

**Maryland Commission on Climate Change
Adaptation and Response Working Group
2017-2018 Work Plan -- March 2018 Update**

PURPOSE

The Maryland Commission on Climate Change (MCCC) is charged with advising the Governor and General Assembly on ways to mitigate the causes of, prepare for, and adapt to the consequences of climate change and maintaining and strengthening the state's existing Greenhouse Gas Reduction Plan (GHG Plan). The Commission is supported by a Steering Committee and for working groups. The Adaptation and Response Working Group (ARWG) is charged with developing a Comprehensive Strategy for Reducing Maryland's Climate Change vulnerability. The Strategy includes both short- and long-term measures that State and local governments may undertake in planning for and adapting to diverse impacts of climate change.

Even as the state moves forward with actions that will reduce greenhouse gases (GHGs) and ultimately result in increased energy efficiency, a more sustainable economy, and cleaner air; climate impacts will still be felt into the future. Therefore, adaptation, together with mitigation, is necessary to address climate change. The Maryland Commission on Climate Change (MCCC) has charged the Adaptation and Response Working Group (ARWG) with implementing solutions for reducing Maryland's Climate Change vulnerability.

2017 PROGRESS

In early 2017 the ARWG developed a two-year work plan to guide ARWG efforts through the end of 2018. The 2017 MCCC Annual Report, published December 2017, outlines new priorities for the ARWG in 2018 that were not in the original 2017-2018 work plan. To address these new MCCC recommendations, this document provides an update to the 2017-2018 ARWG work plan, including specifics about progress made in 2017 and what the ARWG will be focusing on in 2018.

1. *Evaluating New Sea Level Rise Science:* Since the 2013 STWG report updates and the October 2016 STWG 6-pager, new literature, studies, data and other science have been issued. In 2018 the ARWG will work with the STWG to better understand the climate science that should be used in adaptation and communication efforts, and work with ECO to incorporate this information into trainings, tools and all disseminated information.
2. *Broadening the Adaptation Scope:* (1) The ARWG continues to work with the Coast Smart Council on infrastructure siting and design criteria and also with its members to understand what areas beyond sea level rise and flooding could be advanced. Through this joint work, the groups proceeded with work to use the Coast Smart assessment and certificate to review proposed projects in non-coastal areas. (2) The ARWG staff worked with the Mid Atlantic Regional Council on the Ocean on a report titled "Climate Change Vulnerabilities in the Mid-Atlantic Region." This report, prepared jointly by the Center for the Blue Economy of the Middlebury Institute of International Studies at Monterey and the Marine Policy Center of the Woods Hole Oceanographic Institution, highlights vulnerabilities to our marine transportation, fisheries and fishing communities, and ecosystem services. The findings of this report will be presented to the ARWG in 2018. (3) There still exists a need to define 'vulnerable

populations' from the perspective of the MCCC and ARWG. In 2018 and beyond the ARWG will work closely with the Steering Committee, other working groups and the Maryland Commission on Environmental Justice to assist in defining vulnerability for ARWG efforts.

3. *Healthy Soils Initiative:* (1) In January 2018 the Maryland Department of Agriculture was awarded a \$1 million Regional Conservation Partnership Program (RCPP) grant by the U.S. Department of Agriculture's Natural Resources Conservation Service to utilize and demonstrate a suite of soil health practices on Maryland farm fields. (2) In 2018, the Maryland Department of Natural Resources will continue exploring a partnership with the Harry Hughes Center to use department owned agricultural land to pilot implementation practices that increase the concentration of carbon in the soil. (3) On March 27, 2018 a "Healthy Soils Farm Visit and Roundtable Discussion" will be held to visit conventional and organic farm operations and discuss opportunities for soil carbon sequestration. This event is being sponsored by the ARWG, MDA, DNR, UMD Extension, the Alice Ferguson Foundation, Future Harvest and the Town Creek Foundation in direct response to initial 2017 meetings and conferences about "Healthy Soils" or "Carbon Farming." These three initiatives will go a long way towards fulfilling the state's Healthy Soils Initiative and improving natural resource management.
4. *Local Comprehensive Plan Adaptation Research:* The Maryland Department of Planning completed its first phase of comprehensive plan research on addressing climate issues and presented this work at the December 2017 ARWG meeting. The ARWG will use this review and information to guide the Regional Adaptation Meetings, discuss additional opportunities to extend such a review to other plans (e.g. Hazard Mitigation Plans) and Local Government Climate Academy work.
5. *Resilience Financing Stress Test:* In fall 2017 the Maryland Department of Natural Resources contracted with the Environmental Finance Center (EFC) at the University of Maryland College Park to develop a Community Resilience Financing Tool. The tool will help communities determine the actions they can take to become more resilient to climate hazards as well as accelerate and scale the financing efforts needed to implement those projects. The City of Salisbury and the City of Annapolis have agreed to partner as the communities that will trial the tool once it is developed and have been given a resilience assessment and financing tool template as a starting point for engaging in the development process.
6. *Metrics for Tracking Progress:* Work is being undertaken by the Chesapeake Bay Program Climate Resiliency Workgroup to develop indicators of adaptation. ARWG members are engaged in this effort to determine if this work and/or the indicators could be relevant to the ARWG. Follow up in 2018 will focus on the suite of potential indicators of adaptation to identify which might be relevant to the ARWG. Staff will coordinate with Chesapeake Bay Program staff in 2018 to hold future discussion about these resilience indicators.
7. *Georgetown Climate Center Recommendations:* The ARWG will be exploring with the other working groups the value of a research agenda, a GCC recommendation that was included in the MCCC Annual Report. Additional clarity on the interest of a research agenda from the MCCC/Steering Committee will be sought in 2018.

NEW 2018 PRIORITIES

In addition to continuing the progress on the ARWG priorities listed above from the 2017-2018 work plan, the ARWG will also be undertaking the following in 2018:

8. *Regional Adaptation Meetings*: In the 2017 Annual Report the MCCC added an additional recommendation for the ARWG to “convene regional meetings by the end of 2018 to solicit local and regional climate adaptation priorities and support local adaptation efforts.” The ARWG began to discuss this goal at the December 2017 meeting, and since then a Planning Committee has formed and will work diligently to achieve this goal in 2018. Two meeting options were discussed and vetted at the March 2018 meeting.
9. *Local Government Climate Academy*: The Maryland Department of Natural Resources has partnered with the Association of Climate Change Officers (ACCO) to develop and deliver a competency framework and climate change training for local governments. Throughout 2018, ACCO, DNR and the ARWG will be working to develop training modules specific to the needs and issues facing Maryland’s local communities. Staff will explore opportunities with the ARWG to deliver climate resources and training through the development of the Local Government Climate Academy.
10. *Reviewing Phase I and II Comprehensive Strategy*: In 2018 the ARWG will review its Phase I and II Comprehensive Strategy recommendations to identify progress, highlight any gaps or needs, and consider revising as needed.

ARWG Meeting Schedule for 2018

March 2018 Draft - items in *italics* are draft or proposed

Date/Time	Location	Agenda Topics	MCCC Work Items
Throughout 2018	MD	Regional outreach efforts being hosted by various ARWG members across Maryland (e.g. MHT, MDP, MDH, MDE, ESCAP, DNR)	
March 12 2 to 4 pm	MD DNR	<ul style="list-style-type: none"> - Regional Adaptation Meetings - Climate Change impacts on the Chesapeake Bay TMDL and potential roles/opportunities for the ARWG input - 2018 Work Plan 	2018 Work Plan
March 27	Queen Anne, MD	Healthy Soils Farm Visit and Roundtable Discussion	Workshop
April 24	Maryland Commission on Climate Change Meeting		
May 7 2 to 4 pm	MD DNR	<ul style="list-style-type: none"> - Regional Adaptation Meetings - 2018 Annual Report recommendations discussion - Presentation: <i>Climate Change Vulnerabilities in the Coastal Mid-Atlantic Region</i> - <i>Climate & Health</i> - <i>Coastal Bays Vulnerability Study</i> 	
May 21-23	Cambridge	State of the Coast conference (May 21-23) featuring “resilient communities” highlights and sessions. Day 1 will feature ACCO climate academy training (<i>by invitation</i>).	
June 19	Maryland Commission on Climate Change Meeting		
July 30 10 am to 12 pm	MD DNR	<ul style="list-style-type: none"> - Regional Adaptation Meetings - Finalizing 2018 Annual Report recommendations - <i>Insurance & Adaptation</i> - Finalizing report chapters 	First Draft Annual Report Recommendations and Progress Report
Summer-Winter	Regional Meetings Outreach - MACo, MML meetings		

September 18	Maryland Commission on Climate Change Meeting		
October 23	Maryland Commission on Climate Change Meeting		
November 7	Maryland Commission on Climate Change Meeting		
December 3 2 to 4 pm	MD DNR	<ul style="list-style-type: none"> - <i>MARISA - NOAA project highlight that is working to downscale precipitation.</i> - Work Plan development 	2019-2020 Work Plan

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Appendix A
ARWG Membership Roster -- Updated 3/1/2018

ARWG Chair: Mark Belton, Secretary, Department of Natural Resources

ARWG Coordinators: Catherine McCall, Kim Hernandez, Department of Natural Resources*

Maryland Commission on Climate Change Liaison: C. Richard D'Amato, Retired Attorney

House Delegate Member: Dana Stein, Maryland General Assembly

Public Sector Representatives

Brian Ambrette, Eastern Shore Land Conservancy*

Fredrika Moser, Maryland Sea Grant

Eric Myers, The Conservation Fund

State-Agency Adaptation Sector Leads

Catherine McCall, Department of Natural Resources on Coastal Hazards

Clifford Mitchell, Department of Health and Mental Hygiene on Health*

Susan Payne, Department of Agriculture on Agriculture

Bruce Michael, Department of Natural Resources on Bay and Aquatic

Don Van Hassent, Department of Natural Resources on Forest and Terrestrial

Jason Dubow, Department of Planning on Growth and Infrastructure*

Sandy Hertz, Department of Transportation on Transportation Growth and Infrastructure

Gary Setzer, Department of Environment on Water Resources

Chas Eby, Maryland Emergency Management Agency on Emergency Management

Technical Advisors

Katherine Charbonneau, Critical Area Commission

Matthew Fleming, Department of Natural Resources

Megan Granato, Department of Natural Resources

Sasha Land, Department of Natural Resources*

Matt Rowe, Department of the Environment

Scott Zarcharko, Department of the Environment

Kevin Wagner, Department of the Environment

Nell Ziehl, Department of Planning - Maryland Historical Trust*

Lisa Lowe, Department of Information Technology

Fiona Burns, Department of Budget and Management

Shawn Kiernan, Maryland Port Administration

Elizabeth Habic, Department of Transportation - State Highway Administration*

Joy Hatchette, Maryland Insurance Administration

JaLeesa Tate, Maryland Emergency Management Agency

Andrew Asgarali-Hoffman, Maryland Emergency Management Agency

* Denotes member of the Regional Adaptation Meetings Planning Committee. In addition to these individuals, Debbie Herr-Cornwell (MDP), Allison Gost (MDH), Jill Lemke (MDOT MPA), and David Costello (IEER) also participate on the planning committee.

Appendix B

ARWG Actions and Initiatives 2017/2018
Updated March 2017

#	Action	Leads	Time-Frame
Growth and Infrastructure			
Goal: Reduce the impact to existing built environments, as well as to future growth and development.			
GI 1.1	The Resiliency Partnership will further refine and develop timelines for the strategies defined in the Strategic Implementation Plan of the 2016 State Hazard Mitigation Plan. The partnership would also look to expand and include state agencies not currently represented such as Department of Housing and Community Development (DHCD).	MDE, DNR, MEMA, MHT, MES	In Development
GI 1.2	With funding from the National Park Service Hurricane Sandy Disaster Relief Fund, the Maryland Historical Trust (MHT) has awarded seven grants throughout the state to help protect historic places and archaeological sites from future storms. As these projects are completed, the Maryland Historical Trust will develop case studies so that other jurisdictions can benefit from lessons learned.	MHT	In Development
GI 1.3	In 2014, Maryland Department of Transportation/State Highway Administration conducted a pilot study under a Federal Highway Administration grant to develop a methodology to assess vulnerability of the State's bridges and roads. Pilots were completed for Anne Arundel, Calvert, St. Mary's, Charles, Somerset, Worcester, and Wicomico Counties in the summer of 2016. SHA will work to apply the methodology to all tidal counties.	SHA	In Development
GI 1.4	Maryland Department of Transportation/Transportation Authority conducted a high-level vulnerability assessment of its nine maintenance facilities for sea level rise, storm surge, precipitation, and temperature for years 2050 and 2100. MDTA will update this framework to use for a variety of climate stressors including sea level rise, storm surge, temperature, precipitation, and extreme weather events.	MDTA	In Development
GI 1.5	Maryland Department of Transportation/Transit Authority completed a draft vulnerability assessment and is continuing to utilize the results in development of adaptation measures and resiliency planning. Results of the Climate Change Vulnerability Assessment will be incorporated into MTA's Asset Management Plan and system preservation program.	MTA	In Development

GI 1.6	Maryland Department of Transportation/Port Authority developed a climate change resilience program. MPA will implement a resiliency plan that includes the installation of additional tie-downs for cranes, installation of future emergency generators above ground level at +10 feet, elevation of berths, wharfs and parking lots, protection from inundation for underground utilities, review of emergency response plans to incorporate updated sea level rise data.	MPA	In Development
GI 1.7	The Maryland Department of Natural Resource's will be issuing awards under the Coastal Resiliency Grants Program to help Maryland communities become more resilient to impacts from the changing climate. As these projects are completed, the Maryland Department of Natural Resources will develop case studies so that other jurisdictions can benefit from lessons learned.	DNR	In Development
GI 1.8	Community field assessments and focus area characterizations will be undertaken as part of the integrated Community Resilience Assessment of the Deal Island Peninsula. The assessment will provide a ground level understanding of what's vulnerable, what adaptation measures are already occurring and identifying potential adaptation options based on community conditions and local knowledge.	DNR, UMD, MDSG, DHMH	Winter 2017
GI 1.9	The Eastern Shore Land Conservancy (ESLC) will engage the Maryland Department of Planning to create a model Comprehensive Plan Element specifically focusing on coastal resiliency for local governments. With funding provided by DNR, the partnership will work with the City of Cambridge to develop a Cambridge specific coastal resiliency element.	MDP, ESLC, DNR, DHMH	Spring 2018
GI.10	With funding from the Town Creek Foundation, the Eastern Shore Land Conservancy (ESLC) and Antioch University's Center for Climate Preparedness and Community Resilience piloted a regional capacity building project for climate resilience on the Eastern Shore. Through the Eastern Shore Climate Adaptation Partnership (ESCAP, ESLC and other ARWG partners will assist communities expand capacity for risk reduction and preparedness; facilitate information and knowledge exchange between members; and promote education for members, residents, and elected leaders.	ESLC	On-going
GI.11	The Department of Natural Resources (DNR) plans to undertake 15 of the highest priority projects in order to address escalating risks from extreme weather and climate-related events. Projects will include shoreline restoration, beneficial use of dredged materials, tidal marsh restoration, and the protection of dunal habitats to shelter coastal infrastructure and reduce current and future emergency repair costs. The goal of the program is to better protect Maryland communities and public resources using natural and nature-based approaches. During this time period the department will complete the design and engineering for six priority projects.	DNR	Summer 2018

#	Action	Leads	Time-Frame
Financial and Economic Well-Being			
Goal: Shift to sustainable investments and avoiding financial and economic impact.			
FE 1.1	A new methodology to encourage coastal restoration has been approved by the Verified Carbon Standard (VCS). Default carbon sequestration values for the VCS protocol will be evaluated for applicability to determine greenhouse gas benefits for various restoration projects under a range of salinity conditions.	DNR	Winter 2018
FE 1.2	The Department of Natural Resources will work with the towns of Oxford, St. Michaels, and Cambridge to incorporate coastal hazard considerations into the development of strategic waterfront development plans.	DNR	Fall 2018
FE 1.3	Maryland Emergency Management Agency will work to ensure that hazard mitigation projects submitted for federal disaster funds are reviewed for eligibility and to insure that all State applications are consistent with the recommended Coast Smart Siting and Design Guidelines.	MEMA	Winter 2017

#	Action	Leads	Time-Frame
Human Health			
Goal: Enhance preparedness to protect human health, safety, and welfare.			
HH 1.1	<p>Since the Climate and Health Profile Report was released in Spring 2016, the Department of Health and Mental Hygiene has continued work on climate in Maryland. Under the recently awarded 5-year cooperative agreement with the Centers for Disease Control and Prevention (CDC), DHMH is working directly with communities to develop and implement adaptation interventions for health outcomes related to climate change. DHMH is working with partners to measure the impacts of interventions on the communities to ensure improved resiliency to the effects of climate change. The specific objectives of the program are to: (1) Develop an overall statewide implementation and monitoring strategy for climate change health adaptation efforts that is integrated with the Maryland Climate Plan; (2) Provide tools and technical assistance to communities and other stakeholders on evidence-based public health interventions for climate adaptation; (3) Track the progress of local climate interventions and their associated health outcomes as they are implemented; (4) Use surveillance results to further refine and improve state and local interventions; and (5) Measure and communicate the health impacts of those interventions.</p>	DHMH	In Development

#	Action	Leads	Time-Frame
Natural Resources and Resource Based Industries			
Goal: Restore and protect Maryland's natural resources and resource-based industries.			
NR 1.1	The Department of Natural Resources will hold two training sessions to share data from the Coastal Resiliency Assessment with local governments on the western and eastern shores. The department will also explore expansion of the analysis to the riverine environment, inclusion of critical infrastructure in priority rankings, and model updates based on user feedback and ground-truthing. Resiliency data will be re-evaluated annually to determine if updates are necessary.	DNR	Winter 2017
NR 1.2	The Department of Natural Resources will conduct one day training sessions on the national network for ocean and climate change interpretation in partnership with Maryland Audubon, National Aquarium and MADECLEAR.	DNR	Winter 2017
NR 1.3	Over the next two years, Maryland's Chesapeake Bay National Estuarine Research Reserve will be establishing its Monie Bay component as a sentinel site. Monie Bay is located in Somerset County which is one of Maryland's most vulnerable counties to sea level rise. This additional site will provide valuable data on how local marshes are changing over time and if they are resilient to environmental stressors such as sea level rise.	DNR	Winter 2018
NR 1.4	Maryland officials will participate in a climate adaptation work group through the Mid-Atlantic Regional Council on the Ocean (MARCO). This partnership has identified strategies for regional approaches to reduce risks to priority coastal resources. The Department of Natural Resources will work to enhance and improve on efforts to coordinate with neighboring states through MARCO to reduce transboundary coastal impacts.	DNR	Spring 2018