40 percent of the value of land or easements donated for conservation, is, arguably, the most generous conservation tax incentive in the nation. The

tax credits were made even more powerful in 2002 when they were made transferrable, enabling landowners with lower incomes (and less tax liability) to sell the credits on the open market for cash.

The tax credit was an immediate hit with Virginia landowners. The number of easement donations to VOF tripled in 2000. Donations peaked in 2006, when federal tax incentives for protecting land were expanded. That year was VOF's biggest ever: 71,161 acres on 358 easements.

In 2007, three years ahead of schedule, the Bay Agreement goal was met. Of the 800,000 acres conserved across the entire watershed through the end of 2007, VOF contributed about 325,000 acres, more than one third. VOF was the single largest contributor. VOF went

on to protect an additional 150,000 acres through the end of 2010, helping to bring the final tally to about 1.2 million newly conserved acres in a ten-year period, an astonishing 13.7 acres per hour.

### **The Road Ahead**

Although the 2000 Bay Agreement goal for land conservation was met, a number of other goals remain in play, especially reduction of water pollution. In 2014 the Bay Agreement was updated again to further refine goals and set new benchmarks. New York, West Virginia, and Delaware joined as signatories. In the area of land conservation, the agreement now calls for two million additional acres of protected land in the watershed by 2025, with an emphasis on forested lands and wetlands that

play an important role in controlling runoff (see the sidebar on the 2014 Bay Agreement goals for more details about the land conservation and land use goals in the new agreement).

If the goal is to be met, there is no question that VOF will again play a major role. The foundation remains the single largest contributor to land conservation in the watershed. Since the start of 2011, VOF has conserved about 175,000 acres.

However, the challenge will be greater this time. The Land Preservation Tax Credit, which fueled so much of the conservation work between 2000 and 2010 has seen its cap reduced to \$75 million in recent years in order to address other state priorities. Stagnant state budgets have also diminished VOF's capacity through deficits and staff attrition. Meanwhile, the foundation's stewardship workload continues to increase, especially in Tidewater and southeast Virginia, with one stewardship specialist responsible for covering roughly 500 projects spread across thirty-eight localities, including the Eastern Shore.

VOF is pursuing multiple options for covering the costs of its work, including increases to our public funding, new sources of private funding, and recovery of the costs of some services through fees. Fortunately, services that relate to the acquisition of new easements can be covered to some degree by VOF's Preservation Trust Fund, which received a boost in funding in the 2017–2018 budget.

VOF is also looking for ways it can contribute to other goals in the Chesapeake Bay Agreement beyond simply protecting acreage. For example, there is a renewed emphasis on water quality and



**This Middlesex County easement conveyed by Minnie Burch in 2012 protects seven miles of tidal shoreline along the Rappahannock River.**



**"In 2009, 6th-generation Essex County farmer Ben Baird placed three properties – The Flats, Occupacia, and Grants (pictured) – under easement with the Virginia Outdoors Foundation, protecting 781 acres.**

public access. VOF is exploring ways to improve its work in protecting streams and wetlands with riparian buffers that can be counted toward bay goals. It is also looking for opportunities to use easements or fee-simple acquisitions to facilitate public access opportunities. Last year, for example, VOF recorded an easement on the Hermitage Museum and Gardens property in Norfolk, which includes not only guaranteed public access in perpetuity but also

substantial riparian buffers on the Lafayette River, which surrounds the property on three sides.

VOF also recently completed a project with the Virginia Department of Conservation and Recreation, which is funded by the Virginia Environmental Endowment and digitizes all of the protections in its easement deeds so that the foundation can better quantify them, which may help Virginia get more credit for the work it has





**The Flats easement donated by Ben Baird contains shoreline and tidal wetlands on Occupacia Creek and is located within the boundaries of the U.S. Fish and Wildlife Service's Rappahannock River Refuge.**

already done. After all, many VOF easements include water protection, but its buffers are not currently credited under the bay program, which

focuses on pollution reduction rather than pollution prevention. If the program can better capture the benefits of keeping riparian land

undeveloped and equate that to future pollution prevention, it can help the program better understand the true impact of open space protection in the watershed.

The bottom line is that Virginia's land conservation efforts, largely through VOF's easement program, has played a central role in protecting the bay, and the foundation believes it is can build upon that work with the necessary investment of resources. With strong collaboration between agencies, nonprofit conservation groups such as the Essex County Countryside Alliance, and Virginia's conservation-minded landowners, the bay's future will be bright.

## The 2014 Bay Agreement Goals for Land Conservation

On June 16, 2014, the Chesapeake Bay Watershed Agreement was signed by representatives from all six bay states and the District of Columbia. The plan establishes goals and outcomes for the restoration of the bay, its tributaries, and the lands that surround them. A copy of the agreement can be found online at <http://www.chesapeakebay.net/chesapeakebaywatershedagreement/>.

The agreement included the following goal pertaining to land conservation: Conserve landscapes treasured by citizens in order to maintain water quality and habitat; sustain working forests, farms, and maritime communities; and conserve lands of cultural, indigenous, and community value.

To achieve this goal, the plan identified three desired outcomes:

- By 2025, protect an additional two million acres of lands throughout the watershed—currently identified as high-conservation priorities at the federal, state, or local level—including 225,000 acres of wetlands and 695,000 acres of forest land of highest value for maintaining water quality.
- Continually improve the knowledge of land conversion and the associated impacts throughout the watershed. By 2016, develop a watershed-wide methodology and local-level metrics for characterizing the rate of farmland, forest, and wetland conversion, measuring the extent and rate of change in impervious surface coverage and quantifying the potential impacts of land conversion to water quality, healthy watersheds, and communities. Launch a public awareness campaign to share this information with local governments, elected officials, and stakeholders.
- By the end of 2017, with the direct involvement of local governments or their representatives, evaluate policy options, incentives, and planning tools that could assist them in continually improving their capacity to reduce the rate of conversion of agricultural lands, forests, and wetlands as well as the rate of changing landscapes from more natural lands that soak up pollutants to those that are paved over, hardscaped, or otherwise impervious. Strategies should be developed for supporting local governments' and others' efforts in reducing these rates by 2025 and beyond.

To learn more about the management strategy to achieve these outcomes, and the role that private nonprofits such as the Essex County Countryside Alliance can play, visit [http://www.chesapeakebay.net/chesapeakebaywatershedagreement/goal/land\\_conservation](http://www.chesapeakebay.net/chesapeakebaywatershedagreement/goal/land_conservation).



## VOF's Work in Essex County

Partnerships have been instrumental to VOF's success in many areas of the state. Its work in Essex County is no exception.

VOF's first easement in Essex was donated by the Wellford family in May 1977, on a portion of Kendale Farm. Seven months later, the Garnett family donated an easement to VOF and the Virginia Board of Historic Resources on a portion of Elmwood. It would take another decade for VOF to get its third easement in the county, on Brooke's Bank Farm. By the time the 2000 Bay Agreement was signed, VOF protected just 1,200 acres on five easements in Essex, less than 1 percent of its entire portfolio. Two more easements totaling 2,000 acres were added between 2000 and 2005.

In 2006 the stars aligned. That year, the federal government provided a large pot of funding for land conservation through the Army Compatible Use Buffer (ACUB) program at Fort A. P. Hill. The goal is for the ACUB to protect open space surrounding military installations to prevent encroaching development that might interfere with defense programs.

Also in 2006, the Essex County Countryside Alliance was formed to

promote open-space preservation through landowner education at the grassroots level.

Finally, Congress designated the Captain John Smith Chesapeake National Historic Trail, America's first water-based national historic trail, which consists of the combined routes of Smith's historic voyages on Chesapeake Bay and its tributaries in 1607–1609. Many of these routes can be found along the Rappahannock River and its tributaries in the Middle Peninsula.

These new initiatives, combined with a renewed effort to protect private land around the Rappahannock River Valley National Wildlife Refuge that was established in 1996, resulted in an explosion of land conservation not only in Essex County but throughout the Middle Peninsula.

In 2006 and 2007, VOF doubled its amount of protected land in Essex County through eleven new easements. The acreage nearly doubled again in the next two years. By the end of 2015, VOF had protected 19,967 acres in Essex

on more than fifty properties. Today the county ranks tenth in the state for VOF-protected land.

Estie Thomas, VOF's easement manager for the Northern Neck and Middle Peninsula counties, believes these partnerships were critical to spreading word about land conservation programs, especially in the beginning. She also cites the support of local government as a key factor. "Essex County has been very supportive of easements from the very beginning, from the Board of Supervisors to the county administrators to the commissioner of revenue," she says. "We have also had a lot of support from the Middle Peninsula Planning District Commission, which has helped to spread the word, especially in the Dragon Run watershed."

However, Thomas adds, the work is not over. "There are still some really fantastic farms and forestland to conserve, and a great need for watershed protection. We think VOF has continued to play a critical role in doing both."

Jason McGarvey is the Richmond-based communications and outreach manager for the Virginia Outdoors Foundation. A native of western Pennsylvania, he moved to the Maryland suburbs of Washington, DC, in 2000, where he worked for eight years as the editorial director for the Izaak Walton League of America, one of the nation's oldest conservation organizations. He moved to Midlothian, Virginia, in 2008, when he accepted his current position with VOF, and has been an active volunteer with various community and conservation groups in Virginia, including serving as communications chair for the Virginia Council of Trout Unlimited (TU) and lead coordinator for TU's Trout in the Classroom program in Richmond, working with more than two dozen schools to educate students about the importance of clean water.



# 2015 Boat Trip Update

Partners and Rappahannock River stakeholders came together on Wednesday, September 23, 2015, for a chance to gather and tour the upper Rappahannock River by boat. Sponsored by the ECCA, participants included representatives from agencies such as the US Fish and Wildlife Service, Virginia Department of Conservation and Recreation, and Virginia Department of Game and Inland Fisheries, and private conservation organizations such as the Trust for Public Land, the Nature Conservancy, Friends of the Rappahannock, Historic Virginia Land Conservancy, Scenic Virginia, and the Northern Neck Land Conservancy, just to name a few. Warm breezes were blowing as everyone boarded the Captain Thomas and left Saunders Wharf to cruise along and view eagles, wooded shoreline, and the abundant marshes that line the Rappahannock. Conversation on the trip was varied and included discussions on how to further protect the open spaces and farm and forest land in the region and mitigate the water quality threats that the river system faces. Over the years, these groups have had joint success in tackling pollution and development threats, meeting wildlife habitat conservation goals, and other environmental issues, and everyone agreed that the gathering on the boat opened the path to further communication and cooperation for successful partnerships and collaborative efforts on the Rappahannock.



**Top Left:** Bill Portlock, Senior Educator for the Bay, Chesapeake Bay Foundation (CBF); Christy Everett, Hampton Roads Director, CBF; Chris Moore, Virginia Senior Scientist, CBF

**Top Right:** Andy Hofman, Refuge Manager, Eastern Virginia Rivers Refuge Complex; Frank Graziano, Treasurer, Rappahannock River Refuge Friends (RRRF); Ann Graziano, President, RRRF; Richard Moncure, Tidal River Steward, Friends of the Rappahannock



**Above:** Martha Little; Estie Thomas, Easement Manager, Virginia Outdoors Foundation; Lisa Mountcastle, Board of Trustees, Scenic Virginia

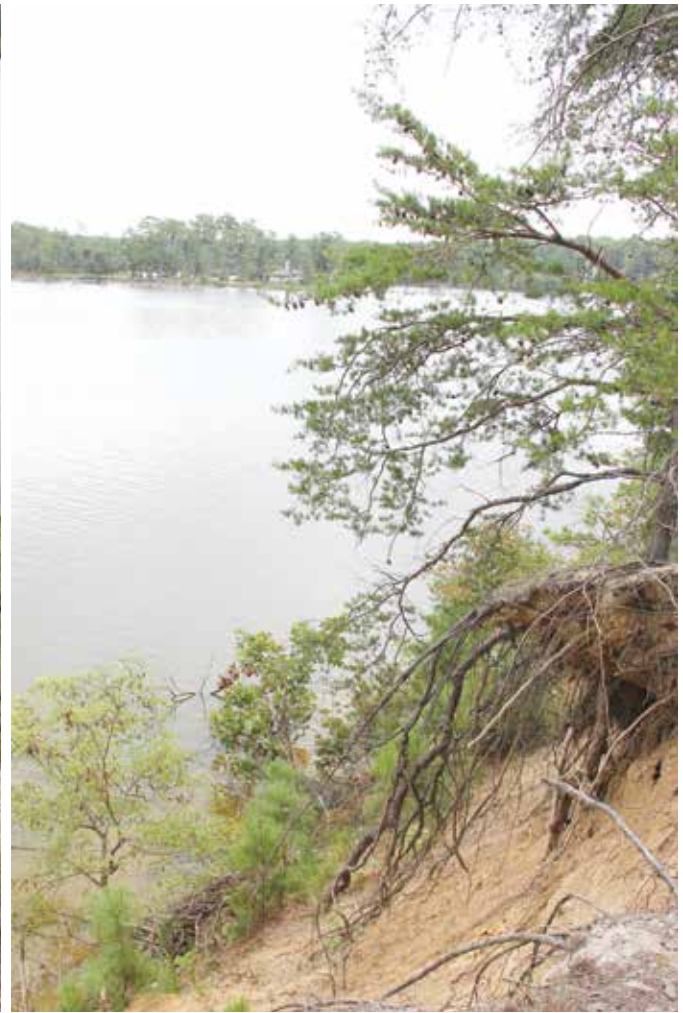
**Middle Left:** Elizabeth Friel, Executive Director, Northern Neck Land Conservancy; Patrice Sadler, Historic Virginia Land Conservancy; Bryan Watts, Director, W&M VCU Center for Conservation Biology

**Middle Right:** Charles Hunt, Superintendent, Captain John Smith Chesapeake Historic Trail; Christy Everett, Hampton Roads Director, CBF; Kent Whitehead, Director Chesapeake Bay Office, Trust for Public Land; Lynda Frost, Senior Project Manager, Trust for Public Land

**Daniel Ashe, Director US Fish and Wildlife, Joel Dunn, President, Chesapeake Conservancy, Representative Rob Wittman, Fr. Senator John Warner tour the Rappahannock.**







# SEAS of Change

Funding has been restored for the Virginia Shoreline Erosion Advisory Service, which provides free technical assistance to landowners.

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By Julie Buchanan

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**R**ide the roads of the Middle Peninsula with Mike Vanlandingham and before long, you learn his rallying cry. “It doesn’t take a hurricane to cause catastrophic damage.”

Vanlandingham is referring to the problem of shoreline erosion and its capacity to destroy property, livelihoods, and lives without even the help of a serious storm.

He can take you to numerous places that illustrate his point: a waterfront community grappling with the inevitable loss of a road; the deck of a long-abandoned home teetering on the edge of cliff; a public beach where the sands have gradually washed into the river.

For residents of tidal Virginia, these are familiar and sobering scenes.

“If you’re a property owner with shoreline erosion, it’s terrible to you,” he says. “People don’t know what to do. They’ll try anything to resolve the problem.”



## Strategies to prevent shoreline erosion



**Soft**  
Living shorelines consisting of specific plants that can handle the site's wave energy, slope, soil and light conditions.

**Hard**  
Bulkheads made of treated wood and anchored with wood pilings and tieback rods. Riprap revetments made of rock.





**Combination**  
Groins and breakwaters or sills (both contribute to wider and higher beaches that provide protection).



**A landowner has attempted to resolve shoreline erosion by piling tires and debris, a method that will not work long-term.**

Credit: Virginia Department of Conservation and Recreation.

Vanlandingham's mission is to keep people from trying just anything. As the shoreline engineer of the state's Shoreline Erosion Advisory Service (SEAS), his role is to provide site-specific, science-based recommendations for shoreline erosion, free of charge, to private landowners and localities that request it.

### Constant States of Change

Shorelines are in constant states of change. The main causes of erosion are storm waves and rising sea levels. Human activity, such as agriculture and development, can drastically accelerate the natural rate of shoreline erosion. Soil type and composition also can affect shoreline erosion rates.

The shorelines of Chesapeake Bay and the mouths of Virginia's major rivers are especially vulnerable to erosion. This is because of fetch, the distance of open

water over which the wind blows. The greater the fetch, the greater the potential wave will be during storms.

Shoreline erosion rates vary dramatically across Virginia. For example, Mathews County has the highest at thirty feet per year. In Essex County, highest rates average around 3.3 feet per year.

"Even though the general erosion rate for Essex County is lower than some neighboring counties, protecting and stabilizing eroding shorelines is important," Vanlandingham says. "Selecting the right strategy for a given shoreline is the most critical step in the process, and that is where SEAS can help."

The Virginia General Assembly established the SEAS in 1980 as a resource for private landowners and localities to address shoreline erosion. The Natural Resource Conservation Service (then known as the US Soil Conservation Service) and the Northern Neck Soil and Water Conservation District were instrumental in lobbying for a state program. Before that, there were programs to prevent shoreline erosion on agricultural land but none for residential land.

Since its creation, the SEAS has been part of the Virginia Department of Conservation and Recreation. The program's heyday was the mid-1980s through the early 1990s, when it employed a staff of five, including three shoreline engineers, out of its Gloucester Point office. However, budget cuts in the mid-2000s forced the SEAS into a period of dormancy. It wasn't until 2015 that funding was reinstated, and Vanlandingham, who initially joined the program in 2001, was brought on full-time as its sole staff member.



**Mike Vanlandingham of the Virginia Shoreline Erosion Advisory Service talks with a landowner about an erosion issue. Site visits and written reports are some of the free services provided by SEAS.**

Vanlandingham has a background in biology and marine science. He's passionate about helping people in crisis. And shoreline erosion can quickly become a crisis.

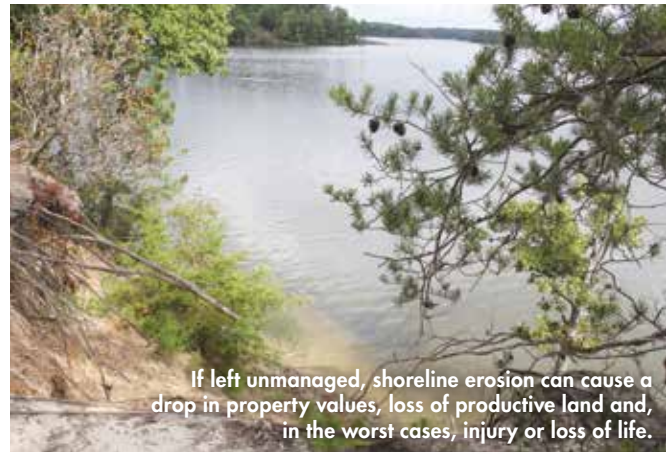
The SEAS program provides landowners with free site visits, technical assistance, written reports, plan reviews, and construction inspections. Vanlandingham is based in Tappahannock but serves landowners throughout tidal Virginia, frequently partnering with local boards and other state agencies such as the Virginia Marine Resources Commission and the Virginia Institute of Marine Science (VIMS).

Help is on the way to ease Vanlandingham's busy workload. Legislators in the 2016 General Assembly session allocated \$50,000 for an additional staff member. The new employee is expected to come on board this summer.

More than 8,500 site-specific reports have been issued by the SEAS since its inception, with recommendations for shoreline erosion prevention. Most—more than 1,000—have been issued for sites in Lancaster County, while 244 have been issued for sites in Essex.

Each report is based on a site visit and detailed analysis. Some sites require a soft approach composed of vegetation and plantings that can stand up to site conditions. In fact, the SEAS pioneered, with Scott Hardaway of the VIMS, the planting of marsh grasses for shoreline stabilization. This became the living shorelines concept.

Other sites with shoreline erosion may require a hard approach consisting of breakwaters, sills, or rock revetments. There are also situations that call for a combination of the two approaches.



**If left unmanaged, shoreline erosion can cause a drop in property values, loss of productive land and, in the worst cases, injury or loss of life.**



**Shoreline erosion can cause catastrophe even without severe storm.**  
Credit: Virginia Department of Conservation and Recreation.

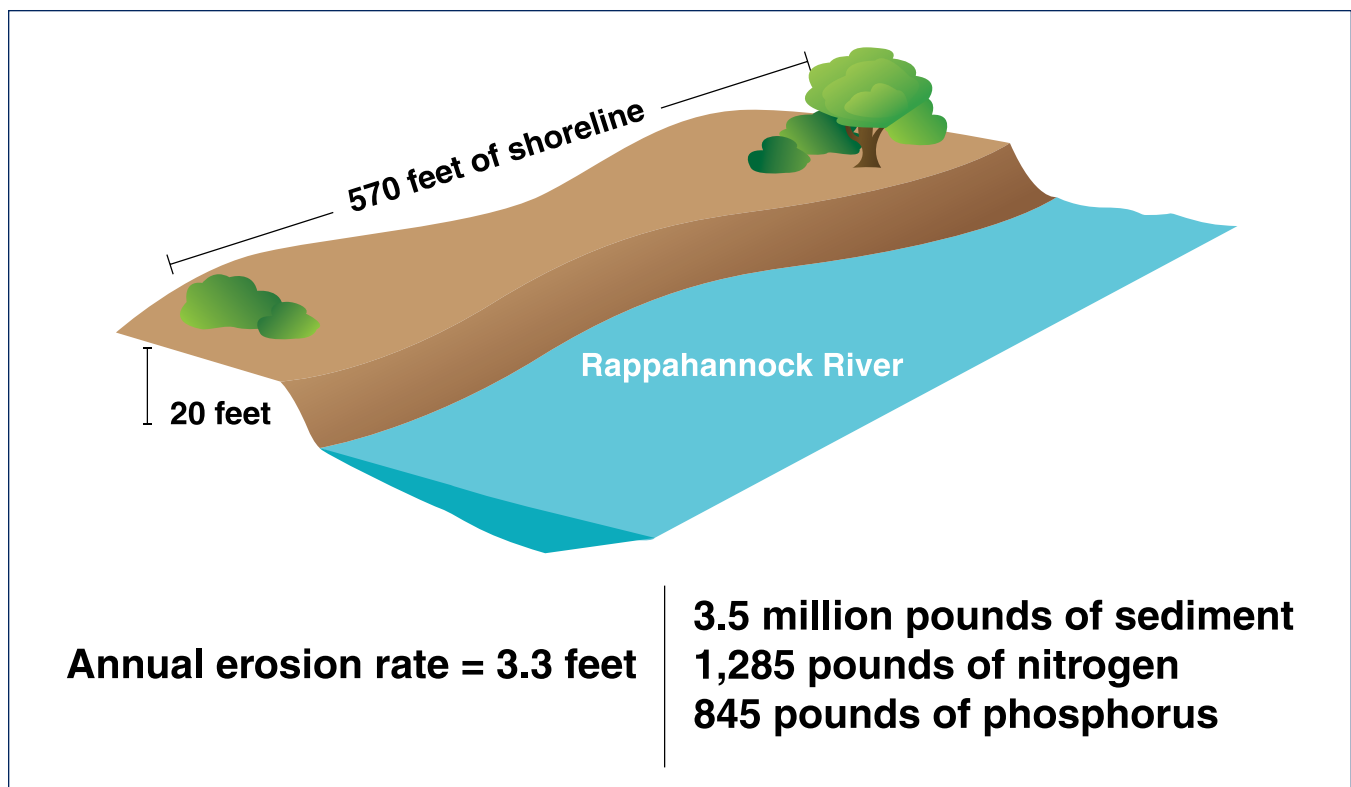


**Shoreline erosion wiped the foundation out from under this home.**  
Credit: Virginia Department of Conservation and Recreation.



**Shoreline erosion encroaches on a home.**  
Credit: Virginia Department of Conservation and Recreation.





There is no one-size-fits-all fix.

“The beauty of the SEAS program is that citizens are getting a state service that provides straightforward, technical advice on shoreline erosion,” says Lee Hill, the former SEAS program manager. “Through the years, the program has provided a lot of assistance, including following up on the work of contractors to make sure structures are being properly built.”

While declining property values and loss of land are two top concerns related to shoreline erosion, another is its impact on water quality. Shorelines with only moderate historic erosion rates deposit staggering amounts of sediment and nutrients directly into tidal rivers and Chesapeake Bay. Properly designed and constructed shoreline erosion control measures can reduce sediment and nutrient loads by as much as 90 percent.

Recognizing the all-around benefits of the SEAS, Virginia’s soil and water conservation districts vigorously supported its return.

“We lobbied for the program to come back because we found it was badly needed,” says E. Derwin Booker Jr., chairman of the Northern Neck Soil and Water Conservation District. “We consider our shorelines to be the first and last line of defense against runoff pollution and encroaching water.”

The hope is that sediment and nutrient load reductions involving the SEAS can be reported to the federal government as part of Virginia’s Chesapeake Bay cleanup effort.

### See an SEAS Project

Visit the swimming beach at Westmoreland State Park to view a breakwater project designed by the SEAS.

More information is available at [www.dcr.virginia.gov/soil-and-water/seas](http://www.dcr.virginia.gov/soil-and-water/seas), or by calling 804-443-1494.

**J**ulie Buchanan is a communications specialist for the Virginia Department of Conservation and Recreation. Her focus areas are soil and water conservation, outdoor recreation planning, and natural heritage protection. Julie joined the department in 2010. She lives and works in the city of Richmond.







# Atlantic Sturgeon

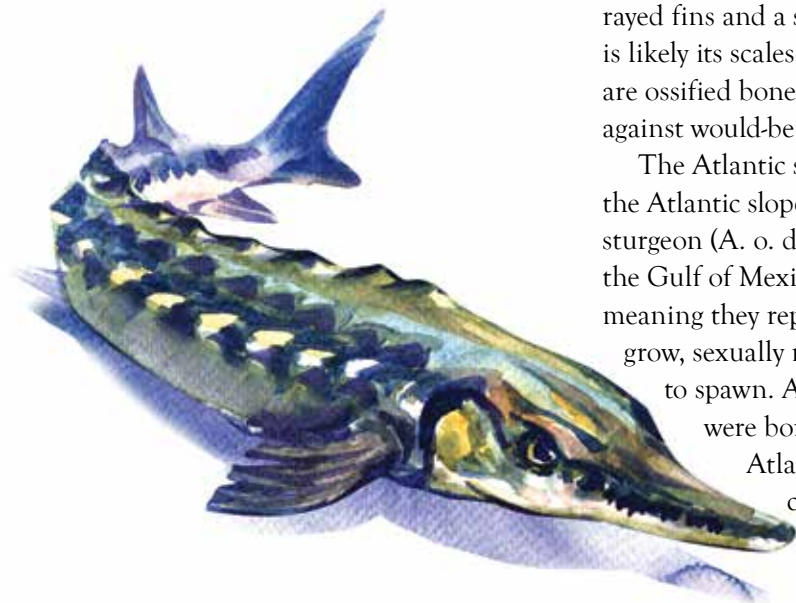
Returning to the Rappahannock River,  
a Sign of a Healthy River

by Matt Balazik

**Atlantic sturgeon are shrouded in historical folklore, and played pivotal roles in American history due to their size and strength.**

The sturgeon fossil record dates back hundreds of millions of years. There are twenty-seven different species of sturgeon and all exist in the northern hemisphere. Due to human interactions, almost all sturgeon species are either threatened or endangered. A few sturgeon species in Asia are likely extinct in the wild. Sturgeon have a cartilaginous skeleton, heterocercal tail, and ampullae of Lorenzini, which makes many people think they are related to sharks. Sturgeon are actually bony fish because they have rayed fins and a swim bladder. A sturgeon's signature physical characteristic is likely its scales, which are not really scales but scutes. Sturgeon scutes are ossified bone with sharp ridges, which makes for a formidable defense against would-be predators.

The Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*) inhabits the Atlantic slope of the United States and southern Canada. The gulf sturgeon (*A. o. desotoi*) is a subspecies of Atlantic sturgeon that lives in the Gulf of Mexico. Like salmon, Atlantic sturgeon are anadromous, meaning they reproduce in freshwater, move down toward the ocean as they grow, sexually mature while out in the ocean, and return to freshwater to spawn. Also like salmon, Atlantic sturgeon return to where they were born, a practice known as site fidelity. On rare occasions an Atlantic sturgeon will go to another river to spawn, which is considered a good thing because it adds genetic diversity to the population. One stark difference between salmon





**From top to bottom:**  
**Dorsal view showing scutes of subadult Atlantic sturgeon. Note the sharp ridges which provide protection from predators.**

**Lateral-dorsal view showing adult male that was likely struck by a boat propeller. We see healed wounds likely caused by propellers in about 5% of the adults we catch.**



and sturgeon is spawning survival. Salmon are “semelparous,” which means they spawn once and then die. Sturgeon are “iteroparous,” meaning they spawn multiple times. So after returning to freshwater to spawn, the Atlantic sturgeon moves back to the ocean and will return in subsequent years to spawn again. Because Atlantic sturgeon do not die after spawning, they can grow relatively large and old. The largest Atlantic sturgeon officially documented was fourteen feet long and weighed around 800 pounds. This large fish was caught in a trawl off New Brunswick in 1924. There are old fish-house records describing Atlantic sturgeon that were eighteen feet long. The oldest Atlantic sturgeon to be officially documented was sixty years old. However, because most large old fish were killed before any science

was done, the fish’s maximum age is likely underestimated. It is pretty safe to say Atlantic sturgeon could easily live to be over 100 years old as several other sturgeon species do.

Atlantic sturgeon are shrouded in historical folklore, and played pivotal roles in American history due to their size and strength. In order to become warriors, Native American boys would have to tail-rope an Atlantic sturgeon and pull the fish onto shore. The boy would be considered a warrior if he successfully pulled the Atlantic sturgeon onto the shore. Atlantic sturgeon also played a vital role in the survival of Jamestown colony. When the Jamestown colonists arrived, John Smith made several notes as to the large abundance of sturgeon in the James River. The European sturgeon (*A. sturio*), native to English waters, was almost extinct by this time, so a vast bounty of Atlantic sturgeon was noteworthy for the Jamestown colony from an economic perspective. Atlantic sturgeon was the first attempted commercial product of the founding colony but was abandoned due to difficulty transporting the goods across the ocean. The most

important role Atlantic sturgeon played for Jamestown was not in economics but sustenance. Atlantic sturgeon are credited for saving the Jamestown colony by providing vital food during the starving period of 1609. The trash middens and kitchen, which are estimated to date from this period, were littered with Atlantic sturgeon material.

Between the establishment of Jamestown colony to the mid-nineteenth century, Atlantic sturgeon fell out of favor and were actually considered to be a nuisance species in many areas, especially in Chesapeake Bay. Because of their strength, size, and cutting exterior, Atlantic sturgeon were juggernauts that routinely destroyed commercial fishing gear that was designed to catch small species, such as shad and herring. Atlantic sturgeon were treated mercilessly if captured, usually being bashed on the head with billy clubs and thrown onto the shore. Another method of dispatching them was to simply cut the throat and release the fish.

During the later part of the nineteenth century, desire for smoked sturgeon flesh and caviar skyrocketed. In response, Atlantic sturgeon



fisheries developed, turning them from a nuisance species to a prized catch. Caviar, which is pickled sturgeon eggs, had high economic value, so many commercial fishers targeted females over males. The federal government started to officially document commercial fishing landings in 1880. Sturgeon were generally captured using two different methods at this time: drift gillnets and pound nets. In 1880 Chesapeake Bay produced 412,000 pounds of sturgeon products. There was not a large market in Virginia for sturgeon products at this time, so most of the products were shipped to New York. Most of the landings from the Chesapeake Bay were from the James and Potomac Rivers. In 1880 the Rappahannock produced 18,000 pounds of sturgeon products, with the majority coming from pound nets at the mouth of the river. Considering that pound nets catch all sizes of fish, it is impossible to determine if these were large fish or subadults. By 1890, landings were separated by county and not water body. In 1890 over 818,000 pounds of sturgeon products were produced from Chesapeake Bay. Both King George and Westmoreland Counties had substantial landings, but due to the counties' locations, we can't differentiate Rappahannock River from Potomac River landings. Historical documents describe the Potomac River fishery as being much larger than the Rappahannock River fishery. The only county in which adult sturgeon were definitely harvested from the Rappahannock River was Essex County, which produced 11,000 pounds in 1890. Over 7,000,000 pounds of sturgeon products were produced along the east coast of the USA in 1890. Atlantic sturgeon were considered



The first ever adult Atlantic sturgeon to be captured and implanted with a telemetry tag in the Rappahannock River.

to be an “inexhaustible resource.” It was thought that there was no way fishers could harvest enough to make a dent in the population numbers. However, this “inexhaustible resource” was soon depleted, with Virginia’s annual landings rarely exceeding 10,000 pounds after 1925. The targeting of females for caviar was the main culprit, causing the species’ numbers to plummet. It’s

staggering that people did not realize that removing females before they could spawn would cause a population collapse. Pollution did play a small part in the Atlantic sturgeon’s collapse in the Chesapeake Bay area. One type of pollution many people do not recognize is sediment. Sturgeon eggs are very sticky and sink to the bottom. Ideally, sturgeon spawning areas have a clean, rocky





**Telemetry tap being implanted in the abdominal cavity of a male Atlantic sturgeon. These telemetry tags can last up to 10 years.**



**Cross section of an Atlantic sturgeon fin spine that was excavated from a trash midden at the Jamestown settlement. The spine was likely "thrown away" in 1609.**

bottom. However, if there is a lot of sediment on the bottom or in the water column, the eggs can become coated by sediment and will suffocate. In response to low numbers, Virginia put a moratorium on the Atlantic sturgeon harvest in 1974. Virginia was the first state to implement such a conservation action. By 1998, all states had banned the harvest of Atlantic sturgeon, and

in 2012 the fish became protected under the Endangered Species Act.

There has been a resurgence of Atlantic sturgeon in Chesapeake Bay, mostly due to the 1998 moratorium. Over the past decade, there has been a large increase in Atlantic sturgeon research in the Chesapeake Bay watershed. This research has mostly focused on the James, York, and Nanticoke Rivers.

We felt that it was likely Atlantic sturgeon were recovering in the Rappahannock River as well, so we decided to investigate. With reports of large fish breaching (a hallmark of Atlantic sturgeon), and plain common sense, we were pretty sure Atlantic sturgeon were returning to the Rappahannock River, but verification required a captured fish. From the information we gathered from the public, we decided to focus our efforts upstream of Port Royal in September, during the fall spawning run. We scouted the area twice in 2014, frequently talking to anglers on the water to gather more information. We set nets for two days with no luck, but I feel we weren't fishing efficiently. We returned in 2015, and on September 23 we caught a 5' 5" male that was releasing sperm. To our knowledge, this was the first Atlantic sturgeon caught in the upper Rappahannock River in decades. This was fantastic. This was undeniable proof that Atlantic sturgeon were trying to spawn in the Rappahannock River. We placed an ultrasonic telemetry tag with a ten-year battery life into the fish's abdominal cavity, took a fin clip for genetics, and released the fish. This capture paved the way for Atlantic sturgeon research on the Rappahannock River.

In 2016 Virginia Commonwealth University and Virginia Institute of Marine Science received an Endangered Species Research Grant to study Atlantic sturgeon in the Rappahannock River. Every river is different, and therefore Atlantic sturgeon modify their behavior to best fit a specific river. By describing Atlantic sturgeon behavior specific to the Rappahannock River, we can provide managers and enforcement with data to help protect and

restore the population. Some of our major goals include capturing (and hopefully, recapturing) adults to determine the population size during both the spring and fall run; monitoring the movements of spawning fish so we can find and protect spawning habitat for both the spring and fall run; monitoring movements of juvenile and subadult Atlantic sturgeon throughout the river; obtaining fin clips from fish of the appropriate size to determine if the fish are relic survivors of the Rappahannock, or just strays from other populations that are recolonizing a new river; and—possibly, our most important goal—documenting any hindrances and threats to the population’s restoration. This research will be conducted from the mouth of the river to Fredericksburg. This is going to require a lot of effort, so public assistance is very much appreciated. Due to the fish’s endangered status, it is illegal to handle any sturgeon, alive or dead, without proper federal permits. The public can play a big role by reporting when and where they see sturgeon breaching, reporting any dead sturgeon they find, and sharing historical information about sturgeon on the Rappahannock River. A lot of old-

timers likely have fantastic stories about what they saw when they were young, stories that have great potential to help us today. Besides old sturgeon fishers, I’d love to hear from fishers who used to catch sturgeon while drifting for shad. It is important to document this information before it is lost forever.

While the return of Atlantic sturgeon to the Rappahannock River has many positives, I feel I need to share a word of caution. The upper Rappahannock River is a narrow river, especially above Port Royal. As stated before, one of the Atlantic sturgeon’s hallmark attributes is jumping high out of the water. I have seen Atlantic sturgeon on the James jump more than six feet out of the water. Atlantic sturgeon have jumped into anchored boats, which can turn into a very interesting situation. Obviously, you are allowed to touch the fish to return it to the water as quickly as possible. The other situation that may occur, which isn’t considered interesting but is dangerous, is a collision with a moving boat. While working on the Rappahannock during the past two years, I’ve noticed a lot of watercraft traveling at very high speed. If a boat is traveling at high speed and a 120 pound, armored Atlantic

sturgeon jumps at just the wrong time, the fish may hit the boat, or even worse, people on the boat. Several people in narrow rivers down in Florida have collided with jumping sturgeon and have had serious injuries, and one person has died. Again, this is an extremely rare event, but it can occur, so please be careful, especially when boating at high speeds.

To end on a positive note: the return of Atlantic sturgeon to the Rappahannock River is a good sign of the river’s health. Atlantic sturgeon are ecosystem indicators of a healthy river. Atlantic sturgeon require high levels of dissolved oxygen and a clean river bottom, free of sediment build-up. The return of Atlantic sturgeon shows that the Rappahannock River is in relatively good health, which is better for everything. Virginia Commonwealth University and the Virginia Institute of Marine Science are excited to be working on this beautiful river and are eager to share our findings with the public in both formal and informal settings. If you’re ever out on the river and see a VCU-marked boat, feel free to come chat. If the timing is right, maybe you’ll get to see one of these prehistoric submarines up close.

**M**att Balazik grew up on the James River just downstream of Bailey's Creek, the infamous kepone dump site of 1960s and 1970s. He saw firsthand the result of the toxic dumping and became an environmental conservationist at a young age. Matt is currently a research faculty member at Virginia Commonwealth University and does most of his work from the Rice Rivers Center located in Charles City, Virginia. Matt’s research focuses on fish biology/ecology and ecosystem-based fisheries management. Two unsung heroes instrumental in Matt’s work are his wife, Thiwa, and his brother, Martin. Without his family’s patience, hard work, and understanding, we wouldn’t know but a fraction of what we currently know about Atlantic sturgeon in the James River.





# Patience, Speed and Commitment – What Will You Do?

## Economic Development Options in Essex County

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By Trenton L. Funkhouser, AICP, Economic Development Director, Essex County

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**P**lanning for the future is nice, but people expect short-term results. Patience may be a virtue, but the measure of a community is how well it plans, the commitment to implement those plans, and the speed with which it does so. While I encourage the review of existing plans and ordinances and participation in future public planning efforts, my present intent is to emphasize that the achievement of our goals will take a concerted effort by residents, property owners, employers, civic groups, and others. This requires consistent, methodical actions with a steady focus on how our actions will promote a high quality of life that is sustainable over time. This also requires the patience to pursue long-term results, the speed with which we take advantage of opportunities as they present themselves so that we can achieve short-term results, and our commitment of time, resources, and money to support such work over time.

The typical primary directives apply to my job: business retention, expansion, formation, and location: keep things here, help things grow, foster new home-grown businesses, and find businesses to move here. This new position started in September 2014 with a vision to work on the primary directives as best we could with a limited number of people and resources. But, more to the point, we have to work on planning and on grants to promote community development and quality of life in order to set the stage for improving the quality of life for residents, employees, and visitors.

The current economic development focus is on recreation, retail, and retirement. With 25,000 vehicles passing through, per day, Tappahannock is a regional commercial hub. Essex lacks people and purchasing power (\$11,000 +/- with a relatively odd downward trend, high poverty, and generally, low household income). We need to be more of a destination and capture what we cannot generate from within. We need to limit our retail leakages by commuters (buy local) and provide more opportunities for citizens and visitors to access our current and future parks and other outdoor

amenities. We should provide more opportunities to create jobs and offer more of a reason for people to stay here, move here, start a business, or enjoy their retirement.

So, what have we done and what are we doing to implement the vision of economic development based on recreation, retail, and retirement? What could we be doing? The list of projects completed or underway highlights economic and community development efforts. A more complete list of 2014–15 activities is available through the county's website.

### Projects Completed/Underway

- Cardinal report
- Prince Street Park
- Route 17/360 corridor
- Cardinal report
- Former airport: \$10,000 grant received from Virginia Brownfields Restoration and Economic Redevelopment Assistance Fund (VBAF)
- Ag/forestry strategic plan
- Green Infrastructure Center (GIC) plan
- Rotary-Poorhouse Farm Park

Progress can seem slow even though significant tasks have been completed along the way, from planning to design to funding to the final product. The Economic Development Department has worked with other town and county officials and staff, civic groups, and citizens on a variety of projects aimed at reinforcing and improving the current state of our community development and providing a strong base for economic development activity.

In June 2015 we used the Cardinal Program offered by the Virginia Economic Developers Association for a free review of our relatively new, formal, economic development efforts. Will Davis, former economic development director for Chesterfield County, summed up the review team's report at a joint meeting of the Tappahannock Town Council, Essex Board of





construct an observation deck at the Rappahannock River. The 17/360 corridor will receive \$1 million in funding to pave the shoulders from Hoskins Creek to Bray's Fork, improve the safety of the Winston Drive intersection with Route 17 and improve the Church Lane and Queen Street intersection for northbound Route 17 traffic coming from Route 360.

A GIC plan will be completed by September 2016. The county applied for technical assistance funding through a program managed by the Green Infrastructure Center and Virginia Department of Forestry. For Essex County and the town of Tappahannock, this is an opportunity to review the different aspects of our local and regional economy with any eye for linking our built and natural environments. That is planner speak for mapping things such as businesses, parks, conservation lands, wildlife corridors, existing and future sidewalks, trails and water access, good places to boat, fish, or hunt, and different types of farm and forest land. To a great extent, that is "science." The "art" is attempting to identify how we can best support and improve what we like and want more of in the future. Our GIC plan can guide us in both protecting and promoting the parts of our economy that best serve our recreation, retail and retirement goals. Nelson, Accomack, and New Kent counties have similar plans. Look for announcements in late summer and early fall on the public input sessions to help develop our GIC plan.

Spread the word: Rotary-Poorhouse Farm Park is open. Located off Kino Road, this park includes the former landfill and adjacent "glebe lands." Hunting is available, consistent with seasons, and over a mile of walking and biking trails were just completed through a public-private work effort. Future plans include access for horse riders and a variety of other improvements that will create a relatively unique destination. You can view a conceptual plan for the property at the county's Parks and Recreation website.

This regional park offers a great opportunity to combine many different facets of the recreation, retail, and retirement theme. The park will improve the quality of life for residents and visitors. In addition to the typical passive and active recreation facilities, we can interpret the history of the site for tourism and educational purposes, illustrate the management of a working tract of timber, and have demonstration areas for all kinds of outdoor professions. These things all reinforce existing plans and goals and support our desire to be a destination for locals and visitors. All of these things help define the vision and help build our brand.

What is our brand? What do people think of when they hear the words Tappahannock and Essex County? A simple but effective definition from branding professionals is often: "Branding is what people say about you when you are not around." What do we want to be known for, or known as? What do we want people to say about us when we are not around? What's our brand and how will we sell it?

With regard to what we could or should do, there is no shortage of opinions and possible recommendations from a variety of folks. As many observe, grants, low-cost loans and technical assistance programs are available, but these things take time, effort, and warm bodies to pursue and manage if awarded. "You can't win if you don't play." Government can't and should not "do it all" but can be more of a part of the solution. Over the next few years, which programs should be priorities and who is going to provide matching funds, in-kind services, or donations of money and materials?

We will continue to focus on recreation, retail, and retirement built on a strong basis of natural resources industries. For example, several recreation projects are water oriented. One is 4 on 4, the concept of having at least one nonmotorized boat landing on each of the four major creeks of the county: Piscataway, Hoskins, Mount Landing, and Occupacia. Adjacent small parks would be ideal but not required. We have no specific



funding but are working on possible sites and funding. Possible acquisition of the June Parker Marina would add a tremendous public asset for recreation options. A purchase assistance grant application was submitted in late May for funding through the Virginia Department of Conservation and Recreation. Operating plans and master plans for redevelopment of the site are required to use the property “as-is” and consider future projects to improve the beach, dock, and support facilities.

These efforts are focused on addressing questions such as why we remain a riverfront county with a major historic port town but have very limited areas for launching boats, temporary or overnight mooring, or “cruise boat” access at multiple points along the Rappahannock. There are a broad range of topics that local elected and appointed officials, civic organizations, and private groups can work on to support their vision of the recreation, retail, and retirement theme. The following list provides examples of topics we could or should be addressing:

#### **Actions:**

- Marina
- Local incentives: adopted lists by town and county
- Local enterprise zones: town and county ordinances
- Façade/site improvement grant: increase funding of EDA program
- VDOT programs: SRTS, revenue sharing
- Tax incentives
- Retail consultant
- Tappahannock Farmers’ Market: permanent location, expanded days/hours, manager
- AFDs: agricultural and forestal districts
- Agricultural/forestry industries position
- Wireless broadband service
- Historic District and Architectural Review Board (HARB), and associated regulations

A few items on the list are highlighted as follows: VDOT’s Safe Routes to School (SRTS) program, is a source of planning and construction funds for sidewalks and bike lanes. Two other programs include Revenue Sharing, a 50/50 match program for local transportation projects, and Access Roads, a cost-sharing program for recreational and industrial roads that become part of the state highway system. Lots of VDOT programs are available; we just need the resources and community support to pursue them.



**All ability access is required. Modern materials result in ramps and canoe/kayak launches that can be easily installed.**



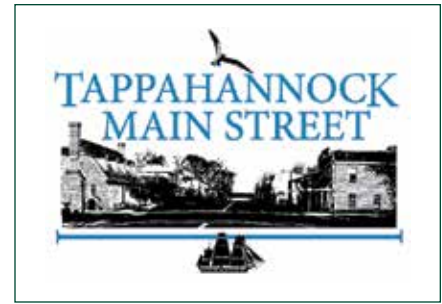
**June Parker Marina**

Agriculture and forestry (industries): Consider agricultural and forestal districts rather than land use assessment as a method to recognize the value of productive lands and reinforce any future rural historic districts. Hire a person dedicated to the economic and community development aspects of these businesses.

Historic resources: Who is going to take the lead on the promotion of historic sites of the town and county? The museum in Tappahannock is incredible, but what about the “rest of the story” throughout town and county? Nonprofit groups need additional resources: public or private cash, people, or in-kind services support. Who is going to support the DAW Theater restoration group?

Retail consultant: we need to hire one. A retail consulting firm can analyze sales and employment data, identify product and service opportunities, list specific target industries and contact specific businesses that should invest in our area, based on their business model and goals. Who will contribute funds to a pool to fund a retail consultant or tourism marketing manager?

A high quality of life is critical to the economies of many counties, cities, and towns: low crime rate; taxes;



traffic; good schools and associated sports facilities; parks within walking, biking or short-drive distance; bike lanes and sidewalks; access to retail and professional services; high-speed Internet access; affordable housing; day care; and, always, good jobs. Some might debate whether these are wants or needs, aspirations, achievable goals, or rights that must be pursued. If a community dithers too often or dawdles too long on these issues, people vote with their feet.

Every locality, willing or not, is in competition for people and jobs. The reality is many localities will never obtain certain types of jobs, residents, or visitors. There will always be winners and losers, places growing faster, having lower taxes, or whatever the reference point is. The key is playing to the locality's strengths. Demographic and economic trends will change over time. Planners must stick with a vision, play to the local strengths, be consistent, and not try to make their locality what it is not. Planners must plan to achieve their vision.

The town and county can easily serve as a unique retirement community due to our urban and rural characteristics. The presence of Riverside Hospital and supporting medical offices, the existing range of retail and professional services, and proximity to major metro areas provide a base for manageable growth. We are well positioned to preserve our agricultural and forestry lands and open spaces, reinforce Tappahannock as a

regional hub, and carefully develop future neighborhood and community commerce hubs in areas such as Caret, Dunnsville, Center Cross, and Miller's Tavern.

We can be both a natural resources destination and a destination for natural resources industries. We can have a strong downtown area, and vibrant commercial centers. We can promote farming, forestry, and open spaces as both environmental and economic assets. We can be known as a community friendly to loggers, farmers, hunters, hikers, bird watchers, fishers, boaters, bikers, and runners. We can position our community to have more businesses like Blandfield Plantation, Tidewater Lumber, Garret's Marina, and the Captain Thomas. We can have a broad range of retail and professional services throughout Tappahannock. We can do all these things and more. We just need patience, speed, and commitment. What will you do for economic development?

**For more information explore the following links and/or contact me for direction on economic and community development topics of interest:**

[www.essex-virginia.org](http://www.essex-virginia.org)

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

[www.mppaa.com](http://www.mppaa.com)

[www.virginia.dot.gov](http://www.virginia.dot.gov)

**T**rent Funkhouser is the Essex County economic development director. He has a BA degree in economics from the College of William & Mary and a Master of Public Administration degree from Virginia Commonwealth University. He has over twenty-five years of experience with local governments of Tidewater, Virginia. Before college, Trent worked many a weekend on a small family farm in Floyd before Floyd was popular. During college, he first worked for an independently owned Gulf service station, handling gas, oil, tires, and lots of "remove and replace" work (a good wrench and not a mechanic out of respect for real mechanics), and he later worked at the King's Arms Tavern in Colonial Williamsburg, a decidedly different business model from that of the farm and gas station. He lives in West Point with his wife, Karena (W&M, as well), and son, John Tyler.



# The John Smith Cross Project

by Ed Haile

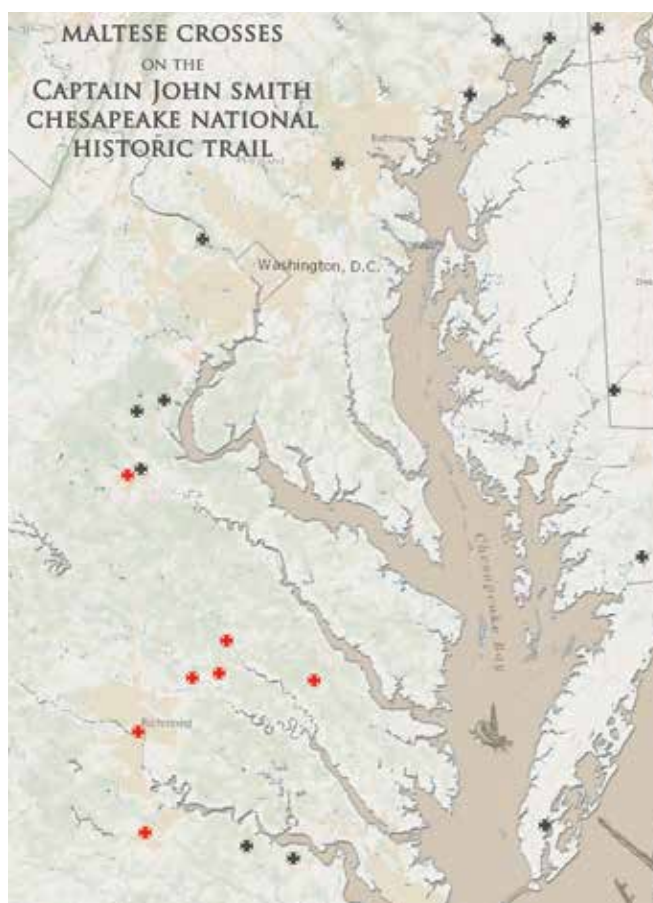
**F**resh from completing and publishing my book *John Smith in the Chesapeake*, in mid-2008, a tracing of the great captain's route of discovery and exploration of our bay, I got a call from Charlie Stek. Charlie headed up a nonprofit called Friends of the John Smith Water Trail. "Where exactly are all those crosses on Smith's map?" he asked. "You've given a general description: 'Blands Content, anywhere along the heights overlooking the Patapsco River,' or 'Aquia Creek, end of the 250-foot ridge between Garrisonville Rd. bridge and Cannon Creek.' Fine, but Ed, I want you to give us GPS coordinates. We want to put something on the ground."

So began the John Smith Cross Project of the Friends, now called Chesapeake Conservancy, a partner organization with the National Park Service in the development of what has the unwieldy name of the Captain John Smith Chesapeake National Historic Trail, better known as the (Chesapeake Bay) Water Trail.

In February 2009 Charlie sent me a car and two twentyish assistants, Tim Barrett and Jeff Allenby. We went on a weeklong Odyssey by land to attempt to pinpoint just exactly where Capt. Smith must have meant to set up and map those crosses. On his famous map, published in 1612, there were twenty-seven, under the legend, "To the crosses hath bin discovered/What beyond is by relation." He further informs us in his journal that real crosses were left at these locations. They were either made of brass or carved in tree bark. We drove over Virginia, Maryland, and Delaware, the Eastern Shore, and the Western Shore, and at each site, we began to discover the discoverer.

You might say the visit on the ground was really the final stage. There is no point in going afield until you have thoroughly gone over the John Smith journal(s), the map itself, other early maps, modern topographical maps, lunar cycles of the years 1607 to 1609, as a clue to tides, and arrive when you do, so to speak, with a baccalaureate in the near legendary voyages of the shallop that Smith calls a barge.

Most of his exploration was by water in a craft somewhat resembling the old, fat, double-ended, navy lifeboats of recent memory. It was thirty feet long, propelled by a



All photos used courtesy of Chesapeake Conservancy.

dozen or so men at oars, likely in two shifts, or when the wind was fair, by a simple sailing rig. When the sun was too hot or the rain too hard, they rigged a tarp, a detail missing in modern reenactments. Thus, the Chestertown shallop that went the route in 2007 was a bit rougher on the crew than the original. No wonder they took so many breaks.

The immediate upshot was that three of the twenty-seven mapped crosses were eliminated, including two on the border between Old Virginia (Raleigh's extinct Roanoke Island colony) and New Virginia (the stumbling but ultimately successful Jamestown Colony). They look very close to what today is the state line, an area Smith never personally visited. Ditto another cross mapped below Cape Henry, not too far south of Rudee Inlet. It must represent a sight boundary, meaning the first land a ship initially raised approaching the Virginia capes on the customary sailing ship course up from the West Indies. On the other hand, another cross north of Cape Charles was a very different story. More on that below.

The second thing to emerge inspired hope. Nearly all of the cross sites, after an impartial weighing of all factors, were going to be on public land. Chesapeake Conservancy's project to place a marker on them would





Smith Map and Modern Map of Fredericksburg/  
Falmouth/OF Richmond



Capt. John Smith cross, front and back

amount to simply one more layer in the historical themes of various county, state, and federal parks.

The exceptions were those on private corporate and residential lands. And yet, here too, we met with not a single refusal. On the contrary, the one case that was literally a backyard to a home, met with the same welcome. (It has since been altered for historical reasons). Nowhere was Capt. Smith anything but popular. The four-hundredth celebration had done its work.

Within a month or two, I delivered a report to Charlie Stek with twenty-four recommendations: five crosses representing the May expedition to Richmond and the December capture route of 1607, eighteen from his voyages of 1608, mostly in the upper Chesapeake, and one from 1609 back on the James River, all with GPS coordinates.

And there it lay. Charlie moved on. Joel Dunn took his place in the newly formed Chesapeake Conservancy, other projects intervened, schedules were jam-packed, including mine, other priorities cried out—until last year (2015), when three things happened: The discovery of an actual cross was confirmed in situ. I got a partner in Connie Lapallo; and a Conservancy check came in the mail.

In a brief meeting in November of all concerned, we produced a nice design for a marker and we were on our way.

What appears to be an actual cross as described by Capt. Smith, a brass “Maltese” shape with flaring arms, was uncovered by sheer chance on Mockhorn Island in 2011 by professional archeologist Darren Lowery. The island is a marshy wedge lying between Virginia’s Eastern Shore mainland and the Atlantic barrier islands, immediately north of the cape of Cape Charles. Authentic or not, it raised the temperature for everybody.

The cross symbol has over the years come to stand for John Smith. It is carved in relief on top of all twenty-four of our stones. These are of pure Georgia gray granite, and measure two-feet in length, six by six inches square. As they go in the ground they are bedded in concrete and sodded a tad more than half showing.

And just exactly where do they go? The priority is, naturally, to put them where Smith put his, regardless of modern terrain. We see them as replacements of his waypoints of four centuries ago, indicators of the limits of his exploration. So they are markers, not monuments, of where he personally went and mapped the terrain firsthand. This was important to him because the map

included lands beyond. He wanted to make plain these were sketched in, so to speak, from second-hand information. This level of meticulous honesty is rare in any period of history, to say the least. And the man so often called a vainglorious braggart deserves a little credit.

To be sure, it inspires diligence, if not despair, in re-creators today. To the extent Smith's map could be laid over modern topography with reasonable assurance, we find we can in a few cases do a "Mockhorn" fit in near-complete disregard of modern intervening features. For the rest, political, ethical, practical considerations emerge in reverse ratio to our certainties. So far, we have reason to hope history will not be seriously compromised.

But the completion stage has only just begun. The first cross went in the ground in Richmond's James River Park, immediately above the end of Browns Island, on April 14. As of this writing in late spring 2016, seven more have been placed in sites in Virginia. None will be in Essex County. The closest two are the one in Brown Tract on Dragon Run, near Center Cross, on the King and Queen side of the county line, and the one in Zoar State Park near Aylett.

The crosses correspond as nearly as can be determined to locations on Smith's map, with the exception of Zoar, which is on the King William bank of the Mattaponi, though mapped by Smith clearly on the King and Queen side. It is one of the few cases where the practical has overridden clear information. The Brown Tract is the best of perhaps three narrows where the party of Opechancanough likely passed over the swamp with the captive John Smith on the way to Tappahanock, apparently Wares Wharf. The date was Christmas Eve 1607. Smith tells us the weather was deep frost and the snow crisp and even. How, then, did they get across, even at a narrow point? By way of a beaver dam or, since it was certainly a trail crossing, over a pole bridge laid on forked stanchions, like one described by Smith at Werowocomoco. But it's just a guess.

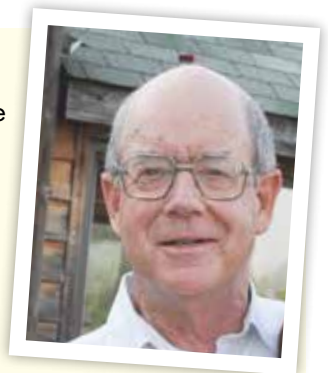


**Haxall Headgate Park: Assistant Josh Feola and Essex County's own Nathan Burrell, park super, hard at it with breaker bar and posthole digger.**

Did Smith leave an actual cross at every cross shown on his map? Hardly. In the winter of 1607, we cannot expect a frog-marched captive to have had a pocketful for the Mattaponi and Pamunkey Rivers as he was made to get along. He first describes his marking/mapping policy during his Chesapeake Bay voyages in the summer of 1608, north of the James River. Accordingly, he tells us he also left unmapped crosses at various stopovers and major promontories on his way around the Chesapeake in 1608. We guess he meant places such as Point Lookout and Tangier Island, or at turnarounds on the Patuxent and Piankatank Rivers. Today it hardly matters. With more than a dozen placements to go, based on the Smith map, the cross project, within a year or two, should offer an adventure in Chesapeake discovery, laid out originally by the great captain himself, for those who want to connect the route of all twenty-four.

[www.chesapeakeconservancy.org/  
john-smith-chesapeake-trail-cross-markers](http://www.chesapeakeconservancy.org/john-smith-chesapeake-trail-cross-markers)

**E**dward Wright Haile, author of *John Smith in the Chesapeake*, *Jamestown Narratives*, fifteen books of poetry, including *Komfustian Odes of the Virginia Dynasty* and the little epic *Where None Before Hath Stood*, two historic maps of the Chesapeake Bay, calls himself a native of Essex born in Washington, D.C., who has all his roots here on both sides, has lived at Chesituxent for the last forty years, and in his career as a land surveyor has set foot on at least one out of every four acres of the right bank of the Rappahannock. "I like to quote my neighbor Melvin Clark who said 'Let the city be the city and let the country be the country.'" Ed is married to Bess Haile, director of Essex Public Library.







# Marsh Loss in Mid-Atlantic Tidal Marshes

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By James Perry, Kelsey Taylor, and Lori Sutter

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## Introduction

Tidal marshes are productive habitats for both plants and wildlife and are important to many fisheries (Perry and Atkinson 2009). They are considered to be some of the most productive habitats in existence (Mitch and Gosselink 2000). Dominated by wetland plants, these essential coastal habitats also provide erosion prevention and filter water to maintain high water quality. Many plants have evolved to reach a dynamic equilibrium in tidal inundated areas (and high salinity conditions in some areas) where other plants are unable to survive. They are a key species that supports the various tidal marsh ecosystems. Over the past decade, marsh loss, either through dieback of plants or erosion, has been a pervasive problem along the US eastern coast and Gulf of Mexico coast. Dieback has affected large areas of vital marshland and has been reported in Maine, Massachusetts, Rhode Island, Connecticut, Delaware, Virginia, South Carolina, Georgia, and Louisiana (Alber et al. 2008). Other extensive dieback and erosion events have occurred in Wachapreague and Hampton, Virginia, where areas of healthy salt marshes dominated by smooth cordgrass (*Spartina alterniflora*)

have undergone dieback and severe recessions, leaving bare, exposed mud susceptible to erosion and compaction (Luckenbach, personal communication and Perry, personal observation, 2016). Loss has also been reported from the tidal freshwater marshes of the Rappahanock River in Essex County, Virginia (Bance personal communication 2016).

Currently, there are few studies that try to explain marsh loss along the mid-Atlantic tidal rivers (Alber et al. 2008). Several hypotheses have been explored, including drought (McKee et al. 2004), sea-level rise (Morris et al. 2002), grazing (Smith and Odum 1981), predation (Silliman and Bertness 2002), and elevated nutrients (Deegan et al. 2012). Despite the unknown mechanism for the dieback event, it appears to be transient, in some cases, due to the ability of dieback areas to be reestablished by smooth cordgrass transplants (Alber et al. 2008). However, dieback coupled with erosion, or just erosion, has no chance of self-revival.

In this article we will present an overview of the reasons for marsh loss and present an example of loss in one Essex County marsh.



## Overview of Causes of Marsh Loss

Many of the changes in marshes, including loss of marsh area or a simple change from fresh water plants to saltwater plants can be attributed to relative sea level rise (SLR). Without going into a long-winded explanation, SLR is controlled by three factors: 1) eustatic sea level, the elevation of the surface of the ocean from a point in space, which is subject to expansion when warmed up; 2) isostatic rebalancing: 20,000 years ago, glaciers covered northern North America. The earth's crust was pushed down under the glaciers' weight. In response the mid-Atlantic crust was raised. Since the glaciers melted, approximately 12,000 years ago, the North Atlantic crust has been rising upward while, in response, the mid-Atlantic crust has been sinking; and 3) local conditions such as boat wakes, and ground water withdrawal. SLR in the mid-Atlantic region has been measured as averaging approximately 4 mm (1/8 inch) per year and appears to be increasing. The largest SLR rise in the mid-Atlantic region has been reported as 10 mm (>3/8 inch) per year in the West Point region, where large amounts of ground water are extracted daily (and, therefore, controlled by local events). Below, we will discuss two of the likeliest reasons for marsh loss, or change, in Beverly Marsh.

In most cases, marshes will keep up with SLR through two processes: 1) accumulation of river and runoff sediment on the surface, and 2) accumulation of underground organic matter (via rhizomes and root growth). Even Sweet Hall Marsh—located approximately 10 k (6.2 miles) northwest of West Point, on the Pamunkey River, and therefore exposed to large rises in sea level—has managed to maintain its marsh elevation (Sutter et al. 2014). However, it is important to note that with the increased SLR, Sweet Hall Marsh is also experiencing an increase in salinity. Tidal inundation of marshes is a function of stream runoff and tidal inflow. As sea level rises, more salt water enters the estuary and the incoming salt water reaches farther upstream. Therefore, the salt water tide will play a larger role in flooding upstream marshes (Perry and Atkinson 2009; Sutter et al. 2014, 2015). The impact of the increase in salt water inflow to the upstream marshes is a switch from fresh water plants that cannot tolerate salts, such as northern wild rice (*Zizania aquatica*) and duck potato (*Sagittaria latifolia*), to more salt-tolerant species, such as smooth cordgrass (*Spartina alternifolia*) (Perry and Hershner 1999; Sutter et al. 2014, 2015). While change to a different plant may alter some of the ecological



Figure 2. a. Northwest tip of Beverly Marsh in 1994.



Figure 2. b. Northwest tip of Beverly Marsh in 2015. Note loss of marsh (see arrow). Location of loss indicates that erosion, not drowning, is the cause of loss.

functions of the marsh (such as habitat), it would not necessarily have an impact on the marsh area. On the other hand, we do not know if there is a critical rate of SLR that would outpace the availability of sediment and below-ground growth in these marshes. More work is needed to determine if there is a point at which marshes can no longer keep up with expected increases in SLR.



Figure 3. a. Otterburn Marsh in 1994.



Figure 3. b. Otterburn Marsh in 2015. Note the loss of the fringe marsh in 2015 (see arrows).

We would expect that over time (perhaps, in 100 years) that the vegetation of both Beverly and Otterburn Marshes may become dominated by more salt-tolerant plants. However, as can be seen in Figures 2a and b, and 3a and b, marsh loss also appears to be occurring. More than likely, the loss is due to erosion and not dieback.

One possible cause of increased erosion may be due to an increase in fetch from an increase in tide volume entering the river. The more water entering, the longer the distance the wind can travel to create waves. While this may be the case in Beverly Marsh, it is unlikely to be the case in Otterburn because of the closeness of the

far-shore banks (thus, a very short fetch = small waves. See Figures 3a and b). A second possibility in Otterburn is the presence of boat wakes. Boat wake erosion of up to 43 cm (17 inches) per year has been measured in Rehoboth Bay, Delaware (Schwimmer 2001). Houser (2014) found that vessel-generated waves accounted for over 25 percent of the cumulative wave force in Savannah Harbor, Georgia. Therefore, boat traffic may play a role in tidal marsh loss.

So what can be done about marsh loss? Often we have found that planting of appropriate wetland plants can restore marsh fringes (Perry et al. 2009). However, in areas where fetch and/or boat traffic have increased, the potential to abate loss becomes more problematic.

In some cases, particularly where homes are threatened, rock toe or offshore riprap (shallow-water rock structures) have been used successfully. However, structures may be cost prohibitive in large marsh areas. Also, permits for the structures need to be obtained, which may be expensive. If boat wakes are expected to be a problem, no-wake zones may be established. However, no-wake zones can conflict with recreation such as water skiing and fishing. Therefore, the issue of abating tidal marsh loss is a tricky one. We will need to weigh both the social and ecological benefits and approach loss as a multiuse project. We still have much to learn, but hopefully, together, we will find a solution.

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**D**r. Perry is a Professor of Marine Science at the College of William and Mary's Virginia Institute of Marine Science (VIMS). His primary research interests involve documenting long-term ecological changes in vascular plant communities of tidal and non-tidal wetlands, and the relationship of those changes to changes in environmental parameters within watersheds. He has published over 50 peer reviewed journal articles, book chapters, and editorials about his, and his students, work. As well, he has taught and conducted research in North and South America, Brittan, and several countries in Asia. He has been invited to give many seminars and lectures abroad.

Dr. Perry is a Lifetime member and Past President of the Society of Wetland Scientists (SWS). He is also a member of the Coastal and Estuarine Research Federation, Ecological Society of America, and Society of Ecological Restoration.





# ECCA 2015 Annual Meeting and Silent Auction

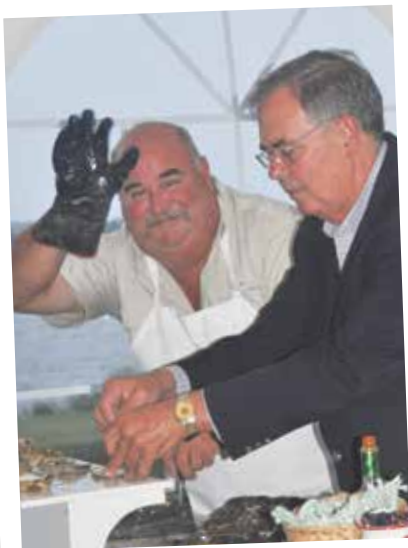
Congressman Rob Wittman



Hill Wellford, Betsy Strock, Julie Strock, Tom Rubino, Alice Wellford



Cook County Bluegrass



Craig Brooks and Peel Dillard



Latane Dillard, Fleet Dillard, Lawrence Latane



Johnny and Cookie Davis



Will Dickinson, Margaret & Blakely Smith



John and Ellie Spencer



Enos Richardson, shares stores of Essex past.



Alice Wellford, Cindy Ecklesdafer, Sidney Johnson,  
Knox Tull, Brenda Tull

## ECCA 2016 Fall Meeting

Our Hosts Heinz and Isabelle Welger-Merkel



PORT MICOU PLANTATION  
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You are invited to the  
Essex County Countryside Alliance Fall Meeting and Silent Auction  
Friday September 16<sup>th</sup>, 2016 at 6pm



# ECCA Welcomes New Board Members

By Larry Mazzeno



**J** Calvin Haile Jr. is vice president of Haile Farm LLC. He lives with his wife Noel and children Brooke, Jackson, James III and Sydney in Dunnsville, where he and his father farm approximately 2,800 acres. Haile is a current director and past president of the Virginia Grain Producers Association, a past president of the Virginia Small Grains Association, and a past member of the Steering Committee for the U.S. Wheat and Barley Scab Initiative, a national organization committed to improving food safety by reducing the occurrence of fusarium heat blight (scab) on grains. In 2016 Haile served as one of five national advocates for the Fertilizer Institute's 4R Program, which recognizes producers for their work in cutting-edge technology in applying nutrients efficiently. In 2011 Haile Farm was honored by the National Corn Growers Association for its environmental practices in raising corn. "I'm happy to be joining the ECCA Board because I believe in its mission to keep our county rural and preserve our natural resources," Haile says.

**R**onnie G. Gill is executive vice president for branch operations at Colonial Farm Credit, where he oversees loan operations and business management at all of CFC's branches. The Gills are a Virginia Tech family, as Ronnie ('82), wife Linda ('82), and children Tyler ('08) and Hannah ('14) are all graduates. Gill is a board member and past president of the Virginia Tech College of Agriculture and Life Sciences Alumni Organization, treasurer of the Virginia Grain Producers Association, and a member of the Virginia Advisory Committee for Career and Technical Education. Locally he serves on the board of the Northern Neck Farm Museum and is a member of Rotary International. Gill is also a part-time grain farmer on his family farm in Lancaster, a 120-acre site consisting of crop land and forest. Gill's strong ties to the rural heritage of the region prompted his decision to join the ECCA board. "I have a deep love of agriculture and the preservation and conservation of land," he says.



**K**nox Tull, Jr., grew up in Hampton where he graduated from George P. Phenix H.S. He attended Hampton University. He received the B.S. Degree in Civil Engineering from the University of Michigan and the M.S. Degree in Civil Engineering from the Georgia Institute of Technology. He is President of the Washington, DC based engineering and technology company, Jackson and Tull (J&T). Knox and his wife Brenda live in Washington, DC with their four adult children who are engineers and managers at J&T. They have two grandchildren. The Tull Family owns a farm and farmhouse in Occupacia which they enjoy visiting.

**R**obert E. Waring Jr. is an Environmental Specialist with the Department of Conservation and Recreation. An eleven-year veteran of DCR, he works with farmers to control nutrient runoff into waterways entering the Chesapeake Bay. Waring grew up in Essex County, graduated from Randolph Macon College in 1992, and now lives on the farm. His wife Elizabeth, is a nurse at Riverside Tappahannock; son William, and daughter Katherine volunteer there, and both are considering careers in health care. Waring also works on the family farm, Brandon Farms in Dunnsville. "I've gotten to see both sides of the conservation issue," he says, "as a government agent enforcing regulations and educating farmers, and as a working farmer employing best practices in land use management." Waring says his appointment to the ECCA board provides him another opportunity to promote protection of the region's natural resources, particularly the Bay.





# ECCA Board Reports: **Financial**

By Margaret J. Smith, Treasurer

**O**n behalf of the Directors, thank you for your continued generosity of the last year. The support of our members continues to allow the ECCA realize our mission of educating landowners on the options available to them through conservation easements and additional outreach aimed at preserving our natural and historic resources.

Through our collective efforts, just shy of 400 acres in Essex County have gone under easement in the last 12 months. This brings the total acres under easement to over 13% of Essex's total acreage.

Year to date we have received \$11,035 in individual donations while securing \$5,700 in corporate donations. While this is a great start to the year, we ask you to please remember the ECCA as you contemplate giving through the remainder of the year. In closing, thank you once again for your generosity and we look forward to seeing you at the annual meeting in September.



Photo credit: Jamestown 4-H Educational Center

**"T**hank you ECCA for the generous donation to the Essex County 4-H Residential Camping Program. We had a great year and being at Camp for the fourth of July really inspired the kids and thinking independently! The money you donated this year will go to cover the costs of two Teens, both of whom have been coming for 10 years and this is their last year of being a 4-H Teen Leader due to age. Thank you for this generous gift! Included is a photo of the entire camp at Campfire on the 4th of July with their glow sticks on! All 227 kids Teens and adults! It is always challenging to find adult volunteers so if you are young at heart, love kids and don't mind a tough bed for four nights inquire about volunteering for next year! "

**Stephanie Stiles, 4-H Youth Development, VCE**

## An example to follow: **Thomas B. Evans, Jr.** is recognized for conservation leadership

**F**ormer U.S. Representative and Essex County landowner Thomas Beverley Evans, Jr. was awarded the National Conservation Leadership Award by the National Wildlife Federation at its annual meeting and 80th-anniversary celebration in Estes Park, Colorado.

"Thomas Evans's conservation legacy spans the country from Alaska to Florida," said Collin O'Mara, president and CEO of the National Wildlife Federation. "During his years in the House serving Delaware, Evans's signature strategy was to bring together diverse coalitions around a common goal. For example, Evans was the primary author of the Coastal Barrier Resources Act that was passed by Congress nearly unanimously. Evans was also instrumental in the passage of the Alaska Land's Act. In the decades since his time in Congress, Evans has

continued his tireless efforts on behalf of our nation's waters and wildlife."

The National Conservation Leadership Award recognizes exemplary conservation accomplishment or sustained conservation leadership. Evans is a descendant of the Beverley family who built Blandfield, a 3,500-acre plantation on the Rappahannock River in Essex County, between 1769 and 1773 and remained in that family until 1983 when Mr. and Mrs. James C. Wheat, Jr. purchased the house.



# Thank You for Supporting ECCA

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John Corey – *In honor of Tom Evans' contributions to conservation*  
Vance & Beth Spilman  
Hill & Alice Wellford

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**ECCA donation to St. John Baptist Church – Disaster Relief Fund presented by Peter Bance, President ECCA and received by Ethel Jackson, Trustee, St. John Baptist Church**

This list shows ECCA Donors during the calendar year 2015. In the past we have shown July-June, but this created confusion as it does not match the calendar year or our fiscal reporting year. In our next mailing, we will provide an update of those who have made financial donations YTD in 2016.

# May 2016 Board Dinner held at Oaklona



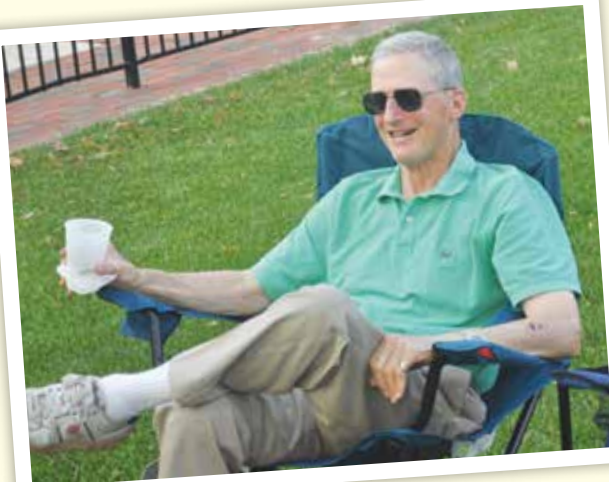
Carl Strock, Blakely Smith



Hill Wellford & Bob Baylor



Front Row: Gam Rose, Francis Ellis, Ellie & Margaret Smith, Peter Bance & Ramona  
Second Row: Hylah Boyd, Prue Davis, Bob Baylor, Fleet Dillard  
Back Row: Charlotte Frischkorn, Julie Strock, Hill Wellford, Mac Garrett



McGuire Boyd



Margaret & Ellie Smith





Essex County Countryside Alliance  
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Photo by Hill Wellford