

VOLUME 14:2

# SEA GRANT LAW & POLICY JOURNAL

SPECIAL SYMPOSIUM ISSUE



# SEA GRANT LAW & POLICY JOURNAL

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CHESAPEAKE RISING

Kerry McClaughry\*

I. INTRODUCTION

Across the globe, climate change is altering weather patterns and impacting communities.<sup>1</sup> On the east coast of the United States, communities throughout the Mid-Atlantic region, but particularly within the Chesapeake Bay, have already begun experiencing impacts from climate change.<sup>2</sup> These include rising sea levels, increased flooding, and more severe and frequent storm events.<sup>3</sup>

Any chance the Chesapeake Bay has of reversing or mitigating climate change impacts requires a combination of strong science, good policies, and clear regulations. To facilitate conversations about what is currently missing in the Chesapeake Bay's legal and policy landscape, Maryland Sea Grant, the Environmental Law Institute, and the Georgetown Climate Center hosted an interdisciplinary symposium bringing together scientists, academics, regulators, law students, and young lawyers to explore ways to enhance resilience and climate adaptation in coastal communities in the Chesapeake Bay.<sup>4</sup>

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<sup>1</sup> See *Climate Change Science*, U.S. ENV'T PROT. AGENCY (last updated Mar. 3, 2026).

<sup>2</sup> *Climate Change*, CHESAPEAKE BAY FOUND. (last visited Mar. 18, 2026).

<sup>3</sup> *Id.*

<sup>4</sup> This project was made possible by a grant to Maryland Sea Grant from the National Oceanic and Atmospheric Administration, Department of Commerce, through the National Sea Grant Law Center, award number NA24OARX417C0025-T1-01. SA#24-06-66 was provided from the State of Maryland through the University of Maryland Center for Environmental Science. Support was also provided by the Environmental Law Institute, the Georgetown Climate Center, and the University System of Maryland's Agriculture Law Education Initiative. The Chesapeake Rising Project organizers and collaborators extend our thanks to the members of our Steering Committee and symposium organizing committees, who dedicated their time to help guide this event: Elizabeth Andrews, Denise Bright Dove Ashton-Dunkley, Annie Bennett, Caldonia Carmello, Jenna Clark, Nicole Cook, Caren Fitzgerald, Lauren Fremin, Kai Hardy, Cathy Janasie, Rebecca Kihslinger, Frank Lopez, Kerry McClaughry, Fredrika Moser, Peter Rafle, Joshua Saks, and Kate Zyla. We would like to thank members of the Maryland Sea Grant team who were instrumental in putting this together: Mike Allen, Jeannette Connors, Kim Cox, Natasha de la Cruz, Jill Gallagher,

This introductory article will discuss the challenges facing coastal communities in the Chesapeake Bay (the Bay), which were the impetus for this project, and the *Chesapeake Rising* project's history and purpose. It will then discuss the symposium, including key talking points, before finally previewing the law review articles authored by researchers in this issue.

## II. ISSUES FACING THE CHESAPEAKE BAY

The Chesapeake Bay is the largest estuary in the United States, encompassing 64,000 square miles of watershed and 18 million people across seven different jurisdictions: Connecticut, Delaware, the District of Columbia, Maryland, New York, Pennsylvania, Virginia, and West Virginia.<sup>5</sup> The Chesapeake Bay region is facing a myriad of challenges brought on by changing climate conditions. Sea level rise, extreme storm events, flooding, erosion, and other effects of a variable climate are tightly linked to coastal community sustainability.<sup>6</sup>

Coastal communities within the Chesapeake Bay region are particularly susceptible to climate change effects because of the Bay's naturally flat, low-lying terrain, land subsidence, and high coastal population density.<sup>7</sup> Predictions as to exactly how much sea levels in the Bay will rise vary; however, moderate predictions from the U.S. Geological Survey estimate sea level rise in the Chesapeake Bay will be between 1.3 - 5.2 feet over the next century.<sup>8</sup> Should these predictions come true, it would mean water intrusion into miles of land in coastal areas, affecting Maryland's Eastern Shore, DC, Baltimore, Virginia's Eastern Shore, and more.<sup>9</sup> Sea level rise also contributes to increasingly severe weather events, as increased sea levels lead to higher flood waters and powerful

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Annalise Kenney, and Julissa Murrietta. We greatly appreciate the help from all of our facilitators and notetakers during this symposium.

<sup>5</sup> *The Watershed*, CHESAPEAKE BAY PROGRAM (last visited Mar. 18, 2026).

<sup>6</sup> CHESAPEAKE BAY FOUND., *supra* note 2.

<sup>7</sup> *Climate Change*, CHESAPEAKE BAY ENV'T CTR. (last visited Mar. 18, 2026).

<sup>8</sup> JACK EGGLESTON & JASON POPE, U.S. GEOLOGICAL SURVEY, [CIRCULAR 1392. LAND SUBSIDENCE AND RELATIVE SEA-LEVEL RISE IN THE SOUTHERN CHESAPEAKE BAY REGION](#) (2013).

<sup>9</sup> Jackie Pickford, *Is the Chesapeake Bay's water rising or is the land sinking?*, CHESAPEAKE BAY PROGRAM (Feb. 7, 2023).

storm surges.<sup>10</sup> Heavy storms contribute to soil erosion, increased stormwater runoff, and, of course, flooding.<sup>11</sup> All these can have devastating impacts on coastal communities. These communities in the Mid-Atlantic region, particularly those historically underserved and overburdened, are already experiencing the impacts of climate change.<sup>12</sup> Science, law, and policy are vital to navigating this shifting landscape.

In addition to the series of impacts hitting the Bay, the framework for approaching these issues is unique in the Chesapeake Bay due to the vast number of jurisdictions that must play a role in ensuring successful protection. Between federal, state, local, and municipal governments, as well as regional compacts and commissions, there are dozens of groups that must work towards cohesive goals to affect change throughout the Bay. Management and restoration efforts, therefore, necessitate collaboration between multiple states, their agencies, and federal agencies.

### III. PROJECT HISTORY AND PURPOSE

In 2023, the National Sea Grant Law Center promulgated a request for proposals for projects to host an academic symposium addressing priority coastal law and policy issues that would generate law review articles. Maryland Sea Grant (MDSG) partnered with the Georgetown Climate Center (GCC) and the Environmental Law Institute (ELI) to draft a proposal for a one-day symposium that would examine the major legal and policy issues arising from the impacts of climate change on coastal communities within the Chesapeake Bay.

The goals of the proposed symposium were to: (1) advance the understanding of current legal and policy challenges to climate adaptation in Mid-Atlantic coastal communities; (2) facilitate discussions between young lawyer authors and seasoned practitioners, elected officials, regulators, scientists, academics, and community thought leaders about how to address the challenges;

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<sup>10</sup> [Sea Rise and Storms on the Chesapeake Bay](#), NATIONAL GEOGRAPHIC (last visited Mar. 18, 2026).

<sup>11</sup> CHESAPEAKE BAY FOUND., *supra* note 2.

<sup>12</sup> *Id.*

and (3) generate legal scholarship that encompasses what was learned at the symposium.

To achieve the above goals, the following objectives were created: (1) to explore existing gaps in legal scholarship on pressing coastal adaptation issues not already covered in the National Sea Grant Law Center's (NSGLC) *Sea Grant Law & Policy Journal* (Journal) and other publications; (2) to create and meet with a steering committee to develop and refine symposium topics and identify potential authors and keynote speakers; (3) to engage early-career lawyers and advanced law students in the symposium design, participation, and article development through direct invitations and calls for submissions; (4) to design and conduct the symposium in collaboration with GCC and ELI; and (5) to collaborate with NSGLC and authors to develop manuscripts and identify peer reviewers to advance the Journal's production.

#### IV. THE CHESAPEAKE RISING SYMPOSIUM

MDSG, ELI, and GCC hosted the *Chesapeake Rising: Innovative Law & Policy Solutions for Climate Adaptation in Coastal Communities* symposium on April 2, 2025, at the Georgetown Climate Center in Washington, DC.<sup>13</sup>

##### A. Governance Frameworks in the Chesapeake Bay

To kick off the event, Serena McIlwain, the Secretary of the Environment at Maryland Department of the Environment (MDE), gave a rousing keynote address. She touched on themes that would be repeated throughout the day, including investing in smart infrastructure, like living shorelines and updated stormwater systems, inclusivity of marginalized groups, going beyond discussion to taking action, and advocating for stronger policies. These themes were also representative of the overarching theme of the morning: "Governance Frameworks in the Chesapeake Bay."

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<sup>13</sup> See Kerry McClaughry, *Coasts, Climate, and the Law: What We Learned at the Chesapeake Rising Symposium*, MD. SEA GRANT (May 22, 2025).

Following the keynote address was a panel with Anna Killius, the Executive Director of the Chesapeake Bay Commission, and Emily Steinhilber, the Director of the Climate Resilient Coasts and Watershed division of the Environmental Defense Fund. Moderated by Joshua Saks, the Adaptation Program Director at GCC, panelists delved into flood risks and preparedness in the Bay, bipartisan restoration work being conducted across jurisdictions, and proposed updates to the Chesapeake Bay Agreement.<sup>14</sup> The panel also stressed the role of government in reacting to and mitigating climate change. Climate change impacts more than just stereotypical ecologically based programs, such as a department of environment or natural resources. It affects all programs; notably, health, housing, and economics. Following the panel were presentations from researchers,<sup>15</sup> more details of which can be found later in this article.

In the morning and afternoon, participants split into breakout groups that included a mix of professional backgrounds. In breakout discussions, participants built upon the messages from the keynote speakers, panelists, and researcher presentations in the preceding session to help achieve the symposium's objectives and outcomes. Each group discussed the major gaps in laws and policies that exist and prevent coastal communities from making necessary changes to protect themselves from the effects of climate change.

In the morning session, which focused on governance frameworks at the federal, state, and tribal levels, participants were first asked to identify the gaps they believed existed and then discuss, as a group, possible solutions. Important identified gaps included funding, differences in goals across and between levels of governments, incorporating tribes and communities' knowledge and strengthening their role in decision making, permitting flexibility, and public education and engagement. Solutions to these gaps included: incorporating traditional ecological knowledge; building trust in communities by partnering with land-grant Extension

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<sup>14</sup> The most recent adaptation of the Chesapeake Bay Agreement was signed in 2014. The Chesapeake Bay Program promulgated draft revisions to the Agreement, the public comment period of which closed September 1, 2025. CHESAPEAKE BAY PROGRAM, [CHESAPEAKE BAY WATERSHED AGREEMENT - BEYOND 2025 REVISION DRAFT 3](#) (2025).

<sup>15</sup> A "researcher" is the title of the law students and early career professionals who spoke at the Chesapeake Rising symposium and/or authored a law review article for this project.

department agents and trusted, established community and non-profit groups; collaborating with private landowners; and working to make climate change a bipartisan issue.

#### B. Place-Based Adaptation in the Chesapeake Bay

The afternoon session shifted focus to challenges at the local and municipal levels, as well as the role of private landowners in climate adaptation in the Bay. Vicki Arroyo kicked off the afternoon “Place-Based Adaptation in the Chesapeake Bay” session with her keynote address. Vicki Arroyo is a Professor from Practice at Georgetown Law School and was formerly the Associate Administrator for Policy at the US Environmental Protection Agency. Fostering engagement, she said, is the most important piece of the puzzle in working to extend climate change strategies to local communities and reach private landowners. Vicki Arroyo stressed that knowing the science or the laws and policies is insufficient. To make the changes necessary to protect the Bay’s coastal communities, there must be consistent and purposeful engagement in the public and political spheres.

Steve Kline, President and CEO of the Eastern Shore Land Conservancy, Molly Mitchell, Assistant Professor at the Virginia Institute of Marine Science, and Jon Mueller, Director of the Maryland Carey School of Law Environmental Law Clinic, spoke on the afternoon panel, moderated by John Doherty, a Science and Policy Analyst for ELI. They explored the challenges localities, municipalities, and private homeowners are facing and will continue to face in the future due to the shifting climate. The impacts of hurricanes Katrina and Sandy were the impetus for many environmental regulations, Jon Mueller explained, and prompted many localities, such as those along the Atlantic seaboard, to conduct studies on their resiliency. Jon Mueller explained that the current shift from federal to state-led climate resiliency will grant states greater power to enact new regulations, yet also deprive them of federal funding avenues that were previously available. He predicted that litigation at the state level will become the foremost battleground in the fight against climate change. Steve Kline and Molly Mitchell delved into the potential damage coastal communities will see, especially in

agricultural areas like Maryland’s Eastern Shore, due to high shoreline erosion<sup>16</sup> and tidal marsh migration.<sup>17</sup> Additionally, the panel covered how structural barriers, like living shorelines, can greatly reduce the impacts of storms and floods on coastal lands, while also pointing out the difficulties landowners face, including complex permitting processes and high or uncertain costs, in installing living shorelines.

In the afternoon breakout discussion, participants were asked what local and individual place-based (e.g., municipalities, unincorporated areas, private properties) adaptation and resilience law and policy gaps they believed exist, and what possible solutions may address those gaps. Ensuing discussions identified a lack of oversight and education regarding development in coastal areas, the inadequacy of existing disaster preparedness and prevention frameworks, and failure to engage and collaborate with private landowners as important gaps that prevented localities and landowners from implementing effective and cost-efficient climate resilience measures. The participants theorized that incentivizing insurance and tax revenue, and purposeful engagement and collaboration with private landowners, may bridge those gaps. They also proposed that increasing the Maryland Critical Area Commission’s oversight of variances to build in the critical area,<sup>18</sup> educating the public on what managed retreat is and how takings claims may impact their coastal homes, and bolstering education programs addressing the benefits of nature-based solutions (like living shorelines) will help coastal landowners make informed decisions about their properties when implementing climate resiliency strategies.

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<sup>16</sup> Shoreline erosion, or coastal erosion, is the “process by which local sea level rise, strong wave action, and coastal flooding wear down or carry away rocks, soils, and/or sands along the coast.” [Coastal Erosion](#), U.S. CLIMATE RESILIENCE TOOLKIT (last visited Mar. 18, 2026).

<sup>17</sup> Tidal marsh migration is the effect of tidal wetlands moving away from existing habitats that are suffering from rising sea levels to more inland, higher, drier land. [Marsh Migration in Delaware](#), DEL. DEP’T OF NATURAL RES. AND ENV’T CONTROL (last visited Mar. 18, 2026).

<sup>18</sup> MD. NAT. RES. CODE ANN. §8–1807. The “critical area” in Maryland is “[a]ll land and water areas within 1,000 feet beyond the landward boundaries of State or private wetlands....” *Id.*

V. THE LAW REVIEW ARTICLES

The law review articles featured in this issue are the result of research by early-career lawyers and students, referred to here as “researchers.” Six researchers spoke at the symposium about their article topics, which encompassed their identified existing issues in coastal climate resilience, possible solutions to those issues, and outstanding questions they were looking to answer in the next phase of their research. The researchers who spoke at the symposium gained feedback from the participants during the symposium’s breakout discussions, which specifically asked participants to consider what alternative research avenues or useful contacts the researchers should consider.

Researcher Kim Wood, a Fellow at GCC, did a deep dive into the roles and return on investment of taxpayer money of the relatively new position of chief resilience officers in state agencies. Elisabeth Jefferson, a law student at Emory University School of Law, explored the unique cultural heritage of Tangier Island off the coast of Virginia and the increasing challenges sea level rise is creating for that community. Kai Hardy, a former Fellow at Maryland Sea Grant, delved into litigation that has shaped the legal landscape of the Bay region and examined future impactful litigation. Kathleen Gagnon, a 2023 graduate from the University of Maryland Carey School of Law, weighed in on the role of the Critical Area Commission in collaboration with other local governments in protecting vulnerable coastlines from development. Researcher Bill Shultz, a law student at Georgetown University Law Center, debated different approaches and policies that could be implemented for agricultural communities in the Bay when facing climate-related issues like saltwater intrusion. Sydney Schuster, a law student at the University of Maryland Carey School of Law, brought to light the looming threat of wildfires and compared the fire preparedness of two fire-prone regions to that of the Bay.

Lauren Wiederkehr, a law student at the University of Maryland Carey School of Law, did not speak at the symposium. However, her article included in this Journal edition postulates that traditional ecological knowledge and indigenous knowledge have a place in current conversations and polices aimed at restoring the Bay.

## VI. CONCLUSION

The Chesapeake Bay—the largest estuary in the United States—is under threat from climate change.<sup>19</sup> Its coastal communities have already been impacted by severe weather events like Hurricane Sandy and regularly experience flooding.<sup>20</sup> A holistic approach, encompassing science, law, and community engagement, is needed to combat these effects and best protect the Bay’s coastal communities. The *Chesapeake Rising* symposium brought together a diverse range of stakeholders to consider the legal and policy challenges these coastal communities face and how these challenges may be solved. The resulting law review articles written for this special issue provide compelling analyses of the creative and comprehensive approaches that young legal and policy professionals are taking when facing a future of more extreme weather events and climate variability.

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<sup>19</sup> CHESAPEAKE BAY FOUND., *supra* note 2.

<sup>20</sup> *Id.*

THE EVOLUTION OF VIRGINIA'S CHIEF RESILIENCE OFFICER

Kim Wood\*

*States increasingly rely on institutional governance mechanisms to address recurrent flooding and other hazard-related risks. This article examines the evolution of Virginia's Chief Resilience Officer (CRO) as a case study in state-level resilience and hazard mitigation governance. Tracing legislative and administrative developments from 2014 through 2025, the article analyzes how Virginia moved from informal executive coordination to a statutorily defined leadership role supported by interagency structures, statewide planning requirements, and dedicated funding programs. The article situates Virginia's approach within broader national trends by comparing it to the resilience governance model in other states. It further evaluates how statutory design choices, such as executive placement, reporting obligations, and integration with planning and financing mechanisms, shape authority, accountability, and continuity across changes in political leadership. The Virginia CRO illustrates how iterative lawmaking can institutionalize resilience governance while supporting coordination among state agencies.*

I. INTRODUCTION

Changing conditions and recurrent flooding have compelled U.S. states to create new governance roles focused on resilience and adaptation. In 2024, the United States absorbed 27 separate billion-dollar weather and climate disasters, the second-highest tally on record.<sup>1</sup> Floods and severe storms made up the bulk of those losses.<sup>2</sup> Coastal Virginia is sinking under rising seas: at Norfolk's Sewells Point tide gauge, relative sea level has climbed roughly 17 inches in a century, among the fastest rates on the U.S. East Coast.<sup>3</sup> States are rightfully beginning to

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\* 2024 J.D., Georgetown University Law Center.

<sup>1</sup> Adam B. Smith, [2024: An Active Year of U.S. Billion-Dollar Weather and Climate Disasters](#), CLIMATE.GOV: BEYOND THE DATA (Jan. 10, 2025).

<sup>2</sup> *Id.*

<sup>3</sup> [Changes We Are Seeing](#), WETLANDS WATCH (last visited Feb. 20, 2026).

address these problems through adaptation governance.<sup>4</sup> In recent years, a trend has emerged toward appointing Chief Resilience Officers (CROs) or establishing resilience offices at the state level.<sup>5</sup> Virginia has experimented with different models to coordinate its flood protection and climate adaptation initiatives.<sup>6</sup> Virginia first appointed an unofficial CRO in 2014, which evolved into a robust statutory role by 2025.<sup>7</sup> Virginia's approach to adaptation governance has developed through iterative adjustments to executive authority and interagency collaboration.

The purpose of this article is to examine Virginia's resilience governance evolution through tracing the legislative history of the state's CRO position. Part II provides a chronological history of the Virginia CRO role's establishment and transformation from 2018 through 2025, highlighting key legislation and administrative actions. Part III discusses the broader governance implications: how political will and administrative structure shaped the CRO's authority, and how tangible outputs like statewide resilience plans and funds codified the role's responsibilities. Part IV offers a state comparative analysis, measuring Virginia's approach against similar efforts in Louisiana, North Carolina, South Carolina, and other states. Part V addresses the state-local interface in resilience, noting statutory mechanisms for local engagement in planning and accessing funding. The article concludes by reflecting on the Virginia case as a model of iterative policy development in the face of rising climate risks.

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<sup>4</sup> Not all states, as seen in a recent EPA report. OFF. OF INSPECTOR GEN., U.S. ENV'T PROT. AGENCY, 24-P-0031, [HALF THE STATES DID NOT INCLUDE CLIMATE ADAPTATION OR RELATED RESILIENCE EFFORTS IN THEIR CLEAN WATER STATE REVOLVING FUND INTENDED USE PLANS](#) 7 (2024).

<sup>5</sup> [State Resilience Offices](#), NAT'L CONF. OF STATE LEGISLATURES (May 2, 2023); JOSHUA SAKS, GEORGETOWN CLIMATE CTR., [STATE CHIEF RESILIENCE OFFICERS: ESTABLISHMENT, AUTHORITY, & GOVERNANCE](#) 6 (2025).

<sup>6</sup> See *infra* part II.

<sup>7</sup> See Saks, *supra* note 5, at 12.

## II. INSTITUTIONAL AND LEGAL HISTORY OF VIRGINIA'S CHIEF RESILIENCE OFFICER (2014–2025)

Virginia's first Chief Resilience Officer was designated administratively in 2014, when Governor Terry McAuliffe appointed Secretary of Public Safety and Homeland Security Brian Moran to the role as part of a broader disaster preparedness initiative.<sup>8</sup> This informal designation lacked statutory authority and focused primarily on resilience.<sup>9</sup> It was not until 2018 that the legislature acted.

### A. 2018 - Special Assistant for Coastal Adaptation and Protection

In 2018, the General Assembly, facing bipartisan concern over coastal flooding, created an executive branch position titled Special Assistant to the Governor for Coastal Adaptation and Protection.<sup>10</sup> It was intended to serve as a centralized coordinator for coastal flooding and resilience policy within the executive branch.<sup>11</sup> HB 345, patroned by Delegate Christopher Stolle (R-Virginia Beach), and SB 265, patroned by Senator Lynwood Lewis (D-Eastern Shore), each proposed creating the Special Assistant role in the Governor's office.<sup>12</sup> At the time, Virginia's coastal localities were experiencing recurrent tidal and storm-surge flooding, necessitating coordinated state leadership.<sup>13</sup>

As enacted, the Special Assistant was charged with providing direction and accountability for a statewide coastal flooding adaptation strategy.<sup>14</sup> By

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<sup>8</sup> David F. Morrill, *Tim Kaine Provides Keynote at William & Mary Coastal Policy Conference*, WILLIAM & MARY (Dec. 10, 2014); VA. DEP'T OF HOUS. & CMTY. DEV., [RESILIENCE IN VIRGINIA: HUD-NDRC PHASE 2 APPLICATION](#) 85.

<sup>9</sup> Morrill, *supra* note 8 (“Secretary Moran will serve as the central coordinator for state planning and response to [the] impacts [of changing conditions].”).

<sup>10</sup> H.B. 345, 2018 Gen. Assemb., Reg. Sess. (Va. 2018); S. 265, 2018 Gen. Assemb., Reg. Sess. (Va. 2018).

<sup>11</sup> H.B. 345, 2018 Gen. Assemb., Reg. Sess. (Va. 2018) (“The Special Assistant shall be the lead in developing and in providing direction and ensuring accountability for a statewide coastal flooding adaptation strategy.”).

<sup>12</sup> *Id.*; S. 265, 2018 Gen. Assemb., Reg. Sess. (Va. 2018).

<sup>13</sup> RECURRENT FLOODING SUB-PANEL, [RECOMMENDATIONS TO THE SECURE COMMONWEALTH PANEL ON THE ISSUE OF SEA LEVEL RISE AND RECURRENT FLOODING IN COASTAL VIRGINIA](#) 3 (2014).

<sup>14</sup> H.B. 345, 2018 Gen. Assemb., Reg. Sess. (Va. 2018).

statute, the Special Assistant became the primary point of contact for resources to address coastal adaptation and flooding mitigation.<sup>15</sup> Responsibilities included initiating economic development opportunities tied to adaptation, advancing academic expertise at the Commonwealth Center for Recurrent Flooding and Resiliency, and pursuing federal, state, and local funding for adaptation initiatives.<sup>16</sup> This reflected an intent for policymakers to integrate resilience into economic and scientific endeavors.<sup>17</sup> In November 2018, Governor Northam also released Executive Order 24, formally establishing the CRO position as the Secretary of Natural Resources and requiring the CRO and Special Assistant to coordinate on a Virginia Coastal Resilience Master Plan.<sup>18</sup>

The patrons of the 2018 bills came from regions impacted by sea-level rise. Del. Stolle was addressing the potential economic impacts of sea level rise in his district.<sup>19</sup> Sen. Lewis represented low-lying Eastern Shore communities.<sup>20</sup> More broadly, Virginia has 70% of its population living in coastal areas, so it “is at high risk to the effects of sea level rise and has already seen dire impacts in some areas. For example, the Hampton Roads region — which encompasses 17 coastal municipalities — faces the second highest levels of sea level rise in the U.S., behind only New Orleans.”<sup>21</sup> By creating the bipartisan-supported Special

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<sup>15</sup> *Id.*

<sup>16</sup> *Id.*

<sup>17</sup> Morrill, *supra* note 8 (“[U.S. Senator] Kaine said it is important that public officials acknowledge their weaknesses as well as strengths, and rely on good science.”). From 2018 to 2022, Ann Phillips served as Governor Northam’s special assistant for coastal adaptation and protection. See Mechelle Hankerson, [Northam Appoints First Cabinet Member to Focus on Coastal Protection](#), VA. MERCURY (Sept. 22, 2018, 10:23 AM); [U.S. Department of Transportation Announces Rear Admiral \(Ret.\) Ann Phillips as the 20th Administrator of the Maritime Administration](#), U.S. DEP’T OF TRANSP. (May 16, 2022). She spoke at a Congressional hearing, noting increasing economic impacts of sea level rise in coastal Virginia. [Concepts for the Next Water Resources Development Act: Promoting Resiliency of Our Nation’s Water Resources Infrastructure: Hearing Before the Subcomm. on Water Res. & Env’t of the H. Comm. on Transp. & Infrastructure](#), 116th Cong. 4 (2019) (statement of Ann Phillips, Rear Admiral, U.S. Navy, Retired).

<sup>18</sup> [Va. Exec. Order No. 24](#), at 2–3 (Nov. 2, 2018).

<sup>19</sup> Morrill, *supra* note 8 (noting that sea level rise threatens economic drivers from Hampton Roads, in Stolle’s district).

<sup>20</sup> Katie King, [Democratic Sen. Lynwood Lewis Won’t Seek Reelection After Redistricting Gives GOP An Edge, He Says](#), THE VIRGINIAN-PILOT (Mar. 7, 2023, 9:49 PM).

<sup>21</sup> [Virginia’s Coastal Resilience Master Plan Improves Community Resilience](#), U.S. ENV’T PROT. AGENCY (Aug. 5, 2025).

Assistant post within the Governor’s office, the legislature ensured the role would have visibility and direct access to the Governor.<sup>22</sup> However, as an advisory executive staff position, it lacked independent statutory authority beyond the convening and coordinating powers granted by the Governor. While 2018’s reform was significant as a first institutional step, it was limited in power.

#### B. 2020 - Codifying the Chief Resilience Officer

Virginia’s next significant step came in 2020, when the General Assembly, under Democratic control following the 2019 elections, moved to formally codify a CRO position in state law.<sup>23</sup> HB 1313 (2020), introduced by Delegate Keith Hodges (R-Middlesex/Gloucester), directed the Secretary of Public Safety to designate a CRO to serve as “the primary coordinator of resilience and adaptation initiatives in Virginia and as the primary point of contact regarding issues related to resilience and recurrent flooding.”<sup>24</sup> The introduced version of HB 1313 initially specified that the CRO “shall hold no other position,” suggesting the legislature’s intent for a stand-alone, full-time official.<sup>25</sup> This approach aligned with some models in other states where resilience officers were housed in public safety or emergency management agencies, which emphasized disaster mitigation.<sup>26</sup>

During committee review, HB 1313 was substantially amended.<sup>27</sup> As passed, the final bill placed the CRO designation power with the Governor rather than the Secretary, and it integrated the new CRO’s work with the existing Special Assistant for Coastal Adaptation and Protection.<sup>28</sup> Specifically, the enacted bill provided that the CRO, in consultation with the Special Assistant, would identify

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<sup>22</sup> H.B. 345, 2018 Gen. Assemb., Reg. Sess. (Va. 2018).

<sup>23</sup> Graham Moomaw, *Virginia Democrats Win Control of General Assembly, Sealing Trump-Era Power Shift*, VA. MERCURY (Nov. 6, 2019, 12:07 AM).

<sup>24</sup> H.B. 1313 § 2.2-222.4, 2020 Gen. Assemb., Reg. Sess. (Va. 2020) (as introduced).

<sup>25</sup> *Id.*

<sup>26</sup> For instance, North Carolina created an Office of Recovery and Resiliency within the Department of Public Safety, which also oversees the state’s Division of Emergency Management. *See* N.C. GEN. STAT. § 143B-1040(a) (2019). *See also*, SAKS, *supra* note 5, at 29.

<sup>27</sup> H.B. 1313, 2020 Gen. Assemb., Reg. Sess. (Va. 2020).

<sup>28</sup> *Id.* § 2.2-222.4(A)-(B).

and monitor areas at greatest flood risk, review local flood defense plans upon request, and pursue funding for resilience initiatives.<sup>29</sup> The CRO was also defined as the “primary point of contact regarding issues related to resilience and recurrent flooding.”<sup>30</sup> Notably, the final law did not include the introduced provision that the CRO must hold no other position, instead allowing an existing official to hold a dual-hat position.<sup>31</sup>

Del. Hodges’ sponsorship as a Republican from a rural coastal district demonstrated continued bipartisan concern for flooding.<sup>32</sup> By 2020, Virginia had experienced multiple damaging hurricanes and storms, and there was recognition that resilience planning must extend beyond the coasts to include inland flood risks and climate-driven hazards statewide.<sup>33</sup> HB 1313 had significant impacts in this regard. First, the CRO’s duties gained the force of law, ensuring continuity across administrations. Those duties included coordination of resilience efforts across state agencies and serving as the liaison for recurrent flooding issues.<sup>34</sup> Second, by pairing the CRO with the Special Assistant in the statutory language, the 2020 law combined the statewide resilience mission with the coastal adaptation initiative launched in 2018.<sup>35</sup> Finally, the 2020 legislation expanded the scope of flood protection coordination by increasing the list of programs with which localities and the Commonwealth are required to coordinate as part of their

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<sup>29</sup> *Id.*

<sup>30</sup> *Id.* § 2.2-222.4(A).

<sup>31</sup> *Id.*

<sup>32</sup> [\*Creating a Climate-Resilient America: Hearing Before the H. Select Comm. on the Climate Crisis\*](#), 116th Cong. 1–2 (2019) (testimony of Delegate Keith Hodges) (identifying Mathews County and the Middle Peninsula as “rural coastal Virginia” and describing the economic impacts of recurrent flooding on property values).

<sup>33</sup> VA. DEP’T OF EMERGENCY MGMT., [VIRGINIA HURRICANE PREPAREDNESS -INLAND IMPACTS GUIDE](#) 3 (2023) (noting that in 2018 Hurricanes Florence and Michael caused major damage in central and western Virginia and that flood damage occurred even beyond designated floodplains); VA. ACAD. OF SCI., ENG’G & MED., [THE IMPACT OF CLIMATE CHANGE ON VIRGINIA’S COASTAL AREAS](#) at viii (2021) (noting impacts of changing conditions on Virginia); [Va. Exec. Order No. 24](#), at 2 (Nov. 2, 2018) (2018 Virginia Executive Order supporting resilience efforts in Virginia).

<sup>34</sup> H.B. 1313 § 2.2-222.4(A)–(B), 2020 Gen. Assemb., Reg. Sess. (Va. 2020).

<sup>35</sup> *Id.*

flood control efforts, indicating the legislature’s intent for more integrated planning between state and local governments in hazard mitigation.<sup>36</sup>

C. 2021 - Executive Reorganization under the Natural Resources Area

In 2021, the legislature shifted the CRO’s placement in state government. Through HB 1836 (2021), patroned by Delegate Kenneth Plum (D-Fairfax), the General Assembly renamed the Secretary of Natural Resources as the Secretary of Natural and Historic Resources and designated that Secretary as the CRO.<sup>37</sup> The 2021 change effectively embedded the CRO function into the Natural Resources section and required the Secretary to wear a dual hat, as had already informally been the case since Secretary of Natural Resources Ann Jennings was acting as CRO.<sup>38</sup>

The 2021 reorganization via HB 1836 can be seen as a move to institutionalize resilience at the highest level of state government. Making the Secretary of Natural and Historic Resources the statutory CRO ensured a cabinet-level focus on resilience. It also elevated consideration of climate resilience with other core responsibilities of Natural Resources. However, this approach had downsides. In tying the CRO to a single area, there was a risk of siloing resilience as an environmental issue, when in fact it also touches public safety, infrastructure, and finance.<sup>39</sup> For instance, other state legislatures working on similar bills noted that keeping the CRO role within a sector could dilute the

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<sup>36</sup> *Id.* § 10.1-659 (explicitly requiring that the state’s flood protection programs be coordinated with the Virginia Coastal Resilience Master Plan and various federal, state, and local programs).

<sup>37</sup> H.B. 1836 § 2.2-215, 2021 Gen. Assemb., 1st Spec. Sess. (Va. 2021). Del. Plum was a strong environmental supporter legislatively. Mercia Hobson, *Environmental Priorities for Virginia*, THE CONNECTION NEWSPAPERS (Dec. 11, 2019) (“I am more hopeful for positive environmental legislation for Virginia in the upcoming 2020 General Assembly than I have ever been before,” said Plum. “The public is more acutely aware of the dangers of climate, and they voted accordingly in the last election. The new members coming into the legislature are more environmentally conscious and friendly than many from the past.”).

<sup>38</sup> OFF. OF THE GOVERNOR RALPH S. NORTHAM, *VIRGINIA COASTAL RESILIENCE MASTER PLAN*, 239 (2021) (identifying Ann Jennings as “Secretary of Natural and Historic Resources & Chief Resilience Officer, Office of the Governor”).

<sup>39</sup> JOSHUA SAKS, GEORGETOWN CLIMATE CTR., *STATE CHIEF RESILIENCE OFFICERS: ESTABLISHMENT, AUTHORITY, & GOVERNANCE* 6 (2025).

authority that a Governor's office position has.<sup>40</sup> These concerns were highlighted when political control shifted again.

#### D. 2022 - Restoring a Standalone CRO and Expanding Mandates

The government was divided in 2022, with Republican Governor Glenn Youngkin taking office and a Republican-led House and a Democratic-led Senate.<sup>41</sup> Two notable bills were enacted. SB 551 (2022) was an omnibus flood resilience planning bill, patroned by Senator David Marsden (D-Fairfax), which implemented recommendations from Virginia's first Coastal Resilience Master Plan.<sup>42</sup> HB 517 (2022), a bill patroned by Delegate David Bulova (D-Fairfax), explicitly clarifies the designation and role of the CRO.<sup>43</sup>

HB 517 reversed the 2021 positioning of the CRO in Natural Resources.<sup>44</sup> It repealed the old CRO code and added a new section to the Code of Virginia.<sup>45</sup> The new code reaffirmed that the "Governor shall designate a Chief Resilience Officer" who serves as the primary coordinator for climate resilience and flooding issues.<sup>46</sup> While still placing the CRO administratively under the Secretary of Natural and Historic Resources for organizational purposes, this change was a return to viewing the CRO as a distinct position appointed by the Governor, not automatically the sitting Secretary.

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<sup>40</sup> Piper Hutchinson, [Louisiana Creates New Position for Environmental Resilience Policy Chief](#), LA. ILLUMINATOR (July 10, 2023, 5:51 PM) ("What we learned while working on coastal issues is that you can be much more effective when you are competing for funding when you speak with a single voice and with the authority of the governor's office, something crucially important with the unprecedented levels of federal funding for resilience projects available today," Zeringue said.).

<sup>41</sup> Nick Iannelli, [Virginia Lawmakers Begin New Session with Power Divided Between Parties](#), WTOP NEWS (Jan. 12, 2022, 5:51 AM).

<sup>42</sup> S.B. 551, 2022 Gen. Assemb., Reg. Sess. (Va. 2022). This bill added certain requirements regarding flood resiliency and protection.

<sup>43</sup> H.B. 517, 2022 Gen. Assemb., Reg. Sess. (Va. 2022). This bill reorganized the CRO section of code.

<sup>44</sup> H.B. 1836 § 2.2-215, 2021 Gen. Assemb., 1st Spec. Sess. (Va. 2021).

<sup>45</sup> H.B. 517, 2022 Gen. Assemb., Reg. Sess. (Va. 2022) ("An Act...to amend the Code of Virginia by adding in Article 7 of Chapter 2 of Title 2.2 a section numbered 2.2-220.5, and to repeal § 2.2-222.4 of the Code of Virginia, relating to Chief Resilience Officer.").

<sup>46</sup> *Id.* § 2.2-220.5(A).

Both HB 517 and SB 551 expanded the CRO’s statutory requirements. The CRO’s duties included a mandate to “create and oversee the implementation of a Virginia Flood Protection Master Plan and a Virginia Coastal Resilience Master Plan,” codifying an executive initiative into an ongoing obligation.<sup>47</sup> In addition, the CRO was now required to report every two years to the Governor and General Assembly on the status of flood resilience in Virginia.<sup>48</sup> This reporting provision, which came from SB 551 and HB 517, ensures legislative oversight and a regular benchmark of progress.<sup>49</sup> The CRO’s focus was also expanded beyond just coastal flooding to encompass all “resilience and adaptation” issues statewide, including inland flooding and pre-disaster hazard mitigation coordination.<sup>50</sup>

In addition, SB 551 established the Virginia Coastal Resilience Technical Advisory Committee (TAC), an advisory panel to assist with updating the Coastal Resilience Master Plan every five years.<sup>51</sup> The TAC’s creation was a result of the CRO and Special Assistant’s work on the initial Master Plan in 2021.<sup>52</sup> These efforts show increasing interagency and stakeholder coordination.

Sen. Marsden and Del. Bulova, both Northern Virginia Democrats, championed the 2022 resilience measures with support from coastal legislators

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<sup>47</sup> See [Va. Exec. Order No. 24](#), at 3–4 (Nov. 2, 2018) (requiring the CRO to help create a Flood Protection Master Plan and Coastal Resilience Master Plan); H.B. 517 § 2.2-220.5(B)(4), 2022 Gen. Assemb., Reg. Sess. (Va. 2022).

<sup>48</sup> Beginning July 1, 2023. See SEC’Y OF NAT. AND HISTORIC RES., [THE STATUS OF FLOOD RESILIENCE IN THE COMMONWEALTH](#) 20 (2023); H.B. 517 § 2.2-220.5(B)(7), 2022 Gen. Assemb., Reg. Sess. (Va. 2022).

<sup>49</sup> S.B. 551 § 2.2-222.4(B)(4), 2022 Gen. Assemb., Reg. Sess. (Va. 2022); H.B. 517 § 2.2-220.5(B)(7), 2022 Gen. Assemb., Reg. Sess. (Va. 2022).

<sup>50</sup> H.B. 517 § 2.2-220.5(A), 2022 Gen. Assemb., Reg. Sess. (Va. 2022).

<sup>51</sup> S.B. 551 § 10.1-659(C), 2022 Gen. Assemb., Reg. Sess. (Va. 2022); *Id.* § 10.1-658(E).

<sup>52</sup> See [Va. Exec. Order No. 71](#) (Nov. 15, 2018) (noting the TAC will help the CRO and Special Assistant in developing the Master Plan); TECH. ADVISORY COMM., [APPENDIX A: TECHNICAL ADVISORY COMMITTEE, SUBCOMMITTEE RECOMMENDATIONS](#) 4 (2021). Another group was established in 2023 by the Secretary of Natural and Historic Resources Travis Voyles was the Resilience Coordination Working Group. This group was comprised of 39 stakeholders whose recommendations later influenced 2024 legislation, such as the establishment of an Office of the Chief Resilience Officer. See VCU CTR. FOR PUB. POL’Y, [RESILIENCE COORDINATION WORKING GROUP: REPORT AND RECOMMENDATIONS](#) 6, 39–40 (2023).

like Sen. Lewis.<sup>53</sup> Notably, the House vote on SB 551 was 98-0, and HB 517 ultimately passed as well, indicating bipartisan consensus for a stronger resilience officer and comprehensive planning.<sup>54</sup> The policy implications of the 2022 reforms established resilience as a priority in state law, with clear mandated deliverables that increased accountability. It also meant that future administrations would have less leeway to ignore resilience. Even less-resilience-focused administrations would be legally obliged to maintain the Master Plans and submit biennial resilience reports, keeping the issue active. While the bill did separate the Secretary and the CRO, in practice the roles remained the same. Governor Youngkin did eventually appoint a new individual as CRO in 2025, rather than assigning the role to his Natural Resources Secretary, but the role remained dual hatted in 2023 with Travis Voyles.<sup>55</sup>

#### E. 2024 - Office of Commonwealth Resilience and CRO Independence

The 2024 legislative session was a capstone in Virginia's CRO evolution. With Democrats then holding slim majorities in both the House and Senate and building on recommendations from the 2023 working group, the General Assembly passed HB 1458 (2024), patroned by freshman Delegate Phil Hernandez (D-Norfolk).<sup>56</sup> The bill attempted an organizational reworking to support the CRO.

The bill, as introduced, proposed establishing a formal Office of Commonwealth Resilience to support the CRO's functions. The final enacted version failed to create the office in statute.<sup>57</sup> However, in the following year, the

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<sup>53</sup> S.B. 551 § 10.1-659(C), 2022 Gen. Assemb., Reg. Sess. (Va. 2022); H.B. 517, 2022 Gen. Assemb., Reg. Sess. (Va. 2022).

<sup>54</sup> *Id.*

<sup>55</sup> Press Release, Off. of the Governor of Va., [Governor Glenn Youngkin Announces Additional Administration and Board Appointments](#) (May 9, 2025) (announcing Gregory Steele as CRO). However, Travis A. Voyles did perform both roles before Steele's appointment. See VCU CTR. FOR PUB. POL'Y, *supra* note 52, at 6 ("Under the direction of Virginia Secretary of Natural and Historic Resources Travis A. Voyles and as the Governor's appointed Chief Resilience Officer (CRO)...").

<sup>56</sup> H.B. 1458, 2024 Gen. Assemb., Reg. Sess. (Va. 2024) (as introduced).

<sup>57</sup> Compare the introduced and final versions of H.B. 1458. As introduced, H.B. 1458 read "[t]here is hereby created the Office of Commonwealth Resilience, which shall be led by the Chief

state allocated funding in the budget to support such an office, and staff have been hired to support the CRO's functions, which effectively operationalized the office even without formal legislative codification.<sup>58</sup> The 2024 act eliminated the position of Special Assistant to the Governor for Coastal Adaptation and Protection entirely.<sup>59</sup> The bill also established an Interagency Resilience Management Team (IRMT) convened by the CRO for coordination.<sup>60</sup> The IRMT, similar to efforts in 2022, formalizes regular coordination among agency heads on resilience actions under the CRO's leadership.

Additionally, HB 1458 increased transparency and stakeholder input in resilience funding. It required the Department of Conservation and Recreation (DCR) to create Advisory Review Committees to assist in distributing grants and loans from the Virginia Community Flood Preparedness Fund (CFPF) and the Resilient Virginia Revolving Fund (RVRF).<sup>61</sup> The CRO and the Secretary of Natural and Historic Resources were added to the entities that the Virginia Resources Authority must consult when directing RVRF funds.<sup>62</sup> Furthermore, the law mandated that records of all CFPF and RVRF applications and decisions be open for public inspection and that DCR hold a 30-day public comment period before each new round of funding.<sup>63</sup> These measures aimed to address concerns that had arisen as Virginia began deploying its flood resilience funds, which were

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Resilience Officer, to support the Chief Resilience Officer in the discharge of his functions and duties pursuant to subsection B and as otherwise provided by law. The Chief Resilience Officer may employ additional professionals as the Chief Resilience Officer deems necessary...". *Id.* § 2.2-435.13(C). However, the finalized version removed that section of the proposed bill.

<sup>58</sup> H.B. 1600 § 1-104(D), 2025 Gen. Assemb., Reg. Sess. (Va. 2025) ("Out of the amounts provided for this item, \$500,000 the first year and \$500,00 the second year from the general fund and three positions are provided to establish the Office of Commonwealth Resilience."); Flood Resilience Advisory Comm., *Flood Committee Meeting Minutes* 1, VA. DEP'T OF CONSERVATION AND RECREATION (May 27, 2025) (listing members of the Office of Commonwealth Resilience).

<sup>59</sup> H.B. 1458 § 2.2-220.5(B), 2024 Gen. Assemb., Reg. Sess. (Va. 2024).

<sup>60</sup> *Id.* § 2.2-220.5(C).

<sup>61</sup> *Id.* § 10.1-603.25(D)(2); *Id.* § 10.1-603.29(B)(2).

<sup>62</sup> *Id.* § 10.1-603.29(B).

<sup>63</sup> *Id.*

largely financed by Regional Greenhouse Gas Initiative (RGGI) carbon allowance proceeds in the CFPF.<sup>64</sup>

Delegate Hernandez, the chief patron of HB 1458, represented coastal Norfolk.<sup>65</sup> His bill was co-sponsored by legislators across the aisle, and passed with bipartisan support.<sup>66</sup> The Environmental Defense Fund praised HB 1458 as “strengthen[ing] Virginia’s approach to resilience governance” and noted that it enables actions by “a standalone Chief Resilience Officer to coordinate resilience efforts across state agencies and support regional and local... initiatives.”<sup>67</sup> The emphasis here is on “standalone”, implying that a resilience leader was not just a dual-hatted Secretary, but one intended to act as the state’s primary resilience coordinator with the Governor’s backing.<sup>68</sup> Governor Youngkin signed HB 1458 into law in April 2024, showing that an executive office dedicated to resilience was beneficial even under an administration that had different views on some climate policies.<sup>69</sup>

Although HB 1458 did not formally establish a standalone executive office, the CRO was affirmed as the state’s primary resilience leader, supported by a growing team and empowered by statute to coordinate across agencies via the IRMT. This legislative and operational shift demonstrates a transition to a more institutionalized and centralized approach to resilience governance.

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<sup>64</sup> [Community Flood Preparedness Fund Grants and Loans](#), VA. DEP’T OF CONSERVATION & RECREATION (last visited Feb.20, 2026); [VA Community Flood Preparedness Fund](#), VA. CRS WORK GRP. (last visited Feb. 20, 2026).

<sup>65</sup> Emily Steinhilber, [Virginia Legislators Advance Climate Resilience Efforts in the Commonwealth During the 2024 General Assembly, But More Work Remains](#), ENV’T DEF. FUND (Mar. 6, 2024).

<sup>66</sup> H.B. 1458, 2024 Gen. Assemb., Reg. Sess. (Va. 2024).

<sup>67</sup> See Steinhilber, *supra* note 65.

<sup>68</sup> *Id.*

<sup>69</sup> Gov. Youngkin wanted to exit the RGGI program. See Charles Paullin, [In Virginia, Democratic Lawmakers Clash with Youngkin over RGGI Membership, Flood Relief](#), INSIDE CLIMATE NEWS (Feb. 10, 2025).

F. 2025 - Recent Developments and Refinements

By 2025, Virginia's CRO structure was in place, but the General Assembly continued to fine-tune it. Two notable measures in the 2025 session, which did not pass, were HB 1949 (2025) and HB 2450 (2025), each addressing different aspects of resilience governance.

HB 1949 (2025), patroned by Del. Phil Hernandez (D-94th), the same patron of HB 1458, directed the newly formed Office of Commonwealth Resilience to conduct a study on the costs of coastal storm risk management feasibility studies.<sup>70</sup> The legislation responds to the U.S. Army Corps of Engineers' coastal storm protection studies by seeking to clarify state and local cost responsibilities.<sup>71</sup> The bill had a companion in SB 1337 (2025), showing bicameral interest, but neither version advanced. The proposal reflected ongoing concerns over the financial feasibility of major flood protection investments.

HB 2450 (2025), introduced by Del. Keith Hodges (R-68th), proposed to reassign certain coastal resource management duties from the Virginia Institute of Marine Science (VIMS) to a "research university collaborative," making that collaborative the scientific advisor to the Commonwealth on coastal resilience.<sup>72</sup> This bill aimed to formalize a partnership among Virginia's research universities, including VIMS, in advising state resilience efforts, and to require localities to use the collaborative's guidance in their comprehensive plans. Since 2018, VIMS has been tasked with providing coastal adaptation guidance, and the Commonwealth Center for Recurrent Flooding Resiliency was mentioned in the Special Assistant's duties.<sup>73</sup> HB 2450 did not advance, but it indicates ongoing legislative interest in strengthening the technical foundations of Virginia's resilience policy.

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<sup>70</sup> This bill was identical to S.B. 1337 (2025) by Sen. David Marsden. H.B. 1949, 2025 Gen. Assemb., Reg. Sess. (Va. 2025); S.B. 1337, 2025 Gen. Assemb., Reg. Sess. (Va. 2025).

<sup>71</sup> H.B. 1949, 2025 Gen. Assemb., Reg. Sess. (Va. 2025); Jim Morrison, *Newly-Approved State Study Aims to Codify Virginia's Coastal Resilience Funding*, VA. MERCURY (Apr. 2, 2025, 5:20 AM).

<sup>72</sup> H.B. 2450, 2025 Gen. Assemb., Reg. Sess. (Va. 2025).

<sup>73</sup> [Va. Exec. Order No. 24](#) (Nov. 2, 2018).

In summary, by mid-2025 Virginia had a fully operational Chief Resilience Officer situated in the Governor’s office, an Interagency Resilience Management Team for cross-government coordination, a mandate to produce and update statewide resilience plans, and dedicated funding streams for resilience projects. The CRO’s statutory authority and responsibilities had grown considerably from the coordination role outlined in 2014.<sup>74</sup> Each bill from HB 345 to HB 1949 added new responsibilities, like identifying at-risk areas, planning and funding mitigation, reporting on progress, and guiding local integration. This shows how adaptation governance can change through iterative lawmaking, especially as political leadership and climate realities change.

### III. ADAPTATION GOVERNANCE: POLITICAL WILL, STRUCTURE, AND OUTPUTS

Virginia’s experience with the CRO position offers insights into adaptation and the relationship between political leadership, bureaucratic structure, and policy outputs.

One feature of Virginia’s resilience legislation is its bipartisan support across three administrations. Political will initially worked on visible threats and was championed by coastal lawmakers of both parties. That political will translated into law in 2018 and 2020 when Democrats and Republicans found common ground on creating coordination roles.<sup>75</sup> When partisan control shifted, one might expect regression, but instead, the 2022 and 2024 reforms show a convergence of views that resilience planning is fundamentally necessary. Even Governor Youngkin, who diverged from his predecessor on climate mitigation strategies, did not impede resilience initiatives. His administration worked to implement the 2021 Coastal Master Plan and supported the 2022-2024 legislative changes.<sup>76</sup> The biennial reporting requirement ensures that the issue stays on the agenda, for the CRO must provide a “status of flood resilience in the Commonwealth” report every two years to both the Governor and the

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<sup>74</sup> *Id.*

<sup>75</sup> Note that every CRO bill passed near-unanimously according to Virginia’s vote records.

<sup>76</sup> H.B. 517 § 2.2-220.5(B)(7), 2022 Gen. Assemb., Reg. Sess. (Va. 2022).

legislature.<sup>77</sup> This accountability is a governance mechanism to maintain political interest over time.

The evolution from a Special Assistant (2018) to a cabinet CRO (2020-2021) to a non-statutory Office of Resilience (2024) reflects on the question whether to centralize resilience governance in the executive for authority or integrate into line agencies for expertise. Initially, centralization in the Governor's office gave the effort visibility but little formal power; then integration into the Natural Resources area gave it bureaucratic weight but risked pigeonholing resilience as just an environmental concern. By 2024, the state chose a hybrid model with a dedicated office under the Governor, but one that formally engages multiple agencies through the IRMT and ties into existing funding programs administered by state departments. This hybrid aims to have both an executive mandate and cross-agency collaboration.

The inclusion of local and regional perspectives in the structure is another governance innovation. The Coastal Resilience TAC and the stakeholder Working Group brought outside stakeholders into the planning process.<sup>78</sup> The IRMT, composed of state agency representatives, complements this by aligning state efforts internally.<sup>79</sup> This two-tiered approach ensures top-down strategies are informed by bottom-up input. It agrees with an emerging practice of adaptation governance where effective resilience requires a whole of government approach.

One way Virginia strengthened the CRO position was by codifying specific outputs in law. For example, the Virginia Coastal Resilience Master Plan, first mandated through executive order, was given a statutory update schedule in 2022.<sup>80</sup> By charging the CRO with creating and updating these master plans, the General Assembly made the CRO the chief planner for climate adaptation.<sup>81</sup> Similarly, when Virginia set up the Community Flood Preparedness Fund in 2020,

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<sup>77</sup> SEC'Y OF NAT. AND HISTORIC RES., [THE STATUS OF FLOOD RESILIENCE IN THE COMMONWEALTH](#) 20 (2023).

<sup>78</sup> S.B. 551 § 10.1-659(C), 2022 Gen. Assemb., Reg. Sess. (Va. 2022).

<sup>79</sup> H.B. 1458 § 2.2-220.5(C), 2024 Gen. Assemb., Reg. Sess. (Va. 2024).

<sup>80</sup> S.B. 551 § 10.1-658(E), 2022 Gen. Assemb., Reg. Sess. (Va. 2022); [Va. Exec. Order No. 24](#) (Nov. 2, 2018).

<sup>81</sup> H.B. 517 § 2.2-220.5(B)(4), 2022 Gen. Assemb., Reg. Sess. (Va. 2022).

it positioned the fund to require coordination with statewide resilience priorities.<sup>82</sup> By 2024, laws required the CRO and Natural Resources Secretary to be consulted on RVRF distributions.<sup>83</sup> In practice, this means the CRO can guide money toward projects that fit into their resilience plan. Mandated public transparency for funding is another output that shapes authority. It not only increases trust in how resilience funds are allocated but also gives the CRO's office a better understanding of local needs and stakeholder feedback each funding cycle. This feedback can inform updates to plans and policies.

One problem in Virginia's governance is the growth of the CRO's duties, which risks overextending its few resources. The Virginia approach has been to allow the CRO to work with networks like IRMT and TAC rather than a large staff.<sup>84</sup> This network governance model may need to change as climate impacts intensify. Another challenge is sustaining funding. The state's major resilience fund (CFPF) is tied to RGGI participation, which has been politically contested.<sup>85</sup> The policy insulation for the CRO is that, even if funding sources fluctuate, the CRO's existence and basic functions are now codified. However, Virginia's CRO evolution shows that legal authority is necessary but not sufficient. It also must be matched with resources and continued political support to be effective.

#### IV. COMPARATIVE PERSPECTIVES: CROs AND RESILIENCE OFFICERS IN OTHER STATES

Virginia's work did not occur in isolation. Other states have also developed chief resilience roles or offices, and Virginia drew lessons from and contributed to this body of state-level climate governance. This section examines

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<sup>82</sup> H.B. 981 § 10.1-603.25(A), 2020 Gen. Assemb., Reg. Sess. (Va. 2020) (“All loans and grants provided under this article shall be deemed to promote the public purposes of enhancing flood prevention or protection and coastal resilience.”).

<sup>83</sup> H.B. 1458 § 10.1-603.29(B)(2), 2024 Gen. Assemb., Reg. Sess. (Va. 2024).

<sup>84</sup> There is now an Office of Commonwealth Resilience with two staff. *See* discussion *supra* Section II.e; Nicole Vaughan, [Welcome Virginia's Chief Resilience Officer, Greg Steele!](#), VA. CONSERVATION NETWORK (May 28, 2025) (“Greg will be supported by two additional employees in the Office of Commonwealth Resilience.”).

<sup>85</sup> H.B. 981, 2020 Gen. Assemb., Reg. Sess. (Va. 2020); Charles Paullin, [In Virginia Democratic Lawmakers Clash with Youngkin over RGGI Membership](#), INSIDE CLIMATE NEWS (Feb. 10, 2025).

broader adaptation governance trends and compares Virginia’s model with those of Louisiana, North Carolina, and South Carolina.

Over the past decade, states have increasingly institutionalized climate resilience governance, shifting from reactive disaster response toward proactive adaptation planning.<sup>86</sup> CROs are a fairly new position within this scheme on both the state and local level.<sup>87</sup> These officers generally serve as central points of coordination within state and local government to develop comprehensive resilience strategies and break down interagency silos.<sup>88</sup> CRO approaches vary in design, but usually include long-term climate adaptation planning, intergovernmental collaboration, and leveraging existing programs and grants to aid resilience efforts.<sup>89</sup> In practice, state resilience initiatives demonstrate legislative attempts to adapt to dynamic climate risks.<sup>90</sup> The various initiatives differ on the state level in the manner of their formation and situation within state government.

A coastal state acutely vulnerable to hurricanes and land loss, Louisiana established its state-level CRO somewhat later than Virginia. In 2020, Governor John Bel Edwards issued an executive order naming a Chief Resilience Officer to coordinate interagency efforts.<sup>91</sup> Building on that, in 2023 Louisiana’s legislature passed HB 526 (2023) to codify a state CRO housed in the Office of the

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<sup>86</sup> *Chief Resilience Offices Could Enhance Climate Preparedness*, BIPARTISAN POL’Y CTR. (Aug. 18, 2022) (“Historically, governments have focused narrowly on post-disaster response without sufficient planning and capacity-building for future hazards, but recent efforts to create Chief Resilience Offices (CROs), at all levels of government, are attempting to change that.”).

<sup>87</sup> *See id.*; JORGE MORALES-BURNETT & REBECCA MARX, URB. INST., [THE RISE OF THE CHIEF RESILIENCE OFFICER](#) 1–3 (2022) (noting efforts to create local level CROs).

<sup>88</sup> *See* JOSHUA SAKS, GEORGETOWN CLIMATE CTR., [STATE CHIEF RESILIENCE OFFICERS: ESTABLISHMENT, AUTHORITY & GOVERNANCE](#) 4, 10 (2025); MORALES-BURNETT & MARX, *supra* note 87, at 3.

<sup>89</sup> *See* SAKS, *supra* note 5, at 18–22.

<sup>90</sup> *See* [State Resilience Offices](#), NAT’L CONF. OF STATE LEGISLATURES (May 2, 2023) (“While resilience planning, emergency preparedness and hazard mitigation are interrelated, resilience planning goes further. It explores and addresses the underlying vulnerabilities to hazards, and links the environment, social and economic sectors to help communities better adapt to changing conditions.”).

<sup>91</sup> [La. Exec. Order No. 2020-19](#) (Aug. 19, 2020).

Governor.<sup>92</sup> Louisiana's CRO is tasked with coordinating policy responses to environmental hazards statewide and leading development of a comprehensive resilience report, similar to Virginia's CRO-led master plans.<sup>93</sup> Notably, Louisiana's law also requires every state department and each chamber of the legislature and judiciary to appoint its own resilience officer to liaise with the Governor's CRO.<sup>94</sup> This creates an Interagency Resilience Coordination Team with representatives across government, chaired by the CRO.<sup>95</sup> This mirrors Virginia's IRMT concept, but Louisiana's approach is even more expansive by including legislative and judicial branches.<sup>96</sup> Both states recognize the value of coordinating across the government.

Another feature of Louisiana's model is a Resilience Task Force of diverse stakeholders to advise the CRO, similar to Virginia's TAC but with membership spelled out in statute.<sup>97</sup> The emphasis in Louisiana has been on unifying the state's voice and increasing its competitiveness for federal resilience funding, a point explicitly made by bill supporters and equally relevant to Virginia.<sup>98</sup> In effect, Louisiana demonstrated that the authority of the Governor's office behind a CRO can streamline funding advocacy and project implementation, just like in Virginia's 2024 reforms.

North Carolina has approached resilience primarily through the lens of disaster recovery and hazard mitigation. After back-to-back hurricanes caused severe flooding, Governor Roy Cooper in 2018 created the North Carolina Office of Recovery and Resiliency (NCORR) as a division of the state's Department of Public Safety.<sup>99</sup> NCORR handles disaster recovery programs and was later

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<sup>92</sup> H.B. 526, 2023 Leg., Reg. Sess. (La. 2023).

<sup>93</sup> [Building Cross-Government and State Wide Resilience](#), OFF. OF THE GOVERNOR OF LA. (last visited Feb. 20, 2026).

<sup>94</sup> H.B. 526, 2023 Leg., Reg. Sess. (La. 2023).

<sup>95</sup> *Id.*

<sup>96</sup> *Id.*

<sup>97</sup> *Id.*

<sup>98</sup> Piper Hutchinson, [Louisiana Creates New Position for Environmental Resilience Policy Chief](#), LA. ILLUMINATOR (July 10, 2023, 5:51 PM).

<sup>99</sup> [About Us](#), REBUILD NC (last visited Feb. 20, 2026); Press Release, N.C. Dep't of Pub. Safety, [N.C. Office of Recovery and Resiliency Expands Programs and Delivery of Funding as State Marks Two-Year Anniversary of Hurricane Florence](#) (Sept. 14, 2020).

expanded to include a Resiliency Program, functionally serving as the state's resilience office.<sup>100</sup> In 2019, NCORR appointed Dr. Jessica Whitehead as the first State Chief Resilience Officer.<sup>101</sup> North Carolina's CRO is somewhat differently positioned than Virginia's. Rather than being in the Governor's immediate office or an independent unit, the North Carolina CRO is embedded in an agency that deals with emergency management.<sup>102</sup> This shows the state's framing of resilience as an extension of disaster recovery. One lesson from North Carolina is the importance of housing resilience efforts where they can leverage disaster funding. By placing NCORR in Public Safety, North Carolina ensured interfacing with federal recovery grants.<sup>103</sup> The trade-off is that North Carolina's CRO has less explicit statutory backing. Indeed, North Carolina has not passed legislation formally creating the CRO or requiring state-wide resilience plans, relying instead on policy directives.<sup>104</sup> Virginia, by legislating its CRO and plans, arguably achieved greater institutional permanence. However, both states understand the value of integrating resilience with recovery.

South Carolina is similar to Virginia in that it created an Office of Resilience by statute and appointed a Chief Resilience Officer as the agency head.<sup>105</sup> After catastrophic flooding in 2015 and Hurricane Matthew in 2016, South Carolina's legislature passed the Disaster Relief and Resilience Act (S.B. 259) in 2020.<sup>106</sup> This law established the South Carolina Office of Resilience (SCOR) as a standalone state agency and created the position of Chief Resilience Officer (CRO) for South Carolina.<sup>107</sup> Governor Henry McMaster appointed Ben Duncan as the first South Carolina CRO in 2021.<sup>108</sup> The South

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<sup>100</sup> Press Release, N.C. Dep't of Env't Quality, [State Launches N.C. Resilient Communities Program to Address Climate Change Impacts and Keep Communities Safer During Future Disasters](#) (Oct. 1, 2020).

<sup>101</sup> Press Release, N.C. Dep't of Pub. Safety, [N.C. Office of Recovery & Resiliency Names Key Resilience Officers](#) (May 15, 2019).

<sup>102</sup> SAKS, *supra* note 5, at 15.

<sup>103</sup> *Id.*

<sup>104</sup> Press Release, *supra* note 101.

<sup>105</sup> S.B. 259, 123d Gen. Assemb., Reg. Sess. (S.C. 2020).

<sup>106</sup> *Id.*

<sup>107</sup> *Id.*

<sup>108</sup> Press Release, Off. of the Governor of S.C., [Gov. Henry McMaster Names South Carolina's First Chief Resilience Officer](#) (Mar. 9, 2021).

Carolina Office of Resilience is tasked with developing and implementing a statewide resilience plan and coordinating efforts to reduce future disaster impacts.<sup>109</sup>

The South Carolina CRO's mandate and positioning closely resemble what Virginia achieved by 2024 with dedicated resilience agency reporting to the Governor. One difference is structural. SCOR is an independent agency with its own budget, whereas Virginia's Office of Commonwealth Resilience is not statutorily supported.<sup>110</sup> South Carolina also innovated by setting up funding mechanisms alongside creating the office, much as Virginia tied its resilience officer to the flood fund in 2020.<sup>111</sup>

Virginia's approach by 2024-25, with a high-level coordinator with a formal office and planning and funding responsibilities, places it among the more robust models nationwide. It aligns with states like Louisiana and South Carolina that have recognized the need for both executive positioning and legislative legitimacy in resilience governance. Virginia's continuous refinement of the CRO role offers a case study to other states and demonstrates how to incrementally build a resilience governance framework.

## V. STATE-LOCAL DYNAMICS IN RESILIENCE PLANNING AND FUNDING

One aspect of Virginia's resilience governance evolution is how the state framework interacts with local governments and regional entities. Virginia, like many states, assigns land use planning and some floodplain management responsibilities to localities.<sup>112</sup> This makes effective state and local collaboration important.

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<sup>109</sup> S.B. 259, 123d Gen. Assemb., Reg. Sess. (S.C. 2020).

<sup>110</sup> Nicole Vaughan, *Welcome Virginia's Chief Resilience Officer, Greg Steele!*, VA. CONSERVATION NETWORK (May 28, 2025).

<sup>111</sup> S.B. 259, 123d Gen. Assemb., Reg. Sess. (S.C. 2020).

<sup>112</sup> OFF. OF GOVERNOR RALPH S. NORTHAM, *VIRGINIA COASTAL RESILIENCE MASTER PLAN* 227 (2021).

Virginia has gradually strengthened requirements for local involvement. For instance, SB 551 (2022) mandated the development of a community outreach and engagement plan as part of updating the Coastal Resilience Master Plan, to ensure “meaningful involvement by ... affected and vulnerable community residents.”<sup>113</sup> This is an acknowledgement that top-down plans must incorporate local knowledge and address environmental risk disparities. In practice, the CRO and TAC held a series of community meetings in coastal areas when updating the Master Plan in 2022, and similar efforts are expected for statewide flood planning.<sup>114</sup>

Another lever is local planning requirements. While Virginia has not yet mandated that every locality draft its own resilience or climate adaptation plan, there is interest. HB 2450 (2025), though not passed, proposed requiring certain coastal localities to integrate the state’s coastal resource management guidance into their next comprehensive plan review.<sup>115</sup> This indicates legislative intent to tie local comprehensive planning to resilience considerations. Additionally, Virginia’s flood resilience fund regulations encourage localities to have resilience plans to access funding, and the CFPF has funded many local or regional climate adaptation planning efforts since 2021.<sup>116</sup> The CRO’s role includes coordinating the dissemination of best available science and planning strategies to the public and local governments, essentially assisting localities to develop sound plans.<sup>117</sup>

Virginia is a Dillon Rule state, meaning local governments have only the powers granted by state law.<sup>118</sup> This can limit local initiatives on resilience unless enabled by the state. The legislature has given authority to localities; for example, a 2021 law authorized local governments to implement adaptive zoning

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<sup>113</sup> S.B. 551, 2022 Gen. Assemb., Reg. Sess. (Va. 2022).

<sup>114</sup> [Virginia Coastal Resilience Master Plan: Technical Advisory Committee](#), VA. DEP’T OF CONSERVATION AND RECREATION (Aug. 15, 2025).

<sup>115</sup> H.B. 2450, 2025 Gen. Assemb, Reg. Sess. (Va. 2025).

<sup>116</sup> VA. DEP’T OF CONSERVATION & RECREATION & VA. RES. AUTH., [2025 FUNDING MANUAL FOR THE VIRGINIA COMMUNITY FLOOD PREPAREDNESS FUND 46](#) (2025).

<sup>117</sup> OFF. OF GOVERNOR RALPH S. NORTHAM, *supra* note 112.

<sup>118</sup> JEFFREY MOORE & LAUREN ACKER, VA. COASTAL POL’Y CTR., [RECURRENT FLOODING, SEA LEVEL RISE, AND THE RELOCATION OF AT-RISK COMMUNITIES: CASE STUDIES FROM THE COMMONWEALTH OF VIRGINIA](#) 4–6 (2018). *See also* VA. CODE ANN. § 10.1-658 (2024) (declaring flood control to be a state interest).

techniques for flooding.<sup>119</sup> The CRO's presence provides a point of contact for local officials to seek technical and funding assistance. However, some local officials have sought clearer protocols for state-local collaboration. In the 2023 Working Group report, one recommendation was to define how the Office of Commonwealth Resilience will interface with planning district commissions and local emergency managers.<sup>120</sup> By 2024, the IRMT included representatives from relevant state agencies that work with localities, indirectly including local perspectives.

A potential tension is funding and unfunded mandates. Local governments often worry the state will require costly resilience measures, like upgrading infrastructure or restricting development in floodplains, without providing resources. Virginia has tried to alleviate this by using state-managed funds to support local projects. The Resilient Virginia Revolving Fund, created in 2022, for instance, is aimed at low-interest loans for local resilience capital projects.<sup>121</sup>

Coastal Virginia has a strong regional planning infrastructure.<sup>122</sup> The Special Assistant and CRO have consistently engaged these regional bodies. State code now encourages multi-jurisdictional approaches for flood resilience.<sup>123</sup> In 2020, the Assembly expanded the framework for coordinating joint flood control projects and in 2022 created the Resilient Virginia Revolving Loan Fund accessible by regional entities.<sup>124</sup> The CRO's Master Plan works at the regional scale by dividing coastal Virginia into planning regions for analysis.

One notable state-local dynamic is local implementation of state plans. The Virginia Coastal Resilience Master Plan, for example, identifies hundreds of

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<sup>119</sup> See VA. CODE ANN. § 15.2-2223.3 (2024) (authorizing localities to incorporate strategies to address sea level rise and recurrent flooding in comprehensive plans and zoning ordinances).

<sup>120</sup> See VCU CTR. FOR PUB. POL'Y, [RESILIENCE COORDINATION WORKING GROUP: REPORT AND RECOMMENDATIONS](#) 6 (2023).

<sup>121</sup> VA. CODE ANN. §§ 10.1-603.28–10.1-603.40 (2022).

<sup>122</sup> For instance, the Hampton Roads Planning District Commission. [See \*What is the HRPDC?\*](#), HAMPTON RDS. PLAN. DIST. COMM'N (last visited Feb. 20, 2026).

<sup>123</sup> VA. CODE ANN. § 10.1-658 (2024).

<sup>124</sup> H.B. 1313, 2020 Gen. Assemb., Reg. Sess. (Va. 2020); H.B. 1309, 2022 Gen. Assemb., Reg. Sess. (Va. 2022).

projects, but they largely must be executed by local governments or regional entities. The CRO's success is measured by how well state plans translate into local action. The biennial CRO report to the General Assembly is supposed to evaluate "flood protection for critical infrastructure" and the "status of flood resilience planning" across the Commonwealth.<sup>125</sup> Implicitly, that includes evaluating local plan implementation and project progress. This reporting could become an accountability mechanism for localities.

Conversely, the state has also imposed some limits. For instance, funds like CFPF can only be used for certain types of projects and require local matching contributions above a certain threshold.<sup>126</sup> If a locality wanted to require climate risk disclosure in real estate, state law would need to allow or mandate it.<sup>127</sup> In 2024, HB 863 was introduced to require sellers to disclose past flood history to buyers, but it did not pass.<sup>128</sup> This shows that some resilience measures that affect private transactions remain politically sensitive and not delegated to local action either. The CRO, while not directly involved in such property law issues, could advocate for comprehensive risk reduction strategies, including land-use policy changes.

Virginia's state-local resilience dynamic is characterized by a collaborative approach with state guidance and resources rather than mandates. The CRO serves as a facilitator that local governments can speak with. The elimination of the Special Assistant in 2024 also removed a role that was somewhat parallel to local engagement. Now the CRO is the single point of contact, simplifying communication for local officials seeking state support.

The Louisiana model of designated resilience officers in each branch of government and different state departments is an interesting contrast. Virginia has not gone that far, but by engaging planning district commissions and regional

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<sup>125</sup> SEC'Y OF NAT. AND HISTORIC RES., [THE STATUS OF FLOOD RESILIENCE IN THE COMMONWEALTH](#) 20 (2023).

<sup>126</sup> Joshua Saks, [Issue Brief: Virginia's Community Flood Preparedness Grant Program: A Model for State Climate Adaptation Funding](#), GEORGETOWN CLIMATE CTR. (July 31, 2025).

<sup>127</sup> MOORE & ACKER, *supra* note 118, at 4–6 (2018).

<sup>128</sup> Ian Blair et al., [Disclosing Flood Risk](#), VA. CONSERVATION NETWORK (last visited Feb. 20, 2026).

committees, it achieves a similar network of local liaisons, albeit informally. Finally, many of Virginia's most flood-prone communities are also economically disadvantaged. The CRO's mandate to coordinate with the governor's opportunity and inclusion staff on the biennial report suggests attention to ensuring resilience efforts help socially vulnerable populations.<sup>129</sup> The 2024 reforms to CFPF explicitly require weighing funding decisions toward low-income areas and nature-based solutions.<sup>130</sup> This focus on equity means the state-local relationship also involves capacity building. The CRO's office may help smaller localities that lack resources to apply for grants or plan projects. Over time, the measure of success will be whether state leadership through the CRO results in tangible resilience improvements in communities across Virginia, not just the wealthy or well-staffed localities.

## VI. CONCLUSION

Virginia's efforts in establishing and refining the role of a Chief Resilience Officer from 2014 to 2025 are an adaptive governance response to the accelerating threats of changing environmental conditions. In the span of just over a decade, what began as a narrow coastal flooding advisor in the Governor's office transformed into a comprehensive resilience leadership position enshrined in law, backed by statewide plans and funding mechanisms, and operating with both executive authority and legislative oversight. The governance structure resulted from iterative lawmaking and administrative experimentation.

In summary, HB 345/SB 265 (2018) formally established the effort, HB 1313 (2020) codified a CRO, HB 1836 (2021) recalibrated the role within the cabinet, HB 517/SB 551 (2022) expanded duties and recentralized the authority, HB 1458 (2024) defined leadership roles, and the 2025 initiatives addressed emerging needs. Legislative actions show how policymaking can be responsive. These bills were supported by lawmakers from coastal and inland areas and across the aisle, showing that building resilience is a shared goal in Virginia.

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<sup>129</sup> VA. CODE ANN. § 2.2-220.5 (2024).

<sup>130</sup> Saks, *supra* note 126.

Comparatively, Virginia’s model now stands as one of the more robust in the nation, combining features seen in Louisiana’s and South Carolina’s approaches with centralized authority and interagency teams with the planning rigor and funding streams that states like North Carolina and Colorado have employed. Looking ahead, the effectiveness of Virginia’s CRO will be judged by outcomes, like whether Virginia’s communities are safer from floods and other climate impacts and whether the state is securing more federal funding or investing in protective infrastructure and nature-based solutions. Virginia’s CRO could become a model for other states to increase resilience in the face of climate adversity. As the Environmental Defense Fund noted, a “standalone Chief Resilience Officer will demonstrate Virginia’s continued leadership and commitment” to addressing climate impacts.<sup>131</sup>

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<sup>131</sup> Steinhilber, *supra* note 65.

**THE FUTURE OF TANGIER ISLAND: BALANCING CULTURAL PRESERVATION AND CLIMATE ADAPTATION THROUGH MANAGED RETREAT**

Elisabeth Nguty Nkeng\*

*Tangier Island, a culturally rich community in the Chesapeake Bay, is at severe risk due to climate change-driven sea-level rise and coastal erosion. This Article examines the urgent need for innovative legal frameworks to facilitate managed retreat as a means of safeguarding both the safety and heritage of the island's residents. By adopting managed retreat or voluntary buyouts as a proactive adaptation strategy, Tangier Island can shift from reactive responses to a well-planned, phased approach that prioritizes both public safety and the preservation of its unique culture. Transparent planning and meaningful community engagement are essential to ensure that the voices and values of Tangier Island's residents guide these efforts. This approach not only helps avoid potential legal challenges but also safeguards the island's cultural identity. Ultimately, this strategy paves the way for a resilient future, balancing the protection of the community's heritage with long-term climate adaptation.*

**I. INTRODUCTION**

“We’ve been out here for hundreds of years, and we’d like to stay for hundreds more[,]” says Mayor James “Ooker” Eskridge of Tangier Island, as he points out at the remains of once-solid land now submerged beneath the Chesapeake Bay.<sup>1</sup> Eskridge’s words show a community rooted in place, now forced to face the possibility that the land holding that history may not last. For

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\* J.D. Candidate, Emory University School of Law, Class of 2026. I grew up in Cameroon, where I first witnessed the challenges that climate change and governance failures pose to vulnerable communities, an experience that has made this topic deeply personal. I thank Professor Mark Nevitt for his guidance in helping me shape and refine this Article, and Kerry McClaghry for her thoughtful support during the writing process. I am grateful to faculty at Emory Law for fostering my interest in environmental and international law. I also benefited from conversations with classmates in the Climate Change Law and Policy seminar, whose comments helped me clarify key arguments. I owe the greatest debt to my family, my mother, Susan Nguty Nkeng, whose encouragement has sustained me throughout law school, and my siblings Marilyn Bekima, Epeh Nguty Nkeng, Tabi Nguty Nkeng, and Jacky Nguty Nkeng for their unwavering support. I dedicate this Article to the memory of my late father, Nguty Nkeng Nduasoh, whose values and example continue to guide me.

<sup>1</sup> Katherine Hafner, [A “Way of Life” at Risk: The Race to Save Tangier Island from Erosion, Sea-Level Rise](#), WHRO PUBLIC MEDIA (June 17, 2024); Julie Depenbrock, [This Small Virginia Island Could Be Underwater Before the Next Century](#), NPR (Sept. 22, 2025, 6:00 AM ET).

Tangier Island, a centuries-old community in the middle of the Chesapeake Bay, the rapidly eroding shoreline presents an existential threat.<sup>2</sup> Once home to roughly 470 people, Tangier Island's population has fallen to about 240 residents, a community of descendants of early English settlers who have long made their living through fishing and crabbing.<sup>3</sup> Tangier's cultural and historical significance is profound, with residents speaking a dialect that has been preserved over centuries.<sup>4</sup> Despite its rich heritage, the island is rapidly disappearing, battered by the forces of rising sea levels and coastal erosion.<sup>5</sup> Scientific projections indicate that without significant intervention, the island may become uninhabitable within the next few decades.<sup>6</sup>

The U.S. Army Corps of Engineers (Corps) has documented that Tangier Island loses approximately 15 feet of shoreline each year due to sea-level rise and erosion.<sup>7</sup> This rapid erosion is part of a larger pattern of climate change-driven sea-level rise affecting the Chesapeake Bay area, with land subsidence and increased storm frequency compounding the issue, making coastal communities and ecosystems even more vulnerable.<sup>8</sup> Yet many residents believe that the island's disappearance is driven primarily by natural cycles, not climate change, creating a tension between scientific consensus and local perception.<sup>9</sup> This disconnect between the scientific consensus and local beliefs presents a unique challenge for policymakers and legal scholars as they grapple with how best to protect communities like Tangier while respecting their historical and cultural identities.<sup>10</sup>

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<sup>2</sup> *Tangier Island*, NAT'L PARK SERV. (Apr. 30, 2025); Kelly Carson, *The Water Is Coming: How Policies for Internally Displaced Persons Can Shape the U.S. Response to Sea Level Rise and the Redistribution of the American Population*, 72 HASTINGS L.J. 1279, 1283–84 (2021).

<sup>3</sup> Casey B. McCormack, *America's Next Refugee Crisis: Environmentally Displaced Persons*, NAT. RES. & ENV'T, Spring 2018, at 8, 11; Depenbrock, *supra* note 1; NAT'L PARK SERV., *supra* note 2.

<sup>4</sup> Veena Rao & Eliot Stein, *The Tiny US Island With a British Accent*, BBC (Feb. 7, 2018); *Tangier Islanders Retain Unique Dialect*, WAMU (June 27, 2011) [hereinafter *Tangier Island Dialect*].

<sup>5</sup> Roya Khosravi, Comment, *Bound by Paris: States' Human Rights Obligations as an Impetus for Environmental Protection and Action Against Climate Change*, 8 LSU J. ENERGY L. & RES. 287, 287–88 (2019).

<sup>6</sup> *Id.* (estimating that the island will be uninhabitable within fifty years).

<sup>7</sup> Press Release, Mark R. Warner, [Warner & Kane Successfully Include Virginia Projects in Final Bipartisan Water Infrastructure Bill](#) (Oct. 10, 2018) [hereinafter Warner & Kaine] (stating that one of their shared priorities is to have the Corps create a Tangier Island and Coastal Virginia plan).

<sup>8</sup> Jeff Hunt & Kara West, *Sea Rise and Storms on the Chesapeake Bay*, NAT'L GEOGRAPHIC (Oct. 19, 2023).

<sup>9</sup> Khosravi, *supra* note 5, at 287.

<sup>10</sup> *Id.*; Emily Flitter, [Residents of Tangier Island Reject "Climate" Victim Label](#), REUTERS (Oct. 25, 2017).

Tangier Island's situation is not an isolated one; it represents the growing conflict faced by other vulnerable coastal communities.<sup>11</sup> These communities must confront the dual pressures of environmental change and long-standing property rights. While managed retreat—the voluntary relocation of communities—has been suggested as a solution for areas like Tangier Island, it raises significant legal and ethical concerns.<sup>12</sup> Relocation is viewed by many island residents as an existential threat to their cultural identity, leaving policymakers in a difficult position.<sup>13</sup> The dilemma requires a nuanced legal framework that can balance the protection of both property rights and human lives.

One potential solution lies in the concept of managed retreat.<sup>14</sup> This approach, although underutilized in current legal practice, enables the government to facilitate the planned relocation of communities from areas that are increasingly vulnerable to climate-related risks.<sup>15</sup> Managed retreat has been considered for coastal regions like Tangier, which face recurring natural hazards, providing the government with a structured framework to take decisive action to safeguard public welfare amid climate-related threats.<sup>16</sup> Managed retreat may offer a balanced way to address the competing interests of property rights protection and the urgent need to mitigate displacement due to climate change.

Part I will examine the climate change risks specific to Tangier Island, exploring both the immediate and long-term threats of sea-level rise, erosion, and

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<sup>11</sup> See McCormack, *supra* note 3, at 8, 12 (explaining how communities who believe climate change is a hoax are often the ones most impacted and displaced by natural disasters in states such as Florida and Texas).

<sup>12</sup> Scarlet Andrzejczak, *PAS Quicknotes: Managed Retreat*, AM. PLAN. ASS'N (June 1, 2024); Katie Sinclair, *Water, Water Everywhere, Communities on the Brink: Retreat As A Climate Change Adaptation Strategy in the Face of Floods, Hurricanes, and Rising Seas*, 46 *ECOLOGY L.Q.* 259, 308 (2019) (discussing how Tangier Island residents, compared to other communities, would rather hold out and wait until the island is uninhabitable before leaving, rather than act proactively).

<sup>13</sup> Hafner, *supra* note 1.

<sup>14</sup> Andrea McArdle, *Managing "Retreat": The Challenges of Adapting Land Use to Climate Change*, 40 *U. ARK. LITTLE ROCK L. REV.* 605, 609–10 (2018).

<sup>15</sup> *Id.*

<sup>16</sup> See generally Anne Siders, *Managed Coastal Retreat: A Legal Handbook on Shifting Development Away from Vulnerable Areas*, SABIN CTR. CLIMATE CHANGE, COLUM. L. SCH. (Oct. 2013) (exploring different managed retreat tools that governments can utilize such as setbacks, easements, buyouts, or land use restrictions); see, e.g., Joseph Lee, *This Coastal Tribe Has a Radical Vision for Fighting Sea-Level Rise in the Hamptons*, *VOX* (Sept. 17, 2024) (discussing how the Shinnecock Nation has been talking about managed retreat from their coastal reservation).

flooding that jeopardize the island's future. This Part will analyze the scientific and socio-economic aspects of these risks, incorporating data from environmental studies and historical records, to provide a comprehensive overview of the challenges Tangier Island confronts in the face of climate vulnerability.

Part II will examine how Virginia's state laws address the urgent climate adaptation needs of Tangier Island. This Part will review the legal mechanisms at the local and state levels that impact climate adaptation efforts on the island. In particular, it will explore Virginia's constitutional mandates, statutory frameworks, and judicial precedents, analyzing how these elements either support or hinder adaptive strategies necessary to mitigate climate risks. Additionally, it will focus on how existing legal doctrines, like Dillon's Rule and takings law, create both opportunities and obstacles for the island's adaptation.

Furthermore, Part III will examine the roles of the federal government and the Chesapeake Bay Foundation (CBF) in addressing the specific climate challenges faced by Tangier Island. While CBF's environmental initiatives contribute to the broader Chesapeake Bay ecosystem, they do not directly address the island's immediate, localized adaptation needs. Additionally, federal programs like the Federal Emergency Management Agency's (FEMA) Building Resilient Infrastructure and Communities (BRIC) offer essential support for local resilience efforts; limitations in funding accessibility and application requirements often hinder Tangier's ability to benefit fully. This Part will explore the contributions and limitations of these actors in supporting Tangier Island's adaptation.

Lastly, Part IV proposes a managed retreat strategy or buyouts that relocate Tangier Island residents together to a nearby parcel of land, preserving their community and cultural ties while ensuring safety from rising sea levels. Through eminent domain, the state government can provide fair compensation, fund the construction of new homes, and support a phased, resident-led transition. This approach keeps the community close to the island, blending government assistance with local input to secure a resilient future that honors Tangier Island's heritage.

## II. CLIMATE CHANGE RISK IN TANGIER ISLAND

Coastal communities around the world are increasingly vulnerable to the impacts of climate change, with sea-level rise, coastal erosion, and extreme weather events posing severe risks to their long-term viability.<sup>17</sup> Tangier Island

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<sup>17</sup> Khosravi, *supra* note 5, at 288.

exemplifies the challenges faced by many coastal communities as they confront rising waters and the erosion of their land.<sup>18</sup> Research shows that climate-driven sea-level rise, erosion, and flooding interact with social and economic factors to heighten exposure and vulnerability in coastal regions.<sup>19</sup>

Scientific assessments documented by the International Panel on Climate Change (IPCC) identify accelerating sea-level rise and coastal erosion as significant and ongoing global phenomena.<sup>20</sup> The Chesapeake Bay region, where Tangier Island is located, is one of the fastest-sinking areas in the United States due to both sea-level rise and land subsidence.<sup>21</sup> Studies conducted by government agencies such as the National Aeronautics and Space Administration (NASA) and the Corps have documented that islands in the Chesapeake Bay lose a vast amount of shoreline each year, and without significant intervention, Tangier Island could become uninhabitable within the next few decades.<sup>22</sup>

Beyond the immediate physical risks, the socio-economic and cultural ramifications of climate change-induced displacement are substantial.<sup>23</sup> Tangier Island's population, which has deep-rooted historical and cultural ties to the land, faces a future where they may be forced to leave behind not just their homes but their unique way of life.<sup>24</sup> This situation has made the island a focal point for both environmental and legal scholars who examine the tension between property rights, government interventions, and community resilience.<sup>25</sup> Understanding the risks to Tangier Island requires a detailed examination of both the island's topology and its historic and growing flood risk.

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<sup>18</sup> Carson, *supra* note 2, at 1283.

<sup>19</sup> Robert J. Nicholls & Anny Cazenave, *Sea-Level Rise and Its Impact on Coastal Zones*, 328 SCIENCE 1517, 1517–1518 (2010).

<sup>20</sup> Michael Oppenheimer et al., *Sea Level Rise and Implications for Low-Lying Islands, Coasts and Communities*, in SPECIAL REPORT ON THE OCEAN AND CRYOSPHERE IN A CHANGING CLIMATE 343, 376–377 (2019) [hereinafter IPCC SPECIAL REPORT]; Khosravi, *supra* note 5, at 290.

<sup>21</sup> Jack Eggleston & Jason Pope, *Land Subsidence and Relative Sea-level Rise in the Southern Chesapeake Bay Region*, U.S. GEOLOGICAL SURV. 1–2 (2013).

<sup>22</sup> See Adam Voiland, *Great Fox is Disappearing*, NAT'L AERONAUTICS & SPACE ADMIN. (Dec. 1, 2019); Warner & Kaine, *supra* note 7.

<sup>23</sup> See Hafner, *supra* note 1 (demonstrating how Tangier island's culture and roots could be lost due to a shrinking population and coastal erosion).

<sup>24</sup> *Id.*

<sup>25</sup> McCormack, *supra* note 3, at 11; Carson, *supra* note 2, at 1295–1296.

## A. Tangier Island and Its Neighborhood

Tangier Island, a small island located in the middle of the Chesapeake Bay, is home to a community of around 470 people whose ancestors have lived there for centuries.<sup>26</sup> The islanders speak a distinctive dialect tracing back to early English settlers and have a long-standing connection to the water, making their living primarily through the crabbing and fishing industries.<sup>27</sup> Despite its isolation and dependence on a fragile industry, Tangier Island is not classified as impoverished.<sup>28</sup> The average household income is \$33,405, and the poverty rate is only 2.08%, significantly lower than Virginia’s statewide poverty rate of 10.2% in 2023.<sup>29</sup> This economic stability contrasts with the challenges faced by many other rural communities, which grapple with equity issues arising from the impacts of climate change.<sup>30</sup>

Tangier Island is losing roughly 15 feet of its shoreline each year due to erosion.<sup>31</sup> If these trends persist, experts predict that the island could become largely “uninhabitable within the next 50 years.”<sup>32</sup> The combination of higher water levels, stronger storms, more frequent flooding, and generalized human behavior has accelerated the erosion process, putting the homes, businesses, and livelihoods of Tangier residents at severe risk.<sup>33</sup> In addition to the physical threats posed by climate change, the loss of land endangers the community’s cultural identity, which is deeply tied to their way of life on the island.<sup>34</sup>

Climate change is characterized by observable trends, including rising global temperatures, sea-level rise, and increasingly frequent extreme weather

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<sup>26</sup> McCormack, *supra* note 3, at 11.

<sup>27</sup> [Tangier Island Historic District](#), VA. DEP’T HISTORIC RES. (last updated Apr. 18, 2025).

<sup>28</sup> [Tangier Population](#), WORLD POPULATION REV. (last visited Nov. 5, 2024) (under ‘Economic and Income’ tab).

<sup>29</sup> *Id.*; Brad Kutner, [New Census Survey Shows Virginia Below Average Poverty Levels](#), WVTF (Sept. 12, 2024).

<sup>30</sup> See Khosravi, *supra* note 5, at 288–289 (describing how poorer counties in the Southeast are “most at risk to suffer the worst effects of climate change.” (internal citation omitted)).

<sup>31</sup> Warner & Kaine, *supra* note 7.

<sup>32</sup> *Id.*

<sup>33</sup> Ane Helen Toomey, [Notes from a Disappearing Island](#), Land & Climate Rev. (Dec. 17, 2024); Jeffrey Moore & Lauren Acker, *Recurrent Flooding, Sea Level Rise, and the Relocation of At-Risk Communities: Case Studies from the Commonwealth of Virginia*, WM. & MARY L. SCH. VA. COASTAL POL’Y CTR. 14–18 (2018) (exploring Tangier Island as a case study for how communities at risk can implement adaptation measures).

<sup>34</sup> Moore & Acker, *supra* note 33, at 13.

events.<sup>35</sup> In response to these trends, activities associated with greenhouse gas emissions have become a central focus of policy discussions and mitigation strategies.<sup>36</sup> Behavioral and environmental economics emphasize that modifying human actions is critical to mitigation.<sup>37</sup> The IPCC reported that sociocultural factors and behavioral changes could reduce emissions by at least 4%, yet behavioral approaches remain underutilized.<sup>38</sup> In fact, only 0.12% of research funding related to climate change is allocated to social sciences.<sup>39</sup>

Despite this overwhelming scientific consensus, many residents of Tangier Island argue that climate change is not the primary cause of their land loss, attributing the erosion instead to natural cycles.<sup>40</sup> The islanders remain glued to the view that climate change is a hoax.<sup>41</sup> However, the pooling of water, submersion of marshland, and the expansion of internal waterways are all typical consequences of sea level rise caused by climate change.<sup>42</sup> This skepticism further complicates efforts to implement adaptive measures, such as managed retreat, that could mitigate the island's environmental challenges.

Additionally, even amidst the obvious environmental impacts, Tangier residents have largely opposed the idea of relocating, expressing a strong desire to remain on their ancestral land.<sup>43</sup> Many of the islanders view relocation as an existential threat to their cultural heritage, and they fear that moving to the mainland would lead to the dissolution of their tight-knit community.<sup>44</sup> The residents' attachment to their homes, combined with the economic dependence on the local fishing industry, has created a situation where traditional solutions such as eminent domain or forced relocation are politically and socially untenable.<sup>45</sup>

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<sup>35</sup> *Scientific Consensus: Climate Change*, NAT'L AERONAUTICS & SPACE ADMIN. (last visited Dec. 16, 2025); *Evolving Assessments of Human and Natural Contributions to Climate Change*, CONG. RSCH. SERV. 1, 7 (Aug. 11, 2021).

<sup>36</sup> CONG. RSCH. SERV., *supra* note 35, at 1–2; IPCC SPECIAL REPORT, *supra* note 20, at 324, 374.

<sup>37</sup> Anjali Narang, Comment, *Optimizing Nudges for Climate Change: Insights From Behavioral and Environmental Economics*, 54 ENV'T L. REP. 10646, 10646–47.

<sup>38</sup> Felix Creutzig et al., *Demand, Services and Social Aspects of Mitigation in SIXTH ASSESSMENT REPORT OF THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE: CLIMATE CHANGE 2022: MITIGATION OF CLIMATE CHANGE [hereinafter SIXTH ASSESSMENT]* 503, 536 (2022).

<sup>39</sup> Narang, *supra* note 37, at 10646.

<sup>40</sup> Khosravi, *supra* note 5, at 287–288.

<sup>41</sup> *Id.*

<sup>42</sup> Simon Worrall, *Tiny U.S. Island is Drowning. Residents Deny the Reason*, NAT'L GEOGRAPHIC (Sept. 7, 2018); Toomey, *supra* note 33.

<sup>43</sup> Hafner, *supra* note 1.

<sup>44</sup> *Id.*; Toomey, *supra* note 33.

<sup>45</sup> Hafner, *supra* note 1.

However, the island's future is becoming increasingly uncertain as the forces of nature continue to encroach upon their land, raising urgent questions about how to protect the community without infringing on their rights or cultural identity.<sup>46</sup>

The case of Tangier Island represents a growing challenge for coastal communities around the world that are facing similar threats from climate change.<sup>47</sup> The question of how to address climate-induced displacement in a way that balances environmental realities with respect for individual property rights and cultural preservation is a pressing issue, not just for Tangier Island, but for many other vulnerable areas as well.

### B. Historic and Growing Risk of Flooding

Tangier's susceptibility to flooding has rapidly worsened over recent decades, driven by relentless coastal erosion and the increasing frequency of powerful storm surges.<sup>48</sup> Since the 1850s, the island has lost nearly two-thirds of its original landmass, a change accelerated by sea level rise and erosion.<sup>49</sup> This loss has not only diminished Tangier's physical boundaries but also heightened its vulnerability to the Chesapeake Bay's tidal shifts and severe weather.<sup>50</sup> Historical data also indicates a significant escalation in both the frequency and intensity of these events, with storms that were once considered rare now having an outsized impact on the town's infrastructure and safety.<sup>51</sup>

This problem, compounded by Tangier's low elevation, leaves the town highly exposed to tidal flooding, particularly during hurricanes and nor'easters.<sup>52</sup> Notably, the August 1933 Chesapeake-Potomac hurricane brought intense tidal surges, flooding much of Tangier Island and submerging homes up to their second stories.<sup>53</sup> The devastation forced around one-third of the town's residents to

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<sup>46</sup> Sinclair, *supra* note 12, at 290, 308; Toomey, *supra* note 33.

<sup>47</sup> Carson, *supra* note 2, at 1284 (quoting scientists' prediction that "even if humanity were to stop all [sea-level rise inducing] carbon emissions today, at least 414 towns, villages, and cities across the country would face relocation." (internal citation omitted)).

<sup>48</sup> ACCOMACK-NORTHAMPTON PLANNING DIST. COMM'N, THE EASTERN SHORE OF VIRGINIA 2021 HAZARD MITIGATION PLAN 330, 343-347 (2021) [hereinafter VA HAZARD MITIGATION PLAN].

<sup>49</sup> *Id.* at 343 (finding that over 75% of the island has disappeared from 1850-2015).

<sup>50</sup> *Id.* at 343-344.

<sup>51</sup> *Id.* at 344-347; see also, *Does Tangier Have Wind Risk?*, FIRST STREET (last visited Dec. 16, 2025) ("Average maximum wind speeds in Tangier are higher now than they were 30 years ago, and 100% of homes in Tangier have at least some risk.").

<sup>52</sup> VA HAZARD MITIGATION PLAN, *supra* note 48, at 8, 341.

<sup>53</sup> *Id.* at 10, 330.

relocate permanently due to widespread destruction and loss of property.<sup>54</sup> Since that time, hurricanes such as Isabel in 2003 and Sandy in 2012 have continued to demonstrate the vulnerability of Tangier Island to severe flooding, highlighting the need for proactive measures to protect the town and its residents.<sup>55</sup>

Hurricane Isabel struck in 2003, wreaking havoc across the Chesapeake Bay and causing catastrophic flooding on Tangier.<sup>56</sup> With wind gusts in the Chesapeake of up to 87 mph and storm surges between 4 and 6 feet off the Virginia coast, Isabel flooded homes, destroyed nearly half of the crab shanties crucial to Tangier’s fishing industry, and damaged residents’ homes and businesses.<sup>57</sup> The storm highlighted the fragile state of Tangier’s infrastructure and the risks associated with repeated exposure to severe storms, especially given that many of the crab shanties are ineligible for flood insurance under the National Flood Insurance Program due to their location over water.<sup>58</sup> Furthermore, when Hurricane Sandy hit in 2012, it exacerbated these challenges.<sup>59</sup> Tangier once again experienced significant impacts to much of the island’s infrastructure, requiring costly repairs.<sup>60</sup> The island’s lack of natural barriers further exposes it to the force of wind-driven tides, worsening the effects of each passing storm.<sup>61</sup>

Today, the island faces flooding that interrupts daily life several times a year.<sup>62</sup> Climate projections indicate that Tangier could face increased flooding

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<sup>54</sup> *Id.* at 330.

<sup>55</sup> *Id.* at 15, 343–344.

<sup>56</sup> *Id.* at 15, 344–345.

<sup>57</sup> Kevin Ambrose, *Hurricane Isable Struck the Mid-Atlantic 15 Years Ago, and its Memory is Still Fresh as Florence Approaches*, WASH. POST (Sept. 11, 2018); *Isabel Anniversary*, NAT’L WEATHER SERV. (last visited Dec. 17, 2025); VA HAZARD MITIGATION PLAN, *supra* note 48, at 345.

<sup>58</sup> VA HAZARD MITIGATION PLAN, *supra* note 48, at 345.

<sup>59</sup> *Id.* at 344 (describing the grant from the state and Corps to address coastal erosion after the storm); Amy Brady, *The Communities Losing Ground to Climate Change*, THE NEW REPUBLIC (Aug. 31, 2018) (describing the destruction by Hurricane Sandy and how it dug up some skeletons from eroded graves).

<sup>60</sup> VA HAZARD MITIGATION PLAN, *supra* note 48, at 60 (stating that Hurricane Sandy caused over \$6 million in damages on the Eastern Shore, “including significant damage in . . . Tangier and other bayside locations”); Brady, *supra* note 58.

<sup>61</sup> VA HAZARD MITIGATION PLAN, *supra* note 48, at 341, 343–344 (showing how significant coastal erosion, sea-level rise, and the impacts of hurricanes has left the island reliant on seawalls and jetties to protect them).

<sup>62</sup> Kaitlyn McGrath, *Yes, This Sinking Island in Virginia is Being Threatened by Climate Change*, WUSA 9 (Dec. 13, 2023) (“Whether it’s a nor’easter or tropical storm, four to five times a year more and more of the island gets inundated.”).

from regular tides alone within the next few decades.<sup>63</sup> The flooding risk is anticipated to intensify with continued land loss and rising sea levels, potentially rendering the island largely uninhabitable within the next few decades unless significant intervention occurs.<sup>64</sup> Despite efforts to address these risks, Tangier's existing hazard mitigation measures, including flood insurance and small-scale infrastructure adaptations, fail to address the escalating threats the town faces.<sup>65</sup> As floodwaters rise higher each year, Tangier requires more extensive, innovative interventions. Without immediate, sweeping changes, Tangier's viability as a livable community is at grave risk—adaptation plans alone will not suffice.

### III. THE ROLE OF VIRGINIA STATE LAW IN CLIMATE ADAPTATION AND LAND USE FOR TANGIER ISLAND

Virginia's legal framework provides a complex legal landscape for climate adaptation efforts, encompassing constitutional mandates, statutory laws, and judicial precedents that both empower and constrain resilience-building initiatives. The increasing threats of flooding, coastal erosion, and rising sea levels on Tangier Island necessitate a comprehensive legal and policy strategy to protect both natural environments and human communities. This Part will examine the various legal mechanisms in Virginia that govern climate adaptation and land use, focusing on how state constitutional provisions, statutory laws, common law principles, and local ordinances interact in the context of climate adaptation.

Virginia's legal framework includes a variety of tools designed to address environmental challenges and guide land use in vulnerable areas like Tangier Island. Central to this framework are the State Constitution, state statutes, and common law doctrines. Additionally, local zoning ordinances and state-level initiatives form the bedrock of climate adaptation strategies. By analyzing Virginia's state laws, this Part aims to provide a clearer understanding of how the state's legal system supports or hinders climate adaptation efforts.

#### A. Virginia State Constitution

Article XI of the Virginia Constitution is the foundational policy statement on the conservation and protection of the state's natural resources, waters, and

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<sup>63</sup> VA HAZARD MITIGATION PLAN, *supra* note 48, at 344–345.

<sup>64</sup> Warner & Kane, *supra* note 7.

<sup>65</sup> VA HAZARD MITIGATION PLAN, *supra* note 48, at 340–342.

lands.<sup>66</sup> Article XI, Section 1 emphasizes the Commonwealth's commitment to safeguarding its natural environment, which theoretically supports efforts to address climate-related challenges like those faced by Tangier Island.<sup>67</sup> The provision reads:

To the end that the people have clean air, pure water, and the use and enjoyment for recreation of adequate public lands, waters, and other natural resources, it shall be the policy of the Commonwealth to conserve, develop, and utilize its natural resources, its public lands, and its historical sites and buildings. Further, it shall be the Commonwealth's policy to protect its atmosphere, lands, and waters from pollution, impairment, or destruction, for the benefit, enjoyment, and general welfare of the people of the Commonwealth.<sup>68</sup>

While this constitutional mandate affirms Virginia's responsibility to protect its natural resources, the provision is not self-executing, meaning it does not impose direct, enforceable obligations on state entities.<sup>69</sup> The Virginia Supreme Court in *Robb v. Shockoe Slip Foundation* interpreted Article XI, Section 1 to lack self-executing force, notwithstanding its articulation of a policy favoring preservation of natural and historic resources.<sup>70</sup> The court in *Robb* found that

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<sup>66</sup> VA. CONST. art. XI; Tyler Demetriou, Note, *Reinvigorating the Virginia Constitution's Environmental Provision*, 40 VA. ENV'T. L.J. 66, 68–69 (2022).

<sup>67</sup> Demetriou, *supra* note 66, at 68–69 (stating that Section 1 was intended to provide an enforceable right to a healthy environment and protection of the environment).

<sup>68</sup> VA. CONST. art. XI, § 1.

<sup>69</sup> Demetriou, *supra* note 66, at 72–73.

<sup>70</sup> *Robb v. Shockoe Slip Found.*, 324 S.E.2d 674, 676 (Va. 1985)

A constitutional provision may be said to be self-executing if it supplies a sufficient rule by means of which the right given may be employed and protected, or the duty imposed may be enforced; and it is not self-executing when it merely indicates principles, without laying down rules by means of which those principles may be given the force of law. Article XI, § 1, contains no declaration of self-execution, it is not in the Bill of Rights, it is not declaratory of common law, and it lays down no rules by means of which the principles it posits may be given the force of law. Instead, its language invites crucial questions of both substance and procedure.

while this constitutional provision emphasizes the importance of environmental conservation, it does not contain the necessary procedural or enforceable rules to mandate actions by the state.<sup>71</sup> This decision illustrates that legislative measures are required to operationalize the principles set forth in Article XI, Section 1.<sup>72</sup> The ruling highlighted that without such legislative backing, constitutional policy statements, although meaningful, do not independently impose obligations or enforceable duties on the Commonwealth or its agencies.

The non-self-executing nature of Article XI has significant implications for Virginia's approach to climate change for Tangier Island. While Article XI provides constitutional backing for environmental conservation, translating this policy into actionable climate adaptation strategies requires legislative action.<sup>73</sup> Whether the legislature will enact such measures is uncertain and depends on factors such as political will, economic priorities, and public pressure.<sup>74</sup> To have a practical effect, the state legislature must pass laws that give effect to Article XI.<sup>75</sup> Without legislative support, efforts to protect Tangier Island remain limited by the legal framework established by the courts' interpretation of the state's Constitution.<sup>76</sup>

#### B. Virginia State Statutes

Despite the existential threat of rising sea levels faced by its coastal communities, Virginia's statutory framework has yet to develop a targeted and comprehensive approach to address the unique vulnerabilities of Tangier Island. While some Virginia laws provide general mechanisms for climate adaptation, there is a clear gap when it comes to the specific, urgent needs for Tangier Island.

One of the primary statutes relevant to climate regulation in Virginia is the Virginia Clean Economy Act (VCEA), passed in 2020, which aims to achieve a

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(International citation omitted).

<sup>71</sup> *Id.* at 676–677.

<sup>72</sup> *Id.* at 677 (“Since the General Assembly already possessed the authority mentioned in section 2, the only purpose for adding that section to Article XI was to instruct the General Assembly to enact statutes whereby the public policy declared in section 1 could be executed.”).

<sup>73</sup> *See, e.g.*, Demetriou, *supra* note 66, at 91–100 (arguing that in order to make Article XI effective at protecting the environment, that there should be a new constitutional amendment); *Robb*, 324 S.E. 2d at 677.

<sup>74</sup> A full examination of legislative options and future political viability is outside the scope of this Article.

<sup>75</sup> Demetriou, *supra* note 66, at 91, 96–99.

<sup>76</sup> *Id.* at 100.

transition to renewable energy by 2050.<sup>77</sup> While critical for addressing long-term climate change, it does not address the immediate risks threatening Tangier Island’s survival.<sup>78</sup> Similarly, the Virginia Coastal Primary Sand Dune Protection Act (Sand Dune Act), designed to preserve sand dunes as natural barriers, offers limited relevance to Tangier Island, which relies on marshland ecosystems for its natural defenses—ecosystems that the act does not adequately protect.<sup>79</sup>

Additionally, the Resilient Virginia Revolving Fund (RVRF) represents a more direct approach to climate resilience by providing low-interest loans and grants for adaptation projects.<sup>80</sup> However, programs that rely on loans and grants pose inherent challenges because neither source of funding is guaranteed.<sup>81</sup> As a result, local communities like Tangier—which are most in need of adaptation projects—struggle to secure reliable, non-repayable support, leaving them vulnerable despite the existence of formal funding mechanisms. Without

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<sup>77</sup> VA. CODE ANN. § 56-585.5 (2020). VCEA mandates a transition to 100% carbon-free electricity by 2050, with interim targets for carbon reduction, promotion of renewable energy sources such as wind and solar, and improvement of energy efficiency standards. *Id.* § 56-585.5(C)(1).

<sup>78</sup> See *The Virginia Clean Economy Act (VCEA) Summary*, DEP’T ENERGY (2021) (The VCEA mandates a Renewable Portfolio Standard (RPS), requiring Dominion Energy to achieve 100% renewable electricity by 2045 and Appalachian Power by 2050. It prioritizes the development of 16,100 MW of solar and onshore wind, 5,200 MW of offshore wind, and 2,700 MW of energy storage, with storage partially available for third-party ownership. However, even if these transition benchmarks are met on time, they likely would not occur fast enough to reverse the erosion and sea-level rise Tangier is currently experiencing).

<sup>79</sup> VA. CODE ANN. §§ 28.2-1400–1420. The Virginia Coastal Primary Sand Dune Protection Act was initially enacted in 1980 to preserve sand dunes in the tidewater region and was later expanded in 2008 to protect all dunes and beaches in the area. *Coastal Primary Sand Dunes and Beaches*, VA. INST. MARINE SCI. (last visited Dec. 17, 2025). The Virginia Marine Resources Commission administers the act and restricts activities that could harm these natural barriers. VA. CODE ANN. § 28.2-1406. While beneficial for coastal conservation, its impact on Tangier Island is limited due to the island’s reliance on marshes rather than dunes, leaving it vulnerable to rising sea levels.

<sup>80</sup> VA CODE ANN. §§ 10.1-603.28–603.40; In 2022, the General Assembly established the Resilient Virginia Revolving Loan Fund (RVRF) by amending and reenacting §§ 62.1-199, 62.1-203 and introducing a new chapter under Title 10 of the Virginia Code, §§ 10.1-603.28–10.1-603.40. *Resilient Virginia Revolving Loan Fund*, DEP’T CONSERVATION & RECREATION (last visited Dec. 18, 2025). The RVRF provides financial assistance to local governments for projects addressing flooding, sea-level rise, and other climate-related issues. *Resilient Virginia Revolving Fund*, VA. RES. AUTH. (last visited Dec. 18, 2025).

<sup>81</sup> Gaia Larsen, Natalia Alayza & Molly Caldwell, *How to Get Finance Flowing to Climate Adaptation*, WORLD RES. INST. (Nov. 13, 2025) (describing barriers to scaling adaptation finances for vulnerable developing countries).

sufficient financial resources, Tangier struggles to access the capital needed for critical projects like seawalls or infrastructure elevation.<sup>82</sup>

The absence of explicit community-focused statutory support for Tangier Island highlights a critical shortcoming in Virginia’s climate adaptation strategy. The Virginia Community Flood Preparedness Fund, for example, provides loan- and grant-based support for local resilience planning, and statewide frameworks—such as the Virginia Coastal Resilience Master Planning Framework and Phase I of the Coastal Resilience Master Plan—offer strategic guidance, yet none of these mechanisms require state agencies to design or implement adaptation projects for communities at the highest risk of climate-induced displacement.<sup>83</sup> The state has a Chief Resilience Officer to coordinate statewide resilience policy, and beginning in 2024, the General Assembly established the Office of Resilience under the Secretary of Natural and Historic Resources; as of May 2025, the office’s three funded positions were filled, and the office is designed primarily as a coordination hub that aligns statewide planning and supports interagency implementation rather than directly implementing projects itself.<sup>84</sup>

For Tangier Island, this means that crucial projects, such as the construction of protective barriers, the reinforcement of the island’s marshlands, and the development of long-term relocation plans, are left to sporadic federal grants and piecemeal state funding efforts.<sup>85</sup> Federal agencies such as FEMA can

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<sup>82</sup> See VA HAZARD MITIGATION PLAN, *supra* note 48, at 342, 344 (describing how, without federal or state assistance, Tangier is unable to elevate homes and improve infrastructure impacted by storms and erosion).

<sup>83</sup> VA. CODE ANN. § 10.1-603.25(B) (“Money in the Fund shall be used solely for the purpose of enhancing flood prevention or protection and coastal resilience”); DEP’T OF CONSERVATION & RECREATION, [VIRGINIA COASTAL RESILIENCE MASTER PLANNING FRAMEWORK](#) 4–6 (Oct. 21, 2020) (summarizing the risks Virginia faces and the framework created to address them); DEP’T OF CONSERVATION & RECREATION, [VIRGINIA COASTAL RESILIENCE MASTER PLAN PHASE I X–XII](#) (Dec. 2021) (stating that due to the timeframe for publishing Phase I, “the future flood hazards for riverine, stormwater, and compound flooding as affected by sea level rise, nor . . . climate change” were considered).

<sup>84</sup> VA. CODE ANN. § 2.2-220.5(A); OFF. OF RESILIENCE & SEC’Y OF NAT. & HISTORIC RES., [RESILIENCE IN THE COMMONWEALTH OF VIRGINIA: STATUS UPDATE](#) 3-5 (July 2025).

<sup>85</sup> See, e.g., Press Release, Sen. Tim Kaine, [Warner & Kaine Announce Over \\$15.2 Million to Address Coastal Resilience in Virginia Beach and on Tangier Island](#) (May 16, 2025) (announcing over \$10 million of federal funds awarded to Tangier for dredgings and shoal removal to address erosion); see also Christopher Collette, [Saving Tangier: Disappearing Chesapeake Bay Island Receives Grant Money](#), 13 NEWS NOW (June 3, 2024) (announcing over \$2 million of state funds awarded to Tangier to protect a petroleum storage facility from flooding).

play a crucial role in providing disaster relief and funding for certain mitigation efforts.<sup>86</sup> However, these programs are often reactive and event-driven, focusing on post-disaster recovery rather than proactive measures to address long-term risks and community adaptation needs.<sup>87</sup>

### C. Virginia Common Law and Dillon's Rule

Virginia's legal landscape imposes substantial barriers to climate change litigation, particularly for vulnerable communities like Tangier Island, which are directly impacted by rising sea levels and increased storm severity. These barriers are primarily rooted in restrictive common law doctrines and statutory limitations, such as Dillon's Rule, which significantly constrain local government authority. The impact of these legal restrictions is evident in recent Virginia cases addressing standing, insurance liability, and local regulatory powers. Together, these elements shape the unique and challenging environment for addressing climate harms within Virginia's judicial system.

#### i. *Common Law Barriers to Climate Litigation*

In Virginia, plaintiffs face considerable obstacles when attempting to bring common law claims for climate-related harms. These challenges are rooted not only in the stringent standing requirements but also in the doctrine of sovereign immunity, which generally requires state consent before a suit can proceed against them.<sup>88</sup> While some states create exceptions to sovereign immunity for certain issues, Virginia law does not have a blanket environmental exception to sovereign immunity.<sup>89</sup> Rather, the courts have clarified that while Article I, §11 is self-executing and therefore permits declaratory or injunctive relief claims against the Commonwealth, claims based on Article XI, §1 remain non-self-executing and

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<sup>86</sup> *Funding by Disaster Type*, FED. EMERGENCY MGMT. AGENCY (last visited Dec. 18, 2025) (listing all funding options available to states, Tribes, communities, and territories by type of disaster).

<sup>87</sup> For the purposes of this Article, it is assumed that FEMA will continue to be able to provide this type of federal assistance to communities. The role of FEMA and other federal actors is addressed in Part IV.

<sup>88</sup> U.S. CONST. amend. XI.

<sup>89</sup> *See, e.g.*, GA. CODE ANN. § 50-21-1(a) (waiving sovereign immunity when the state, state agency, or department breaches a written contract).

are thus barred without legislative waiver.<sup>90</sup> The landmark case illustrating this recent development is *Layla H. v. Commonwealth*.<sup>91</sup>

In *Layla H.*, the plaintiffs, children living in Virginia, argued that the Commonwealth's practice of permitting fossil fuel infrastructure contributed to climate harms, including increased storm frequency and public health risks.<sup>92</sup> The plaintiffs presented extensive evidence of climate-related injuries, including exposure to extreme heat and other health issues related to increased pollution.<sup>93</sup> However, the court dismissed the case, holding that the plaintiffs lacked standing, stating that their injuries were diffuse and generalizable to the broader public rather than specific to the plaintiffs themselves.<sup>94</sup> Importantly, however, the decision clarified that Article I, § 11 is self-executing and therefore waives sovereign immunity for claims seeking declaratory or injunctive relief, whereas Article XI, § 1 is not self-executing and sovereign immunity cannot be waived unless the legislature affirmatively authorizes it.<sup>95</sup>

*Layla H.* illustrates Virginia's rigid adherence to standing requirements that require plaintiffs to show a concrete, particularized injury directly attributable to the defendant's actions—a standard that poses unique challenges in climate cases. This difficulty is not unique to Virginia. After *Lujan v. Defenders of Wildlife*, states nationwide adopted the modern three-part standing test requiring injury, causation, and redressability, making climate litigation challenging across most jurisdictions.<sup>96</sup> Because climate change often presents broadly shared harms with global causative factors, individual plaintiffs struggle to prove that their injuries are distinct from those faced by the general public—a requirement Virginia courts consistently uphold to prevent courts from becoming forums for

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<sup>90</sup> *Layla H. v. Commonwealth*, 902 S.E. 2d 93, 100, 104–105 (Va. Ct. App. 2024) (stating that the Due Process Clause in Article I, § 11 is self-executing and permits suit against the Commonwealth, whereas under Article XI, § 1 environmental and public-trust claims remain non-self-executing and therefore barred by sovereign immunity).

<sup>91</sup> *Id.*

<sup>92</sup> *Id.* at 96–97.

<sup>93</sup> *Id.* at 97–98 (impacts included heat rashes, Lyme disease, and climate related-anxiety).

<sup>94</sup> *Id.* at 103–104 (holding that standing requires a plaintiff to show “a direct interest, pecuniary or otherwise, in the outcome of the controversy that is separate and distinct from the interest of the public at large,” and concluding that plaintiffs failed to meet this standard (internal citation omitted)).

<sup>95</sup> *Id.* at 100–101.

<sup>96</sup> *Lujan v. Defs. of Wildlife*, 504 U.S. 555, 573–78 (1992) (holding that Article III standing requires a concrete and particularized injury, causation, and redressability, and explaining that generalized grievances shared broadly by the public do not confer standing); [Overview of Lujan Test](#), CONST. ANNOTATED (last visited Dec. 18, 2025).

generalized policy grievances.<sup>97</sup> As noted in *Layla H.*, standing in Virginia requires a tangible benefit that would result from judicial intervention, which, due to the transboundary nature of climate change, is often unfeasible to establish at the local or state level.<sup>98</sup>

Similarly, in *AES Corp. v. Steadfast Ins. Co.*, the Virginia Supreme Court addressed whether insurers have a duty to defend energy companies against claims related to greenhouse gas emissions.<sup>99</sup> The court concluded that climate-related damages from greenhouse gas emissions did not constitute an “occurrence” or “property damage” under the commercial general liability policies, as these emissions were seen as an intentional action, rather than an unintended event.<sup>100</sup> *AES Corp.* illustrates a further limitation: traditional liability frameworks are often ill-suited to climate claims, as they depend on distinctions between intentional and accidental harms that are difficult to apply to complex, cumulative environmental damage. The restrictive approach to liability and coverage reflected in Virginia’s common law precedents discourages broader efforts to address climate resilience at the local level by making it financially untenable for individuals and localities to pursue or defend against climate-related claims.

These cases show that Virginia’s legal framework fails to adequately support climate-affected communities, especially those as vulnerable as Tangier Island. Strict standing requirements and limited judicial pathways leave few opportunities for relief in climate-based claims. Any future claim by Tangier residents would require a concrete, particularized injury traceable to state action under *Layla H.* They would also face the same hurdle in federal court under *Lujan*, which requires individualized injuries, causation, and redressability. Since climate impacts are diffuse, globally driven, and not easily linked to a single governmental actor, Tangier would struggle to satisfy standing requirements under either test. This raises the question: what other potential cause of action could Tangier Island pursue to seek climate relief? Ultimately, legislative intervention, rather than litigation, remains the most realistic path to meaningful climate protection.

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<sup>97</sup> *Layla H.*, 902 S.E. 2d at 101–102.

<sup>98</sup> *Id.* at 104 (“[G]iven the global nature of the climate change issue, Plaintiffs have not shown that they ‘personally would benefit in a tangible way from the court’s intervention.’” (internal citation omitted)).

<sup>99</sup> *AES Corp. v. Steadfast Ins. Co.*, 725 S.E. 2d 532, 533 (Va. 2012).

<sup>100</sup> *Id.* at 538.

ii. *Dillon’s Rule and Restrictions on Local Governance*

Beyond judicial barriers from standing requirements, sovereign immunity, and liability limitations, Virginia’s adherence to Dillon’s Rule of Statutory Construction (Dillon’s Rule) significantly restricts the ability of local governments to independently address climate impacts.<sup>101</sup> Dillon’s Rule, a doctrine established by Judge John Forest Dillon in the late 19<sup>th</sup> century, limits municipalities to powers expressly granted by the state legislature, as well as those that are either implied or essential to carry out municipal functions.<sup>102</sup> Virginia favors this model because it promotes uniformity across the state, which in turn supports fair business practices.<sup>103</sup>

However, the implications of Dillon’s Rule for climate change are profound. Virginia operates under one of the strictest versions of Dillon’s Rule in the country, creating a highly centralized governance structure.<sup>104</sup> The Virginia Supreme Court has consistently upheld this doctrine, reinforcing a centralized governance structure. For instance, in *Marble Technologies Inc. v. City of Hampton*, the court emphasized that local governments operate as extensions of the state with limited autonomy.<sup>105</sup> Similarly, in *Bragg Hill Corp. v. City of Fredericksburg*, the Virginia Supreme Court upheld municipal zoning actions only when clearly authorized by state statute.<sup>106</sup>

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<sup>101</sup> *City of Richmond v. Prop. Ventures, Inc.*, 899 S.E.2d 82, 86–87, 547 (Va. Ct. App. 2024) (stating that “under Dillon’s Rule, municipal governments have only those powers which are expressly granted by the state legislature, those powers fairly or necessarily implied from expressly granted powers, and those powers which are essential and indispensable.” (internal citation omitted)).

<sup>102</sup> *Id.*; See also Clay L. Wirt, *Dillon’s Rule*, VA. TOWN & CITY at 2 (Aug. 1989).

<sup>103</sup> See Hon. Jon D. Russell & Aaron Bostrom, *Federalism, Dillon Rule and Home Rule*, AM. CITY CTY. EXCHANGE at 4 (Jan. 2016) (“State governments want to bring economic growth and prosperity to the entire state; therefore it is rational for the state to allocate the proper amount of authority to local governments that will enable them to operate most effectively,” thus states follow Dillon’s Rule).

<sup>104</sup> *Id.*

<sup>105</sup> *Marble Techs., Inc. v. City of Hampton*, 690 S.E. 2d 84, 88 (Va. 2010) (The court reiterated that under Dillon’s Rule, municipalities have “only those powers that are expressly granted, those necessarily or fairly implied from expressly granted powers, and those that are essential and indispensable,” and “[i]f there is a reasonable doubt whether legislative power exists, the doubt must be resolved against the local governing body.” (internal citations omitted)).

<sup>106</sup> *Bragg Hill Corp. v. City of Fredericksburg*, 831 S.E. 2d 483, 489 (Va. 2019)

The Dillon Rule of strict construction controls our determination of the powers of local governing bodies. Municipalities have only those powers that are (1) expressly granted by the General Assembly, (2) “necessarily or fairly

In contrast, states like Florida have adopted the “Home Rule” to grant localities more self-governance.<sup>107</sup> For example, Florida municipalities are able to develop and implement their own climate adaptation strategies through programs such as the Resilient Florida Grant Program and the Florida Adaptation Planning Guidebook, which provide funding mechanisms, planning models, and technical guidance for local governments responding to sea-level rise, storm surge, and coastal erosion.<sup>108</sup> By comparison, Virginia’s centralized approach requires communities like Tangier Island to obtain state approval before pursuing tailored adaptation measures, resulting in adaptation work that is frequently slowed or obstructed by legislative dependencies.<sup>109</sup> Consequently, local climate adaptation initiatives are frequently delayed or obstructed by the need for state legislative action.

Legal scholars argue that climate change will increasingly force difficult decisions, such as relocating vulnerable communities in Virginia, as adaptation becomes essential. Norfolk, for example, has had to grapple with the limitations in municipal power while also having to address a growing housing crisis, flooding, and sea-level rise.<sup>110</sup> In his article *Climate Adaptation Strategies: How*

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implied” from those express powers, and (3) “essential to the declared objects and purposes” of the municipality.

(internal citations omitted); *see also* Alexandria City Council v. Mirant Potomac River, LLC, 643 S.E. 2d 203, 206–208 (Va. 2007) (holding an amendment to a zoning ordinance as invalid because it was beyond the scope of an enabling statute).

<sup>107</sup> Karly Newcomb, Note, *Breaking Up with Dillon: A Practical Call for Virginia State & Local Government Law Reform*, 45 WM. & MARY ENV’T. L. & POL’Y REV. 247, 264 (2020); Judge James R. Wolf & Sarah Harley Bolinder, *The Effectiveness of Home Rule: A Preemption and Conflict Analysis*, 83 FLA. BAR J. 92 (June 2009) (stating that the Municipal Home Rules Power Act “guarantees that local governments retain governmental, corporate, and proprietary powers to enable them to conduct municipal government, perform municipal functions, and render municipal services.”).

<sup>108</sup> *Resilient Florida Program*, DEP’T ENV’T PROT. (last visited Dec. 19, 2025); DEP’T ENV’T PROT. & FLA. COASTAL. MGMT. PROGRAM, *FLORIDA ADAPTATION PLANNING GUIDEBOOK I* (2018).

<sup>109</sup> *See, e.g., City of Richmond*, 899 S.E. 2d 82, 87–88 (Va. Ct. App. 2024) (finding that, although the General Assembly granted the city the ability to “charge property owners for abatement of weeds” and to see payment of those charges through judicial actions and penalties, that under Dillon’s Rule, that power is limited to weeds on a property owner’s property, and does not control weeds that extend out to public areas or adjacent properties—the General Assembly would have to extend that power to the city in order for them to enforce that ordinance).

<sup>110</sup> Madison Teeter & Alexander Fella, *The Life Aquatic: Norfolk’s Managed Retreat Puts Housing into Focus*, CURRENTS (June 21, 2022).

*Do We “Manage” Managed Retreat?*, Mark Nevitt raises the critical question: “How will Norfolk manage the proposed relocation of its community?”<sup>111</sup> Additionally, Mary-Carson Saunders, in *The Dillon Rule & Norfolk Sea Level Rise*, contends that despite the perceived constraints of Dillon’s Rule, Norfolk has significant authority to implement adaptation measures, including constructing berms, seawalls, and enforcing zoning ordinances.<sup>112</sup> Saunders introduces a “Dillon Two-Step” framework to navigate these legal constraints, stating that many flood management strategies are permissible within existing statutory powers.<sup>113</sup> This framework involves (1) determining whether the locality has the authority under state law to act and, if so, (2) ensuring that the power is exercised in a manner consistent with legislative intent.<sup>114</sup>

Building on this perspective, Lauren Gill in *The Dillon Rule and Sea Level Rise: An Analysis of the Impact of the Dillon Rule on Potential Adaptation Measures the City of Poquoson May Implement*, argues that the Dillon Rule is unlikely to preclude localities from adopting adaptive measures.<sup>115</sup> Gill highlights that Virginia’s General Assembly has conferred broad zoning and planning authority to local governments, enabling them to address flooding and sea-level rise.<sup>116</sup> By leveraging tools such as setbacks, zoning overlays, and floodplain management ordinances, local governments can advance the statutory goals of promoting public health, safety, and welfare while remaining consistent with legislative intent.<sup>117</sup>

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<sup>111</sup> Mark Nevitt, UNIV. OF PA. KLEINMAN CTR. FOR ENERGY POL’Y, [CLIMATE ADAPTATION STRATEGIES: HOW DO WE “MANAGE” MANAGED RETREAT?](#) 6, fn 10 (Aug. 25, 2020) (noting that Virginia is a Dillon’s Rule state, and localities like “Norfolk may only exercise those powers that the state expressly grants to it.”).

<sup>112</sup> Mary-Carson B. Saunders, *The Dillon Rule & Norfolk Sea Level Rise: An Analysis of the Limited Impact of the Dillon Rule on Planning for Sea Level Rise in Norfolk*, WM. & MARY L. SCH. VA. COASTAL POL’Y CTR. 2, 7–8 (2013) (discussing how Norfolk’s existing ordinances, such as the Floodplain/Coastal Hazard Overlay District, enable localized responses to mitigate flooding risks, emphasizing that proactive adaptation measures are achievable within the Dillon Rule framework).

<sup>113</sup> *Id.* at 4–6.

<sup>114</sup> *Id.* at 4.

<sup>115</sup> Lauren Gill, *The Dillon Rule and Sea Level Rise: An Analysis of the Impact of the Dillon Rule on Potential Adaptation Measures the City of Poquoson May Implement*, WM. & MARY L. VA. COASTAL POL’Y CTR. 7–9 (2013) (stating that although Virginia’s reliance on Dillon’s Rule restricts local governments from independently implementing sea-level rise adaptation measures without explicit authorization, courts generally uphold local land-use regulations as long as they remain within delegated statutory powers.).

<sup>116</sup> *Id.* at 6–7.

<sup>117</sup> *Id.* at 5, 10.

This discourse highlights the broader challenges posed by Virginia’s reliance on Dillon’s Rule. While scholars like Mary-Carson Saunders and Lauren Gill identify ways localities can navigate these constraints—such as leveraging zoning tools—the rule still limits proactive climate adaptation. For instance, Norfolk’s effort to adopt stricter floodplain management standards required express state authorization before implementation, delaying local resilience measures.<sup>118</sup> Similarly, Hampton Roads municipalities have faced obstacles in advancing sea-level rise adaptation projects without enabling legislation.<sup>119</sup> The need for express state authorization often delays or obstructs timely responses, leaving vulnerable communities like Tangier Island at risk.

#### D. Zoning Regulations

The Chesapeake Bay Preservation Act (CBPA or the Act) represents Virginia’s proactive approach to addressing climate change issues affecting the Bay.<sup>120</sup> Enacted in 1988, the CBPA aims to protect water quality in the Bay by regulating land use and development within the watershed.<sup>121</sup> The Act designates areas as Resource Protection Areas (RPAs) or Resource Management Areas (RMAs), which impose strict limits on new development in sensitive zones, such as wetlands, shorelines, and tidal areas, to reduce nonpoint source pollution.<sup>122</sup>

While these regulations intend to preserve natural buffers and mitigate runoff, Tangier Island itself does not have any local zoning laws that go beyond the requirements and regulations of the CBPA.<sup>123</sup> Historically, this framework has failed to address the critical issue facing Tangier, submersion due to rising sea levels, by restricting development without offering viable solutions for long-term

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<sup>118</sup> See *Norfolk’s Revised Zoning Ordinance Aims to Improve Flood Resilience*, PEW CHARITABLE TR. (Nov. 2019) (describing how Norfolk had to wait for the General Assembly to ask the Virginia Institute of Marine Science on how to combat coastal flooding, before the city could develop and implement new flooding ordinances).

<sup>119</sup> See, e.g., *FY2025 Federal Legislative Priorities*, HAMPTON ROADS MIL. & FED. FACILITIES ALL. 7–8 (2024) (requesting support for legislation to allow federal agencies to assist with projects and development).

<sup>120</sup> VA. CODE ANN. §§ 62.1-44.15:67–62.1-44.15:79.

<sup>121</sup> *Chesapeake Bay Preservation Act*, DEP’T ENV’T QUALITY (last visited Dec. 19, 2025).

<sup>122</sup> 4 VA. ADMIN. CODE §§ 50-90-10–50-90-270.

<sup>123</sup> *Tangier Zoning Ordinance*, TANGIER ISLAND (Jan. 4, 2028) (CBPA overlay is found in Article 4); *Tangier Town Plan*, TANGIER ISLAND 9–11, 13 (Nov. 20, 2001) (stating that Tangier does not have any environmental protection ordinances besides those required by CBPA).

adaptation.<sup>124</sup> In 2020, however, the General Assembly amended the CBPA to require consideration of sea level rise and climate change impacts, and the State Water Control Board subsequently updated its regulations to reflect this mandate.<sup>125</sup> Guidance to support implementation was recently finalized; however, the success and how these requirements and adaptation measures will be implemented are still uncertain.<sup>126</sup> Thus, while the amendment represents progress, the CBPA's emphasis remains largely on conservation, and only time will tell if the guidance provides a clear pathway for proactive adaptation; however, Tangier's residents continue to face the existential threat of climate change with limited options for relief. The CBPA effectively traps the island's residents in a regulatory framework that prevents expansion or adaptive infrastructure while only recently providing guidance on how to do so, and raising the possibility of triggering takings claims.<sup>127</sup>

#### E. Takings Clause Defense Against Climate Adaptation Measures

Zoning regulations in Virginia, as discussed above, focus heavily on conservation but often lack clear pathways for implementing long-term solutions or adaptive infrastructure. This is a major challenge for Tangier Island, as property owners can push back against climate adaptation measures by claiming that the loss of economic use of their land violates their Fifth Amendment rights under the Takings Clause.<sup>128</sup> The Takings Clause ensures that private property cannot be "taken for public use, without just compensation," which raises potential claims when adaptation measures infringe upon private property rights.<sup>129</sup> Balancing the need for public climate adaptation with the islanders' strong desire to remain on Tangier Island presents a significant challenge.

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<sup>124</sup> *Tangier Zoning Ordinance*, *supra* note 123 (see article 4, §§ 4–6, laying out the requirements and restrictions on development in RPA and RMAs).

<sup>125</sup> VA. CODE ANN. § 62.1-44.15:72(B); 9 VA. ADMIN. CODE § 25-830-155.

<sup>126</sup> *Guidance Memo No. 25-2004*, DEP'T ENV'T QUALITY (June 17, 2025); *Local Program Regulations & Guidance*, DEP'T ENV'T QUALITY (last visited Dec. 22, 2025).

<sup>127</sup> Mark Nevitt, *The Legal Crisis Within the Climate Crisis*, 76 STAN. L. REV. 1051, 1057–1060 (2024) (describing how different takings claims need to evolve to match climate change adaptation strategies by local governments).

<sup>128</sup> U.S. CONST. amend. V.

<sup>129</sup> *Id.* The Virginia Constitution has a similar provision requiring just compensation for the taking of private property by state and local governments. VA. CONST. art. I, § 11 ("No private property shall be damaged or taken for public use without just compensation").

*i. Physical Takings, Regulatory Takings and the Public Use Requirement*

Efforts to mitigate climate impacts, such as land-use restrictions, managed or unmanaged retreat policies, or infrastructure projects, may lead to disputes over whether such measures constitute physical or regulatory takings.<sup>130</sup> Physical takings involve the direct appropriation of private property, while regulatory takings occur when government regulations limit the use of a property to the point where it effectively deprives the owner of economically viable use.<sup>131</sup> In *Lucas v. South Carolina Coastal Council*, the U.S. Supreme Court held that regulations that deprive land of all economic utility amount to a regulatory taking, otherwise known as a per se taking.<sup>132</sup> In coastal communities, like Tangier Island, adaptation measures, like building restrictions to protect marshlands, could trigger takings claims if property owners demonstrate that such actions significantly impair the value or use of their property.<sup>133</sup>

Additionally, the Takings Clause requires the government to demonstrate that its appropriation of private property is for “public use.”<sup>134</sup> While individuals may argue that certain government actions do not constitute public use for the purposes of takings, courts have broadly interpreted this requirement to include legitimate public purposes, such as public safety and economic stability.<sup>135</sup> In *Kelo v. City of New London*, the Supreme Court upheld takings for economic development, and similarly in *Berman v. Parker*, the Supreme Court held that

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<sup>130</sup> Nevitt, *supra* note 127, at 1057–1059.

<sup>131</sup> *Id.* at 1069, 1072.

<sup>132</sup> *Lucas v. S.C. Coastal Council*, 505 U.S. 1003, 1019 (1992) (“We think, in short, that there are good reasons for our frequently expressed belief that when the owner of real property has been called upon to sacrifice all economically beneficial uses in the name of the common good, that is, to leave his property economically idle, he has suffered a taking.” (emphasis omitted)). Present day regulatory takings law is shaped by key decisions such as *Penn Central Transportation Co. v. City of New York*. *Penn Central Transportation Co. v. City of New York*, 438 U.S. 104, 124–130 (1978) (*Penn Central*). In *Penn Central*, the court established a balancing test for regulatory takings, wherein a court considers (1) the economic impact of the regulation, (2) its interference with distinct investment-backed expectations, and (3) the character of the government action in order to determine if a taking has occurred. *Id.* at 124. The court ultimately held that New York’s restriction on constructing an office building atop Grand Central Station did not constitute a taking, emphasizing that regulatory actions promoting the public good may not require compensation. *Id.* at 135–138.

<sup>133</sup> Nevitt, *supra* note 127, at 1072–1073.

<sup>134</sup> *Kelo v. City of New London*, 545 U.S. 469, 484, 490 (2005).

<sup>135</sup> *Id.* at 480–490.

eliminating unsafe conditions also satisfies the public-use requirement.<sup>136</sup> For Tangier Island, managed retreat options align with these requirements because addressing rising seas and preserving the community's cultural and economic identity could be allowable public purposes and uses. These actions serve broader societal benefits, justifying the use of eminent domain for proactive climate adaptation.

Virginia, however, narrowed this authority following *Kelo*. Effective January 1, 2013, the Commonwealth amended Article I, § 11 of its Constitution to prohibit takings primarily for private enterprise or economic development and shifted the burden to the condemner to prove that a taking is genuinely for public use without any presumption in its favor.<sup>137</sup> This post-*Kelo* divergence matters because federal Takings doctrine permits public purpose takings such as climate-driven relocation, while Virginia requires stronger justification and rejects condemnations whose dominant purpose is economic increase rather than public necessity.

Takings highlight the significant hurdles that shape climate adaptation strategies on Tangier Island. Government actions, such as marshland restoration or development restrictions in coastal zones, could lead to takings claims from islanders, who might argue that these adaptation and mitigation measures effectively deprive them of property value or viable use.

*ii. Implications for Tangier Island's Adaptation Efforts*

The potential for takings claims complicates the implementation of adaptation strategies that Tangier Island urgently needs to address its vulnerability to sea-level rise and erosion. Projects such as marshland restoration or restrictions on development near fragile coastal zones could face legal challenges from property owners claiming significant impairment of property value or use, potentially qualifying as regulatory or physical takings.<sup>138</sup>

Without careful statutory and regulatory guidance, climate adaptation measures could inadvertently trigger takings claims, which would require the state to provide compensation, imposing a significant financial burden on Virginia. This challenge demonstrates the need for a nuanced approach to climate policy

<sup>136</sup> *Id.* at 489–490; *Berman v. Parker*, 348 U.S. 26, 35–36 (1954).

<sup>137</sup> [H.B. 2954](#), 154th Leg. (Va. 2007); [Proposed Amendment to Virginia's Constitution Could Limit Government's Use of Eminent Domain](#), BEAN KINNEY & KORMAN (Mar. 1, 2012).

<sup>138</sup> Nevitt, *supra* note 127, at 1071–1076.

that both respects property rights and advances essential adaptation measures. For instance, compensation-based adaptation strategies or buyout programs could provide alternatives for property owners on Tangier Island whose land is at risk, reducing the likelihood of legal pushback while offering residents viable paths to retreat or adapt.<sup>139</sup>

An example of a community that faced similar challenges offers potential solutions for Tangier Island. In Alaska, the village of Newtok faced chronic flooding and erosion from melting permafrost.<sup>140</sup> Through federal funding and collaborative planning, the community was relocated to a safer site, Mertarvik, to ensure cultural and social continuity.<sup>141</sup> Importantly, the process did not lead to significant takings claims because the community was closely involved in the decision-making process, and the relocation happened over many years.<sup>142</sup> Substantial federal resources supported the effort, reducing the financial burden on individual property owners and mitigating potential legal disputes.<sup>143</sup> For Tangier, this model illustrates that retreat can proceed with minimal potential for a takings claim if the process is consensual, well-resourced, and structured around community preservation rather than compulsory removal.

Tangier Island's challenges reveal the limitations of relying solely on existing conservation laws to address urgent climate risks. For instance, the Sand Dune Act focuses on protecting natural habitats but does not address the specific needs of communities like Tangier.<sup>144</sup> The Virginia Department of Environmental Quality's (DEQ) Water Protection Program (VWP), requires those applying to do certain activities that will impact surface waters and wetlands to avoid and

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<sup>139</sup> Robert Freudenberg, et al., *Buy-In for Buyouts: The Case for Managed Retreat from Flood Zones*, LINCOLN INST. OF LAND POL'Y 22–32 (Sept. 2016) (describing features of successful buyout programs and providing examples).

<sup>140</sup> Sasha Kahn, Note, *It Takes a Village: Repurposing Takings Doctrine to Address Melting Permafrost in Alaska Native Towns*, 39 ALASKA L. REV. 105, 109–110 (2022).

<sup>141</sup> *Id.* at 110.

<sup>142</sup> Sally Russell Cox, *An Overview of Erosion, Flooding, and Relocation Efforts in the Native Village of Newtok*, DEP'T COMMERCE, CMTY., ECON. DEV. 4, 13, 20 (Apr. 20, 2007); Emily Schwing, *Although Everyone Has Moved, Newtok's Relocation is Far From Over*, KTOO (June 11, 2025). Elizaveta Barrett Ristroph, a lawyer advising Alaska Native villages, noted that future actions by such communities could succeed if they are compensated at every stage and have a strong voice in designing the process. Email conversation with Elizaveta Barrett Ristroph, Att'y (on file with author).

<sup>143</sup> Kahn, *supra* note 140, at 111–112; *Newtok Residents Begin Relocation to Mertarvik*, DENALI COMM'N (last visited Dec. 22, 2025) (stating that the town received over \$15 million in federal funds for the relocation).

<sup>144</sup> VA. CODE ANN. §§ 28.2-1400–1420.

minimize impacts to wetlands, and when impacts are unavoidable, to provide compensatory mitigation that maintains no net loss of acreage or function.<sup>145</sup> These requirements increase cost, review time, and engineering demands for any stabilization project on Tangier.<sup>146</sup> Additionally, the Virginia Marine Resources Commission (VMRC) regulates tidal wetlands under the Tidal Wetlands Act, and instructs regulators to permit living shorelines as the default approach unless science shows that a natural system will not work.<sup>147</sup> The Tidal Wetlands Act prioritizes protecting habitat and water quality, but it also makes it much harder to build bulkheads, breakwaters, or seawalls when erosion is severe.<sup>148</sup> The measures available protect ecosystems, but they fall short of securing Tangier’s future.

Tangier Island sits in a regulatory gray zone where legal authority exists to protect wetlands, but few clear pathways or sustained funding streams support adaptation at the scale required. Virginia’s Community Flood Preparedness Fund (CFPF) offers grants and loans for flood-mitigation projects, yet the program must support the entire coastline, and available funding does not approach what would be necessary to secure an island already losing land year after year.<sup>149</sup> In practice, this leaves Tangier with permission to adapt but without the resources to implement the kind of stabilization needed—previously estimated to cost tens of millions of dollars.<sup>150</sup> Meaningful protection will require legislation that couples ecological safeguards with long-term financial support, so communities like Tangier are not asked to survive climate change on conservation policy alone.

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<sup>145</sup> VA. CODE ANN. §§ 62.1-44.15:20–62.1-44.15:21.

<sup>146</sup> *Wetlands & Streams*, DEP’T ENV’T QUALITY (last visited Dec. 22, 2025) (outlining when a permit is needed, how to apply for a permit, and providing checklists for each permit application type).

<sup>147</sup> VA. CODE ANN. §§ 28.2-1300–23.2-1320; S.B. 809, 161st Leg. (Va. 2020) (mandating living shorelines as the default action to address coastal erosion); Charlotte Bieri, *Clarifying the Virginia Tidal Wetlands Act: Creating Criteria to Propel Implementation of Living Shorelines*, VT. L. REV. (Mar. 18, 2024).

<sup>148</sup> Bieri, *supra* note 147.

<sup>149</sup> *Community Flood Preparedness Fund Grant and Loans*, DEP’T CONSERVATION & RECREATION (last visited Dec. 22, 2025). For example, in the current round of applications, there is only \$50 million and \$35 million available for grants and loans, respectively. *Id.*

<sup>150</sup> McCormack, *supra* note 3, at 11.

#### IV. OTHER ACTORS IN ADDRESSING CLIMATE CHANGE CHALLENGES ON TANGIER ISLAND

In addition to state-level actions, the federal government and regional environmental organizations play a critical role in tackling the climate change challenges faced by Tangier Island. Each entity has its approach and resources, and while their efforts can be significant, a lack of coordination often hampers comprehensive and effective adaptation strategies. This Part will examine the contributions of the federal government and regional environmental initiatives, while also addressing the limitations these actors face. It will emphasize how their efforts intersect with state actions to address the specific vulnerabilities confronting Tangier Island.

##### A. The Federal Government

The federal government's involvement in addressing climate-related challenges for at-risk communities operates primarily through initiatives like FEMA's Building Resilient Infrastructure and Communities (BRIC) program and the development of Hazard Mitigation Plans (HMPs).<sup>151</sup> These programs aim to assist local governments in identifying and addressing vulnerabilities, providing funding, and supporting projects that reduce the impact of climate-related threats.<sup>152</sup> However, these federal efforts face limitations in execution that constrain their impact, particularly for highly vulnerable, resource-limited communities like Tangier Island.

For communities grappling with intensified risks from coastal erosion, frequent flooding, and infrastructure vulnerability, federal support serves as a vital component of adaptation efforts. Despite this, the complexities of program access and eligibility often hinder smaller, high-risk communities from fully leveraging these resources. Tangier Island demonstrates how crucial federal initiatives are for local communities in urgent need of support, yet these programs often remain out of reach.

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<sup>151</sup> [Building Resilient Infrastructure and Communities](#), FED. EMERGENCY MGMT. AGENCY [hereinafter *BRIC*] (last visited Dec. 22, 2025); [Hazard Mitigation Planning](#), FED. EMERGENCY MGMT. AGENCY [hereinafter *HMPs*] (last visited Dec. 22, 2025).

<sup>152</sup> *BRIC*, *supra* note 151; [Hazard Mitigation Planning for States](#), FED. EMERGENCY MGMT. AGENCY (last visited Dec. 22, 2025).

i. *Building Resilient Infrastructure and Communities Initiative*

The BRIC program plays a prominent role in federal efforts to support resilience against natural hazards, including climate change impacts.<sup>153</sup> BRIC funds are directed at pre-disaster mitigation projects aimed at building community resilience and lessening the impact of future disasters.<sup>154</sup> In theory, this program aligns with Tangier Island's pressing needs by offering financial support for infrastructure projects that protect communities from the direct consequences of climate change, such as sea-level rise and coastal erosion.<sup>155</sup> However, despite its potential, BRIC's implementation is insufficient to address the unique vulnerabilities of Tangier Island.

BRIC's competitive funding structure poses significant challenges for smaller, economically constrained communities like Tangier Island, where resources for navigating complex application processes are limited.<sup>156</sup> BRIC requires applicants to meet a set of rigorous technical, cost-effectiveness, and feasibility criteria, which are particularly burdensome for a community with limited technical expertise and financial resources.<sup>157</sup> While Tangier Island applied for BRIC funding in 2020 to do a feasibility study and preliminary design for a microgrid power project, the city failed to receive any funding. Projects that received funding were selected in Summer 2021 and received funding in December 2021; this delay in receiving funds highlights a systemic issue with BRIC's timeline, which is ill-suited for communities facing immediate threats from climate change.<sup>158</sup> Moreover, the application itself was not directly aimed at addressing Tangier's most pressing climate adaptation needs, demonstrating the

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<sup>153</sup> BRIC, *supra* note 151.

<sup>154</sup> [Hazard Mitigation Assistance Program and Policy Guide](#), FED. EMERGENCY MGMT. AGENCY 10 (Jan. 20, 2025).

<sup>155</sup> *Id.* at 8.

<sup>156</sup> Brett March, [The Unexpected Barrier Preventing American Small Towns From Accessing Federal Climate Funds](#), PREVENTIONWEB (Jan. 20, 2023) (explain how the matching fund requirement is difficult for small rural communities).

<sup>157</sup> Anna Weber, [Building Resilience, BRIC by BRIC](#), NAT. RES. DEF. COUNS. (Sept. 1, 2021).

<sup>158</sup> [Flood Mitigation Assistance FY 2020 Subapplication Status](#), FED. EMERGENCY MGMT. AGENCY [hereinafter *FY 2020 Subapplication Status*] (last visited Dec. 22, 2025); Camille Crain, [Building Resilient Infrastructure and Communities \(BRIC\)](#), FED. EMERGENCY MGMT. AGENCY 4 (July 14, 2021). Some applications were marked as needing further review, meaning that the applicants are potentially still waiting for a decision. *Id.* at 11.

difficulty small communities face in aligning their adaptation priorities with BRIC's funding mechanisms.<sup>159</sup>

Moreover, BRIC's annual funding cycle and phased approval process result in delays that are detrimental to communities facing immediate climate threats.<sup>160</sup> Under the BRIC program, subapplicants, including local governments such as cities, towns, counties, special districts, Tribal governments, and eligible nonprofit entities, must apply through a state or Tribal intermediary rather than directly to FEMA.<sup>161</sup> The program's competitive nature further exacerbates this issue; in FY 2020, FEMA received 991 subapplications but selected only 406 for further review, meaning that while they were selected for funding, additional information may be needed, and they are not guaranteed any funding.<sup>162</sup> This prolonged process highlights the extreme difficulty of securing actual funding through BRIC. Tangier's vulnerability to rapid erosion and recurring storm surges necessitates support to implement comprehensive adaptation measures. Given these issues, BRIC's model of competitive funding distribution, though effective in some contexts, fails to accommodate the urgency of adaptation efforts required by highly vulnerable and resource-limited communities like Tangier Island. The program has since been put on hold at the federal level, adding further uncertainty for communities attempting to secure resources before land loss becomes irreversible.<sup>163</sup>

## ii. Hazard Mitigation Plans

FEMA-approved HMPs serve as strategic frameworks that guide local governments in identifying and addressing vulnerabilities to natural hazards.<sup>164</sup> For Tangier Island, participation in HMPs provides a foundational layer of risk

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<sup>159</sup> *Virtual Workshop: Enhancing Community Energy Resilience through FEMA BRIC*, NAT'L ASSOC. STATE ENERGY OFF. 35–37 (Aug. 24–26, 2021) (describing the application Tangier Island submitted and all the tasks that needed to be done prior to the Feasibility Analysis and Preliminary Design).

<sup>160</sup> *FY 2020 Subapplication Status*, *supra* note 158.

<sup>161</sup> *Notice of Funding Opportunity (NOFO): FY 2020 Building Resilient Infrastructure and Communities*, FED. EMERGENCY MGMT. AGENCY 6 (Aug. 2020).

<sup>162</sup> Crain, *supra* note 158, at 11; *Identified for Further Review (IFFR)*, FED. EMERGENCY MGMT. AGENCY 6 (July 23, 2024). Only 22 projects in FY 2020 were ultimately selected for funding. Crain, *supra* note 158, at 12.

<sup>163</sup> *After FEMA Pulls the Plug on BRIC, What Comes Next Is Still a Mystery*, NAT'L SOC'Y OF PROF'L ENG'RS (June 18, 2025).

<sup>164</sup> *See, e.g., VA HAZARD MITIGATION PLAN*, *supra* note 48, at 1–2 (providing background on the HMP and the goals of this plan).

assessment and resilience planning. However, while the HMP framework helps identify risks and mitigation priorities, it lacks the robust, federally supported implementation mechanisms, such as the BRIC funding, needed to convert these plans into effective adaptation projects.<sup>165</sup> The county's HMP and hazard identification for Tangier demonstrates the urgency of measures such as shoreline stabilization and elevated housing to address the community's low elevation and high exposure to coastal hazards.<sup>166</sup> Nonetheless, without sufficient and accessible funding sources from the state and federal government, many of these proposed adaptations remain unrealized, leaving the community vulnerable.<sup>167</sup>

Tangier Island is at a breaking point where mitigation efforts are no longer sufficient to combat the island's escalating climate threats.<sup>168</sup> HMPs, while useful for identifying vulnerabilities and setting risk-reduction goals, focus primarily on prevention. Island strategies like elevated housing and seawalls are not aspirational—they are indispensable.<sup>169</sup> Yet, the funding needed for such large-scale adaptation projects likely far surpasses what current HMP frameworks and federal grant programs like BRIC and HMGP can provide.<sup>170</sup>

The divide between mitigation and adaptation illustrates the inadequacy of current approaches in meeting Tangier's critical needs. HMPs rely on sporadic and limited federal funding, leaving communities like Tangier with financial support that fails to address the scale of their challenges. To bridge this gap, federal programs need to work closely with state and local governments to prioritize urgent, high-risk adaptation projects for places like Tangier Island. Making funding more accessible and focusing on comprehensive adaptation rather than small, incremental measures are critical steps. Without these changes, Tangier Island's future grows more uncertain as climate threats intensify.

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<sup>165</sup> *Id.* at 2, 340–352.

<sup>166</sup> *Id.* at 343–349.

<sup>167</sup> *E.g., id.* at 29 (stating that the plan will be used to develop other local plans and to try and secure funding to address impacts of storms or other disasters).

<sup>168</sup> *Id.* at 329.

<sup>169</sup> *Id.* at 342–344.

<sup>170</sup> *Id.* The Town of Tangier has not directly managed a grant under the Hazard Mitigation Grant Program (HMGP). *Id.* at 342. The Accomack-Northampton Planning District Commission has elevated three homes on Tangier under using HMGP and six homes with Disaster Recovery Initiative funds following Hurricane Floyd in 1999. *Id.* After Hurricane Isabel in 2003, 12 homes were elevated, but no projects have been completed since, as the program has become cost-prohibitive for residents. *Id.*

iii. *U.S. Army Corps of Engineers*

The Corps derives its authority from Congress through key legislation such as the Rivers and Harbors Act of 1899, Clean Water Act, and Marine Protection, Research and Sanctuaries Act.<sup>171</sup> What this means for Tangier Island is that the Corps has the jurisdiction to address its pressing environmental challenges, including severe erosion and rising sea levels. This legislative framework enables the Corps to implement measures focused on erosion control, shoreline stabilization, and the long-term protection of the island's navigable waters and surrounding habitats.<sup>172</sup>

Recently, the Corps Norfolk District collaborated with U.S. Senator Tim Kaine to address the critical challenges facing Tangier Island, particularly its susceptibility to erosion and rising sea levels.<sup>173</sup> Through this partnership, Senator Kaine secured \$800,000 in fiscal years 2023 and 2024 funding to study and get permits to use dredged materials for coastal resilience initiatives, which was complemented by President Biden's proposed \$10.3 million allocation in fiscal year 2025.<sup>174</sup> While these efforts are important, they do not address the long-term challenges of sea-level rise and land subsidence. Incremental projects alone cannot ensure the island's survival. Tangier Island urgently needs comprehensive adaptation strategies, such as infrastructure relocation, to move beyond temporary fixes and create lasting solutions. Without a clear focus on adaptation, the island's future remains uncertain.

The Corps has estimated that coastal engineering services aimed at stabilizing Tangier Island and mitigating erosion would cost \$30 million.<sup>175</sup> Critics point out that allocating \$30 million for a community of 470 residents—approximately \$63,830 per person—on an eroding barrier island is economically imprudent, especially given the inevitability of continued erosion.<sup>176</sup> Tangier's contributions, such as its role in the Chesapeake Bay's blue crab industry and its cultural and historical significance, are undeniably important, but they do not equate to the national-scale economic and infrastructure stakes seen in places like

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<sup>171</sup> [Pictorial Representation of Jurisdiction](#), ARMY CORPS ENG'R 3 (last visited Dec. 22, 2025).

<sup>172</sup> [Jurisdiction](#), ARMY CORPS ENG'R PORTLAND DIST. (last visited Dec. 22, 2025).

<sup>173</sup> Press Release, U.S. Sen. Tim Kaine, [ICYMI: Kaine Meets With U.S. Army Corps of Engineers Norfolk District to Discuss Tangier Island and Other Projects to Boost Resiliency in Hampton Roads](#) (Apr. 11, 2024).

<sup>174</sup> *Id.*

<sup>175</sup> McCormack, *supra* note 3, at 11.

<sup>176</sup> *Id.*

Manhattan, where billions are spent on coastal defenses to protect millions of residents and a global financial hub.<sup>177</sup> For Tangier, the long-term solution may not lie in temporary fixes but in a planned relocation strategy that ensures the safety and sustainability of the community while preserving its heritage in a safer location.

However, this approach requires addressing the deeply rooted concerns of residents of Tangier who may resist relocation. Transparent communication and inclusive planning are critical to building trust and understanding. Relocation efforts must actively involve the community, addressing issues like maintaining social cohesion, securing livelihoods, and preserving cultural identity. By prioritizing these needs and ensuring robust financial and logistical support, the transition can honor Tangier's legacy while safeguarding its future. This strategy is not about abandoning Tangier's history but ensuring it continues in the face of escalating climate threats.

#### B. Regional and Interstate Initiative: The Chesapeake Bay Foundation

For decades, the Chesapeake Bay Foundation (CBF) has been at the forefront of efforts to restore and protect the Chesapeake Bay's fragile ecosystem.<sup>178</sup> The CBF was founded in 1966 by a group of concerned residents and environmental advocates as a grassroots movement to fight the pollution and environmental damage that were harming the Bay.<sup>179</sup> The CBF has made significant progress in addressing the impacts of climate change across the Chesapeake Bay region by improving water quality, reducing pollution, and enhancing ecosystem resilience.<sup>180</sup> For example, through initiatives like the Keystone 10 million Trees Partnership, the CBF has collaborated with local farmers and other environmental partners to plant trees that help reduce

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<sup>177</sup> *Id.*; [Manhattan's Economic Prowess: A Pillar of the United States Economy](#), MANHATTAN VIRTUAL OFF. (Mar. 3, 2024) (highlighting the significance of Manhattan for the U.S. economy); Press Release, New York City Econ. Dev. Corp., NYCEDC and MOCR Releases FiDi & Seaport Climate Resilience Plan (Dec. 29, 2021) ("The plan, projected to cost \$5 to \$7 billion, reimagines the shoreline of Lower Manhattan and creates a resilient waterfront to withstand severe coastal storms and rising sea levels."); *see also* [Coastal Storm Risk Management Projects](#), DEP'T ENV'T CONSERVATION (last visited Dec. 22, 2025) (estimating that the South Shore Staten Island Coastal Storm Risk Management Project will cost \$615 million, funded by "65% Federal, 24.5% State, and 10.5% City.").

<sup>178</sup> [About CBF](#), CHESAPEAKE BAY FOUND. (last visited Dec. 22, 2025).

<sup>179</sup> [Mission and Vision](#), CHESAPEAKE BAY FOUND. (last visited Dec. 22, 2025).

<sup>180</sup> *Id.*

stormwater runoff, prevent soil erosion, and improve water quality in streams and rivers feeding into the Bay.<sup>181</sup> Additionally, the CBF has focused on establishing “living shorelines,” which use natural vegetation to stabilize coastal areas, reducing the need for hardened structures that may exacerbate erosion over time.<sup>182</sup> These efforts are aimed at building climate resilience throughout the Chesapeake watershed, addressing concerns from pollution to extreme weather impacts.<sup>183</sup>

Despite the wide scope of the CBF’s environmental programs, their general focus on the broader Chesapeake Bay region presents limitations when applied to communities facing acute, localized risks, such as Tangier Island.<sup>184</sup> While the CBF’s living shorelines and green infrastructure initiatives serve as critical tools in managing environmental degradation and stormwater in many areas, they are not comprehensive enough to fully mitigate the unique challenges posed to Tangier Island. The island’s rapid rate of erosion and exposure to intensified storm surges require a combination of larger-scale structural adaptations and localized environmental interventions, such as seawalls or raised barriers, that go beyond typical nonprofit environmental projects.

Moreover, Tangier Island’s isolation and limited access to emergency response resources amplify the need for targeted resilience efforts.<sup>185</sup> Unlike mainland regions, where the CBF’s programs contribute to a broader framework of municipal support and emergency management for other communities, Tangier’s distance from infrastructure networks makes recovery and resilience far more challenging.<sup>186</sup>

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<sup>181</sup> [Keystone 10 Million Trees Partnership](#), CHESAPEAKE BAY FOUND. (last visited Dec. 22, 2025); [About](#), KEYSTONE 10 MILLION TREES P’SHP (last visited Dec. 22, 2025).

<sup>182</sup> [Living Shorelines](#), CHESAPEAKE BAY FOUND. (last visited Dec. 22, 2025)

<sup>183</sup> *Id.*

<sup>184</sup> *Impact Report, Fiscal Year 2023: Milestones and Momentum: Promise and Progress on the Road to Clean Water*, CHESAPEAKE BAY FOUND. 2 [hereinafter *Impact Report, Fiscal Year 2023*] (last visited Dec. 22, 2025) (highlighting achievements such as converting nearly 500 acres of farmland to rotationally grazed pastures, inspiring 22,004 advocacy actions for clean water, educating over 21,000 students and teachers, and securing a landmark settlement that bolstered enforcement of the Chesapeake Clean Water Blueprint).

<sup>185</sup> VA HAZARD MITIGATION PLAN, *supra* note 48, at 334–336.

<sup>186</sup> *Impact Report, Fiscal Year 2023*, *supra* note 184, at 4 (highlighting how efforts have helped volunteers with shoreline projects, resiliency, and food security).

## C. Are Federal and State Efforts Truly Complementary?

Recent developments, including a June 2024 visit to Tangier Island by federal, state, and local officials, show growing attention to the island's rapid land loss and climate vulnerability.<sup>187</sup> This meeting was attended by federal, state, and local officials, along with community leaders and organizations such as the CBF, and aimed to address solutions for the island's accelerating erosion and rising sea levels.<sup>188</sup> Officials toured erosion sites by boat and discussed next steps such as developing a certified resilience plan, investing in engineering studies and dredge-spoil protection, and pursuing other funding opportunities.<sup>189</sup> Participants expressed optimism about collaboration, but the meeting also illustrated how difficult implementation becomes when federal planning, state regulatory authority, and local urgency must function together without a unified structure.<sup>190</sup> The Tangier meeting makes clear that coordination efforts exist, but structures do not.

This fragmentation points to a need for cooperative federalism, a framework designed to leverage federal resources and policy direction while allowing states the flexibility to address local priorities.<sup>191</sup> Cooperative federalism is particularly relevant for complex issues like climate adaptation, where the federal government can provide consistent funding, such as through BRIC, and states can tailor these resources to meet their unique challenges.<sup>192</sup> Ideally, this model would align federal and state efforts, creating a streamlined approach for large-scale climate adaptation strategies.

However, the reactive and fragmented nature of current federal and state initiatives often undermines this ideal. The federal government's focus largely remains on post-disaster aid, which provides relief but lacks the proactive, coordinated planning needed for sustainable, long-term adaptation efforts.<sup>193</sup> A

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<sup>187</sup> Madie MacDonald & Tom Schaad, [Tangier Island's Shrinking Landscape Sparks Action from Officials](#), WAVY (June 4, 2024).

<sup>188</sup> *Id.*

<sup>189</sup> *Id.*; Press Release, Chesapeake Bay Found., [Leaders Seek Solutions to Protect Tangier Island from Climate Change Threat](#) (May 31, 2024).

<sup>190</sup> *Id.*; MacDonald & Schaad, *supra* note 187.

<sup>191</sup> Manisha Patel & Allie Reilly, *Cooperative Federalism A Path to Proactive Managed Retreat*, 35 NAT. RES. & ENV'T, Winter 2021, at 20, 21–23.

<sup>192</sup> *Id.* at 21–24; *BRIC*, *supra* note 151.

<sup>193</sup> See Press Release, Fed. Emergency Mgmt. Agency, [Biden-Harris Administration Reforms Disaster Assistance Program to Help Survivors Recover Faster](#) (Jan. 19, 2024) (announcing that

more proactive, outcomes-based finance model is essential—one led by the federal government that empowers states to create forward-looking strategies for at-risk coastal communities like Tangier.<sup>194</sup>

While cooperative federalism offers a balanced model in theory, several systemic issues complicate its success. First, federal funding often comes with extensive planning, reporting, and matching-fund requirements that many states lack the administrative capacity or resources to satisfy, making it difficult to access or fully implement federally financed resilience programs.<sup>195</sup> The Supreme Court’s anti-commandeering doctrine further complicates things, as it reinforces states’ rights to resist federal direction, preventing efforts to standardize climate adaptation strategies nationwide.<sup>196</sup> The current “patchwork” approach to coastal governance—where state, federal, and local jurisdictions frequently overlap—exacerbates these challenges. With diverse, sometimes conflicting regulations and priorities, states often do not implement cohesive, large-scale climate adaptation strategies because of the lack of a unified national strategy and clear federal alignment on long-term goals.

The relocation of Isle de Jean Charles in Louisiana provides an example of how these challenges manifest in practice. Federal, state, and local entities have been working together to relocate this small coastal community, which has suffered from severe land loss due to climate change and subsidence.<sup>197</sup> Funded primarily through a \$48 million federal grant under the National Disaster Resilience Competition, the project highlights the complexities of cooperative

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FEMA’s Individual Assistance program would provide assistance to survivors of extreme weather events, but does not provide adaptation or preventative assistance).

<sup>194</sup> See, e.g., *South Dakota v. Dole*, 483 U.S. 203, 207–08 (1987) (establishing that Congress may condition the receipt of federal funds under its Spending Clause authority, provided that the conditions are unambiguous, related to the federal interest, and not coercive—providing the framework for federal government to incentive states to take proactive actions).

<sup>195</sup> See, e.g., Weber, *supra* note 157 (highlighting how most of the first round of BRIC funding went to wealthy coastal states that had the resources needed to apply); [Match Requirements Prevent Rural and Low-capacity Communities from Accessing Climate Resilience Funding](#), HEADWATERS ECON. (Jan. 13, 2023).

<sup>196</sup> *New York v. United States*, 505 U.S. 144, 188 (1992); see *Printz v. United States*, 521 U.S. 898, 935 (1997) (extending the anti-commandeering principle to prevent the federal government from requiring state officials to enforce federal law); see also *National Federation of Independent Business v. Sebelius*, 567 U.S. 519, 576–85 (2012) (striking down Medicaid expansion under the Affordable Care Act as unconstitutionally coercive and exceeding the limits of conditional funding).

<sup>197</sup> Olga Loginova & Zak Cassel, [Leaving the Island: The Messy, Contentious Reality of Climate Relocation](#), CTR. FOR PUB. INTEGRITY (Aug. 17, 2022).

federalism.<sup>198</sup> While federal funds enabled the relocation, strict conditions tied to the funding created hurdles, such as the need to comply with federal requirements.<sup>199</sup> Additionally, the project had to navigate tensions among stakeholders at different levels of government, reflecting the broader challenges of cooperative federalism.<sup>200</sup> Moreover, the relocation faced resistance from some residents early on, reflecting the difficulty of aligning community needs with broader governance structures.<sup>201</sup>

This example illustrates both the potential of cooperative federalism to address large-scale climate challenges and the significant structural adjustments needed to ensure its success. Streamlining funding processes, reducing bureaucratic hurdles, and fostering stronger alignment among federal, state, and local entities are essential for fostering more effective and scalable climate adaptation strategies.

#### V. MANAGED RETREAT: A PROPOSED COMMUNITY-DRIVEN SOLUTION FOR CLIMATE CHANGE ADAPTATION FOR TANGIER

Part III of this Article examined the shortcomings of existing legal frameworks in addressing Tangier Island’s climate-related challenges. It highlighted how rigid regulations often fail in addressing climate-related issues and can even trigger takings claims when they deprive property owners of economic value.<sup>202</sup> However, within the context of managed retreat, such regulations could serve as essential tools for safeguarding Tangier Island’s future. Managed retreat—strategically relocating people and infrastructure from high-risk areas—often faces resistance due to concerns about property rights and economic losses.<sup>203</sup>

This Article argues that a community-driven retreat framework for Tangier Island could both respect property rights and address takings claims through a collaborative, equitable relocation process. As climate threats intensify, redefining climate change as an immediate, emergency-level threat becomes essential if state and federal authorities are to exercise their power to take private

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<sup>198</sup> *Id.*

<sup>199</sup> *Id.*

<sup>200</sup> *Id.* For example, the Jean Charles Tribe’s Tribal Council was “shocked” when they were not included in the roundtable of citizens affected by the relocation. *Id.*

<sup>201</sup> *Id.*

<sup>202</sup> *Supra* Part III.

<sup>203</sup> [\*Managed Retreat Toolkit\*](#), GEORGETOWN CLIMATE CTR. (last visited Dec. 22, 2025).

property for public use.<sup>204</sup> By framing climate change as a clear and present danger, managed retreat can be viewed as an urgent and necessary strategy for community preservation, rather than a drastic last resort.

#### A. Redefining Imminent and Emergency for Climate Contexts

The legal understanding of “imminence” has traditionally been tied to sudden, isolated events like fires.<sup>205</sup> However, climate change presents a fundamentally different kind of crisis—one that unfolds gradually yet relentlessly, threatening communities through cumulative impacts such as sea-level rise, coastal erosion, and increasingly severe storms.<sup>206</sup> This divergence from the conventional understanding of an emergency calls for a redefinition of imminence in the context of climate threats, recognizing the extended timeline and progressive impacts of climate change as equally urgent and consequential.<sup>207</sup>

Some courts have recognized flooding, especially when intensified by natural disasters, as an imminent threat that justifies government intervention on private property.<sup>208</sup> For example, in *Dudley v. Orange County*, the Florida Second

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<sup>204</sup> VA. CONST. art. I, § 11 (“No private property shall be damaged or taken for public use without just compensation to the owner thereof”); U.S. CONST. amend. V (“nor shall private property be taken for public use, without just compensation”).

<sup>205</sup> See, e.g., *Surocco v. Geary*, 1853 Cal. LEXIS 8, 9–10 (1853):

In the absence of any legislation on the subject, we are compelled to fall back upon the rules of the common law. The evidence in this case clearly establishes, the fact, that the blowing up of the house was necessary, as it would have been consumed had it been left standing. The plaintiffs cannot recover for the value of the goods which they might have saved: they were as much subject to the necessities of the occasion as the house in which they were situate; and if in such cases a party was held liable, it would too frequently happen, that the delay caused by the removal of the goods would render the destruction of the house useless.

<sup>206</sup> Stuart P.M. Mackintosh, *Climate Change That Happened Gradually is Accelerating Suddenly*, THE HILL (Mar. 31, 2022).

<sup>207</sup> David E. Adelman, *The Challenge of Abrupt Climate Change for U.S. Environmental Regulation*, 58 EMORY L.J. 379, 381 (2008) (“despite [] recognition of the potential for abrupt climate change, the vast majority of research and reports on the ecological and societal impacts of climate change, . . . are premised on ‘slow and gradual’ processes,” reflecting a significant “blindspot in climate change policy.”).

<sup>208</sup> Robin Kundis Craig, *Adapting Water Law to Public Necessity: Reframing Climate Change Adaptation as Emergency Response and Preparedness*, 11 VT. J. ENV’T. L. 709, 739–740 (2010).

District Court of Appeals upheld the county's decision to construct dams that temporarily flooded private property as an emergency measure during a declared disaster.<sup>209</sup> While this action caused significant property damage, the court viewed the flooding as an imminent public danger necessitating government action to protect public health and safety.<sup>210</sup> This case illustrates that when faced with imminent public danger, such as flooding, governmental actions aimed at averting widespread harm may override individual property rights without the requirement of compensation for temporary flooding under the county's exercise of its police powers during an emergency.<sup>211</sup>

The *Dudley* decision is instructive in highlighting how courts view the concept of imminence in addressing environmental threats. Although the case involved an immediate hazard, its reasoning suggests that worsening and prolonged conditions—such as those caused by climate change—might also meet the threshold of imminence.<sup>212</sup> The court's acknowledgment that severe flooding constitutes an imminent threat provides a compelling framework for considering preemptive action in the face of climate-related risks, like the gradual submersion of Tangier Island.<sup>213</sup> However, *Dudley* did not address the gradual nature of climate change, leaving open the question of how courts might apply its reasoning to slower-developing crises.

By expanding the legal scope of imminence to encompass the ongoing threats caused by climate change, the groundwork can be laid for a managed retreat approach that anticipates rather than reacts to climate impacts. For Tangier Island, where daily life is increasingly shaped by rising waters and eroding land, a redefined concept of emergency offers a way for the community to view takings and managed retreat as proactive solutions. Rather than waiting for catastrophic flooding or forced evacuations, Tangier could approach managed retreat as a structured, community-led process that empowers residents to balance preservation with relocation, ensuring their voices shape the transition.

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<sup>209</sup> *Dudley v. Orange County*, 137 So. 2d 859, 861–63 (Fla. Ct. App. 1962).

<sup>210</sup> *Id.*

<sup>211</sup> *Id.* at 862; Craig, *supra* note 208, at 740–742 (exploring when compensation is and is not required when there is a public necessity).

<sup>212</sup> *Dudley*, 137 So. 2d at 863.

<sup>213</sup> *Id.* (internal citation omitted).

B. Managed Retreat: Balancing Public Safety and Cultural Preservation

Can the managed and strategic relocation of Tangier Island's residents to nearby coastal areas like Chesconessex offer a lifeline that preserves their way of life while ensuring their safety for generations to come? This question lies at the heart of ongoing efforts to determine whether managed retreat can work for Tangier Island. For Tangier Island, where the community's long-term survival is increasingly precarious, relocation may not only be a solution but a necessity. However, this raises a critical question: who decides? Should decisions rest with federal or state authorities, given their resources and expertise, or should the community itself have the primary voice in shaping its future? Managed retreat is not just about logistics but about ensuring that the community's identity, heritage, and needs guide the process, balancing external mandates with local agency.

To explore these complexities, this Part examines Isle de Jean Charles as a case study of managed retreat, identifying both its successes and challenges. Drawing from these lessons, this Article proposes a framework for applying a managed retreat model to Tangier Island that prioritizes collaboration, ensuring that decisions are made inclusively and transparently, with the community at the center of the process while addressing safety and cultural preservation.

*i. Understanding Managed Retreat: Isle de Jean Charles, a Case Study*

This Article has introduced the concept of managed retreat in parts, but what exactly is managed retreat? Managed retreat is often referred to as the planned, purposeful relocation of communities and assets away from areas at risk of environmental hazards.<sup>214</sup> Managed retreat is a strategy that has emerged as vital in addressing climate change-induced displacement.<sup>215</sup> Yet, the relocation of communities like Isle de Jean Charles illustrates the process, complexities, and challenges inherent in implementing managed retreat.<sup>216</sup> The managed retreat of Isle de Jean Charles began with significant federal support and structured

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<sup>214</sup> GEORGETOWN CLIMATE CTR., *supra* note 203 (Managed retreat is defined as the planned, purposeful, coordinated “movement and transition of people and ecosystems away from vulnerable” areas).

<sup>215</sup> *Id.*

<sup>216</sup> Adam Creppelle, *The United States First Climate Relocation: Recognition, Relocation, and Indigenous Rights at the Isle De Jean Charles*, 6 BELMONT L. REV. 1, 1–3 (2018).

planning.<sup>217</sup> In 2016, the United States Department of Housing and Urban Development (HUD) allocated a \$48 million grant for the community's relocation inland, marking it as the first federally funded climate relocation in the United States.<sup>218</sup> The grant aimed to move residents from their vulnerable coastal location in Louisiana to a safer inland site while preserving their cultural heritage.<sup>219</sup> The relocation was carried out in phases to address logistics, site selection, and community needs, acknowledging the importance of providing a culturally appropriate solution.<sup>220</sup>

The first phase, completed between June 2016 and November 2016, focused on gathering data and understanding residents' preferences and concerns.<sup>221</sup> Outreach revealed diverse and sometimes conflicting priorities, such as privacy, safety, flood protection, and cultural preservation.<sup>222</sup> However, engagement challenges emerged as only a few residents actively participated in early community meetings and surveys.<sup>223</sup>

Phase II took place from December 2016 to February 2019.<sup>224</sup> During this phase, the state conducted a thorough site evaluation process in Terrebonne Parish.<sup>225</sup> By May 2017, residents were invited to visit potential relocation sites, and by July 2017, the Resettlement team started hosting community meetings to discuss the advantages and disadvantages of various sites, appraised values, and preferences.<sup>226</sup> A steering committee of island residents and stakeholders, including representatives from the United Houma Nation (UHN)—a state-recognized Native American Tribe in Louisiana with about 19,000 members living across a six-parish service areas in southeastern Louisiana—and the Isle de Jean Charles Band of Biloxi-Chitimacha Confederation of Muskogees—a

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<sup>217</sup> *Id.* at 26–28.

<sup>218</sup> *Id.* at 26–27; Press Release, Off. of Cmty. Dev. Disaster Recovery Unit, [LA Receives \\$92 Million from U.S. Dept. of Housing and Urban Development for Coastal Communities, Disaster Resilience](#), (Jan. 25, 2016); Coral Davenport & Campbell Robertson, [Resettling the First American 'Climate Refugees'](#), N.Y. TIMES (May 2, 2016).

<sup>219</sup> Crepelle, *supra* note 216, at 36–37.

<sup>220</sup> [Isle de Jean Charles Resettlement](#), DIV. ADMIN. OFF. CMTY. DEV. - DISASTER RECOVERY (last visited Dec. 22, 2025).

<sup>221</sup> Crepelle, *supra* note 216, at 29.

<sup>222</sup> *Id.* at 31.

<sup>223</sup> *Id.* at 29–39.

<sup>224</sup> [Isle de Jean Charles Resettlement](#), *supra* note 220.

<sup>225</sup> DIV. ADMIN. OFF. CMTY. DEV. - DISASTER RECOVERY, [COMMUNITY MASTER PLANNING AND PROGRAM DEVELOPMENT FOR THE ISLE DE JEAN CHARLES RESETTLEMENT: PHASE 2 REPORT 12](#) [hereinafter RESETTLEMENT PHASE 2 REPORT] (July 2021).

<sup>226</sup> *Id.*

state-recognized tribal community in Terrebonne Parish whose ancestral homeland has lost over 98% of its land to erosion and sea-level rise—was established to ensure community involvement.<sup>227</sup> A master planning process began in January 2018, involving design workshops with planners, architects, and residents to develop infrastructure and housing that aligned with the community’s cultural values.<sup>228</sup> By December 2018, following environmental reviews, the Louisiana Land Trust acquired the 515-acre property that would be used for the new community, known as “The New Isle.”<sup>229</sup> This site was designed to accommodate approximately 120 homes, with plans for commercial and retail spaces, a community center, and walking trails.<sup>230</sup>

Phase III started in May 2020.<sup>231</sup> It involves implementing the master plan through further environmental reviews, site design finalization, infrastructure development, housing construction, and workforce training programs.<sup>232</sup> By November 2019, the island residents officially named the new community “The New Isle,” and infrastructure construction began in May 2020.<sup>233</sup> This phase also sought to ensure a smooth transition for residents, including addressing concerns about the disruption of traditional livelihoods, particularly fishing, and providing job training opportunities.<sup>234</sup> Phase III also includes business development, workforce training, and identification of community gardens, cultural centers, and educational spaces to preserve traditional practices and create future economic pathways.<sup>235</sup> Evaluating whether these strategies strengthen long-term economic stability for Isle de Jean Charles could offer a useful model for Tangier Island, particularly as Tangier confronts similar questions of livelihood transition, cultural preservation, and post-relocation self-sufficiency.

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<sup>227</sup> *Id.*; [About Houma Nation](#), UNITED HOUMA NATION (last visited Dec. 22, 2025); [The Biloxi-Chitimacha-Choctaw Community and Their Land](#), NAT’L GEOGRAPHIC (last visited Dec. 22, 2025).

<sup>228</sup> RESETTLEMENT PHASE 2 REPORT, *supra* note 225, at 12.

<sup>229</sup> *Id.*; [Isle de Jean Charles Resettlement](#), *supra* note 220.

<sup>230</sup> [Resettlement of Isle de Jean Charles: Background and Overview](#), DIV. ADMIN. OFF. CMTY. DEV. - DISASTER RECOVERY 6 [hereinafter *Isle de Jean Charles Background and Overview*] (June 9, 2020).

<sup>231</sup> RESETTLEMENT PHASE 2 REPORT, *supra* note 225, at 13.

<sup>232</sup> *Id.*

<sup>233</sup> [Isle de Jean Charles Background and Overview](#), *supra* note 230, at 6.

<sup>234</sup> *Id.*

<sup>235</sup> [Tribal Resettlement](#), Isle de Jean Charles (last visited Dec. 22, 2025). Nearby universities and colleges, such as Nichols State University and Louisiana Technical College already had nearby job training programs that community members could participate in. Crepelle, *supra* note 216, at 36.

The final phase will involve moving eligible families into the new community under a forgivable mortgage program, where one-fifth of the mortgage would be forgiven annually over five years, provided the family maintained primary residency there and acquired insurance.<sup>236</sup> Eligibility was limited to residents living on the island as of Hurricane Isaac's landfall on August 28, 2012, or those displaced since that date.<sup>237</sup> This approach was intended to ensure voluntary participation, respecting residents' choices to either relocate or remain on the island, but it also meant that many long-displaced tribal members were excluded from the relocation.<sup>238</sup>

Notably, the program did not include a formal buyout of residents' existing island homes.<sup>239</sup> Instead, many families left behind properties that were no longer habitable or insurable, resulting in unreimbursed economic loss for some households and raising concerns about the long-term sustainability of the relocation plan.<sup>240</sup> The phased mortgage forgiveness aimed to reduce the financial burdens of the newly relocated residents while fostering a sense of ownership in the new community.<sup>241</sup>

The Isle de Jean Charles Resettlement Project illustrates the intricate challenges of managed retreat, from engaging diverse communities and balancing cultural preservation to navigating tribal disputes, bureaucratic mandates, and economic disruption. Despite significant federal and state support, the process faced substantial hurdles, including early missteps in community outreach, tension between state officials and tribal leaders over project control, and friction caused by HUD's requirements. These requirements altered the original relocation vision, forced a broader and less culturally specific eligibility standard, and fueled concerns about the new site's distance from traditional fishing grounds, which threatened the livelihoods and identity of many residents.

Still, the project remains one of the most ambitious and instructive examples of climate-induced relocation in the United States. For similarly situated

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<sup>236</sup> *Isle de Jean Charles Resettlement Homebuyer Assistance Program Policies*, DIV. ADMIN. OFF. CMTY. DEV. - DISASTER RECOVERY 12-14 [hereinafter *Homebuyer Assistance Policies*] (Nov. 10, 2020).

<sup>237</sup> *Id.* at 8-9; RESETTLEMENT PHASE 2 REPORT, *supra* note 225, at 46.

<sup>238</sup> RESETTLEMENT PHASE 2 REPORT, *supra* note 225, at 46.

<sup>239</sup> *Id.*

<sup>240</sup> Will McGrew, *Jean Charles Choctaw Nation Challenges State Resettlement Plan in Legal Complaint to HUD*, WWNO (Dec. 23, 2023).

<sup>241</sup> RESETTLEMENT PHASE 2 REPORT, *supra* note 225, at 38, 47-48.

communities like Tangier Island, its lessons illustrate the need for early, inclusive engagement, clarity in relocation eligibility, mitigation of economic loss, and an approach that empowers local leadership while ensuring long-term cultural and economic viability.

*ii. Managed Retreat Applied to Tangier Island*

Given Tangier Island’s unique circumstances—its limited size, economic constraints, and the relentless pace of sea-level rise—managed retreat emerges as the only viable long-term solution.<sup>242</sup> Although the islanders would prefer to “fix” the island, large-scale infrastructure projects akin to the Netherlands’ impressive levee system are impractical due to their prohibitive costs and temporary benefits.<sup>243</sup> The Netherlands has taken a proactive approach by implementing strategies like the “Room for the River” program, which reduces flood risk by deliberately giving rivers more space.<sup>244</sup> These measures include moving dykes inland, lowering floodplains, and creating designated flood channels that safely absorb excess water during periods of high rainfall, rather than relying solely on barriers to block it.<sup>245</sup> While the Netherlands has safeguarded its citizens through decades-long, multibillion-dollar projects backed by strong governmental policies, replicating such large-scale efforts in the United States remains unlikely.<sup>246</sup> Unlike the proactive approach seen in the Netherlands, U.S. policies often inadvertently encourage continued habitation in high-risk areas.<sup>247</sup> For Tangier Island, where resources are constrained and sustaining extensive infrastructure is not feasible, managed retreat is the most strategic choice. This approach balances safety, financial prudence, and the preservation of community identity in the face of unavoidable environmental change.

To begin, the state could exercise its eminent domain authority under the Takings Clause, along with federal support, to relocate the community to a safe, suitable area in coastal Virginia by taking private property.<sup>248</sup> Eminent domain allows the government to take private property for public use with just

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<sup>242</sup> Sinclair, *supra* note 12, at 308.

<sup>243</sup> *Id.* at 290, 292–293.

<sup>244</sup> [Room for the River](#), RIJKSWATERSTAAT MINISTRY INFRASTRUCTURE & WATER MGMT. (last visited Dec. 22, 2025).

<sup>245</sup> *Id.*

<sup>246</sup> Sinclair, *supra* note 12, at 293 (noting that the program is unlikely due to political willpower and lack of similar existing insurance and policy systems).

<sup>247</sup> Brian Stone Jr., [The Lunacy of Rebuilding in Disaster-Prone Areas](#), NOËMA MAG. (Apr. 25, 2024).

<sup>248</sup> Nevitt, *supra* note 127, at 1058, 1109.

compensation.<sup>249</sup> If climate change is viewed as an imminent threat, the doctrine of eminent domain can be used, as it has historically addressed public welfare risks and meets the public use requirement.<sup>250</sup> That recognition could arise through legislative reform expressly defining climate-threatened land as a public danger requiring preemptive action, or through court decisions that extend eminent domain precedent to climate-based relocation. With that legal foundation in place, Virginia could initiate phase one by planning and acquiring relocation property and developing a long-term transition structure for Tangier residents.<sup>251</sup>

In the first phase, the state would begin by gathering detailed information from Tangier Island residents to understand their priorities, concerns, and cultural preservation needs, similar to the approach taken with Isle de Jean Charles.<sup>252</sup> This step ensures that the relocation process is guided by the community's input and reflects their unique identity. Once this groundwork is laid, the state could initiate voluntary eminent domain proceedings, ensuring the fair market value of the properties residents are leaving behind is accounted for, and offering compensation to those who voluntarily agree to relocate. To prevent displacement anxiety, the state could guarantee that residents remain in their current homes until their new housing is complete and ready for move-in. As part of this process, residents would receive assurances that new homes will be provided in a subsequent phase, designed to reflect their former homes while meeting the building codes and regulations of the new locality. This phased turnover model, where residents do not relinquish possession until new housing is available, would help preserve community trust and minimize disruption. A community-focused approach is essential to ensure that the relocation is equitable and culturally sensitive from the outset.

In the second phase, the state would work with Tangier Island residents to select a relocation site that preserves their cultural identity, maritime lifestyle, and economic practices. While Chesconessex is a strong candidate, other coastal areas in Virginia should also be considered to ensure the best fit. Residents should take the lead in choosing the site and developing a relocation plan that benefits the

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<sup>249</sup> *Id.* at 1068–1069.

<sup>250</sup> *Surocco*, 1854 Cal. LEXIS 8, 9 (1853); *Kelo*, 545 U.S. 469, 480–90 (2005) (summarizing cases where eminent domain was allowed for public use).

<sup>250</sup> *Kelo*, 545 U.S. at 480–90.

<sup>251</sup> *E.g.*, *Isle de Jean Charles Background and Overview*, *supra* note 230, at 5–6 (describing the first steps of the resettlement as data gathering, site selection, and land acquisition).

<sup>252</sup> *Id.*

majority of them. Proximity to water is essential to support fishing and crabbing livelihoods and maintain their connection to the Chesapeake Bay.

Drawing from the Isle de Jean Charles example, community-driven decision-making is key. Allowing residents to guide the process ensures the relocation plan respects their cultural values and social bonds. Although some residents may need to settle a few miles apart, the relocation effort should aim to maintain the community's cohesion and way of life. The availability of multiple coastal properties in Virginia makes relocation achievable while preserving Tangier's identity and continuity in a new, safer location.<sup>253</sup> For those who may wish to stay, the state could offer an alternative solution, allowing residents to remain on the island until it becomes uninhabitable or until they pass away.<sup>254</sup> In this case, new homes could be secured for their heirs, with the original property reverting to the state afterward.<sup>255</sup> This approach, inspired by the evacuation of Centralia, Pennsylvania, balances immediate needs with long-term planning, respecting residents' ties to their land while ensuring future safety.<sup>256</sup>

A realistic funding approach will be necessary. Eminent domain acquisition, home construction, heirs-based property transfer, job training, a museum, and heritage facilities cannot occur without sustained funding capacity well beyond what Tangier can provide on its own.<sup>257</sup> This would require the state, rather than the community, to apply for, manage, and front the costs of multiple federal grants, many of which operate on a reimbursement model. Success would depend on the state assembling a project management team capable of handling grant compliance, match requirements, reimbursement delays, and layered funding sources that may include HUD resilience funding, NOAA coastal adaptation programs, Treasury community development grants, and broader

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<sup>253</sup> A search on Zillow reveals approximately 500 properties currently listed for sale in coastal Virginia, including some exceeding 39 acres, offering ample options for a relocation effort that preserves Tangier Island's identity and provides a new, safer home for its residents. See, [Virginia Real Estate](#), ZILLOW (last visited Dec. 22, 2025).

<sup>254</sup> See John Beauge, [Remaining Handful of Residents Can Stay in Centralia for the Rest of their Lives](#), *Settlement Says*, PENNLIVE (Oct. 30, 2013) (describing how a settlement in Centralia, Pennsylvania allowed property owners to remain in their homes even though most were condemned following a mine fire in 1993).

<sup>255</sup> *Id.* (stating that the owners in Centralia signed "quit claim deeds that . . . include confirmation that the current owners have a life estate in the property until they die").

<sup>256</sup> *Id.*

<sup>257</sup> See [Isle de Jean Charles Resettlement](#), *supra* note 230 (showing that the cost to purchase a new location for the residents that had all the desired features was \$11 million).

federal infrastructure programs.<sup>258</sup> The administrative lift is considerable, but recognizing the scale of investment makes Phase II honest. It requires not only a relocation plan but the institutional capacity to finance it, manage it, and carry Tangier through the transition.

The feasibility of such a move is reinforced by the availability of approximately 500 properties currently listed for sale in coastal Virginia, including some lots exceeding 39 acres, making relocation both realistic and achievable.<sup>259</sup> Although some community members may need to settle a few miles apart, it is important to remember that restitution need not be perfect; it should be reasonable and preserve the essence of the community's way of life. This approach would, for a large part, enable the residents to stay together, collectively grieve the loss of their ancestral land, and transition smoothly to a new beginning.<sup>260</sup> Relocating within coastal Virginia would help maintain their sense of place and continuity, offering a safer, more resilient future where Tangier Island's legacy can endure, even as climate change reshapes the landscape.

The third phase would involve constructing a new community on the relocation site chosen by Tangier Island residents. This site would reflect their preferences and cultural identity while adhering to local zoning laws. The focus would be on supporting economic stability and preserving the island's heritage. Job training programs would be implemented to help residents transition to new opportunities similar to the Isle de Jean Charles' model.<sup>261</sup> For those wishing to continue fishing and crabbing, targeted support would ensure these livelihoods thrive in the new location. Preserving Tangier Island's unique culture is essential. The island embodies a rich history, distinct dialect, and traditions rooted in early English settler culture.<sup>262</sup> Managed retreat must actively involve residents in designing their new community to maintain these elements and mitigate the trauma of relocation. In this phase, to further honor the island's legacy, the new community would include a museum dedicated to its history, culture, and maritime traditions. This institution would provide a space to celebrate the

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<sup>258</sup> [Community Development Block Grant Disaster Recovery Grant Funds](#), DEP'T HOUSING & URBAN DEV. (last visited Dec. 22, 2025); [Climate Adaptation Partnerships Program](#), NAT'L OCEANIC & ATMOSPHERIC ADMIN. (last visited Dec. 22, 2025); [Community Development Financial Institutions Fund – Program Overview](#), DEP'T OF THE TREASURY (last visited Dec. 22, 2025).

<sup>259</sup> ZILLOW, *supra* note 253.

<sup>260</sup> Sinclair, *supra* note 12, at 308–309.

<sup>261</sup> *Tribal Resettlement*, *supra* note 253; Crepelle, *supra* note 216, at 36.

<sup>262</sup> *Tangier Island Dialect*, *supra* note 4.

island's history, ensuring it endures for future generations while helping residents still feel connected to their roots. This approach balances the need for safety with preserving the community's identity and way of life.

The final phase would involve the physical relocation of Tangier Island's residents to the newly identified site, payment of just compensation for their properties, and ongoing financial support to ease the transition. Residents would move into homes constructed to their specifications, ensuring the new community reflects their preferences and meets modern building standards. Fair market compensation for the abandoned properties would be distributed to property owners who chose to relocate immediately preceding their relocation. To further support the community, residents would receive annual incentives and property tax breaks for a five-year period to reduce financial strain. Additionally, mortgage assistance would be provided for the first five years to help the Islanders establish stability in their new environment. These measures are designed to ensure that the relocation does not lead to undue financial hardship, allowing residents to focus on rebuilding their lives in a safer location.

The new community would be equipped with essential infrastructure, including schools, healthcare facilities, and spaces for social and cultural activities, fostering a sense of normalcy and belonging. To support economic sustainability, the government could incentivize businesses to engage with relocated crabbers and fishermen, helping to preserve their livelihoods. While such incentives might face constitutional challenges, they would likely survive under the rational basis standard, as they serve the legitimate purpose of promoting economic stability and cultural preservation.<sup>263</sup> By integrating these support mechanisms, the relocation plan addresses immediate safety concerns while laying a foundation for long-term resilience and prosperity. This approach balances the logistical and emotional challenges of relocation, preserving the unique identity of Tangier Island's residents. Through just compensation, financial incentives, and comprehensive community support, this plan provides a practical and fair model for managed retreat in the face of climate change.

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<sup>263</sup> See *City of New Orleans v. Dukes*, 427 U.S. 297, 303–06 (1976) (upholding an ordinance favoring certain vendors over others, finding the city's interest in preserving its unique character and promoting economic stability to be legitimate and rationally related to the ordinance).

## C. Addressing Legal Challenges to Adaptation Measures

Moving from theory to practice, implementing managed retreat faces significant legal hurdles, particularly in the absence of established jurisprudence framing climate change as an imminent threat equivalent to traditional emergencies. This lack of precedent complicates government actions under the Takings Clause, potentially resulting in prolonged disputes with property owners unwilling to relinquish their land.

As explored throughout this Article, the Takings Clause presents a significant challenge when government actions infringe upon private property rights, even in the interest of public safety.<sup>264</sup> Traditionally, takings have been justified in response to acute, immediate threats, such as fires or floods, where swift action serves the public good.<sup>265</sup> However, climate change presents a unique challenge for managed retreat initiatives, as its impacts—rising seas, worsening storms, and shifting coastlines—are gradual but irreversible. Without clear legal recognition of climate change as an imminent threat, takings claims are likely to arise, potentially leading to protracted legal proceedings and resistance from those who view relocation as premature.

There are also several practical and legal questions beyond the scope of this Article. These include the type of support that will be provided to Tangier Island renters—would they be left with no recourse because they do not own homes?—options for those unwilling to relocate, and the source of funding for such a project. Concerns about fair compensation in eminent domain proceedings, current interest rates for new homes, potential tax increases, and balancing individual property rights with community safety further complicate the landscape. Additionally, proposals to incentivize businesses to engage with relocated crabbers and fishers, while aimed at preserving livelihoods, could invite legal challenges alleging discrimination from other local crabbers and fishers. Although such incentives may withstand constitutional scrutiny under the rational basis standard,<sup>266</sup> the potential for litigation would slow progress significantly, raising the risk that relocation efforts could stall before completion. These unresolved issues shed light on the need for thoughtful, legally sound strategies to ensure managed retreat aligns with constitutional protections while addressing the unique needs of Tangier Island's residents.

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<sup>264</sup> *Supra* Part III.

<sup>265</sup> Craig, *supra* note 203, at 739–742.

<sup>266</sup> *Dukes*, 427 U.S. at 303–06.

#### D. Alternatives to Managed Retreat

While managed retreat is the central focus of this Article, it is not the only strategy that can be considered for Tangier Island. Many residents have expressed a strong preference to remain on the island and preserve their way of life, advocating instead for shoreline stabilization and infrastructure improvements, such as seawalls, jetties, or raising the elevation of homes. These sentiments are rooted in generations of cultural identity, tight-knit social bonds, and a deep connection to the place. Understandably, most residents do not wish to abandon their ancestral land, especially given past federal erosion-control investments—such as the Corps’ 2018 construction of a stone jetty at the Western Channel inlet to slow shoreline loss, which cost about \$2.4 million.<sup>267</sup>

However, while these measures may delay the island’s submersion, they cannot prevent it. Tangier continues to lose land at an alarming rate, and scientific models predict the island could be uninhabitable within the next few decades, regardless of near-term interventions. Hard infrastructure, such as levees or seawalls, is extraordinarily expensive, often requires perpetual maintenance, and is not guaranteed to hold up against increasingly severe storms. Elevating homes individually—another proposed solution—does not address the broader risks to critical infrastructure, access to services, or the island’s eroding land base.

Thus, although residents understandably prefer to stay, the physical and economic limitations of these alternatives make them unsustainable in the long term. By acknowledging and respecting the community’s desires while also confronting the scientific and logistical realities, policymakers can engage more honestly and constructively with residents to co-create a future that prioritizes safety, dignity, and cultural continuity.

## VI. CONCLUSION

This Article cannot address every legal question implicated by climate adaptation policy, including whether and how renters would benefit from managed retreat or the administrative burden of program design. These significant questions warrant further exploration beyond the scope of this Article. However, this analysis evaluates the limitations of alternative adaptation strategies and

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<sup>267</sup> Hafner, *supra* note 1; Carol Vaughn, [Tangier Island to Finally Get Jetty](#), 13NEWS NOW (Aug. 27, 2018).

explains why managed retreat offers a more sustainable long-term solution. In doing so, it aims to provide a foundation for future debate and reflection, emphasizing that comprehensive and inclusive strategies are necessary for ensuring the safety, cultural preservation, and resilience of vulnerable communities like Tangier Island.

Managed retreat, grounded in the exercise of Virginia's eminent domain powers, provides a legal framework for relocating communities from high-risk areas, ensuring not only fair market compensation for those leaving their ancestral lands but also relocation to newer, more resilient homes with long-term government support. This approach respects property rights while facilitating necessary relocation, demanding a collaborative, phased process that incorporates community input and values. For Tangier Island, managed retreat can lessen the trauma of displacement by proactively planning a transition that honors residents' cultural heritage, allowing them to re-establish their way of life in safer locations. This story reflects a broader societal challenge, where preserving community identity must be balanced with adapting to environmental realities—demonstrating that climate resilience and cultural preservation can go hand in hand.

AN OVERVIEW OF CLIMATE ADAPTATION ZONING LITIGATION IN THE MID-ATLANTIC REGION

Kai Hardy\*

*Home of the Chesapeake Bay and Long Island Sound, the Mid-Atlantic is one of the most vulnerable regions to sea level rise in the United States. Therefore, many state and local governments in the region have implemented climate adaptation measures to increase resilience as sea levels rise. For example, several communities along the Bay have adopted zoning ordinances that restrict coastal development. Although coastal development in the Mid-Atlantic is risky as sea levels rise and extreme weather events become more frequent and intense, the location is also appealing to many given the immense natural beauty of the Bay and Sound. Landowners seeking to navigate restrictive zoning in the region often apply for variances, allowing coastal development to persist despite the zoning regulations. Courts have to decide whether a variance is proper in light of the applicable laws and purposes of zoning. Alternatively, developers frequently challenge the legality of the zoning laws enacted to build coastal climate resilience. This litigation has resulted in a small but interesting body of caselaw, which this article will highlight. The holdings of these cases should (1) inform state and local lawmakers of the litigation risks of certain zoning ordinances; and (2) instruct Zoning Boards on how courts assess the validity of their decisions on variances.*

I. INTRODUCTION

The Mid-Atlantic United States is home to two of the most productive estuaries in the world: the Chesapeake Bay and Long Island Sound. Numerous communities depend on these bountiful ecosystems for food, commerce, and recreation.<sup>1</sup> However, both watersheds are also among the most vulnerable regions to the effects of climate change in the United States.<sup>2</sup> Melting glaciers and the thermal expansion of water are causing sea levels to rise at unprecedented

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<sup>1</sup> [Chesapeake Bay](#), NAT'L WILDLIFE FED'N (last visited Mar. 3, 2026); See [Why We Love Long Island Sound](#), SOUND HEALTH EXPLORER (last visited Jan. 9, 2026).

<sup>2</sup> [Climate Change](#), CHESAPEAKE BAY PROGRAM (last visited Mar. 3, 2026); See [Climate Impact Spotlight: The Long Island Region](#), N.Y. STATE CLIMATE IMPACTS ASSESSMENT (last visited Jan. 8, 2026).

rates, leaving the region's vibrant coastal communities at risk of flooding.<sup>3</sup> Additionally, extreme storms are increasing in frequency and intensity.<sup>4</sup> Therefore, Mid-Atlantic communities will need to continue to implement policies to adapt to sea level rise.

Several Mid-Atlantic states and localities have explicitly implemented coastal climate adaptation measures in their zoning codes. Communities with comprehensive adaptation regimes often have ordinances outlining the process for obtaining a variance, which, if granted, would allow projects that deviate from the zoning ordinances. Adaptation provisions have elicited litigation from waterfront property owners and developers. The resulting body of caselaw may be useful to localities seeking to implement sound adaptation measures while decreasing litigation risk.

This article will highlight Mid-Atlantic region cases, the outcomes of which may influence the efficacy of local adaptation measures. This article does not aim to provide an exhaustive list of adaptation-related zoning caselaw in the region, nor is it the intent of this article to serve as an in-depth analysis of the caselaw. Rather, these cases are selected as illustrations of litigation arising from climate adaptation policies.

This article will discuss two categories of cases. The first section will focus on state litigation surrounding the granting or denial of variances in jurisdictions with comprehensive zoning programs designed to facilitate coastal climate adaptation. The second section will explain how courts have interpreted Zoning Board decisions that sought to enforce sea level rise provisions in zoning ordinances, which often consist of setbacks and building height requirements. This caselaw overview will help advise state and local governments of the litigation risks of sea level rise zoning laws and Zoning Board decisions as they take on the challenge of protecting their communities from the inevitable rise of sea levels.

## II. VARIANCES: WHEN THE EXCEPTION BECOMES THE RULE

Municipalities regulate development through zoning codes. Zoning is one of the most powerful tools local governments hold to mitigate hazards, including

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<sup>3</sup> *Id.*

<sup>4</sup> *Id.*

sea level rise.<sup>5</sup> Through zoning, local governments decide what is at risk, what is safe to build, and where it is safe to build.<sup>6</sup> States may also shape local government zoning. For example, Maryland enacted the Chesapeake and Atlantic Coastal Bays Critical Area Protection Program (CAP), a cooperative state and local zoning program, to minimize development in the state's coastal areas.<sup>7</sup> Under the Program, the state's Critical Area Law provides development restrictions and outlines requirements for local Critical Area Programs.<sup>8</sup> As sea levels continue to rise, the coastal communities along the Chesapeake Bay and Long Island Sound have enacted zoning regulations and ordinances restricting the density of development and height of buildings in flood zones.

A common feature of nearly every zoning regime is the opportunity to obtain a variance in certain circumstances. The requirements for a variance vary depending on the jurisdiction, but most variances require the applicant to show that 1) the subject property has unique features or conditions and 2) the denial of a variance would create an unwarranted hardship. Variances allow flexibility in urban planning and municipal development. However, an overly liberal granting of variances can compromise local climate adaptation schemes by allowing development along the coast, where people and property are most at risk of sea level rise and flooding. Therefore, it is important for state and local lawmakers to establish statutes and ordinances that allow for variances only in extraordinary circumstances while also protecting local climate adaptation measures. It is equally critical for Zoning Boards and courts to apply the correct legal standards that allow for flexibility in development while making rulings that honor the purpose of zoning laws, especially zoning regimes that promote adaptation, such as CAP. The cases below illustrate how Maryland courts have ruled on Zoning Board decisions on the granting or denial of variances for projects located in the Critical Area.

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<sup>5</sup> Jessica Grannis, *Zoning for Sea Level Rise: A Model Sea Level Rise Ordinance and Case Study of Implementation Barriers in Maryland*, GEORGETOWN CLIMATE CTR., (Dec. 2012); Joseph Mendonca, *Zoning for Climate Change: How Cities are Preparing for Future Threats*, SMART GROWTH AM. (Sept. 20, 2023).

<sup>6</sup> *Id.*

<sup>7</sup> MD. CODE ANN., NAT. RES. § 8-1801.

<sup>8</sup> *Id.* § 8-1801-18.

## A. Maryland

*i. Assateague Coastal Trust, Inc. v. Schwalbach, 136 A.3d 866 (Md. 2016).*

A riparian property owner in Worcester County desired to construct a 180-foot pier to allow greater access to the water.<sup>9</sup> However, a county zoning ordinance limited the length of piers to 100 feet.<sup>10</sup> Therefore, after obtaining the requisite state and federal permits, the property owner applied for a variance from the County ordinance.<sup>11</sup> The Board granted the variance and determined that the applicant satisfied the criteria for the variance outlined in the ordinance.<sup>12</sup> Among other things, the Board found that the landowner would be unable to reach the waters adjacent to his property without the variance and that the environmental impacts of the proposed pier would be minimal.<sup>13</sup> The Assateague Coastal Trust (ACT) challenged the variance, arguing that the applicant failed to overcome the presumption of non-conformity and failed to meet five of the ordinance's six variance criteria.<sup>14</sup>

Maryland's Critical Area Law (CAL) and the county ordinance placed the burden on the applicant to demonstrate an "unwarranted hardship" in order to qualify for a variance.<sup>15</sup> The CAL and county ordinance defined "unwarranted hardship" to mean that "without a variance, an applicant would be denied reasonable and significant use of the entire parcel or lot for which the variance is requested."<sup>16</sup> ACT argued that the correct interpretation required the applicant to show he would be denied *any* reasonable and significant use of the property.<sup>17</sup> On the other hand, the applicant argued he had to show only that the denial of a variance would deny him *a* reasonable and significant use of his land. The Maryland Circuit Court and Special Court of Appeals affirmed the Board's decision.

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<sup>9</sup> *Assateague Coastal Trust, Inc. v. Schwalbach*, 136 A.3d 866, 871 (Md. 2016).

<sup>10</sup> *Id.*

<sup>11</sup> *Id.*

<sup>12</sup> *Id.*

<sup>13</sup> *Id.*

<sup>14</sup> *Id.* at 866, 872.

<sup>15</sup> *Id.* at 866, 870-71.

<sup>16</sup> *Id.* at 870.

<sup>17</sup> *Id.* at 874.

The Maryland Court of Appeals upheld the Board's decision granting the variance, holding that the applicant demonstrated substantial evidence of an unwarranted hardship. The court found that the caselaw and legislative history supported the following interpretation: to establish an unwarranted hardship, a variance applicant has the burden of demonstrating that, without a variance, the applicant would be denied *a* use of the property that was both reasonable and significant.<sup>18</sup> The court held that the applicant also has the burden of showing that such use cannot be accomplished anywhere else on the property without a variance.<sup>19</sup>

In applying its rule to the facts before it, the court determined that there was substantial evidence of an unwarranted hardship.<sup>20</sup> The court held that the use of a pier to reach navigable waters to exercise his riparian rights was a reasonable use because the area was zoned as an Intensely Developed Area, the area was a boating community, and permits previously obtained through state and federal environmental agencies already subjected the project to conditions that would help protect the surrounding marshlands.<sup>21</sup> Additionally, the court held that the Board fulfilled the second prong of the test by determining that there did not appear to be an alternative location for the pier elsewhere on the property, as the proposed site provided the most direct access to the waters.<sup>22</sup>

Finally, the court held that the proposed pier conformed with the purpose and intent of Maryland's Critical Area Program, as required by the CAL and County ordinance. Specifically, the court found that the Board determined the applicant met all the requirements for a variance listed in the ordinance and CAL.<sup>23</sup> This court demonstrates the court's low threshold for approving a variance.

*ii. Effect, Inc. v. Town of Highland Beach Board of Appeals, 2024 WL 618185 (Md. App. Ct. 2024).*

A developer sought to build a 20-foot-wide three-story single-family residence on a corner lot in Highland Beach, Maryland, a town adjoining the

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<sup>18</sup> *Id.* at 869.

<sup>19</sup> *Id.* at 881.

<sup>20</sup> *Id.* at 881.

<sup>21</sup> *Id.* at 881-82.

<sup>22</sup> *Id.* at 882.

<sup>23</sup> *Id.* at 885.

Chesapeake Bay.<sup>24</sup> However, the Highland Beach Zoning Ordinance established a 30-foot setback requirement for front yards.<sup>25</sup> The setback effectively limited the proposed house to a width of 13 feet.<sup>26</sup> Therefore, the developer applied for a variance from the setback requirement.<sup>27</sup> The Board ultimately denied the variance request for several reasons, including that the lot had no unique circumstances or conditions, a variance was not necessary for reasonable use of the lot, and the proposed variance would not be in harmony with the purpose and intent of the ordinance and would be injurious to the neighborhood and public welfare.<sup>28</sup> The Circuit Court affirmed the Board’s decision, and the Appellate Court was tasked with deciding whether the applicant’s property was unique as a matter of law with respect to a variance.<sup>29</sup>

The court held that the Board used the correct legal standard in determining that the applicant’s property was not unique.<sup>30</sup> The court, citing one of its earlier decisions, explained that “uniqueness of a property for zoning purposes requires that the subject property have an inherent characteristic not shared by other properties in the area....”<sup>31</sup> Those factors include shape, topography, subsurface condition, environmental factors, historical significance, and access to navigable waters.<sup>32</sup> The court emphasized that caselaw made it clear that it is *the applicant’s* burden to identify factors that make the property unique, and it found that the applicant failed to meet that burden.<sup>33</sup> The applicant argued that the Board did not consider several factors that made the property unique, but the court pointed out that the Board assessed all the factors identified by the applicant and determined that the property was not unique.<sup>34</sup> The Board had no

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<sup>24</sup> Effect, Inc. v. Town of Highland Beach Bd. of Appeals, 2024 WL 618185, at \*3 (Md. App. Ct. 2024).

<sup>25</sup> *Id.* at \*1.

<sup>26</sup> *Id.* at \*3.

<sup>27</sup> *Id.*

<sup>28</sup> *Id.*

<sup>29</sup> *Id.* at \*7. The court also declined to address whether the applicant suffered an unwarranted hardship, deciding the case on the uniqueness issue. *Id.*

<sup>30</sup> *Id.* at \*8-9.

<sup>31</sup> *Id.* at \*8.

<sup>32</sup> *Id.*

<sup>33</sup> *Id.* at \*9.

<sup>34</sup> *Id.*

obligation to consider any factors the applicant did not identify, the court explained.<sup>35</sup>

Many local zoning ordinances and critical area programs in Maryland require variance applicants to show that their land has unique characteristics when compared to surrounding properties that necessitate a variance.<sup>36</sup> The standard for uniqueness—the existence of an inherent characteristic not shared by other properties in the area—has been established by state caselaw, and the *Effect* court applied the same test to the facts before it. The *Effect* decision also shows that Maryland courts will uphold Zoning Boards’ factual findings regarding uniqueness and unwarranted hardship if those findings are supported by substantial evidence, which is the ordinary standard courts apply when reviewing factual determinations of agencies.

### *iii. Variances under Maryland’s Critical Area Law*

Maryland localities grant variances from the requirements of CAL at an alarmingly high rate. One study surveying all the variance requests in select Maryland Counties from 2012-2014 showed that those counties granted the vast majority of variance requests they received.<sup>37</sup> Anne Arundel and Worcester Counties granted 89% of the requested variances—the lowest rate of the six selected counties.<sup>38</sup> Queen Anne’s and St. Mary’s Counties granted every

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<sup>35</sup> *Id.*

<sup>36</sup> ANNAPOLIS, MD., CODE OF ORDINANCES, § 21.54.160(A) (2026) (“Variances to the provisions of this City of Annapolis critical area program shall be considered due to special features of a site or other circumstances or where a literal enforcement of provisions within the critical area program would result in unwarranted hardship to an applicant.”); ANNE ARUNDEL COUNTY CODE, art. 18, tit. 16, § 305 (a)(1), (b)(2)(i) (“A variance may be granted only if...[b]ecause of certain unique physical conditions, such as irregularity, narrowness or shallowness of lot size and shape or exceptional topographical conditions peculiar to and inherent in the particular lot, there is no reasonable possibility of developing the lot in strict conformance with this article...and...A literal interpretation of COMAR, Title 27, Criteria for Local Critical Area Program Development or the County’s critical area program and related ordinances will deprive the applicant of rights commonly enjoyed by other properties in similar areas”, among other requirements.); DORCHESTER COUNTY, MD., CODE, § 68-16 (B)(1) (“A variance shall only be granted if”, among other requirements, “[d]ue to special features of the site or special conditions or circumstances peculiar to the applicant’s land or structure, a literal enforcement of the Dorchester County Critical Area Program would result in an unwarranted hardship to the applicant.”).

<sup>37</sup> UNIV. OF MD. FRANCIS KING CAREY SCH. OF L., [MARYLAND’S CRITICAL AREA PROTECTION PROGRAM: VARIANCES AND ENFORCEMENT IN SELECTED JURISDICTIONS FROM 2012 TO 2014](#) (2016).

<sup>38</sup> *Id.*

variance request they received during the three-year period analyzed by the study.<sup>39</sup> The study further found that the vast majority of variances were for additional living space, including the construction of new dwellings and the expansion of existing residences.<sup>40</sup> This pattern is concerning from a climate adaptation standpoint. As sea levels continue to rise and extreme weather events continue to increase in frequency and intensity, it is becoming increasingly imperative that communities limit coastal development, particularly *residential* development, which places people and property at risk of flooding.

CAL was originally enacted primarily as a zoning law to protect water quality and wildlife of the Chesapeake Bay (and eventually the Atlantic Coastal Bays).<sup>41</sup> However, the Act was amended in 2024 to mandate the consideration of climate adaptation and coastal resilience when developing local critical area programs.<sup>42</sup> Therefore, even though the Maryland Court of Appeals in the *Assateague Coastal Trust* case above, which was decided before the 2024 climate resiliency amendments, held that the variance conformed with the purpose and intent of the CAL and county ordinance, climate adaptation was not contemplated by the Act. Because climate adaptation is explicitly one of the Act's goals, Zoning Boards and courts will now be required to analyze whether a proposed variance would conform with the Act's purpose of improving climate resiliency, which may have the effect of lowering Zoning Boards' variance approval rates. Zoning Boards and climate advocates should stay informed on the evolving case law as the 2024 climate resiliency amendments are litigated.

## B. Virginia

Virginia's Chesapeake Bay Preservation Act (CBPA) was enacted to protect and improve water quality in the Chesapeake Bay by requiring effective land use practices and providing criteria for local government programs.<sup>43</sup> In one

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<sup>39</sup> *Id.*

<sup>40</sup> *Id.*

<sup>41</sup> MD. CODE ANN., NAT. RES. § 8-1801(b)(1).

<sup>42</sup> *Id.* § 8-1808 (b)(4)-(5) (“A program shall consist of those elements which are necessary or appropriate to... Reduce vulnerability to the impacts of climate change and incorporate measures to improve the climate resiliency of the Chesapeake and Atlantic Coastal Bays and its tributaries...and... [e]nsure an equitable distribution of the burdens and benefits of development, mitigation, restoration, conservation, and adaptation to climate change within the critical area.”).

<sup>43</sup> [Chesapeake Bay Preservation Act](#), VA. DEP'T OF ENV'T QUALITY (last visited Jan. 11, 2026). The act was recently amended to address climate adaptation. Indeed, one of the goals of the act is

case, a development company sought to build a residence on a group of adjoining lots it owned in an area designated as a Chesapeake Bay Preservation Area under the CBPA, which was incorporated into the Northampton County Zoning Ordinance.<sup>44</sup> The ordinance established setbacks, the effect of which precluded the construction of residential buildings on the company's particular property.<sup>45</sup> The company applied for a variance from the setback requirements and the CBPA regulations, but the Board denied the request.<sup>46</sup> The case made it to the Virginia Supreme Court, which was asked to determine whether the variance denial was proper.<sup>47</sup>

The court upheld the Board's denial of the variance, finding that the company failed to show that the denial would "interfere with all reasonable beneficial uses of the property, taken as a whole."<sup>48</sup> The court also hinted that the need for a variance was somewhat self-created. The court explained that the language of the ordinance would have allowed the company to build its residence had it not chosen to subdivide the property into multiple lots and, instead, treated the property as a single lot.<sup>49</sup>

The *Cherrystone* case has two main takeaways. First, Virginia courts seem to recognize a more stringent standard for variances than Maryland courts. The *Cherrystone* court cited a Virginia case that required the applicant to show that the denial of a variance would interfere with *all* reasonable beneficial uses of the property.<sup>50</sup> This standard is essentially analogous to the test for a regulatory taking. As this article discussed earlier, Maryland courts determined that the interference must be with *a* (singular) reasonable use of the property.<sup>51</sup> The differing standards for a variance in Maryland's Critical Area Law and Virginia's Chesapeake Bay Preservation Act suggest a much easier path for applicants in Maryland's coastal areas compared to Virginia's. However, because Maryland is

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to "encourage and promote . . . coastal resilience and adaptation to sea-level rise and climate change . . ." VA. CODE ANN. § 62.1-44.15:72(B)(v).

<sup>44</sup> *Cherrystone Inlet, LLC v. Bd. of Zoning Appeals of Northampton Cnty.*, 628 S.E.2d 324, 325 (Va. 2006).

<sup>45</sup> *Id.*

<sup>46</sup> *Id.*

<sup>47</sup> *Id.* at 324.

<sup>48</sup> *Id.* at 326.

<sup>49</sup> *Id.*

<sup>50</sup> *Id.* at 325.

<sup>51</sup> *Assateague Coastal Trust, Inc. v. Schwalbach*, 136 A.3d 866, 869 (Md. 2016).

at least partially a Home Rule state, some local jurisdictions are authorized to enact more stringent variance standards than required by state law.

The second takeaway from *Cherrystone* is that courts typically recognize that the need for the variance cannot be self-created, and many municipalities codify that principle in their zoning ordinances. This court seemed to find that subdividing an existing lot into a greater number of smaller lots is a self-inflicted hardship that should not be considered in a variance request.<sup>52</sup> Such a holding is beneficial for adaptation schemes that attempt to limit concentrated coastal development. This holding seems to limit a property owner’s ability to subdivide their land to erect more buildings, in certain circumstances. Sensitive lands vulnerable to sea level rise, such as Northampton County, particularly benefit from such a ruling.<sup>53</sup>

### C. Connecticut

In the following Connecticut case, a court ruled on a Zoning Board variance decision in a municipality that implemented zoning regulations specifically to address sea level rise. The waterfront home of the plaintiffs in Milford, Connecticut, was destroyed by Superstorm Sandy.<sup>54</sup> To construct a new home, they sought variances from certain zoning bulk regulations in 2015, but the Zoning Board unanimously denied the application.<sup>55</sup> The plaintiffs appealed, alleging the denial was illegal, arbitrary, and an abuse of discretion.<sup>56</sup> They also argued that the combination of the topography, the slope, and the location in two zones in the Special Flood Hazard Area (SFHA), as well as the Federal Emergency Management Agency (FEMA) and state regulations, presented a unique hardship that did not impact other properties within the same district.<sup>57</sup>

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<sup>52</sup> See *Cherrystone Inlet, LLC*, 628 S.E.2d at 326.

<sup>53</sup> Northampton County is a predominantly rural, low-lying community on Virginia’s Eastern Shore. *RGGI Grants: Community Flood Preparedness Fund*, VA. CONSERVATION NETWORK (last visited Jan. 9, 2026). Bordering both the Chesapeake Bay and Atlantic Ocean, it is particularly vulnerable to sea level rise and coastal flooding, even in the inland areas. *Id.*

<sup>54</sup> *Turek v Zoning Bd. of Appeals for City of Milford*, 2018 WL 2048566, at \*1 (Conn. Super. Ct. 2018).

<sup>55</sup> *Id.*

<sup>56</sup> *Id.*

<sup>57</sup> *Id.* at \*5. The Special Flood Hazard area is “the area where the National Flood Insurance Program’s (NFIP) floodplain management regulations must be enforced and the area where the mandatory purchase of flood insurance applies.” *Special Flood Hazard Area (SFHA)*, FED. EMERGENCY MGMT. AGENCY (last visited Jan. 10, 2026).

Located in a residential zone (R-5), the property was created in 1901, prior to the city's first zoning regulations in 1930.<sup>58</sup> The lot was in the SFHA.<sup>59</sup> Regulations allowed a variance to be granted for damaged or destroyed buildings that would extend a nonconforming use that would more nearly conform.<sup>60</sup> Additionally, the regulations limited the height of homes in the R-5 zone to 35 feet.<sup>61</sup> If measured from the average elevation, the plaintiffs' proposed house would be 34 feet, 11.5 inches high.<sup>62</sup> However, the regulations also provided that structures in the SFHA must comply with all federal and state regulations concerning flood hazards.<sup>63</sup>

FEMA has certain regulations for owners of properties in the SFHA who seek to obtain flood insurance under the National Flood Insurance Program.<sup>64</sup> Those regulations mandate that homes be built 13 feet above mean sea level (MSL).<sup>65</sup> The Board was prohibited from accepting any application that did not comply with FEMA and state requirements.<sup>66</sup> The state building code required an additional one foot of freeboard, so that the base of the home had to be 15 feet above MSL.<sup>67</sup> In light of those regulations, the seaward slope of the lot and the height of the proposed structure, as measured from 15 feet above MSL, the plaintiffs requested a variance from the 35-foot height restriction to 39.5 feet.<sup>68</sup> Plaintiffs argued the 15-foot MSL requirement cut into the 35-foot maximum height for the house.<sup>69</sup> They also argued that even if no unique hardship was found, the planned house reduces certain nonconformities that had previously existed (e.g., removing the existing nonconforming garage and incorporating it in the house apparently impacts the height of the proposed house).<sup>70</sup> Therefore, they asserted that an exception to the substantial hardship requirement should have

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<sup>58</sup> *Turek*, 2018 WL 2048566, at \*3.

<sup>59</sup> *Id.*

<sup>60</sup> *Id.* at \*4.

<sup>61</sup> *Id.*

<sup>62</sup> *Id.*

<sup>63</sup> *Id.*

<sup>64</sup> *Id.* at \*5.

<sup>65</sup> *Id.*

<sup>66</sup> *Id.* at \*5.

<sup>67</sup> *Id.*

<sup>68</sup> *Id.*

<sup>69</sup> *Id.*

<sup>70</sup> *Id.* at \*6.

applied under Connecticut case law. The Connecticut Superior Court considered whether the Board gave reasons for denying a zoning variance.<sup>71</sup>

The court first rehashed Connecticut law regarding variances. A Zoning Board of Appeals is statutorily authorized to grant a variance if two requirements are met: 1) the variance will not affect substantially the comprehensive zoning plan; and 2) the application of the regulation causes unusual hardship unnecessary to the carrying out of the general purpose of the zoning plan.<sup>72</sup>

With respect to step one, the court held that the variance request did not negatively impact the comprehensive plan.<sup>73</sup> The court balanced and analyzed two aspects of the plan: the aesthetic height limit and the public safety requirement for homes in the SFHA. The Board's denial was based solely upon the aesthetic height requirement, which did not consider the "nuances and immediacy of flood hazard or sea level rise and the elevation requirements in the plan and is thus contrary to law and logic."<sup>74</sup> The court explained that Connecticut municipalities are required by state statute to consider, where appropriate, "sea level change scenarios published by [NOAA]" in the municipal plan of conservation and development. The court also stated that many homes are on small lots with similar setbacks.<sup>75</sup> The regulations, and therefore, the plan, contain both the 35-foot height restriction and the minimum elevation requirement.<sup>76</sup> The Zoning Board stated that the purpose of the 35-foot requirement is only to ensure that a waterfront house will "not unreasonably obstruct water views of inland properties."<sup>77</sup> The court held that the denial of the variance based solely on aesthetics was thus arbitrary and illegal.<sup>78</sup>

Regarding step two, the court overturned the Board's decision.<sup>79</sup> The court held plaintiffs' variance request does not have the singular purpose of enhancing the use of the home because they do not seek more living space or

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<sup>71</sup> *Id.* at \*3.

<sup>72</sup> *Id.*

<sup>73</sup> *Id.* at 9.

<sup>74</sup> *Id.*

<sup>75</sup> *Id.* at \*7.

<sup>76</sup> *Id.* at \*6.

<sup>77</sup> *Id.*

<sup>78</sup> *Id.* at \*9.

<sup>79</sup> *Id.* at \*14.

modernization.<sup>80</sup> Instead, they sought to rebuild a house with substantially the same square footage as the structure that was destroyed.<sup>81</sup> To do so, they had to comply with FEMA requirements, the state building code, and the City's regulations for properties in flood hazard zones.<sup>82</sup> Similar to the holdings in *Mayer-Wittman* and *Hescock*, other Connecticut cases with similar facts and legal issues, the hardship or the exception to hardship was the total destruction of the previous home by Superstorm Sandy, and the need to comply with applicable elevation requirements.<sup>83</sup> Their hardship was thus not self-imposed, according to the court.<sup>84</sup> It fit within the unusual hardship exception of reducing existing nonconformities. The proposed house would be safer because of the elevation requirement, and it would reduce nonconformities, the court reasoned.<sup>85</sup> Further, the proposed house would be set further back from Long Island Sound and be removed from the VE 13 zone.<sup>86</sup> Therefore, the court declared, there was substantial evidence that the plaintiffs' proposed house would reduce existing nonconformities and present less of a hazard in terms of flooding and storm surge.<sup>87</sup>

On appeal, the Appellate Court reversed the Superior Court's ruling, holding that the Board was correct in finding that the plaintiffs failed to demonstrate they could not build a home that complied with state and federal minimum flood elevation requirements in the absence of a variance.<sup>88</sup> The plaintiffs merely showed they could not build the *type* of house they desired, which the court characterized as merely a "personal disappointment."<sup>89</sup> Therefore, the Board acted properly in denying the variance because the plaintiffs failed to meet their burden of demonstrating a legally cognizable hardship.<sup>90</sup> The court also held the plaintiffs' case did not qualify under the exception to the substantial

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<sup>80</sup> *Id.* at \*13.

<sup>81</sup> *Id.* at \*14.

<sup>82</sup> *Id.*

<sup>83</sup> *Id.*; See *Mayer-Wittman v. Zoning Bd. of Appeals of City of Stamford*, 2016 WL8135390 (Conn. Super Ct. 2016); See *Hescock v. Zoning Bd. of Appeals of Town of Stonington*, 962 A.2d 177 (Conn. App. Ct. 2009).

<sup>84</sup> *Turek*, 2018 WL 2048566, at \*14.

<sup>85</sup> *Id.* at \*15.

<sup>86</sup> *Id.*

<sup>87</sup> *Id.*

<sup>88</sup> *Turek v. Zoning Bd. of Appeals of City of Milford*, 196 Conn. App. 122, 140 (2020).

<sup>89</sup> *Id.* at 141.

<sup>90</sup> *Id.*

hardship requirements, finding that the project would create a height nonconformity where none previously existed.<sup>91</sup>

The *Turek* decision reflects a court's willingness to analyze the inclusion of sea level rise in a municipality's zoning decisions. Advocates of coastal climate adaptation would characterize this case as a victory, as it disincentivizes redevelopment in flood hazard areas.

### III. ZONING FOR SEA LEVEL RISE

Developers frequently challenge the legality of zoning laws enacted to build coastal climate resilience. The following cases involve challenges to these zoning regulations.

#### A. *Argos Properties II, LLC v. City Council for Virginia Beach* (Va. Cir. Ct. 2018).

Virginia Beach's zoning ordinance included AG-1 and AG-2 designations, which did not permit high- and medium-density residential use.<sup>92</sup> The primary purpose of those designations was to "protect and preserve agricultural lands for agricultural functions."<sup>93</sup> Only one dwelling per unit was permitted per 15 acres of land.<sup>94</sup> R-10 zoning, however, allowed for medium-density residential use in the manner of single-family homes.<sup>95</sup>

Argos, a development company, wished to construct a 38-lot single-family residential subdivision in an area that was at the time zoned AG-1 and AG-2.<sup>96</sup> The company submitted a rezoning application requesting a rezoning of approximately 50 acres of property to R-10.<sup>97</sup> After a zoning application was submitted, the City's Comprehensive Plan was amended to recommend the completion of a preliminary stormwater analysis in conjunction with a rezoning

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<sup>91</sup> *Id.* at 146.

<sup>92</sup> Petition for Review and Complaint at ¶ 7, *Argos Props. II, LLC v. City Council for Va. Beach*, CL18002289-00 (Va. Cir. Ct. 2018).

<sup>93</sup> *Id.* ¶ 9.

<sup>94</sup> *Id.*

<sup>95</sup> *Id.* ¶ 20.

<sup>96</sup> *Id.* ¶¶ 25-26.

<sup>97</sup> *Id.*

application.<sup>98</sup> The city recommended to Argos that it complete one.<sup>99</sup> The city continued to add criteria as the application was pending.<sup>100</sup> About a year later, the city informed Argos that its stormwater analysis was insufficient.<sup>101</sup> One of the key post hoc criteria was the requirement to analyze stormwater system performance assuming a 1.5-foot rise in the starting tailwater to account for sea level rise.<sup>102</sup> Argos failed to undertake this task.

In 2018, the Planning Commission denied the application 7-3, citing the lack of stormwater analysis with respect to the 1.5-foot rise in sea levels, among other things.<sup>103</sup> Argos believed the denial of its application was arbitrary, especially given that an adjacent, similarly situated company was successful in a similar rezoning application less than two weeks prior to Argos submitting its application.<sup>104</sup> Among other things, the company asked a Virginia circuit court to consider the following questions:

1. Was the city’s denial of Argos’s application based on a failure to assess higher water elevations resulting from an anticipated sea level rise, when the application otherwise met all state and local stormwater legal requirements, arbitrary and capricious?<sup>105</sup>
2. Did imposing conditions and denying Argos’s application when the similarly situated Ashdon Developments and other applicants did not suffer those conditions or denials violate the U.S. Constitution’s Equal Protection Clause?
3. Was the Council authorized by State law (VA is a Dillon’s Rule State) to require that Argos comply with the ad hoc criteria?<sup>106</sup> Did its denial

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<sup>98</sup> *Id.* ¶ 31.

<sup>99</sup> *Id.* ¶ 32.

<sup>100</sup> *Id.* ¶ 33.

<sup>101</sup> *Id.* ¶ 34.

<sup>102</sup> *Id.* ¶ 41. Tailwater is defined as “water below a dam or waterpower development.” *Tailwater*, MERRIAM-WEBSTER (last visited Mar. 3, 2026).

<sup>103</sup> Petition for Review and Complaint, *supra* note 92, at ¶ 48.

<sup>104</sup> *Id.* ¶¶ 76-77.

<sup>105</sup> *Id.* According to Argos, the denial of the application based on the company’s “failure to assess higher water elevations resulting from an anticipated sea level rise does not protect public health, safety or the general welfare, because the site would not have been engineered to th[at] standard even if it had been approved.” *Id.* ¶ 69.

<sup>106</sup> Under Dillon’s Rule, local governments only have powers expressly granted to them by the State. Sadegh Eghdami et al., *Gap Analysis of Climate Adaptation Policymaking in Coastal Virginia*, 5 FRONTIERS IN CLIMATE 8, 14 (2023). Therefore, local governments may exercise

of its application for reasons based on its failure to provide all the ad hoc criteria constitute an action that is *ultra vires* and unauthorized by state law?

A Virginia trial court ruled that the denial was proper. However, as of the writing of this article, no written order is available. This ruling indicates that at least one court in Virginia was willing to consider projected sea level rise in deciding whether to approve rezoning applications.

B. *Murphy v. Zoning Board for the City of Stamford*, 2016 WL 7661385 (Conn. Super. Ct. 2016).

The City of Stamford's Zoning Board, after review by the Planning Board, adopted an amendment to the zoning regulations that would essentially result in elevated building heights. The amendment would directly apply to a property abutting Long Island Sound within the Coastal Boundary (FYI: Planning Board's version deleted the building height exceptions).<sup>107</sup> The plaintiffs, who were property owners, challenged the revisions, claiming that the Zoning Board failed to include sufficient reasons for the amendment.<sup>108</sup>

The court started its analysis by reciting the law regarding Zoning Board decisions. It explained that when a Zoning Board fails to give reasons for its action or if its reasons are inadequate, a trial court must search the record to determine whether a basis exists for the Board's action.<sup>109</sup> In searching the record, a court may rely on any reason culled from the record that demonstrates a reasonable relationship with the general welfare of the community in concluding that the Board's decision should be upheld.<sup>110</sup>

The court held that the Zoning Board provided sufficient reasons for the amendment. Exhibit 15, which was a letter from the Planning Board to the Zoning Board, revealed the amendment was a response to the desire of the Stamford Board of Representatives (a municipal legislative body) to develop a "global

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caution when introducing coastal climate adaptation policies out of fear of those policies being challenged by the Commonwealth. *Id.*

<sup>107</sup> *Murphy v. Zoning Bd. of the City of Stamford*, 2016 WL 7661385, at \*1 (Conn. Super. Ct. 2016).

<sup>108</sup> *Id.*

<sup>109</sup> *Id.* at \*4.

<sup>110</sup> *Id.*

solution” to allow additional height in areas affected by FEMA and City requirements to raise homes in the Coastal Boundary one foot above base flood elevation.<sup>111</sup> Additionally, a staff report from the Stamford Land Use Bureau contained a clear rationale for the appropriateness, indeed necessity, for the regulation of the elevation of residential buildings to protect against coastal flooding.<sup>112</sup>

The court believed it was reasonable to infer from the allowance of greater building height that more living space would be devoted to the higher levels of the building rather than the lower level, thus protecting lives and property.<sup>113</sup> The same section of the report indicated that other municipalities have addressed flood protection in the same way.<sup>114</sup> Therefore, according to the court, such a purpose was reasonably and rationally related to one of the principal purposes of zoning as set forth in the City of Stamford’s Charter.<sup>115</sup>

This case demonstrates the reluctance of courts to overturn Zoning Board decisions that have a rational, reasonable basis that is articulated. The *Murphy* court went as far as to hold that even if Zoning Boards fail to articulate the basis for their decisions, courts will uphold those decisions if a rational basis exists anywhere in the record.<sup>116</sup> The Stamford Zoning Board justified the amendment by explaining its purpose of elevating buildings in the flood zone—protecting people and property against sea level rise and resulting flood damage. This rational basis test can be applied to zoning laws designed to protect Connecticut communities from sea level rise, as was the case in *Murphy*. As more municipalities start enacting similar sea level rise zoning laws in the wake of climate change, courts will continue to be faced with the question of whether zoning bodies have articulated a rational basis to support them. This case seems to

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<sup>111</sup> *Id.* at \*5.

<sup>112</sup> *Id.* The report stated that the amendment “would provide limited relief to residential buildings to encourage buildings to be elevated above the Base Flood Elevation without sacrificing any zoning rights. The building height relief is directly related to the depth of flooding on each individual property, not to exceed an increase of five (5) feet. This appears to be an appropriate and measured response to climate change and expected increases in coastal flooding, that will encourage compliance with Flood Prone Area Regulations and provide an adaptation response to coastal flooding as recommended in the Master Plan...” *Id.*

<sup>113</sup> *Id.*

<sup>114</sup> *Id.*

<sup>115</sup> *Id.*

<sup>116</sup> *Id.* at \*4.

suggest that as long as evidence exists that the regulations were enacted to protect people and property from sea level rise, the regulations will typically be upheld.

#### IV. CONCLUSION

The common refrain throughout the cases analyzed in this article is that courts are looking for state and local agencies to make reasoned decisions. Some of the agencies in the selected cases used sea level rise and climate change to support their decisions, and courts generally upheld these decisions and actions. Regardless of the outcome of these selected cases, sea level rise will be an important consideration in the decisions of state and local planning agencies, and courts and communities in the Mid-Atlantic and throughout the United States will be faced with unique legal issues that arise when adaptation policies are implemented.

**CRITICAL AMENDMENTS: MARYLAND'S CRITICAL AREA LAW AND ITS ROLE IN  
PROTECTING THE BAY**

Kathleen Gagnon\*

*The Chesapeake Bay, the largest estuary in the United States, has been the focus of decades of restoration efforts aimed at reducing nutrient and sediment pollution across its multi-state watershed. Federal and regional initiatives, including the Chesapeake Bay Program, the Chesapeake Bay Watershed Agreement, and the 2010 Total Maximum Daily Load (TMDL), established ambitious pollution reduction targets. Yet recent scientific assessments indicate that water quality improvements have been uneven and that rising temperatures, intensified precipitation, and sea-level rise are increasingly undermining restoration progress. This article examines the relationship between pollutant load reduction, water quality, and climate resilience in Maryland's Chesapeake coastal area and evaluates how Maryland's Critical Area Act can better support Bay restoration. The analysis highlights the importance of shallow and near-shore habitats, areas strongly influenced by land-use decisions and critical to ecological recovery, as well as the protective role of Maryland's critical area buffer. Drawing on a 2016 University of Maryland Environmental Law Clinic report and a review of recent variance decisions in Anne Arundel County, the article argues that variance decisions and inconsistent local enforcement weaken the Act's effectiveness. It concludes that the 2024 amendments to the Critical Area Act create an opportunity for the Critical Area Commission to strengthen regulations by incorporating climate resilience and environmental justice considerations into variance and mitigation decisions, thereby improving pollution control, coastal resilience, and equitable environmental outcomes.*

**I. INTRODUCTION**

This article looks at the relationship between pollutant load reduction, water quality, and climate resiliency, and addresses how amendments to Maryland's 2024 Critical Area Act (the Act) can be used to adopt regulations that strengthen the Act and equitably protect Maryland's critical areas from rising sea levels while reducing nutrient and sediment pollution in the Chesapeake Bay (the

Bay). The article begins by summarizing both the history of and recent reports on the state of Bay restoration, including projections of increased environmental burdens as a result of the changing climate and how those burdens are already hampering restoration efforts. It emphasizes the importance of the critical area as Maryland's first line of defense against sea level rise and last line of defense against sediment and nutrient pollution. Next, it highlights the successes and deficiencies of the Critical Area Act, specifically expanding on a report from 2016 that looked at the rate of variances granted across critical area jurisdictions, and lends support to the argument that variances undermine the strength of the Act.

Ultimately, the article highlights the opportunity to strengthen the Act by placing greater emphasis on environmental and equity considerations in variance decision-making. Doing so could help further Maryland's pollution reduction goals while building greater climate resiliency across the State.

## II. BACKGROUND

The Chesapeake Bay is the largest estuary in the United States. It spans over 64,000 square miles, six states, and the District of Columbia, is home to over 18 million people, and provides habitat for about 3,600 species of plants and animals.<sup>1</sup> For decades, the health of the Bay has been a topic of great importance among scientists, lawmakers, and residents alike, leading to many studies, reports, and policy shifts aimed at protecting this national treasure. Notably, in 1983, the U.S. Environmental Protection Agency (EPA) released a study entitled *Chesapeake Bay: A Framework for Action*, which looked at the Bay's decline in plant and animal life and water quality, such as increased nutrient concentrations, toxic chemicals, and a decrease in dissolved oxygen.<sup>2</sup> The study linked these changes to increased human activity in the region and concluded that "a

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<sup>1</sup> U.S. ENV'T PROT. AGENCY, [PREAMBLE TO 2014 CHESAPEAKE WATERSHED AGREEMENT](#) (2014).

<sup>2</sup> U.S. ENV'T PROT. AGENCY, *CHESAPEAKE BAY: A FRAMEWORK FOR ACTION* xv-xvi (1983).

comprehensive and long-term strategy was needed” to protect the Bay from further degradation as populations along the Bay continued to grow.<sup>3</sup>

The EPA study spurred many federal, state, and local initiatives to save the Bay from further degradation. At the federal level, the same year the study was released Congress amended the Clean Water Act (CWA) to establish the Chesapeake Bay Program (CBP); a regional partnership (the Partnership) tasked with implementing the Chesapeake Bay Watershed Agreement, a periodically reviewed agreement that sets a series of restoration goals and actions.<sup>4</sup>

The last Chesapeake Bay Watershed Agreement was signed in 2014 and set out principles by which the Partnership agreed to operate through at least 2025 in furtherance of a number of goals.<sup>5</sup> Signatories to the 2014 agreement<sup>6</sup> set goals for sustainable fisheries, vital habitats, water quality, toxic contaminants, healthy watersheds, stewardship, land conservation, public access, environmental literacy, and climate resiliency.<sup>7</sup> Each goal has associated outcomes. An associated outcome for vital wetland habitats, for example, is to “continually increase the capacity of wetlands to provide water quality and habitat benefits throughout the watershed [and c]reate or re-establish 85,000 acres of tidal and non-tidal wetlands and enhance the function of an additional 150,000 acres of degraded wetlands by 2025.”<sup>8</sup> Participation in the Partnership, although voluntary, is grounded in legally enforceable water quality standards enacted by Congress through the CWA.

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<sup>3</sup> CRITICAL AREA COMMISSION, [BAY SMART: A CITIZEN’S GUIDE TO MARYLAND’S CRITICAL AREA PROGRAM](#) 6 (Mary R. Owens, ed. 2007, revised 2008).

<sup>4</sup> 33 U.S.C. § 1267. The Chesapeake Executive Council is made up of the signatories to the Chesapeake Bay Agreement. *Id.*

<sup>5</sup> *See* U.S. ENV’T PROT. AGENCY, *supra* note 1.

<sup>6</sup> Signatories to the 2014 Bay Watershed Agreement included the seven Bay jurisdictions (Delaware, D.C., Maryland, Pennsylvania, New York, Virginia, and West Virginia), the Chesapeake Bay Commission, and the Federal Leadership Committee, which signed on behalf of the U.S. Environmental Protection Agency, the U.S. Department of Agriculture, the U.S. Department of Commerce, the U.S. Department of Defense, the U.S. Department of Homeland Security, the U.S. Department of the Interior, and the U.S. Department of Transportation. *See* U.S. ENV’T PROT. AGENCY, *supra* note 1.

<sup>7</sup> *See* U.S. ENV’T PROT. AGENCY, *supra* note 1.

<sup>8</sup> *Id.* at 7.

The CWA requires states to adopt water quality standards to protect public health or welfare, enhance the quality of water, and serve the purposes of the CWA.<sup>9</sup> In 2003, the EPA issued guidance entitled *Ambient Water Quality Criteria for Dissolved Oxygen, Water Clarity and Chlorophyll a for the Chesapeake Bay and Its Tidal Tributaries*.<sup>10</sup> The Regional Criteria Guidance is designed to help Bay jurisdictions adopt water quality standards to address nutrient and sediment pollution in the Bay and its tributaries in order to achieve each waterbody's designated use.<sup>11</sup> In other words, States assign waterbodies a designated use, such as migratory fish spawning and nursery or shallow-water bay grass, then set water quality standards for those waterbodies to meet the designated uses.<sup>12</sup> These uses and standards take into account the natural factors, historical records, physical features, hydrology, bathymetry, and other scientific considerations specific to each waterbody.<sup>13</sup> After setting water quality standards, states are required to monitor their waterbodies and identify those waters where the water quality goals have not been maintained.<sup>14</sup>

Once a state declares a waterbody has not met its water quality goals, the CWA requires the establishment of a total maximum daily load (TMDL) to define

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<sup>9</sup> 40 C.F.R. § 131.2 (“‘Serve the purposes of the Act’ means that water quality standards should, wherever attainable, provide water quality for the protection and propagation of fish, shellfish and wildlife and for recreation in and on the water and take into consideration their use and value of public water supplies, propagation of fish, shellfish, and wildlife, recreation in and on the water, and agricultural, industrial, and other purposes including navigation. Such standards serve the dual purposes of establishing the water quality goals for a specific water body and serve as the regulatory basis for the establishment of water-quality-based treatment controls and strategies beyond the technology-based levels of treatment required by sections 301(b) and 306 of the Act.”); *see also Am. Farm Bureau Fed. v. EPA*, 984 F. Supp. 2d 289 (M.D. Pa. 2013) (citing 33 U.S.C. § 1251(a)); *PUD No. 1 of Jefferson Cty. V. Wash. Dep’t of Ecology*, 511 U.S. 700, 704 (1994) (stating that the CWA “is a comprehensive water quality statute designed ‘to restore and maintain the chemical, physical and biological integrity of the Nation’s waters.’”).

<sup>10</sup> U.S. ENV’T PROT. AGENCY, AMBIENT WATER QUALITY CRITERIA FOR DISSOLVED OXYGEN, WATER CLARITY AND CHLOROPHYLL A FOR THE CHESAPEAKE BAY AND ITS TIDAL TRIBUTARIES (2003) [hereinafter Regional Criteria Guidance].

<sup>11</sup> *Id.*

<sup>12</sup> *Id.*

<sup>13</sup> *Id.*; *See also Am. Farm Bureau Fed.*, 984 F. Supp. 2d at 297 (“The water quality criteria designed to protect the uses of the waterbody may be expressed as numeric criteria, articulating measurable quantities of pollutants . . . in light of the designated use.”); 40 C.F.R. § 131.11.

<sup>14</sup> 33 U.S.C. § 303(d).

the maximum amount of a pollutant for that waterbody.<sup>15</sup> In 2010, following an Executive Order from then President Barack Obama,<sup>16</sup> EPA completed its largest ever TMDL, setting a “pollution diet” for the Bay’s most persistent pollutants: nitrogen, phosphorus, and sediment.<sup>17</sup>

To meet those pollution reduction goals, each Bay jurisdiction was required to establish a Watershed Implementation Plan (WIP), pursuant to Section 117(g) of the CWA, telling EPA how it would do its part to meet the Bay’s water quality standards.<sup>18</sup> EPA then used the draft WIPs to issue its first draft TMDL, followed by a final TMDL in December 2010. The final TMDL was set at 185.9 million pounds of nitrogen (25% reduction), 12.5 million pounds of phosphorus (24% reduction), and 6.45 billion pounds of sediment (20% reduction) per year.<sup>19</sup> The final TMDL, which was actually hundreds of TMDLs divided among the Bay jurisdictions, was designed so that all pollution control measures would be fully implemented by 2025, with 60 percent reductions completed by 2017.<sup>20</sup>

Despite these concrete goals and the complex history of Bay restoration efforts, pollution issues persist across the watershed.<sup>21</sup> This persistence suggests that stronger regulations are needed at the state and local levels to restore the Bay and protect it from further climate change-fueled degradation.

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<sup>15</sup> 33 U.S.C. § 1313(d)(1)(c); 40 C.F.R. § 130.7(c)(1); 40 C.F.R. § 130.2.

<sup>16</sup> See Exec. Order No. 13508, 3 C.F.R. § 100.1 (2010) (“[Requiring] a Federal Leadership Committee composed of seven Federal agencies to (1) prepare and publish a set of reports on key challenges to protecting and restoring the Chesapeake Bay, (2) prepare and publish a draft strategy for coordinated implementation of existing programs and projects to guide efforts to protect and restore the Chesapeake Bay within 180 days of the date of the EO, and (3) prepare and publish a final strategy for coordinated implementation of existing programs and projects to guide efforts to protect and restore the Chesapeake Bay within one year of the date of the EO.”).

<sup>17</sup> These excess nutrients (nitrogen and phosphorus) and sediment enter the Bay from various sources such as agricultural operations, urban and suburban stormwater, wastewater, and atmospheric depositions. U.S. ENV’T. PROT. AGENCY, [CHESAPEAKE BAY TMDL FACT SHEET](#) (2021). When nutrients and sediment enter the bay in polluted runoff, they can smother waterways, feed large algal blooms, and ultimately deplete the water of oxygen. *Id.*

<sup>18</sup> *Am. Farm Bureau Fed.*, 984 F. Supp. 2d at 298.

<sup>19</sup> U.S. ENV’T PROT. AGENCY, [CHESAPEAKE BAY TMDL EXECUTIVE SUMMARY](#) (2010).

<sup>20</sup> *Id.*

<sup>21</sup> See CHESAPEAKE BAY PROGRAM, [CHESAPEAKE BAY WATERSHED AGREEMENT 2025](#) (2025).

## A. Problems Persist

In June 2025, the University of Maryland Center for Environmental Science (UMCES) released its 19th annual Chesapeake Bay and Watershed Report Card.<sup>22</sup> The report card uses seven “bay indicators”<sup>23</sup> and twelve “watershed indicators”<sup>24</sup> to assess aquatic ecosystem health and ecological, societal, and economic conditions.<sup>25</sup> In the most recent report, the Bay received a “C” grade, a slight decrease from the year prior, which the report refers to as “unfortunate but not surprising, considering weather conditions in 2024.”<sup>26</sup> Increased temperatures and intense rainfall events exacerbate water quality issues in the Bay, but most indicators show long-term improvement trends. These improvement trends can be attributed to upgraded wastewater treatment plants, best management practices for reducing nutrients and sediment from nonpoint sources, seagrass restoration, oyster plantings, and watershed planning.<sup>27</sup> The report concludes by saying more research is needed to understand emerging challenges, including extreme weather.<sup>28</sup>

In 2023, the Scientific and Technical Advisory Committee (STAC), tasked with providing scientific and technical guidance to the CBP, released its report: *Achieving Water Quality Goals in the Chesapeake Bay: A Comprehensive Evaluation of System Response* (CESR).<sup>29</sup> CESR is the result of a three year

<sup>22</sup> [Press Release](#), Univ. Md. Center for Env’t Science, UMCES’s Chesapeake Bay and Watershed Report Card Shows Declined Health from 2024, Presents Long-Term Improvement (JUNE 10, 2025) (“The Chesapeake Bay and Watershed Report Card has become a flagship reference for conservation practitioners working to improve the environmental quality of the Chesapeake Bay, policymakers charged with the regional economic development driven by the bay’s resources, and a wide range of industries dependent upon a healthy bay.”).

<sup>23</sup> UNIV. MD. CENTER FOR ENV’T SCIENCE, [2025 CHESAPEAKE BAY AND WATERSHED REPORT CARD](#) (2025). The seven bay indicators are total phosphorus, total nitrogen, dissolved oxygen, benthic community, water clarity, chlorophyll *a*, and aquatic grasses. *Id.* at 2.

<sup>24</sup> The twelve watershed indicators are protected lands, water quality, fish community, benthic community, temperature stress, heat vulnerability, social index, walkability, household income, jobs growth, income equality, and affordable housing. *Id.*

<sup>25</sup> *Id.*

<sup>26</sup> *Id.* at 4.

<sup>27</sup> *Id.* at 4.

<sup>28</sup> *Id.* at 8.

<sup>29</sup> SCIENTIFIC AND TECHNICAL ADVISORY COMMITTEE, [ACHIEVING WATER QUALITY GOALS IN THE CHESAPEAKE BAY: A COMPREHENSIVE EVALUATION OF SYSTEM RESPONSE](#) (2023). “The

review of the 40-year effort to reduce nutrient loads in the Bay,<sup>30</sup> finding that “current efforts to reduce nutrient loads will not meet the TMDL targets” and that “estuary water quality has been slow to respond to realized nutrient and sediment reductions in many regions of the Bay.”<sup>31</sup> These observations led to three overarching conclusions: (1) achieving pollutant reduction and water quality improvements is providing more challenging than expected; (2) the Bay system faces permanent and ongoing changes in land use, climate change, population growth, and economic development that will challenge notions of restoration based on recreating historical conditions; and (3) opportunities to meet these challenges exist but efforts require changes and new approaches to implementation, planning, and decision-making.<sup>32</sup>

The CESR report provides valuable insight into the relationship between pollutant load reduction, water quality, and climate change. Like the University of Maryland reports, CESR recognizes that climate change is an issue that is confounding efforts to improve water quality and reduce pollution loads due to increases in water temperatures and changing precipitation patterns.<sup>33</sup> These climate stressors manifest differently across the Bay’s habitats. The report focuses on these different habitats and analyzes whether “nutrient and sediment load reductions from the watershed initiate and sustain the physical, chemical, and biological response necessary to meet the stated water quality standards and, ultimately, protect the aquatic living resources for which the water quality standards were developed.”<sup>34</sup>

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specific objectives of the report are to (1) identify gaps between the expected and realized physical, chemical, biological, and socioeconomic responses to management actions, and identify recent scientific developments that can advance efforts to attain WQS; (2) characterize the critical uncertainties in system response to management actions, and identify strategies that improve understanding of system response relevant to the attainment of WQS; and (3) identify strategies for better integrating scientific and technical analysis into management efforts in order to aid decision-making under uncertainty.” *Id.* at 3.

<sup>30</sup> *Id.* at iv.

<sup>31</sup> *Id.*

<sup>32</sup> *Id.* at v.

<sup>33</sup> *Id.* at 60 (“The effects of climate change on the Bay will be felt far beyond oxygen levels and will include shoreline erosion, alteration of productivity, disease impacts, species migrations, among many other effects.”).

<sup>34</sup> *Id.* at 44.

Each Bay habitat has a different designated use: shallow water (Bay grass use); open water (fish and shellfish use); deep water (seasonal fish and shellfish use); deep channel (seasonal refuge use); and migratory fish (spawning and nursery use).<sup>35</sup> One habitat of particular interest is shallow water because of its positive response to stressor reductions, its outsized role in Bay restoration, and its relatively high attainment of applicable water quality standards.<sup>36</sup> Shallow water habitat “supports extensive expanses of SAV [submerged aquatic vegetation] beds, oyster reefs, and wetlands, and is heavily influenced by” land use activities further inland,<sup>37</sup> as well as changes to water temperature.<sup>38</sup> Due to this habitat’s significance, the report suggests the CBP could focus more efforts here in terms of load reductions and scientific understanding in order to increase benefits to living resources.<sup>39</sup> The CESR report ultimately suggests refocusing water quality management efforts on improving living resource response to those management efforts.<sup>40</sup> Since, according to the report:

[L]iving resource response likely varies by the location and timing of water quality improvement, [ ] response could potentially be accelerated by prioritizing water quality improvement efforts in critical habitats. The implication is that with a focus on shallow and open water habitats full attainment of the WQS (including the deep water habitats) in the near future may not be necessary to achieve significant potential gains in living resource response.<sup>41</sup>

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<sup>35</sup> *Id.* at 7.

<sup>36</sup> *Id.* at 62 (“This habitat encompasses the land-sea interface, including the nearshore regions of the watershed, tidal marshes, and shallow, nearshore habitats in tidal waters, including much of the migratory and spawning habitat[.]”).

<sup>37</sup> *Id.*

<sup>38</sup> *Id.* at 68.

<sup>39</sup> *Id.* at 65.

<sup>40</sup> *Id.* at 78.

<sup>41</sup> *Id.* at 83.

This is because the shallow water and open water habitats more directly influence the life cycles of most fish species.<sup>42</sup> Therefore, actions in shallow waters, such as creating living shorelines and improving benthic habitat, can greatly increase the living resource response to water quality conditions.<sup>43</sup>

Continuing to focus restoration efforts on protecting shallow and near-shoreline habitats is also beneficial for achieving pollution reduction goals under the Bay TMDL. The land surrounding these habitats is the final barrier to abate polluted runoff and is the first to experience the effects of coastal flooding and rising sea levels.<sup>44</sup>

Despite the Clean Water Act's mandate, the Chesapeake Bay TMDL, and the Chesapeake Bay Program's multi-jurisdictional framework, the Bay's water quality goals remain unmet. As recent scientific evaluations underscore, traditional water quality management strategies have not yielded uniform ecological recovery across the watershed. The CESR report recommends focusing restoration efforts on critical habitats, particularly shallow water areas that support SAV beds, oyster reefs, and wetlands. This habitat not only responds more effectively to management actions but also serves as a foundational ecosystem for fish and other aquatic life. Accordingly, restoration strategies at state and local levels that prioritize these critical areas are integral to meeting pollution reduction efforts under the CWA as well as helping Bay jurisdictions build coastal resiliency. Maryland's critical area law strives to do exactly that, but the variance provision allows for development within the critical area, often without adequate mitigation.

### III. THE CRITICAL AREA LAW

In addition to the federal Bay restoration initiatives spurred by the landmark EPA study, states have also expended significant resources towards saving this national treasure. In 1984, the Maryland General Assembly responded

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<sup>42</sup> *Id.* at ix.

<sup>43</sup> *Id.*

<sup>44</sup> CRITICAL AREA COMMISSION, [COMMENT SUPPORTING HB 233](#) (2024).

to reports of the declining Bay health by enacting the Chesapeake Bay Critical Area Protection Act.<sup>45</sup> The critical area is a 1,000-foot zone across 64 Maryland jurisdictions that spans 16 counties, Baltimore City, and 47 municipalities, and comprises approximately 10% of the State’s land area.<sup>46</sup> In 2002, the law was extended to the Atlantic Coastal Bays that reach two counties on the state’s eastern shore.<sup>47</sup> The Act recognizes that the Bay’s “shoreline and adjacent lands, particularly the buffer areas, constitute a valuable, fragile, and sensitive part of [the] estuarine system, where human activity can have a particularly immediate and adverse impact on water quality and natural habitats.”<sup>48</sup> While the Act is primarily a growth allocation law<sup>49</sup> and does not actually prohibit development within a critical area, it strives to balance the two, and often competing, interests of private land use and environmental conservation.<sup>50</sup>

The Act establishes the Critical Area Commission (the Commission), an independent agency within the Department of Natural Resources (DNR) empowered to promulgate regulations and oversee development within the critical

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<sup>45</sup> MD. CODE ANN., NAT. RES. §§ 8-1801-1817 (West 2023). “National studies have documented that the quality and productivity of the waters of the Chesapeake Bay and its tributaries have declined due to the cumulative effects of human activity that have caused increased levels of pollutants, nutrients, and toxics in the Bay system and declines in more protective land uses such as forestland and agricultural land in the Bay region[.]” *Id.* at § 8-1801(a)(5).

<sup>46</sup> HB 233 Fiscal and Policy Note (2024).

<sup>47</sup> *Id.*

<sup>48</sup> MD. CODE ANN., NAT. RES. § 8-1801(a)(2). Lands included in the Chesapeake Bay Critical Area are “[a]ll waters of and lands under the Chesapeake Bay and its tributaries to the head of tide as indicated on the State wetlands map” and “[a]ll land and water areas within 1,000 feet beyond the landward boundaries of State or private wetlands and the heads of tides[.]” *Id.* § 8-1807(a). Section § 8-1807(b) describes the Atlantic Coastal Bays Critical Area, which were added in a 2002 amendment. *Id.* § 8-1807(b).

<sup>49</sup> “Growth allocation involves the reclassification of a certain area and acreage of land from one Critical Area designation to another, more intense classification.” MD. CODE ANN., NAT. RES. § 8-1802(a)(14).

<sup>50</sup> “The cumulative impact of current development and of each new development activity in the buffer is inimical to these purposes, and it is therefore imperative that State law protect irreplaceable State buffer resources from unpermitted activity; [and t]here is a critical and substantial State interest for the benefit of current and future generations in fostering more sensitive development and more effective enforcement in a consistent and uniform manner along shoreline areas of the Chesapeake and Atlantic Coastal Bays and their tributaries so as to minimize damage to water quality and natural habitats.” MD. CODE ANN., NAT. RES. § 8-1801(a)(9)-(10).

areas.<sup>51</sup> The Commission is tasked with regulating, restricting, and managing development to conserve resources, preserve water quality, and protect habitats.<sup>52</sup> Although the Commission has general oversight and regulatory power under the law, each jurisdiction is responsible for creating its own local program to manage development within its critical area.<sup>53</sup> The Act requires each local jurisdiction to develop and implement a Resource Protection Program consisting of elements that are necessary or appropriate to:

- (1) Minimize adverse impacts on water quality that result from pollutants that are discharged from structures or conveyances or that have run off from surrounding lands;
- (2) Conserve fish, wildlife, and plant habitat; [and]
- (3) Establish land use policies for development in the Chesapeake Bay Critical Area or the Atlantic Coastal Bays Critical Area which accommodate growth and also address the fact that, even if pollution is controlled, the number, movement, and activities of persons in that area can create adverse environmental impacts.<sup>54</sup>

Each program must consist of, at a minimum, the 19 elements laid out in Section 8-1808(c) of the law, which include, in part, mapping of critical areas and habitat protection areas, zoning ordinances or regulations, standards for project approvals, establishment of buffer areas, administrative enforcement procedures, and variance approval procedures.<sup>55</sup>

The law has different requirements based on how densely developed the land was when the law was passed.<sup>56</sup> Intensely Developed Areas (IDAs) are those

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<sup>51</sup> *Id.* §8-1803.

<sup>52</sup> CRITICAL AREA COMMISSION, *supra* note 3, at 6-7.

<sup>53</sup> *Id.* The General Assembly sought to “implement [a] Resource Protection Program on a cooperative basis between the State and affected local governments, with local governments establishing and implementing their programs in a consistent and uniform manner subject to State and local leadership, criteria, and oversight. MD. CODE ANN., NAT. RES. § 8-1801(b)(2).

<sup>54</sup> *Id.* § 8-1808(a)-(b).

<sup>55</sup> MD. CODE ANN., NAT. RES. § 8-1808(c)(1)(iii).

<sup>56</sup> MD. CODE REGS. 27.01.02 (dividing the Critical Area into Intensely Developed Areas, Limited Development Areas, and Resource Conservation Areas).

where residential, commercial, institutional, and/or industrial developed land uses predominate, and where relatively little natural habitat occurs.<sup>57</sup> Limited Development Areas (LDAs) are those areas that are developed in low or moderate-intensity uses and contain areas of natural plant and animal habitats, and the quality of runoff from these areas has not been substantially altered or impaired.<sup>58</sup> Resource Conservation Areas (RCAs) are those areas characterized by nature-dominated environments (that is, wetlands, forests, abandoned fields) and resource-utilization activities (that is, agriculture, forestry, fisheries activities, or aquaculture).<sup>59</sup> Essentially the less developed an area, the more restrictions on future development of that area.

Since the Act is a growth allocation law, successful applicants can obtain variances to develop within the critical area. Under the Act's implementing regulations, to obtain a variance, an applicant must satisfy certain minimum requirements, among others, such as showing that enforcement of the local Critical Area program would result in "unwarranted hardship," "granting a variance would not confer "any special privilege," and that "granting of the variance would not adversely impact fish, wildlife, or plant habitat." Maryland law also requires a variance applicant to overcome a presumption that the proposed variance does not conform to the Act's purpose and intent.<sup>60</sup>

In addition to the variance criteria, regulations require mitigation in accordance with an approved buffer management plan.<sup>61</sup> For example, a 3:1 mitigation ratio must be applied for the square footage of disturbance imposed by the variance in the critical area buffer (as described below), and if an application proposes a variance for a construction activity that was illegally done, the applicant must mitigate for the violation at an increased ratio of 4:1 for the square footage of disturbance caused by the violation, plus an additional 3:1 if they are applying for a variance to keep the structure.<sup>62</sup> If on-site mitigation is not

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<sup>57</sup> *Id.* at 27.01.02.03.

<sup>58</sup> *Id.* at 27.01.02.04

<sup>59</sup> *Id.* at 27.01.02.05.

<sup>60</sup> *Id.*; see also *Assateague Coastal Trust, Inc.*, 448 Md. at 116.

<sup>61</sup> MD. CODE REGS. 27.01.09.01.E.

<sup>62</sup> *Id.* at 27.01.09.01-02.

possible, the jurisdiction may authorize payment of a fee in lieu of mitigation or planting off-site in the buffer.<sup>63</sup>

The Critical Area Act leaves most enforcement power, including variance decisions, to the critical area jurisdictions.<sup>64</sup> This delegation of power has led to some concern over the disparate rate of variance applications and grants seen across the state. With recent studies emphasizing the need for stronger regulations to protect critical areas from pollution and climate change, strong enforcement of the Act could help jurisdictions keep up with the demanding environmental burdens. The report detailed below, though published almost 10 years ago, highlights some of these concerns that likely still persist today.

#### A. University of Maryland Clinic Report

A 2016 report by the University of Maryland School of Law's Environmental Law Clinic (Clinic Report) shows a wide discrepancy in the issuance of variances across critical area jurisdictions in Maryland.<sup>65</sup> The Clinic report analyzes the implementation, variance patterns, and enforcement trends under the Act across several jurisdictions between 2012 and 2014 and raises concerns that jurisdictional inconsistencies may weaken program effectiveness.<sup>66</sup>

The Clinic Report first looks at case law and legislative history, showing how Maryland's appellate courts have interpreted the Act and how the General Assembly has responded with amendments (up until 2016).<sup>67</sup> It then analyses critical area variance requests in six counties: Anne Arundel, Baltimore, Kent, Queen Anne's, St. Mary's, and Worcester.<sup>68</sup> The Clinic report found that every

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<sup>63</sup> *Id.* at 27.01.09.01. The fee is calculated pursuant to MD. CODE REGS. 27.01.09.01-5.

<sup>64</sup> See MD CODE ANN., LOCAL GOV., § 10-324(b)(2) (West 2022) (“[Z]oning and planning controls should be implemented by local government.”).

<sup>65</sup> UNIV. OF MD. FRANCIS KING CAREY SCH. OF L. ENV'T L. CLINIC, [MARYLAND'S CRITICAL AREA PROTECTION PROGRAM: VARIANCES AND ENFORCEMENT IN SELECTED JURISDICTIONS FROM 2012 TO 2014](#) (2016) [hereinafter Clinic Report].

<sup>66</sup> *Id.*

<sup>67</sup> *Id.* at 3.

<sup>68</sup> Clinic Report, *supra* note 65, at 3.

selected county granted the vast majority of variance requests (ranging from 89% in Anne Arundel County to 100% in Queen Anne's and St. Mary's), which were often for permission to construct dwellings, additions, decks, patios, and garages.<sup>69</sup> The counties varied in how much information they gave for their reasoning behind granting a variance, where some provided facts related to each separate variance criteria, while others provided little to no explanation.<sup>70</sup> The counties also varied in how often they followed recommendations from the Commission on whether the variance requests should be granted or denied.<sup>71</sup> The Clinic report summarized its findings and made the following recommendations:

**Variance Criteria:**

- The General Assembly, the Commission, and local jurisdictions should consider revising the variance process to focus on recognizing, minimizing, and mitigating impacts.
- The General Assembly should clarify the unwarranted hardship standard.
- The General Assembly should strengthen the self-created hardship factor.
- The General Assembly should adopt a requirement that a variance represents the minimum necessary to afford relief from the Critical Area Program's development restrictions.

**Critical Area Commission:**

- Local jurisdictions should defer to the Commission when it opposes a variance.
- The Commission should promulgate regulations for lot coverage variances.
- The Commission should promulgate regulations that prohibit pools in the critical area buffer.

**Existing Requirements:**

- Variance decisions should include a substantive analysis of each variance factor in the state and local critical area program.

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<sup>69</sup> *Id.* at iii.

<sup>70</sup> *Id.*

<sup>71</sup> *Id.*

- Local jurisdictions should submit a copy of all variance decisions to the Commission.

**Transparency, Accountability, and Reporting:**

- The Critical Area Program would benefit from increased transparency.
- The Critical Area Program would benefit from increased accountability and reporting, including uniform recordkeeping of inspection and enforcement information.
- The Commission should prepare annual reports on the implementation and enforcement of the Critical Area Program.
- Local jurisdictions should document circumstances in which potential applicants decide not to apply for a variance upon consultation with county staff.

**Enforcement:**

- Local jurisdictions should be more proactive in enforcing their critical area programs and ensure that penalties are substantial enough to deter critical area violations.

**Education:**

- Education courses for local planning commissions and Boards of Appeals should cover case law and legislative history of the Critical Area Program, in addition to the currently required subjects.
- The Commission and local jurisdictions should better educate property owners about the Critical Area Program and its role in protecting the Chesapeake and Atlantic Coastal Bays.<sup>72</sup>

In response to the Clinic report and summarized recommendations, the Commission Chairman at the time, Charles C. Deegan, issued a statement thanking the Clinic for its research and agreeing with the recommendations “that endorse greater environmental analysis for development activities.”<sup>73</sup> He stated that “[i]n recent years the Commission has worked with local jurisdictions to make revisions to local Critical Area programs that attempt to allow minor

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<sup>72</sup> Clinic Report, *supra* note 65, at iv-v.

<sup>73</sup> [Statement](#) from Charles C. Deegan, Critical Area Commission Chairman (Dec. 21, 2016).

development activities on nonconforming grandfathered lots, minimize environmental impacts, and require appropriate mitigation for those impacts.”<sup>74</sup> Ultimately, the Commission Chairman supported the Act’s flexibility and delegation to local jurisdictions.<sup>75</sup>

Stricter enforcement of the Critical Area Act and greater oversight from the Commission may help ensure development within the critical area equitably accounts for the changing climate while helping to reduce pollution loads in the Bay. Fully comprehending the extent of variance program discrepancies is an important step in implementing the Clinic’s suggestions.

#### B. Updated Review of Implementation in Anne Arundel County

The University of Maryland Environmental Law Clinic report looked at variance requests and decisions from 2012 to 2014 across several counties and determined that variances were granted 89-100% of the time.<sup>76</sup> In Anne Arundel County specifically, 375 requests were received over the span of the years surveyed, and 89% of them were granted.<sup>77</sup> Types of requests that the county granted include “variances to allow the construction of dwellings, dwelling additions, and other structures such as sheds, garages, driveways, porches, decks, sidewalks, gazebos and pools.”<sup>78</sup> Although the law does not require the Commission to approve the variance requests, the Commission usually sends recommendations for how local counties should proceed.<sup>79</sup> Despite these recommendations, counties, including Anne Arundel, often grant variances regardless of the Commission’s position, which led the Clinic to recommend that local jurisdictions defer to the Commission in future variance requests.<sup>80</sup> Actually

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<sup>74</sup> *Id.*

<sup>75</sup> *Id.*

<sup>76</sup> Clinic Report, *supra* note 65, at 32.

<sup>77</sup> *Id.*

<sup>78</sup> *Id.* at 37. Surveying variance requests from 2022 shows a similar trend in Anne Arundel County: out of 95 variance requests, 78 were granted and one was granted in part and denied in part, showing a, 82% grant rate. See [Administrative Hearings Decisions Archive](#), ANNE ARUNDEL CNTY. (last visited Jan. 29, 2026).

<sup>79</sup> See Clinic Report, *supra* note 65, at 33.

<sup>80</sup> *Id.*

implementing this recommendation could lead to greater environmental analyses in variance decisions, as the Commission Chairman at the time endorsed, and could be implemented using new amendments added to the Critical Area Act in 2024.

A review of critical area variance requests and subsequent decisions in Anne Arundel County in 2024 reveals 59 applications for variances (although these sometimes involved multiple kinds of critical area variances) with only 15 requests denied, and with many being granted in disregard of the Commission's recommendation.<sup>81</sup> In Anne Arundel County, once an applicant meets the six variance criteria, they must meet six additional criteria: (1) the variance is the minimum variance necessary to afford relief; (2) the granting of the variance will not alter the essential character of the neighborhood or district in which the lot is located; (3) the variance will not substantially impair the appropriate use or development of adjacent property; (4) the variance will not reduce forest cover in the limited development and resource conservation areas of the critical area; (5) the variance will not be contrary to acceptable clearing and replanting practices required for development in the critical area; or (6) the variance will not be detrimental to the public welfare.<sup>82</sup> Below are examples of how Anne Arundel Administrative Hearing Officers<sup>83</sup> chose to grant a critical area variance request despite the Commission's opposition.

In one application to remove several accessory structures and to construct a new two-story single-family dwelling with a walkout basement and associated facilities in an RCA, the variance was approved despite the Commission's opposition.<sup>84</sup> The Commission found that the request did not meet all of the critical area variance standards or the standard of unwarranted hardship because the applicant could have redesigned the improvements to the property in a manner

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<sup>81</sup> See [Administrative Hearings Decisions Archive](#), ANNE ARUNDEL CNTY. (last visited Jan. 29, 2026).

<sup>82</sup> ANNE ARUNDEL COUNTY, MD., CODE § 18-16-305 *et seq.*

<sup>83</sup> The Office of Administrative Hearings hears petitions for and issues decisions regarding zoning reclassifications, special exceptions and variances to zoning, and critical-area provisions of the County Code. See [Administrative Hearings Decisions Archive](#), *supra* note 81.

<sup>84</sup> [Case No. 2024-0218-V](#), at 5-7, Office of Administrative Hearings, Anne Arundel County, Md. (Feb. 28, 2025).

that would reduce the proposed footprint and impacts, and they would still have reasonable and significant use of the entire parcel.<sup>85</sup> The Commission noted that the cumulative impact of development in the Critical Area has a substantial and negative impact on the Chesapeake Bay given the lot is a waterfront property with environmentally sensitive features (steep slope, critical area buffer, and habitat protection areas) and that the application is not in harmony with the spirit and intent of the Critical Area law and regulations or the County's Critical Area Program.<sup>86</sup>

More specifically, the proposed footprint did not align with the Commission's design standards listed in *A Guide to the Conservation of Forest Interior Dwellings Birds in the Chesapeake Bay Critical Area*<sup>87</sup> because it would result in the conversion of forest interior dwelling species habitat to edge habitat.<sup>88</sup> According to the Commission, this "increases the introduction and spread of invasive species and predatory species such as Brown-headed Cowbird that further impacts the quantity and velocity of stormwater flowing into the [Bay]... resulting in degradation to water quality."<sup>89</sup>

Despite the Commission's specific environmental concerns, the Administrative Hearing Officer (AHO) did not address them when deciding to grant the variance request. Instead, the AHO focused mainly on the land use and private property rights protected in the variance criteria. The AHO found that:

the denial of the variances would constitute an unwarranted hardship because the applicant would be denied a reasonable and significant use of their property . . . denial of the requested variances would also deny the applicant of rights commonly enjoyed by other property owners and would not confer on them special privilege . . . the application does not arise from actions of

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<sup>85</sup> *Id.*

<sup>86</sup> *Id.*

<sup>87</sup> CRITICAL AREA COMMISSION, [A GUIDE TO THE CONSERVATION OF FOREST INTERIOR DWELLING BIRDS IN THE CHESAPEAKE BAY CRITICAL AREA](#) (2000).

<sup>88</sup> [Case No. 2024-0218-V](#), *supra* note 84, at 23.

<sup>89</sup> *Id.* at 8.

the applicant, or from conditions or use on neighboring properties and *would not adversely affect the environment* . . . the variances would be in harmony with the Critical Area Program.<sup>90</sup>

The AHO also found that the applicant had overcome the presumption of nonconformance and used similar boilerplate language in applying Anne Arundel County’s additional variance provisions.<sup>91</sup>

In another application, the Commission recommended granting a modified conditional approval of a Critical Area variance, and the AHO agreed. The application involved a project to “perfect and complete the construction of a one-story irregularly-shaped dwelling addition, a portion of a second-story dwelling addition, and a concrete patio.”<sup>92</sup> Since the developer had begun construction before variances were granted, mitigation was required to correct the violations: “[T]he County must ensure that appropriate mitigation is required, including ensuring that the full re-establishment of areas associated with the unpermitted clearing occurs and that any remaining mitigation is fulfilled by planting unvegetated portions of the Buffer.”<sup>93</sup>

The Commission noted, however, that “[b]ased on the submitted Mitigation Plan, it does not appear that the unpermitted cleared areas (both inside and outside of the Buffer) are being fully replanted. Nor does it appear that the proposed mitigation on this site fulfills the mitigation requirements.”<sup>94</sup> In order to correct the damage, the Commission recommended revising the mitigation plan to provide a landscape stock table to include the size, quantity, and species that will

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<sup>90</sup> *Id.* at 16.

<sup>91</sup> *Id.* (“I further find that the granting of the critical area variances will not alter the essential character of the neighborhood or district in which the lot is located; the variances will not substantially impair the appropriate use or development of adjacent property; the variances will not reduce forest cover in the limited development and resource conservation areas of the critical area; the variances will not be contrary to acceptable clearing and replanting practices required for development in the critical area; and the variances will not be detrimental to the public welfare.”). *Id.* at 17.

<sup>92</sup> [Case No. 2024-0168-V](#), at 2, Office of Administrative Hearings, Anne Arundel County, Md. (Nov. 26, 2024).

<sup>93</sup> *Id.* at 5.

<sup>94</sup> *Id.* at 5-6.

satisfy the mitigation requirements of COMAR 27.01.09.01-2. P.,<sup>95</sup> which the AHO included in its order.<sup>96</sup>

The AHO's ability to respond to the Commission's environmental and scientific concerns when granting a variance seems more difficult in its application than responding to the Commission's mitigation suggestions. This could be because AHO's are more willing to grant conditional variances rather than deny a variance application outright. Since AHO's are under pressure to balance public environmental concerns with private property rights, strengthening variance provisions to allow AHO's to make decisions more favorable to preservation and conservation could lead to more decisions that are in line with the Commission's recommendations. Amending regulations to give more weight to environmental concerns when deciding whether to grant a variance could endorse greater environmental analysis for development activities that in turn, could help reduce pollution loads and promote equitable climate resiliency.

#### IV. IMPLEMENTING THE 2024 AMENDMENTS

In 2024, the Maryland General Assembly passed a bill amending the Chesapeake and Atlantic Coastal Bays Critical Area Protection Program to include new climate, equity, and administrative provisions. The bill "authorizes the Commission to adopt regulations governing . . . the assessment of an adaption of the critical area for climate resiliency, enhancing resilience in the critical area, and environmental justice and equity initiatives," "establishes certain considerations of climate change, climate resiliency, and equity," "requires a local program to give consideration to underserved communities when assessing the

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<sup>95</sup> "A local jurisdiction may not: (1) Authorize a variance to the planting and mitigation standards under this regulation; or (2) Issue a final use and occupancy permit for an application under Regulation .01-3B(2) of this chapter unless the application: (a) Completes the planting required under an approved buffer management plan; or (b) pending completion of the planting required under an approved buffer management plan during the next planting season, provides financial assurance to cover the costs for: (i) materials and installation; and (ii) In the case of a mitigation or establishment requirement that is at least 5,000 square feet, long-term survivability in accordance with the requirements of Regulation .01-3J(2)(d) of this chapter." MD. CODE REGS. 27.01.09.01-2.P.

<sup>96</sup> Case No. 2024-0168-V, *supra* note 92, at 6.

suitability of critical area for certain recreation . . . and to consider climate change when approving growth allocation decisions,” and “requires the Commission to consider environmental impacts on underserved or overburdened communities . . . .”<sup>97</sup>

The amendments charge the Commission with recommending short and long-term strategies and initiatives to better mitigate, prepare for, and adapt to the consequences of climate change.<sup>98</sup> Specifically, the amendments state “there is a critical and substantial state interest in developing policies and strategies to better mitigate, prepare for, and adapt to the consequences of climate change along the state’s shorelines[,]”<sup>99</sup> to “ensur[e] the equitable distribution of the benefits and burdens of development, restoration, mitigation, and conservation[,]”<sup>100</sup> and to include “incentive-based programs to ensure development is compatible with projected climate impacts[.]”<sup>101</sup> In order to achieve these new climate and equity initiatives, the bill gives the Commission “all the powers necessary for carrying out the purposes of this subtitle, including the following: . . .to adopt and amend regulations as authorized under this subtitle for the administration and enforcement of the State and local programs[.]”<sup>102</sup> Further, the amendments allow the Commission to adopt new regulations, including comprehensive standards and procedures for:

- (i) modified buffer areas; (ii) shoreline stabilization activities on the buffer; (iii) directives for local program development and implementation with respect to reporting requirements, including accounting of fee in lieu funds; (iv) assessing and adapting the critical area for climate resiliency; (v) enhancing the resilience of the critical area by protecting, creating, and restoring natural and nature-based features; and (vi) environmental justice and equity initiatives that (1)

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<sup>97</sup> House Bill 233.

<sup>98</sup> *Id.*

<sup>99</sup> *Id.* (a)(10).

<sup>100</sup> *Id.* Preamble.

<sup>101</sup> *Id.* (a)(13).

<sup>102</sup> *Id.* 8-1806(a.)

address disparate impacts of development and (2) ensure the benefits of development, restoration, mitigation, and conservation are shared equitably[.]<sup>103</sup>

In May 2025, the Commission released interim guidelines for incorporating the new requirements for climate and equity into local growth allocation applications.<sup>104</sup> The climate guidance states that “[first, a local jurisdiction must consider whether a proposal is located within an area that is vulnerable to the impacts of climate change, including sea level rise, storm surge, wetland migration areas, flooding and other extreme weather events.”<sup>105</sup> If the growth allocation is located in a vulnerable area, “then the local jurisdiction must propose measures for the proposal that would significantly enhance the resilience of the site and project through certain measures.”<sup>106</sup> The Commission then lists resources for siting, design, and construction; natural and nature-based features for resilience; planning resources; and technical tools.<sup>107</sup>

The equity guidance states that “the Commission must ensure that the burden of development resulting from its decisions is equitably distributed . . . [and] ensure the equitable distribution of the benefits of compensatory mitigation associated with those impacts.”<sup>108</sup> The Commission recommends projects such as “targeting tree planting mitigation to a community that qualifies as underserved in terms of tree canopy,” or including public access points to the Bay in communities that do not currently have access.<sup>109</sup>

These recommendations, although meant to apply to growth allocation, could be used to strengthen the Act’s variance and mitigation provisions. Strengthening these provisions would help limit development within the critical

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<sup>103</sup> *Id.*

<sup>104</sup> MD. CRITICAL AREA COMM., [INTERIM GUIDANCE DOCUMENT, INCORPORATION NEW REQUIREMENTS FOR CLIMATE AND EQUITY INTO LOCAL GROWTH ALLOCATION APPLICATIONS \(2025\)](#) [hereinafter Interim Guidance].

<sup>105</sup> *Id.* at 2.

<sup>106</sup> *Id.*

<sup>107</sup> *Id.* at 4-5.

<sup>108</sup> *Id.* at 5.

<sup>109</sup> *Id.* at 5-6.

area, thereby strengthening climate resiliency, limiting pollution, and allowing for more equitable distribution of resources when development within the critical area is allowed.

A. Strengthening the Act Through New Regulations

The new amendments to the Act provide an important opportunity for the Commission to strengthen its provisions for granting a variance and the ensuing mitigation requirements by endorsing stricter environmental analysis. Studies such as the UMCES and CESR reports show extreme heat and rainfall patterns increasing across the watershed.<sup>110</sup> While Bay pollutants persist, improving trends in indicators such as dissolved oxygen, aquatic grasses, phosphorus, and nitrogen can be attributed to management and restoration efforts at the regional, state, and local levels.<sup>111</sup> Increased precipitation, sea level rise, and warmer air and water temperatures, however, are limiting the otherwise positive responses to Bay restoration efforts.<sup>112</sup>

These effects, from shoreline erosion to species migration, may be felt most presently in the critical area, which bears the brunt of rising tides and increased storm surge. Placing a greater emphasis on environmental factors when deciding whether to grant a variance could help strengthen critical areas and, in turn, help them absorb more of the pollution contributing to the Bay's TMDL. When variances are granted, strengthening mitigation requirements and providing for equitable distribution of mitigation funds could help build equitable resilience across Maryland.

*i. Variance Criteria*

The question of whether an applicant is entitled to a variance begins with the understanding that, in addition to the other specific factors that must be considered, the applicant must overcome the presumption "that the specific

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<sup>110</sup> SCIENTIFIC AND TECHNICAL ADVISORY COMMITTEE, *supra* note 29, at 4.

<sup>111</sup> *Id.*

<sup>112</sup> *Id.*

development in the critical area that is subject to the application . . . does not conform to the general purpose and intent of [the critical area law].”<sup>113</sup> The applicant also carries the burden of convincing the granting officer that it has satisfied each one of the variance provisions.<sup>114</sup> Considering that the Act requires strict adherence to its growth limitations, the Commission could use the new amendments to issue stricter variance regulations. The new regulations could endorse greater environmental analyses in order to further limit variances, strengthen climate resiliency, and filter pollution from entering the Bay.

One variance provision that has led to much debate between the courts and the General Assembly<sup>115</sup> has involved defining the “unwarranted hardship” standard.<sup>116</sup> In *Assateague Coastal Trust, Inc. v. Roy T. Schwalback*, the Maryland Supreme Court held that:

In order to establish an unwarranted hardship, the applicant has the burden of demonstrating that, without a variance, the applicant would be denied the use of the property that is both significant and reasonable. In addition, the applicant has the burden of showing that such a use cannot be accomplished elsewhere on the property without a variance.<sup>117</sup>

This provision has since carried significant weight in variance decisions despite the Commission and local jurisdictions often differing in their views on whether an unwarranted hardship exists.<sup>118</sup> While courts and the General Assembly have battled over what constitutes an “unwarranted hardship,” the provision requiring consideration of environmental harm has not received as much attention. This provision requires the Administrative Hearing Officer (or

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<sup>113</sup> MD. CODE ANN. NAT RES. § 8-1808(d)(2)(ii).

<sup>114</sup> Case No. 2024-0168-V, *supra* note 92, at 13.

<sup>115</sup> *See generally*, Clinic Report, *supra* note 68, for general overview of the history of the interpretation of “unwarranted hardship”.

<sup>116</sup> MD. CODE REGS. 27.01.12.04.

<sup>117</sup> 448 Md. 112 (2016).

<sup>118</sup> *See, e.g.*, [Case No. 2024-0212-V](#), Office of Administrative Hearings, Anne Arundel County, Md. (Feb. 6, 2025).

equivalent) to find that “[t]he granting of the variance would not adversely affect water quality or adversely impact fish, wildlife, or plant habitat within the jurisdiction’s local Critical Area.”<sup>119</sup> In many of the Anne Arundel 2024 decisions, the AHO used boilerplate language to state that this requirement had been met.<sup>120</sup>

Now that the Commission has the opportunity to incorporate climate resiliency and equity into its regulations, local jurisdictions should be required to take a harder look at the variance provision concerning environmental harm. For example, the Commission could require local jurisdictions to show how variance decisions align with the State’s goals on climate resiliency, as described in The Next Generation Adaptation Plan<sup>121</sup> and State Resilience Strategy,<sup>122</sup> in addition to recommending that jurisdictions use resources such as those listed in the interim guidance for growth allocation.<sup>123</sup>

The Next Generation Adaptation Plan (The Plan) discusses the important role local governments will play in building climate resiliency and the importance of “capacity building and collaboration.”<sup>124</sup> Each jurisdiction should identify specific climate impacts (including sea level rise, coastal storms, salinization, increasing temperatures, and changing precipitation patterns) and defer to the

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<sup>119</sup> MD. CODE REGS. 27.01.12.04(6).

<sup>120</sup> See, e.g., Case No. 2024-0168-V, *supra* note 92, at 19 (“The granting of the requested critical area variance will not adversely affect water quality or adversely impact fish, wildlife or plant habitat within the County’s critical area or a bog protection area, and will be in harmony with the general spirit and intent of the County’s Critical Area Program. Therefore, I find that the applicant has met the requirements of subsection (b)(5).”); see also [Case No. 2024-0056-V](#), at 16, Office of Administrative Hearings, Anne Arundel County, Md. (June 20, 2024) (“The granting of the requested critical area variance will not adversely affect water quality or adversely impact fish, wildlife or plant habitat within the County’s critical area or a bog protection area, and will be in harmony with the general spirit and intent of the County’s Critical Area Program. Therefore, I find that the applicants have met the requirements of subsection (b)(5).”); see generally, Clinic Report, *supra* note 65.

<sup>121</sup> MD. DEP. OF NAT. RES., [NEXT GENERATION ADAPTATION PLAN](#) (undated) [hereinafter The Plan].

<sup>122</sup> Press Release, Md. Dep. of Emergency Management, [Maryland Office of Resilience Unveils Comprehensive Resilience Toolkit](#) (Nov. 12, 2024).

<sup>123</sup> See Interim Guidance, *supra* note 104.

<sup>124</sup> The Plan, *supra* note 121, at 19.

Commission when assessing how these impacts may magnify the effects of certain development activities.

Requiring local jurisdictions to place a greater emphasis on environmental impacts when deciding whether to grant a variance provides an important opportunity for the Commission to help build climate resiliency across the state. As stated above, the Act's new amendments direct the Commission to establish comprehensive standards and procedures for:

(1) modified buffer areas; (2) shoreline stabilization activities on the buffer; (3) assessing and adopting the critical area for climate resiliency; (4) enhancing the resilience of the critical area by protecting, creating, and restoring natural and nature-based features; and (5) environmental justice and equity initiatives.<sup>125</sup>

Strengthening variance procedures aligns with this mandate and would result in a more uniform approach to development in the critical area across the state. Therefore, administrative hearing officers should be required to give more weight to environmental burdens while considering climate vulnerability so that the landowner's "unwarranted hardship" does not eclipse the variance decision.

*ii. Fee in Lieu*

When violations of the Act occur or variances are granted, a fee in lieu of mitigation is an opportunity for the Commission to collect mitigation dollars and distribute them equitably across the State. The new amendments require the Commission to consider environmental justice<sup>126</sup> as a factor when approving requests to intensify land development, including an assessment of environmental impacts and proposed mitigation on underserved<sup>127</sup> or overburdened

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<sup>125</sup> House Bill 233; 8-1806(b)(1)(ii), (iii), (xvii), (xviii), (xix).

<sup>126</sup> "Environmental Justice" means equal protection from environmental and public health hazards for all people regardless of race, income, culture, and social status. HB 233 § 1-701(a)(5).

<sup>127</sup> "Underserved community" means any census tract in which, according to the most recent U.S. Census Bureau Survey (1) at least 25% of the residents qualify as low-income; (2) at least 50% of the residents identify as nonwhite; or (3) at least 15% of the residents have limited English proficiency. *Id.* § 1-701(a)(8).

communities.<sup>128</sup> The amendments also update the minimum requirements for local jurisdictions' Critical Area Programs to include provisions for:

(1) identifying areas vulnerable to climate change; (2) mitigation and adaptation measures that address sea level rise, storm surge, precipitation-induced flooding, other extreme weather events, migrating wetlands, and coastal forests; (3) enhancing the climate resiliency of the Critical Area by identifying, restoring, and creating and conserving existing and projected future natural and nature-based features; (4) identifying underserved and overburdened communities within the Critical Area; (5) measures to ensure the equitable distribution of the benefits and burdens of development, restoration, and mitigation within the Critical Area; and (6) ensuring equity in the public participation process, among others.<sup>129</sup>

The amendments undoubtedly give the Commission greater agency to compel mitigation that corrects disparities in environmental quality and equitably builds climate resiliency. Relying on fees in lieu of mitigation could help ensure more equitable distribution of resources when localities allow for growth allocations and variances. The current fee in lieu of mitigation regulations state that local jurisdictions must establish a special fund, which may not revert to the jurisdiction's general fund, for the collection of the fee in lieu of buffer mitigation, and use money from that fund only:

To establish the buffer on sites where planting is not a condition of development or redevelopment; or for water quality and habitat enhancement projects, as described in a local Critical Area program approved by the Commission or

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<sup>128</sup> "Overburdened community" means any census tract for which three or more specified environmental health indicators are above the seventy-fifth percentile statewide. Indicators include particulate matter, lead paint, cancer risk, and proximity to traffic and various toxic or pollution source points. *Id.* § 1-701(a)(7).

<sup>129</sup> *Id.* § 8-1808(16-19).

in an agreement between the local jurisdiction and the Commission.<sup>130</sup>

The new amendments allow the Commission to revise these regulations to include consideration of environmental justice in its mitigation requirements. Greater reliance on fee in lieu of mitigation rather than on-site mitigation could lead to greater environmental justice in climate resiliency projects across the state. Ultimately, environmental justice community stakeholders and experts must be consulted when formulating the final regulations.

## V. CONCLUSION

The 2024 Amendments to the Critical Area Act are an opportunity to equitably strengthen critical area protections across Maryland. Incorporating climate resiliency and environmental justice considerations into local jurisdictions' variance provisions and fee in lieu of mitigation requirements could endorse greater environmental analysis in critical area development decisions while limiting sediment and nutrient pollution from entering the Bay. When limited development is allowed within a critical area, requiring equitable distribution of fee in lieu of mitigation funds could help build climate resiliency across the state. While Bay restoration ultimately requires a multi-pronged approach and efforts from all stakeholders, these possibilities highlight the importance in Maryland of not only strengthening the Critical Area Act but also encouraging stricter adherence to the advice of the Critical Area Commission.

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<sup>130</sup> MD. CODE REGS. 27.01.09.01-5(A)(3)-(4)(a),(b).

**MAKING DO AND MAKING WAY: ADDRESSING THE DYNAMIC PROBLEM OF  
SALTWATER INTRUSION IN THE AGRICULTURAL REGION OF MARYLAND'S  
LOWER EASTERN SHORE**

Bill Shultz\*

*Sea level rise is occurring at a rate three to four times the global average in the Chesapeake Bay region. Among the many problems associated with sea level rise are the conjoined problems of saltwater intrusion, saltwater inundation, and land subsidence. These three phenomena are creating major deleterious impacts on agricultural land and saltmarshes throughout the region, including the Lower Eastern Shore region of Maryland. There, decreased agricultural use viability and saltmarsh vulnerability present interlocking problems requiring a dynamic solution. This article seeks to present a menu of options for policymakers to support agricultural lifeways in the short-term while creating avenues for saltmarsh migration in the long-term. Options posited range from the clearly achievable to the more ambitious and are not meant to be exhaustive. Effective adaptation to climate change in general and saltwater intrusion in particular will require both practical and creative actions.*

**I. INTRODUCTION**

Sea level rise has long been discussed as one of the many pending ramifications of climate change. It is tempting to keep thinking of sea level rise and other climate change effects as problems for the future. However, increasingly massive wildfires, prolonged drought in some regions, more frequent flooding in others, more frequent and intense storms everywhere, and sea level rise are occurring now. Among the many problems associated with sea level rise are the conjoined problems of saltwater intrusion, saltwater inundation, and land subsidence.<sup>1</sup> Saltwater intrusion, referred to by some experts as the “invisible flood,” is when saltwater encroaches on fresh groundwater, contaminating both freshwater aquifers and coastal soil with high levels of salt, impacting, among other things, coastal agriculture.<sup>2</sup> Saltwater inundation refers to the visible, long-term reclamation of coastal land by oceans and seas.<sup>3</sup> Inundation is particularly

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\* J.D., Georgetown University Law Center, 2025.

<sup>1</sup> Kiera L. O'Donnell, et al., *Saltwater Intrusion and Sea Level Rise Threatens U.S. Rural Coastal Landscapes and Communities*, 45 ANTHROPOCENE 2 (Jan. 13, 2024).

<sup>2</sup> Pinki Mondal, et al., *The Spread and Cost of Saltwater Intrusion in the U.S. Mid-Atlantic*, 6 NAT. SUSTAINABILITY 1352 (2023).

<sup>3</sup> [What are the Impacts of Sea Level Change?](#), EARTH.GOV (last visited Feb. 3, 2026).

problematic for vulnerable coastal ecosystems, including saltmarshes, that become flooded more quickly than they can migrate inland.<sup>4</sup> Land subsidence refers to saturated land collapsing and eroding so much that its relative elevation is reduced.<sup>5</sup> That is, sea levels are rising but land elevation is simultaneously decreasing in coastal areas, exponentiating the problems of saltwater intrusion and inundation.<sup>6</sup>

In few places is the problem more acute than the Chesapeake Bay region, where sea level rise is occurring at a rate three to four times the global average.<sup>7</sup> While this has clear ramifications for coastal communities throughout the Bay, it poses a particularized problem for the agricultural region of the Lower Eastern Shore of Maryland (Delmarva Peninsula). With over 1,000 working farms generating over \$1 billion of revenue annually, the region comprising Worcester, Wicomico, and Somerset Counties is responsible for 30% of Maryland's agricultural economic production, including many grain and other commodity crops such as corn.<sup>8</sup> Agricultural operations also contribute over \$17 million annually to local and state tax revenue.<sup>9</sup> As saltwater intrudes onto cropland, salt intolerant crops like corn cannot survive.<sup>10</sup> With the extreme rate of sea level rise, viable cropland in the area is rapidly depleting.<sup>11</sup> For example, in Somerset County alone, 850 acres of cropland were lost to saltwater intrusion from 2006-2017.<sup>12</sup> From 2011-2017, approximately 19,000 acres in the region were converted from viable cropland to visible salt patches, representing around \$427,000 in direct economic impact.<sup>13</sup> Estimates project nearly five feet of sea level rise in the area by 2100.<sup>14</sup> According to some researchers, the area is at risk

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<sup>4</sup> Sergio Fagherazzi, et al., *Salt Marsh Dynamics in a Period of Accelerated Sea Level Rise*, 125 J. OF GEOPHYSICAL RSCH: EARTH SURFACE 1 (Aug. 20, 2020).

<sup>5</sup> *What are the Impacts of Sea Level Change?*, *supra* note 3.

<sup>6</sup> Steven Mackay, *Study: Sinking ground in parts of Chesapeake Bay area will worsen flooding from rising sea levels and storm surges*, VA. TECH. (Apr. 26, 2023).

<sup>7</sup> Nancy Gibson, et al., U.S. DEP'T AGRIC., GENERAL TECHNICAL REPORT SRS-259, IDENTIFICATION, MITIGATION, AND ADAPTATION TO SALINIZATION ON WORKING LANDS IN THE U.S. SOUTHEAST 1 (2021) [hereinafter TECHNICAL REPORT].

<sup>8</sup> *Economic Engine: Agriculture*, LESMD (last visited Feb. 3, 2026).

<sup>9</sup> *Id.*

<sup>10</sup> Adam Thomas, *Visible Threat: UD's Pinki Mondal Studies How Saltwater Intrusion is Wreaking Havoc on Farms Throughout Delmarva*, UDAILY (Jul. 28, 2023) (citing Mondal, et al, *supra* note 2).

<sup>11</sup> Mondal, et al., *supra* note 2; Thomas, *supra* note 10.

<sup>12</sup> Carey L. Biron, *Saltwater is Destroying Crops and Threatening Livelihoods. How Should Farmers Respond*, GLOB. CTR. ON ADAPTATION (Oct. 2, 2019).

<sup>13</sup> Mondal, et al., *supra* note 2; Thomas, *supra* note 10.

<sup>14</sup> Jeremy Cox, *As Land Turns Salty Farmers Grapple with Lost Income*, BAY J. (Sep. 4, 2024).

of an additional \$39-70 million in losses due to crop yield reduction from saltwater intrusion and inundation.<sup>15</sup> Meanwhile, saltmarshes in the region are also being lost to inundation.<sup>16</sup> Saltmarshes provide numerous ecosystem services.<sup>17</sup> They are an important buffer against tropical storm surges, provide habitat for a wide variety of species, act as a carbon sink, and are important nutrient filters as agricultural runoff makes its way into the Chesapeake Bay.<sup>18</sup>

Together, decreased agricultural use viability and saltmarsh vulnerability present interlocking problems requiring a dynamic solution. Farmers in the region could convert to growing more salt tolerant crops.<sup>19</sup> However, this would only be a short-term solution, as eventually the soil will be so contaminated with salt that even the most salt tolerant crops would be unable to survive. Therefore, it may be most advantageous to landowners and society at large for contaminated cropland to be proactively converted to salt marsh or placed in conservation easements to facilitate salt marsh migration. The USDA has published a study of the problem outlining this very plan of action.<sup>20</sup> However, as it stands, there are not proper programs or incentives in place to readily convince landowners to either convert to new, more viable crops or to take the land out of production.<sup>21</sup> In fact, the strongest short- to mid-term incentive currently available is for corn farmers to continue to plant corn, knowing that it will not grow, watch it die, and collect crop insurance and other subsidies.<sup>22</sup>

USDA should use existing authorities and where those authorities are lacking Congress should establish new means by which USDA may create new adaptive agricultural and conservation easement programs, provide greater flexibility within existing programs, and incentivize participation in all appropriate programs to support farmers experiencing saltwater intrusion to transition to more salt-tolerant crops in the short term and facilitate salt marsh migration in the long term. To that end, this article will 1) assess the status quo

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<sup>15</sup> *Id.*

<sup>16</sup> [Marshes for Tomorrow](#), DELMARVA RESTORATION & CONSERVATION NETWORK, (last visited Feb. 3, 2026).

<sup>17</sup> Fagherazzi, et al., *supra* note 4, at 1.

<sup>18</sup> *Id.*

<sup>19</sup> Kate Tully, et al., [The Invisible Flood: The Chemistry, Ecology, and Social Implications of Coastal Saltwater Intrusion](#), 69 *BIOSCIENCE* 368, 375 (May 2019).

<sup>20</sup> TECHNICAL REPORT, *supra* note 7.

<sup>21</sup> Cox, *supra* note 14; Amy Jacobs, *Final Report to Chesapeake Bay Trust on Targeted Outreach to Increase Implementation of Wetland Restoration and Protection on Delmarva*, NATURE CONSERVANCY (2020).

<sup>22</sup> Cox, *supra* note 14.

and existing federal and state programs intended to support agricultural landowners to either produce crops or conserve ecosystems, 2) identify problems with the status quo and barriers to the uptake of existing programs, and 3) present a menu of possible solutions law and policymakers may consider in crafting context-specific programs to support landowners in the region. In doing so, advantages and disadvantages must be considered over both the short and long term, as well as from the perspectives of both private property owners and the public. Finally, some of the proposals outlined below are intended for the specific context of coastal saltwater intrusion and are not intended to apply to standard easements.

## II. EXISTING PROGRAMS

### A. Agricultural Use

The Federal Crop Insurance Program (FCIP) is a public-private partnership between Approved Insurance Providers (AIPs) and the USDA's Risk Management Agency (RMA), in which AIPs, backed by RMA, insure farmers and ranchers against loss from weather events, natural disasters, and falling prices.<sup>23</sup> Insurance options are available based on production history, revenue history, countywide area risk, and, as of 2016, may be supplemented by area-based Margin Protection insurance.<sup>24</sup> The Program does not differentiate between low-risk and high-risk land or areas, incentivizing farmers to continue planting even when the risk of loss is high. In 2023 in the Delmarva Peninsula, there were ten options available, including four supplemental options, for commodity insurance programs covering corn.<sup>25</sup> This means that corn growers in the region may be paid out based on individual yield or revenue loss and receive additional payout based on decreases in operating margins resulting from the impacts on yields of saltwater contamination. While loss due to saltwater intrusion represents a small slice, the FCIP costs taxpayers between \$9-15 billion dollars annually, a number that is steadily increasing due to climate change effects.<sup>26</sup>

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<sup>23</sup> [About the Risk Management Agency](#), U.S. DEP'T AGRIC. RISK MGMT. AGENCY (last visited Feb. 16, 2026).

<sup>24</sup> [Insurance Plans](#), U.S. DEP'T AGRIC. RISK MGMT. AGENCY (last visited Feb. 3, 2026).

<sup>25</sup> [Commodity Programs](#), U.S. DEP'T AGRIC. RISK MGMT. AGENCY (last visited Feb. 3, 2026) (query field entries: "corn," "Maryland," "Somerset County").

<sup>26</sup> Frank Morris, [Some Say Subsidized Crop Insurance, Which is Up for Renewal, Shields Farmers Too Much](#), DELMARVA PUB. MEDIA (Sep. 14, 2023, 5:12 AM).

The Agricultural Risk Coverage (ARC) and Price Loss Coverage (PLC) programs are administered by USDA's Farm Service Agency (FSA). The ARC program provides coverage to agricultural producers when actual revenue falls below a guarantee based on historical data and market conditions.<sup>27</sup> The PLC program pays out when the effective price for a commodity falls below a reference price for the given commodity.<sup>28</sup> While the PLC program does not involve the impacts on yields of local soil conditions, the ARC program does and provides compensation in addition to insurance coverage under the FCIP program.<sup>29</sup> The ARC program can be taken up by counties or individuals.<sup>30</sup> Payouts in Maryland for corn from the PLC and ARC programs combined totaled just over \$15 million for the 2020 coverage year.<sup>31</sup>

Maryland, in partnership with USDA's Natural Resources Conservation Service (NRCS), participates in the Environmental Quality Incentives Program (EQIP), the Conservation Stewardship Program (CSP), the Regional Conservation Partnership Program (RCPP), and the Agricultural Management Assistance (AMA) program. Each of these programs is meant to help farmers implement "climate smart" practices, including drip irrigation, riparian buffers, cover crops, etc.<sup>32</sup> While these programs may be important to many farmers in many circumstances, none address the problem of saltwater intrusion or the need for salt marsh migration. It is important to remember that land affected by saltwater intrusion does not necessarily abut waterways such that wetland or riparian projects would be appropriate, as the impact is not always due to flooding but rather groundwater contamination. Perhaps the most helpful for the issue is the AMA program, which assists farmers who want to install new irrigation structures and practices, as increasing drainage and reducing groundwater use can slow saltwater intrusion. However, even this is not helpful for farmers whose soil is already contaminated with salt, resulting in reduced yields.

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<sup>27</sup> FARM SERVICE AGENCY, USDA, AGRICULTURE RISK COVERAGE (ARC) & PRICE LOSS COVERAGE (PLC) 3 (Dec. 2023) (setting a payout baseline of 86% of five-year yields ending in the year prior to the coverage year).

<sup>28</sup> *Id.*

<sup>29</sup> *Id.*

<sup>30</sup> *Id.*

<sup>31</sup> U.S. DEP'T OF AGRIC. FARM SERVICE AGENCY, [TABLE 1. PLC, ARC-CO AND ARC-IC PAYMENTS BY STATE](#) 1 (Jan. 21, 2021).

<sup>32</sup> [Maryland](#), U.S. DEP'T OF AGRIC. NAT. RES. CONSERVATION SERV. (last visited Feb. 3, 2026).

## B. Conservation Easements

There is a wide array of conservation easement programs available to landowners to set aside agricultural land for various conservation purposes. The most widely utilized easement program nationally, and second only to the Farm and Ranch Protection Program in Maryland, is the Wetland Reserve Easement (WRE) program under the umbrella of the Agricultural Conservation Easement Program (ACEP) operated by NRCS.<sup>33</sup> The WRE program is the successor to the popular Wetland Reserve Program (WRP).<sup>34</sup> NRCS also partners with state and local conservation departments, as well as non-profit conservation groups such as The Nature Conservancy, to operate the Wetland Reserve Enhancement Program (WREP), designed to conserve high-priority wetlands on an application basis.<sup>35</sup> These programs combined make up 60% of active easements, comprising just under 3 million acres.<sup>36</sup> Under the program, landowners receive payment to take their land out of agricultural production for the purpose of wetland restoration.<sup>37</sup> The program requires landowners to implement a site-specific wetland restoration plan for which they receive compensation from NRCS.<sup>38</sup>

The WRE easements are available in two forms: perpetual and 30-year easements.<sup>39</sup> Perpetual easements, as the name suggests, run with the land in perpetuity and therefore provide the greatest compensation and assistance payments to landowners who elect this option. In Maryland, NRCS pays the lowest of the agricultural value of the land, a cap of up to \$5,579 per acre, or an offer made by the landowner.<sup>40</sup> Additionally, NRCS pays between 75-100% of costs associated with establishing the requisite practices that facilitate wetland restoration, including hydrology fixtures, berms, etc.<sup>41</sup> Importantly, though required, invasive species removal and native vegetation planting is not covered, and payments for covered practices are not made until the implementation is complete and passes an inspection by NRCS agents.<sup>42</sup> This means that landowners

<sup>33</sup> *Easement Program Data*, U.S. DEP'T OF AGRIC. (last visited Dec. 7, 2024) (subsequently filtered for Maryland only).

<sup>34</sup> Agricultural Conservation Easement Program, 7 C.F.R. Part 1468 (2020).

<sup>35</sup> *Id.* § 1468.35.

<sup>36</sup> *Easement Program Data*, *supra* note 33.

<sup>37</sup> 7 C.F.R. § 1468.35.

<sup>38</sup> *Id.*

<sup>39</sup> *Id.* § 1468.30(a)(5).

<sup>40</sup> U.S. DEP'T OF AGRIC. NAT. RES. CONSERVATION SERV., FY25 ACEP WRE GEOGRAPHIC AREA RATE CAPS (Oct. 1, 2024).

<sup>41</sup> 7 C.F.R. § 1468.36(a)(1).

<sup>42</sup> *Id.* § 1468.36(b).

implementing WRE plans must have the means to pay for the implementation procedures up front and are often saddled with ongoing costs for invasive removals and native plantings. The thirty-year easement option provides less support, paying only 50-75% of the easement value per acre and reimbursing the same percentages for implementation practices.<sup>43</sup>

Whether seeking a permanent or a 30-year easement, landowners' proposed projects are ranked among all applicants in each annual cycle. NRCS selects projects with the highest ranking, meaning that they have the highest likelihood of successful and cost-effective restoration, with a preference for higher acreage projects.<sup>44</sup> For farmers who prefer to keep farming as much land as possible, seeking to put only their salt contaminated land into easement, a large-scale project is not often attractive. Crucially, in addition to satisfying ranking criteria, the project must take place on land that is deemed a farmed wetland or wetland converted to cropland, together with "adjacent lands that are functionally dependent on wetlands," meaning that the land is currently or has been a wetland in the past.<sup>45</sup> After all, the program is designed to *restore* wetlands. While some cropland impacted by saltwater intrusion may meet these criteria, much of it will not. One way around this would be to first enter the Conservation Reserve Program for 10 years, establish native vegetation conducive to wetlands, and then enter the easement program at the completion of the conservation contract.<sup>46</sup>

The FSA manages the Conservation Reserve Program (CRP) in collaboration with NRCS.<sup>47</sup> The CRP program is available to landowners with land deemed environmentally sensitive and is designed to establish native vegetative cover to stabilize erodible soil, protect water quality, and provide habitat to native species.<sup>48</sup> Unlike WRE, the CRP program is not an easement but rather a ten to fifteen-year renewable conservation contract.<sup>49</sup> Rather than a one-time purchase, FSA pays annual rent per acre; however, each participant's payout is capped at \$50,000.<sup>50</sup> Depending on which of the dozens of available CRP contracts a landowner enters, cost-share payments for establishment of the agreed upon practices may vary but are often set at 50% of costs, payable as a

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<sup>43</sup> *Id.* § 1468.36(a)(2).

<sup>44</sup> *Id.* § 1468.30(e)(2).

<sup>45</sup> *Id.* § 1468.30(e)(4).

<sup>46</sup> *Id.* § 1468.30(f).

<sup>47</sup> Conservation Reserve Program, 7 C.F.R. Part 1410 (2019).

<sup>48</sup> 7 C.F.R. §§ 1410.3, 1410.5, 1410.6.

<sup>49</sup> *Id.* § 1410.7.

<sup>50</sup> [Payment Limitations](#), U.S. DEP'T OF AGRIC., FARM SERV. AGENCY (last visited Feb. 4, 2026).

reimbursement.<sup>51</sup> To qualify, land must have been “planted or considered planted” for the five-year window between 2012-2017 and currently be “capable of being planted to an agricultural commodity.” The programs require specific native species planting, invasive species removal, and that landowners refrain from grazing or planting commodities in a way that interferes with the conservation plan.<sup>52</sup>

To establish new wetlands under the CRP program, landowners would enter CP39, Farmable Wetlands Program, Constructed Wetlands.<sup>53</sup> The land must meet all of the standard requirements and also receive water flow from a watershed that is at least 25% row cropped.<sup>54</sup> The program also comes with a nitrogen removal requirement in addition to the standard native planting, invasive removal, and commodity production restrictions.<sup>55</sup> Like the WREP program, FSA operates a public-private partnership that may provide additional cost-share payouts, sign-up incentives, and technical support over longer-term contracts under the Conservation Reserve Enhancement Program (CREP).<sup>56</sup> Like WREP, the CREP program focuses on sensitive ecosystems.<sup>57</sup>

In addition to the federal programs available, Maryland operates the Agricultural Water Quality Cost-share Program (MACS).<sup>58</sup> This is likely the most effective option for farmers who would like to take salt contaminated land out of production and establish wetlands in preparation for salt marsh migration, as The Nature Conservancy or the Maryland Environmental Trust could provide additional support. Managed by the Maryland Department of Agriculture, the MACS program covers up to 100% of costs up to \$150,000 for wetland creation or restoration on agricultural land, as well as other water quality restoration or intrusion mitigation efforts.<sup>59</sup> However, like the other programs discussed, MACS covers “the minimum activity needed to create wetland hydrology,” does not

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<sup>51</sup> 7 C.F.R. § 1410.41(a).

<sup>52</sup> *Id.* § 1410.20.

<sup>53</sup> U.S. DEP’T OF AGRIC., FARM SERV. AGENCY, CONSERVATION RESERVE PROGRAM CP39: FARMABLE WETLANDS PROGRAM, CONSTRUCTED WETLANDS (2024).

<sup>54</sup> *Id.* at 2.

<sup>55</sup> *Id.*

<sup>56</sup> 7 C.F.R. § 1410.90.

<sup>57</sup> [Conservation Reserve Enhancement Program](#), U.S. DEP’T OF AGRIC., FARM SERV. AGENCY (last visited Feb. 9, 2026).

<sup>58</sup> MD. DEP’T OF AGRICULTURE, MACS MANUAL, WETLAND CREATION FOR WATER QUALITY (CODE 658) (Apr. 2024).

<sup>59</sup> *Id.*

cover the costs of invasive species removal, and pays as a reimbursement for approved completion of covered practices.<sup>60</sup>

One further program worth mentioning in the context of saltwater intrusion is the Biomass Crop Assistance Program (BCAP). Established in 2010, BCAP was created to incentivize landowners to establish biomass crops for use as feedstock in biofuel production.<sup>61</sup> However, the last time Congress appropriated funds for the BCAP program was 2017.<sup>62</sup> The reason that BCAP is relevant in the Delmarva Peninsula is that some biomass crops, such as switchgrass and cordgrass, are more salt tolerant than many conventional commodity crops.<sup>63</sup> While biofuels have fallen out of favor, biomass crops can also be sold as livestock bedding, creating an income source for landowners experiencing decreased commodity yields.<sup>64</sup>

### III. VARIOUS PROBLEMS

#### A. Corn: Salt Intolerant and Water Intensive

Landowners whose land is normally in agricultural use often prefer to keep farming.<sup>65</sup> This preference may have to do with something as personal as long-standing family tradition or as simple as the difficulty of taking on new projects, including the high cost of equipment replacement, massive debt attached to such equipment and other inputs, a steep learning curve associated with growing new crops, lack of confidence in the market for alternative commodities, and reluctance to cede land use control to government projects.<sup>66</sup> For the many corn growers in the Delmarva Peninsula this propensity presents a problem. Corn is not a salt tolerant crop and does not survive in soils contaminated by saltwater intrusion.<sup>67</sup> In fact, there is some evidence that growing corn actually *contributes*

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<sup>60</sup> *Id.*

<sup>61</sup> U.S. DEP'T OF AGRIC., FARM SERV. AGENCY, [FACT SHEET: BIOMASS CROP ASSISTANCE PROGRAM](#) (Oct. 2010).

<sup>62</sup> [Biomass Crop Assistance Program](#), NAT'L SUSTAINABLE AGRIC. COALITION (last updated Dec. 2019).

<sup>63</sup> [Our Changing Chesapeake: Adapting Agricultural Lands to Sea Level Rise and Saltwater Intrusion](#), U. OF MD. (last visited Feb. 10, 2026) [hereinafter *Our Changing Chesapeake*].

<sup>64</sup> *Id.*

<sup>65</sup> Taryn A. Sudol, et al., [Resisting-Accepting-Directing Sea Level Rise on The Chesapeake Bay: Agricultural Producers' Motivations and Actions](#), 332 J. OF ENV'T MGMT. 117355 (Apr. 15, 2023).

<sup>66</sup> *Id.*

<sup>67</sup> Elizabeth de la Reguera, et al., [The Effects of Saltwater Intrusion on Germination Success of Standard and Alternative Crops](#), 180 ENV'T AND EXPERIMENTAL BOTANY (2020).

to the problem of soil salinity.<sup>68</sup> Because of the robust subsidies provided by the federal government in the form of crop insurance, corn growers are incentivized to plant corn as usual, watch it die in saline soil, and collect insurance payouts. While this is certainly easier for farmers, it is obviously not socially optimal, both because of the money spent on payouts and the loss of production or ecosystem services the land could otherwise provide.

Growing corn is water intensive, relying heavily on irrigation drawn from freshwater aquifers.<sup>69</sup> While intensive irrigation will increasingly be a problem everywhere as climate change progresses, it poses a particularized and immediate problem in the Delmarva Peninsula. Drawing heavily on groundwater supplies exponentiates both land subsidence, saltwater intrusion, and inundation.<sup>70</sup> As water is drawn from aquifers, land sinks and saltwater proceeds further into the aquifer to fill the void left by the withdrawn fresh water.<sup>71</sup> As has already been discussed and as may be obvious with a basic understanding of physics, when the land subsides, relative sea level rises, speeding up the pace of inundation.

Growing corn in the Delmarva peninsula also relies heavily on the spread of poultry manure from nearby chicken concentrated animal feeding operations (CAFOs), as well as synthetic fertilizers, each contributing to the nitrogen and phosphorus load in the soil, creating a unique problem when paired with saltwater contamination.<sup>72</sup> The Chesapeake Bay is infamously vulnerable to nutrient loading, with a history of frequent no-swim orders and a sizeable dead zone due to harmful algal blooms.<sup>73</sup> Some progress has been made following the Chesapeake Bay Agreement establishing the Chesapeake Bay Program partnership among watershed states to meet the total maximum daily load (TMDL) requirements set under the Clean Water Act.<sup>74</sup> Some of that progress is threatened by ongoing corn production in areas impacted by saltwater intrusion. As soil becomes contaminated by saltwater, legacy nutrients locked in the soil are broken free by the salt and are transported over the surface more readily during

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<sup>68</sup> See Raylene Nickel, *New Life for Saline Soil*, SUCCESSFUL FARMING (Feb. 3, 2017).

<sup>69</sup> U. OF MD. EXTENSION, [ESTIMATING IRRIGATION WATER REQUIREMENTS TO OPTIMIZE CROP GROWTH 2](#) (2014).

<sup>70</sup> Tully, et al., *supra* note 19, at 369.

<sup>71</sup> Mackay, *supra* note 6.

<sup>72</sup> *Our Changing Chesapeake*, *supra* note 63.

<sup>73</sup> Press Release, Ctr. for Env't Stud., [UMCES Scientists Show Harmful Algal Blooms in the Chesapeake Bay are More Frequent](#) (May 11, 2015).

<sup>74</sup> See Press Release, Chesapeake Bay Program, U.S. Geological Survey, [Chesapeake Bay Sees Slight Improvement in Water Quality](#) (Oct. 31, 2024).

heavy rain events or escape via groundwater into the Bay.<sup>75</sup> While individual farmers may not be motivated to transition away from corn production due to the contribution to nutrient loads, it certainly creates a strong incentive for Chesapeake Bay Program partner states looking to meet TMDLs to create programs to nudge farmers to other land uses.

### B. Challenges of Easement Implementation

Conservation easements, such as ACEP-WRE, and CRP agreements are effective ecosystem conservation and restoration programs in most contexts. However, for farmers experiencing saltwater intrusion, the native species planting and invasive species removal requirements are particularly onerous and, in the case of invasives removal, may even be counterproductive.<sup>76</sup> Additionally, though some easements allow for continued farming, farmers who prefer to keep farming often think of easements and conservation contracts as last resorts because of the heavy restrictions on land use flexibility, including construction, and a general reluctance to cede control to government agencies.<sup>77</sup>

Invasive species are non-native species whose introduction into an ecosystem is likely to cause economic or environmental harm or harm to human health.<sup>78</sup> The common reed, *Phragmites australis*, is a particularly aggressive invasive species common in the Delmarva peninsula.<sup>79</sup> It is both a pioneer and climax species, meaning that it rapidly populates recently disturbed soil and, once established, prevents the establishment of other succession species.<sup>80</sup> This behavior reduces biodiversity and can frustrate the restoration or creation of native ecosystems.<sup>81</sup> For this reason, conservation easement and restoration programs, including WRE and CRP, require control of the common reed and other invasive species.<sup>82</sup> However, because the common reed is so aggressive,<sup>83</sup> controlling its spread can come at significant recurring out-of-pocket financial and

<sup>75</sup> Tully, et al., *supra* note 19, at 374.

<sup>76</sup> TECHNICAL REPORT, *supra* note 7, at 17.

<sup>77</sup> Sudol, et al., *supra* note 65, at 7.

<sup>78</sup> [What are Invasive Species?](#), U.S. DEP'T OF AGRIC., NAT'L INVASIVE SPECIES CTR. (last visited Feb. 10, 2026).

<sup>79</sup> CRITICAL AREA COMM'N FOR THE CHESAPEAKE AND ATLANTIC COASTAL BAYS, MD. DEP'T OF NAT. RES., [PHRAGMITES: CONSIDERATIONS FOR MANAGEMENT IN THE CRITICAL AREA 1](#) (Sep. 2020) [hereinafter CRITICAL AREA COMM'N].

<sup>80</sup> *Id.*

<sup>81</sup> *Id.*

<sup>82</sup> See 7 C.F.R. Part 1468 (2020).

<sup>83</sup> Sudol, et al., *supra* note 65, at 2.

labor costs<sup>84</sup> to program participants, at times dissuading landowners from enrolling.<sup>85</sup>

Acknowledging the risk to native ecosystems, there may be reason to ease the requirements for common reed control for conservation easements in the coastal context. The presence of the common reed has been shown to raise the elevation and stabilize the soil in marshes where they dominate.<sup>86</sup> Conversely, removal of phragmites without rapid replacement with native species may increase the pace of soil erosion, land subsidence, and the resulting inundation, speeding up saltwater intrusion.<sup>87</sup> Meanwhile, the land will remain vulnerable to phragmites reentry.<sup>88</sup> With sea-level rising faster than the global average and land subsiding in the Chesapeake Bay region, the presence of phragmites may serve the important ecosystem function of land stabilization in coastal zones, keeping high tides at bay and maintaining the stability of marsh ecosystems for a longer duration than those comprised of native species.<sup>89</sup> While invasive species removal is both laudable and necessary in most contexts, it may be counterproductive to efforts to create marsh migration corridors on former agricultural land by reducing participation in conservation easement programs and frustrating the successful establishment of coastal wetlands.

A companion but inverse problem is presented by the native species planting requirements of WRE and CRP. First, the establishment of native species in a conservation or restoration project is frustrated by the aggressive pioneering behavior of the common reed, which grows faster and more densely than native species.<sup>90</sup> Landowners are then often fighting two battles simultaneously, that of trying to establish the native species required for reimbursement from the USDA and that of eliminating the common reed, which is both nigh impossible and not reimbursable. Second, in the rare event in which landowners win the battle and successfully establish the required native species, many will themselves not survive the conditions of highly saline soil.<sup>91</sup> When the plants eventually die, the WRE and CRP programs require their reestablishment. While the financial costs

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<sup>84</sup> See Tim Simmons, *Successfully Managing Phragmites*, ECOLOGICAL LANDSCAPE ALL. (Jul. 15, 2013).

<sup>85</sup> Sudol, *supra* note 65, at 7-8.

<sup>86</sup> CRITICAL AREA COMM'N, *supra* note 79, at 2.

<sup>87</sup> *Id.*

<sup>88</sup> *Id.*

<sup>89</sup> *Id.*

<sup>90</sup> *Id.* at 1.

<sup>91</sup> Sudol, et al., *supra* note 65, at 6.

associated with reestablishment are reimbursable by the agency, the labor itself takes away time and energy that could be spent elsewhere on the land—such as growing crops where still viable. Landowners are then locked into an unending cycle of fighting off the common reed and incessantly working to reestablish native species according to the restoration plan. While ecosystem restoration and invasives removal is challenging in every context, the problems posed by saltwater intrusion, land subsidence, and rapid sea level rise in the Delmarva Peninsula are uniquely onerous.

### C. Landowner Preferences

Finally, and perhaps most intractable, farmers who want to keep farming are not easily incentivized to give over control of land to conservation easements or restoration contracts.<sup>92</sup> While evidence suggests that the problem of saltwater intrusion is only going to get worse for decades to come, currently the impacts tend to fluctuate so that yields do not necessarily consistently decline from year to year, even as they decline on average over time. In the short term, farmers prefer to keep farming in the years when it seems viable while still needing support when yields decline, hence the tendency to rely on crop insurance.<sup>93</sup> Many landowners have indicated a preference for adaptation programs that will slow the progress of saltwater intrusion and remediate soil to allow for continued commodity production.<sup>94</sup> Only when it becomes clear that commodity yields will not recover are landowners more open to the idea of placing land under easement or entering the CRP program.<sup>95</sup> To that end, some landowners have indicated a desire for more education and information, such as saltwater intrusion mapping and forecasting.<sup>96</sup>

Congress and USDA should address the challenges faced by landowners in the Delmarva Peninsula by creating new, context-specific programs and allowing greater flexibility in existing programs for farmers experiencing saltwater intrusion. What follows is a menu of options that Congress and USDA could consider. While not meant to be exhaustive of the possible solutions, these options may help to incentivize long-term, more socially optimal outcomes while still protecting farmers' interests in the short-term. To the degree that farmers want to continue farming while doing so remains viable, they should be empowered to do

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<sup>92</sup> *Id.* at 7.

<sup>93</sup> *Id.*

<sup>94</sup> *Id.*

<sup>95</sup> *Id.*

<sup>96</sup> *Id.* at 8.

so. While in the long-term, as sea level continues to rise, the migration of saltmarshes should be prioritized for their important ecosystem services, including protection against storm surge, water filtration, habitat creation, and serving as important carbon sinks. The article refers to these dual goals of short-term, private benefits and long-term, public benefits as making do and making way.

#### IV. MAKING DO

##### A. Slowing Saltwater Intrusion and Soil Remediation

For farming in the region to remain viable for as long as possible, efforts should be made to slow the encroachment of saltwater into subsurface aquifers. This solution has thus far received the most attention and support from state and local agencies and therefore will only be addressed briefly. As indicated above, any such efforts are temporary band-aids meant to buy landowners time to transition to longer-term solutions. There are a few ways saltwater intrusion can be slowed. The first is to create barriers between the sea and cropland. Barriers can be physically constructed, which is often the easiest and most straightforward to install, or nature-based, which requires some land to be taken out of production anyway. Constructed barriers serve as a guard against saltwater contaminating soil in flood events. While this article has focused mostly on groundwater encroachment, some soil is contaminated by temporary flooding following large storms.<sup>97</sup> As storm surge pushes saltwater into fields and then recedes, salt is left behind in the soil, impacting yields in that section for seasons to come.<sup>98</sup> Physical barriers can help prevent this type of contamination in normal storm events.<sup>99</sup> However, as the intensity of storms is increasing and sea level is rising quickly, storm surges are much larger than in the past.<sup>100</sup> This creates the risk of saltwater overtopping physical barriers and getting trapped in the cropland on the other side, allowing all the salt content to soak into soil, rather than the smaller amounts that would be left behind after a storm surge naturally recedes.<sup>101</sup>

Some have proposed recharging freshwater aquifers with treated wastewater. The idea is that when the aquifer is injected with treated wastewater, an aqueous barrier is reestablished, preventing the encroachment of saltwater. While this sounds great in theory, it comes with its own problems. First, rural

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<sup>97</sup> TECHNICAL REPORT, *supra* note 7, at 18.

<sup>98</sup> *Id.*

<sup>99</sup> *Id.* at 21.

<sup>100</sup> *Id.*

<sup>101</sup> Tully, *supra* note 19, at 369.

aquifer recharge is energy-intensive and logistically challenging, as the treated water must be transported from wastewater treatment facilities to the sites that need recharge.<sup>102</sup> Second, treated wastewater often contains microplastics or per- and polyfluoroalkyl substances (PFAS).<sup>103</sup> The presence of PFAS and microplastics is dangerous in any context but is particularly troublesome in agricultural regions, as plants irrigated with treated wastewater tend to take up the materials in the soil, allowing PFAS to enter the human food supply and be absorbed into the bodies of those who consume the contaminated food.<sup>104</sup> This problem has been well-documented in the context of the use of biosolids from wastewater treatment plants as fertilizer, as the PFAS and microplastics contained in the biosolids are directly mixed into the soil.<sup>105</sup> There is evidence that the water treatment process is not very effective at removing PFAS from the water itself and would therefore be carried into the aquifer during a recharge with the same effect for irrigated fields.<sup>106</sup> Finally, agricultural use is not the only use of groundwater in rural areas where many households rely on wells for household use. Injecting microplastic and PFAS-contaminated treated wastewater then poses direct ethical concerns.

Soil remediation may be technically feasible but is not cost-effective and fails to curb saltwater intrusion and recontamination. The fastest remediation process would be to add uncontaminated soil from elsewhere on the property or offsite and supplement with amendments, such as biochar or vermi-compost, which may help to modify the mineral and ionic homeostasis in the soil.<sup>107</sup> However, hauling soil from one part of the property to another or from offsite to onsite is onerous, minimally effective, and cost-inefficient. And, while biochar and vermi-compost are great additions to any farm and may be helpful in farms

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<sup>102</sup> Joël Casanova, Nicolas Devau & Marie Pettenati, *Managed Aquifer Recharge: An Overview of Issues and Options*, in INTEGRATED GROUNDWATER MGMT. 413, 414 (A.J. Jakeman, et al. eds., 2016).

<sup>103</sup> Kendra Conley, et al., *Wastewater Treatment Plants as a Source of Microplastics to an Urban Estuary: Removal Efficiencies and Loading per capita Over One Year*, 3 WATER RESEARCH X 100030, 6 (Apr. 10, 2019).

<sup>104</sup> Ting Zhou, et al., *Occurrence, Fate, and Remediation of Per- and Polyfluoroalkyl Substances (PFAs) in Sewage Sludge: A Comprehensive Review*, 466 J. OF HAZARDOUS MATERIALS 133637, 2 (Jan. 29, 2024).

<sup>105</sup> *Id.* at 7.

<sup>106</sup> Yueqing Zhang, et al., *Removal of 48 Per- and Polyfluoroalkyl Substances (PFAS) Throughout Processes In Domestic and General Industrial Wastewater Treatment Plants: Implications for Emerging Alternatives Risk Control*, 480 J. OF HAZARDOUS MATERIALS 136130, 7 (Oct. 10, 2024).

<sup>107</sup> Md Najmol Hoque, et al., *Organic Amendments for Mitigation of Salinity Stress in Plants: A Review*, 12 LIFE (BASEL) 1632, 1633 (Oct. 18, 2022).

with moderately saline soil, such amendments are not a long-term solution to saltwater intrusion where salt concentrations are much higher than in other contexts.

### B. Quinoa: Market Development and Farmer Support

Americans consume over half of the world's quinoa supply.<sup>108</sup> Quinoa is a gluten-free, vitamin-rich, complete protein with potential markets not only as a bulk grain but also for value-added products such as flour, milk, cereals, snack products, haircare and other cosmetic products, and more.<sup>109</sup> Quinoa has the added benefit of being a salt and wind-tolerant crop that has shown some promise in field tests in agricultural land impacted by salt.<sup>110</sup> However, farmers are reluctant to shift to quinoa production from more conventional crops, such as corn and soy, due to unfamiliarity with the crop and the financial burden of transitioning farm equipment and practices.<sup>111</sup> An additional problem is fluctuating commodity prices dependent on South American production yields.<sup>112</sup> There is also an equity issue surrounding increased domestic quinoa production, as much of the current supply is produced on small-scale family farms in rugged areas of the Andes, providing the primary source of income for many communities.<sup>113</sup>

While the market potential for domestic quinoa production is high, institutional support for its production is low. The Commodity Promotion, Research, and Information Act of 1996, also known as the “generic promotion law,” could be used as a vehicle for the creation of a federal Checkoff program to help support additional market development for quinoa. The Act provides USDA the authority to craft and propose such programs for any commodity it sees fit.<sup>114</sup> The generic promotion law mandates that any such program be national in scope and is subject to public notice and comment.<sup>115</sup> The equity issue is exacerbated by

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<sup>108</sup> Manuel Valdes, *U.S. Farmers Make Foray into Quinoa as Demand for Grain Grows*, AP (Oct. 6, 2016).

<sup>109</sup> *Id.*

<sup>110</sup> Shahid Iqbal, et al., *The Extraordinary Salt Tolerance of Quinoa*, in EMERGING RESEARCH IN ALTERNATIVE CROPS 125-143 (Abdelaziz Hirsch, et al, eds. 2020).

<sup>111</sup> Sudol, et al., *supra* note 65, at 6.

<sup>112</sup> *Quinoa*, AGRIC. MKTG. RES. CTR. (last updated Apr. 2022).

<sup>113</sup> *Quinoa*, U.N. FOOD & AGRIC. ORG. <https://www.fao.org/quinoa/en/> (last visited Feb. 11, 2026).

<sup>114</sup> 7 U.S.C. § 7413.

<sup>115</sup> *Id.*

importer assessments under generic Checkoff programs.<sup>116</sup> However, by contrast, bolstering the United States' demand for quinoa with a government supported advertising campaign would grow the market for quinoa growers, both domestic and international. If properly managed, this could create a benefit to quinoa growers in the Andes.

USDA should also create a program to help farmers transition to quinoa production, providing financial support for the purchase of new equipment, and create a crop insurance program for quinoa to provide farmers reassurance as they enter the quinoa market. Currently, quinoa is not covered by the ARC or PLC programs, however, USDA's Risk Management Agency, by its own account, is "always looking to improve and expand" crop insurance resources available to growers and is able to do so in a targeted, county-by-county way.<sup>117</sup> Therefore, such an insurance program for quinoa growers could either be generally applicable or narrowly tailored for farmers in coastal regions affected by saltwater intrusion.

One of the major obstacles for corn growers across the country who may otherwise want to shift to growing something other than corn is the high levels of debt wrapped up in high-tech, specialized combines and other corn-growing infrastructure.<sup>118</sup> Unless there is an avenue for debt relief or a ready buyer of the expensive equipment, corn growers are unlikely to take on more debt to obtain new equipment to grow quinoa. Such relief would likely require an act of Congress, especially considering the growing trend of federal judges applying the major questions doctrine to agency debt-relief actions.<sup>119</sup> However, relief in the agricultural context may be a good opportunity to test the high Court's commitment to the doctrine. Farmer reluctance is multiplied by unfamiliarity with growing quinoa, doubt about the demand market, and the uncertainty about how much more successful quinoa will be in the saline soil. While a Checkoff program

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<sup>116</sup> *Id.* § 7416(a)(2).

<sup>117</sup> The Federal Crop Insurance Corporation, through its Board, has the authority to establish insurance programs for a list of pre-determined agricultural commodities or "any other agricultural commodity." 7 U.S.C. §§ 1508, 1518; USDA, Press Release, U.S. Dep't Agric., Risk Mgmt. Agency, [USDA Offers New Crop Insurance Program for Producers Using Controlled Environments](#) (Oct. 2, 2023). Lost yields due to saltwater intrusion may be eligible for coverage under the Noninsured Crop Disaster Assistance Program if saltwater intrusion can be attributed to a natural disaster. See U.S. DEP'T OF AGRIC., FARM SERVICE AGENCY, FACT SHEET: DISASTER ASSISTANCE: NONINSURED CROP DISASTER ASSISTANCE PROGRAM (Aug. 2025).

<sup>118</sup> Quinn Donoghue, [Farmer Outlook Darkens as Debt Mounts](#), EQUIP. FIN. NEWS (Sep. 5, 2025).

<sup>119</sup> See e.g., *Biden v. Nebraska*, 600 U.S. 477 (2023) (blocking the Department of Education's attempt to grant debt relief to student loan borrowers without specific legislative authority).

may help with the second concern, farmer education about the process of growing quinoa and crop insurance for quinoa production may be necessary for there to be any hope for farmer buy in.

### C. Agrivoltaics and Biomass Production

Some farmers in the region have expressed interest in alternative energy production. Agri-solar installations, or agrivoltaics, co-locate renewable energy production with crop or pollinator planting and/or grazing practices. While still in early development and receiving research funding from both USDA and the Department of Energy, the most successful agrivoltaics projects utilize grazing or pollinator habitat.<sup>120</sup> While pollinator habitat is important to farmers growing nearby crops, it is less directly financially beneficial than grazing practices and may also be impacted by salty soil. Sheep are particularly well-suited for agrivoltaics projects, as they can easily move around the solar arrays and eliminate or reduce the need for chemical or mechanical weed control.<sup>121</sup> This option, of course, provides the added societal benefit of increased alternative energy production that could be utilized both locally and in nearby metropolitan areas, including Baltimore and Washington, DC. One drawback to this solution is its limited application to salt contaminated farmland that is far enough inland to be a good investment in expensive solar infrastructure. With sea level rising rapidly and inundation predicted for much of the area by 2100, coastal land may not be very attractive for solar developers. Additionally, and this is a problem for many of the proposed land-based solutions, increasingly saturated or soggy land is less accessible by heavy equipment.

An unlikely solution worth mentioning is that Congress could restore appropriations to the Biomass Crop Assistance Program and expand it to include non-biofuel uses. While many prefer energy and resources to be put toward solar, wind, liquid nitrogen, and small-scale nuclear production rather than biofuels, biomass fibers can be used for more than just biofuel feedstock. Biomass crops such as switchgrass and cordgrass serve as a carbon sink and riparian buffer. Biomass fibers could be sold to nearby poultry CAFOs for chicken bedding. Finally, and importantly, establishment of switchgrass production could help to

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<sup>120</sup> Karen Maguire, *Common Ground for Agriculture and Solar Energy: Federal Funding Supports Research and Development in Agrivoltaics*, U.S. DEP'T AGRIC., ECONOMIC RESEARCH SERVICE (Apr. 22, 2024).

<sup>121</sup> Robert Handler & Joshua M. Pearce, *Greener Sheep: Life Cycle Analysis of Integrated Sheep Agrivoltaic Systems*, 3 CLEANER ENERGY SYS. 100036, 2, 4 (2022).

head off the encroachment of the invasive common reed and better prepare the land for future wetland restoration and saltmarsh migration.

**D. Remove High Risk Planting from the Federal Crop Insurance Program**

Finally, an unpopular proposal that must be made: Corn subsidies must be reduced to disincentivize reckless planting in high-risk areas. While the FCIP is a critical safety net for growers of corn and other commodities in times of drought or extreme weather events, it is not socially optimal to incentivize high risk planting. The plant and watch it die strategy is not unique to the Delmarva Peninsula, as the momentum created by the high investment in corn production infrastructure paired with nearly guaranteed payout for unsuccessful plantings creates the obvious incentive to stay the course. Society gets very little in return when a farmer chooses to plant corn with full knowledge that it will be unsuccessful. This cost to society is even harder to swallow with the knowledge that even a successful corn harvest is primarily used to feed livestock, produce ethanol, or is transformed into any number of processed foods that add little to society's nutrient intake. If ever there were a clear reason to limit crop insurance payout, it is in the context of a sure-fire failure, such as planting corn in salt contaminated soil, a condition that is a far cry from the seasonal drought or extreme weather events that the program is meant to protect against.

**V. MAKING WAY**

**A. Adjust Easement Implementation Requirements and Provide Additional Support**

In the long-term, cropland contaminated by saltwater must give way first to salt marshes and perhaps eventually to the sea. To facilitate the migration of salt marshes and gain the benefits of the many important ecosystem services they provide, landowners farming along the coast must be enticed to contribute their land. Those experiencing saltwater intrusion are likely first candidates, but conservation easement and contract requirements must be adapted to the conditions of saltwater intrusion. USDA has deferential authority to create and tailor conservation easement programs at the regional scale and should do so to help marshal coastal landowners to make way for salt marshes.<sup>122</sup>

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<sup>122</sup> 16 U.S.C. §§ 3451-3474; 7 U.S.C. § 1997.

First, USDA should consider relaxing invasive species removal requirements in the specific context of establishing salt marsh migration corridors in the Delmarva Peninsula. While the removal of invasive species is undoubtedly important in all conservation and restoration efforts, with land in the region quickly subsiding and sea level rapidly rising, the soil stability provided by dense stands of common reed may be more beneficial than that of their removal to establish native species. More research should be done to ensure the effectiveness of this controversial option, as common reed is known to crowd out native biodiversity. However, if the common reed is removed and land remains barren or sparsely populated with native species, erosion and land subsidence will exacerbate the problem of saltwater encroachment.

If the agency does not relax invasives removal requirements, landowners should be compensated for the equipment, chemicals, and labor used to remove them or the agency should provide the personnel to undertake the task. With a species as prolific as the common reed, landowners are locked into a long-term battle to remove them and are often unwilling to take on the financial and temporal burden of doing so. Compensation may shift the calculation. Alternatively, if landowners are willing, the agency could provide the direct service of invasives removal and native species establishment. This task would likely fall to state and local agencies, which may not have the human or financial resources to tackle the problem. USDA could provide funds for the job. Since every single conservation easement and CRP contract requires invasive removal and native species establishment, and since the two tasks are interdependent, funding and personnel should be set aside to assist participant landowners with the task.

#### B. Rolling Easements

Perhaps the greatest disincentive to landowners opting for conservation easements or contracts is the desire to keep farming and the reluctance to turn land use control over to the government when crops may still be viable.<sup>123</sup> After corn subsidies are reduced and alternative production methods are explored, USDA could consider a more finely tuned easement or contract structure that allows landowners greater flexibility from year to year. While obviously the decision to plant corn in a given year would disrupt any prior years' efforts to establish salt marsh migration corridors, providing farmers greater control over land use decisions while still offering the financial and technical support that

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<sup>123</sup> Sudol, et al., *supra* note 65, at 7.

comes with conservation easements and contracts may create greater trust and engender a spirit of collaboration between landowners and government agencies.

One potentially viable model is the rolling easement, which has gained some traction in both the United States and international contexts.<sup>124</sup> Under this arrangement, a landowner could continue crop production until a pre-determined triggering event creates a right of purchase for the government. Greater saltwater encroachment mapping and forecasting could provide guidance in crafting the agreements. Such mapping and forecasting development is already underway in Maryland.<sup>125</sup> Local officials, experts, and landowners steeped in the problem are well-equipped to identify and agree upon the most workable triggers on a parcel-by-parcel basis, prioritizing properties that are adjacent to existing salt marshes. Negotiating for individualized agreements could give farmers a greater sense of agency over the short-term while providing assurance that they will be compensated fairly for segments of their land that give way to the rising seas. Additionally, landowners participating in a rolling easement agreement will contribute to salt marsh migration, a benefit to both their descendants and neighbors who choose to remain in the area, as well as society as a whole.

## VI. CONCLUSION

Over the long run, there are no good solutions to the problem of sea level rise in the lower eastern shore. Globally, we are racing past the temperature thresholds that might have held back the most catastrophic impacts of climate change. It looks as if sea levels will rise many feet in the Delmarva Peninsula, eventually inundating much of what has long been farmland. In the short-term, farmers should be supported to maintain their livelihoods while preparing for a future in which first salt marshes and then the sea make their way ashore. To achieve this, Congress and USDA should work to provide a dynamic array of options that are tailored to the specific conditions of a given property and the wishes of the landowner, all while considering socially optimal outcomes over time.

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<sup>124</sup> Justine Bell-James, et al., *Rolling Covenants to Protect Coastal Ecosystems in the Face of Sea-level Rise*, 593 CONSERVATION SCI. AND PRACTICE 2 (2021).

<sup>125</sup> MD. DEP'T OF PLANNING, [MARYLAND'S PLAN TO ADAPT TO SALTWATER INTRUSION & SALINIZATION](#) (2019); MD. DEP'T OF THE ENV'T, [PROGRESS IMPLEMENTING THE 2021 SALTWATER INTRUSION ADAPTATION PLAN](#) 10 (2022).

LESSONS FROM COASTAL WILDFIRES AND ENVIRONMENTAL POLICIES IN THE  
UNITED STATES AND AUSTRALIA

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*This article is in regard to the most recent extreme wildfire disasters in the Palisades in 2024/25 and the 2019/20 Australian Bush Fires, but older data is used to create a larger scope when applicable. Through a comparative analysis of case studies from both the United States and Australia, this paper explores how environmental policies, including those governing water management and policies regarding the immediate rebuilding efforts, change in the wake of wildfire disasters. It aims to garner key takeaways from these disasters to prepare areas, and specifically the Chesapeake Bay Region, for wildfires in the future. It highlights the tension between immediate disaster recovery and long-term environmental sustainability, particularly as governments revise or revoke policies aimed at mitigating climate change and protecting ecosystems. By focusing on both the environmental and policy dimensions, this paper aims to provide an understanding of current planning strategies and showcase how coastal wildfires impact such planning. This article demonstrates the need for more resilient and integrated management strategies in their aftermath that focus on not just getting a community back on its feet, but also create a pathway for more resilient and environmentally prepared infrastructure. Ultimately, it calls for further research and stronger policy frameworks, and the upholding of environmental regulations in wildfire-prone regions to ensure the long-term health of both local communities and the environment.*

**I. INTRODUCTION**

Wildfires have been an ever-present threat and powerful tool throughout human history, and few areas on the globe are inviolate. There is a misconception that the East Coast does not experience forest fires, but on average, around 200 wildfires occur in Maryland alone every year.<sup>1</sup> In the past five years, the fires in Maryland are burning an average of over 2,000 acres a year, primarily in the

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<sup>1</sup>[Wildland Fire Management](#), MD. DEP'T OF NAT. RES. (last visited Mar. 5, 2026).

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Eastern part of the state.<sup>2</sup> While current research places the Bay region as having a moderate level of wildfire risk, the areas of our planet that won't be significantly affected by wildfires are shrinking as climate change is making the weather more extreme, and with these extremes comes the increased risk of disaster situations.<sup>3</sup> Recent devastating wildfires have damaged other major coastal areas and offer lessons for the Chesapeake Bay region to heed as it prepares for the eventuality of wildfire.<sup>4</sup> The Australian Bushfires of Melbourne that rampaged in 2019 through 2020, and the recent Los Angeles fires are of particular note, not just because of their devastation and power, but because of the policy decisions made by government officials post-fire.<sup>5</sup>

Coastal wildfires have become more prevalent due to climate-induced changes in weather patterns, particularly a phenomenon known as “hydroclimate whiplash.” This term describes rapid transitions between wet and dry conditions, leading to lush vegetation growth followed by extended droughts, creating ideal conditions for wildfires.<sup>6</sup> Wildfires have increased in speed by 250% since 2001, and the geographical areas impacted by fire are continuing to expand.<sup>7</sup> In response, governments often suspend or weaken environmental regulations with the intent to speed up disaster recovery and rebuilding. While such decisions may be seen as necessary in the short term, they can carry long-term consequences for environmental health and public safety that may inhibit meaningful disaster relief and mitigation. Coastal regions are particularly sensitive, not only because they can be in fire prone regions, but because coastal wildfires have compounding effects on existing problems that can occur in coastal regions such as: worsening housing crises through the loss of homes, water treatment issues, nutrient

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<sup>2</sup> *Id.*

<sup>3</sup> Swain, D.L. et al., [Hydroclimate Volatility on a Warming Earth](#), 6 NATURE REVIEWS EARTH ENVTL. 35–50 (2025).

<sup>4</sup> The Chesapeake Bay Region includes areas of Pennsylvania, Virginia, New York, Maryland, Delaware and Washington, D.C.

<sup>5</sup> Australia uses the term “Bushfire,” while the United States uses “Wildfire.” The two terms will be used interchangeably.

<sup>6</sup> Alison Hewitt, [Floods, Droughts, Then Fires: Hydroclimate Whiplash Is Speeding Up Globally](#), UCLA NEWSROOM (Jan. 9, 2025).

<sup>7</sup> Lespier, et al., [How Climate Change Makes Wildfires More Dangerous](#), CTR. FOR AM. PROG. (May 20, 2025).

pollution, run off, sediment deposits, biodiversity loss, increased flooding risks, and chemical exposures that are exacerbated by the intense heat from a fire.<sup>8</sup>

This article explores the environmental, political, and human implications of reactive governmental policy through a comparison of Californian and Australian policy decisions following major wildfires in their coastal regions. It will first look at the science of wildfires, what made these fires so particularly dangerous, define critical terminology, and address some of the impacts of climate change on wildfires. This article will venture into the specific ramifications of wildfires on coastal regions, why these regions are of particular interest, and the general impacts of wildfires on human society. It will then take a closer look at concerns regarding the Chesapeake Bay region. The article will then go into a case study structure, looking at California's versus Australia's response to their recent devastating coastal wildfires, specifically looking at environmental policy. Next, it will compare how these two areas have chosen to build back and analyze the efficacy of both the short and long-term effects of these efforts. Finally, the article will provide general recommendations for coastal areas.

## II. BASIC SCIENCE OF WILDFIRES

Climate change has raised average global temperatures and altered precipitation patterns, exacerbating the necessary wildfire components of fuel, oxygen, and heat.<sup>9</sup> These components are dynamic and dictate daily fire risk. For example, a dry, hot, windy day in Autumn when leaves are desiccated is considered a higher risk than a cool, clear day in Spring when vegetation is still budding and less abundant. It is important to note that an area's general fire risk assessment does not necessarily correlate with its daily risk report.<sup>10</sup> General risk assessments depend on three things: fuel sources, ignition sources, and

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<sup>8</sup> SONOMA STATE UNIVERSITY, SYMPOSIUM PROCEEDINGS, [LIVING WITH FIRE IN CALIFORNIA'S COAST RANGES, PROMOTING FIRE-RESILIENT COMMUNITIES AND LANDSCAPES IN AN ERA OF GLOBAL CHANGE](#) (2018).

<sup>9</sup> [Fire Science Background](#), U. OF CAL. AGRIC. & NAT. RES. (last visited Feb. 6, 2026).

<sup>10</sup> Mark A. Finney, [The Challenge of Quantitative Risk Analysis for Wildland Fire](#), 211 FOREST ECOLOGY & MGMT. 97 (2005).

geographical elements.<sup>11</sup> The area's general risks and daily risks are not static; they change with time.<sup>12</sup> The dynamic change in the daily and general risks may change at different rates, so short-term and long-term planning and policies tend to need to be different.<sup>13</sup> The general risk assessment is what researchers and policy makers are more often concerned with, as it deals with more long-term-based fire probabilities.<sup>14</sup>

The Los Angeles fires in the Palisades neighborhood and the surrounding region were a question of when, not if, the area's general risk factors were particularly high.<sup>15</sup> The Santa Ana wind event, where 70 mph winds were pushing up against the hillsides, was a predictable occurrence given the area's terrain.<sup>16</sup> The research is still inconclusive on whether climate change is making the environment prone to high-wind events, but these winds were not the only factor that made these fires so powerful.<sup>17</sup> Exacerbated hydroclimate whiplash in Southern California was also a major contributing factor.<sup>18</sup> In the two years prior to the fires, California had two extremely wet seasons.<sup>19</sup> These wet seasons caused a dramatic vegetation bloom in the following months, increasing a fire's potential fuel source.<sup>20</sup> Then at the end of 2024, when Los Angeles should have been exiting a dry season and entering a wet season, there was a continued drought.<sup>21</sup> According to experts, the dry season is getting longer due to these whiplash events, and the preconceived notions of those seasons may need to be reevaluated.<sup>22</sup> Due to Los Angeles' drought, the ample vegetation dried out,

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<sup>11</sup> *Fire Science Background*, *supra* note 9.

<sup>12</sup> Finney, *supra* note 10.

<sup>13</sup> Telephone Interview with Char Miller, W.M. Keck Professor of Environmental Analysis & History, Pomona College (Mar. 25, 2025) [hereinafter Miller].

<sup>14</sup> See *Fire Ecology*, U.S. FOREST SERV. (last visited Feb. 6, 2026).

<sup>15</sup> Miller, *supra* note 13.

<sup>16</sup> Jacob Soboroff, *California Fires: Entirely Foreseeable Worst-Case Scenario*, NBC NEWS (Jan. 9, 2025).

<sup>17</sup> *Id.*

<sup>18</sup> Daniel Swain et al., *Why Fires Spread Quickly in Modern Cities — and How to Slow Them*, NATURE (Jan. 9, 2025).

<sup>19</sup> *Id.*

<sup>20</sup> Soboroff, *supra* note 16.

<sup>21</sup> *Id.*

<sup>22</sup> Miller, *supra* note 13.

becoming perfect tinder for a fire to build upon itself and spread with intense speed and heat. Los Angeles' hilly, dense urban infrastructure allows fires to spread quickly from one home to the next.<sup>23</sup> Additionally, non-native vegetation in the area, present in large quantities, tends to burn more readily than natural vegetation, which can be more fire resistant.<sup>24</sup>

Similarly, when looking at Australia's Bushfires of 2019-2020, the scale and intensity of the fires were fueled by a combination of record-breaking temperatures, prolonged drought, and strong winds, with 2019 being the hottest and driest year on record for Australia.<sup>25</sup> Climate experts suggest that while it is difficult to directly attribute individual disasters to climate change, global warming likely increased the probability of such extreme weather conditions.<sup>26</sup>

### III. IMPACT ON COASTAL REGIONS

#### A. General Concerns

Wildfires vastly impact coastal communities in numerous ways. Some notable concerns include: biodiversity loss through habitat loss and animal death; exposure to toxic chemicals; environmental degradation through pollution; infrastructure destruction; increased risk of flood; and human displacement.<sup>27</sup>

Biodiversity suffers, as both plant and animal species are displaced or killed in intense fires.<sup>28</sup> While some species benefit from fires, the frequency and intensity have pushed out native flora and fauna. For example, in Australian multiple native species were listed as endangered species following the deaths and

<sup>23</sup> Amy Laskowski, [How and Why the LA Wildfires Grew So Fast—and Lessons for the Future](#), BU TODAY (Jan. 16, 2025).

<sup>24</sup> Rosanna Xiaa, [Climate Whiplash Is Fueling California Fires, Scientists Say](#), L.A. TIMES (Jan. 9, 2025).

<sup>25</sup> World Meteorological Organization, [Australia Suffers Devastating Fires After Hottest, Driest Year on Record](#), WMO (Jan. 7, 2020).

<sup>26</sup> Rebecca Lindsey, [Extreme Event Attribution: The Climate Versus Weather Blame Game](#), CLIMATE.GOV (Dec. 15, 2016).

<sup>27</sup> [Wildfires: Causes, Effects, and Educational Activities](#), PROJECT LEARNING TREE (last visited Feb. 6, 2026).

<sup>28</sup> Veronika Samborska & Hannah Ritchie, [Wildfires](#), OUR WORLD IN DATA (Apr. 2, 2024).

displacement of 3 billion animals following the 2019-20 Bushfires.<sup>29</sup> In California, an endangered trout species had to be rescued by scientists and volunteers with buckets mere hours before the fires destroyed their shallow ponds.<sup>30</sup>

Wildfires burn hazardous materials that can leach perfluoroalkyl and polyfluoroalkyl substances (PFAS), or “forever chemicals,” into the environment.<sup>31</sup> This can happen through the burning of electrical appliances, cookware, and other urban infrastructures, or through fire retardant itself.<sup>32</sup> These chemicals have been linked to cancer, thyroid issues, premature births, and numerous other medical conditions.<sup>33</sup> Exposure to these chemicals can happen in a myriad of ways, from the short-term inhalation of smoke and debris to the long-term contamination of waterways.<sup>34</sup>

Wildfires have substantial infrastructure consequences. Water treatment facilities are put under significant strain.<sup>35</sup> For example, the 2017 Tubbs Fire and 2018 Camp Fire in California marked the first instances where widespread drinking water contamination occurred within distribution systems rather than at the source. In both cases, volatile organic compounds (VOCs) such as benzene were detected at levels far exceeding state and federal safety limits.<sup>36</sup> Persistent postfire changes in water chemistry, such as elevated sediment run-off and high levels of dissolved organic carbon (DOC) that can last for over a decade, have

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<sup>29</sup> Leanne Taylor, *Improving Outcomes for Wildlife*, 36 AUSTRALIAN J. OF EMERGENCY MGMT. 18 (2021).

<sup>30</sup> Interview with Tiffany Yap, Senior Scientist, Urban Wildlands Program Center for Biological Diversity (Apr. 1, 2025) [hereinafter Yap Interview].

<sup>31</sup> Max Larkin, *Overlooked Climate-Change Danger: Wildfire Smoke*, HARVARD GAZETTE (Jul. 21, 2025).

<sup>32</sup> *Id.*

<sup>33</sup> *PFOA, PFOS, and Related PFAS Chemicals*, AM. CANCER SOC’Y (last revised May 31, 2024).

<sup>34</sup> Steven Lopez, *The LA River Tests Positive for Harmful ‘Forever Chemicals’ in 41 of 45 Samples*, LA PUBLIC PRESS (July 24, 2025).

<sup>35</sup> See Megan F. Belongia et al., *Building Water Resilience in the Face of Cascading Wildfire Risks*, 9 SCI. ADVANCES 1 (Sep. 15, 2023).

<sup>36</sup> Caitlin R. Proctor, et. al., *Wildfire Caused Widespread Drinking Water Distribution Network Contamination*, AM. WATER WORKS ASS’N. (Jul. 24, 2020).

been found.<sup>37</sup> These impacts pose significant short and long-term challenges for water treatment facilities tasked with ensuring safe drinking water and require complex and expensive engineering solutions.<sup>38</sup> These incidents revealed how wildfires can damage water infrastructure, causing chemical leaching and long-term contamination of treated water supplies.

The environmental impact of coastal wildfires is particularly devastating. Fires destroy vegetation that stabilizes soil and filters water, leading to erosion and water contamination.<sup>39</sup> Ash and chemical runoff from burned infrastructure pollute waterways, leading to issues like algal blooms, water discoloration, and threats to aquatic ecosystems.<sup>40</sup> Fire retardant, in and of itself, is a pollutant. The chemical makeup of fire retardants is constantly being revised, so long-term analysis is lacking; however, past chemical makeups have included PFAS.<sup>41</sup> The makeup from this past California wildfire is known as Phos-Chek, and it contains ammonium phosphate, a fertilizer that fuels algae blooms.<sup>42</sup> Soil cohesion is decreased after a fire as vegetation, a structural binder, is burned away, leading to increased runoff events.<sup>43</sup> Meaning, when precipitation occurs, fire retardants, heavy metals, other chemicals, and sediment present in the surrounding topsoil that is not already deposited into the water system eventually run off into the watershed, further damaging an already stressed ecosystem.<sup>44</sup>

Areas that have recently burned are more susceptible to flooding due to decreased water absorption capacity in the soil.<sup>45</sup> This puts both the community

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<sup>37</sup> Rachel Kelly, et al., *Delivery of Metals and Dissolved Black Carbon to the Southern California Coastal Ocean via Aerosols and Floodwaters Following the 2017 Thomas Fire*, 126 J. OF GEOPHYSICAL RSCH.: BIOGEOSCIENCES e2020JG006117 (Feb. 8, 2021).

<sup>38</sup> Proctor et al., *supra* note 36.

<sup>39</sup> Press Release, U.S. Geological Survey, Communications & Publishing, [Increases in Wildfire-Caused Erosion Could Impact Water Supply and Quality in the West](#) (Sept. 7, 2017).

<sup>40</sup> *Wildfires and Water Quality Research*, U.S. EPA (last visited Feb. 6, 2026).

<sup>41</sup> *PFAS-Containing Firefighting Foams*, CLEAN WATER ACTION (last visited Feb. 6, 2026).

<sup>42</sup> Christopher Cann, *What Is the Red Stuff Dropped on Fires?*, USA TODAY (Jan. 13, 2025).

<sup>43</sup> *How Does Wildfire Affect Soil and Vegetation?*, W. FIRE CHIEFS ASS'N (Feb. 20, 2024).

<sup>44</sup> *Id.*

<sup>45</sup> *Post Fire Burn Scar – Debris Flow & Flash Flooding*, NAT'L WEATHER SERV (last visited Feb. 18, 2026).

and emergency response teams under stress and at a higher risk of failure situations due to the time it takes to replenish disaster relief resources.<sup>46</sup>

Moreover, fires displace thousands of residents and impose mental health burdens on affected populations.<sup>47</sup> Coastal areas tend to be more densely populated than interiors. Urban expansion into bushfire-prone areas, exacerbated by lax planning policies, has also heightened the risk of displacement; 64,579 displacements were recorded during Australia's 2019–2020 (also known as the Black Summer) fire season alone.<sup>48</sup> In California and Australia, rebuilding efforts are costly and complex. California and Australia both have some of the largest economies in the world, and even they are struggling to recover efficiently and effectively due to the sheer scale of these fires and the damage incurred by them.<sup>49</sup> Both California and Australia are working to address complications regarding displacement through support services and relief funds for families.<sup>50</sup> Low-income and communities of color often struggle the most, lacking the resources and access to recover quickly or relocate.<sup>51</sup> Revoking environmental policies may enable some faster rebuilding efforts, but it also risks reproducing the same vulnerabilities that made these communities susceptible to fire in the first place.

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<sup>46</sup> *One Thing After Another: Multiple Natural Disasters in Quick Succession Are Complicating Emergency Response*, RISK & RESILIENCE HUB (Oct. 18, 2022).

<sup>47</sup> Darya Ahmed & Angie Cucchi, *Addressing the mental health and climate impact of California wildfires in 2025*, 2 GEOPSYCHIATRY 100008 (2025).

<sup>48</sup> INTERNAL DISPLACEMENT MONITORING CENTRE, *THE 2019-2020 AUSTRALIAN BUSHFIRES: FROM TEMPORARY EVACUATION TO LONGER-TERM DISPLACEMENT* (2022).

<sup>49</sup> Pallavi Rao, *Ranked: The World's 20 Largest Economies, by GDP (PPP)*, VISUAL CAPITALIST (Dec. 10, 2024); Daniel A. Farber, *Environmental Disasters: An Introduction*, UC BERKELEY PUBLIC LAW RESEARCH PAPER No. 1898401 (2011).

<sup>50</sup> *Wildfire Recovery Fund*, CALIFORNIA COMMUNITY FOUNDATION, (last visited Feb. 19, 2026); NAT'L BUSHFIRE RECOVERY AGENCY, *BUSHFIRE ASSISTANCE CONTACT FACTSHEET* (Apr. 2025).

<sup>51</sup> Sonia Akter & R. Quentin Grafton, *Socioeconomic Well-Being Losses of Australia's Black Summer Fires (2019–2020): Burden by Burned Area, Poverty, and Gender*, 8 *One Earth* 101454 (Nov. 21, 2025); Accord Tierra S. Bills & Kailong Ji, *Wildfire Recovery and Resilience Strategies for Resource-Constrained and Vulnerable Communities*, UCLA INST. OF TRANSP. STUDIES, (Feb. 28, 2025).

## B. Chesapeake Bay Region Risks

The Chesapeake Bay region's forests are suffering from the effects of prolonged mismanagement, as indigenous peoples were pushed out and their practices of fire stewardship were abandoned, leading to new growth, fire prone forests.<sup>52</sup> While prescribed burns do occur in the area, only approximately 200 acres of forests per year are burned in Maryland on state lands.<sup>53</sup> The region at large is currently denoted as having a moderate risk of wildfires, with risks increasing towards the East of the Bay.<sup>54</sup> The forests, particularly in the east and Pennsylvania, are meant to burn, but have not had enough prescribed burns nor been allowed to burn naturally in decades.<sup>55</sup> This excess of fuel creates a situation where more powerful wildfires are more likely to occur.<sup>56</sup> While this area is not presently arid, climate change modifies weather conditions, and it only takes one prolonged drought to create the conditions for a devastating wildfire.<sup>57</sup> The Bay region has seen an increase in drought frequency and intensity, interspaced with periods of extreme wetness.<sup>58</sup> Conclusive data still needs to be collected and analyzed regarding the Bay's specific risks in the next ten years.

The Chesapeake Bay region is of particular concern for wildfire damage because it has an expansive system of waterways that feed into a particularly sensitive bay. The Chesapeake Bay holds a multitude of at-risk and endangered species within its waters and has had a storied past with nutrient pollution.<sup>59</sup> Nutrient pollution is a particular concern because the areas surrounding feed waters are predominantly used for agricultural purposes, which often utilize fertilizers.<sup>60</sup> This sensitivity can be exacerbated by the substantial nutrient

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<sup>52</sup> Will Parson, *A Hot Take on Restoring Habitat*, CHESAPEAKE BAY PROGRAM (Apr. 12, 2023).

<sup>53</sup> MD. DEP'T OF NAT. RES., *CHESAPEAKE FOREST LANDS CLIMATE CHANGE ADAPTATION AND RESILIENCE PLANNING GUIDE* 16 (updated Dec. 2023).

<sup>54</sup> *Chesapeake, VA Wildfire Risk* (Fire Factor), FIRST STREET (last visited Feb. 18, 2026).

<sup>55</sup> Allison Winter, *Summer Wildfire Threat Could Imperil Unexpected U.S. Regions: The Northeast and Midwest*, MD. MATTERS (June 29, 2023).

<sup>56</sup> *Id.*

<sup>57</sup> *Study Finds Climate Change to Blame for Record-Breaking California Wildfires*, NAT'L. INTEGRATED DROUGHT INFO. SYS. (Aug. 8, 2023).

<sup>58</sup> *Chesapeake, VA Climate Change Risks and Hazards*, CLIMATECHECK, INC. (2025).

<sup>59</sup> MD. DEP'T OF NAT. RES., *supra* note 53.

<sup>60</sup> *Runoff Pollution*, CHESAPEAKE BAY FOUND. (last visited Feb. 18, 2026).

pollution linked to wildfires.<sup>61</sup> However, the Chesapeake Bay has undergone extensive intervention to improve the ecological health of the area by greatly decreasing the amount of sediment, nitrogen, and phosphorus running into its waters.<sup>62</sup> The Bay has the largest and most complex total maximum daily load (TMDL) in the country, and the adjustments that would need to be made to its system due to increased wildfire pollution will be a logistical problem.<sup>63</sup> While these practices are impressive, with reductions of 7.6% of sediment, 15.3% of nitrogen, and 21.8% of phosphorus entering the Bay since 2009, these victories may be quickly undercut by fire events that lead to increased deposits.<sup>64</sup>

Fire increases runoff events in the following months or even years afterwards. The degree of effect on water quality is directly tied to the amount of watershed exposed to the pollutants associated with wildfires.<sup>65</sup> The Chesapeake Bay watershed expands across 64,000 square miles and has the largest land-to-water ratio of any coastal system in the world, meaning that the circumstances of the surrounding land are of heightened importance to the health of the watershed.<sup>66</sup> These expansive water systems also mean a greater risk of environmental damage, as the area impacted by nutrient pollution and sediment runoff becomes much larger.

Underfunded or outdated water treatment facilities are currently under greater stress from more frequent heavy rainfall events in the region. In Maryland, this has led to recent instances where millions of gallons of polluted and partially treated sewage water overflows and affects local wildlife.<sup>67</sup> After major wildfires,

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<sup>61</sup> *Wildfires and Water Quality Research*, *supra* note 40.

<sup>62</sup> Press Release, Chesapeake Bay Program, [Chesapeake Bay Program, Model Estimates Lower Amount of Nitrogen, Phosphorus, and Sediment Pollution Entering Chesapeake Bay](#) (June 3, 2025).

<sup>63</sup> [Frequent Questions about the Chesapeake Bay TMDL](#), U.S. ENV'T PROT. AGENCY (last updated Mar. 9, 2026).

<sup>64</sup> Chesapeake Bay Program, *supra* note 62.

<sup>65</sup> Amanda K. Hohner, et al., [Wildfires Alter Forest Watersheds and Threaten Drinking Water Quality](#), 52 *Acc. Chem. Res.* 1234,1237 (2019).

<sup>66</sup> [NOAA and the Chesapeake Bay Program](#), NAT. OCEANIC & ATMOSPHERIC ADMIN. (July 19, 2018).

<sup>67</sup> Press Release, Valerie DiMarzio, Chesapeake Bay Foundation, [Statement on Patapsco Wastewater Treatment Plant Overflow](#) (June 3, 2025).

water quality typically rebounds within two to three years, though the most severe degradation occurs during the first year.<sup>68</sup> In the case of wildfire, even temporary declines can overwhelm local treatment systems, which often lack the capacity to handle sudden influxes of sediments, nutrients, and contaminants. In some cases, post-fire drought conditions have further delayed recovery, compounding the strain on water systems.<sup>69</sup> These dynamics are particularly concerning for the Chesapeake Bay region, where many water treatment facilities are already operating under stress from nutrient pollution, aging infrastructure, and extreme weather events, and are failing.<sup>70</sup> The Bay region has large swaths of area utilizing combined sewer systems with numerous discharge points, which can lead to damage to local streams and rivers that feed into the Bay. The systems are not designed to handle the magnitude of sudden pollutant surges occurring due to extreme weather.<sup>71</sup> A sudden influx of degraded runoff from fires could push these systems beyond capacity, driving up treatment costs, requiring new filtration processes, and potentially disrupting safe water supplies for surrounding communities.<sup>72</sup>

#### IV. RESPONSE TO THE FIRES: ENVIRONMENTAL POLICIES REVOCATION

Standard disaster response in the United States and other developed nations is to roll back environmental policies that could possibly slow rebuilding efforts.<sup>73</sup> In the past, these changes typically included shifts in land-use regulations, streamlining building permits, enhanced fire risk mitigation strategies, and the introduction of financial support measures for impacted communities.<sup>74</sup> This section explores the different approaches to policy reform taken by Australia and California following devastating wildfires.

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<sup>68</sup> Belongia et al., *supra* note 35.

<sup>69</sup> *Id.*

<sup>70</sup> Jeremy Fox & Ad Crable, [\*As Rain Fell, Sewage Systems Across the Bay Region Buckled\*](#), CHESAPEAKE BAY J. (Apr. 2, 2024).

<sup>71</sup> *Id.*

<sup>72</sup> Belongia et al., *supra* note 35.

<sup>73</sup> Farber, *supra* note 49.

<sup>74</sup> *Id.*

## A. Case Study: California's 2024 Wildfires

In late 2024, California experienced one of its most destructive wildfire seasons in history. The Park Fire alone consumed nearly 400,000 acres.<sup>75</sup> Despite California's investment of over \$2.5 billion since 2019 in wildfire mitigation for land management, equipment, and personnel, the sheer scale of these fires overwhelmed response capabilities.<sup>76</sup> Southern California increased its number of state firefighters from 5,800 to nearly 10,800 and completed over 2,200 treatment projects across 700,000 acres.<sup>77</sup> However, experts note that these measures, while effective against moderate fires, often fail in extreme conditions.<sup>78</sup> Southern California is considered to have the largest wildfire response capability in the world, but even it was under-equipped to deal with a fire of such magnitude as the Palisades wildfires.<sup>79</sup>

In response, Governor Gavin Newsom issued Executive Order N-4-25, temporarily suspending the entirety of the California Environmental Quality Act (CEQA) and the California Coastal Act (CCA) in relation to infrastructure impacted by the fires.<sup>80</sup> This decision was intended to expedite the rebuilding of homes and infrastructure in fire-ravaged regions like Los Angeles and Ventura Counties. While these regulatory suspensions were praised by some for facilitating recovery, they raised major environmental concerns. Suspending CEQA and CCA means that development projects no longer undergo thorough environmental impact assessments or adhere to coastal development standards. As a result, rebuilding in high-risk zones could further endanger both the environment and human populations.

CEQA, enacted in 1970, requires state and local agencies to assess and publicly disclose the environmental impact of proposed projects through environmental impact reports (EIRs). CEQA applies to a wide range of

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<sup>75</sup> *Park Fire*, CAL. DEP'T. OF FORESTRY AND FIRE PROT. (July 24, 2024).

<sup>76</sup> Andrew Freedman, *Climate Whiplash and Explosive Fuels Helped Create the Park Fire*, AXIOS (Aug. 3, 2024).

<sup>77</sup> Evan Bush & Lewis Kamb, *The homes are the fire's fuel*, NBC NEWS (Jan. 19, 2025).

<sup>78</sup> *Id.*

<sup>79</sup> *See Id.*

<sup>80</sup> [Exec. Order No. N-4-25](#) (Cal. Jan. 12, 2025).

discretionary projects, including infrastructure, land development, and zoning changes, and often involves extensive permitting and public comment periods aimed at mitigating environmental harm and promoting transparency.<sup>81</sup> The law also requires developers to consider the Wildland Urban Interface (WUI), which is a zone that helps define what areas are close to wildlands that could burn in relation to human structures, and report on those findings.<sup>82</sup>

Similarly, the CCA, established in 1976, governs development within California's designated coastal zone and requires that most projects obtain a Coastal Development Permit. This process ensures public access to the coast, protects scenic and ecological coastal resources, and prevents inappropriate development in sensitive areas.<sup>83</sup> The law is designed to weigh a multitude of interests and is a proactive environmental regulation that has historically not only protected the environment from further degradation, but also facilitated improvements.<sup>84</sup> Together, these laws are central to California's environmental oversight and conservation efforts.

While proponents viewed the suspensions as a necessary measure to enable rapid rebuilding, critics expressed concern that removing these regulatory safeguards, particularly in fire-prone and ecologically sensitive zones, could result in future environmental degradation and exacerbate climate-related risks such as erosion, habitat loss, and water contamination.<sup>85</sup> Moreover, the loosening of environmental regulations poses public health risks. For instance, in the Pacific Palisades, the fires led to ash infiltration into local water systems.<sup>86</sup> Decreases in water pressure due to increased usage allowed contaminants to enter pipelines through cracks that are usually impassible.<sup>87</sup> Boil water notices were issued, and

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<sup>81</sup> See [California Environmental Quality Act \(CEQA\)](#), CAL. DEP'T OF JUSTICE (last visited Mar. 9, 2026).

<sup>82</sup> [Best Practices for Analyzing and Mitigating Wildfire Impacts of Development Projects Under the California Environmental Quality Act](#), CAL. DEP'T OF JUSTICE (last visited Feb. 18, 2026).

<sup>83</sup> [California Coastal Act Overview](#), TRANSECT RES. CTR. (last visited Feb. 18, 2026).

<sup>84</sup> *Id.*

<sup>85</sup> Michelle Robertson, [Gov. Newsom Suspends Environmental Rules to Fast-Track Wildfire Prevention](#), S.F. CHRON. (Apr. 18, 2024).

<sup>86</sup> Alina Hartounian, [Fire Hydrants Ran Dry in Pacific Palisades as a Major Wildfire Raged](#), NPR (Jan. 8, 2025).

<sup>87</sup> Miller, *supra* note 13.

officials warned of elevated levels of VOCs and polycyclic aromatic hydrocarbons (PAHs), both of which are hazardous to human health.<sup>88</sup> Both VOCs and PAHs are tracked under CEQA, as they can be present in construction efforts.<sup>89</sup> This data is used to help guide policy decisions regarding human health risk protections and environmental hazards in California.<sup>90</sup> This underscores the importance of rigorous environmental protections, especially in post-disaster recovery, as these problems compound upon themselves when left unchecked. The debate reflects a broader tension in California between the desire to return to the status quo before the disaster and the preservation of the state's environmental protections with the development of new disaster recovery policies.

The local government of Los Angeles also instituted a multitude of environmental policy rollbacks in response to the wildfires. These permitting changes included waiving requirements for new buildings to use electricity rather than gas for heating and appliances, directing city departments to review reconstruction projects within 30 days, and waiving hearings that evaluate whether development complies with zoning regulations.<sup>91</sup> The local ordinances allowed homeowners to rebuild up to 110% of their homes' previous footprint, and there has been approval for further development in high-risk wildfire areas in order to curb the housing crisis as the population of Los Angeles increases.<sup>92</sup> The rationale was that many homeowners needed immediate relief to avoid prolonged displacement, and the standard permitting pathways were too slow to meet urgent recovery needs.<sup>93</sup>

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<sup>88</sup> Jaweed Kaleem, [Newsom Suspends Environmental Laws for Wildfire Prevention](#), L.A. TIMES (Mar. 1, 2025).

<sup>89</sup> Rafael Piñeiro et al., *Primary and Secondary Emissions of VOCs and PAHs in Indoor Air from a Waterproof Coal-Tar Membrane: Diagnosis and Remediation*. 18 INT'L J. OF ENV'T RSCH. & PUB. HEALTH 12855. (Dec. 6, 2021).

<sup>90</sup> [Human Health Risk Assessment \(HERO\)](#), CAL. DEP'T OF TOXIC SUBSTANCES CONTROL (last visited Feb. 16, 2026).

<sup>91</sup> Andrew Starrells, Letitia Moore, & Luca Trumbull, [Orders Addressing Rebuilding After Southern California Fires](#), HOLLAND & KNIGHT LLP (Jan. 2025).

<sup>92</sup> *Id.*

<sup>93</sup> *Id.*

## B. Case Study: Australia's 2019–2020 Bushfires

Australia's 2019–2020 bushfires burned more than 18 million hectares, destroying thousands of homes and causing immense biodiversity loss.<sup>94</sup> Australia's federal response to the devastating coastal bushfires of 2020 marked a significant shift in national disaster management, emphasizing both immediate relief and long-term recovery, and showcased a multifaceted effort to address both the immediate aftermath and long-term recovery. Prime Minister Scott Morrison, responding to mounting public pressure, established the National Bushfire Recovery Agency to coordinate a national recovery strategy.<sup>95</sup> 2 billion Australian dollars (about \$1.4 billion USD) was budgeted for critical infrastructure projects such as schools and health services, and to support local businesses, farmers, and individuals.<sup>96</sup> The government also deployed military resources, including army personnel, navy ships, and air force aircraft, to aid in firefighting, evacuation, search and rescue, and cleanup efforts.<sup>97</sup>

In response, Australia introduced several policy reforms, including stricter land-use regulations, increased funding for fire management, and extensive environmental restoration programs.<sup>98</sup> These policy changes were more conservative and largely aimed at long-term risk reduction. However, challenges emerged around balancing property development and fire safety. Zoning laws prevented reconstruction due to a backlog of permitting, as environmental regulations were in place in some areas, leading to disputes between homeowners and the government.<sup>99</sup> Additionally, while environmental restoration initiatives began soon after the fires, the long-term funding and commitment necessary to ensure their success are currently under scrutiny and face losing their efficacy in

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<sup>94</sup> [Australian Bushfires, What We Do](#), WORLD WILDLIFE FUND-AUSTRALIA (last visited Sept. 1, 2025).

<sup>95</sup> Helen Regan, [Australia's Prime Minister Defends His Response to Bushfires Amid Protests](#), CNN (Jan. 10, 2020).

<sup>96</sup> *Id.*

<sup>97</sup> *Id.*

<sup>98</sup> AUSTRAL. GOV'T DEP'T OF THE ENV'T, [ROYAL COMMISSION INTO NATIONAL NATURAL DISASTER ARRANGEMENTS REPORT](#) (2020).

<sup>99</sup> Regan, *supra* note 95.

the eventuality of future fires, as continued support is critical in preparing for disaster.<sup>100</sup>

## V. BUILDING BACK COMPARISON AND SOLUTIONS

### A. California Building Back

California is in the beginning stages of the recovery process from the Palisades fire. Thus, previous fires need to be analyzed for a fair comparison.<sup>101</sup> California is following the same strategies after the Palisades fire that it used in the past, as it seeks to build back in areas that previously experienced a destructive wildfire. The 2017 Tubbs fire mimicked the path of the 1964 Hanly fire, but the Tubbs fire burned the path in a mere 5 hours compared to the Hanly fire, which took several days.<sup>102</sup> This is not an isolated incident, as the 2025 Pickett fire also followed the path of the 2020 Glass fire, which disrupted recovery efforts made in the agricultural sector.<sup>103</sup>

Some strategies for fire harm reduction are already mandated by California's fire code, which went into effect in 2008, and by Los Angeles-specific amendments to that code.<sup>104</sup> These fire codes were not retroactive.<sup>105</sup> For the most part, burned homes will be constructed to the newer codes, which require structures in at-risk zones to be built with fire-resistant materials, such as retardant-treated wood and tempered glass.<sup>106</sup> The California code also includes rules for vegetation management and landscaping to reduce combustible matter on a property.<sup>107</sup>

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<sup>100</sup> ENVIRONMENTAL DEFENDERS OFFICE, [DEVOLVING EXTINCTION: THE RISKS OF HANDING ENVIRONMENTAL RESPONSIBILITIES TO STATES & TERRITORIES](#) (Oct. 2020).

<sup>101</sup> At the time of the writing of the article, the Palisades are still in a state of clean up.

<sup>102</sup> Glen Martin, [Rebuilding in Wildfire Areas Carries Risk of Repeat Fires: How Santa Rosa Is Taking Action](#), BAY CITY NEWS (Oct. 13, 2025).

<sup>103</sup> *Id.*

<sup>104</sup> CAL. CODE REGS., tit. 24 § 701A.

<sup>105</sup> *Id.*

<sup>106</sup> *Id.*

<sup>107</sup> Bill Gabbert, [Data Shows Building Codes Can Reduce Vulnerability of Homes in Wildfires](#), WILD FIRE TODAY (Jan. 30, 2022).

Additionally, California has instituted programs that focus on household preparedness in response to wildfires, showing a more individualistic option in wildfire management. Community-based adaptation is a growing focus in California. This includes education campaigns, local risk assessments, and neighborhood-level preparedness programs that empower residents to understand their fire risk and take proactive steps, such as preparing evacuation kits, clearing vegetation around homes, and participating in fire drills.<sup>108</sup> Education initiatives have also popped up in response to other fires in California. South Lake Tahoe had some success in saving homes from smaller wildfires through the use of educational initiatives coupled with strong local policies, such as requirements to clear brush, trim trees, and maintain clean roofs.<sup>109</sup> However, these types of solutions are most effective when everyone in the community participates, as radiant heat from a burning building nearby can be enough to set a neighborhood ablaze. Enforcement of these provisions is also difficult, requiring either a house to be sold or community members to report on one another, which can be unreliable and ineffective in ensuring compliance.<sup>110</sup>

#### B. Australia Risk Reduction Strategies in Response to the 2019–2020 Bushfires

Australia currently uses a classification system to label areas of wildfire risk that factors in both the physical geography and the firefighting resources that could be readily available in a worst-case scenario emergency.<sup>111</sup> Development is generally allowed in areas with moderate fire risk, while high-risk or vulnerable land uses such as schools, hospitals, and industrial sites are restricted or subject to stricter controls both in the approval of projects and the actual construction of the structure.<sup>112</sup> These controls stay active in the aftermath of a wildfire.

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<sup>108</sup> Miller, *supra* note 13.

<sup>109</sup> Starrells, Moore, & Trumbull, *supra* note 91.

<sup>110</sup> *Id.*

<sup>111</sup> Greg Penney et al., *Urban Design and Wildfire Engineering at the Wildland–Urban Interface: A Review of International Urban Planning and Building Requirements*, 39:4 AUSTL. J. EMERGENCY MGMT. 54 (Oct. 2024).

<sup>112</sup> *Id.* at 55.

Australia prioritized permitting to try to get people back into their homes; however, challenges still arose as permit requirements shifted.<sup>113</sup> Australia updated some environmental assessment processes in response to the fires. Many survivors encountered long wait times for development applications, often perceived as exacerbated by updated Bushfire Attack Level (BAL) assessments.<sup>114</sup> These assessments classify land based on bushfire risk and require corresponding building standards, which include fire-resistant materials and ember-proof designs. Higher BAL ratings translate into higher construction costs and longer approval timelines.<sup>115</sup> It is critical to note that just because an area has a higher BAL, it does not necessarily mean that the project will not be approved. Additionally, Bushfire Management Overlays (BMOs), which outline risk areas and zoning restrictions imposed by state planning systems, created further delays.<sup>116</sup> This is especially true in areas that had been rezoned post-disaster to limit development in high-risk zones.<sup>117</sup> In some cases, property owners were denied the right to rebuild due to failing to meet the updated criteria under New South Wales's dwelling entitlement regulations, a 2013 planning law amendment aimed at controlling rural development.<sup>118</sup>

The Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) also posed challenges during the rebuilding phase. The EPBC Act mandates federal assessment of any activity that may impact threatened species or ecosystems.<sup>119</sup> As a result, rebuilding homes, roads, or power lines near protected bushland often required environmental impact statements and approvals from the federal environment department.<sup>120</sup> These safeguards, while critical to conservation, introduced further delays to recovery work, particularly where

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<sup>113</sup> Regan, *supra* note 95.

<sup>114</sup> *Id.*

<sup>115</sup> [Building in Designated Bushfire Prone Areas](#), VICTORIA STATE GOV'T (last visited Feb. 15, 2026).

<sup>116</sup> Alan March, [Urban Planning: Historical Changes Integrating Bushfire Risk Management in Victoria](#), 34 AUSTL. J. EMERGENCY MGMT. 60 (July 2019).

<sup>117</sup> [Building in Designated Bushfire Prone Areas](#), *supra* note 115.

<sup>118</sup> Lisa Cox, ['Inexcusable': The Bushfire Survivors Blocked from Rebuilding](#), THE GUARDIAN (Mar. 21, 2021).

<sup>119</sup> [What's protected under the EPBC Act](#), AUSTL. DEP'T OF CLIMATE CHANGE, ENERGY, THE ENVIRONMENT & WATER (last updated Dec. 19, 2025).

<sup>120</sup> *Id.*

burned vegetation was already regenerating or where sensitive habitats were at risk.<sup>121</sup> The cumulative effect of these regulatory hurdles left many residents in prolonged displacement, living in temporary structures or caravans for years.<sup>122</sup>

Beyond the administrative challenges, the Black Summer fires sparked a national reassessment of land use and disaster risk reduction policy.<sup>123</sup> Experts increasingly argue that rebuilding in high-risk zones, especially suburban developments that have encroached into fire-prone bushland, should be restricted or avoided altogether.<sup>124</sup> Some state governments, like those in Victoria and New South Wales, have explored land buyback schemes, similar to the ones used after the 2009 fires, which aim to reduce residential density in fire-prone zones and restore ecological buffers between communities and the bush.<sup>125</sup> These schemes, however, are complex, requiring political consensus, sustained funding, and voluntary cooperation from affected residents.

Infrastructure resilience has also emerged as a core pillar of the rebuilding strategy. Building codes are being revised to enforce stricter requirements for homes in bushfire-prone areas.<sup>126</sup> These include mandatory use of fire-retardant materials, ember guards, and adequate defensible space around properties to slow fire spread and improve firefighter access.<sup>127</sup> The federal and state governments have acknowledged the importance of upgrading not only homes but also public facilities such as schools and community halls, which serve as emergency shelters and response centers during crises.<sup>128</sup> However, these updated building codes are not all necessarily retroactive, leaving thousands of buildings still at risk.<sup>129</sup>

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<sup>121</sup> *Id.*

<sup>122</sup> Cox, *supra* note 118.

<sup>123</sup> *Id.*

<sup>124</sup> Miller, *supra* note 13.

<sup>125</sup> [Government Buybacks for Properties in Extreme Bushfire Danger Zones](#), ABC NEWS (Jan. 19, 2020).

<sup>126</sup> March, *supra* note 116.

<sup>127</sup> *Id.*

<sup>128</sup> Penney et al., *supra* note 111.

<sup>129</sup> Dr. John Sturgeon, [It's Time to Avoid See-Sawing from One Disaster to Another](#), MOMENTUM MAG. (Apr. 8, 2020).

Equally critical is the transformation of vegetation and land management policies. While hazard reduction burning, a practice of setting controlled fires to reduce fuel loads, has long been part of Australia's fire strategy, the devastation of the Black Summer highlighted the need for a more comprehensive approach.<sup>130</sup> Intense drought and extreme heat rendered many burns ineffective or impossible to conduct.<sup>131</sup> In response, fire authorities are moving toward risk-based fire management, which relies on detailed mapping of vegetation density, topography, and historical fire behavior to prioritize areas for controlled burns.<sup>132</sup>

A particularly promising shift has been the renewed engagement with Indigenous fire management practices. Traditional techniques such as cultural burning, which involve small, low-intensity fires conducted in specific seasons and patterns, have been used by Aboriginal communities for thousands of years to manage the landscape.<sup>133</sup> These methods help reduce bushfire fuel, promote biodiversity, and maintain healthy ecosystems. Collaborations between Indigenous fire practitioners and agencies like the NSW Rural Fire Service have gained momentum, signaling a broader cultural and strategic shift toward more sustainable, community-led fire management.<sup>134</sup>

Australia does not have a dedicated coastal-specific watershed recovery policy following wildfires, but broader national and state-level recovery programs have indirectly supported watershed restoration in fire-affected coastal areas. Following the 2019–2020 bushfires, the Australian Government established the Wildlife and Habitat Bushfire Recovery Program, investing approximately AUD \$200 million to support ecological restoration and recovery.<sup>135</sup> While primarily aimed at terrestrial habitats, the funded projects often included riparian restoration and soil stabilization initiatives to mitigate erosion and sediment runoff into

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<sup>130</sup> Amy McCoy, *Research Shows Hazard Reduction Had Little Impact on Black Summer Fires*, ABC NEWS (May 10, 2021).

<sup>131</sup> *Id.*

<sup>132</sup> *Bushfire management and national environment law*, AUSTL. DEP'T OF CLIMATE CHANGE, ENERGY, THE ENVIRONMENT & WATER (last updated Jan. 16, 2026).

<sup>133</sup> See Will Smith, Timothy Neale, & Jessica K. Weir, *Persuasion without policies: The work of reviving Indigenous peoples' fire management in southern Australia*, 120 GEOFORUM 82 (2021).

<sup>134</sup> *Id.*

<sup>135</sup> *Wildlife and Habitat Bushfire Recovery Program Evaluation* AUSTL. NAT'L AUDIT OFF. (Aug. 23, 2023) [hereinafter ANAO].

waterways.<sup>136</sup> These actions indirectly addressed the degradation of coastal aquatic ecosystems impacted by nutrient and ash runoff, which are known to trigger algal blooms and threaten biodiversity in coastal estuaries and marine habitats.

Evaluations of these efforts indicate that they have been partially effective in restoring local ecosystem functions, though comprehensive monitoring and assessment remain insufficient.<sup>137</sup> Research on specific coastal watersheds, such as the Harvey River catchment in Western Australia, highlights how detailed erosion modeling and targeted rehabilitation can effectively identify and reduce post-fire sedimentation risks.<sup>138</sup> However, studies also stress that these initiatives lack consistency across regions and face limitations due to inadequate water quality monitoring, making long-term efficacy difficult to quantify accurately.<sup>139</sup> Therefore, while Australia's current approach offers valuable frameworks for ecological resilience, achieving sustained coastal watershed recovery requires improved coordination, dedicated funding, and enhanced scientific evaluation of outcomes.<sup>140</sup>

Together, these efforts reflect a national pivot from short-term recovery to long-term resilience and adaptation. Australia's experience during the Black Summer has underscored the urgent need for integrated planning that encompasses environmental protection, community safety, and climate adaptation. The challenge now lies in maintaining political will, securing funding, and translating these strategies into effective, community-specific actions that can reduce the devastating impacts of future bushfires.

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<sup>136</sup> See *Bushfire recovery for wildlife and their habitat*, AUSTL. DEP'T OF CLIMATE CHANGE, ENERGY, THE ENVIRONMENT & WATER (last updated May 12, 2022).

<sup>137</sup> ANAO, *supra* note 135.

<sup>138</sup> David Blake et al., Assessment of post-wildfire erosion risk and effects on water quality in south-western Australia, 29 INT'L. J. OF WILDLAND FIRE 1007 (2020).

<sup>139</sup> ANAO, *supra* note 135.

<sup>140</sup> *Id.*

## C. Comparison and Analysis

The two approaches to wildfire-based catastrophe showcase a multitude of benefits and consequences. Australia, maintaining some semblance of environmental policies and protections, allowed the nation to prepare more readily for long-term situations that will be exacerbated by climate change. However, its protections are not perfect and do not restrict development in a meaningful way in areas that will be prone to wildfires going forward.<sup>141</sup> Survivors were sometimes left exasperated by the amount of time it took to get back into their home areas, citing bureaucratic red tape as an issue.<sup>142</sup> Australia centralized its fire recovery efforts and allowed the federal government to take control of the situation. There was also more national conversation over long-term, creative solutions such as buyback programs,<sup>143</sup> as well as a federal conversation on preparing for increased hazards due to climate change. The human element is what turns a hazardous situation into a disaster. Luckily, it is also the human element that is the most controllable. Together, these risk reduction strategies reflect a shift from reactive firefighting to a proactive, prevention-first approach.

While Australia's changing climate ensures that bushfires will remain a persistent threat, integrating science, Indigenous knowledge, and policy reform offers a pathway to reducing future disaster impacts and enhancing the nation's resilience. However, due to the unpopularity of some of the response measures that Australia took, the political will to keep such impositions in place is uncertain.

In comparison, though the U.S. federal government did send some aid and there was robust commentary in response to the Los Angeles Palisades fires, the federal government was largely uninvolved with the policies enacted after the fires.<sup>144</sup> Instead, policy implementation is being done on the state and local level.

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<sup>141</sup> *Id.*

<sup>142</sup> Cox, *supra* note 118.

<sup>143</sup> Rebecca Hersher, [Sell Or Stay? Australia's Fire Zone Experiment](#), NPR (Feb. 25, 2020).

<sup>144</sup> Kaleem, *supra* note 88.

Both California and Australia are attempting to rebuild these fire-impacted areas using precautionary methods, such as the use of fire-resistant materials and implementing fire codes that must be followed for all new buildings being built. However, neither location requires retrofitting of buildings that exist in wildfire risk areas with fire-resistant materials, and neither place has strict requirements for some of the lower-impact solutions. Solutions include implementing fire buffer zones where there is either no vegetation or vegetation that is regularly burned that separates a developed area from a non-developed area. Requirements for keeping vegetation away from homes and other defensible spaces exist in both Australia and California to reduce the risk of these structures catching fire from vegetation. However, the jurisdictions differ in their approaches to enforcing these requirements effectively, necessitating further study.<sup>145</sup> Both jurisdictions also have some restrictions and regulations regarding water usage, but the amount of damage that these types of fires do to water filtration, water treatment, and water infrastructure cannot be emphasized enough.<sup>146</sup>

Furthermore, both jurisdictions deal with similar issues in implementing these types of policies, which are generally unpopular and can be costly on the front end. The education initiatives in small parts of California have seen some success, evident in the South Lake Tahoe fires in California in 2020 and 2021, where community members volunteered. These types of practices resulted in lower levels of fire damage to properties.<sup>147</sup> However, the fact that they are voluntary in the United States and there has not been substantial funding for such initiatives continues to make them subpar.<sup>148</sup>

The most glaring issue with either of these approaches is that restricting development is not an active part of the immediate response to the fires.<sup>149</sup> When continued development is allowed in high-risk areas where the geographical concerns of topography and weather are perfect for fires, these developments create new opportunities for both fuel and ignition sources, increasing overall

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<sup>145</sup> *Defensible Space*, CAL. DEP'T OF FORESTRY & FIRE PROT. (last visited Feb. 18, 2026).

<sup>146</sup> *Bushfires and water quality*, WATER QUALITY AUST'L. (last visited Feb. 19, 2026).

<sup>147</sup> Yap Interview, *supra* note 30.

<sup>148</sup> *Id.*

<sup>149</sup> Robertson, *supra* note 85.

risk. Humans are the primary ignition sources of fires, whether through power lines, fireworks, sparks from a car, arson, or other means.<sup>150</sup> It is also important to note that in the United States, when WUIs were created they did not factor human infrastructure into their risk assessment until 2005.<sup>151</sup> Infrastructure, such as homes and businesses, are fuel sources, potentially creating a situation far more dangerous than reported.<sup>152</sup> This puts people back in the pathway of these environmental hazards that are going to keep increasing due to climate change, breeding the possibility for further disaster.

## VI. RECOMMENDATION AND CONCLUSION

### A. General Statements

The two biggest solutions to the wildfire crisis are to address climate change, thereby reducing the risks of hazardous events that lead to disaster, and restrict development in areas that will be impacted the heaviest by these hazardous situations, such as areas with high severity fire risk.

Recent wildfire disasters point to the need for criteria for what wildfire policy should look like. A well-done policy should have an emphasis on being feasible, people-oriented, environmentally conscious, and scientifically driven. The policy should also seek to actively mitigate long-term risk and be more feasible than just fully restricting development.

First, environmental regulations, such as CEQA, should not be weakened or revoked following a disaster. If a dangerous area is going to be redeveloped, it needs to be done at the highest level of scrutiny in order to keep people and property safe for years to come. Infrastructure must be designed with climate resilience in mind, especially in fire-prone zones. However, such an approach could be unpopular. It is crucial to maintain political favor for environmental

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<sup>150</sup> Hunter Bassler, *Humans Are by Far the Main Cause of Wildfires*, WILDFIRE TODAY (Apr. 14, 2024).

<sup>151</sup> V.C. Radeloff et al., *The Wildland-Urban Interface in the United States*, 15 WILDFIRE ECOLOGICAL APPLICATION 799 (2005).

<sup>152</sup> *Id.*

protection and recognize that people want to return to their homes as fast as possible. Thus, communication with the community is crucial.

Second, governments should invest in proactive mitigation strategies rather than reactive environmental deregulation regarding building permits and exempting the application of certain statutes. This includes expanding vegetation management, adopting indigenous management practices, enforcing existing housing and zoning laws at a higher level of scrutiny, and improving community-based fire education programs, such as those piloted in South Lake Tahoe in 2020–2021. There also needs to be more government conversation and legislation about buyback programs, where the government can buy homes in high-risk areas that were recently in disaster zones and transform them into buffer zones. Realistically, these programs would need to be voluntary; otherwise, they would be deeply unpopular due to the high burden, cost, and inconvenience placed on the individual. There are still concerns regarding the nationwide housing crisis, but the net risk of redeveloping proven disaster zones puts people in the exact situation they fled from, or worse, due to continuing environmental degradation.

Third, long-term restoration of ecosystems must be prioritized alongside recovery. Rebuilding efforts that fail to account for natural fire cycles, erosion control, and biodiversity restoration risk compounding environmental degradation. Funding for environmental restoration should be treated as an essential part of disaster response, not an afterthought.

Finally, international collaboration and knowledge sharing between fire-prone nations like Australia and the United States can help establish best practices. Coordinated research on climate change impacts, fire behavior, and post-disaster planning will be crucial for developing adaptive strategies.

The revocation of environmental policies following coastal wildfires presents a complex trade-off between immediate recovery and long-term resilience. While suspending laws like CEQA may speed up reconstruction, it often increases vulnerability to future disasters and undermines environmental safeguards. However, governments cannot separate policy from people, and it is critical to note that implementing stricter building codes is unpopular. Coastal

regions are particularly susceptible to these dynamics due to their climate, geography, and urban development. Going forward, a balanced, evidence-based policy approach that prioritizes environmental integrity, community resilience, and climate adaptation is essential to effectively manage the growing threat of wildfires.

#### B. Chesapeake Bay Area Specific Recommendations

Although the scale and fire regime of the Mid-Atlantic and the Chesapeake Bay watershed differ from those in California or Australia, the regulatory mechanisms remain comparable. Coastal systems are particularly sensitive to runoff, sediment loading, nutrient flux, and water-system contamination, so when wildfires occur and recovery moves rapidly, the same pathways of risk apply. This suggests that maintaining robust environmental review frameworks, inter-agency coordination, and post-disaster monitoring are critical for protecting both communities and watersheds wherever wildfires occur. Additionally, the current legal infrastructure in the Bay region could possibly bear expansion into wildfire preparedness. The recommendations provided are meant as suggestions that warrant further research and discussion.

The Chesapeake Bay Region has a number of critical advantages when it comes to preparing for wildfires and subsequent disasters. The Bay has the significant benefit of time. Time to implement resilience-focused policies and research the most vulnerable areas. Some elemental first steps for the region include promoting native vegetation, prescribed controlled burns, and investing in riparian zone protections and wildland firefighting personnel.<sup>153</sup>

The region is also home to over 600 organizations dedicated to the Bay's protection, such as the Chesapeake Bay Foundation and Chesapeake Bay Program.<sup>154</sup> The extensive interstate collaboration focused on the environmental protection of the region should be leveraged. Maryland already has some wildfire-preparedness measures, most notably the 'Firewise Living' home-owner

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<sup>153</sup> A riparian zone is the transition area between a body of water and land.

<sup>154</sup> See [Chesapeake Bay Program](#), CHESAPEAKE BAY PROGRAM (last visited Feb. 18, 2026).

education program offered by the Maryland Forest Service, which advises vegetation control, fire-resistant materials, and defensible space.<sup>155</sup> The Bay has the advantage of research being conducted in other states that will continue to garner insight into the best management practices regarding both fire preparation and response.

Moreover, taking a stricter, more fire-focused lens will also be key when looking at zoning laws and construction material allowances. Maryland already requires adoption of the International Energy Conservation Code (IECC) and enforces the Maryland Building Performance Standards (MBPS) for new construction or large renovations, meaning that there is a structure in place to guide further regulation.<sup>156</sup> Although the MBPS looks at energy performance, the policy architecture demonstrates that the state already regulates building materials, standards, and local enforcement, which means incorporating fire-resilience (roofing, siding, fire-resistant materials) into building codes is feasible.

Moreover, for development in the Bay's Critical Area Overlay zones, local jurisdictions must approve a conservation plan when developments are proposed, which includes erosion/sediment control and vegetation management.<sup>157</sup> These measures are also key for post-fire risks such as run-off or sediment loading. Thus, this existing program could be expanded to address wildfire risk and is the exact type of planning that should not be revoked in the event of any natural disaster.<sup>158</sup>

The Bay should consider the use of adaptive management triggers, which predefine environmental and fire-related thresholds to activate enhanced monitoring and review. For example, if a wildfire burns more than a certain number of acres or if sediment or nutrient runoff exceeds a predetermined level, full environmental review procedures would be triggered, the exact parameters of

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<sup>155</sup> [Firewise Living in Maryland](#), MD. FOREST SERV. (last visited Nov. 4, 2025).

<sup>156</sup> [Buildings](#), MD. DEP'T OF THE ENV'T. (last visited Feb. 6, 2026).

<sup>157</sup> [Chesapeake Bay Critical Area Conservation Plan](#), PRINCE GEORGE'S COUNTY PLANNING DEP'T (last visited Feb. 17, 2026).

<sup>158</sup> *Id.*

which would need to be determined by experts. Timely monitoring of water contamination could have reduced community exposure to volatile organic compounds in past wildfires, and the continuance of environmental policies that monitor such contaminants should remain in place.<sup>159</sup>

Moreover, further research is needed, especially region-specific monitoring of water and infrastructure post-wildfire, analyzing existing building/re-zoning laws in post-fire contexts, and the possible use of data on insurance/regulatory responses in the area. This research should continue to be explored in preparation for impending wildfires, as the gaps in planning are clear: explicit post-wildfire contaminant/erosion monitoring is not yet systematized in the Bay watershed, building codes do not uniformly mandate wildfire-resilient materials/standards in all WUI zones, and the multi-state coordination for wildfire recovery (rather than simply suppression) remains weak. Addressing these gaps is central to ensuring both environmental integrity and equitable community recovery in the Bay region. However, the most critical lesson to learn from experiences in Australia and California is to not revoke environmental laws and policies, as the furthering of ecological damage is a cycle that feeds upon itself.

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<sup>159</sup> Solomon G.M., et al., *Fire and Water: Assessing Drinking Water Contamination After a Major Wildfire*, 1 ACS ES & T WATER 1878 (2021).

RETURNING TO INDIGENOUS KNOWLEDGE: COASTAL PRESERVATION SUCCESS  
STORIES IN TRIBAL-FEDERAL-STATE PARTNERSHIPS

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*This article examines how Tribal Nations across the United States are reclaiming their role as sovereign leaders in environmental governance through intergovernmental partnerships. It explores how Indigenous Knowledge—rooted in place-based, relational understandings of ecosystems—enhances collaborative efforts to restore and protect lands and waters. Drawing from case studies in coastal regions like the Great Lakes, Puget Sound, and California, the research identifies best practices in tribal-federal-state partnerships, such as co-management frameworks, capacity building, and integration of Indigenous Knowledge with Western science. Using qualitative legal analysis and policy review, the article demonstrates that these models offer scalable solutions for resilience and adaptation in coastal regions, particularly the Chesapeake Bay. The study concludes that meaningful recognition of tribal sovereignty and incorporation of Indigenous leadership are essential to achieving effective, equitable, and climate-resilient environmental governance.*

I. INTRODUCTION

Tribes<sup>3</sup> are uniquely positioned to conserve, restore, and protect the environment. Tribes use Indigenous Knowledge to steward their environments,

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<sup>3</sup> This article uses “tribes” and “Tribal Nations” to refer to those that have been recognized by the federal government, while recognizing and acknowledging the still sovereign status of indigenous groups that are not recognized by the United States. It is important to note that some tribes have been recognized by states, but not by the federal government. SUSAN JOHNSON ET AL., NAT’L CONF. OF STATE LEGISLATURES, [GOVERNMENT TO GOVERNMENT MODELS OF COOPERATION BETWEEN STATES AND TRIBES](#), 51–53 (2d ed. 2009). State recognized tribes do not have access to the same benefits that federally recognized tribes do, discussed *infra*; each state has its own process for recognizing tribes. *See id.* at 52. There are indeed states in the Chesapeake Bay region that recognize tribes where the federal government does not, including Virginia, Delaware, New York, and Maryland. [Governance Under State Recognition](#), UNIV. OF ARIZ. NATIVE NATIONS

which are deeply connected to their cultures.<sup>4</sup> Indigenous Knowledge relating to environmental stewardship can be defined as “the ongoing accumulation of knowledge, practice, and belief about relationships between living beings in a specific ecosystem that is acquired by Indigenous people over hundreds or thousands of years through direct contact with the environment, handed down through generations and used for life sustaining ways.”<sup>5</sup>

Native Americans are the original stewards of the Chesapeake Bay Region.<sup>6</sup> Tribes from New York to Virginia developed communities around this watershed.<sup>7</sup> The Bay’s namesake is derived from an Algonquian word *Chesepiooc*, which has multiple potential interpretations, “all of which incorporate some sense of ‘big body of water.’”<sup>8</sup> The Bay is likely “named after ‘the people of the big river,’ as in the people living there were named for their proximity to the bay, and the bay’s name on English maps became the name of the people there.”<sup>9</sup> The Chesapeake Bay watershed was a landscape connected to Tribal Nations through trading paths, human and non-human relationships, and shared knowledge spanning Eastern Siouan, Iroquoian, and Algonquian speaking Nations<sup>10</sup>—these languages link the length of the Chesapeake watershed.

This article focuses on how legal and political tools are being utilized by Tribal Nations in the United States to reclaim ancestral lands and assert sovereignty in environmental governance. It surveys key partnerships among tribal, federal, and state governments to collaboratively tackle the climate

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INST. (last visited Aug. 15, 2025). This article focuses on tribes that have been recognized by the federal government.

<sup>4</sup> GREAT LAKES INDIAN FISH AND WILDLIFE COMM’N, [AANJI-BIMAADIZIIMAGAK O’OW AKI: CLIMATE CHANGE VULNERABILITY ASSESSMENT VERSION 2](#) (2023).

<sup>5</sup> Also known as Traditional Ecological Knowledge (TEK). *Id.* at 5.

<sup>6</sup> Rebecca Long, [The Original Inhabitants of Our Land](#), CHESAPEAKE BAY FOUND. (Nov. 1, 2025).

<sup>7</sup> [Defining the Chesapeake](#), CHESAPEAKE BAY FOUND.: SAVE THE BAY BLOG (Nov. 18, 2018).

<sup>8</sup> Email from Kayla Locklear, Language Program Manager, Powhatan Algonquin Intertribal Roundtable, to Lauren Wiederkehr, law student (July 31, 2025, 10:02 AM EST) (on file with authors).

<sup>9</sup> *Id.*

<sup>10</sup> See MD. DEP’T OF TRANSP., [NATIVE AMERICAN TRAILS TO HISTORIC ROADS: HISTORIC CONTEXT AND METHODOLOGY](#) 18 (2024) (describing trading paths in the Chesapeake Bay region); see also [The Three Linguistic Groups of Colonial Virginia](#), VA. PLACES (last visited July 29, 2025) (describing the regional Native languages in the Chesapeake watershed).

challenges facing coastal communities, with an emphasis on incorporating Indigenous Knowledge with Western science for a more comprehensive approach to resiliency.

This article will argue that there are existing tribal-federal-state partnership models effectively confronting changing conditions in coastal regions across North America. These models incorporate Indigenous Knowledge and stewardship that can and should be replicated in the Chesapeake Bay region. First, this article will frame the legal principles of Federal Indian law.<sup>11</sup> Then, notable and effective examples of tribal-federal-state partnerships in the Great Lakes region, the Puget Sound, and along the California coast will be analyzed, drawing out the best practices from each.<sup>12</sup> Finally, this article will discuss how the Chesapeake Bay region can implement the partnership structures and best practices from the case studies to finally include Indigenous Knowledge into currently stalling restoration efforts.<sup>13</sup>

## II. LEGAL BACKGROUND: FEDERAL INDIAN LAW

Tribal Nations are sovereign nations and thus have a government-to-government relationship with the United States federal and state governments.<sup>14</sup> This sovereignty is not derived from a grant by the United States; it is *inherent* and predates the formation of the United States.<sup>15</sup> The legal landscape surrounding tribal, federal, and state jurisdiction is complex.

Tribal governments existed prior to state governments and the eventual federal government.<sup>16</sup> When colonizers came to the United States, they encountered already developed Tribal Nations, which they displaced and

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<sup>11</sup> See *infra* Part II.

<sup>12</sup> See *infra* Part III.

<sup>13</sup> See *infra* Part IV.

<sup>14</sup> COHEN'S HANDBOOK OF FEDERAL INDIAN LAW § 1.01 (2025).

<sup>15</sup> *Id.*

<sup>16</sup> Kitcki A Carroll, Executive Director for United South and Eastern Tribes, [\*Remarks at Sovereign Nations of Virginia Conference: Tribal Consultation as a Diplomatic Tool\*](#) 27:42 (Nov. 19, 2024) (panel discussion).

dispossessed of their lands and natural resources.<sup>17</sup> The state of federal Indian policy over the last several centuries stems directly from this displacement and dispossession, the intentional destruction of cultures and lifeways.<sup>18</sup> While framed through the diplomatic tool of treaties, the reality is that Tribal Nations ceded millions of acres of land and natural resources to colonizers, often involuntarily or to prevent murder and devastation.<sup>19</sup> These lands and natural resources “are the very foundation of the wealth and power of the United States today.”<sup>20</sup> In more recent history, legislative acts, executive action, and Supreme Court cases have affirmed tribal sovereignty.<sup>21</sup> To understand tribal-federal-state partnerships, it is also important to explore how treaty rights, the federal trust doctrine, and tribal-state agreements play into these intergovernmental relationships.

#### A. Treaty Rights

As colonization worked its way across the North American continent, colonizing governments and tribes formed treaties.<sup>22</sup> A treaty is an agreement between two sovereign powers.<sup>23</sup> Long before European colonization, tribes made treaties with each other.<sup>24</sup> In the 1600s, colonizing Europeans and tribes entered into treaties, and after the United States was formed, it signed treaties as well.<sup>25</sup> Congress ended the practice of negotiating treaties with tribes in 1871, but written agreements functionally similar to treaties continued between the federal

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<sup>17</sup> *Id.*

<sup>18</sup> *Id.*

<sup>19</sup> *Id.*

<sup>20</sup> *Id.*

<sup>21</sup> *See, e.g.*, The Indian Reorganization Act, 25 U.S.C. §§ 5123 (encouraging Tribal Nations to form their own constitutions and governments); The Indian Self-Determination and Education Assistance Act, 25 U.S.C. §§ 5301–5423 (granting Tribal Nations primary authority in overseeing federally funded programs like healthcare, education, natural resource management, and social services); *McGirt v. Oklahoma*, 591 U.S. 894 (2020) (holding that a significant portion of eastern Oklahoma had never been disestablished as Creek Nation land, meaning the state had no prosecutorial authority of Indians there).

<sup>22</sup> Bureau of Indian Affairs, [Federal Law and Indian Policy Overview](#), U.S. DEP’T OF THE INTERIOR (last visited July 20, 2025).

<sup>23</sup> [Indian Treaty Rights](#), MILWAUKEE PUB. MUSEUM (last visited July 20, 2025).

<sup>24</sup> National Museum of the American Indian, [Nation to Nation: Treaties Between the United States and American Indian Nations](#), SMITHSONIAN (last visited July 28, 2025).

<sup>25</sup> *Indian Treaty Rights*, *supra* note 21.

government and tribes.<sup>26</sup> Treaties are quasi-constitutional, foundational documents that outline a government-to-government relationship between a tribe and the federal government. Treaties are the supreme law of the land with rights that continue in force unless abrogated by federal legislation or amended by the treaty signatories.<sup>27</sup> Importantly, treaties did not *grant* rights to tribes; they *reserved* the inherent rights that the tribes already had as sovereign entities.<sup>28</sup>

Some of the provisions of tribal treaties include usufructuary rights<sup>29</sup> like off-reservation hunting, fishing, and gathering or harvesting rights; land reservation boundaries and clarification of jurisdiction over territory and persons; and relinquished land or natural resources in exchange for material items or services.<sup>30</sup> Treaties were often the legal mechanism for land cessions by Indian Nations.<sup>31</sup> States did not always respect treaties, and the federal government did not always enforce them as it was obligated to do.<sup>32</sup>

In the 1960s, federal courts began to address the issues of treaty violations by creating the Indian “canons of construction,” a legal interpretation tool.<sup>33</sup> These canons of construction instructed courts to construe treaties in specific ways.<sup>34</sup> They require that (1) treaties be liberally construed to favor Native Americans, (2) ambiguity in treaties should be resolved to favor Native Americans, (3) treaties must be construed in way that Native Americans would have understood them at the time they were negotiated, and (4) legally enforceable treaty rights can only be extinguished with explicit action, and clear

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<sup>26</sup> *Id.*

<sup>27</sup> RESTATEMENT OF THE L., THE L. OF AM. INDIANS § 5(A), (C) (AM. L. INST. 2022).

<sup>28</sup> *Id.* §5(B).

<sup>29</sup> A usufructuary right is the right of one to use the property owned by another. In the context of Indian law, these are the rights to hunt, fish, and gather off of the land. *Indian Treaty Rights, supra* note 21.

<sup>30</sup> *Indian Treaty Rights, supra* note 21.

<sup>31</sup> COHEN'S HANDBOOK OF FEDERAL INDIAN LAW § 18.01 (2025).

<sup>32</sup> *Indian Treaty Rights, supra* note 21.

<sup>33</sup> *Id.*

<sup>34</sup> *Id.*

and plain language.<sup>35</sup> The federal government's obligation to uphold tribal treaty rights is the origin of the federal trust relationship.<sup>36</sup>

Judicial interpretation of tribal treaty rights has mandated co-management of natural resources between Tribal Nations and states.<sup>37</sup> Judicial mandate is one of the stronger legal routes for Tribal Nations to assert their treaty rights and necessarily entails cooperation between states and tribes.

Another avenue tribes can use to pursue judicially enforced rights is aboriginal title. Aboriginal title and rights refer to the inherent rights Tribal Nations have to their ancestral lands and natural resources that predate the United States' existence.<sup>38</sup> These rights to land and resources remain unless tribes expressly cede or Congress abrogates them.<sup>39</sup> To establish aboriginal title, a tribe must show actual, exclusive, and continuous use and occupancy for a long period before losing the property.<sup>40</sup> Until a treaty or an act of Congress clearly extinguishes aboriginal title or rights, a tribe retains the right to occupy and use land as it chooses.<sup>41</sup> The Supreme Court has found that a tribe with aboriginal title or rights may bring a federal common law action to enforce its ownership rights.<sup>42</sup>

Aboriginal title and rights claims may provide an avenue for tribes without treaties with the United States to assert their ancestral rights. For example, the Shinnecock Indian Nation is seeking a declaration affirming its right to continue

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<sup>35</sup> *Id.*

<sup>36</sup> See *infra* Section II.B.

<sup>37</sup> See DEP'T. OF THE INTERIOR BUREAU OF INDIAN AFFS., [INDIAN AFFAIRS MANUAL PART 56: FISH, WILDLIFE, AND RECREATION, CHAPTER 1: AUTHORITY AND RESPONSIBILITIES](#), § 1.4(C), at 3–4 (2017) (noting that courts have ordered “resource management roles, responsibilities, and co-management regimes” to conserve and appropriate allocation of designated resources between states and Tribal Nations, and listing eleven notable court rulings in which this was the case). See *infra* Sections III.A.iii., III.B.i.

<sup>38</sup> In this context, aboriginal “title” refers to the tribal land, and aboriginal “rights” refer to the use of natural resources. The use of natural resources under aboriginal rights would include hunting, fishing, and gathering on the land. COHEN'S HANDBOOK OF FEDERAL INDIAN LAW § 18.02 (2025).

<sup>39</sup> *United States v. Abouseman*, 976 F.3d 1146, 1159 (10th Cir. 2020).

<sup>40</sup> COHEN'S HANDBOOK OF FEDERAL INDIAN LAW § 18.02 (2025).

<sup>41</sup> *Id.*

<sup>42</sup> *Id.*

ancestral fishing practices in Long Island’s Shinnecock Bay.<sup>43</sup> Shinnecock women grow sugar kelp in Shinnecock Bay, which reduces nitrogen and other pollutants that enter the Bay as runoff, harming its health.<sup>44</sup> In *Silva v. Farrish*, Shinnecock tribal citizens argue that their ancestral fishing rights in Shinnecock Bay remain intact because they have been continuous and were never ceded or extinguished by treaty or statute, consistent with aboriginal rights jurisprudence.<sup>45</sup> The Shinnecock kelp farmers seek declaratory and injunctive relief to prevent the state from enforcing fishing regulations that would infringe on those rights.<sup>46</sup>

### B. The Federal Trust Relationship

The Supreme Court has consistently stated that the United States federal government owes important obligations to Tribal Nations, known as the trust responsibility doctrine—one of the “cornerstones of federal Indian law.”<sup>47</sup> Under this doctrine, the federal government acts as a trustee that must act to benefit the beneficiaries of the trust: tribal nations and citizens.<sup>48</sup> The federal government generally owes a fiduciary duty to tribes, and statutes can also limit or expand obligations.<sup>49</sup> Tribal Nations may bring suit against the federal government for breaching this trust duty; statutes, regulations, treaties, and executive orders outline the “contours of the United States’ fiduciary responsibilities.”<sup>50</sup> Importantly, federal trust obligations primarily apply to *federally recognized* Tribal Nations.<sup>51</sup>

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<sup>43</sup> [Exercising Shinnecock Nation Fishing Rights in Long Island Waters](#), NATIVE AM. RTS. FUND (July 17, 2025).

<sup>44</sup> *Id.*

<sup>45</sup> *Silva v. Farrish*, 47 F.4th 78, 81 (2d Cir. 2022).

<sup>46</sup> *Id.*

<sup>47</sup> COHEN'S HANDBOOK OF FEDERAL INDIAN LAW § 6.04 (2025).

<sup>48</sup> *Id.*

<sup>49</sup> *Id.*

<sup>50</sup> *United States v. Mitchell*, 463 U.S. 206, 224 (1983).

<sup>51</sup> U.S. Dep’t of the Interior, Secretarial Order No. 3335, [Reaffirmation of the Federal Trust Responsibility to Federally Recognized Indian Tribes and Individual Indian Beneficiaries](#) (Aug. 20, 2014).

To help the federal government uphold trust duties to Tribal Nations, President Clinton issued Executive Order 13175 in 2000.<sup>52</sup> Recognizing Tribal Nations' sovereign status, this Order requires federal agencies to engage in meaningful and timely input from tribal officials when developing regulations with tribal implications.<sup>53</sup> Federal statutes also require tribal consultation. For example, section 106 of the National Historic Preservation Act (NHPA) requires federal agencies to consult with Tribal Nations when actions may affect historic properties of religious or cultural significance.<sup>54</sup>

### C. State-Tribal Agreements

States do not have jurisdiction in tribal territory, per the “Indian Commerce Clause” of the U.S. Constitution.<sup>55</sup> The Clause precludes “virtually all” state authority over Indian commerce and tribes.<sup>56</sup> Although states lack jurisdiction over Tribal Nations, the two sovereigns can generally enter into agreements, compacts, or memoranda of understanding with each other without federal approval.<sup>57</sup> This method of collaboration can make sense when states and Tribal Nations have shared interests, such as protecting natural resources.

Agreements regarding natural resources may refer to co-stewardship or co-management.<sup>58</sup> The two are distinct, but related.<sup>59</sup> Co-stewardship is a broader umbrella term for “cooperative and collaborative relationships and models of

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<sup>52</sup> Exec. Order No. 13,175, 3 C.F.R. 304 (2000).

<sup>53</sup> *Id.*

<sup>54</sup> National Historic Preservation Act, 54 U.S.C. § 306108 (2012).

<sup>55</sup> *Seminole Tribe v. Florida*, 517 U.S. 44, 60 (1996) (“[T]he Indian Commerce Clause makes ‘Indian relations . . . the exclusive province of federal law,’” (quoting *Cnty. of Oneida v. Oneida Indian Nation*, 470 U.S. 226, 234 (1985))).

<sup>56</sup> *Id.* at 62.

<sup>57</sup> COHEN’S HANDBOOK OF FEDERAL INDIAN LAW § 7.02 (2025).

<sup>58</sup> Co-stewardship and co-management are also common features of tribal-federal relationships. In other words, they are not limited to agreements between tribes and states. *See, e.g.* Joint Secretarial Order No. 3403, Joint Secretarial Order on Fulfilling the Trust Responsibility to Indian Tribes in the Stewardship of Federal Lands and Waters (Nov. 15, 2021) (describing co-stewardship as a goal of collaboration with Tribes).

<sup>59</sup> *See Sovereign-to-Sovereign Cooperative Agreements*, UNIV. OF WASH. GALLAGHER L. LIBR. (July 24, 2025, 7:01 AM) (describing the distinction being the scope of each term).

shared decision-making.”<sup>60</sup> In contrast, co-management falls under the broader umbrella of co-stewardship and has taken on a meaning with legal connotations,<sup>61</sup> though generally it describes a collaborative approach where governments share the responsibility and authority for managing natural resources.<sup>62</sup> Co-management tends to refer to “arrangements that are undertaken pursuant to Federal authority that requires the delegation of some aspect of Federal decision-making or that make co-management otherwise legally necessary...”<sup>63</sup>

States may institute policies or laws requiring their agencies to engage in tribal consultation, as the federal government does. They can accomplish this through legislation, executive orders, or agreements with tribes.<sup>64</sup> Often, though, these policies lack enforcement mechanisms or penalties, leaving tribes without recourse when consultation is lacking or absent.<sup>65</sup>

One recent decision that could improve this enforceability problem is a California court’s interpretation of a consultation provision in the California Environmental Quality Act.<sup>66</sup> There, the court found that certain thresholds must be met for consultation with a tribe to qualify as “meaningful” before allowing a project affecting tribal resources to move forward.<sup>67</sup> How this interpretation will be applied in California remains to be seen, but the judicial order gives the consultation provision a measure of enforceability.

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<sup>60</sup> *Id.*

<sup>61</sup> *Id.*

<sup>62</sup> Lars Carlsson & Fikret Berkes, *Co-management: Concepts and Methodological Implications*, J. OF ENV’T MGMT. 65, 66 (Apr. 2005).

<sup>63</sup> U.S. DEP’T OF THE INTERIOR OFF. OF THE SOLIC., CURRENT LAND, WATER, AND WILDLIFE AUTHORITIES THAT CAN SUPPORT TRIBAL STEWARDSHIP AND CO-STEWARDSHIP: FINAL REPORT 8–9 (2022).

<sup>64</sup> *See infra* Part III.

<sup>65</sup> *See, e.g.*, WASH. REV. CODE § 43.376.060 (2024) (“Nothing in this chapter creates a right of action against a state agency or a right of review of an action by a state agency.”).

<sup>66</sup> *See* discussion *infra* Section III.C.i.1.

<sup>67</sup> *Koi Nation of N. Cal. v. City of Clearlake*, 109 Cal. App. 5th 815, 840 (2025).

## D. Consultation versus Free, Prior, and Informed Consent

In 2007, the United Nations General Assembly adopted the Declaration on the Rights of Indigenous Peoples.<sup>68</sup> The declaration calls for countries to obtain Indigenous Peoples' free, prior, and informed consent (FPIC) before taking action that will affect them.<sup>69</sup> This standard protects Indigenous Peoples from being severed from their land and ways of life by the unilateral action of another sovereign.<sup>70</sup> Lands, waters, and resources are the "wellsprings for Native cultures, religious beliefs and practices, economies, and identity."<sup>71</sup>

Breaking down the FPIC standard clarifies what should be considered. "Free" refers to consent given voluntarily, without duress, intimidation, or manipulation.<sup>72</sup> "Prior" means consent should be sought before the decision-making begins.<sup>73</sup> "Informed" means a process must exist to convey key information before seeking consent, ensuring technical capacity to analyze the data.<sup>74</sup> Finally, "consent" entails Indigenous Peoples' ability to approve, adjust, or reject a proposal.<sup>75</sup> When all these components are satisfied, the "gold standard" for respecting Indigenous sovereignty is met.<sup>76</sup>

The United States does not typically abide by this gold standard, as will become apparent in this review of tribal, federal, and state interactions. Treaty-making has been compared to "the first iteration of FPIC policy in the United States," but formal agreements replaced treaties in 1871.<sup>77</sup> In contrast, many states

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<sup>68</sup> G.A. Res. 61/295, United Nations Declaration on the Rights of Indigenous Peoples (Sept. 13, 2007).

<sup>69</sup> THE IMPLEMENTATION PROJECT., [THE TRIBAL GUIDE TO IMPLEMENTING FPIC IN THE CONTEXT OF CONSERVATION AND DEVELOPMENT](#) 1 (2025).

<sup>70</sup> *Id.*

<sup>71</sup> *Id.* at 3.

<sup>72</sup> *Id.* at 4.

<sup>73</sup> *Id.*

<sup>74</sup> *Id.*

<sup>75</sup> *Id.*

<sup>76</sup> *Id.* at 2.

<sup>77</sup> Today, agreements, compacts, executive actions, and legislation are the vehicles for acknowledging the rights of tribes. *Id.*; *Indian Treaty Rights*, *supra* note 21. *See also* U.S. DEP'T OF THE INTERIOR, [INTERIOR DEPARTMENT ISSUES FINAL DETERMINATION FOR TWO FEDERAL ACKNOWLEDGMENT PETITIONERS](#) (July 2, 2015) (executive agency conferring acknowledged

and the federal government have tribal *consultation* policies, which function more as tribal notification of action, since projects can and do move forward without an Indigenous community's consent.<sup>78</sup>

The framework of treaty rights, the federal trust responsibility, and state-tribal cooperation underscore the enduring sovereignty of Tribal Nations and their central role in managing lands and natural resources. These principles affirm the legal foundations of tribal authority. As impacts of rising temperatures intensify, the need to honor Indigenous Knowledge becomes even more urgent. The next section explores how addressing changing environmental conditions creates new opportunities for tribal leadership in environmental resilience and adaptation.

### III. CASE STUDIES

Tribal-federal-state partnerships focused on combating the effects of changing environmental conditions due to rising temperatures are happening across the United States. In the Great Lakes region, the Puget Sound, California, and the Florida Everglades, Tribal Nations are asserting their sovereignty to continue stewarding the land in partnerships with the federal and state governments. This section will explore the government-to-government partnership governance structures in place, funding mechanisms, and tribal capacity building in these regions.

#### A. Case Study I: The Great Lakes

Although the Great Lakes region is not technically coastal, the climate challenges the area faces are not unlike those of a coastal region.<sup>79</sup> Warmer air and water temperatures, increased storm intensity and flood risks, and changes in

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rights via the federal recognition of the Pamunkey Tribe); Thomasina E. Jordan Indian Tribes of Virginia Federal Recognition Act of 2017, Pub. L. No. 115-121, 132 Stat. 40 (2018) (legislation conferring acknowledged rights via the federal recognition of six Tribal Nations in Virginia).

<sup>78</sup> Joseph Lee, *Free, Prior, and Informed Consent Is the Gold Standard of Indigenous Rights. Why Isn't It Followed?*, HIGH COUNTRY NEWS (Apr. 28, 2022).

<sup>79</sup> The Coastal Zone Management Act of 1972 also designates the Great Lakes waters as a coastal zone. 16 U.S.C. § 1453(1).

habitat are all climate developments affecting the area.<sup>80</sup> These risks, along with other environmental issues facing the Great Lakes, prompted the formation of a number of agreements, and Tribal Nations have not always been included in these agreements.<sup>81</sup> This is beginning to change; today, there are more mechanisms that facilitate tribal, state, and federal collaboration in this region.<sup>82</sup> This section will focus on collaborations in the Great Lakes Water Quality Agreement, the Great Lakes Restoration Initiative, and Michigan’s tribal consultation policies.

The Native peoples in the region are known as the Anishinaabe, which is made up of three different allied native groups that together formed the Council of Three Fires: the Ojibwe, the Odawa, and the Patawatomi.<sup>83</sup> The Ojibwe, Odawa, and Patawatomi further broke down into regional tribes across what we know today as Southern Canada, Michigan, Minnesota, and Wisconsin.<sup>84</sup> The focus of this section will be the Ojibwe Tribal Nations, several of which make up the Great Lakes Indian Fish and Wildlife Commission (GLIFWC), which is an active and central inter-tribal group in the region.<sup>85</sup>

The GLIFWC is made up of eleven Tribal Nations<sup>86</sup> that were parties to a series of treaties guaranteeing the tribes’ territory—known as the Ceded Territory—across Michigan, Minnesota, and Wisconsin.<sup>87</sup> These treaties reserved the tribes’ rights to land, hunting, fishing, gathering, federal trust responsibilities, and self-governance; the Commission “advocate[s] for Ojibwe treaty rights and natural resources stewardship, acting on behalf of present and future

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<sup>80</sup> [Climate Change Program](#), GREAT LAKES INDIAN FISH & WILDLIFE COMM’N (last visited July 16, 2025).

<sup>81</sup> See *infra* Sections III.A.i., III.A.ii., and III.A.iii. for more discussion of tribal exclusion in partnerships.

<sup>82</sup> See *infra* Sections III.A.i., III.A.ii., and III.A.iii.

<sup>83</sup> [The History and Culture of the Ojibwe \(Chippewa\) Tribe](#), NATIVE HOPE BLOG (Oct. 30, 2022).

<sup>84</sup> *Id.*

<sup>85</sup> [About Us](#), GREAT LAKES INDIAN FISH & WILDLIFE COMM’N (last visited July 20, 2025).

<sup>86</sup> These eleven Tribes and their respective locations are as follow: Ginoozhekaaning (Michigan), Gaa-miskwaabikaang (Wisconsin), Getegitigaaning (Michigan), Mashkiiziibiing (Wisconsin), Nagaajiwanaang (Minnesota), Misi-zaaga’iganiing (Minnesota), Bikoganoogan (Wisconsin), Odaawaa-zaaga’iganiing (Wisconsin), Gakiiwe’onaning (Michigan), Waaswaaganing (Wisconsin), Zaka’aaganing (Wisconsin). [The Commission](#), GREAT LAKES INDIAN FISH & WILDLIFE COMM’N (last visited July 20, 2025).

<sup>87</sup> *About Us*, *supra* note 83.

generations.”<sup>88</sup> The GLIFWC has participated in activities relating to all of the agreements or policies that will be discussed in this section.<sup>89</sup>

*i. The Great Lakes Water Quality Agreement*

The Great Lakes Water Quality Agreement (GLWQA) is an agreement that was initially signed in 1972 by the United States and Canada with the goal of restoring and protecting the Great Lakes’ waters.<sup>90</sup> The original agreement did not include any language regarding indigenous groups in the United States or Canada.<sup>91</sup> In 2012, the agreement was revised to address this issue.<sup>92</sup> The updated agreement created the Great Lakes Executive Committee, made up of states, provinces, tribes, and First Nations that provide advice and recommend actions.<sup>93</sup>

The Executive Committee meets twice a year to report and discuss implementation strategy.<sup>94</sup> To fulfill the obligations of the agreement, the GLWQA is structured by ten issue-specific annexes co-led by American and Canadian agencies; these ten annexes are further broken down into subcommittees, which are broken down into task teams.<sup>95</sup> In 2012, a Traditional Ecological Knowledge (TEK)<sup>96</sup> Task Team was created under the science annex to incorporate Indigenous Knowledge in the implementation of the GLWQA.<sup>97</sup>

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<sup>88</sup> *The Commission, supra* note 84.

<sup>89</sup> *See infra* Sections III.A.i., III.A.ii., and III.A.iii.

<sup>90</sup> [What is GLWQA?](#), ENV’T PROT. AGENCY (Mar. 7, 2025).

<sup>91</sup> [Agreement on Great Lakes Water Quality](#), U.S.-Can., Apr. 15, 1972, 837 U.N.T.S. 213.

<sup>92</sup> [Protocol Amending the Agreement Between the United States of America and Canada on Great Lakes Water Quality](#), U.S.-Can., Sept. 7, 2012, T.I.A.S. No. 13-212.

<sup>93</sup> *Id.*, *see also* [Great Lakes Program](#), GREAT LAKES INDIAN FISH & WILDLIFE COMM’N (last visited July 17, 2025).

<sup>94</sup> [Great Lakes Program](#), GREAT LAKES INDIAN FISH & WILDLIFE COMM’N (last visited July 17, 2025).

<sup>95</sup> These issue-specific annexes are: 1) areas of concern, 2) lakewide management, 3) chemicals of mutual concern, 4) nutrients, 5) discharges from vessels, 6) aquatic invasive species, 7) habitat and species, 8) groundwater, 9) climate change impacts, and 10) science. *Id.*; [GLWQA Implementation at a Glance](#), BINATIONAL.NET (last visited July 17, 2025).

<sup>96</sup> Traditional Ecological Knowledge is a subset of Indigenous Knowledge related to environmental observation and management. [Indigenous Knowledge](#), GREAT LAKES INDIAN FISH & WILDLIFE COMM’N (last visited July 20, 2025).

<sup>97</sup> [GLWQA Implementation at a Glance](#), BINATIONAL.NET (last visited July 17, 2025).

The TEK Task Team is led by the Bureau of Indian Affairs (BIA) Midwest Region Branch of Fish, Wildlife, and Parks and made up of federal, tribal, and academic partners.<sup>98</sup> In 2021, this team produced a document outlining guidance on TEK that has supported the goals of the GLWQA.<sup>99</sup> The document provides a supplemental resource on how to use TEK in environmental management, describes successful examples of tribal-federal-state partnerships in the region, and provides general best practices of integrating TEK with western science.<sup>100</sup>

The Dibaginjigaadeg Anishinaabe Ezhitwaad (Tribal Climate Adaptation Menu) is a thorough collection of Indigenous Knowledge relating to climate adaptation strategies created by “a diverse group of collaborators representing tribal, intertribal, academic, and federal entities in Minnesota, Wisconsin, and Michigan.”<sup>101</sup> The authors intended for this to serve as a guide to “integrate Indigenous and traditional knowledge, culture, language and history into the climate adaptation planning process.”<sup>102</sup>

In addition to the creation of this resource collecting Indigenous Knowledge, the TEK Task Team has also established several positive outcomes as a result of tribal involvement in stewardship.<sup>103</sup> For example, in Anishinaabe communities, *manoomin* (wild rice) is of crucial importance; their relationship to it is “respectful, interactive, and reciprocal.”<sup>104</sup> *Manoomin* is an aquatic plant that grows in the region’s lakes and streams.<sup>105</sup> Because of changing environmental conditions, industry, and wetlands loss, *manoomin* growth has significantly

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<sup>98</sup> [Fish Wildlife and Parks](#), U.S. DEP’T OF THE INTERIOR INDIAN AFFS. (last visited July 17, 2025).

<sup>99</sup> *Id.*

<sup>100</sup> JESSICA KOSKI ET AL., TRADITIONAL ECOLOGICAL KNOWLEDGE TASK TEAM, [GUIDANCE DOCUMENT ON TRADITIONAL ECOLOGICAL KNOWLEDGE PURSUANT TO THE GREAT LAKES WATER QUALITY AGREEMENT](#) (2021).

<sup>101</sup> [Climate Change Program: Tribal Adaptation Menu](#), GREAT LAKES INDIAN FISH & WILDLIFE COMM’N (last visited July 17, 2025).

<sup>102</sup> *Id.*

<sup>103</sup> JESSICA KOSKI ET AL., *supra* note 99.

<sup>104</sup> *Id.* at 19.

<sup>105</sup> Bridge Michigan, [Michigan Tribes Fight Long Odds to Restore Wild Rice, Their History](#), GREAT LAKES NOW (Aug. 1, 2023).

declined.<sup>106</sup> Using funding secured by the National Oceanic and Atmospheric Administration (NOAA), workshops to address restoration of the plant were held in 2017 and 2019, with tribal, state, and local parties present.<sup>107</sup> These workshops identified areas for data collection and monitoring in the Lake Superior Basin, and developed education and outreach programs.<sup>108</sup> Perhaps most importantly, though, the workshops emphasized the cultural and ecological importance of *manoomin* – rather than just its monetary value.<sup>109</sup>

The TEK Task Team has stated that “the integration of TEK offers ways to spot threats earlier than western scientific assessments, refocus remediation metrics, and structure environmental health evaluation according to community concerns.”<sup>110</sup> To achieve these outcomes, the team highlights the importance of relationship building through proactive, early, and consistent engagement at every step in the decision-making process.<sup>111</sup>

#### *ii. Great Lakes Restoration Initiative*

The Great Lakes Restoration Initiative (GLRI) is a group of sixteen U.S. federal agencies led by the U.S. Environmental Protection Agency (EPA), formed in 2010 to speed up efforts to protect and restore the Great Lakes by providing additional resources.<sup>112</sup> Currently operating its fourth action plan for 2025-2029, the GLRI is responsible for helping to fulfill commitments under the GLQWA and focuses on toxic substances, invasive species, nonpoint source pollution, habitats and species, and laying the groundwork for future restoration.<sup>113</sup> The GLRI aims to foster rehabilitation of the Great Lakes through working “in

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<sup>106</sup> *Id.*

<sup>107</sup> [Efforts to Restore Native Wild Rice in the St. Louis River Estuary](#), NAT’L OCEANIC & ATMOSPHERIC ADMIN. FISHERIES, (Nov. 1, 2021).

<sup>108</sup> *Id.*

<sup>109</sup> JESSICA KOSKI ET AL., *supra* note 99, at 19–20.

<sup>110</sup> *Id.* at 24.

<sup>111</sup> *Id.* at 4.

<sup>112</sup> [Great Lakes Restoration Initiative: Background](#), U.S. ENV’T PROT. AGENCY (last visited July 20, 2025).

<sup>113</sup> GREAT LAKES RESTORATION INITIATIVE, [GREAT LAKES RESTORATION INITIATIVE ACTION PLAN IV: FISCAL YEARS 2025-2029](#), at 2–3 (2024).

partnership with states, tribes, and other nonfederal stakeholders.”<sup>114</sup> The GLRI has facilitated tribal capacity building through its Distinct Tribal Program and funding that facilitates tribal-led restoration efforts.<sup>115</sup>

In 2020, the GLRI’s Regional Working Group<sup>116</sup> launched the Distinct Tribal Program (DTP), after spending a few years determining how to best give tribes flexibility to develop high-priority programs aligning with the GLRI’s goals.<sup>117</sup> Millions of dollars in congressional funding annually also helped to establish the DTP.<sup>118</sup> The program acknowledges the importance of capacity building among Tribal Nations, which necessarily includes funding for projects to restore culturally important places and species.<sup>119</sup>

To support this capacity building, the BIA, via the GLRI, has provided more than \$113 million to tribes to launch nearly 800 restoration projects from 2010 to January 2023.<sup>120</sup> This funding has allowed tribes to restore over 150,000 acres of habitat and 225 miles of Great Lakes tributaries, and treat over 41,000 acres for invasive species.<sup>121</sup> More than thirty tribes and tribal organizations in the region—including the GLIFWC—have gotten funding to participate in the restoration of the land.<sup>122</sup>

The DTP is intended to support tribally determined restoration, and devotes \$15 million annually to fund projects that align with the GLRI’s goals.<sup>123</sup> The funds may be used for tribal capacity building and tribal GLRI projects

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<sup>114</sup> *Id.* at 4.

<sup>115</sup> *Id.* at 8.

<sup>116</sup> The Regional Working Group consists of senior management officials of the sixteen federal agencies. GREAT LAKES RESTORATION INITIATIVE, [DISTINCT TRIBAL PROGRAM FRAMEWORK](#) 1 (2021).

<sup>117</sup> *Id.*

<sup>118</sup> *Id.*

<sup>119</sup> *Id.*

<sup>120</sup> GREAT LAKES RESTORATION INITIATIVE, [2022 TRIBAL GREAT LAKES RESTORATION: CULTURALLY INSPIRED RESTORATION](#) 1 (2022).

<sup>121</sup> *Id.*

<sup>122</sup> *Id.*

<sup>123</sup> [Fish, Wildlife and Parks](#), U.S. DEP’T OF THE INTERIOR INDIAN AFFS. (last visited July 20, 2025).

themselves.<sup>124</sup> In addition to funding, the DTP requires that the GLRI regional working group hold Tribal Forums one to two times a year with the BIA and EPA to discuss issues, priorities, and ideas in project implementation.<sup>125</sup> BIA and EPA are obligated to be involved in the DTP in other ways, too, which necessarily support tribal capacity building by allowing these federal agencies to take a more active role in facilitating project implementation.<sup>126</sup>

Many of the projects funded by the DTP are efforts aimed at coastal resiliency: erosion mitigation from flooding,<sup>127</sup> wetland restoration,<sup>128</sup> habitat loss associated with higher water levels,<sup>129</sup> and the restoration of *manoomin*<sup>130</sup>—a native plant species that can regulate nutrient levels and erosion in waters.<sup>131</sup>

Allowing for this flexibility for funding allocation and continued communication with the regional working group supports Tribal Nation self-determination, facilitating a truly government-to-government relationship and promoting sovereignty. Capacity building efforts have also allowed the Tribal Nations to participate in more interagency and inter-governmental processes, increasing the amount of tribal input in solutions.<sup>132</sup>

### *iii. Tribal Consultation Policies in Michigan*

In Michigan, tribal-state agreements and executive orders require government-to-government consultation with and affirm the sovereignty of Tribal Nations. This section will focus on a 2002 accord between the state and Tribal

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<sup>124</sup> GREAT LAKES RESTORATION INITIATIVE, *supra* note 118, at 2.

<sup>125</sup> *Id.* at 3.

<sup>126</sup> *Id.*

<sup>127</sup> GREAT LAKES RESTORATION INITIATIVE, *supra* note 118, at 19.

<sup>128</sup> *Id.* at 26.

<sup>129</sup> *Id.* at 7.

<sup>130</sup> *Id.* at 10–11, 18, 19.

<sup>131</sup> [Manoomin Literature Background](#), UNIV. OF WIS. SEA GRANT INST. (last visited July 20, 2025).

<sup>132</sup> GREAT LAKES RESTORATION INITIATIVE, *supra* note 118, at 1.

Nations, and a 2019 Executive Order requiring each state agency to have a tribal consultation policy.<sup>133</sup>

In 2002, the governor of Michigan and Tribal Nations signed an accord where each recognized the others' sovereignty and agreed to a policy of consultation.<sup>134</sup> The Accord stated that consultation includes (1) timely notification of a proposed action, (2) informing the other government of potential impacts the proposed action could have on it, (3) the opportunity to provide input and recommendations on the proposed action to officials making the final decision, and (4) notification of, and reasoning for, rejected recommendations.<sup>135</sup> Consultation was defined as “government-to-government dialogue between the state and the tribes regarding actions... that significantly affect... the governmental interests of the other.”<sup>136</sup> The Accord also required an annual meeting between Tribal Nation leaders and the governor, a tribal coordinator in each state department, and departmental policies and procedures for effective consultation.<sup>137</sup> Importantly, the Accord does not discuss tribal capacity building, funding, or any penalties should parties fail to consult with each other.<sup>138</sup>

In 2019, Governor Whitmer issued Executive Directive 2019-17 regarding state-tribal relations, which is still in effect today.<sup>139</sup> This directive affirms the principles in the 2002 Accord, recognizing tribes' rights to self-determination and sovereign nature.<sup>140</sup> In addition, the directive requires that each state agency follow a uniform, four-step process for consultations prior to taking an action that would impact tribes that resembles the one laid out in the 2002 Accord, as well as

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<sup>133</sup> [Government-to-Government Accord Between the State of Michigan and the Federally Recognized Indian Tribes in the State of Michigan](#) (Oct. 28, 2002) [hereinafter 2002 Accord]; [Mich. Exec. Directive No. 2019-17](#) (Oct. 31, 2019) [hereinafter MI ED 2019-17].

<sup>134</sup> 2002 Accord, *supra* note 131.

<sup>135</sup> *Id.* at 3.

<sup>136</sup> *Id.*

<sup>137</sup> *Id.* at 4.

<sup>138</sup> *See id.* at 4–6.

<sup>139</sup> MI ED 2019-17, *supra* note 131.

<sup>140</sup> *Id.*

appoint a Tribal Liaison to oversee the consultation process.<sup>141</sup> The Advisor for Tribal Affairs organizes the annual summit, facilitates the government-to-government communication between tribes and the governor’s office, and develops training on tribal sovereignty, treaty rights, governance, and history. While these policies may aid in communication between tribes and the state, the directive notes that “absence of agreement between the consulting department or agency and one or more tribes does not bar the department or agency from acting.”<sup>142</sup> Ultimately, both the 2002 Accord and the 2019 directive lack the force of law, leaving Tribal Nations without recourse when consultation is insufficient or absent.<sup>143</sup>

The 1976 Michigan Supreme Court case *People v. LeBlanc*<sup>144</sup> provides robust alternative agency and Accord consultation policies. The decision mandated the co-management of the Great Lakes fisheries by interpreting an 1836 treaty to reflect tribes’ reserved right to hunt and fish for subsistence and commercial purposes.<sup>145</sup> The current co-management agreement, the 2023 Great Lakes Fishing Decree, is pursuant to this 1976 judicial decision.<sup>146</sup> This Decree, along with its predecessors, compels Tribal Nation and state cooperation to allocate, manage, and regulate the 1836 Treaty waters of the Great Lakes—true co-management of a natural resource.<sup>147</sup> The GLIFWC is heavily involved in co-management practices and emphasizes how Indigenous Knowledge is used to

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<sup>141</sup> That process is: (1) identification of issues, (2) notification of potentially affected Tribes, (3) soliciting input from Tribes, and (4) providing written feedback to Tribes after a decision is made. *Id.*

<sup>142</sup> *Id.*

<sup>143</sup> 2002 Accord, *supra* note 131; MI ED 2019-17, *supra* note 131. For a more effective approach to collaboration, consultation requirements should be enacted as enforceable law. *See* Report from Greta Swanson to the Indigenous Conservation Council of the Chesapeake Bay, Government-to-Government Consultation in Michigan: Best Practices and Implementation, 19 (June 3, 2025) (“Consultation requirements in Michigan are established as policy, not law, and do not contain any avenues for Tribes to hold departments accountable, except those related to fisheries co-management under a court-mandated decree.”) (on file with authors).

<sup>144</sup> *People v. LeBlanc*, 399 Mich. 31 (1976).

<sup>145</sup> *Id.* at 61 (“[T]he Indians hold their off-reservation fishing rights in common with the citizens of the state of Michigan.”).

<sup>146</sup> [Opinion Regarding the Approval of the 2023 Great Lakes Fishing Decree](#), United States v. Michigan, No. 2:73-cv-00026 (W.D. Mich. Aug. 24, 2023).

<sup>147</sup> *See id.* at 46.

inform management practices with co-equal western notions of science.<sup>148</sup> Additionally, the GLIFWC points to the Ojibwe’s relationship with the natural world—viewing its people as having “ reciprocal duties and responsibilities to protect and conserve natural resources for future generations,” and requiring “restraint, respect, and reciprocity” for animal life—as a valuable and different perspective in co-management.<sup>149</sup>

The Great Lakes region stands out as a powerful model for tribal, state, and federal collaboration on climate resilience and environmental stewardship. Although not traditionally coastal, the region faces similar threats—flooding, erosion, and habitat loss—intensified by changing environmental conditions. In response, mechanisms like the Great Lakes Restoration Initiative and the updated Great Lakes Water Quality Agreement have increasingly incorporated Tribal Nations as sovereign partners. The GLIFWC and the Tribal Climate Adaptation Menu exemplify how Indigenous leadership and traditional knowledge can enhance environmental management. While some state consultation policies remain unenforceable, binding frameworks like the Great Lakes Fishing Decree offer a model for true co-management.

#### B. Case Study II: The Puget Sound

Washington state is home to the Puget Sound watershed and twenty-nine federally recognized Tribal Nations.<sup>150</sup> Many of them are situated around the Sound, which faces a host of coastal hazards, like sea level rise and flooding.<sup>151</sup> Salmon are a very important part of life for the tribes, and altered stream flows and temperatures are threatening the species—some estimates say that by 2100, a

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<sup>148</sup> [Brief for Great Lakes Indian Wildlife & Fishery Commission as Amicus Curiae Supporting Plaintiffs](#) at 9–11, *Silva v. Farrish*, No. 18-CV-3648 (E.D.N.Y. May 29, 2025).

<sup>149</sup> *Id.* at 9.

<sup>150</sup> [Home](#), WASH. TRIBES (last visited July 22, 2025).

<sup>151</sup> [Federal Funding Will Build Capacity in Washington Coastal Tribes and Communities to Address Hazards Due to Climate Change](#), UNIV. OF WASH. SEA GRANT: WSG NEWS BLOG (Aug. 22, 2024).

third of current Northwest salmon habitats will be too warm for the fish to tolerate.<sup>152</sup>

In response to these climate threats, twenty Tribal Nations in the region have come together in the Northwest Indian Fisheries Commission, which aims to address capacity challenges in natural resources management.<sup>153</sup> This necessarily means working with federal and state agencies to incorporate Indigenous Knowledge into climate solutions. Some of the partnerships the Tribal Nations are involved in are the court-mandated co-management of fisheries, agreements and statutes requiring tribal consultation, and coordinating with the Puget Sound Partnership.

*i. Co-Management of Fisheries*

Treaties between Tribal Nations and the Washington territory were formed in the mid-19th century; tribes ceded much of their land but reserved hunting, fishing, and gathering rights in their usual place and way.<sup>154</sup> As the decades passed, though, the tribes' reserved rights were not respected, and they were often restricted from fishing. This led to the "fish wars" of the 1960s and 70s, which culminated in the violent arrest of more than sixty Tribal Citizens fishing in their treaty-reserved waters in 1974.<sup>155</sup> Soon after this, *U.S. v. Washington* was filed on behalf of the Tribal Nations, seeking to affirm their rights.<sup>156</sup> What resulted is the Boldt decision,<sup>157</sup> which affirmed treaty rights by mandating that Tribal Nations were entitled to half of the fish caught annually, and ordered the co-management

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<sup>152</sup> [Climate Impacts in the Northwest – Threatened Salmon Populations](#), U.S. ENV'T PROT. AGENCY (last visited July 23, 2025).

<sup>153</sup> The member Tribes are: Lummi, Nooksack, Swinomish, Upper Skagit, Sauk-Suiattle, Stillaguamish, Tulalip, Muckleshoot, Puyallup, Nisqually, Squaxin Island, Skokomish, Suquamish, Port Gamble S'Klallam, Jamestown S'Klallam, Lower Elwha Klallam, Makah, Quileute, Quinault, and Hoh. Northwest Indian Fisheries Commission, [About Us](#), NW INDIAN FISHERIES COMM'N (last visited July 23, 2025) [hereinafter NWIFC].

<sup>154</sup> Lynda Mapes, [The Fish Wars: A Timeline of the Origins and Effects of the Boldt Decision](#), THE SEATTLE TIMES (Jan. 14, 2024, 7:00 AM).

<sup>155</sup> Luna Reyna, [The 50th Anniversary of the Boldt Decision is a Celebration of Native Leadership](#), OR. PUB. BROAD. (Mar. 3, 2024, 8:00 AM).

<sup>156</sup> *United States v. Washington*, 384 F. Supp. 312 (W.D. Wash. 1974)

<sup>157</sup> The Boldt decision gets its namesake from the judge that decided the case, George Boldt. See Mapes, *supra* note 152.

of fisheries in the region.<sup>158</sup> Prior to the Boldt decision, tribal fishers were catching less than 5% of the fish and being punished for it, which highlights how transformational the judicial order was for affirming tribal rights.<sup>159</sup>

The Boldt decision spurred the creation of the Northwest Indian Fisheries Commission (NWIFC), an intertribal group.<sup>160</sup> The NWIFC includes representatives of each member tribe, with each tribe electing a chair, vice chair, and treasurer.<sup>161</sup> These tribal representatives collaborate and make recommendations to the NWIFC executive director, who implements them.<sup>162</sup> NWIFC increases each tribe's capacity to fulfill its co-management role through direct services, including providing biometric and fish health data, as well as helping secure and use federal funding.<sup>163</sup> These capacity-building efforts have allowed tribes to maintain a monitoring staff to record catch data, which is shared with state co-managers at the Washington Department of Fish and Wildlife, allowing a more accurate snapshot of the state of fish populations.<sup>164</sup>

Indeed, the state agency co-managers and tribes have formal data-sharing agreements.<sup>165</sup> The NWIFC merged its Salmon and Steelhead Habitat Inventory and Assessment Program data with the state Department of Fish and Wildlife data. This collaboration led to the creation of the interactive Statewide Washington Integrated Fish Distribution map tool.<sup>166</sup> This tool maps the distribution of fish statewide, making it a single source of data for habitat analysis and species recovery efforts.<sup>167</sup>

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<sup>158</sup> U.S. v. Washington, 384 F. Supp. at 340, 343.

<sup>159</sup> People Places Planet, *The Youth Review: Government-to-Government Consultation with Tribal Nations During Constant Environmental Change*, ENV'T L. INST., at 11:35 (Jan. 30, 2024).

<sup>160</sup> NWIFC, *supra* note 151.

<sup>161</sup> *Id.*

<sup>162</sup> *Id.*

<sup>163</sup> *Id.*

<sup>164</sup> *Questions and Answers on Tribal Salmon Fisheries*, NW. INDIAN FISHERIES COMM'N (last visited July 23, 2025).

<sup>165</sup> See Kari Neumeyer, *Tribal and State Co-managers Integrate Fish Distribution Data*, NW. INDIAN FISHERIES COMM'N (Apr. 3, 2014).

<sup>166</sup> *Id.*

<sup>167</sup> *Id.*

Although the population of fish in the watershed is threatened, tribal and state collaboration has allowed for some success stories. In an eastern fork of the Sound, on Hood Canal, one species of salmon has seen an average return of more than 30,000 fish in recent years, up from less than a thousand in 1990.<sup>168</sup>

Successful projects like the one at Hood Canal are possible not only because of the NWIFC's capacity support, but also because of the federal funding the group receives. NWIFC receives federal funding that greatly increases large scale restoration; the group has noted that "[NOAA's] Pacific Coastal Salmon Recovery Fund and EPA's Puget Sound Geographic Program funding have supported projects that have protected and restored fish access to more than 1 million acres of spawning and rearing habitat, and removed hundreds of fish passage barriers."<sup>169</sup> In 2024, NWIFC received \$43 million in federal grant awards and subawards to continue its vital work in the region.<sup>170</sup> Providing funds for Tribal Nations-led recovery is critical to support sovereignty and self-determination because it allows tribes to fight for the lifeways that have supported them for thousands of years.

*ii. Tribal Consultation Frameworks in Washington State*

Tribal consultation policies in Washington take several forms. Agreements between the Tribal Nations and Washington were formed as early as 1989 and affirmed in 1999, building upon the collaborative mandate and affirmation of treaty rights from the Boldt decision. There is also a statutory basis requiring consultation, though it lacks the enforcement mechanisms necessary to give tribes recourse when they are not involved in decision-making processes.<sup>171</sup>

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<sup>168</sup> NW. INDIAN FISHERIES COMM'N, [TRIBAL NATURAL RESOURCES MANAGEMENT: 2024 ANNUAL REPORT FROM THE TREATY TRIBES IN WESTERN WASHINGTON](#) 5 (2024).

<sup>169</sup> *Id.* at 10.

<sup>170</sup> [Northwest Indian Fisheries Commission](#), GOVTRIBE (last visited July 23, 2025).

<sup>171</sup> The State/Tribal Relations Act states that "[n]othing in this chapter creates a right of action against a state agency or a right of review of an action by a state agency." WASH. REV. CODE § 43.376.060.

1. The Centennial Accord and the Centennial Accord Millennium Agreement

In 1989, the state and Tribal Nations co-drafted and signed an agreement recognizing tribal sovereignty, committing to a government-to-government relationship, and providing a framework for consultation.<sup>172</sup> The 1989 Accord required state agencies to develop a tribal consultation policy and created an annual meeting.<sup>173</sup> Under the Accord, the governor's chief of staff is responsible for implementing agency consultation policies, and the Governor's Office of Indian Affairs ensures that agency directors are appropriately educated on what government-to-government engagement looks like.<sup>174</sup>

In 1999, the state and Tribal Nations signed the Centennial Accord Millennium Agreement.<sup>175</sup> It reaffirms the principles of the 1989 Accord, lays out what the consultation process should look like, and outlines a dispute resolution process for when agreement cannot be reached. The 1999 Agreement implementation guidelines require the following consultation elements: (1) identify the participants in the process, (2) provide a clear description of the issue, (3) allow ample time to review documents and respond to requests for consultation, (4) establish and adhere to a schedule for consultation, (5) recognize that tribes are traditionally, culturally, and administratively different from each other, (6) use workgroups to make recommendations, and (7) report on the outcome of the consultation.<sup>176</sup>

The 1999 Agreement implementation guidelines implicitly acknowledge that consultation will not always be successful by including a dispute resolution process.<sup>177</sup> Parties are directed to establish a process for resolving disputes when they arise, and in the event that resolution is unachievable, the Agreement recognizes that "each party is free to pursue its interests through means it deems appropriate, including litigation," though the Agreement itself does not create a

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<sup>172</sup> ENV'T L. INST., [TRIBAL CONSULTATION IN WASHINGTON STATE](#) 1 (2024).

<sup>173</sup> *Id.* at 2–3.

<sup>174</sup> *Id.* at 3.

<sup>175</sup> *Id.*

<sup>176</sup> *Id.* at 4–5.

<sup>177</sup> *Id.* at 5.

cause of action.<sup>178</sup> In the event of litigation, the Agreement recommends that the parties meet to understand each other's position and streamline the process.<sup>179</sup>

Pursuant to these agreements, the state Department of Natural Resources has a consultation policy that pertains to natural resources management.<sup>180</sup> The policy calls for communication early in the consultation process, and notes that a second consultation may be needed as projects develop.<sup>181</sup> The Department is required to use the state's Archaeological and Historic Preservation Tribal Consultation Map to "identify and notify Tribes with interests known to overlap project areas, including when tribal land or known Usual and Accustomed areas overlap with project areas."<sup>182</sup> Tribes may then decide if they would like to participate in consultation.<sup>183</sup>

The Washington Department of Fish and Wildlife signed a consultation policy in 1998 that emphasizes co-management.<sup>184</sup> The policy purports to follow five key principles: (1) cooperate with tribes to resolve issues through direct communication, (2) support tribal self-determination, (3) engage tribal representatives in wildlife management, (4) work with tribes to make a data exchange system, and (5) develop enforcement protocols to guide state officers in their contact with tribal hunters.<sup>185</sup>

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<sup>178</sup> [New Millennium Agreement, Government-to-Government Implementation Guidelines](#) § III. Dispute Resolution (Nov. 13, 1999).

<sup>179</sup> *Id.*

<sup>180</sup> ENV'T L. INST., *supra* note 170, at 12.

<sup>181</sup> *Id.* at 13.

<sup>182</sup> *Id.*

<sup>183</sup> *Id.*

<sup>184</sup> *Id.*

<sup>185</sup> *Id.* at 14. It does not appear that these tenets are always adhered to; the NWIFC notes that in 2023 the department's commission pushed through a conservation plan without tribal input. NW. INDIAN FISHERIES COMM'N, *supra* note 166, at 4.

## 2. The State/Tribal Relations Act

Washington passed legislation regarding tribal consultation in the State/Tribal Relations Act.<sup>186</sup> The Act creates a state agency tribal liaison that reports to the agency head and is responsible for implementing the consultation policy, communicating with Tribal Nations, and coordinating employee training on the government-to-government relationship.<sup>187</sup> It also requires an annual meeting between tribal leaders and state officials, and requires each state agency to create an annual report describing tribal involvement for the governor.<sup>188</sup>

### *iii. Puget Sound Partnership*

The Puget Sound Partnership (PSP) is a Washington nonregulatory state agency created in 2007 that is leading the region's collective effort to restore and protect the Puget Sound.<sup>189</sup> The PSP seeks to improve the environmental health of the Sound by aligning federal agencies, tribal governments and organizations, state agencies, regional entities, local governments, non-profits, higher education, the private sector, and people in the region.<sup>190</sup>

In 2016, Region 10 of the EPA launched a funding model to speed up recovery and protect the Sound.<sup>191</sup> This funding supports the PSP, the NWIFC, and other strategic initiatives managed by state agencies to fulfill their missions.<sup>192</sup> The funding model links these organizations under a united mission,

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<sup>186</sup> Codified as "Government-to-Government Relationship with Indian Tribes." WASH. REV. CODE § 43.376.

<sup>187</sup> ENV'T L. INST., *supra* note 170, at 6.

<sup>188</sup> *Id.*

<sup>189</sup> [Puget Sound National Estuary Program \(NEP\)](#), PUGET SOUND P'SHIP (July 10, 2025).

<sup>190</sup> *Id.*

<sup>191</sup> *Id.* Congress has appropriated funds for these recovery efforts. [Funding and Grants for Puget Sound](#), U.S. ENV'T PROT. AGENCY (May 1, 2025) ("The EPA receives money from Congress to help protect and restore Puget Sound. These funds are used to help implement Washington's Puget Sound Action Agenda using cooperative agreements with designated state agencies, local and Tribal governments, universities and non-governmental organizations.").

<sup>192</sup> [Puget Sound National Estuary Program \(NEP\)](#), *supra* note 187.

which is discussed when PSP convenes the Puget Sound Management Conference to make the Puget Sound Action Agenda.<sup>193</sup>

The PSP has three boards established by statute: the Leadership Council, the Ecosystem Coordination Board, and the Science Panel.<sup>194</sup> The Leadership Council is the PSP's governing body, made up of seven members appointed by the Governor.<sup>195</sup> The Ecosystem Coordination Board is a partnership board that advises the Leadership Council, and is made up of twenty-seven members who represent specific interests around the Sound.<sup>196</sup> Both the Leadership Council and the Ecosystem Coordination Board have tribal representation.<sup>197</sup>

In addition to its three statutory boards, the PSP also has two advisory boards: the Salmon Recovery Council and the Ecosystem Monitoring Program Steering Committee.<sup>198</sup> The Salmon Recovery Council advises the Leadership Council on species recovery and has representatives from every tribe.<sup>199</sup> The Ecosystem Monitoring Program Steering Committee also has tribal representation to help with its goal of generating, organizing, and communicating scientific information to track conditions related to the Sound's recovery.<sup>200</sup>

The PSP has a Partnership Tribal Co-Management Council that convenes once a month and is co-chaired by the Leadership Council Chair and the Northwest Indian Fisheries Commissioner.<sup>201</sup> This Council facilitates communication and coordination between the Puget Sound Partnership and Tribal Nations.<sup>202</sup> Here, the importance of *one-to-one* tribal consultation is highlighted: PSP consults with *each individual* tribal government, typically on legislative

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<sup>193</sup> *Id.*

<sup>194</sup> [Tribal Relations](#), PUGET SOUND P'SHIP (July 14, 2025).

<sup>195</sup> PUGET SOUND P'SHIP, [CENTENNIAL ACCORD PLAN 3](#) (2025).

<sup>196</sup> *Id.* at 12.

<sup>197</sup> *Id.* at 5.

<sup>198</sup> *Id.*

<sup>199</sup> [About The Salmon Recovery Council](#), PUGET SOUND P'SHIP (last visited July 30, 2025).

<sup>200</sup> [Puget Sound Ecosystem Monitoring Program \(PSEMP\) Overview](#), PUGET SOUND P'SHIP (Apr. 3, 2025).

<sup>201</sup> [Partnership Tribal Co-Management Council \(PTCC\)](#), PUGET SOUND P'SHIP (Jan. 15, 2025).

<sup>202</sup> *Id.*

issues, species and habitat protection and restoration, and program updates.<sup>203</sup> Lea Anne Burke, the Partnership's Tribal Affairs Manager, notes that each sovereign Nation is unique and distinct, warranting one-on-one consultation with each.<sup>204</sup>

Burke also stresses that tribal representation on boards and committees is not itself enough to satisfy government-to-government relationship requirements.<sup>205</sup> Burke notes that PSP boards are public spaces with multiple interests and representatives.<sup>206</sup> While tribal representation on these boards is vital to discussions, sharing data, and decision-making, their sovereignty and collective role as equitable co-managers of natural resources give them legal rights and authority that other entities don't have.<sup>207</sup> This gives tribes the right and opportunity to engage with Washington in a sovereign-to-sovereign dynamic outside of public meetings.<sup>208</sup> Burke emphasizes that early, often, and pre-decisional engagement with individual tribes is foundational to the PSP's work and leads to informed, nuanced collaboration—and happens well before a formal invitation for consultation occurs.<sup>209</sup>

The Puget Sound region exemplifies a strong tribal-federal-state partnership grounded in legal recognition of tribal treaty rights, sustained consultation policies, and coordinated environmental efforts like data sharing and fishery management. Together, these systems create one of the most robust and well-funded environmental governance models in the country, centered on shared stewardship and respect for tribal knowledge.

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<sup>203</sup> *Id.*

<sup>204</sup> Email from Lea Anne Burke, Tribal Affairs Manager, Puget Sound Partnership, to Lauren Wiederkehr, law student (July 29, 2025, 02:46 PM EST) (on file with authors).

<sup>205</sup> *Id.*

<sup>206</sup> *Id.*

<sup>207</sup> *Id.*

<sup>208</sup> *Id.*

<sup>209</sup> *Id.*

## C. Case Study III: The California Coast

California is home to 109 federally recognized tribes.<sup>210</sup> Many of these tribes have ancestral lands along the coast,<sup>211</sup> which increasingly face sea level rise, frequent and intense storm events, ocean acidification, flooding, and threats to species diversity and distribution.<sup>212</sup> Tribal-federal-state partnerships in California are supported by state legislation requiring consultation and a regional coalition of tribes with a shared mission of coastal stewardship.

Tribes in California are unique in that a vast majority of the treaties that tribes signed with the United States between 1851 and 1852 were never ratified by the U.S. Senate—making them invalid in the eyes of the federal government.<sup>213</sup> To date, this has left a lot of land issues and reserved rights for fishing or hunting unresolved.<sup>214</sup> Some tribes have used litigation, and even bolder unilateral acts of sovereignty, to assert reserved rights and co-management. In the first designation of its kind in the United States, a coalition of tribes declared a region of the California coast as a protected indigenous marine stewardship area.

i. *California's Consultation Laws*1. Assembly Bill 52

In 2014, the California legislature passed Assembly Bill 52 (AB52), which amended the California Environmental Quality Act (CEQA) to add protections for “[t]ribal cultural resources.”<sup>215</sup> The law defines tribal cultural resources as sites, features, places, cultural landscapes, sacred places, and objects with cultural value that are in the state or local register of historical resources.<sup>216</sup> AB52 requires state

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<sup>210</sup> [California Tribal Communities](#), CAL. CTS. (last visited July 23, 2025).

<sup>211</sup> *Id.*

<sup>212</sup> [Climate Change](#), CAL. COASTAL COMM’N (last visited July 23, 2025).

<sup>213</sup> This was the case for 18 treaties. Larisa K. Miller, [The Secret Treaties With California's Indians](#), NAT’L ARCHIVES 39 (last visited July 23, 2025).

<sup>214</sup> *Id.*

<sup>215</sup> Assemb. B. 52, § 4, 2014–2015 Leg., Reg. Sess. (Cal., 2014).

<sup>216</sup> *Id.*

agencies to contact tribes about CEQA projects and meaningfully consult with them within thirty days if requested; under this amendment, a substantive impact to a tribal cultural resource is a significant impact to the environment.<sup>217</sup>

Although the intent of this law was likely to increase communication between state agencies and tribes, a review from the Environmental Law Institute found that Tribal Nation members did not see a significant increase in their influence on projects.<sup>218</sup> From the perspective of many Tribal Nations in California, consultation is an unfunded mandate imposed upon them, and limited resources constrain consultation efforts.<sup>219</sup> However, a new development in the legal standard of tribal-state consultation may help in mitigating these issues.

In March 2025, a California court spoke to what “meaningful consultation” looks like, and vacated the City of Clearlake’s mitigated negative declaration finding—a prerequisite to construct a hotel.<sup>220</sup> The Koi Nation of Northern California is affiliated with an area of the project<sup>221</sup> and sued the City of Clearlake when it discontinued consultation after one meeting, adopted the declaration, and disregarded a majority of tribal requests without explanation.<sup>222</sup> The court held that this was insufficient for the “meaningful consultation” required under CEQA and stated that consultation must be directed toward seeking agreement.<sup>223</sup> By interpreting the law this way, the court’s holding “is not merely procedural, but substantive—requiring reciprocal communication, thorough documentation, and a demonstrable effort to address tribal concerns.”<sup>224</sup>

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<sup>217</sup> Merri Lopez-Keifer, *Remarks at Advancing Tribal Sovereignty: Lessons from the Implementation of Tribal Consultation Laws in California* 53:16 (Sept. 23, 2024) (panel discussion).

<sup>218</sup> ENV’T L. INST., *ANALYSIS OF TRIBAL CONSULTATION IN CALIFORNIA UNDER SB 18 AND AB 52 EXECUTIVE SUMMARY* 1 (2024).

<sup>219</sup> Greta Swanson, *Remarks at Advancing Tribal Sovereignty: Lessons from the Implementation of Tribal Consultation Laws in California* 16:15 (Sept. 23, 2024) (panel discussion).

<sup>220</sup> *Koi Nation of N. Cal. v. City of Clearlake*, 330 Cal. Rptr. 3d 718, 723 (Ct. App. 2025).

<sup>221</sup> *Id.* at 721.

<sup>222</sup> *Id.* at 727.

<sup>223</sup> *Id.* at 736.

<sup>224</sup> Jennifer Jeffers & Laura Tepper, *California Court Clarifies CEQA Tribal Consultation Duties in First Published AB 52 Decision*, ALLEN MATKINS (Apr. 10, 2025).

Now, the Koi Nation may re-engage with the city to protect their interests, and state agencies have clarification on their consultation duties under AB52.

## 2. Assembly Bill 1284

Assembly Bill 1284 (AB1284), passed in 2024, is known as the “Tribal Cogovernance and Comanagement of Ancestral Lands and Waters Act.”<sup>225</sup> The law encourages co-management agreements between the state and tribes to address climate threats along the coast and inland.<sup>226</sup> It also recognizes the value of indigenous traditional knowledge of the natural systems in California.<sup>227</sup> This law was passed after a unilateral showing of tribal sovereignty by several California Tribes, discussed below, and seemingly responded in support of that unilateral act.<sup>228</sup>

### *ii. The Tribal Marine Stewards Network and the Yurok-Tolowa-Dee-ni’ Indigenous Marine Stewardship Area*

The Tribal Marine Stewards Network (TMSN) was formed in 2022 and is a coalition of five Tribal Nations with the goal of “steward[ing] ocean and coastal resources within their ancestral territories.”<sup>229</sup> The organization aims to support member and nonmember tribes by connecting them to California state agencies, universities, and NGOs that will assist in executing co-management of threatened natural resources.<sup>230</sup> The TMSN recognizes that building capacity within tribes is essential to this effort, seeking to “[e]stablish long-term, consistent engagement

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<sup>225</sup> Assemb. B. 1284, § 11019.82, 2023–2024 Leg., Reg. Sess. (Cal., 2024).

<sup>226</sup> Jos Hill & Bobby Hayden, [New California Law Means Clearer Path for Tribes to Co-Manage Lands and Waters](#), PEW (Sept. 27, 2024).

<sup>227</sup> Cal. Assemb. B. 1284 § 1.

<sup>228</sup> Hill & Hayden, *supra* note 224 (describing how tribal governments designated the Yurok-Tolowa-Dee-ni’ Indigenous Marine Stewardship Area off the northwest California coast).

<sup>229</sup> The four founding Tribes are the Tolowa Dee-ni’ Nation, Pulikla Tribe of Yurok People, Kashia Band of Pomo Indians, and the Amah Mutsun Tribal Band. The Santa Ynez Band of Chumash Indians has also joined. [FAQs](#), TRIBAL MARINE STEWARDS NETWORK (last visited Oct. 15, 2025).

<sup>230</sup> *Id.*

with federal and California state agencies” and to “[d]evelop a funding strategy to support capacity within internal programs.”<sup>231</sup>

The TMSN Tribes work with each other and independently to implement “Indigenous Traditional Knowledge” in natural resource management projects.<sup>232</sup> In one of these projects, the Pulikla Tribe, Tolowa Dee-ni’ Nation, and the Kashia Band of Pomo Indians launched the Tribal Intertidal Digital Ecological Surveys project with the University of California.<sup>233</sup> There, suspended cameras capture images of intertidal habitats to create 3D mapping to monitor changes in the tribes’ ancestral waters.<sup>234</sup> Projects like this are made possible by the TMSN’s diverse array of financial supporters, including private and public entities, like California state agencies.<sup>235</sup>

In 2023, three of the Tribal Nations in the TMSN—the Tolowa Dee-ni’ Nation, Pulikla Tribe of Yurok People, and Cher-Ae Heights Indian Community of Trinidad Rancheria—unilaterally designated 700 square miles along the coast as the Yurok-Tolowa-Dee-ni’ Indigenous Marine Stewardship Area (IMSA).<sup>236</sup> The IMSA stretches from the coastal forests of the northern California border to south of Trinidad, California, and extends three miles offshore into the Pacific Ocean.<sup>237</sup> This area is sacred land to these Tribes and home to valuable cultural symbols and resources, like mussels, kelp, salmon, shorebirds, and eels.<sup>238</sup>

The designation of the IMSA as protected land is the first of its kind enacted by tribal governments in the United States.<sup>239</sup> With this designation, the

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<sup>231</sup> *What We Do*, TRIBAL MARINE STEWARDS NETWORK (last visited Oct. 15, 2025).

<sup>232</sup> *Id.*

<sup>233</sup> John Briley, *Tribal Nations Announce First Ocean and Coastal Protections in U.S.*, PEW (May 29, 2024).

<sup>234</sup> *Id.*

<sup>235</sup> California funds have come from the Ocean Protection Council, the Natural Resources Agency, and the Department of Public Health. Private funders include Ecotrust, Pew Charitable Trusts, 11th Hour Project, The David and Lucile Packard Foundation, Resources Legacy Fund, and the CA Indian Environmental Alliance. *FAQs*, *supra* note 227.

<sup>236</sup> Manola Secaira, *Tribes Designate a Marine Stewardship Area in Northern California*, CAP. PUB. RADIO (Sept. 25, 2023).

<sup>237</sup> Briley, *supra* note 231.

<sup>238</sup> *Id.*

<sup>239</sup> *Id.*

Tribes hope to enhance the already ongoing ocean and coastal research and species monitoring projects.<sup>240</sup> Although jurisdictional questions could arise as the state and federal governments concurrently manage this area with the Tribes, this bold act of authority in environmental stewardship asserts the Tribes' sovereign status and right to self-determination.<sup>241</sup> Indeed, AB1284, the Cogovernance and Comanagement law, was passed by California only a year after the IMSA was created and seemingly in response to the IMSA.<sup>242</sup>

Together, California's legislatively crafted and judicially clarified consultation laws, landmark legislation like AB1284, and the work of the TMSN represent a powerful shift toward restoring Indigenous governance and stewardship across the California coast. These efforts are not only responding to the crisis of changing environmental conditions, but also address centuries of legal exclusion and broken treaties that have left many tribes without clear rights to their ancestral lands and waters. California Tribes are reclaiming their roles as environmental leaders by asserting sovereignty through co-management agreements, litigation, and Indigenous-led conservation initiatives like the Yurok-Tolowa-Dee-ni' Indigenous Marine Stewardship Area. The emerging framework—grounded in traditional knowledge and legally supported by evolving state policy—offers a path forward for collaborative and resilient stewardship of coastal ecosystems.

#### D. Overview of Best Practices from Case Studies

The tribal, state, and federal partnerships in these case studies exhibit that intergovernmental collaboration on natural resources related to managing the health of large watersheds are occurring successfully all over the United States. The best practices that emerge from these partnerships are based on feedback from Tribal Nations and can all be distilled into the principle of respecting tribal sovereignty and Indigenous Knowledge as co-equals to state and federal

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<sup>240</sup> *Id.*

<sup>241</sup> Adam Crepelle, *The Never-Ending Struggle for Tribal Fishing Rights*, GEORGE MASON UNIV. MERCATUS CTR. (Dec. 20, 2023).

<sup>242</sup> *See* Briley, *supra* note 231.

sovereignty and Western knowledge. Moreover, reported best practices seem to echo the tenets of free, prior, and informed consent.<sup>243</sup>

*i. Tribal Capacity Challenges Must be Recognized and Addressed*

Successful tribal-federal-state partnerships acknowledge and aim to address tribes' limited resources. Typically, this capacity challenge is addressed by providing funds to Tribal Nations to build infrastructure that supports tribal engagement.<sup>244</sup> Often, funding is provided by federal government programs. These funds support tribal coalitions like the GLIFWC and NWIFC, which in turn support regional tribes and help put tribes on a more equal footing with state and local governments, academic, and NGO partners that routinely receive federal funds for many of the same purposes. Capacity building among tribes is a foundational need and supports all of the other best practices in this section.

*ii. Communication with Tribes Should Happen as Early as Possible*

When decisions are being made about natural resources that Tribal Nations have an interest in, contact should be made as early as possible.<sup>245</sup> This is more achievable when policies for contacting tribes are formalized and fully integrated within decision-making processes, including executive-level decisions, as appropriate.<sup>246</sup> Early communication in partnerships can help avoid decisions being made without tribal involvement, which implicitly respects the government-to-government relationship between tribes, states, and the United States.

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<sup>243</sup> See discussion *supra* Section II.D.

<sup>244</sup> See *supra* Sections III.A.i, III.A.ii., III.B.i.

<sup>245</sup> See *supra* Sections III.A.i, III.B.ii.1.

<sup>246</sup> See, e.g., *supra* Section III.B.ii.1.

iii. *Indigenous Knowledge Should be Used Alongside Other Knowledge Systems*

Indigenous Knowledge should be elevated in environmental decision-making because it offers place-based, intergenerational insight into ecosystem relationships that Western scientific systems can overlook.<sup>247</sup> Frameworks that have dedicated working groups or task teams to analyze how Indigenous Knowledge can be implemented into conservation should be a given.

iv. *Building Relationships is Essential to Sustained Partnerships*

Strong partnerships are built on strong relationships between agency and tribal staff. State and federal agencies with designated tribal liaison positions built in by law may foster more consistent and proactive communication,<sup>248</sup> which builds the trust needed to maintain long-term collaboration.

v. *Agency Staff Should Receive Training on Tribal Sovereignty and Culture*

Ensuring federal and state agency staff understand the nature of the government-to-government relationship is essential for respecting tribal sovereignty in partnerships. Ensuring that training and education are included in agencies' tribal communication policies can facilitate consistency and effectiveness.<sup>249</sup>

vi. *Indigenous Knowledge Should be Deferred to if Tribal Resources are Affected*

Part of respecting Tribal Nations' right to self-determination and authority is deferring to their assessment of how their resources will be affected by a proposed action. Cultural resource decisions should not be outsourced to non-

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<sup>247</sup> See *supra* Section III.A.i.

<sup>248</sup> See *supra* Section III.A.iii.

<sup>249</sup> See *supra* Sections III.A.iii., III.B.ii.1., III.B.ii.2.

tribal archaeologists or cultural resource management firms.<sup>250</sup> This practice is often linked to the next one, the protection of cultural knowledge that tribes may want to keep confidential.

vii. *Sensitive Tribal Knowledge Shared Should be Kept Confidential*

Protection of sensitive tribal knowledge, a concept sometimes referred to as “data sovereignty,”<sup>251</sup> should be respected, which is why there needs to be a willingness to defer to tribes in decision-making. Laws that involve tribal communication, like consultation laws, should discuss confidentiality measures and sanctions to protect tribes’ cultural heritage.<sup>252</sup>

Successful intergovernmental partnerships aren’t just about having the right policies in place—they depend on how those policies are carried out. Practices like early communication, investing in tribal capacity, and elevating Indigenous Knowledge only work when there’s a genuine effort to build trust and treat tribes as equal partners. Good faith plays a critical role in this process; it’s what turns consultation into actual collaboration and makes room for tribal leadership in decisions that affect their lands and resources. Without maintenance of good-faith cooperation, even the most comprehensive policy frameworks risk falling short.

#### IV. THE CHESAPEAKE BAY REGION

The Chesapeake Bay and its surrounding watershed are on the frontlines of coastal environmental changes in the eastern United States. Sea-level rise, caused by both rising temperatures and land subsidence, has already raised water levels by about one foot over the past century, with projections estimating up to four feet more by 2100, threatening marshes, islands, and shoreline

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<sup>250</sup> See *supra* Section III.C.i.1.

<sup>251</sup> [U.S. Indigenous Data Sovereignty & Governance Summit 2024](#), U.S. INDIGENOUS DATA SOVEREIGNTY NETWORK (last visited July 23, 2025) (“Indigenous Data Sovereignty recognizes Indigenous Peoples’ inherent rights to access, use, and steward data critical for effective governance, and to govern those data according to their own values, principles, and practices.”).

<sup>252</sup> ENV’T L. INST., *supra* note 216, at 2.

infrastructure.<sup>253</sup> At the same time, the Bay’s average water temperature has increased by approximately one degree Celsius over the past thirty years, stressing species like trout, blue crabs, striped bass, and eelgrass that depend on cold, oxygen-rich waters.<sup>254</sup> Extreme weather patterns like drought and intense rainfall are intensifying nutrient runoff, sediment loading, and flooding across the watershed.<sup>255</sup> According to 2025 Bay health assessments, these conditions led to a decline in the overall water-quality grade (from C+ to C), but experts warn that rising temperatures and storm frequency will increasingly strain the ecosystem and jeopardize ongoing restoration efforts.<sup>256</sup> In spring 2025, the Bay’s hypoxic area (“dead zone”) reached a new record due to the elevated temperatures and severe precipitation that have become a hallmark of changing environmental conditions in the mid-Atlantic.<sup>257</sup>

No single case study reviewed in this article will provide a direct translation to the Chesapeake Bay region. However, the collaborations that other regions of the country have developed should serve as a guide. Like in each of the case studies, the Bay has an active coalition of Tribal Nations, and a regional compact of states in the watershed led by the EPA. Regional tribes are ready and willing to use Indigenous Knowledge to help restore the Bay—their ancestral lands—and should have a formal seat at the table where decisions are being made.

#### A. Tribal Nations in the Region

The Pamunkey Indian Tribe, Chickahominy Indian Tribe, Chickahominy Indian Tribe Eastern Division, Upper Mattaponi Tribe, Rappahannock Tribe, Nansemond Indian Nation, and Monacan Indian Nation are all federally recognized Tribes on tributaries to the Chesapeake Bay, in what is known today

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<sup>253</sup> Chesapeake Bay Found., *Climate Change*, CHESAPEAKE BAY FOUND. (last visited July 24, 2025).

<sup>254</sup> *Chesapeake Bay: Climate Change*, NAT’L OCEANIC & ATMOSPHERIC ADMIN. FISHERIES (last visited July 25, 2025).

<sup>255</sup> Chesapeake Bay Found., *supra* note 251; Ed. Bd., *Chesapeake Bay Is Stagnating. Here’s What Could Help*, THE WASH. POST (Jul. 9, 2025).

<sup>256</sup> Brian Witte, *Chesapeake Bay Health Grade Dips After Hottest Year on Record and Extreme Rainfall Patterns*, AP NEWS (June 10, 2025).

<sup>257</sup> *Chesapeake Bay Monitoring Shows Hypoxia Increased in June After Rainy May*, MD. DEP’T OF NAT. RES. (July 16, 2025).

as Virginia. These Tribes have been stewarding this region since time immemorial.<sup>258</sup> Most are members of the Algonquian-speaking communities historically tied to the Powhatan Confederacy, who cultivated maize, fished, hunted, and gathered for millennia prior to European Contact.<sup>259</sup> The Monacan Nation comes from Virginia and North Carolina Eastern Siouan linguistic communities, making it culturally distinct from the coastal Algonquian groups.<sup>260</sup> Over centuries, these Tribes endured displacement, population loss due to disease, colonization, and assimilationist policies—yet, they persisted in maintaining cultural identity and governance structures that they have today.<sup>261</sup>

The Pamunkey Indian Tribe, located along its namesake Pamunkey River, became the first Tribe in Virginia to receive federal recognition.<sup>262</sup> After a long and complex bureaucratic process, the Tribe received federal recognition through the Bureau of Indian Affairs on July 2, 2015.<sup>263</sup> The Pamunkey maintained a continuous presence on their reservation—one of the oldest in the United States.<sup>264</sup> Federal recognition reaffirmed their sovereignty, eligibility for federal benefits, and trust responsibility obligations.

In January 2018, the Thomasina E. Jordan Indian Tribes of Virginia Recognition Act was passed by the U.S. Congress and signed into law by President Trump.<sup>265</sup> The Act federally recognized the Chickahominy, Chickahominy Eastern Division, Upper Mattaponi, Rappahannock, Nansemond,

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<sup>258</sup> Lauren Hines-Acosta, *In Chesapeake Region, Indigenous Council Sees Conservation, Sovereignty as One*, BAY J. (Sept. 19, 2024).

<sup>259</sup> *The Mattaponi Culture*, MATTAPONI INDIAN TRIBE & RSRV. (last visited July 23, 2025); *Consultation Policy*, RAPPAHANNOCK TRIBE (last visited July 23, 2025); *Tribal History*, NANSEMOND INDIAN NATION (last visited July 23, 2025); *Post-Contact Era (1500-1900)*, CHICKAHOMINY TRIBE (last visited July 23, 2025); *Tribal Land*, CHICKAHOMINY INDIAN TRIBE- E. DIV. (last visited July 23, 2025).

<sup>260</sup> *Official Website*, MONACAN INDIAN NATION (last visited July 23, 2025).

<sup>261</sup> See *Post-Contact Era (1500-1900)*, CHICKAHOMINY TRIBE (last visited Feb. 10, 2026).

<sup>262</sup> *Federal Recognition for the Pamunkey*, NAT'L PARKS SERV. (Aug. 24, 2020).

<sup>263</sup> Office of the Assistant Secretary – Indian Affairs, *Interior Department Issues Final Determination for Two Federal Acknowledgment Petitioners*, U.S. DEP'T OF THE INTERIOR (July 2, 2015).

<sup>264</sup> *Reservation*, PAMUNKEY INDIAN TRIBE (last visited July 23, 2025).

<sup>265</sup> Thomasina E. Jordan Indian Tribes of Virginia Federal Recognition Act of 2017, Pub. L. No. 115-121, 132 Stat. 40 (2018).

and Monacan Nations as Sovereign Nations and created a legal statute for formal government-to-government relationships. Though done through a different avenue than the Pamunkey Tribe, this Act conferred most of the same federal benefits to these six Tribes.<sup>266</sup>

The Tribal Nations in Virginia are governed by the 1677 Treaty of Middle Plantation, which was signed with the British Crown.<sup>267</sup> The treaty guaranteed the Tribes' land, as well as the right to fish and gather in their usual places as they always had.<sup>268</sup> When the Tribes were federally recognized, nothing indicates that their rights outlined in the 1677 Treaty were abrogated. In fact, the congressional act that creates six of the seven federally recognized Tribes states that “[n]othing in this title expands, reduces, or affects in any manner any hunting, fishing, trapping, gathering, or water rights of the Tribe and members of the Tribe.”<sup>269</sup> The Tribes have not filed suit against the United States seeking co-management of the natural resources guaranteed by the 1677 Treaty since gaining federal recognition.

These Tribes have encountered resistance in asserting their 1677 Treaty reserved rights from the state of Virginia<sup>270</sup> In July 2013, the Attorney General of Virginia issued a legal opinion that stated “Virginia Indians must follow [state] fish and wildlife laws and regulations with respect to seasons, moratoria, minimum size limits, possession limits, and method of take,” despite the Tribes' treaty-guaranteed fishing rights.<sup>271</sup> Although this opinion is not legally binding, it still has consequences for tribal fishers when a citation is issued and enforced against them in contravention of the 1677 Treaty.<sup>272</sup> Tribal fishers have noted that they have been harassed and ticketed by law enforcement who are not educated

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<sup>266</sup> The legislation bars the six tribes from gaming under the Indian Gaming Regulatory Act, whereas the Pamunkey Tribe is not prohibited from gaming activities. *Compare* Pub. L. No. 115-121, with Office of the Assistant Secretary – Indian Affairs, *supra* note 261.

<sup>267</sup> *Articles of Peace (1677)*, ENCYCLOPEDIA VA. (last visited July 23, 2025).

<sup>268</sup> *Id.*

<sup>269</sup> Pub. L. No. 115-121.

<sup>270</sup> Leslie Middleton, *Legal Ruling Challenges VA Tribes' Traditional Fishing Rights*, BAY J. (Oct. 16, 2014).

<sup>271</sup> *Id.*

<sup>272</sup> *Id.*

on the Treaty.<sup>273</sup> Choosing not to prosecute is not the same as acknowledging tribes' reserved treaty rights to hunt and fish as they traditionally did, and Virginia's lack of clarification on this Attorney General opinion means that tribal fishers cannot meaningfully rely on their rights being respected by the state.

B. Tribal Nation Environmental Work in the Chesapeake Bay Watershed and the Indigenous Conservation Council of the Chesapeake Bay

The seven Tribal Nations described above maintain deep ancestral ties to the Chesapeake Bay watershed, where their ancestors fished, hunted, and cultivated plants along the streams and rivers feeding into the Bay. In recent years, these Tribes have led environmental restoration and climate resilience projects. For example, the Rappahannock Tribe has acquired over 1,000 acres of its ancestral land at Fones Cliffs. The Cliffs had been threatened by development for years; now, the Tribe will use Indigenous Knowledge to protect the bald eagles that nest there and continue passing on cultural knowledge to tribal youth through its Return to the River program.<sup>274</sup> The Tribe is also using a federal Tribal Wildlife Grant to develop a mobile aquaculture unit to release herring and oysters into the Rappahannock River, which will improve native species populations and water quality.<sup>275</sup>

The Nansemond Indian Nation has acquired land that was once home to a cement factory on its namesake Nansemond River and is restoring the river by removing invasive species and planting native trees to re-establish the link between the forest and the marshes.<sup>276</sup> The Tribe's former Environmental Program Coordinator, Cameron Bruce, says that he has seen more birds and larger

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<sup>273</sup> Email from Connor Tuppence, Tribal Court Administrator, Upper Mattaponi Tribe, to Lauren Wiederkehr, law student (Aug. 1, 2025, 11:50 AM EST) (on file with authors).

<sup>274</sup> [\*Rappahannock Tribe Purchases More Fones Cliffs Land\*](#), RAPPAHANNOCK TIMES (Apr. 16, 2025).

<sup>275</sup> Cindy Sandoval, [\*Rappahannock Tribe Uses Service Grant for Culturally and Environmentally Important Restoration\*](#), U.S. FISH & WILDLIFE SERV. (Jan. 13, 2025).

<sup>276</sup> Lauren Hines-Acosta, [\*Nansemond Indian Nation Aims to Heal Land, Water Along Their Namesake River\*](#), VA. MERCURY (Aug. 14, 2024).

deer herds on the property since restoration efforts began.<sup>277</sup> The Nansemond are also a part of the Chesapeake Bay Foundation's oyster program, where the Tribe grows baby oysters supplied by the Foundation and plants them on a sanctuary reef in the Nansemond River once they are adults.<sup>278</sup>

In 2019, the Chickahominy Tribe used a \$3.1 million grant from the state of Virginia to purchase 105 acres along the James River.<sup>279</sup> The Tribe used a conservation easement that limits development and supports riparian buffers to restore the habitat and the neighboring river.<sup>280</sup> Riparian buffers are streamside forests; they keep land in its natural forested state for the good of waterways, as they can trap polluted runoff and stabilize soil that would otherwise be washed into waterways.<sup>281</sup> The Chickahominy have used these techniques for centuries.<sup>282</sup>

The Monacan Indian Nation has created its own Priority Climate Action Plan (PCAP), funded by the EPA.<sup>283</sup> The goal of this plan is to “reinforce tribal needs and sovereignty while also building resilience in the face of climate change,” and develop climate measures “on Monacan terms.”<sup>284</sup> The Monacan's tribal landscape overlaps with significant tracts of protected land, like the George Washington and Thomas Jefferson National Forests.<sup>285</sup> The PCAP prioritizes maintaining large, healthy forested land that contributes to its carbon-negative status, and seeks to connect its forests to larger ones.<sup>286</sup> These forests hold

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<sup>277</sup> Joseph Lee, [Tribal Lands Were Stolen. What Happens When Those Ancestral Territories Are Returned?](#), VOX (Nov. 26, 2024).

<sup>278</sup> Hines-Acosta, *supra* note 274.

<sup>279</sup> Evan Visconti, [Va. Native American Tribes Acquiring More Lands for Cultural and Environmental Preservation](#), VA. MERCURY (Sept. 9, 2021, 12:02 AM).

<sup>280</sup> *Id.*

<sup>281</sup> *Id.*

<sup>282</sup> *Id.*

<sup>283</sup> MONACAN INDIAN NATION, [PRIORITY CLIMATE ACTION PLAN FOR THE MONACAN INDIAN NATION 1](#) (2024).

<sup>284</sup> *Id.* at 5.

<sup>285</sup> Forest Service, [Discover History](#), U.S. DEP'T OF AGRIC. (Apr. 11, 2025).

<sup>286</sup> MONACAN INDIAN NATION, *supra* note 281, at 6.

riparian buffers that protect the Chesapeake Bay,<sup>287</sup> like the Chickahominy Tribes maintain.

In 2023, the Upper Mattaponi Tribe received \$3 million from NOAA's Coastal Zone Management Habitat Protection and Restoration Grant to reacquire 853 acres of ancestral lands on the Mattaponi River.<sup>288</sup> This re-acquisition enables the Tribe to protect its traditional lands from development and will strengthen its traditional stewardship practices for culturally significant species.<sup>289</sup> Additionally, in 2024, the Upper Mattaponi Tribe began its own cutting-edge water quality monitoring program to track the health of its ancestral waters.<sup>290</sup>

Since being federally recognized, the Chickahominy Indian Tribe Eastern Division has developed a citizen science water quality program, as well as its own water monitoring program.<sup>291</sup> The data from the monitoring program has been shared with the Virginia Department of Environmental Quality and the Alliance for the Chesapeake Bay to measure the health of the watershed.<sup>292</sup> The Tribe has also partnered with the Chesapeake Bay Foundation to establish its own oyster garden and improve the quality of its waterways.<sup>293</sup>

These are only a few of the many significant restoration projects undertaken by the Tribes thus far to protect the Bay. In 2022, tribal leaders from all seven federally recognized Tribes in Virginia met after the Sovereign Nations of Virginia Conference and formed the Indigenous Conservation Council

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<sup>287</sup> See *George Washington & Jefferson National Forest*, THE GLOB. IMPROVEMENT GRP. (last visited July 30, 2025) (describing riparian buffer restoration in the Washington and Jefferson National Forests).

<sup>288</sup> *Return to the River: The Upper Mattaponi Tribe Reclaim Their Ancestral Lands*, NAT'L OCEANIC & ATMOSPHERIC ADMIN. (Nov. 27, 2023).

<sup>289</sup> *Id.*

<sup>290</sup> Email from Melissa Ann Ehrenreich, Executive Director, Indigenous Conservation Council to Lauren Wiederkehr, law student (Sept. 19, 2025, 2:29 PM EST) (on file with authors).

<sup>291</sup> CULTURAL HERITAGE PARTNERS, A NEW ERA FOR INDIAN COUNTRY IN VIRGINIA: A REPORT ON THE RECENT ACHIEVEMENTS OF SIX FEDERALLY RECOGNIZED SOVEREIGN TRIBAL NATIONS, 10 (2024) (on file with authors).

<sup>292</sup> *Id.*

<sup>293</sup> *Id.*

(ICC).<sup>294</sup> This intertribal consortium serves as a shared platform for its Tribal Nation members to organize regional strategies for land repatriation<sup>295</sup> and environmental stewardship in the Bay.<sup>296</sup> Like the GLIFWC, NWIFC, and TMSN, the ICC is focused on supporting the sovereignty of member Tribes through capacity building and resource sharing.<sup>297</sup> The Council meets quarterly to guide strategy, exchange best practices, and learn from other Indigenous-led conservation initiatives across North America.<sup>298</sup>

The seven Tribes in the ICC satisfy requirements for asserting aboriginal title rights, as they have had actual, continuous, and exclusive use of their ancestral lands prior to 1677. This is evidenced by the fact that the Tribal Nations have exercised traditional treaty rights reserved in the 1677 Treaty of Middle Plantation, and continually upheld their obligations under it by paying annual tribute to the Commonwealth of Virginia.<sup>299</sup>

Nothing suggests that affiliation with the ICC must be limited to Tribal Nations in Virginia. The ICC's bylaws establish that the organization may expand to support Tribal Nations across the Chesapeake Bay watershed.<sup>300</sup> The bylaws do not limit potential affiliation to federally recognized Tribal Nations.<sup>301</sup> This provision leaves open the possibility for expanded tribal collaboration on restoration and conservation efforts in the Chesapeake watershed under the ICC's name.

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<sup>294</sup> [Our Purpose](#), INDIGENOUS CONSERVATION COUNCIL OF THE CHESAPEAKE BAY (last visited July 25, 2025).

<sup>295</sup> Repatriation means restoring “sacred relationships with [tribes’] ancestral lands and cultures.” Lauren Hines-Acosta, [In Chesapeake Region, Indigenous Council Sees Conservation, Sovereignty as One](#), BAY J. (Sept. 19, 2024).

<sup>296</sup> *Id.*

<sup>297</sup> *Id.*

<sup>298</sup> *Id.*; [Our Purpose](#), *supra* note 292.

<sup>299</sup> [Governor Glenn Youngkin Participates in the 347th Tribute Ceremony](#), GOVERNOR OF VA. (Nov. 26, 2024) (“Today’s ceremony holds immense significance as it reminds us of the *tradition of honoring and upholding our treaty obligations*, thereby strengthening the ties between these Tribal nations and the Commonwealth of Virginia,” said Secretary of the Commonwealth Kelly Gee.”) (emphasis added).

<sup>300</sup> INDIGENOUS CONSERVATION COUNCIL, [BYLAWS §3.2, NON-VOTING AFFILIATES](#) 3 (2023).

<sup>301</sup> *Id.*

As these stories demonstrate, the seeds for federal and state partnerships with Tribal Nations in Virginia have already been sown, and many benefits have already been reaped. However, there is still an opportunity being missed that could transform Bay conservation and restoration efforts; an opportunity for greater tribal involvement that is overwhelmingly supported by the nonprofit watershed organizations desiring stronger leadership from regional sovereign entities.

### C. An Opportunity for a Collaborative Partnership

The Chesapeake Bay Program (CBP) is a longstanding regional partnership started in 1983 that coordinates and funds restoration and conservation efforts in the Chesapeake Bay watershed.<sup>302</sup> It brings together federal agencies (led by the EPA), the six watershed states (Virginia, West Virginia, Maryland, New York, Delaware, and Pennsylvania), the District of Columbia, and the Chesapeake Bay Commission, in coordination with academic institutions, nonprofits, and local governments to implement pollution reductions, habitat restoration, land conservation, and resource sustainability initiatives.<sup>303</sup> The Program is administered through EPA's Chesapeake Bay Program Office and oversees a range of grants, like Chesapeake Bay Implementation Grants and Small Watershed Grants, providing financial and technical assistance to further restoration and resiliency.<sup>304</sup> Jurisdiction funding is also included, which is guaranteed, non-competitive funds.<sup>305</sup> The Program is charged with executing the Chesapeake Bay Watershed Agreement of 2014, which is currently undergoing revisions to address priorities beyond 2025 (the target year for many of the outcomes listed in the 2014 Agreement).<sup>306</sup>

Indigenous voices and Indigenous-led initiatives are a glaring omission in the Program's membership and 2014 Watershed Agreement, standing in stark contrast to the many other regional watershed efforts around the United States, as

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<sup>302</sup> [Chesapeake Bay Program \(CBP\)](#), U.S. ENV'T PROT. AGENCY (Apr. 15, 2025).

<sup>303</sup> *Id.*

<sup>304</sup> *Id.*

<sup>305</sup> U.S. ENV'T PROT. AGENCY, [2025 GRANT AND COOPERATIVE AGREEMENT GUIDANCE](#) 6 (2025).

<sup>306</sup> [Watershed Agreement](#), CHESAPEAKE BAY PROGRAM (last visited July 25, 2025).

discussed above. In June of 2025, The CBP skirted the ICC's formal request to be added as signatories on the new Agreement and receive a seat on the governing body's council,<sup>307</sup> despite Virginia Tribal Nations' demonstrable success in restoring rematriated land, aligned mission in restoring bay health, and recent federal recognition as sovereign Tribal Nations.<sup>308</sup> Although the Principals' Staff Committee noted that they were not directed to consider new signatories to the Program,<sup>309</sup> the Executive Council could issue a new directive allowing the ICC to become a signatory and receive representation on the Council.<sup>310</sup>

In November of 2025, the Principals' Staff Committee reversed course on the ICC's formal inclusion in a significant way. The Committee voted unanimously to issue a charge, *Tribes as a Formal and Enduring Partner in the Chesapeake Bay Program Partnership*, for the Executive Council's approval.<sup>311</sup> The Committee will establish a team to make recommendations on a framework to include indigenous voices, subject to the Executive Council's review.<sup>312</sup> Given all the successful models of partnerships around the country that crystallize best practices, the Committee has many examples to draw from in crafting this framework. On December 2, 2025, the Executive Council formally voted on this charge at its annual meeting, and the Principals' Staff Committee will submit its proposed framework by July 1, 2026.<sup>313</sup>

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<sup>307</sup> The governing body's council is the Executive Council and is made up of the governors of each watershed state, the mayor of D.C., the chair of the Chesapeake Bay Commission, and the administrator of the EPA. Lauren Hines-Acosta, [Indigenous Tribes Ask for Seat in Chesapeake Bay Program](#), BAY J. (May 15, 2025).

<sup>308</sup> *Id.*

<sup>309</sup> [Letter from Josh Kurtz, Principals' Staff Comm. Chair, Chesapeake Bay Program](#), to Melissa Ann Ehrenreich, Exec. Dir., Indigenous Conservation Council of the Chesapeake Bay (June 27, 2025) ("We have not been expressly directed by the Executive Council to discuss changes to or expansion of Executive Council membership.").

<sup>310</sup> Aman Azhar, [Chesapeake Bay Program Says No to Full Membership for Virginia Tribal Nations—For Now](#) INSIDE CLIMATE NEWS (June 27, 2025).

<sup>311</sup> [Principals' Staff Committee Meeting Actions and Decisions](#), CHESAPEAKE BAY PROGRAM (Nov. 6, 2025).

<sup>312</sup> *Id.*

<sup>313</sup> [Chesapeake Executive Council Charge to the Principals' Staff Committee: Tribes as a Formal and Enduring Partner in the Chesapeake Bay Program](#), CHESAPEAKE BAY PROGRAM (DEC. 2, 2025).

As a consortium of sovereign Tribal Nations, the ICC should be properly included as an interested government. All of the federally recognized tribes hold title to ancestral lands located on tributaries and rivers mapped by the Chesapeake Bay Program.<sup>314</sup> Any policies adopted in the revised Watershed Agreement will affect the progress of environmental health of these waters considering that many tribal lands of interest mapped for protection and co-management by the federally recognized tribes are located in Areas of Unprotected Biodiversity Importance (AUBI) as mapped by NatureServe.<sup>315</sup> As the Chesapeake region is in the midst of defaulting on yet another restoration deadline in 2025, such progress and leadership is desperately needed.

## V. CONCLUSION

Across the nation, Tribal Nations are reclaiming their rightful place as leaders among governmental efforts to restore land and waters. Whether through enforcement of treaty rights, land repatriation, or direct designation of co-managed marine and riverine areas, Indigenous leadership is reshaping what environmental governance looks like. The integration of Indigenous Knowledge is essential to the success of any environmental strategy that hopes to be holistic, adaptive, and place-based. This type of Indigenous Knowledge offers insights grounded in centuries of lived experience and relational understandings of ecosystems, and when honored alongside Western scientific systems, it strengthens outcomes for both human and non-human communities.

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<sup>314</sup> See Evan Visconti, [Rappahannock Tribe Acquires Nearly 1,000 Acres Along Its Namesake River](#), VA. MERCURY (Apr. 18, 2025, 5:29 AM); Whitney Pipkin, [Mattaponi Reclaim Ancestral Lands](#), CHESAPEAKE BAY MAG. (May 15, 2023); [Chickahominy](#), VA. PLACES (last visited July 25, 2025); [We Are the Pamunkey Indian Tribe](#), PAMUNKEY INDIAN TRIBE (last visited July 25, 2025); [DU, Partners Help Return Ancestral Land to the Nansemond Indian Nation](#), DUCKS UNLIMITED (Oct. 21, 2022).

<sup>315</sup> NatureServe is an authoritative source for biodiversity data through North America that works with over sixty network organizations to collect, analyze, and map biodiversity knowledge for public use. [Who We Are](#), NATURESERVE (last visited Aug. 1, 2025); NatureServe, [Areas of Unprotected Biodiversity Importance of Imperiled Species in the United States](#), NATURESERVE (last visited Aug. 1, 2025).

The case studies discussed show that partnerships have successfully grown for decades in large watersheds and estuaries around the country. These frameworks and funding structures can be adapted to the Chesapeake Bay region, where infrastructure like a regional governing body (the Chesapeake Bay Program) and a consortium of Tribal Nations (the Indigenous Conservation Council) already exist. Indeed, the relatively new designation of Virginia Tribes as federally recognized sovereigns requires their inclusion in the Bay Program to fulfill the obligations of federal and state governments to engage in government-to-government relations, not to mention to achieve their core goal of supporting the effective, efficient, and inclusive administration of the Program to meet its stated objectives.

Recognizing tribal sovereignty is not a symbolic act; it is a legal and moral obligation. Genuine co-management demands a shift from consultation to consent, from token involvement to co-equal authority. This includes respecting tribal capacity constraints, protecting sensitive knowledge, and allowing tribal communities to determine how their lands and waters are managed. The efforts of Virginia's Tribal Nations and others across the country demonstrate that when tribes lead, ecosystems recover, cultures thrive, and new models of shared governance take root. These lessons must shape the next chapter of environmental law and policy—not only in the Chesapeake Bay, but across the nation.