

William & Mary Law School

William & Mary Law School Scholarship Repository

Virginia Coastal Policy Center

Law School Clinics and Centers

11-2-2018

Building a Resilient Virginia

Anthony Cusato

Conor Jennings

Angela King

William & Mary Law School, amking02@wm.edu

Virginia Coastal Policy Center, William & Mary Law School

Follow this and additional works at: <https://scholarship.law.wm.edu/vcpclinic>



Part of the [Environmental Policy Commons](#)

Repository Citation

Cusato, Anthony; Jennings, Conor; King, Angela; and Virginia Coastal Policy Center, William & Mary Law School, "Building a Resilient Virginia" (2018). *Virginia Coastal Policy Center*. 68.

<https://scholarship.law.wm.edu/vcpclinic/68>

Copyright c 2018 by the authors. This article is brought to you by the William & Mary Law School Scholarship Repository.

<https://scholarship.law.wm.edu/vcpclinic>

Building a Resilient Virginia

VCPC's 6th Annual Conference (2018) Post-Conference Report

The Virginia Coastal Policy Center (VCPC) focuses on providing science-based legal and policy analysis of environmental and land use issues affecting coastal resources, and educates the Virginia policymaking, non-profit, legal, and business communities about these subjects.

The 2018 conference, entitled *Building a Resilient Virginia*, was held on Friday, November 2, 2018 at the School of Education on the campus of the College of William & Mary. Attendees included VCPC students, academics, business leaders, military personnel, representatives of environmental organizations, and more, including federal and local government officials.

Virginia Environmental Endowment, Virginia Sea Grant, Virginia Institute of Marine Science, Chesapeake Bay Foundation, the Virginia Coastal Zone Management Program, and Middle Peninsula Planning District Commission sponsored the conference.

VCPC students Anthony Cusato & Conor Jennings prepared this report, with assistance from VCPC Assistant Director Angela King.

Videos, presentation slides, speaker biographies, and Congressional letters of support are available on the VCPC website at:

<https://law.wm.edu/academics/programs/jd/electives/clinics/vacoastal/conferences/building-a-resilient-virginia/index.php>.



WILLIAM & MARY
LAW SCHOOL
VIRGINIA COASTAL
POLICY CENTER

Table of Contents

Overview.....3

Women in the Environment Breakfast.....4

Opening Remarks and Comments.....4

Speaker: Rear Admiral Ann Phillips (U.S. Navy, Ret.).....5

Panel 1: Building Resilience for Our Green & Gray Infrastructure.....5

Panel 2: Legislative Options for Building Resilience.....8

**Lunchtime Keynote Address: The Pamunkey as Partners
in Resilience.....9**

**Panel 3: Building a Water Economy: Louisiana’s Water
Campus Experience.....10**

**Panel 4: The Economic Benefits of Land Conservation
and Ecotourism.....11**

**Keynote Speaker: The Honorable Ralph Northam,
Governor of Virginia.....12**

Reception.....13

Overview

The Virginia Coastal Policy Center (VCPC) hosted its 6th Annual Conference on November 2, 2018. The theme was *Building a Resilient Virginia*. Segmented into four panels, presentations included topics such as building resilience for green and gray infrastructure, legislative options for building resilience, the Pamunkey Tribe as partners in resilience efforts, building a water-based economy, and the economic benefits of land conservation and ecotourism. The conference culminated in an Executive Order signed by the Governor of Virginia, The Honorable Ralph Northam.

The first panel discussed resilience in terms of green infrastructure, such as natural and nature based features, and gray infrastructure, such as onsite sewage systems and roads. Specifically, panelists presented on flooding and water quality issues for each of these subject areas, highlighting challenges that localities and the Commonwealth face and providing policy recommendations to address them. The presenters were Dr. Carl Hershner (Virginia Institute of Marine Science), Lance Gregory (Virginia Department of Health), Curtis Smith (Accomack-Northampton Planning District Commission), Angela King (VCPC), and Elizabeth Andrews (VCPC).

The second panel consisted of Virginia legislators continuing the discussion of policy issues the Commonwealth is facing concerning green and gray infrastructure. The legislators outlined the realities of resilience challenges at the state, local, and individual level, and potential policy solutions. Professor Andrews moderated the panel that included Delegate David Bulova (37th District), Delegate Keith Hodges (98th District), Senator Monty Mason (1st District), and Delegate Christopher Stolle (83rd District).

During lunch, two members of the Pamunkey Indian Tribe, Chief Robert Gray and Dr. Ashley Spivey, discussed the Tribe being partners with the Commonwealth in resilience efforts. Chief Gray discussed the Tribe's long tradition of conservation, using the shad fishery as an example. Shad is a critical resource to the Tribe and they have developed important strategies to conserve it. Dr. Spivey, Director of the Pamunkey Indian Tribal Resource Center, discussed additional resilience efforts the Tribe is undertaking, including addressing shoreline erosion at the Reservation. Both Chief Gray and Dr. Spivey emphasized that there is much that Virginia's state and local governments could learn from the Pamunkey's approach to conservation, and vice versa.

The third panel brought in a new perspective, focusing on Louisiana's coastal waterways. Dr. Troy Hartley, Director of Virginia Sea Grant, moderated the panel that included Robert Twilley (Louisiana Sea Grant, Louisiana State University), Dale Morris (The Water Institute of the Gulf), John Spain (Baton Rouge Area Foundation), and Stephen Moret (Virginia Economic Development Partnership). Topics included the Louisiana Coastal Master Plan and The Water Campus, a research and collaboration space in downtown Baton Rouge that will bring together under one roof people currently working in different "silos" of water-related issues. It is hoped that bringing together decision makers from the policy, academic, political, and scientific perspectives will help bring novel solutions. The panelists agreed that Virginia has the same talent and potential to create similar institutions.

The fourth and final panel focused on the economic benefits of land conservation and ecotourism. Karen Forget (Lynnhaven River NOW) moderated the panel that included Laura McKay (Virginia Coastal Zone Management Program, Department of Environmental Quality), Shannon Alexander (Accomack-Northampton Planning District Commission), and John Bateman (Northern Neck Planning District Commission). The panel discussed the benefits of resilience projects beyond the protection they provide against sea level rise. Virginia's open spaces provide opportunities for ecotourism, which helps economic development in turn help fund the conservation projects that keep the open spaces maintained in the first place.

The conference closed with a Keynote Address by Virginia Governor Ralph Northam, who was introduced by Virginia Secretary of Natural Resources Matt Strickler. Governor Northam spoke of the clear risks of climate change and sea level rise and the need for action in Virginia to protect against these dangers. He pointed out that collaboration and data sharing during events such as VCPC's conference were key to coming up with solutions. He culminated his appearance by signing an Executive Order to create state standards for addressing sea level rise, including a Virginia Coastal Resilience Master Plan.

Women in the Environment Breakfast

Prior to the start of the conference, the Chesapeake Bay Foundation sponsored a Women in the Environment (WINE) Breakfast. Dr. Jewel Bronaugh, Commissioner of the Virginia Department of Agriculture and Consumer Services, provided remarks during the breakfast.

Opening Remarks and Comments

Katherine Rowe, President, College of William and Mary

After welcoming attendees, President Rowe described the impacts of changing environmental conditions in the area, including sea level rise. She then noted that a solution will take sustained collaboration between a variety of parties and interests, including local and state government, higher education, the military, and the private sector.

Davison Douglas, Dean, William & Mary Law School

Dean Douglas began by mentioning that it was a privilege to sponsor a conference that brought together so many people that are all doing very important work. He then went on to acknowledge that the W&M Law School has a number of students who are engaged in the issues involved with the changing environmental conditions. Dean Douglas then went on to explain how important the work that everyone involved with the conference is doing and how it will have an impact on our future.

Elizabeth Andrews, Director, Virginia Coastal Policy Center

Professor Andrews began by thanking participants, the audience, sponsors, VCPC students and staff involved in the coordination of the conference. She then addressed the overall themes of the panels for the conference and the schedule for the day. Professor Andrews then introduced the first speaker of the day, Rear Admiral Ann Phillips.

Speaker

Rear Admiral Ann Phillips (U.S. Navy, Ret.), Special Assistant to the Governor for Coastal Adaptation and Protection, Commonwealth of Virginia

The morning began with the introduction of Rear Admiral Ann Phillips (U.S. Navy, Ret.) who was recently appointed as Special Assistant to the Governor for Coastal Adaptation and Protection. Phillips mentioned Virginia's interesting and unique governing structure, which includes the Dillon Rule and independent cities. She also highlighted the challenges the Commonwealth faces with respect to water and noted that flooding is occurring with greater frequency, duration, and depth due to a variety of causes. Her remarks focused on key principles that are consistent across states, regions, and nations when dealing with rising waters. These principles include the need to set common standards to guide planning and policy decisions, have the support of a consortium of universities to help prepare for and take on this challenge, the importance of accessible and shareable data, and the impact of collaboration. Phillips also stated that a common understanding of what vulnerabilities exist is needed to develop solutions that can then be prioritized and funded. She highlighted steps that have been taken in the Commonwealth that match with these principles – including the recent creation of her position as the Special Assistant to the Governor for Coastal Adaptation and Resilience, the establishment of the Commonwealth Center for Recurrent Flooding Resiliency in 2015, and the Hampton Roads Planning District Commission's recent resolution to set uniform sea level rise planning and policy guidelines for use in the region.

Panel 1: Building Resilience for Our Green & Gray Infrastructure

Dr. Carl Hershner, Director, Center for Coastal Resources Management, Virginia Institute of Marine Science; Lance Gregory, Director, Division of Onsite Sewage and Water Services, Environmental Engineering, and Marina Programs, Virginia Department of Health; Curtis Smith, Director of Planning, Accomack-Northampton Planning District Commission; Angela King, Assistant Director, Virginia Coastal Policy Center; Elizabeth Andrews, Director, Virginia Coastal Policy Center

Green Infrastructure – Natural and Nature-Based Features

Dr. Carl Hershner discussed a co-benefit approach to prioritizing lands for protection. He noted that green infrastructure preserves ecological integrity, helps with storm mitigation, and improves water quality. The Center for Coastal Resources Management's (CCRM) approach first looked at the capacity of natural and nature-based features (NNBFs) to mitigate flood damages, then combined this analysis with preexisting work that has been done by various state agencies to identify lands that are particularly valuable for their ecological role. Dr. Hershner noted that the Virginia Natural Landscape Assessment (DCR) and Virginia Ecological Value Assessment (DCR,

DGIF, VIMS, VCU, DEQ) were the most valuable resources with respect to identifying ecological value. Dr. Hershner summarized the overall process undertaken by CCRM. First, a list of specific NNBFs was developed and the locations of these features mapped. From there, the capacity of these features to provide flood protection was assessed. This assessment depended on not only what kind of feature was present, but also where it was located on the landscape. To link the NNBFs to the buildings they have the potential to protect, the path that floodwaters would follow across the landscape was used to identify “inundation pathways”. The NNBFs that lie within those inundation pathways were evaluated to determine that feature’s role in providing flood protection benefits for nearby buildings. Overall, CCRM is working to take what they are able to pull from this analysis regarding flood protection benefits and combine it with other assessments that have been done regarding ecological value to identify areas that should be prioritized for protection. Additional considerations, such as economic stress, can be included as a means to further refine the targeted areas.

Angela King discussed policy recommendations for NNBFs. She noted that there is a need for increased education for the benefits that these projects provide and that outreach efforts should be tailored to relevant audiences to encourage their use of NNBFs. Other policy recommendations included better utilization of existing funding sources and coordination between programs. Another policy recommendation was to develop creative approaches that consider benefits other than flood protection and ecological value, such as community development, and partnership opportunities that could lead to the protection or enhancement of natural and nature-based features.

Gray Infrastructure – Onsite Septic Systems

Lance Gregory, VDH, began the discussion on septic systems by pointing out that many people take an “out of sight, out of mind” approach to onsite sewage. He discussed public and environmental health issues associated with failing systems and noted that septic systems are known to contribute to nitrogen pollution in the Chesapeake Bay. He stressed the need for better data to know how many of these systems exist and where they are located. He highlighted the fact that the cost of maintaining and operating these systems falls on the property owner and are often very expensive. He also noted the need for more funding, especially in situations where low-income households have a system that needs repair. In cases where a low-income household is unable to afford repair, VDH is left with questions regarding whether the agency should enforce regulations by fining the property owner, removing the property owners from the building, or placing a band-aid on the problem? In some cases the state has been allowing regulatory waivers. The waiver process is the result of a need to address the lack of funding issue. VDH refers to areas that do not have access to affordable wastewater solutions as “wastewater islands”. These can occur based on economic or social issues. His first priority was to obtain better data regarding septic systems. Additionally, VDH is shifting its focus from intervention to changing decision making; the agency wants homeowners to make good decisions on their own. Mr. Gregory emphasized the importance of having the right policies and regulations in place to make sure that Virginians have access to updated septic systems that do not create public health issues or harm the environment.

Dr. Hershner discussed work CCRM is doing to help VDH identify where failing septic systems are located and where septic systems will likely fail in the future. He agreed that better data is one solution to this problem. In its work, CCRM pulled the location of buildings within the

Commonwealth, as well as the location of impaired surface waters. Then, CCRM looked at where the municipal sewer systems are located and at which buildings are not connected to public systems and are adjacent to impaired waters. The second level of analysis involved evaluating the soils, topography, and other relevant data of the affected areas. VDH needs more resources to standardize data to make it more useful. Dr. Hershner noted that there is still a long way to go, and a lot of the information is still not uniformly available.

Angela King discussed septic policy recommendations. As with previous panelists, she stressed the need for reliable and up-to-date information to identify and quantify the issues. Additionally, she noted that the general public needs to be better educated about how these systems function and what funding is available. To better position property owners, localities, planning district commissions, and the Commonwealth to obtain funding to install, maintain, and/or repair systems, Ms. King proposed establishing a grant administrator position to organize and disseminate information regarding available funding opportunities. Additionally, when considering modification or expansion of existing funding sources, the Commonwealth could look to other states to see how other jurisdictions deal with these issues. She also highlighted the need to encourage more proactive action in the area and identified the establishment of maintenance reporting for conventional systems or the expansion of pump-out requirements throughout the Chesapeake Bay watershed, or even the entire state, as a means of achieving that goal.

Gray Infrastructure – Roads

Curtis Smith, ANPDC, provided background on the development of transportation infrastructure on the Eastern Shore. When the railroad was constructed in the late 1800s, the Eastern Shore economy fed the urban growth around that area and over a period of several decades, the transportation infrastructure transformed the Eastern Shore. That infrastructure has been aging in place ever since. Mr. Smith identified three unique challenges on the Eastern Shore – (1) the existence of three incorporated towns located on islands, (2) major facilities that are critical for the Eastern Shore that are located on islands or the ends of necks of land, and (3) the most land in the state susceptible to sea level rise. The Eastern Shore has 1,500 miles of roads, the vast majority of which are secondary, and numerous causeways critical to connecting the islands to the mainland. In 2015, the ANPDC conducted the first regional study in partnership with VDOT thanks to funding from the Virginia Coastal Zone Management Program. This study was essentially a screening level assessment to determine which roads may go underwater and how that would impact accessibility for certain communities and facilities. The intent was to start the conversation at the local and state level. The assessment utilized existing data on centerlines and approximate elevation and ran through various scenarios to determine when roads were likely to flood. The assessment then identified different communities and facilities and evaluated how and when accessibility to those communities and facilities would be impacted. Study recommendations suggested assessment updates every 5-10 years, education and outreach to inform those impacted, additional studies to determine impacts on other types of transportation infrastructure, preliminary engineering studies on the highest priority infrastructure, and incorporating outcomes into the prioritization process. In terms of data and information needs, one of the lowest hanging fruit would be to digitize VDOT information. Mr. Smith then discussed various challenges related to the unique characteristics of the Eastern Shore, funding considerations, and a lack of state policies regarding long-term maintenance of vulnerable roads.

Dr. Hershner spoke again and discussed the importance of identifying the scope of the problem. CCRM is approaching this problem by using currently available topographic information. He noted that one challenge is that we do not know where many of the roadside ditches are located. We need to know where these ditches are and what they look like. Some of the secondary roads are more challenging. CCRM is also looking at sea level rise and what that will mean for road flooding. Understanding the frequency that roads flood will be important, and CCRM is working to predict that information. Current data can be utilized to determine how frequently roads are flooding now, and project how frequently this flooding may occur in the future with sea level rise.

Elizabeth Andrews, VCPC, summarized policy recommendations with respect to roads in the Commonwealth. She noted that road flooding may cause people to leave before structures themselves flood. One of the important things that the Commonwealth needs to do is incorporate resilience into transportation planning. This would include the establishment of state-authorized predictive data and design standards. Professor Andrews discussed the need to have an understanding of what the vulnerabilities are statewide, and to clarify the duty to maintain so both the state and localities are comfortable taking action in this area. She also emphasized that state funding sources should be reviewed to ensure it is available and sufficient to address resilience and necessary retrofits.

Panel 2: Legislative Options for Building Resilience

The Honorable David Bulova, Delegate, 37th District; The Honorable Keith Hodges, Delegate, 98th District; The Honorable Monty Mason, Senator, 1st District; The Honorable Christopher Stolle, Delegate, 83rd District

The panel of Virginia legislators focused on empowering actors at the local level to address environmental problems and engage in resiliency projects. Many of these decisions need to be made locally, and legislative funding for local initiatives must be adequate and equitable. This funding could be done through programs like the Regional Greenhouse Gas Initiative or the SMART SCALE transportation funding system, which would incorporate resiliency principles into development projects. The panel suggested that SMART SCALE could be used to create a more resilient transportation system, by requiring infrastructure projects to consider resiliency to future flooding when designing and building roads.

The panel also discussed the importance of encouraging and enabling local action regarding septic system maintenance. Failing septic systems are a state-wide problem in Virginia, and the legislature must ensure that localities have the necessary authority to address septic problems in their communities. There was support among the legislators for connecting more individuals to municipal septic systems, but not necessarily for mandatory hook-up requirements. The legislators also emphasized that it is important to shift authority for this issue to the agencies and institutions best equipped to handle it. For example, treating septic system failures as a public health crisis, rather than a punishable offense, and having the issue handled by the Virginia Department of Health, rather than the Commonwealth Attorney's office. Hopefully, such a shift will lead to more compliance and better outcomes, and will capture individuals that are not currently being regulated.

Finally, projects to protect, enhance, and create natural and nature based features in Virginia will require coordination between state and local actors. Increasing educational resources at the local level, as well as creating an understanding and awareness of the economic benefits of having these features in place is essential. The panel discussed the challenge of balancing the desire for living shorelines and other resiliency projects with the need to live and work on the water. More information is needed about the economic benefits of these resiliency projects, and such information may help garner support with the public and the business community.

In all of these areas, the legislators stressed that coordination between localities and the state legislature is essential for Virginia to effectively and efficiently address the environmental challenges facing the state.

Lunchtime Keynote Address: The Pamunkey as Partners in Resilience

Chief Robert Gray, Pamunkey Indian Tribe

Chief Gray provided a brief history of the Pamunkey Indian Tribe and explained that, for the Pamunkey, it is impossible to separate natural resources from cultural resources. The Tribe began focusing on conserving their cultural history in the late 19th century, led by Chief George Major Cook. In terms of natural resources, Chief Gray described the Tribe's operation of the shad hatchery. In the early 20th century, the Tribe noticed shad population levels decreasing. In response, the Tribe began operating a hatchery and within 20 years saw improvement in the population levels. From an early period, the Tribe understood the balance between use of the resource for economic benefit and the importance of conserving the resource. The hatchery was successful, and the Tribe secured both federal funding from NOAA and state money from Virginia to continue these operations. However, recently the state funding has stopped, which makes it hard for the Tribe to attract fishermen to continue conservation efforts. Chief Gray also described the relationship between the Tribe's treaty rights and state law. The latest news for the Tribe was achieving federal recognition in 2015, which provides access to programs and funding. Much of this assistance relates to resilience efforts that will benefit not only the Pamunkey Reservation, but the region as a whole. For example, the Tribe is working with the U.S. Department of Health and Human Services to upgrade their septic systems. Chief Gray noted that many of these efforts require capacity building for the Tribe, which Dr. Ashley Spivey will discuss further.

Dr. Ashley Spivey, Director, Pamunkey Indian Tribal Resource Center

Dr. Spivey described how the Pamunkey Tribe faces the same climate-related issues as the rest of the state and country, and in response has undertaken a variety of projects to address sea level rise, erosion, species depletion, and other environmental issues on the Pamunkey Reservation. The Tribe has received grants to build capacity and partner with institutions, which allows them to tackle many more projects than they would be able to alone. Their projects include:

- The Archaeological Shoreline Survey Project, funded by a grant from the Virginia Department of Historic Resources. The goal is to document historic sites and items along the shore before they are lost to shore erosion.

- The Indigenous Cultural Landscapes Project, a partnership with the National Park Service and St. Mary's College. The ultimate goal is to create a map of native sites along the York River system, including the Pamunkey River.
- The Sturgeon Species Recovery Grant, in partnership with Chesapeake Scientific, LLC and NOAA. The Tribe is tracking and studying the Atlantic Sturgeon in order to rebuild the population.
- EPA Indian General Assistance Program: Integrated Waste Management Plan. This is a comprehensive plan for waste management for the Pamunkey Tribe, including recycling, composting, and refuse management. It gives the Tribe a chance to develop strategies that help the entire region.

Dr. Spivey closed her remarks by observing that these projects show that even a small tribe with limited resources can make a difference in resilience. The Tribe needs resources, but can also be a resource to the larger region. In response to an audience question, she said that all communities could benefit from the Pamunkey's view of resources having cultural significance. The Tribe is hoping to work with and provide assistance for the surrounding Virginia communities to create a more resilient Virginia.

Panel 3: Building a Water Economy: Louisiana's Water Campus Experience

Moderator: Dr. Troy Hartley, PhD, Director, Virginia Sea Grant College

Dr. Troy Hartley, Director of Virginia Sea Grant College, was the moderator for the panel. Dr. Hartley explained the Virginia Sea Grant model, the goals and mission of Virginia Sea Grant, and some of the organization's current efforts and partnerships related to resiliency. In particular, Dr. Hartley highlighted the need for innovation in addressing coastal resiliency issues. He then introduced the panel from Louisiana and their work as a model of innovation for Virginia to learn from.

Robert Twilley, Executive Director, Louisiana Sea Grant and Chairman of the Board, Louisiana State University Coastal Sustainability Studio

The first speaker was Dr. Robert Twilley, the Executive Director of Louisiana Sea Grant and Chairman of the Board of the Louisiana State University Coastal Sustainability Studio. Dr. Twilley introduced the coastal resiliency need in Louisiana. He stated that the Gulf of Mexico has moved inland about 10 miles since 1932 and that the area loses a football field of wetlands every hour. He discussed the level of coastal resiliency planning dating back to the 1990's and how that planning at all levels of local, regional, state, and federal government has adapted to address coastal resiliency issues. Dr. Twilley noted the challenges of regional planning for a landscape whose location ten years from now is uncertain. He explained the need for an integrated approach that aligns ecosystem restoration projects with regional planning goals. The LSU Coastal Sustainability Studio was developed to create an interdisciplinary space within the university to fuel collaboration in addressing complex issues related to regional planning and coastal resiliency.

**Dale Morris, Director of Strategic Partnerships,
The Water Institute of the Gulf**

Dale Morris is the Director of Strategic Partnerships at the Water Institute of the Gulf, a non-profit organization. Mr. Morris began his presentation by explaining the numerous coastal resiliency challenges facing coastal Louisiana. He then explained how the Water Institute of the Gulf was created to aid in determining how coastal resiliency funding would best be spent to address these challenges. Specifically, the Water Institute of the Gulf has the goal to provide the research at the center of decisions involving policy, academia, communities, and science. Some of the projects currently being worked on include a statewide flood model, real time flood forecasting and modeling, nature-based solutions in Port Fourchon, sediment diversion in Mid-Barataria, and more.

John Spain, Executive Vice President, Baton Rouge Area Foundation

John Spain is the Executive Vice President of the Baton Rouge Area Foundation. A key part of his role with the foundation is to oversee The Water Campus. Mr. Spain stressed the importance of communication, collaboration, and coordination as keys to success in projects related to coastal resiliency. The Water Campus is a physical location for all those working on water related issues to work together. The goal is to break silos between private, public, and non-profit entities and to foster collaboration. The campus is located in Baton Rouge, Louisiana on 35 acres of land along the Mississippi River formerly owned by state and local governments. Upon completion, it will feature 1,000 square feet of office space for 5,000 people including federal agencies and universities. It currently houses the Coastal Protection Restoration Authority and LSU Center for River Studies. Future plans include apartment buildings, private sector engineering labs, restaurants, and more.

**Stephen Moret, President and Chief Executive Officer,
Virginia Economic Development Partnership**

Stephen Moret, the President and CEO of the Virginia Economic Development Partnership, and former Secretary of the Louisiana Department of Economic Development, discussed the parallels between the efforts in Louisiana and Virginia. He noted that the water management industry in Louisiana was being cultivated as an export that would produce tens of thousands of new jobs. The creation of the Water Institute and funding and leadership from the Baton Rouge Foundation were key to this. He analogized this to Virginia's potential to export research and collaborative services around the world due to its world class research universities and schools. The Virginia Sea Grant proposal would be the catalyst for this.

Panel 4: Economic Benefits of Land Conservation and Ecotourism

Moderator: Karen Forget, Executive Director, Lynnhaven River NOW

Karen Forget was the moderator and discussed "multiple benefits" in terms of coastal resiliency. These included natural solutions to sea level rise, keeping coastal economies strong, and conserving lands to provide economic as well as resilience benefits.

**Laura McKay, Coastal Program Manager,
Virginia Coastal Zone Management Program,
Department of Environmental Quality**

Laura McKay discussed the Coastal Zone Management (CZM) Program as a network of state agencies and municipalities with the goals of resource protection, sustainable economies, and coastal management coordination. Key projects discussed were the Coastal Virginia Ecological Value Assessment, land acquisition partnerships such as the Southern Tip Partnership that involves working with F&W< TNC< DNR<ES Land Trust, Began acquiring quite a bit of land which led to some concern whether there was too much conserved land and what impact this was having on the economy. To address these concerns, a local study team was set up to write up the proposal, select a contractor, and guide the study. Economists from the George Mason University was selected and its report found that the conservation easements were not a burden on the counties' budgets. Additionally, the report found that conserved lands provided larger socio-economic benefits to aquaculture, expenditures by direct organizations, and tourism. She noted that the report was very conservative in its estimates and that this is really just the beginning of realizing the potential that conserved lands have here in Virginia. Given that, CZM has invested its money in ecotourism infrastructure for Virginia's coast such as interpretive signage, public access sites, and ecotour guide certification. Most recently, CZM has decided to focus its funding on the promotion of industries that depend on conserved land.

**Shannon Alexander, Coastal Resources Program Manager,
Accomack-Northampton Planning District Commission and
John Bateman, Regional Planner,
Northern Neck Planning District Commission**

Shannon Alexander and John Bateman discussed the ecotourism project funded by the CZM program. As a result of this funding, the planning district commissions in rural, coastal Virginia have been able to collaborate on the promotion of natural resources and cultural assets that the these regions share. The Rural Coastal Virginia Alliance was established and works to create consistency throughout the region in ecotourism marketing. It has also developed the Virginia Water Trails brand that includes a website and a grassroots education tool. The goal is to leverage Virginia's natural spaces to encourage people to plan a visit around outdoor recreation. This will stimulate the economy in municipalities where these offerings occur.

Keynote Address

The Honorable Ralph Northam, Governor of Virginia

Virginia Secretary of Natural Resources, Matt Strickler, introduced the Honorable Ralph Northam, Governor of Virginia. In his introduction, Secretary Strickler recognized global climate change as the greatest threat to society. He reinforced the State's commitment to addressing these issues and acknowledged that the impacts were most acutely felt in coastal regions of Virginia.

The Honorable Ralph Northam began his address by giving special thanks to Elizabeth Andrews and VCPC, as well as the members of the legislature in attendance. Governor Northam shared his experience growing up on the Eastern Shore and acknowledged the stark reminder hurricanes

Florence and Michael gave of the impacts of sea level rise on human life. He acknowledged that these issues are not going away and will only get worse without action. Governor Northam indicated numerous economic and natural impacts created by climate change-induced sea level rise. Governor Northam then announced his Executive Order 24, which would ensure state buildings and assets were protected from and prepared for sea level rise; set internal government standards for sea level rise; create a Virginia Coastal Resource Master Plan; use the best available science for gray, green, and blue infrastructure decisions; and encourage increased risk communication. Governor Northam noted that federal support and state resources would be dedicated to fund the plan outlined in the Executive Order. The Executive Order will set a path for resiliency and signal to the world that Virginia knows the risks of sea level rise and is up to the task to address them.

Reception

The conference concluded with a reception at the School of Education, which provided an opportunity for attendees to mingle with speakers and panelists to ask follow-up questions. Virginia Sea Grant sponsored the reception.