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NJ Climate Adaptation Alliance

An Analysis of NJ Climate Adaptation Alliance Coastal Recommendations Relative to Recent Programs and Legislation for Climate Adaptation in Delaware, Maryland, and New York

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This analysis was conducted on behalf of the NJCAA and indicates a consensus of opinion, but does not necessarily reflect the views of every organization or individual representative, or of Rutgers University, as facilitator of the Alliance.

Introduction

Several of New Jersey's neighboring Mid-Atlantic States have recently proposed legislative and administrative changes to agency programs in order to account for risks posed to state resources and residents by a changing climate. Coastal managers in Maryland, Delaware, and New York identified recent legislation, executive actions and proposals as the latest efforts to incorporate climate change into law in their respective states to address coastal resources and risks, including:

1. Delaware Executive Order 41: Preparing Delaware for Emerging Climate Impacts and Seizing Economic Opportunities from Reducing Emissions (Enacted)[1]
2. Maryland Executive Order 01.01.2012.19: Climate Change and "Coast Smart" Construction (Enacted)[2]
3. Maryland House Bill 615: Coast Smart Council (Enacted)[3]
4. New York S06617B: Community Risk and Resiliency Act (Proposed)[4].

The following is an analysis with an emphasis on coastal resources and risks, and identifies adaptation programs and policies of states in the region (as of 31 July 2014) that are consistent with one or more of the individual recommendations pertinent to coastal resources and risks proposed by the NJCAA in *Preparing New Jersey for Climate Change: Policy Considerations from the New Jersey Climate Adaptation Alliance.*[5]

Delaware

Delaware Executive Order 41 was signed on September 12, 2013. The order establishes a Governor's Committee on Climate and Resiliency, setting forth the composition of the committee and assigns the production of recommendations for improving preparedness and resilience to climate change by December 31, 2014. Additionally, the order addresses the specific impacts of sea level rise by mandating consideration of such impacts in the siting and design of any state new construction or reconstruction and consideration of sea level rise impacts into long-range planning processes for infrastructure and capital spending

Delaware Executive Order 41 (2013)

1. Creates a Governor's Committee on Climate and Resiliency responsible for:
    a. Developing an implementation plan for reducing greenhouse gas emissions consistent with state economic development goals;
    b. Developing agency specific recommendations for improving preparedness and resiliency to climate impacts to citizens and the built and natural environments including:

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[1] Preparing Delaware for Emerging Climate Impacts and Seizing Economic Opportunities from Reducing Emissions. Exec Order No. 41 (2013). Available at: http://www.governor.delaware.gov/orders/Order%20041%20-%20Preparing%20Delaware%20for%20Emerging%20Climate%20Impacts%20and%20Seizing%20Economic%20Opportunities%20from%20Reducing%20Emissions.pdf

[2] Climate Change and Coast Smart Construction. Exec Order No. 01.01.2012.19 (2012) Available at: http://www.governor.maryland.gov/executiveorders/01.01.2012.29.pdf

[3] Coast Smart Council. HB 615. Ch. 415. (2014) Available at: http://mgaleg.maryland.gov/webmga/frmmain.aspx?pid=billpage&stab=02&id=hb0615&tab=subject3&ys=2014rs

[4] Community Risk and Resiliency Act. S06617B. (2014). Available at: http://assembly.state.ny.us/leg/?default_fld=&bn=S06617&term=2013&Summary=Y&Actions=Y&Text=Y&Votes=Y

[5] New Jersey Climate Adaptation Alliance (NJCAA). 2014. *Resilience. Preparing New Jersey for Climate Change: Policy Considerations from the New Jersey Climate Adaptation Alliance*. Edited by Matt Campo, Marjorie Kaplan, Jeanne Herb. New Brunswick, New Jersey: Rutgers University. Available at: http://njadapt.rutgers.edu/component/docman/doc_download/120-resilience-preparing-new-jersey-for-climate-change-policy-considerations?Itemid=

i. Recommendations for agencies to improve adaptation and preparedness for themselves and residents related to extreme storms and temperature and precipitation variations based upon research conducted by the Delaware Climate Change Steering Committee;
ii. Actions for local governments that can be integrated into Comprehensive Land Use Plans;
iii. Outreach strategies for communicating specific vulnerabilities and climate science to residents and businesses, specifically identified at-risk populations.

2. Requires adherence to the following for Delaware state agencies related to flood hazard mitigation and sea level rise:
    a. Incorporation of siting, design and construction measures that increase resilience for new structures and reconstruction of substantially damaged structures and infrastructure;
    b. Use of natural systems or green infrastructure where practical and effective;
    c. Construction of structures (where avoidance is not practicable) with a FEMA Special Flood Hazard Area with habitable space at least 18 inches above base flood elevation, accounting for sea level changes during the lifespan of the structure;
    d. Incorporation of sea level rise projections developed by the DNREC Sea Level Rise Technical Committee into long range planning and capital spending;
    e. Provision of periodic scenario updates and dissemination of associated guidance and mapping to agencies by DNREC to assist in the implementation of the Executive Order.

Maryland

Maryland Executive Order 01.01.2012.19, signed on December 28, 2012, and Maryland House Bill 615, approve by the Governor on May 5, 2014, together create the basis for targeted resilience policy in the coastal environs of the State of Maryland. The executive order set forth the goals and responsibilities for investigating future construction guidelines to allow for and encourage climate adaptation in the coastal environment and minimum requirements for state capital projects. The order resulted in the development of *Climate Change and Coast Smart Construction: Infrastructure Siting and Design Guidelines,* Maryland's guidance for mitigating and adapting to risks from flooding and sea level rise.[6] Maryland House Bill 615 established the Coast Smart Council afterward to manage and oversee the implementation of recommendations, with the executive order requirements governing during the phase-in period through July 1, 2015.

Maryland Executive Order 01.01.2012.19 (2012)

1. Requires adherence to the following for Maryland state agencies related to flood hazard mitigation and sea level rise:
    a. Incorporation of siting, design and construction measures that increase resilience for new structures and reconstruction of substantially damaged structures and infrastructure;
    b. Construction of all new permanent State structures within a FEMA Special Flood Hazard Area at least 2 feet above the 100-year base flood elevation, with exceptions for increased risk to the surrounding environs or necessity of waterfront location, among other exceptions;

[6] Johnson, Z.P. (ed.). 2013. Climate Change and *Coast Smart* Construction: Infrastructure Siting and Design Guidelines. Special Report of the Adaptation Response Working Group of the Maryland Commission on Climate Change. Maryland Department of Natural Resources, Annapolis, MD. Available at: http://climatechange.maryland.gov/publications/state-of-maryland-climate-change-and-coast-smart-construction-infrastructure-siting-and-design-guidelines/

2. Requires that the Maryland Department of General Services update the Policies and Procedures Manual for Architecture and Engineering to reflect the guidelines related to flood hazard mitigation and sea level rise;
3. Requires Maryland Department of Natural Resources, consulting with the Maryland Commission on Climate Change, to develop additional guidelines for Climate Change and "Coast Smart" Construction that include:
    a. Recommendations for additional criteria for the siting, design and construction of new or reconstructed facilities and infrastructure;
    b. Recommendations for the application of such guidelines to non-state infrastructure projects partially or fully funded by the State;
4. Requires the Critical Area Commission for the Chesapeake and Atlantic Coastal Bays to evaluate and consider the adoption of new or revised provisions for agency development or acquisitions of new lands that address climate change and the risk of sea level rise and other weather related impacts;
5. Requires the Scientific and Technical Working Group of the Maryland Commission on Climate Change to review and update the seal level rise projections established prior to the Executive Order.[7]

Maryland House Bill Ch. 415 – 615 (2014)

1. Establishes a Coast Smart Council in the Department of Natural Resources;
2. Requires state capital projects that are fully or partially funded by the state to be constructed in accordance with siting and design criteria to be established by the Council. Maryland Executive Order 01.01.2012.19 governs the process in the interim;
3. Gives the Council responsibility for:
    a. Analysis and studies leading to the development of recommended siting and design criteria;
    b. Development and implementation of the criteria, including exceptions and waiver requirements, in consultation with DNR; and
    c. Establishment of procedures for evaluating waiver applications.
4. Requires the siting and design criteria include:
    a. Guidelines for current directives and requirements applicable to the planning and construction for new or reconstructed facilities and infrastructure;
    b. A requirement that the lowest floor elevation of each structure located within a special flood hazard area is built at an elevation of a least 2 feet above the base flood elevation and;
    c. Specifications for agencies to obtain a waiver from compliance.

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[7] Previous projections of sea-level rise specific to Maryland were developed by the Scientific and Technical Working Group (STWG) in its 2008 report:

Maryland Commission on Climate Change. 2008. Comprehensive Strategy for Reducing Maryland's Vulnerability to Climate Change: Phase 1: Sea Level Rise and Coastal Storms. Maryland Department of Natural Resources, Annapolis, Maryland.) Available at: http://dnr.maryland.gov/coastsmart/pdfs/comprehensive_strategy.pdf

For updated projections developed as part of Maryland Executive Order 01.01.2012.19 see:

Boesch, D.F., L.P. Atkinson, W.C. Boicourt, J.D. Boon, D.R. Cahoon, R.A. Dalrymple, T. Ezer, B.P. Horton, Z.P. Johnson, R.E. Kopp, M. Li, R.H. Moss, A. Parris, C.K. Sommerfield. 2013. Updating Maryland's Sea-level Rise Projections. Special Report of the Scientific and Technical Working Group to the Maryland Climate Change Commission, 22 pp. University of Maryland Center for Environmental Science, Cambridge, MD. Available at: https://www.pwrc.usgs.gov/SeaLevelRiseProjections.pdf

New York

New York State's Community Risk and Resiliency Act (S06617B) is a holistic update to state programs to incorporate the risks and hazards from climate change into siting, permitting and funding mechanisms under several state agencies. The bill is currently under review by the New York State Legislature. Recommended changes to current regulations for new or reconstructed facilities include consideration of climate change risk assessments in: hazardous materials and waste treatment and storage facilities; landfill closures; funding considerations for agricultural and open space preservation; and incorporation of hazard risk analysis into long-term capital planning. If approved, the law would take effect January 1, 2017.

New York State Bill S06617B (2014)

1. Establishes considerations for mitigating risk from sea level rise, storm surge and flooding as part of state smart growth programs;
2. Requires demonstration that designs for
    a. Hazardous waste treatment facilities;
    b. Hazardous substance bulk storage facilities;
    c. Landfill closures; and
    d. Bulk petroleum storage facilities

    incorporate risk from sea level rise, storm surge and flooding;
3. Establishes mitigating risk from sea level rise, storm surge and flooding as part of funding requirements for Local Waterfront Revitalization and Coastal Rehabilitation projects, State Land Acquisition, Open Space land conservation projects, Agriculture protection and conservation projects, and projects funded through the Drinking Water Revolving Fund;
4. Requires the Department of State, in cooperation with the Department of Environmental Conservation, to provide model local laws and ordinances to municipalities that incorporate risk from sea level rise, storm surge, and flooding;
5. Assigns the Department of Environmental Conservation with responsibility for preparing state Sea Level Rise projections by January 1, 2016, to be updated every five years thereafter;
6. Assigns the Department of Environmental Conservation with responsibility for developing an implementation plan for the statute and supporting tools by January 1, 2017, emphasizing the use of natural resources and processes to mitigate risk.

Comparison of NJCAA Recommendations to other Mid-Atlantic State Programs for Climate Adaptation in the Coastal Zone

Of the 48 recommendations put forth by the NJCAA, 24 of those recommendations address risks to coastal resources and thus can be compared to the programs and policies reviewed for this analysis (see Table 3). Note that these NJCAA recommendations are consistent with the legislative intent of New Jersey's Coastal Area Facilities Review Act (N.J.S.A. 13:19-1 et seq.) that recognizes the coastal area as a unique and irreplaceable resource that should be dedicated to land uses which promote public health and safety and protect property compatible with the natural laws governing the environment of the coastal area and that the State will suffer accelerating adverse effects unless the State assesses impacts stemming from future location and kinds of development. In addition, the New Jersey wetlands statute (Wetlands Act of 1970; N.J.S.A. 13:9A-1 et seq.) recognizes the estuarine zone as one of the most vital and productive areas of our natural world that protects the land from the force of the sea and that it is important to prevent its further deterioration in order to promote public health and safety and protect public and private property.

Of the 24 recommendations that are comparable with neighboring states, 7 appear common across MD, DE and NY; while 8 appear unique to one state (see Table 4).

Table 3: Descriptions of NJCAA Recommendations Reconciled with DE, MD, NY Programs/Proposals

NJCAA Recommendation Summary	
R1.1	Establish a statewide Climate Change Working Group through legislative or executive action to foster statewide preparedness planning, coordinate scientific and technical assessment of potential climate change impacts to the citizens and environs of New Jersey and to frame adaptation policy.
R1.2	Form a Science and Technical Advisory Panel (STAP) within the Climate Change Working Group to rapidly develop a climate impact assessment.
R1.3	Use the climate impact assessment to inform consistent development and adoption of statewide climate adaption policy.
R1.4	Incorporate consideration of a changing climate into long-term planning that governs regulations, program operations, and funding allocation decisions with discrete outcomes, necessary resources, staff development and schedules for implementation.
R1.5	Incorporate climate change policy into capital planning and decision making of state agencies, regional and local planning authorities and commissions, municipal and county governments.
R1.7	Convene a working group of experts to consider the outcomes of the statewide climate impact assessment on certain geographic areas of the state, including urban communities and the Delaware Bayshore, as well as on certain populations that are particularly vulnerable to a changing climate.
R2.1	Develop and enhance tools to restrict or discourage future development and redevelopment in areas at high risk to the impacts of current and future storms, flooding and sea level rise.
R2.2	Assess the vulnerability of New Jersey's agricultural lands to a changing climate, including activities on land as well as aquaculture in coastal waters.
R2.3	Assess the vulnerability of natural areas (i.e. tidal wetlands, forests, and other natural areas) and the value of these areas for reducing and/or adapting to climate change.
R2.4	Require that all public water supply and public wastewater utilities develop, implement and periodically update plans for the identification and mitigation of natural and other risks to facility operations in light of the statewide climate change impact assessment and as part of current compliance requirements.
R2.5	Assess the vulnerability of transportation infrastructure using the climate change impact assessment.
R3.2	Develop and sustain meaningful incentives at a statewide scale to encourage counties and municipalities to advance targeted and comprehensive buy-out programs for flood and storm prone areas.
R3.5	Enhance compliance inspections and pollution prevention assistance to facilities using petroleum or hazardous materials that exist in flood prone areas.
R3.6	Assess farmland preservation strategies and coordinated agricultural, floodplain and wetland easement purchases for agricultural locations that may be vulnerable to sea level rise or flooding from climate change to facilitate climate change adaptation preparedness.
R3.8	Develop long-term resiliency plans for the electric distribution system and investigate the feasibility of alternative configurations including micro-grids or implementation of smart-grid technology to mitigate risk related to power outages.
R3.11	Convene a team of experts to recommend climate resilient design and construction guidelines along with commensurate amendments to regulations, codes and standards to meet the new guidelines.
R3.12	Modify regulatory standards regarding stormwater runoff, stream flow and water quality based effluent limits in NJPDES permits and water allocations to incorporate implications of climate change.
R3.15	Enhance environmental surveillance during and after storms in communities that already experience other environmental burdens such as contaminated sites or industrial facilities with hazardous materials.
R3.16	Encourage efforts to foster collaborative partnerships between local neighborhood organizations and various governmental levels of emergency management.
R4.2	Reflect the integration of the statewide climate change adaptation policy in the annual budget process of state agencies and authorities by including capital programming and operating and maintenance funds for enhancing resiliency and climate adaptation.
R5.1	Engage the New Jersey Climate Adaptation Alliance to lead a public education effort that effectively communicates climate change impacts and risks to New Jersey.
R5.2	Authorize enhanced state training and resources for local officials regarding climate adaptation and resiliency planning.
R6.1	Foster collaboration between state agencies, academic, federal and local governments as well as the

NJCAA Recommendation Summary	
	NGO community with the goal of undertaking research and analyses on key issues to support climate change preparedness in New Jersey.
R6.7	Analyze NJ's regulatory structure and policies for public investment to identify approaches to remove barriers to and provide incentives for use of green infrastructure, innovative design, and compatible uses that cost effectively promote climate adaptation while delivering additional ecosystem service or other benefits.

Table 4: Summary of NJCAA Recommendations Applied or Proposed by Mid-Atlantic States

	Delaware EO #41	Maryland EO 01.01.2012.29	Maryland House Bill Ch.415 - 615	New York S06617B
R1.1	X	X	X	
R1.2		X	X	
R1.3	X	X	X	X
R1.4	X	X	X	X
R1.5	X	X	X	X
R1.7	X			
R2.1		X	X	X
R2.2	X			X
R2.3	X	X		X
R2.4		X		X
R2.5	X	X		
R3.2				X
R3.5				X
R3.6		X		X
R3.8		X		
R3.11	X	X	X	X
R3.12		X		X
R3.15				X
R3.16	X			
R4.2	X		X	X
R5.1	X			
R5.2	X			
R6.1	X	X	X	X
R6.7		X	X	

Establishment of Commissions and Advisory Panels to create common research and tools for guidance and risk assessment across agencies

Delaware and Maryland have created formal commissions to execute recommendations for incorporation of studies related to Sea Level Rise and coastal development policies. Each of the three states (DE, MD, and NY) also leverages their respective science and technical advisory panels related broadly to climate change or specifically to sea level rise for the development of estimates related to climate change impacts to be used across agencies for planning purposes. Maryland and Delaware each assign responsibility and consultation for climate projections and assessments to technical advisory panels existing prior to the enactment of the executive orders and creation of the commissions.

Consideration of flooding and sea level rise in future development of coastal areas

Delaware, Maryland and New York have each enacted or proposed significant programmatic changes to state investment decisions that will incorporate, at minimum, the risk of flooding and sea level rise and in some cases incorporate more comprehensive risk assessments for all climate change impacts. Each of the states developed specific rules or proposals to ensure that state investments are protected from such risks moving forward into the future.

- Delaware and Maryland, through executive order, mandated that state structure s within the FEMA flood Hazard area be constructed 18 inches and 2 feet above sea level, respectively. The Maryland Coast Smart Commission recommended the continuation of that stipulation as part of their recommendations development.
- Each state further recognizes the specific risks of hazardous facilities in the floodplain, and seeks to address through funding and remediation considerations for permitting of new facilities.

Incorporation of climate risk and adaptation concepts into ongoing agency operations and long-term planning

Each state has taken steps to include formally climate change considerations into the operations and planning processes of state agencies. In Delaware, the executive order requires recommendations for state agencies and programs and local government recommendations for incorporation into land use planning. Maryland guidance requires specific permitting and siting regulations for State facilities in at risk coastal areas of the State and investigation of programs for other types of private projects that would receive state funding. New York provides an example of how state agencies would incorporate similar recommendations directly into state rules by the language below in its pending legislation:

> *"…consider future physical climate risk due to sea level rise, and/or storm surges and/or flooding based on available data predicting the likelihood of future extreme weather events, including hazard risk analysis data if applicable,"*[8]

New York's proposal also recognizes the need to apply climate risk analysis to decisions ranging from open space acquisition to hazardous waste site permitting and a host of other agriculture, public health and environmental regulations.

Focus on state investments and funding

Many of the programs in Delaware and Maryland, and those proposed in New York, address siting, design and construction of new or substantially reconstructed state facilities that are fully or partially funded. In the case of New York, proposed regulations would also include amendments to permit and approval processes for new or substantially reconstructed regulated facilities such as hazardous waste sites and petroleum storage tanks that present public health risks. A similar strategy is taken in the New York proposal for long-term capital planning and funding decisions, where applicants are required to include a,

> *"…demonstration that future physical climate risk due to sea level rise, and/or storm surges and/or flooding based on available data predicting the likelihood of future extreme weather events, including hazard risk analysis data if applicable."*[9]

Prioritization for land acquisition and preservation of open space

In coastal environs and throughout the broader geographies of each state, construction on and preservation of state lands and open space are addressed in Maryland, Delaware, and New York. Delaware and Maryland have both formally incorporated sea level rise risk into the evaluation criteria

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[8] Community Risk and Resiliency Act. S06617B. (2014). Available at: http://assembly.state.ny.us/leg/?default_fld=&bn=S06617&term=2013&Summary=Y&Actions=Y&Text=Y&Votes=Y

[9] Community Risk and Resiliency Act. S06617B. (2014). Available at: http://assembly.state.ny.us/leg/?default_fld=&bn=S06617&term=2013&Summary=Y&Actions=Y&Text=Y&Votes=Y

for state open space preservation.[10] New York SB 06617 proposals allow for open space preservation projects and their commensurate funding to be applied in cases where the open space is being acquired for and justified as a part of a climate adaptation strategy.

Encourage the use of natural systems and green infrastructure

New York, Maryland, and Delaware all incorporate a preference for the use of natural systems in helping to adapt to climate change in the coastal environment. In some cases, these adaptation strategies are already reflected elsewhere in state policy. For example, Maryland living shorelines regulations require the consideration of natural alternatives and a waiver before using hard infrastructure.[11] Other recommendations are under development in each of that states as part of the goals for their recommendations related to climate change.

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[10] For additional details, please see Maryland's GreenPrint program (http://www.dnr.state.md.us/ccs/habitats_slr.asp) which includes coastal resiliency easements as well as Building Resilience to Climate Change evaluations in state land acquisitions (http://www.dnr.state.md.us/dnrnews/pdfs/climate_change.pdf) and Delaware's 2013 State Comprehensive Outdoor Recreation Plan (http://www.dnrec.delaware.gov/parks/Information/Pages/2013Scorp.aspx).

[11] Maryland Department of the Environment. (2013) New Tidal Wetland Regulations for Living Shorelines Effective February 4, 2013. Available at: http://www.mde.state.md.us/programs/Water/WetlandsandWaterways/Pages/TidalRegsLivingShoreline.aspx