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The Chesapeake Bay Preservation Act: Proposed Modifications to Improve Resilience to Sea Level Rise



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Spring 2018

About the Author



Christopher Antoine is a third-year student at William & Mary Law School. He graduated from Louisiana State University in 2015 with a BS in Biological Sciences and a BA in History. At William & Mary, he was a student in the Spring 2017 Practicum I and Fall 2018 Practicum II of the Virginia Coastal Policy Center. He is also a member of the Student Environmental & Animal Law Society.

About the Virginia Coastal Policy Center

The Virginia Coastal Policy Center (VCPC) at the College of William & Mary Law School provides science-based legal and policy analysis of ecological issues affecting the state's coastal resources, providing education and advice to a host of Virginia's decision-makers, from government officials and legal scholars to non-profit and business leaders.

With two nationally prominent science partners – the Virginia Institute of Marine Science and Virginia Sea Grant – VCPC works with scientists, local and state political figures, community leaders, the military, and others to integrate the latest science with legal and policy analysis to solve coastal resource management issues. VCPC activities are inherently interdisciplinary, drawing on scientific, economic, public policy, sociological, and other expertise from within the University and across the country. With access to internationally recognized scientists at VIMS, to Sea Grant's national network of legal and science scholars, and to elected and appointed officials across the nation, VCPC engages in a host of information exchanges and collaborative partnerships.

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questions, or suggestions.

VCPC grounds its pedagogical goals in the law school's philosophy of the citizen lawyer. VCPC students' highly diverse interactions beyond the borders of the legal community provide the framework for their efforts in solving the complex coastal resource management issues that currently face Virginia and the nation.

I. INTRODUCTION

“Healthy state and local economies and a healthy Chesapeake Bay are integrally related; balanced economic development and water quality protection are not mutually exclusive.”¹ The first sentence of the Chesapeake Bay Preservation Act (CBPA or the “Act”) sets out its goals: to plan (or manage) development in a manner that protects the quality of the Chesapeake Bay and ensures Virginians enjoy the Bay’s recreational and economic benefits in the future. Sea level rise, however, poses a serious threat to this goal. As the sea rises, important buffer zones and their ecosystem services may be lost. It is important that lawmakers and localities in Virginia recognize this threat and examine ways to make Virginia’s coasts more resilient to it. The CBPA is a tool that threatened communities can use to protect property and still meet water quality challenges.

There are a number of ways to increase resiliency to sea level rise, and localities should consider all of the potential methods available to them, as not all methods are feasible in every locality. This paper will examine how the CBPA currently works to protect water quality and its current capability to help localities improve resilience. It will also consider some potential changes to the CBPA and other programs that may increase the Act’s ability to promote community resilience to sea level rise through rational development while maintaining the water quality benefits that the CBPA currently provides to the Commonwealth. Chief among the proposed changes to the CBPA considered in this paper is the possibility of expressly providing for rolling easements for Resource Protection Areas (RPAs) to ensure that the benefits of required 100-foot buffer zones are not lost when shorelines change as a result of coastal erosion and sea level rise.

II. OVERVIEW OF THE CHESAPEAKE BAY PRESERVATION ACT

Enacted in 1988 as an element of Virginia’s effort to manage non-point source pollution, the CBPA works by promoting reasonable development of land where mismanagement of that land could lead to detrimental effects on water quality in the Chesapeake Bay and its tributaries.² The Virginia General Assembly, through the Act, has given the State Water Control Board the power to adopt regulations that establish criteria for local programs and to ensure that localities comply with those criteria in their local programs.³ It also charged the Board⁴ with providing technical and financial assistance to localities for their programs.⁵ The Act also authorizes localities to establish Chesapeake Bay Preservation Areas and enact their local programs via maps, zoning ordinances, subdivision ordinances, comprehensive plan updates, and a process to ensure permits granted for development in those Preservation Areas are consistent with the purposes of the CBPA.⁶ The requirements of the Act are limited in scope to only those counties in “Tidewater

¹ VA. CODE ANN. § 62.1-44.15:67 (2013).

² *Chesapeake Bay Preservation Act*, VA. DEP’T OF ENVTL. QUALITY, <http://www.deq.virginia.gov/Programs/Water/ChesapeakeBay/ChesapeakeBayPreservationAct.aspx> (last visited Apr. 25, 2018).

³ *Id.*

⁴ The Chesapeake Bay Preservation Act originally was administered by the Chesapeake Bay Local Assistance Board, but due to state agency reorganizations, it was moved to the jurisdiction of the Soil and Water Conservation Board and then the State Water Control Board.

⁵ *Id.*

⁶ *See* VA. CODE ANN. § 62.1-44.15:67; VA. CODE ANN. § 62.1-44.15:73 (2013); VA. CODE ANN. § 62.1-44.15:74 (2016); 9 VA. ADMIN. CODE § 25-830-60 (2013).

Virginia” as defined in the Code of Virginia, though other localities voluntarily may use the criteria for protecting state water quality.⁷

According to the CBPA, Chesapeake Bay Preservation Areas are to be delineated by localities according to the criteria in regulations promulgated by the State Water Control Board.⁸ The Areas are to consist of Resource Protection Areas (RPAs) and Resource Management Areas (RMAs).⁹ Localities also may designate Intensely Developed Areas (IDAs) as overlays of Chesapeake Bay Preservation Areas.¹⁰ As a result of development, little of the natural environment remains in IDAs and they are meant to serve as areas where redevelopment is concentrated, although all redevelopment must still comply with the general requirements for development in Chesapeake Bay Preservation Areas. Those requirements are described as “General Performance Criteria” and include such requirements as minimizing land disturbance and impervious cover, preserving indigenous vegetation, and other criteria set forth in regulations.¹¹

RPAs are the most important lands protected by the CBPA and are defined as “lands adjacent to water bodies with perennial flow that have an intrinsic water quality value due to the ecological and biological processes they perform or are sensitive to impacts which may cause significant degradation to the quality of state waters.”¹² The regulations also make clear that RPAs are to include tidal wetlands, nontidal wetlands connected by surface flow and contiguous to tidal wetlands or surface waters with perennial flow, tidal shores, and other lands that local governments identify as critical to water quality and that are adjacent to water bodies with perennial flow.¹³ Finally, RPAs must include a 100-foot wide buffer area on the landward side of all of the lands described above and on both banks of any water body with perennial flow.¹⁴ The buffer area is in place to prevent erosion, catch runoff, and filter nonpoint source pollution before it reaches waters of the state, and its width is not to be reduced.¹⁵ Some encroachments into the buffer area are allowed but when these uses are discontinued or a new use is proposed, the buffer area must be reestablished.¹⁶ In addition to being subject to the General Performance Criteria,¹⁷ RPAs are subject to additional Development Criteria.¹⁸ The Development Criteria severely limit the types and amounts of development that may occur in RPAs in order to protect the functions of the buffer areas they contain.¹⁹ There are only six categories of development that may occur and each has conditions that must be met prior to approval; some examples are water-dependent development or redevelopment within a designated IDA.²⁰ Localities that have designated IDAs located in RPAs have discretion over whether or not to require establishment of vegetation in the buffer area but do

⁷ VA. CODE ANN. § 62.1-44.15:68 (2015); 9 VA. ADMIN. CODE § 25-830-10 (2013).

⁸ VA. CODE ANN. § 62.1-44.15:72 (2015).

⁹ 9 VA. ADMIN. CODE § 25-830-80 (2015).

¹⁰ 9 VA. ADMIN. CODE § 25-830-100 (2013).

¹¹ *See* 9 VA. ADMIN. CODE § 25-830-130 (2014).

¹² 9 VA. ADMIN. CODE § 25-830-40 (2015).

¹³ 9 VA. ADMIN. CODE § 25-830-80.

¹⁴ *Id.*

¹⁵ 9 VA. ADMIN. CODE § 25-830-140(3) (2013).

¹⁶ *Id.*

¹⁷ 9 VA. ADMIN. CODE § 25-830-130.

¹⁸ 9 VA. ADMIN. CODE § 25-830-140 (2013).

¹⁹ *See id.*

²⁰ *Id.*

have to consider requiring the establishment of vegetation over time.²¹ Importantly, the specific boundaries of RPAs are delineated at the time of development (or redevelopment) of a piece of property in the Chesapeake Bay Preservation Area to determine whether the proposed activity can be accommodated or what permits are necessary.²²

RMAs are lands that, if improperly managed or developed, have the potential to cause significant water quality degradation or diminishment to the functional value of an RPA.²³ The regulations specify that RMAs should be designated contiguous to the entire inland boundary of RPAs and should include, but not be limited to, floodplains, nontidal wetlands outside of RPAs, and highly erodible or permeable soils.²⁴ They should be an area “large enough to provide significant water quality protection through the employment” of the General Performance Criteria.²⁵

III. CHALLENGES PRESENTED BY SEA LEVEL RISE

As sea levels continue to rise in Virginia, achieving greater resilience to sea level rise becomes more important than ever.²⁶ The Hampton Roads area of Virginia is often cited as the most vulnerable population center in the United States to sea level rise after New Orleans, LA.²⁷ Hampton Roads is not the only vulnerable part of the state; all of Virginia’s coastal localities are at risk from sea level rise.²⁸ Sea level rise causes shorelines to retreat landward and, where possible, tidal wetlands move with them.²⁹ Where shorelines and wetlands can no longer retreat, an increased danger of flooding for coastal communities is created.³⁰ While the CBPA does currently help localities remain resilient to sea level rise and its associated risks by requiring preservation of buffers along waterways, the Act is limited in its ability to adapt to shifting shorelines and wetland migration.

As currently enacted, the CBPA is meant to primarily improve or protect the quality of waters of Virginia as they exist today.³¹ Although it does provide some resilience to landowners, the CBPA was not designed to help manage the increased risk of flooding of properties from sea

²¹ 9 VA. ADMIN. CODE § 25-830-140(7) (2013).

²² 9 VA. ADMIN. CODE § 25-830-110 (2013); *see, e.g.*, PRINCE WILLIAM CTY., CODE OF ORDINANCES ch. 32, art. V, § 32-504.10 (2017).

²³ 9 VA. ADMIN. CODE § 25-830-90 (2013).

²⁴ *Id.*

²⁵ *Id.*

²⁶ *See* Jennifer Weeks, *Whatever You Call it, Sea Level Rises in Virginia*, SCI. AM. (Aug. 21, 2012), <https://www.scientificamerican.com/article/whatever-you-call-it-sea-level-rises-in-virginia/>.

²⁷ Forbes Tompkins & Christina Deconcini, *Sea-Level Rise and its Impact on Virginia*, WORLD RESOURCES INST. (June 2014), https://www.wri.org/sites/default/files/wri_factsheet_virginia_final.pdf. *See also* Eggleston, Jack, and Pope, Jason, *Land subsidence and relative sea-level rise in the southern Chesapeake Bay region*, U.S. Geological Survey Circular 1392 at 1 (2013), <https://dx.doi.org/10.3133/cir1392> (noting that the southern Chesapeake region has the highest rates of sea level rise on the Atlantic Coast of the United States).

²⁸ *See generally* U.S. ENVTL. PROTECTION AGENCY, EPA 430-F-16-048, WHAT CLIMATE CHANGE MEANS FOR VIRGINIA (2016), <https://19january2017snapshot.epa.gov/sites/production/files/2016-09/documents/climate-change-va.pdf>.

²⁹ *See id.*

³⁰ *Id.*

³¹ VA. CODE ANN. § 62.1-44.15:67; 9 VA. ADMIN. CODE § 25-830-30 (2013).

level rise. For example, as noted above, the CBPA limits development in RPAs and requires localities to establish and/or preserve the water quality protection functions of the vegetated buffer area and any other features critical to water quality protection.³² The features of RPAs – such as wetlands and vegetated buffers – are also features that contribute to natural flood mitigation.³³ Limiting development by the water also results in fewer properties and people being at risk of flooding.

Sea level rise is only part of the problem in Virginia; land subsidence, especially in Hampton Roads, is a key contributor to rising water levels.³⁴ Land subsidence and the resulting decreased elevation of coastal land contributes to the problems of shoreline erosion and flood risk.³⁵ Currently, the CBPA could limit a landowner's ability to combat sea level rise by filling in his or her property to raise the elevation in an RPA without a showing that an exception to the CBPA regulatory requirements for RPAs is necessary.³⁶ A major problem for exception applicants arises when considering an important criterion to grant the exception: there must be a finding that “[g]ranting the exception will not confer upon the applicant any special privileges that are denied by [the General Performance Criteria and the Development Criteria] to other property owners who are subject to its provisions and who are similarly situated.”³⁷ Sea level rise affects all of coastal Virginia to varying degrees (so many coastal landowners potentially would be “similarly situated”), and allowing an exception for fill in an RPA in one case but not another, similar one would likely violate CBPA regulations and, therefore, be impermissible.

Another sea level rise resilience challenge inherent in the current form of the CBPA is that development is allowed and often occurs right up to the edge of an RPA, which undermines a community's ability to preserve the resilience benefits conferred by an RPA, as well as protect water quality, as waters rise. As sea level rises, tidal wetlands can migrate landward if there is sufficient space.³⁸ Development creates a physical barrier to wetland migration and, ultimately, results in the loss of that wetland due to sea level rise.³⁹ Loss of a wetland means the loss of all of its benefits – such as plant and animal habitat, flood mitigation, and nonpoint source pollution filtering (a CBPA goal).⁴⁰ Development right up to the edge of RPAs also creates a further problem for property owners in Chesapeake Bay Preservation Areas because the RPA is delineated at the time an application for development is made.⁴¹ If some time passes after purchase of a property before the owner seeks to develop it, and shoreline erosion has occurred or a wetland has migrated due to sea level rise in the meantime, the original 100-ft. buffer zone will have moved landward as well and an RPA delineation process could indicate that a property that was previously in an

³² 9 VA. ADMIN. CODE § 25-830-80.

³³ U.S. ENVTL. PROTECTION AGENCY, WETLANDS: PROTECTING LIFE & PROPERTY FROM FLOODING (2006), <https://www.epa.gov/sites/production/files/2016-02/documents/flooding.pdf>.

³⁴ U.S. GEOLOGICAL SURV., CIRCULAR 1392, LAND SUBSIDENCE AND RELATIVE SEA-LEVEL RISE IN THE SOUTHERN CHESAPEAKE BAY REGION 4-6 (2013), <https://pubs.usgs.gov/circ/1392/pdf/circ1392.pdf>.

³⁵ *Id.*

³⁶ *See* 9 VA. ADMIN. CODE § 25-830-140; 9 VA. ADMIN. CODE § 25-830-50 (2013).

³⁷ 9 VA. ADMIN. CODE § 25-830-150 (2013).

³⁸ Karen Duhring et al., *Sea-Level Rise and Virginia's Coastal Wetlands*, RIVERS & COAST (Ctr. For Coastal Resources Mgmt., Gloucester Point, Va.), Summer 2016, <http://ccrm.vims.edu/publications/pubs/rivers&coast/Summer2016Final.pdf>.

³⁹ *Id.*

⁴⁰ *See* U.S. ENVTL. PROTECTION AGENCY, *supra* note 33.

⁴¹ 9 VA. ADMIN. CODE § 25-830-110.

RMA is now more heavily regulated because it is now either all or partly located within the newly designated 100-ft. buffer. Pre-existing development that is now located in a shifted buffer area would also limit the buffer's ability to protect water quality like it is designed to do under the CBPA.

IV. INCREASING RESILIENCE THROUGH CHANGES TO THE CHESAPEAKE BAY PRESERVATION ACT

Although the CPBA already provides resilience benefits by limiting development in areas at risk from sea level rise and protecting natural features that mitigate the effects of flooding, a few possible changes could be made to the Act to increase its ability to promote sea level rise resilience in Virginia. This paper considers three proposals to use the CBPA to increase Virginia's resilience to sea level rise. First, the current Act could be amended to expressly provide for rolling easements that shift with shoreline changes instead of at the time of development. Second, the General Assembly could give localities the ability to provide incentives to property owners to locate their development further away from established RPAs. Finally, HB1094 from the 2018 Session of the Virginia House of Delegates and the recommendations of its resulting study could provide a way for the CBPA to help increase resilience to sea level rise.

A. Expressly Provide for a “Rolling” RPA

Currently, the rolling landward of RPAs is implied by the way localities must enforce the CBPA according to the regulations: The RPA (and the buffer zone) are delineated during the review of a permit application to improve a property in a Chesapeake Bay Preservation Area so any shifts due to shoreline erosion or wetland migration could cause “sudden” movement of the RPA.⁴² As stated above, this may result in properties that were previously not subject to the limitations of being in an RPA now being more heavily regulated. By expressly providing for the rolling of RPAs in an established process, the CBPA could continue to preserve the natural features (like wetlands) that protect water quality even with sea level rise, and ensure that property owners are aware of the potential limitations that they may face on their property in the future.⁴³ That knowledge could alter behavior by incentivizing less development in areas that may become part of RPAs (and therefore be heavily limited in permitted use) in the future. It can also create certainty in the process by which retreat from the shoreline may ultimately have to occur.⁴⁴

1. Examples from Other States

Other states have adopted measures that take into account coastal changes due to sea level rise and erosion in processes concerning the use of coastal lands that may be useful to Virginia legislators when deciding how best to implement express rolling of RPAs.

⁴² See 9 VA. ADMIN. CODE § 25- 830-110; see also PRINCE WILLIAM CTY., *supra* note 22.

⁴³ JAMES G. TITUS, CLIMATE READY ESTUARIES, ROLLING EASEMENTS 103-06 (2011), <https://www.epa.gov/sites/production/files/documents/rollingeasementsprimer.pdf>.

⁴⁴ *Id.*

a. Maine

To protect its coastal sand dunes, Maine takes shoreline changes over 100 years into account in all permitting decisions in coastal sand dune areas.⁴⁵ The relevant language is as follows:

A project may not be permitted if, within 100 years, the property may reasonably be expected to be eroded as a result of changes in the shoreline such that the project is likely to be severely damaged after allowing for a two-foot rise in sea level over 100 years.⁴⁶

The regulation also states that beneficial projects such as beach nourishment and dune restoration are excluded from the permit requirement.⁴⁷ A similar process in Virginia could be combined with rolling of RPAs to help localities make better decisions about siting development in vulnerable areas. With a system like Maine's it would be easier to get a permit (and more desirable) to develop in an area that is less vulnerable to sea level rise. A permitting process based on a set level of projected sea level rise also gives landowners even more information to include in their development decision-making processes. Maine's approach presents a decision that Virginia would have to make: Virginia would have to decide what rate of sea level rise to consider in its permitting process. Sea level rise projections vary and selecting a rate is potentially a political issue.⁴⁸ A recent study by researchers at Old Dominion University indicated that sea level rise was a controversial issue among Virginia legislators, although the study had a relatively small response rate and recent state elections have changed the make-up of the General Assembly and the Governor's Office.⁴⁹

b. North Carolina

North Carolina's approach is similar to Maine's in that it takes changes in the coast into account. However, instead of using it in permitting decisions, North Carolina incorporates site-specific average annual erosion rates over the last 50 years into its setback requirements for construction.⁵⁰ The rate is then multiplied by another factor that is determined by the size of the proposed structure and that final number is the setback requirement.⁵¹ The setback is then

⁴⁵ 06-096-355 ME. CODE R. § 5 (LexisNexis 2014).

⁴⁶ *Id.*

⁴⁷ *Id.*

⁴⁸ See Juita-Elena (Wie) Yusuf et al., *The role of politics and proximity in sea level rise policy salience: A study of Virginia legislators' perceptions*, 4 J. ENVTL. STUD. & SCI. 208 (2014); Duhring et al., *supra* note 38.

⁴⁹ See Yusuf et al., *supra* note 48; Fenit Nirappil, *Democrats Make Significant Gains in Virginia Legislature; Control of House in Play*, WASH. POST (Nov. 8, 2017),

https://www.washingtonpost.com/local/virginia-politics/democrats-poised-to-make-significant-gains-in-virginia-legislature/2017/11/07/9c2f4d24-c401-11e7-aae0-cb18a8c29c65_story.html?utm_term=.1a83fa305d14.

⁵⁰ *Oceanfront Construction Setback & Erosion Rates*, NC DEQ, <https://deq.nc.gov/about/divisions/coastal-management/coastal-management-oceanfront-shorelines/oceanfront-construction-setback-erosion-rate> (last visited Apr. 25, 2018).

⁵¹ *Id.*

measured from the first line of stable vegetation at the time of application.⁵² Another difference between Maine and North Carolina is the anticipated versus measured approach, in that Maine uses projections of shoreline changes over the next 100 years while North Carolina uses the average change over the last 50 years.⁵³ North Carolina's site-specific system has a few problems that may not make it a good fit for Virginia. For example, evidence from NASA and other researchers indicates that the rate of sea level rise is accelerating throughout the world rather than remaining steady, and the slowing of the Gulf Stream makes Hampton Roads particularly vulnerable to rising seas.⁵⁴ A setback based on historical averages may not be able to account for future rates of change in the shoreline. Also, simply creating a list of site-specific values for Virginia's coast would be a time-consuming enterprise.⁵⁵ Instead, Virginia could incorporate a requirement for erosion rate-based setbacks into a plan for rolling of RPAs. Prince William County already requires a setback of at least 50 feet from the edge of an RPA for development in Chesapeake Bay Preservation Areas.⁵⁶ Using erosion rates to create setback requirements that would allow RPAs to roll back with changes to the shoreline could be a way to push development in Virginia out of areas that are more vulnerable to sea level rise.

c. South Carolina

South Carolina's Beachfront Management Act⁵⁷ provides a different type of model for rolling of RPAs. The Act, passed in 1988, is designed to "severely restrict the use of hard erosion control devices and encourage the replacement of hard erosion control devices with soft technologies which will provide for the protection of the shoreline without long-term adverse effects."⁵⁸ As a part of reaching that goal, the law in South Carolina requires the establishment of two lines of beachfront jurisdiction once every seven to ten years.⁵⁹ These lines are intended to move with the shifting coastline and serve as an area of regulation that promotes the construction of soft armoring projects and the movement of vulnerable structures away from areas of erosion.⁶⁰ The public has an opportunity to comment on the proposed lines.⁶¹ The Act prohibits construction of new hard armoring and forbids the repair of structures that reach a certain percentage of destruction or damage based on when they were installed.⁶² The only erosion control structures

⁵² *Id.*

⁵³ Compare 06-096-355 ME. CODE R. § 5 , with *Oceanfront Construction Setback & Erosion Rates*, *supra* note 50.

⁵⁴ See Katie Weeman & Patrick Lynch, *New Study Finds Sea Level Rise Accelerating*, NASA (Feb. 13, 2018), <https://sealevel.nasa.gov/news/108/new-study-finds-sea-level-rise-accelerating>; see also Tal Ezer et al., *Gulf Stream's induced sea level rise and variability along the U.S. mid-Atlantic coast*, 118 J. GEOPHYSICAL RES.: OCEANS 685 (2013).

⁵⁵ *Rolling Easement*, WETLANDS WATCH, <http://wetlandswatch.org/rolling-easement/> (last visited Apr. 25, 2016).

⁵⁶ See PRINCE WILLIAM CTY., CODE OF ORDINANCES ch. 32, art. V, § 32-504.09 (2017); DESIGN AND CONSTRUCTION STANDARDS MANUAL § 741.04 (PRINCE WILLIAM CTY. 2015).

⁵⁷ S.C. CODE ANN. § 48-39-250 et seq. (2016).

⁵⁸ *Beachfront Management*, S.C. DEP'T OF HEALTH & ENV'T'L CONTROL, <http://www.scdhec.gov/beach/BeachfrontManagement/index.htm> (last visited Apr. 25, 2018).

⁵⁹ Proposed Beachfront Jurisdictional Lines, S.C. DEP'T OF HEALTH & ENV'T'L CONTROL, <http://www.scdhec.gov/HomeAndEnvironment/Water/CoastalManagement/BeachManagement/BeachfrontJurisdiction/> (last visited Apr. 25, 2018).

⁶⁰ *See id.*

⁶¹ *Id.*

⁶² S.C. CODE ANN. § 48-39-290 (2016).

that are allowed are those that protect a public highway.⁶³ As noted above, the CBPA may already provide some framework for a rolling system in Virginia similar to the one created by the South Carolina Beachfront Management Act; RPAs are intended to be reestablished at the time of permit review under the CBPA in a way that would result in the RPA's buffer area "rolling backward" with changes in the shoreline at the time of proposed development.⁶⁴ South Carolina, however, goes a step further by establishing the lines of beachfront jurisdiction every seven to ten years rather than tying it to the time of development of properties.

d. Texas

Texas uses a rolling easement to manage public access to its public beaches.⁶⁵ In 1959, Texas passed the Texas Open Beaches Act (TOBA), establishing an easement providing for public access and use of the beach "from the larger area extending from the line of mean low tide to the line of vegetation bordering on the Gulf of Mexico."⁶⁶ TOBA takes coastal erosion into account by letting the public beach access roll with the natural migration of vegetation.⁶⁷ It even allows for the removal of structures from the public beach under certain conditions.⁶⁸ One past issue with TOBA was the large movement of the vegetation line after storms, sometimes causing entire homes to suddenly be located on the public beach, such as was the case after Hurricane Rita in 2005.⁶⁹ Damage from Hurricane Rita and the resultant changes in the shoreline formed the basis for the action in *Severance v. Paterson*, where the Texas Supreme Court held that TOBA only applied to gradual changes to the shoreline but did not apply to sudden changes caused by events such as storms.⁷⁰ The previous line was held to remain after sudden storm events, essentially invalidating the easement after events that caused sudden, large changes to the shoreline.⁷¹ As a result of *Severance v. Paterson*, the Texas legislature amended TOBA in 2013 to give the General Land Office discretion to suspend the determination of the easement for sections of the coastline impacted by a sudden weather event and to determine a new line based on where vegetation re-established itself.⁷² TOBA also prohibits the construction of bulkheads or other structures landward of the easement that is "likely to affect adversely" access and use of the beach.⁷³

2. A Potential Framework for Virginia

Virginia could enact an express rolling of RPAs correlating with the changing shoreline by implementing a rolling easement concept that incorporates some of the features of the approaches

⁶³ *Id.*

⁶⁴ See 9 VA. ADMIN. CODE § 25-830-110.

⁶⁵ *Rolling Easements & the Texas Open Beaches Act*, COASTAL RESILIENCE, <https://coastalresilience.tamu.edu/home/wetland-protection/policy-framework/bay-and-ocean-side-submerged-lands-some-fundamental-differences-in-law-and-management/the-texas-open-beaches-act-an-exceptional-example-of-a-rolling-easement/> (last visited Apr. 25, 2018).

⁶⁶ TEX. NAT. RES. CODE § 61.011 (West 1991); *id.*

⁶⁷ *Rolling Easements & the Texas Open Beaches Act*, *supra* note 65.

⁶⁸ TEX. NAT. RES. CODE § 61.0183 (West 1991).

⁶⁹ See *Rolling Easements & the Texas Open Beaches Act*, *supra* note 65.

⁷⁰ See *Severance v. Patterson*, 370 S.W.3d 705 (Tex. 2012) (holding that easements are not altered due to major events such as hurricanes but are altered by natural erosion).

⁷¹ *Rolling Easements & the Texas Open Beaches Act*, *supra* note 65.

⁷² *Id.*

⁷³ TEX. NAT. RES. CODE § 61.013 (West 1991).

taken by other states, discussed above. The U.S. Environmental Protection Agency has released a document assessing the potential value of such rolling easements for localities responding to the threat of sea level rise and, although it is not meant to serve as a blueprint for states or localities to enact rolling easements to address sea level rise, it is instructive on the issue.⁷⁴ A primary consideration is that the General Assembly must require localities to treat RPAs as rolling easements and provide localities with any necessary authority to do so because Virginia is a Dillon Rule state.⁷⁵ Although EPA's rolling easement document offers multiple methods for creating a rolling easement, consideration of the existing structure of the CBPA as primarily an authorization for Virginia localities to use their zoning and police powers to protect water quality would seem to indicate that the best way to use the existing CBPA framework is to authorize localities to create a rolling easement through zoning.⁷⁶ EPA proposes a possible way to achieve this: Localities could use zoning overlays to "prohibit increases in land elevation grades" and "prohibit shore protection structures" subject to some exceptions for each (such as allowing for living shorelines or elevation grades to preserve roads) on shorelines in Virginia.⁷⁷ Hard shore protection structures, such as seawalls and bulkheads, prevent the migration of vegetation and wetlands to the areas upland.⁷⁸ The migration of these natural features is essential to preserving the benefits to water quality and resilience to sea level rise that they provide.⁷⁹ Existing bulkheads and seawalls in Virginia would limit the effectiveness of rolling RPAs.⁸⁰ Prohibition of both hard shoreline stabilization structures and manmade increases in elevation within the rolling easement essentially follows the model in TOBA, with RPAs serving the same role as the "public beach" that rolls landward with the shifting shoreline. A caveat to lessen the impact on landowners from sudden, unpredictable shoreline changes, such as from storms, would also be a useful addition to any proposed rolling easement amendment to the CPBA. All of these changes could be incorporated into the regulatory General Performance Criteria and Development Criteria (which must be adopted by localities) through the State Water Control Board's rulemaking process. HB 1094 (discussed below) may provide some relief to landowners as well if elevation changes are not prohibited.

Express rolling of RPAs with changes to the coast could create some problems that Virginia would need to address, however. First and foremost is the issue of property owners who would find themselves in the RPA as it rolls back. The loss of the use of their property as a result could present a potential 5th Amendment takings issue for localities.⁸¹ Although there is no change in ownership or physical invasion (permanent or otherwise) of the property by virtue of its new inclusion in an RPA, it is possible that such a loss because of government regulation would be deemed a regulatory taking.⁸² In *Lucas*, the Supreme Court held that a total loss of economic value is always a taking requiring just compensation.⁸³ However, no such total loss occurs when a

⁷⁴ TITUS, *supra* note 43, at ii.

⁷⁵ See *Winchester v. Redmond*, 93 Va. 711 (1896) (holding that Virginia follows the Dillon Rule of statutory construction, which states that cities and towns in Virginia have only the powers conferred on them by the General Assembly of Virginia).

⁷⁶ See generally TITUS, *supra* note 43.

⁷⁷ *Id.* at 42

⁷⁸ Duhring et al., *supra* note 38.

⁷⁹ See U.S. ENVTL. PROTECTION AGENCY, *supra* note 28.

⁸⁰ *Id.*

⁸¹ See *Rolling Easement*, *supra* note 55.

⁸² See, e.g., *Lucas v. S.C. Coastal Council*, 505 U.S. 1003 (1992).

⁸³ *Id.* at 1019.

property is included in an RPA; for example, certain land development may be approved by the local government,⁸⁴ certain land disturbances may be exempted,⁸⁵ an administrative process may allow certain permitted encroachments into the buffer area,⁸⁶ and vested rights are specifically protected.⁸⁷ *Lingle v. Chevron* instructs that for partial regulatory takings, the test to determine if a taking has occurred and just compensation is required is a consideration of the factors set out in the *Penn Central* case.⁸⁸ The *Penn Central* Test is a case-by-case consideration weighing the character and purpose of the government's action and the economic impact on the property owner's reasonable investment-backed expectations for the property.⁸⁹ Without site-specific facts, it is unclear if a court would find a taking in situations where the RPA rolls. Attempting to solve the takings issue through the current CBPA exception process could come into conflict with the regulatory prohibition on granting special privileges to similarly situated landowners.⁹⁰

Another problem with the rolling easement approach implemented through the zoning process is that it amounts to a public policy of retreat.⁹¹ Property owners may not want to acknowledge that they will lose land to sea level rise and that they cannot erect a bulkhead or sea wall to do anything about it,⁹² with resultant potential loss of property value. The policy may raise political questions that make the rolling easement concept for RPAs in Chesapeake Bay Preservation Areas difficult to pass in the General Assembly.⁹³

B. Incentivize Retreat and Minimize New Development in CBPAs

Whether or not the General Assembly chooses to enact an express provision for rolling RPAs landward within Chesapeake Bay Preservation Areas as the sea level rises, localities can take other steps to raise resilience using the Chesapeake Bay Preservation Act. A potential way to achieve that goal is through the use of transferable development rights (TDR) for landowners in RPAs. A recent Virginia Coastal Policy Center Report describes how TDRs can work:

A TDR program diverts development from a designated area of a community where the locality seeks preservation or reduced growth towards another designated area of the community where it seeks more growth. The fundamental TDR process is as follows: [1] The community identifies an area in which it does not want further development, referred to as a "sending" area. [2] The community identifies an area for added development, referred to as a "receiving" area. The community seeks further growth in this location. [3] Sending area property owners or TDR partners elect, if compensated, to sever their rights to develop their property, placing a permanent easement on the land. [4] Meanwhile, developers can pay extra for

⁸⁴ 9 VA. ADMIN. CODE § 25-830-140(1).

⁸⁵ 9 VA. ADMIN. CODE § 25-830-140(2).

⁸⁶ 9 VA. ADMIN. CODE § 25-830-140(4).

⁸⁷ VA. CODE ANN. § 62.1-44.15:79 (2013).

⁸⁸ See *Lingle v. Chevron U.S.A. Inc.*, 544 U.S. 528 (2005); *Penn Cent. Transp. Co. v. New York City*, 438 U.S. 104 (1978).

⁸⁹ See *Penn Cent. Transp. Co.*, *supra* note 88.

⁹⁰ See 9 VA. ADMIN. CODE § 25-830-150.

⁹¹ See *Rolling Easement*, *supra* note 55.

⁹² *Id.*

⁹³ Yusuf et al., *supra* note 48.

additional development rights in receiving areas. [5] This extra fee, paid by developers, is passed to the sending area property owners as compensation for voluntarily relinquishing their development rights.⁹⁴

Localities have had the ability to create TDR programs in Virginia since 2006.⁹⁵ A TDR program could work within the existing CBPA framework and provide a way to promote less development in and adjacent to RPAs (especially in buffer zones) to help facilitate the eventual rolling of the RPA (whether that rolling is expressly provided in the CBPA or remains implied). IDAs could serve as areas where development rights are sent since they are already meant to be areas of concentrated redevelopment. TDRs may also help protect localities against some takings claims; they were part of the analysis in *Penn Central*, where the Supreme Court ultimately decided that there had not been a taking.⁹⁶

V. HB1094 AND RESULTING STUDY

In the 2018 Session of the Virginia General Assembly, Delegate Keith Hodges of Virginia's 98th District introduced House Bill 1094 (HB1094).⁹⁷ The bill would have allowed for the creation of a process by which landowners in Chesapeake Bay Preservation Areas could raise their land's elevation to prevent flooding.⁹⁸ HB1094 was ultimately left in the House Committee on Agriculture, Chesapeake and Natural Resources, but it raised significant issues and as a result, the Virginia Institute of Marine Science and Virginia Tech were asked to research the viability of raising coastal lands.⁹⁹ Methods contemplated by the bill to raise elevations included "vertical living shorelines" and "the placement of earth."¹⁰⁰ Certainly raising the elevation of lands would mitigate the effects of sea level rise, but potentially allowing fill in Chesapeake Bay Preservation Areas (especially in RPAs) raises important issues that would have to be addressed in any regulations promulgated as a result of the passage of a bill similar to HB1094.

Allowing fill in an RPA or RMA may trigger federal permitting requirements that must be complied with and that would likely make the process more time-consuming and expensive for the landowner seeking to undertake elevation of his or her individual property. For example, if a landowner was allowed to fill or create a vertical living shoreline in an RPA and that process involved filling in a "water of the U.S." (including wetlands), § 404 of the Clean Water Act requires that any such activity be permitted by the United States Army Corps of Engineers (USACE).¹⁰¹ So the potential for expedited permitting from the USACE would need to be discussed. As another example, the National Flood Insurance Program (NFIP) requires a

⁹⁴ JESSICA LUNG & MICHAEL KILLIUS, VA. COASTAL POL'Y CTR., TOOLS FOR A RESILIENT VIRGINIA COAST: DESIGNING A SUCCESSFUL TDR PROGRAM FOR VIRGINIA'S MIDDLE PENINSULA 3 (2016), https://law.wm.edu/academics/programs/jd/electives/clinics/vacoastal/reports/TDR_paper_LungKillius_p10.pdf.

⁹⁵ VA. CODE ANN. § 15.2-2316.2 (2014).

⁹⁶ See *Penn Cent. Transp. Co.*, *supra* note 88.

⁹⁷ H.B. 1094, 2018 Gen. Assemb. (Va. 2018).

⁹⁸ *Id.*

⁹⁹ *Id.*

¹⁰⁰ *Id.*

¹⁰¹ Section 404 Permit Program, EPA, <https://www.epa.gov/cwa-404/section-404-permit-program> (last visited Apr. 25, 2018).

Floodplain Development Permit (FDP) for filling in floodplains.¹⁰² Another issue to consider is the potential impacts to wetlands of allowing fill in RPAs. HB1094 did propose that all “such regulations shall include provisions to protect existing wetlands.”¹⁰³ Virginia has a statutory policy of no net loss of wetland acreage or function,¹⁰⁴ and even if no filling occurs in existing wetlands, raising elevation upland of them may prevent their migration and ultimate survival.¹⁰⁵ It is unclear whether the wetlands protection contemplated in the bill extended to the consideration of indirect impacts to wetlands, and that is something that must be taken into account. A site-specific solution (allowing landowners to raise their elevations individually) may not be the most appropriate way of dealing with a problem like sea level rise that affects very many coastal landowners, and could trigger erosion or flooding problems between adjacent properties. Well-researched requirements would need to be put in place addressing how to fill and replant areas and maintain the legislature’s stated preference for the use of living shorelines.¹⁰⁶

VI. CONCLUSION

Expressly providing for rolling of RPAs through the existing framework of the Chesapeake Bay Preservation Act may allow coastal Virginia to become more resilient to sea level rise and enhance the Act’s ability to protect water quality by preserving the space for wetland migration and buffer zones. Because of its relation to the existing operation of the CBPA, this paper considers only the zoning method of achieving a rolling easement concept for Chesapeake Bay Preservation Areas. Other potential methods to create rolling buffers exist, such as establishing a program to trigger takings of property by eminent domain as sea level rise reaches certain levels, and should be considered by lawmakers as well. Finally, the concept set forth in HB1094 of allowing the elevation of properties to increase resilience to sea level rise possibly could be adapted for use at the locality level in selected areas, subject to specific requirements and the approval of the State Water Control Board which is responsible for oversight of the CBPA program.

¹⁰² FED. EMERGENCY MGMT. AGENCY, FEMA P-762, LOCAL OFFICIALS GUIDE FOR COASTAL CONSTRUCTION: DESIGN CONSIDERATIONS, REGULATORY GUIDANCE, AND BEST PRACTICES FOR COASTAL COMMUNITIES 4-3 (2009), <https://www.fema.gov/media-library-data/20130726-1707-25045-5869/chapter4.pdf>.

¹⁰³ H.B. 1094, *supra* note 97.

¹⁰⁴ VA. CODE ANN. § 62.1-44.15:21 (2018).

¹⁰⁵ TITUS, *supra* note 43, at 26.

¹⁰⁶ VA. CODE ANN. § 28.2-104.1 (2014).