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Eelgrass in Virginia: Assessing Opportunities and Obstacles for Blue Carbon Credits



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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, by offering 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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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

Eelgrass (*Zostera marina*)—a type of subaquatic vegetation (SAV)—provides a number of critical ecosystem services in Virginia’s coastal bays.¹ Indeed, it has been called “one of the most important plants in the ocean” for its ability to “clean[] the water, nurture[] fish, absorb[] climate-warming carbon, produce[] oxygen, and protect[] the coastline.”² With respect to carbon sequestration in particular, “seagrass meadows can store up to twice as much carbon as the world’s temperate and tropical forests.”³ Increasingly, initiatives to remove greenhouse gas emissions from the atmosphere to help curb climate change have focused on enhancing eelgrass and other marine ecosystems—referred to as “blue carbon” ecosystems.⁴

In the 1930s, however, eelgrass was nearly eliminated from Virginia’s coastal bays due to a combination of “noxious slime mold” and a hurricane.⁵ Handful by handful, the Virginia Institute of Marine Science (VIMS), the Virginia Coastal Zone Management Program, and the Nature Conservancy (TNC) have helped to restore 9,000 acres of eelgrass in Virginia’s coastal bays since the late 1990s.⁶ Their success now presents a new opportunity to foster continued eelgrass restoration and carbon sequestration: participation in a carbon credit market.

In recent decades, emissions trading, or cap and trade policies, have emerged as one method of incentivizing ecosystem conservation and restoration⁷ by “turn[ing] pollution reductions into marketable assets” and “prompt[ing] technological and process innovations that reduce pollution.”⁸ In general, in one of these systems—whether a government-created compliance market or a private voluntary market—an entity subject to emissions controls or targets purchases a carbon credit of a certain amount of a greenhouse gas (usually measured per one ton of carbon dioxide) in order to emit that gas.⁹ For example, in a compliance market, say Company A emits one ton less than their cap; they could then sell that ton in the form of a carbon credit to Company B to allow Company B to emit an additional ton of carbon dioxide. When a non-regulated third party, such as a nonprofit that has a carbon sequestration project, sells a carbon credit to a regulated company, that credit is also referred to as a “carbon offset.”¹⁰ Even companies that are not subject

¹ See *Seagrass Restoration*, VA. INST. MARINE SCI., <https://www.vims.edu/research/units/programs/sav1/restoration/index.php> (last visited Nov. 25, 2019). In Virginia specifically, eelgrass served historically as a critical nursery habitat for the bay scallop—“a once-abundant and commercially valuable member of the area’s coastal marine ecosystem.” *Id.*

² *Eelgrass Is Essential to Ocean Health*, PEW CHARITABLE TRUSTS (Nov. 12, 2019), <https://www.pewtrusts.org/en/research-and-analysis/articles/2019/11/12/eelgrass-is-essential-to-ocean-health>.

³ *Seagrasses Can Store as Much Carbon as Forests*, NAT’L SCI. FOUND. (May 21, 2012), https://www.nsf.gov/news/news_summ.jsp?cntn_id=124263.

⁴ See, e.g., *Mitigating Climate Change Through Coastal Ecosystem Management*, BLUE CARBON INITIATIVE, <https://www.thebluecarboninitiative.org/> (last visited Nov. 25, 2019).

⁵ *Restoring Eelgrass*, NATURE CONSERVANCY (June 1, 2019), <https://www.nature.org/en-us/about-us/where-we-work/united-states/virginia/stories-in-virginia/vcr-marine-eelgrass-collection/>.

⁶ See *Virginia Seaside Heritage Program*, VA. DEP’T ENVTL. QUALITY, <https://www.deq.virginia.gov/Programs/CoastalZoneManagement/CZMIssuesInitiatives/SeasideHeritageProgram.aspx> (last visited Nov. 25, 2019); *Seagrass Restoration*, *supra* note 1; *Restoring Eelgrass*, *supra* note 5.

⁷ For a discussion of the history of emissions trading, see SCOTT D. DEATHERAGE, CARBON TRADING LAW AND PRACTICE 216-24 (2011).

⁸ *Id.* at 21.

⁹ See *id.* at 25-38 (providing an overview of the “Fundamentals of Cap and Trade”).

¹⁰ *Id.* at 34.

to emissions regulations may sometimes purchase carbon credits or offsets to meet their own environmental targets or attract environment-minded customers.¹¹

Recently, the environmental advisory firm TerraCarbon determined that the eelgrass restoration project conducted by VIMS and TNC in Virginia's coastal bays could potentially generate carbon offsets.¹² Specifically, its analysis used the methodology established by the Verified Carbon Standard (VCS) by Verra—a voluntary carbon credit market that “allows vetted projects to turn their greenhouse gas (GHG) emissions reductions into tradable carbon credits,”¹³ and found that “the project could generate carbon revenues over 30 years of between \$0.5 million and \$1.1 million.”¹⁴ In conducting its analysis, TerraCarbon determined that the eelgrass restoration project would meet many of VCS's requirements, including its difficult “additionality” requirement—which requires that a project “results in emission reductions or removals that are in excess of what would be achieved under a ‘business as usual’ scenario.”¹⁵ Its report, however, identified a number of possible issues, including, *inter alia*, project ownership—where the Commonwealth of Virginia owns the subaquatic bottomlands beyond the mean low water mark—and longevity—where projects must demonstrate that the activities giving rise to the carbon sequestration will continue for a minimum of thirty years.¹⁶ In addition, the report indicated that the impacts of sea level rise on the continued viability of eelgrasses would need to be considered.¹⁷

This Paper seeks to explore a few of the questions that eelgrass restoration project proponents will need to consider prior to participating in a voluntary carbon credit market, like the VCS. Part I of this Paper explores whether the Commonwealth of Virginia could participate as a project proponent in a voluntary carbon credit market,¹⁸ and then analyzes both constitutional limitations and statutory limitations on the current state agency charged with overseeing the state-owned bottomlands—the Virginia Marine Resources Commission (VMRC).¹⁹ It also explores a

¹¹ *Id.* at 258 (“[V]oluntary buyers are typically trying to meet customer expectations or to appeal to customers and draw business away from competitors. Thus, the company’s or its products’ image and brand may require buying ‘charismatic’ credits that can only be derived from certain types of projects.”).

¹² E. Swails et al., *Feasibility Assessment of a Blue Carbon Resilience Project for the Virginia Coast Reserve*, TERRACARBON 3-4 (Feb. 6, 2019).

¹³ *About Verra: Who We Are*, VERRA, <https://verra.org/about-verra/who-we-are/> (last visited Nov. 25, 2019).

¹⁴ E. Swails et al., *supra* note 12, at 3.

¹⁵ VERRA, VCS STANDARD V. 4.0, at 33 (2019); *see also* E. Swails et al., *supra* note 12, at 10.

¹⁶ E. Swails et al., *supra* note 12, at 31-33.

¹⁷ *Id.* at 33. Although it is beyond the scope of this Paper, careful consideration of the impacts of climate change on eelgrass in the coastal bays off of the Eastern Shore of Virginia will be needed. Specifically, sea level rise may cause the barrier islands protecting eelgrass meadows to erode and move. *See* Orenco Durán Vinent & Laura J. Moore, *Barrier Island Bistability Induced by Biophysical Interactions*, 5 NATURE CLIMATE CHANGE 158, 158 (2015). If the barrier islands disappear, eelgrass in the coastal lagoon will not be protected from hurricanes, sea level rise, or wave action. On the other hand, once intertidal areas become shallower from sea level rise, they can transform into suitable habitats for eelgrass. Jaqueline Thorner et al., *Impacts of Climate-Change-Driven Sea Level Rise on Intertidal Rocky Reef Habitats Will Be Variable and Site Specific*, 9 PLOS ONE 1, 1-2 (2014). Once this habitat is created, eelgrass could migrate to the shallow areas. Closer examination of these scenarios may be needed to ensure the longevity of any eelgrass restoration projects and corresponding potential to participate in a carbon credit market, which requires the sequestration activities to continue for a minimum of thirty years, as noted above. *See supra* note 16 and accompanying text.

¹⁸ *See infra* notes 29-59 and accompanying text.

¹⁹ *See infra* notes 60-84 and accompanying text.

few possible solutions to constitutional and statutory issues.²⁰ Assuming that the eelgrass restoration activities are eligible to participate in VCS, Part II analyzes who will possess the right to sell carbon offsets and own the revenue from such sales on the various types of bottomlands where eelgrass is currently found—ranging from public to private oyster grounds.²¹ Part III then briefly highlights how possible revenues from participation in a voluntary carbon credit market could be spent.²² Finally, Part IV addresses possible use conflicts associated with eelgrass restoration and aquaculture.²³

The following are key findings that the discussion below will develop:

- (1) Eelgrass restoration activities fall squarely within several enumerated powers of the General Assembly in the Constitution of Virginia. Although the Commonwealth's ability to participate in a VCS carbon credit market on *public oyster grounds* may be limited by the same Constitution if the activity significantly impairs citizens' right to harvest shellfish, jurisprudence from the Virginia Supreme Court has given great deference to the state legislature to determine a permissible "public use" of such grounds.²⁴
- (2) Assuming there is no constitutional bar to the Commonwealth of Virginia participating in a VCS carbon credit market, VMRC is likely to need additional, express statutory authorization in order to participate.²⁵
- (3) If the Commonwealth of Virginia or another entity participated in the VCS carbon credit market today based on the various areas where restored eelgrass meadows are currently found—whether public or private oyster grounds—the Commonwealth of Virginia is likely to retain the right to sell the carbon offsets and receive the revenue from such sales.²⁶
- (4) Assuming participation in a voluntary carbon credit market is feasible legally, the resulting revenue could be used for continued eelgrass monitoring, restoration, and research.²⁷
- (5) Those who conduct continued eelgrass restoration projects should remain mindful of possible use conflicts with aquaculture activities.²⁸

²⁰ See *infra* notes 56-59, 81-84 and accompanying text.

²¹ See *infra* notes 85-121 and accompanying text.

²² See *infra* notes 122-23 and accompanying text.

²³ See *infra* notes 124-30 and accompanying text.

²⁴ See *infra* Part II(A).

²⁵ See *infra* Part II(B).

²⁶ See *infra* Part III.

²⁷ See *infra* Part IV.

²⁸ See *infra* Part V.

II. THE COMMONWEALTH OF VIRGINIA'S PARTICIPATION IN THE VERIFIED CARBON STANDARD

A. Constitutional Authority

The General Assembly is unlikely to run afoul of the Constitution of Virginia should it use eelgrass restoration projects to participate in a voluntary carbon market like the Verified Carbon Standard. Specifically, the goals of such an activity fall squarely within the plain language of the enumerated policies related to the conservation of natural resources in the Constitution of Virginia. Although it could be argued that such an activity could offend the Commonwealth's duty to manage the lands in the public trust for use by all—specifically on public oyster grounds, Virginia courts have extended great deference to the General Assembly to determine what is beneficial for the public.

1. Enumerated Constitutional Powers

Under a plain reading of the text of the Constitution of Virginia, utilizing restoration projects on public lands of the Commonwealth to participate in a VCS scheme furthers a number of the Constitution's required policies. Indeed, article 11, section 1 provides that “it shall be the policy of the Commonwealth to conserve, develop, and utilize its natural resources [and] public lands,” and “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.”²⁹ To that end, “the General Assembly may undertake the conservation, development, or utilization of lands or natural resources of the Commonwealth,” as well as “the protection of its atmosphere, lands, and waters from pollution, impairment, or destruction” through a number of means, including “by leases or other contracts . . . with private persons or corporations.”³⁰ A chief aim of VCS is to “offer[] a carbon finance mechanism to incentivize restoration” and “account[] for [greenhouse gas] emission reductions.”³¹ By entering into an agreement related to the VCS carbon credit market, the Commonwealth could help “conserve” and “protect” its eelgrass meadows and dependent organisms, such as scallops, from destruction according to the constitutional mandates, as well as “utilize” those areas to generate revenue for the Commonwealth. In addition, such use of the bottomlands arguably would help to protect the Commonwealth's atmosphere, lands, and waters by stabilizing coastal shorelines and by reducing in the atmosphere the level of carbon—which fosters climate change impacts.³²

²⁹ VA. CONST. art. 11, § 1.

³⁰ *Id.* art. 11, § 2.

³¹ *Projects & Programs: Wetlands Restoration and Conservation*, VERRA, <https://verra.org/project/vcs-program/projects-and-jnr-programs/wetlands-restoration-and-conservation-wrc/> (last visited Nov. 25, 2019).

³² *See, e.g.,* C. SCOTT HARDAWAY, JR. ET AL., VA. INST. MARINE SCI., LIVING SHORELINE DESIGN GUIDELINES FOR SHORE PROTECTION IN VIRGINIA'S ESTUARINE ENVIRONMENTS V. 1.2 (2010), https://www.vims.edu/research/departments/physical/programs/ssp/docs/living_shorelines_guidelines.pdf; *The Causes of Climate Change*, NAT'L AERONAUTICS AND SPACE ASS'N, <https://climate.nasa.gov/causes/> (last visited Nov. 25, 2019).

2. The Public Trust Doctrine

The Commonwealth's participation in a VCS carbon credit scheme likely comports with the public trust doctrine. As explored more fully below, the Commonwealth generally holds title to the subaqueous bottomlands below the mean low water mark,³³ and it exercises its "sovereign authority" through "two facets"—the right of "*jus publicum*" and the right of "*jus privatum*."³⁴ The *jus publicum* refers to "the Commonwealth's sovereign authority to hold the public domain 'for the interest or benefit . . . of the public,'"³⁵ or for "governmental purposes."³⁶ The *jus privatum* refers to "'the right of private property' retained by the Commonwealth because it is 'proprietor' of the public domain that has not been lawfully conveyed."³⁷ In each capacity, "[t]he Commonwealth retains 'a most solemn duty to [both] administer the *jus privatum* of the [Commonwealth] and to exercise its *jus publicum* for the benefit of the people," and "it is a constitutional imperative that the Commonwealth cannot 'relinquish, surrender, alienate, destroy, or substantially impair' the right of *jus publicum* . . . except as authorized by the Constitution of Virginia."³⁸ In short, the Commonwealth may not infringe on the right of the public derived from the *jus publicum*.

The Virginia Supreme Court has indicated that "whether an activity is a right of the people inherent to the *jus publicum* is a matter of Virginia common law subject to the Constitution of Virginia and the General Assembly's modification."³⁹ There are three key limits on government activity on the Commonwealth's bottomlands derived from each of these elements: Virginia common law, the Constitution of Virginia, and a pertinent statutory modification made by the General Assembly.⁴⁰ As a matter of Virginia common law, the Court has held "that the *jus publicum* includes the public right to navigate the Commonwealth's waters."⁴¹ With respect to the Constitution of Virginia's alteration of the *jus publicum*, the Court has observed:

The only section of the Constitution of Virginia which contains any restriction upon the powers of the legislature to dispose of the tidal bottoms of the State and the waters above them is . . . [the] section [that] reads: "The natural oyster beds, rocks and shoals in the waters of this State shall not be leased, rented or sold, but shall be held in trust for the benefit of the people of this State"⁴²

³³ See *infra* notes 86-87 and accompanying text.

³⁴ Va. Marine Res. Comm'n v. Chincoteague Inn, 757 S.E.2d 1, 6-7 (2014).

³⁵ *Id.* at 6 (citing G. L. Webster Co. v. Steelman, 1 S.E.2d 305, 311 (1939)).

³⁶ *Id.* (citing Commonwealth v. City of Newport News, 164 S.E. 689, 696 (1932)).

³⁷ *Id.* at 7 (citing *City of Newport News*, 164 S.E. at 696).

³⁸ *Id.* (citing *City of Newport News*, 164 S.E. at 696-97).

³⁹ *Id.* (citing *City of Newport News*, 164 S.E. at 698-99).

⁴⁰ See *infra* notes 41-44 and accompanying text.

⁴¹ *Chincoteague Inn*, 757 S.E.2d at 9 (citing *James River & Kanawha Power Co. v. Old Dominion Iron & Steel Corp.*, 122 S.E. 344, 347 (1924)). See also *City of Newport News*, 164 S.E. at 698.

⁴² *City of Newport News*, 164 S.E. at 699; see also VA. CONST. art. 11, § 3 (listing the current version of that prohibition, which states that "[t]he natural oyster beds, rocks, and shoals in the waters of the Commonwealth shall not be leased, rented, or sold but shall be held in trust for the benefit of the people of the Commonwealth, subject to such regulations and restriction as the General Assembly may prescribe"). Although *City of Newport News* was decided in 1932, Virginia courts continue to cite the opinion favorably. See, e.g., *Chincoteague Inn*, 757 S.E.2d at 6-7; *Evans v. Smyth-Wythe Airport Comm'n*, 495 S.E.2d 825, 827 (Va. 1998). But see *Moore v. Hampton Roads Sanitation Dist. Comm'n*, 557 F.2d 1030, 1033 (4th Cir. 1976) (finding that the right to discharge sewage is no

Here, the Court construed that constitutional limitation on the Commonwealth as “prohibit[ing] the legislature from authorizing, permitting or suffering a private use to be made [of public oyster grounds], or the bottoms and waters adjacent thereto, which would take away, destroy, or substantially impair the use of the natural rocks by the people for the purpose of taking oysters and shellfish therefrom,” but the Court was careful to note that such a limitation “relate[d] to private uses and not public uses” and that such a limit could not prevent the legislature from taking actions on such grounds for “public purpose[s].”⁴³ Similarly, “[t]he General Assembly has modified the *jus publicum* to include the public’s right to use the Commonwealth’s subaqueous bottomland to ‘fish[], fowl[], hunt[], and tak[e] and catch[] oysters and other shellfish’” on any grounds “not conveyed by special grant or compact according to law.”⁴⁴

Participation in the VCS scheme is unlikely to implicate the right of navigation, as continued protection of eelgrass meadows should not impair traffic in the water above. One might, however, challenge the Commonwealth’s use of the meadows to participate in a VCS carbon credit market because such an activity could impede the taking of oysters or shellfish on public oyster grounds—a right protected by the *jus publicum* pursuant to the Virginia Constitution and Code⁴⁵—because shellfish harvesting may be significantly curtailed in order to protect the eelgrass.⁴⁶

This concern, however, is muted where the government activity on the public grounds constitutes a “public use” with a “public purpose,” especially one related to habitat restoration. As noted above, the Virginia Supreme Court has emphasized that the *jus publicum* right to harvest oysters and shellfish on public grounds “impliedly prohibits the legislature from authorizing, permitting or suffering a *private use* to be made of them.”⁴⁷ With respect to determining whether government actions on “natural rocks” have a “public purpose,” Virginia courts have given a great amount of deference to the Commonwealth in managing its bottomlands. Indeed, the Virginia Supreme Court has observed that “except as is otherwise expressly or impliedly provided by the Constitution, *what is for the benefit of the people is committed to its discretion free from the control or dictation of the executive or judicial department of the government.*”⁴⁸ It also follows that if the General Assembly has the power to modify Virginia common law, as suggested by the Virginia Supreme Court,⁴⁹ then the same legislature could undo or remodify that common law.

Similarly, the Virginia Attorney General and the Supreme Court have extended deference to legislatures to determine public purposes on public grounds. In 1994, an Opinion of the Attorney General determined “the [VMRC] may grant permission to a private nonprofit corporation to use

longer a public use in light of new pollution controls in intervening decades, but not contesting the underlying reasoning of the Virginia Supreme Court in *City of Newport News*).

⁴³ *City of Newport News*, 164 S.E. at 699.

⁴⁴ *Chincoteague Inn*, 757 S.E.2d at 9 (citing VA. CODE ANN. § 28.2-1200).

⁴⁵ See *supra* notes 39-44 and accompanying text.

⁴⁶ VCS would not require that shellfish harvesting be curtailed in order to participate, but the need to foster and preserve carbon sequestration in eelgrass beds for VCS could have such an effect.

⁴⁷ *City of Newport News*, 164 S.E. at 699.

⁴⁸ *Id.* at 697 (emphasis added); see also *Chincoteague Inn*, 757 S.E.2d at 7 (relying upon *City of Newport News* for the proposition that “whether an activity is a right of the people inherent to the *jus publicum* is a matter of Virginia common law subject to the Constitution of Virginia and the General Assembly’s modification by statute” (emphasis added)).

⁴⁹ See *supra* notes 39-40 and accompanying text.

a portion of the natural oyster beds, rocks and shoals of the Commonwealth, as defined by the Baylor survey, for the placement of artificial reefs designed to serve as oyster preserves, fish habitat and areas for scientific study.”⁵⁰ Although the activity was explicitly tied to benefiting oysters, the analysis in the opinion reiterated the broad power of “the General Assembly to permit public uses of [Baylor] grounds that it deems beneficial to the people of the Commonwealth.”⁵¹ Further, the Virginia Attorney General noted that such power even extended beyond uses tied to shellfish habitat, including “affirming [the] power of [the] General Assembly to authorize [the] Virginia Port Authority to dredge for construction of a pier within [the] Baylor survey,” and “approving legislation allowing [the] Hampton Roads Sanitation District Commission to construct and maintain sewage disposal facilities on Baylor grounds.”⁵² Analogous, persuasive support for deferring to the legislature’s determination of “public purpose” can also be found prominently in the eminent domain context, where the U.S. Supreme Court has held that government projects that *take private property* in order to convey that property *to private businesses* for redevelopment has been found to have a public purpose.⁵³

In light of the consistent finding that the General Assembly may authorize activities for “public use” on public oyster grounds and the broad discretion granted to the legislature to do so, the Commonwealth is likely to be able to participate in a VCS carbon credit scheme tied to eelgrass meadows on public oyster grounds so long as it articulates a public purpose for doing so: Such a purpose will most comfortably rest within the existing bounds of the Constitution of Virginia and Virginia common law if it ties the restoration to revitalizing shellfish habitat. Here, the purposes could include the aim to “conserve, develop, . . . utilize” and “protect” shellfish ecosystems on state-owned bottomlands, consistent with the enumerated provisions of the Constitution of Virginia.⁵⁴ Indeed, reports indicate that “[f]ish and shellfish [are] thriving in [the] new habitat” created by the eelgrass restoration efforts in Virginia’s coastal bays.⁵⁵ If dredging a port on public oyster grounds was consistent with the public trust doctrine as noted above, then facilitating such a revitalization of marine ecosystems through providing carbon credit market-incentives should be deemed acceptable as well.

3. Solution to Public Trust Doctrine Obstacle on Baylor Grounds if Participation in VCS Is Not Considered a Public Use

Should a court determine that participation in a voluntary carbon credit market runs afoul of the public trust doctrine on public oyster grounds given its interference with shellfish harvesting activities, the General Assembly could pass a statute authorizing such an activity, thereby modifying the scope of the public right. Although the Constitution of Virginia provides that “[t]he

⁵⁰ 1994 Op. Att’y Gen. Va. 74, 1994 Va. AG LEXIS 9, at *1.

⁵¹ *Id.* at *5.

⁵² *Id.* (citations omitted). Note that the authors attempted to consult the earlier Attorney General opinions cited here, but they are not readily available, so reliance on these opinions is limited to their use in the 1994 Attorney General opinion.

⁵³ *Kelo v. City of New London*, 545 U.S. 469, 489-90 (2005).

⁵⁴ VA. CONST. art. 11, § 1.

⁵⁵ Tamara Dietrich, *Eelgrass restoration spurs studies on new habitats, ‘blue carbon’*, DAILY PRESS (June 1, 2019, 10:00 AM), <https://www.dailypress.com/news/dp-nws-eelgrass-restore-vims-20190528-story.html>; see also Maya L. Groner et al., *Oysters and Eelgrass: Potential Partners in a High pCO₂ Ocean*, 99 ECOLOGY 1802, 1802 (2018) (highlighting the positive effect of eelgrass on oyster populations in the Pacific).

natural oyster beds, rocks, and shoals in the waters of the Commonwealth shall not be leased, rented, or sold but shall be held in trust for the benefit of the people of the Commonwealth,” it notably adds the qualifying clause, “subject to such regulations and restriction as the General Assembly may prescribe.”⁵⁶ A new statute could impose a restriction on public oyster grounds limiting shellfish harvesting activities on the grounds in order to foster eelgrass restoration and participate in a voluntary carbon credit market.

Alternatively, the General Assembly could redefine the bounds of the public oyster grounds. The Constitution of Virginia gives the General Assembly the authority to “define and determine such natural beds, rocks, or shoals [to be held in the public trust] by surveys or otherwise.”⁵⁷ At least one study indicated that substantial portions of the grounds determined by the last survey, the Baylor survey, are no longer viable for oyster production.⁵⁸ Accordingly, the General Assembly could consider redefining the boundaries of the grounds,⁵⁹ seeking both to redraw the lines to encompass oyster grounds that are actually productive, as well as to protect restored eelgrass beds.

B. Existing Statutory Authority for VMRC

Assuming that the Commonwealth of Virginia will not encounter any constitutional barrier to participating in a VCS carbon credit market, it is unlikely that VMRC currently possesses the requisite statutory authority to initiate and manage such participation. Although VMRC has jurisdiction over the state-owned bottomlands and its eelgrass meadows,⁶⁰ participating in a carbon credit market on behalf of the Commonwealth seems too far removed from the types of uses of bottomlands envisioned by the General Assembly. There is no statutory provision that expressly grants VMRC the authority to participate in a carbon credit market, so it would have to be implied from another statutory provision or result from a regulation or guideline promulgated as “necessary to carry out” another statutory provision.⁶¹ This Paper explores three of the broadest, statutory grants of authority that VMRC might use to engage in a carbon credit system, as well as the limitations in doing so.

⁵⁶ VA. CONST. art. 11, § 3.

⁵⁷ *Id.*

⁵⁸ CTR. FOR COASTAL RESOURCES MGMT. & VA. INST. OF MARINE SCI., SHELLFISH AQUACULTURE SUITABILITY WITHIN BAYLOR GROUNDS OF THE LOWER RAPPAHANNOCK RIVER 4 (2008), <https://scholarworks.wm.edu/cgi/viewcontent.cgi?article=1968&context=reports> (“The demise in productivity of natural oyster beds within Baylor Grounds is well known.”); DEXTER S. HAVEN ET AL., THE PRESENT AND POTENTIAL PRODUCTIVITY OF THE BAYLOR GROUNDS IN VIRGINIA VOL. 2, at 149 (1981), <https://www.vims.edu/GreyLit/VIMS/sramsoe243v2ocr.pdf> (finding that some Baylor grounds “would require significant investments of capital, effort and time to produce oysters,” and that “many will never grow oysters”).

⁵⁹ VA. CONST. art. 11, § 3.

⁶⁰ See VA. CODE ANN. § 28.2-101 (“The jurisdiction of the Commission shall include the Commonwealth’s territorial sea and extend to the fall line of all lien of all tidal rivers and streams except in the case of *state-owned bottomlands where jurisdiction extends throughout the Commonwealth*. The Commission shall have jurisdiction over all commercial fishing and all marine fish, marine shellfish, marine organisms, and *habitat in such areas*.” (emphasis added)).

⁶¹ See *id.* § 28.2-101 (“The Commission shall exercise all of the powers herein conferred and may promulgate regulations and guidelines necessary to carry out the provisions of this title.”).

1. Reasonable Uses

One of the broadest grants of authority extended to VMRC is found in Virginia Code section 28.2-1204. It allows the Commission to “[i]ssue permits *for all reasonable uses* of state-owned bottomlands not authorized under subsection A of Section 28.2-1203”⁶²—namely, “build[ing], dump[ing], trespass[ing] or encroach[ing] upon or over, or tak[ing] or us[ing] any materials from the beds of the bays, ocean, rivers, streams, or creeks which are the property of the Commonwealth.”⁶³ There are some limitations: The General Assembly has required that VMRC “exercise its authority consistent with the ‘public trust doctrine as defined by the common law of the Commonwealth’ and to consider an additional list of specific factors,”⁶⁴ which includes “[o]ther reasonable and permissible uses of state waters and state-owned bottomlands,” “fisheries,” “[t]idal wetlands,” “[a]djacent or nearby properties,” “water quality,” and “[s]ubmerged aquatic vegetation.”⁶⁵ Courts, however, have read the limitations deferentially. For instance, in *Boone v. Harrison*, the Court of Appeals of Virginia upheld the authority of VMRC to permit the reconstruction of a private pier over state-owned bottomlands following a hurricane despite citizen concerns that VMRC did not comply with the public trust doctrine.⁶⁶ As an indication of the broad deference extended to VMRC on the matter, the court noted that the General Assembly had “direct[ed] the VMRC—not the courts—to decide whether, in its expert discretion, granting the permit would be consistent with the public trust doctrine.”⁶⁷ In the case of participating in a VCS carbon credit scheme, VMRC could assert that such an activity is broadly “reasonable”—emphasizing how it will incentivize restoration activities to benefit shellfish—and, in their expert judgment, consistent with the public trust doctrine.

There is, however, a fatal, textual flaw to this argument. Each of the enumerated “uses” that the General Assembly described by statute and that VMRC might permit, pertain to *physical* modifications. Consider the terms “build, dump, trespass, or encroach” and “take or use . . . materials.”⁶⁸ “[U]se . . . materials” is the broadest phrase in the list and alone might accommodate selling carbon offsets, but when considered together in the string of verbs pertaining to physical modifications, such an interpretation is unlikely.⁶⁹ Generating carbon credits and selling carbon offsets are a different breed of activity. The actual carbon sequestered by eelgrass meadows would not be *physically* altered, removed, taken, and sold to another entity. Instead, carbon offsets are better understood as a “regulatory ‘commodity,’” wherein the carbon offset sold typically helps a company with its emissions compliance (or if it is not regulated, the purchase might help a company’s environmental support aims and/or attract environment-minded customers).⁷⁰ For these reasons, although Virginia courts have extended a great amount of deference to VMRC in implementing the statute, the type of use at hand—participating in a carbon credit market—likely lays outside of VMRC’s purview.

⁶² See *id.* § 28.2-1204 (emphasis added).

⁶³ See *id.* § 28.2-1203.

⁶⁴ *Boone v. Harrison*, 660 S.E.2d 704, 709 (Va. Ct. App. 2008) (citing VA. CODE ANN. § 28.2-1205(A)).

⁶⁵ VA. CODE ANN. § 28.2-1205(A).

⁶⁶ *Boone*, 660 S.E.2d at 712.

⁶⁷ *Id.*

⁶⁸ VA. CODE ANN. §§ 28.2-1203 to -1204.

⁶⁹ See, e.g., *Third Nat’l Bank v. Impac, Ltd.*, 432 U.S. 312, 322 (1977) (“It is a familiar principle of statutory construction that words grouped in a list should be given related meaning.”).

⁷⁰ DEATHERAGE, *supra* note 7, at 255-60.

Further, where the General Assembly has sought to authorize VMRC to conduct long-term activities beyond permitting case-by-case physical, “reasonable” uses on bottomlands noted above—*i.e.* building, dumping, etc.—it often does so by express statutory authorization. For instance, Virginia Code section 28.2-1208(E) outlines VMRC’s authority to “maintain a State Subaqueous Minerals and Coastal Energy Management Plan,” and directs the Commission to develop “provisions for (i) the holding of public hearings, (ii) public advertising for competitive bids or proposals for mineral and renewable energy leasing and extraction activities, (iii) preparation of environmental impact reports . . . and (iv) review and approval of leases by the Attorney General and the Governor.”⁷¹ Here, the General Assembly felt the need to draft a statute expressly authorizing this complex, long-term energy management plan rather than allow VMRC to rely on any broad discretion to authorize “reasonable uses” of state-owned bottomlands. Similarly, participating in a VCS carbon credit market, including continued monitoring and management plans that would be needed to do so, for possibly decades into the future is the type of complex, long-term activity that the General Assembly would feel the need to authorize by statute.

2. Oyster Restoration Activities

The Virginia Code gives VMRC broad authority to conduct oyster restoration activities. It states, “The Commission, in order to protect or promote the growth of oysters, may (i) close and open any area or restrict the manner or method of taking oysters in any area of the public rocks, grounds, or shoals, (ii) *establish seed beds* and plant shells and other culch, or (iii) *take any other restorative measures*.”⁷² If VMRC identifies a link between restored eelgrass beds and stimulating the growth of oysters, VMRC could make a colorable argument that participation in a VCS carbon credit market falls within its broad authority to “take any other restorative measures.” Indeed, some studies indicate that eelgrass could have a positive effect on oyster populations.⁷³

Here again, however, the VMRC may be constrained by the unique nature of the proposed participation in carbon credit trading.⁷⁴ VMRC could certainly authorize the eelgrass restoration itself under this statute, as it directly constitutes a “restorative measure.”⁷⁵ Selling carbon offsets and conducting the necessary monitoring for continued participation is more attenuated. In addition, and as discussed above, the General Assembly has felt the need to expressly authorize such comprehensive long-term activities.⁷⁶

3. Easements in Non-public Grounds

The Virginia Code provides that “[VMRC] may, with the approval of the Attorney General and the Governor, grant easements over or under or lease the beds of the waters of the Commonwealth outside of the Baylor Survey.”⁷⁷ This option, however, faces two important

⁷¹ VA. CODE ANN. § 28.2-1208(E).

⁷² VA. CODE ANN. § 28.2-507.

⁷³ See *supra* note 55 and accompanying text.

⁷⁴ See *supra* note 71 and accompanying text.

⁷⁵ See VA. CODE ANN. § 28.2-507.

⁷⁶ See *supra* note 71 and accompanying text.

⁷⁷ VA. CODE ANN. § 28.2-1208(A).

limitations. First, such easements are limited to short terms—five years generally with the option to renew once for an additional five years,⁷⁸ falling well short of the thirty year minimum VCS project lifespan.⁷⁹ Second, such easements are forbidden from “in any way affect[ing] or interfer[ing] with the rights vouchsafed to the people of the Commonwealth concerning fishing, fowling, and the catching and taking of oysters and other shellfish in and from the leased bottoms or the waters above.”⁸⁰ Therefore, any easement granting the right to sell carbon offsets in eelgrass meadows would also need to preserve access to shellfish harvesting—activities that could be harmful to the carbon sequestration efforts, undercutting the original purpose of the easement.

4. Solutions for Granting VMRC Authority to Participate in VCS: Separate Express Statutory Authorization

The General Assembly could grant VMRC express authority to participate in voluntary carbon credit markets. A natural statute for revision would be Virginia Code section 28.2-12-4.1, which pertains to submerged aquatic vegetation.⁸¹ There, VMRC has existing authority to work with VIMS to “develop guidelines” to “[d]efin[e] existing beds” and “[d]elineate areas where there is potential for submerged aquatic vegetation restoration.”⁸² Any revision to this section, however, should be mindful of the participation requirements outlined in the VCS standard. For instance, VCS’s additionality requirement requires that the project “results in emission reductions or removals that are in excess of what would be achieved under ‘business as usual’ scenario.”⁸³ In the context of “tidal wetland restoration projects located in the United States,” TerraCarbon indicated that the additional requirement would be met “so long as they are not required by any law, statute, or other regulatory framework.”⁸⁴ Therefore, to fall outside of the required participation, any authorizing statute may have to frame its language in non-mandatory terms, i.e. “may” participate rather than “shall” participate.

III. OWNERSHIP OF CREDITS

To receive carbon credits, the Verified Carbon Standard (VCS) scheme requires that a party demonstrate “project ownership,”⁸⁵ defined as “the legal right to control and operate the project activities.”⁸⁶ Assuming that the restored eelgrass beds qualify for VCS carbon credits, the Commonwealth of Virginia will likely own said credits under current, applicable statutes and regulations. Ownership of the bottomlands in Virginia is best understood in layers from the baseline upward. As a general baseline rule, the Commonwealth holds title to the subaqueous

⁷⁸ *Id.* There are two exceptions where easements might be granted for longer periods of time—namely, for offshore renewable energy leases, which are eligible for thirty year leases; and for “public service corporation[s], certificated telephone company[ies], interstate natural gas company[ies] or provider[s] of cable television or other multichannel programming” that can obtain leases for up to 40 years. *Id.*

⁷⁹ E. Swails et al., *supra* note 12, at 32.

⁸⁰ V.A. CODE ANN. § 28.2-1208(A).

⁸¹ V.A. CODE ANN. § 28.2-1204.1.

⁸² *Id.*

⁸³ E. Swails et al., *supra* note 12, at 11. *See also* VERRA, *supra* note 15, at 33.

⁸⁴ E. Swails et al., *supra* note 12, at 11.

⁸⁵ VERRA, REGISTRATION AND ISSUANCE PROCESS v 4.0, at 5 (2019).

⁸⁶ VCS PROGRAM, PROGRAM DEFINITIONS v 3.7, at 12 (2017).

bottomlands within its jurisdiction⁸⁷ below the mean low-water mark⁸⁸ and cannot “convey fee simple title to state-owned bottomlands covered by waters.”⁸⁹ Indeed, Virginia is required to hold these lands in trust for “the use and enjoyment” of its people.⁹⁰ Although the Commonwealth holds title, different uses may be permitted on these lands depending on how they are designated—whether public or open to temporary, private permitting and leasing. The General Assembly has tasked VMRC with overseeing the management of such uses, granting it “jurisdiction over all commercial fishing and all marine fish, marine shellfish, marine organisms, and habitats” in “the Commonwealth’s territorial sea . . . extend[ing] to the fall line of all tidal rivers and streams”⁹¹

Here, we take a closer look at four types of bottomlands where current eelgrass restoration activities are found: (1) public grounds, called Baylor grounds; and (2) grounds open to private uses—whether (a) actually leased to private entities, (b) “set aside” by the VMRC, or (c) not designated.

A. Baylor Oyster Grounds

Baylor oyster grounds refer to public oyster grounds that must remain in the public trust. The Virginia Constitution describes these public grounds as the “natural oyster beds, rocks, and shoals in the waters of the Commonwealth” and provides that they “shall not be leased, rented, or sold, but shall be held in trust for the benefit of the people of the Commonwealth” as determined by state survey.⁹² The last survey, the “Baylor Survey,” was conducted by Capt. James Baylor in 1894 and gave the public oyster grounds their name, the Baylor grounds.⁹³

Although a nonprofit organization, TNC, and a state agency, VIMS, conducted the eelgrass restoration work in Baylor grounds areas, the Commonwealth will certainly retain title to the eelgrass beds. As noted above, the Virginia Constitution is clear: “The natural oyster beds, rocks,

⁸⁷ VA. CODE ANN. § 28.2-1200 (“All the beds of the bays, rivers, creeks and the shores of the sea within the jurisdiction of the Commonwealth, not conveyed by special grant or compact according to law, shall remain the property of the Commonwealth and may be used as a common by all the people of the Commonwealth for the purpose of fishing, fowling, hunting, and taking and catching oysters and other shellfish. No grant shall be issued by the Librarian of Virginia to pass any estate or interest of the Commonwealth in any natural oyster bed, rock, or shoal, whether or not it ebbs bare.”). *But see* Commonwealth v. Morgan, 225 Va. 517, 523 (1983) (holding that bottomlands granted by the royal governor of Virginia prior to the American Revolution did indeed grant private title to the submerged bottomlands).

⁸⁸ Jennings v. Bd. of Supervisors of Northumberland Cty., 97 Va. Cir. 341, 343 (Va. Cir. Ct. 2007) (“[T]itle to land below mean low water is in the Commonwealth”); cf. VA. CODE ANN. § 28.2-1202(A) (noting that “the rights and privileges of the owners [adjacent to the waters described in § 28.2-1200] shall extend to the mean low-water mark but no farther . . .”).

⁸⁹ VA. CODE ANN. § 28.2-1200.1(A).

⁹⁰ VA. CONST. art. 11, § 1.

⁹¹ VA. CODE ANN. § 28.2-100 (defining “Territorial sea” as “the waters within the belt, three nautical miles wide, that is adjacent to Virginia’s coast and seaward of the mean low-water mark.”).

⁹² VA. CONST. art. 11, § 3.

⁹³ See generally SURVEY OF OYSTER GROUNDS IN VIRGINIA: REPORT OF J.B. BAYLOR TO THE GOVERNOR OF VIRGINIA (Richmond: Baptist & Saunders, 1895). Note that the Virginia Marine Resources Commission may amend these lines when they are lost. See VA. CODE ANN. § 28.2-553 (providing guidelines for “reestablish[ing], relocat[ing], and remark[ing] all lines of the Baylor survey which cannot be otherwise relocated because of the loss or destruction of previous marks”).

and shoals in the waters of the Commonwealth *shall not be leased, rented, or sold* but shall be held in trust for the benefit of the people of the Commonwealth.”⁹⁴ To that end, state statutes and regulations are equally clear, as they curtail the authority of VMRC to grant easements, leases or permits for grounds within the Baylor Survey.⁹⁵ If VMRC or another state agent entered into an agreement granting some form of property right—even a limited property right like selling carbon offsets—to TNC or VIMS within the Baylor grounds, a Virginia court would likely find the act to have been *ultra vires*, or outside the power granted to the state agent.⁹⁶ Therefore, a private entity, including a nonprofit like TNC, or even a state agency like VIMS, is unlikely to be eligible to receive any title or other property right from VMRC to the eelgrass beds within the Baylor grounds.

Alternatively (and as it has done), VMRC may license⁹⁷ eelgrass restoration activities on Baylor grounds and may close the Baylor grounds for similar reasons.⁹⁸ Although the Virginia Constitution forbids the “leas[ing], rent[ing], or s[elling]” of such public oyster grounds, it also indicates that the grounds must be held in public trust.⁹⁹ To that end, the General Assembly has authorized VMRC to permit “restorative measures” conducted by persons “in order to protect or promote the growth of oysters;”¹⁰⁰ and, indeed, there is precedent for authorizing a nonprofit organization to conduct such an activity: In 1999 the Attorney General of Virginia found that VMRC was permitted to “grant permission to a private nonprofit corporation to use a portion of the natural oyster beds, rocks and shoals of the Commonwealth, as defined by the Baylor survey, for the placement of artificial reefs designed to serve as oyster preservers, fish habitat and areas for scientific study.”¹⁰¹ As eelgrass beds similarly provide an invaluable ecosystem for shellfish, including oysters,¹⁰² TNC and VIMS’ eelgrass restoration activities are also likely to fall squarely within the type of “restorative measure” contemplated by the statute.¹⁰³

⁹⁴ VA. CONST. art. 11, § 3.

⁹⁵ See VA. CODE ANN. § 28.2-603 (“Waterfront that is not already assigned or reserved for the riparian owners . . . and grounds *other than public oyster beds, rocks, or shoals, as defined by law and included in the Baylor survey*, may be occupied for the purpose of planting or propagating oysters . . .”); *Id.* § 28.2-1208(A) (“The Marine Resources Commission may, with the approval of the Attorney General and the Governor, grant easements over or under or lease the beds of the waters of the Commonwealth *outside of the Baylor Survey.*”) (emphasis added); 4 VA. ADMIN. CODE § 20-336-50(7) (“exclud[ing] . . . *any portion of the waters within the Baylor Survey* (Public Oyster Ground)” from riparian noncommercial permits) (emphasis added).

⁹⁶ See *Comm’n of Fisheries v. Hampton Rds. Oyster Packers & Planters Ass’n*, 64 S.E. 1041, 1049 (Va. 1909) (finding that a county oyster surveyor acting as an agent of the state leased portions of the Baylor grounds to two private parties, an act which was “outside of the scope of his authority [and] *ultra vires* and void”); *Buckley v. Va. Marine Res. Comm’n*, 2017 Va. App. LEXIS 28, at *2 (Va. Ct. App. Feb. 7, 2017) (“It is . . . prohibited for the VMRC to lease any land covered under the Baylor Survey.”).

⁹⁷ Here, “license” is used in a broad sense for allowing certain types of activities on the Baylor grounds. See *License*, BLACK’S LAW DICTIONARY (11th ed. 2019) (“A permission, usu. revocable, to commit some act that would otherwise be unlawful; esp., an agreement (not amounting to a lease or profit à prendre [or a nonpossessory interest in land]) that it is lawful for the licensee to enter the licensor’s land to do some act that would otherwise be illegal . . .”).

⁹⁸ VA. CODE ANN. § 28.2-507.

⁹⁹ VA. CONST. art. 11, § 3.

¹⁰⁰ VA. CODE ANN. § 28.2-507.

¹⁰¹ 1994 Op. Att’y Gen. Va. 74, 1994 Va. AG LEXIS 9, at *4-5.

¹⁰² See Groner et al., *supra* note 55; *Eelgrass Is Essential to Ocean Health*, *supra* note 2.

¹⁰³ See VA. CODE ANN. § 28.2-507.

However, an important caveat is in order: Although VMRC might license a nonprofit and/or state agency to perform eelgrass restoration activities, the right to sell carbon offsets on Baylor grounds is likely to remain with the Commonwealth. The same Attorney General opinion finding that the construction of the artificial reef was permissible, was also careful to note that the private nonprofit in question “could acquire no ownership interest.”¹⁰⁴ Its rationale construed the constitutional provision broadly, forbidding the assignment of *any* proprietary interest, and drew a distinction between allowing a “public use” and a “private use” of the Baylor grounds:

The prohibition against leasing, renting, or selling the natural oyster rocks *prohibits the legislature from disposing of any of the proprietary rights* of the State therein, and, when taken in conjunction with the provision that they shall be held in trust for the benefit of the people of the State, impliedly prohibits the legislature from authorizing, permitting or suffering a *private use* to be made of them¹⁰⁵

Therefore, it concluded, “[t]hose [artificial] reefs, once constructed, will become the property of the Commonwealth held in trust for the benefit of the people.”¹⁰⁶ Similarly, although eelgrass restoration is likely to be considered a valid “public use” because of its many ecological benefits, the ownership of the right to sell carbon offsets is likely to remain with the Commonwealth, as such a right both falls within the broad prohibition on assigning “any of the proprietary rights” of the Commonwealth and will likely be considered an impermissible “private use,” as the nonprofit would exclusively receive the revenues. In other words, VMRC may permit nonprofit organizations and/or state agencies to cast their eelgrass seeds and conduct other restoration activities that may be beneficial to oysters on the Baylor grounds, but once the seeds are cast, they and any corresponding property interests will likely lay with the Commonwealth.

B. Non-Baylor Grounds Open to Private Uses: Private Leasing Grounds, Non-Designated Areas, and “Set Aside” Areas

The Commonwealth is also likely to retain ownership of any carbon credits generated from restored eelgrass meadows that currently exist on non-Baylor grounds. Non-Baylor grounds are open to leasing and temporary easements for specified uses. Unlike its express prohibition on property assignments in the context of public oyster grounds, the Virginia Constitution allows the General Assembly greater leeway in entering into contracts with a variety of entities in order to further its general command to “conserve, develop, . . . utilize” and “protect” its public lands.¹⁰⁷

This Section highlights why the Commonwealth, under current law, is likely to retain ownership of any carbon credits within three such grounds: (1) privately-leased grounds, (2) non-designated areas, and (3) “set aside” areas.

¹⁰⁴ 1994 Op. Att’y Gen. Va. 74, 1994 Va. AG LEXIS 9, at *5.

¹⁰⁵ *Id.* at *4-5.

¹⁰⁶ *Id.* at *6.

¹⁰⁷ VA. CONST. art. 11, § 1.

1. Privately-Leased Areas

The Commonwealth is likely to retain the right to sell any carbon offsets generated by the restored eelgrass beds on bottomlands within the bounds of private oyster leases—whether for riparian oyster-planting grounds¹⁰⁸ or general oyster-planting grounds.¹⁰⁹ In each case, the statutes authorizing such leases indicate that the assigned right pertains specifically to oyster harvesting: Indeed, “riparian leaseholder[s] shall have the exclusive right to the use of such ground *for planting or gathering oysters and clams*,”¹¹⁰ while general oyster grounds leaseholders enjoy the privilege of “occup[ying the ground] *for the purpose of planting or propagating oysters*.”¹¹¹ In *Working Waterman’s Association v. Seafood Harvesters, Inc.*, the Virginia Supreme Court construed the scope of a similar lease for clam harvesting narrowly.¹¹² It outlined the methodology for determining the lease’s scope, writing:

Shellfish leases, which are grants in derogation of the common or public right, are *strictly construed against the lessee*. “Nothing passes except what is granted specifically or by necessary implication.” Consequently, the leases granted the “absolute right” to the lessees “to use and occupy” the ground for the term of the leases for the purpose of “planting, growing, storing and harvesting clams.” This means that while any person might have taken clams from the beds before the grants, afterwards only the particular lessee could do so and all others are excluded from such activity on the grounds. These provisions mark the limit of the right under the lease. The lessee “does not take a fee simple title, *nor can he use the property for any other purpose except that stated in the statute*, and hence every other right theretofore in the public is preserved.”¹¹³

Because the terms of the lease were narrowly confined to the lease text (i.e. granting an exclusive harvesting right) and the statute’s purpose (i.e. harvesting clams), the court found that the lease in question did not include a subsidiary right to harvest the clams in any specific manner—including with a hydraulic dredge as the clam harvester plaintiffs desired.¹¹⁴ Here, the right to sell carbon offsets related to eelgrass beds is significantly more attenuated to shellfish harvesting than the right to use a hydraulic dredge: Any right to sell carbon offsets thus is likely to be “construed against the lessee” as falling outside both the terms of a typical lease and the stated purpose of the pertinent statutes.¹¹⁵ Therefore, even if a nonprofit or a state agency held a private oyster lease¹¹⁶ where the restored eelgrass beds lay, they are unlikely to possess the right to sell carbon offsets.

¹⁰⁸ VA. CODE ANN. §§ 28.2-600 to 28.2-602.

¹⁰⁹ *Id.* §§ 28.2-603 to 28.2-622. VMRC may also issue leases for other, specific uses specified by statute. *See, e.g., id.* § 28.2-1205 (authorizing the issuance of permits “for the use of state-owned bottomlands . . . to recover underwater historic property”).

¹¹⁰ *Id.* § 28.2-601 (emphasis added).

¹¹¹ *Id.* § 28.2-603 (emphasis added).

¹¹² 314 S.E.2d 159, 165 (Va. 1984).

¹¹³ *Id.* (internal citations omitted) (emphasis added).

¹¹⁴ *Id.*

¹¹⁵ *See supra* notes 112-14 and accompanying text.

¹¹⁶ For an overview of the requirements for eligible applicants for “general oyster-planting ground” leases, see VA. CODE ANN. § 28.2-604 (“Application for assignment of general oyster-planting ground may be made by (i) any resident of the Commonwealth, (ii) any county, municipality, or political subdivision of the Commonwealth, or (iii) any firm, or corporation chartered under the laws of this Commonwealth for the purpose of oyster culture and the

2. Non-Designated Areas

The Commonwealth will also retain all proprietary interests in any areas without lease on non-Baylor grounds and must hold such areas in the public trust. The Virginia Code states, “All the beds of the bays, rivers, creeks and the shores of the sea within the jurisdiction of the Commonwealth, *not conveyed* by special grant or compact according to law, *shall remain the property of the Commonwealth* for the purpose of fishing, fowling, hunting, and taking and catching oysters and other shellfish.”¹¹⁷ Therefore, the default rule absent the award of a lease on non-Baylor grounds is that such an area will remain within the public trust. Without any proprietary interest, a nonprofit like the TNC or a state agency like VIMS would be without power to sell carbon offsets associated with the restored eelgrass meadows.

3. “Set Aside” Areas

Similar to non-designated areas discussed above, the Commonwealth is also likely to own any carbon credits generated on general oyster grounds “set aside” from private leasing by the VMRC. Indeed, the Virginia Code gives VMRC discretion as to whether to issue private leases, stating that such grounds “*may* be leased by the Commissioner upon the receipt of a proper application.”¹¹⁸ Using this discretion, VMRC has specifically “set aside” grounds for temporary periods of five years to support eelgrass restoration efforts led by VIMS.¹¹⁹ This type of decision, however, awards no proprietary interests to VIMS or any other party in the set-side area.¹²⁰ Instead, the decision temporarily forecloses consideration of approval of private lease applications within the area so long as restoration activities continue.¹²¹ Therefore, the default rule discussed above in the non-designated area context also applies here—namely, any proprietary interests in the beds of “set aside” areas would remain with the Commonwealth, held in the public trust.

Therefore, under existing constitutional and statutory guidelines, the Commonwealth is likely to retain the right to sell any carbon offsets and receive any carbon credit revenues associated with the restored eelgrass meadows—whether on Baylor grounds or non-Baylor grounds.

IV. RECOMMENDED USES OF REVENUE FROM CARBON CREDITS

Assuming participation in a voluntary carbon credit market is feasible legally and practically, the resulting revenue should be used for continued eelgrass monitoring, restoration, and research. Once authorized, a VCS project must meet certain monitoring requirements

oyster business provided that at least sixty percent of the stock of any such corporation is wholly owned by residents of the Commonwealth.”).

¹¹⁷ *Id.* § 28.2-1200.

¹¹⁸ *Id.* § 28.2-603 (emphasis added).

¹¹⁹ Meeting Minutes: VA. MARINE RES. COMM’N, Meeting Minutes, pp. 16483-84 (Sept. 27, 2011), https://mrc.virginia.gov/Commission_Minutes/vmrc_final_minutes_09-27-11.pdf.

¹²⁰ *See id.*

¹²¹ *See, e.g., id.* at 16484 (“The Commission approved the set-aside area in South Bay for 5 years with the ability to renew for another five (5) years if the restoration efforts continue to prove successful.”).

throughout the crediting period in order to “calculate the emission reductions or removals generated for that period.”¹²² As these reports are necessary for the continued viability of participation in the VCS market, they should be funded first. Two other activities that could be funded to sustain the longevity of participation in a voluntary carbon credit market include continued restoration and expansion of eelgrass beds, as well as research into other marine ecosystems—such as other subaquatic vegetation or marshes—to investigate the potential of including these in a blue carbon credit scheme as well. Finally, should funds be leftover, they may be used to help rehabilitate other species that depend upon the eelgrass meadows, such as the Bay scallop.¹²³ Although such an initiative may not contribute directly to the viability of eelgrass meadows to sequester carbon, it may help generate political and economic interest in continuing restoration work with the possibility of the rebound of a once-lucrative scallop industry.

V. POTENTIAL CONFLICTS WITH SHELLFISH HARVESTING

Continued eelgrass restoration efforts should be mindful of conflicts with shellfish harvesting. Eelgrass restoration, while beneficial to the Chesapeake Bay and the ocean-side of the Eastern Shore for numerous reasons including carbon sequestration, could significantly curtail shellfish harvesting. VMRC general permit number four for protective enclosures for shellfish, provides that “no temporary protective enclosures shall be placed in or upon submerged aquatic vegetation beds.”¹²⁴ “Submerged aquatic vegetation” (SAV) under this permit is defined as “any rooted, vascular submerged plants such as eelgrass (*Zostera marina*), widgeon grass (*Ruppia maritima*), or other species commonly found in the Chesapeake Bay and its tributaries.”¹²⁵ In the event SAV is discovered within an area designated for temporary protective enclosures, the permit will remain intact only for the remainder of the lease term.¹²⁶ Indeed, eelgrass in the coastal bays off of the Eastern Shore currently covers approximately 9,000 acres due to current restoration efforts.¹²⁷ More eelgrass spread throughout Virginia’s waters and its tributaries means fewer state-owned bottomlands available for harvesting shellfish.

The only way a permit will be renewed after the discovery of new SAV, is if the Commissioner finds that the location of the temporary protective enclosures in the lease “will not significantly interfere with the continued vitality of the SAV”.¹²⁸ To that end, there has been movement to try to determine if certain types of shellfish harvesting can in fact be conducted in areas with SAV.¹²⁹ Continued research will be needed to ensure that opportunities for shellfish harvesting are not completely subordinated to eelgrass restoration efforts.

¹²² *Project Description & Monitoring Report*, VERRA, <https://verra.org/project/vcs-program/projects-and-jnr-programs/project-description-monitoring-report/> (last visited Nov. 26, 2019).

¹²³ See *Seagrass Restoration*, *supra* note 1.

¹²⁴ 4 VA. ADMIN. CODE § 20-1130-50(C).

¹²⁵ *Id.* § 20-1130-20.

¹²⁶ *Id.* § 20-1130-50(C).

¹²⁷ See *supra* note 6 and accompanying text.

¹²⁸ 4 VA. ADMIN. CODE § 20-1130-50(C).

¹²⁹ Indeed, in 2018, “[t]he Office of the Secretary of Natural Resources [of Virginia] decided . . . to establish a Clam and Oyster Aquaculture Work Group,” in order to “identify clam and oyster aquaculture-related user conflicts on Virginia waterways and to explore potential solutions to them.” OFFICE OF THE SEC’Y OF NAT. RES., CLAM & OYSTER AQUACULTURE WORK GRP., REPORT OF THE WORK GROUP’S DELIBERATIONS AND RECOMMENDATIONS TO ADDRESS AQUACULTURE USE CONFLICTS 1 (2018), <https://www.naturalresources.virginia.gov/media/governorvirginiagov/secretary-of-natural-resources/pdf/Clam-and->

VI. CONCLUSION

Eelgrass populations in the Chesapeake Bay and the Eastern Shore have been increasing due to the restorative efforts of VIMS, the Virginia Coastal Zone Management Program, and TNC, presenting a unique opportunity to participate in a voluntary carbon credit market, such as VCS. Such a project would not only generate revenue for continued monitoring and restoration efforts, but also play a role in curbing climate change through carbon sequestration and mitigating the impacts of sea level rise through erosion control. Although such an activity is unlikely to be barred by the Constitution of Virginia, additional statutory revisions may be needed to enable VMRC to participate and to contract with others to carry out the work. In addition, additional research may be needed to determine possible means of accommodating aquaculture activities on these bottomlands without disturbing eelgrass given the potential conflicts created by expanded eelgrass restoration activities.

[Oyster-Aquaculture-Work-Group---FINAL-REPORT.pdf](#). Among the final “Action Items” of the Work Group are efforts “for a VIMS-led SAV BMP [best-management practice] study on floating or suspended aquaculture’s impacts on SAV beds.” *Id.* at 17.