

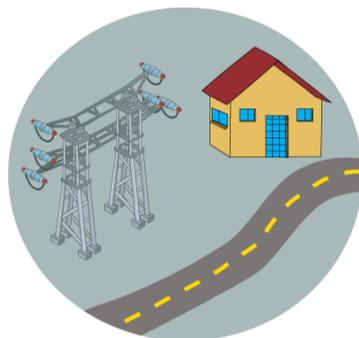
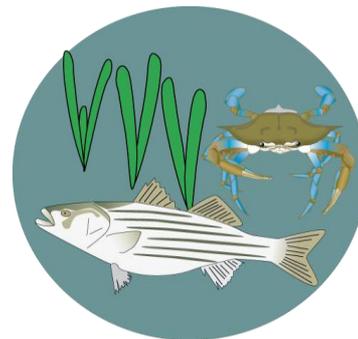
Maryland Commission on Climate Change Adaptation Work Group



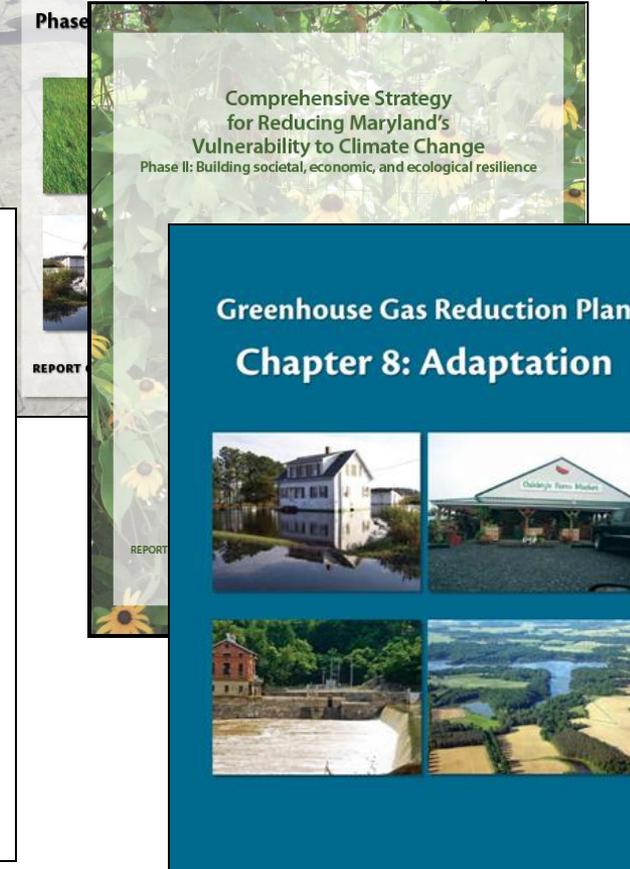
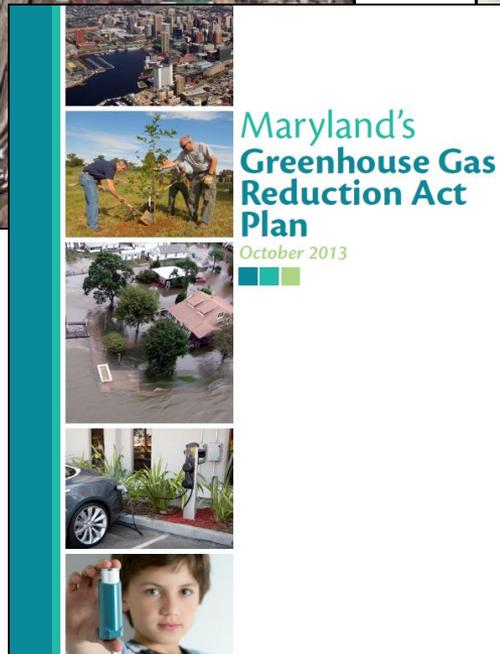
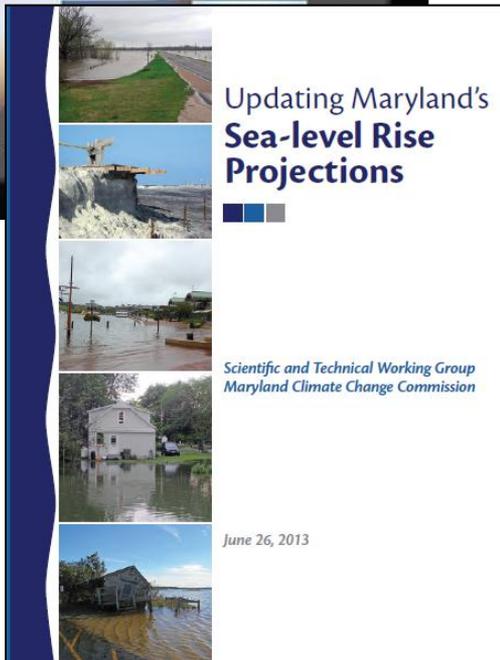
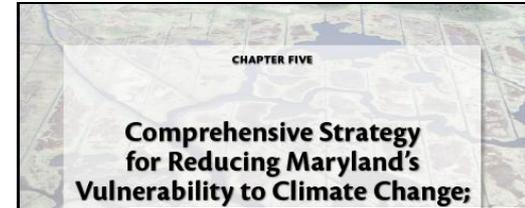
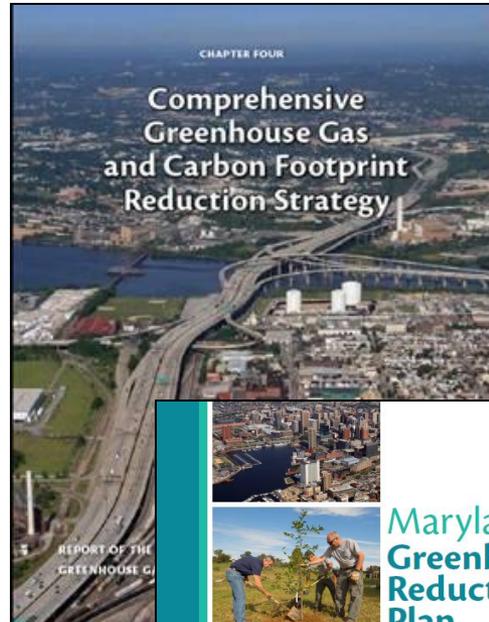
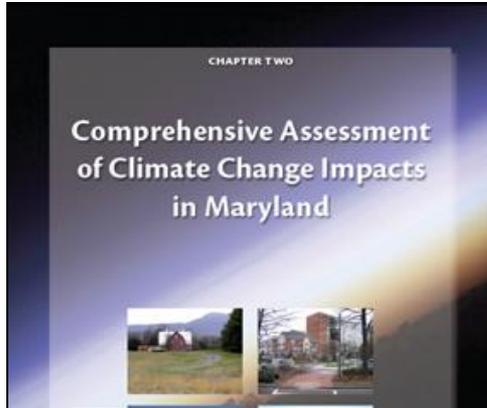
Photo Credit: Lee Goodwin

April 17, 2015

Climate change will affect all sectors of our economy, society and environment



Maryland's Climate Action Plan



MD's Adaptation Strategy: Sector-Based

| Affected Sectors | Climate Stressor | Climate Vulnerability | Adaptation Strategies |
|-------------------------------|---|--|---|
| Water Resources | <ul style="list-style-type: none"> • Changes in precip. • Extreme events | <ul style="list-style-type: none"> • Decreased water supply • Increased flooding | <ul style="list-style-type: none"> • Create water markets • Improve flood control |
| Bay/Aquatic Ecosystems | <ul style="list-style-type: none"> • Sea level rise • Increased water temp | <ul style="list-style-type: none"> • Increased salinity • Habitat loss | <ul style="list-style-type: none"> • Install "living shorelines" • Protect critical habitat |
| Human Health | <ul style="list-style-type: none"> • Increased air temp. • Extreme events | <ul style="list-style-type: none"> • Vector-borne illness • Heat-related health effects | <ul style="list-style-type: none"> • Designate "cooling centers" • Vector-borne surveillance |
| Agriculture | <ul style="list-style-type: none"> • Changes in precip. • Sea level rise | <ul style="list-style-type: none"> • Drought • Salt-water intrusion | <ul style="list-style-type: none"> • Plant salt tolerant crops • Drought management |
| Forest/Terrestrial Ecosystems | <ul style="list-style-type: none"> • Changes in precip. • Increased air temp. | <ul style="list-style-type: none"> • Disease, Fire • Species shifts | <ul style="list-style-type: none"> • Fire mgmt. and control • Invasive species mgmt |
| Growth & Infrastructure | <ul style="list-style-type: none"> • Changes in precip. • Sea level rise | <ul style="list-style-type: none"> • Increased population growth • Increased flooding | <ul style="list-style-type: none"> • "Smart" site and building design • Retrofit storm water mgmt. |
| Coastal Zone | <ul style="list-style-type: none"> • Sea level rise • Extreme events | <ul style="list-style-type: none"> • Submergence of low-lying lands • Increased coastal flooding | <ul style="list-style-type: none"> • Protect coastal infrastructure • Increase natural vegetative buffers |

Adaptation: Phase I

Adaptation: Phase II



SEA LEVEL RISE AND COASTAL STORMS

| Priority Recommendations | Lead Agency | Key Partners | Priority | Timeframe | |
|---|---|--------------|-----------------|-----------|----------|
| Reduce impact to existing and future growth and development | | | | | |
| Take action now to protect human habitat and infrastructure from future risks | Require the integration of coastal erosion, coastal storm, and sea level rise adaptation and response strategies into existing state and local policies and programs. | DNR, MDP | MDE, MDOT, DECD | high | ongoing |
| | Develop and implement State and local adaptation policies (i.e., protect, retreat, abandon) for vulnerable public and private sector infrastructure. | DNR | MDP, MDE, MDOT | high | ongoing |
| | Strengthen building codes and construction techniques for new infrastructure and buildings in vulnerable areas. | DECD, DNR | MDP, MDOT, MDE | high | ongoing |
| Financial and economic well-being | | | | | |
| Minimize risks and shift to sustainable economies and investments | Develop and implement long-range plans to minimize the economic impacts of sea level rise to natural resource-based industries. | DBED | DNR | medium | long |
| | Establish an independent Blue Ribbon Advisory Committee to advise the State of the risks that climate change poses to the availability and affordability of insurance. | MIA | DNR | high | complete |
| | Recruit, foster, and promote market opportunities related to climate change adaptation and response. | DBED | DNR | low | long |
| Protection of human health, safety, and welfare | | | | | |
| Guarantee the safety and well-being of Maryland's citizens in times of foreseen and unforeseen risk | Strengthen coordination and management across Agencies responsible for human health and safety. | DEMH | MDA, DNR | high | ongoing |
| | Conduct Health Impact Assessments to evaluate the public health consequences of climate change and sea level rise-related projects and/or policies. | DEMH | MDA, MDE, DNR | high | medium |
| | Develop a coordinated plan to assure adequacy of Vector-borne Surveillance and Control Programs. | DEMH, MDA | DNR, MDE | high | medium |
| Natural resource protection | | | | | |
| Retain and expand forests, wetlands, and beaches to protect us from coastal flooding | Identify high priority protection areas and strategically and cost effectively direct protection and restoration actions. | DNR | MDE | high | ongoing |
| | Develop and implement a package of appropriate regulations, financial incentives, educational, outreach, and enforcement approaches to retain and expand forests and wetlands in areas suitable for long-term survival. | DNR | MDE, MDP | high | ongoing |
| | Promote and support sustainable shoreline and buffer area management practices. | DNR | MDE | high | ongoing |
| Adaptation and response toolbox | | | | | |
| Give State and local governments the right tools to anticipate and plan for sea level rise and climate change | Strengthen federal, state, local, and regional observation systems to improve the detection of biological, physical, and chemical responses to climate change and sea level rise. | DNR, UM | NOAA, EPA | high | ongoing |
| | Update and maintain state-wide sea level rise mapping, modeling, and monitoring products. | DNR | NOAA | high | ongoing |
| | Utilize new and existing education, outreach, training, and capacity-building programs to disseminate information and resources related to climate change and sea level rise. | DNR, UM | MDE | high | ongoing |

WATER RESOURCES

Priority Recommendations

Lead Agency

Key Partners

Priority

Timeframe

Adopt and fund the recommendations of the 2008 “Wolman Committee” report.

MDE

DNR, MDP, local governments, federal partners

high

ongoing

Manage water through the lens of future climate and population.

MDE

MDP, DNR, local governments

high

ongoing

Ensure long-term safe and adequate water supply for humans and ecosystems.

Enhance planning and coordination within the water resource community.

MDE

MDP, local governments

high

long-term

Encourage water suppliers to evaluate and improve their resilience.

MDE

water utilities, local governments, MEMA, EPA

high

long-term

Promote demand management and water conservation practices.

MDE

local governments, MDA, business community

medium

ongoing

Assess, target, and protect high quality water recharge areas.

MDE

DNR, MDP

medium

long-term

Encourage the removal of vulnerable or high-hazard water supply and treatment infrastructure.

MDE

water utilities, local governments

low

long-term

Reduce the impacts of flooding and stormwater.

Prevent inundation and overflow of on-site disposal systems.

MDE

local governments

medium

long-term

Revise Clean Water Revolving Fund criteria.

MDE

low

short-term

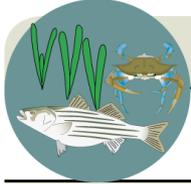
Invest in an improved understanding and communication of flood probabilities and hazards.

MDE

DNR

medium

long-term



BAY AND AQUATIC ECOSYSTEMS

| | Priority Recommendations | Lead Agency | Key Partners | Priority | Timeframe | Potential Cost |
|--|---|-------------|--|----------|--------------------------|----------------|
| Advance protection of at-risk species and habitats. | Revise state-level protection targeting programs to reflect climate change adaptation priorities. | DNR | UMD, USACE, USGS, USFWS, NOAA, NGOs | high | ongoing | low |
| | Develop new protection and conservation mechanisms to promote adaptation stewardship activities on private lands. | DNR | UMD, USACE, USGS, USDOJ, USFWS, NOAA, NGOs | medium | medium-term | medium |
| | Amend legal mechanisms to designate and protect temperature-sensitive streams. | DNR | MDE, EPA | high | ongoing | medium |
| | Implement an adaptive management approach. | DNR | MDE, MDOT, MDA, MDP, federal partners, NGOs | high | medium-term | low |
| Restore critical bay and aquatic habitats to enhance resilience. | Proactively pursue, design, and construct habitat restoration projects to enhance the resilience of bay and aquatic ecosystems. | DNR | USACE, USGS, USFWS, NOAA, EPA, CBP, NGOs | high | long-term | high |
| | Conduct an audit of state-owned lands to identify habitat restoration potential for enhancing ecosystem resilience and increasing on-site carbon sequestration. | DNR | | medium | short-term | low |
| | Increase on-the-ground implementation of existing stream restoration practices. | DNR | USGS, EPA, CBP, USFWS | high | short-term | high |
| Reduce existing stressors. | Remove barriers to habitat connectivity. | DNR | MDE, USFWS, NOAA | high | ongoing | high |
| | Reduce impervious surface cover. | DNR, MDE | MDP | high | ongoing | high |
| | Prepare for new or expanding ranges of invasive species. | DNR | MDA, MD Invasive Species Council, USFWS | high | ongoing | medium |
| Foster a collective response to climate change. | Adjust bay and watershed restoration priorities in light of a changing climate. | DNR | MDE, UMD, NOAA, USGS, EPA, Penn State, USFWS | medium | ongoing in Coastal Plain | medium |
| | Integrate both adaptation and mitigation reduction strategies into natural resource management plans and programs. | DNR | USFWS, NOAA, NGOs | high | short-term | low |
| | Revise fishery and wildlife management to build climate resilient safeguards. | DNR | USFWS, NOAA, NGOs | high | long-term | medium |
| | Increase collaboration among federal, state, regional, and local climate change adaptation partners. | DNR | UMD, NOAA, USGS, EPA, NGOs | high | short-term | low |



POPULATION GROWTH AND INFRASTRUCTURE

| Priority Recommendations | Lead Agency | Key Partners | Priority | Timeframe | Potential Cost | |
|---|---|--------------|--|-----------|----------------|--------|
| Ensure safety, clean water, clean air, and sufficient infrastructure. | Address funding and revenue constraints to ensure adequate support for current and future infrastructure needs. | MDOT, MDE | MEMA, DGS, utilities, local governments | medium | ongoing | TBD |
| | Conduct a comprehensive analysis of the vulnerability of Maryland's infrastructure. | MDOT, MDE | MEMA, DGS, utilities, local governments | medium | ongoing | high |
| | Develop a "lead by example" investment policy to guide State investments. | DNR | all State agencies | high | short-term | low |
| | Reduce regional air quality impacts in Maryland. | MDE | MDOT, EPA, MPOs, other states | high | medium-term | high |
| Plan for precipitation-related weather extremes and increase resilience to rising temperatures. | Assess the economic costs resulting from severe weather events. | MDOT | MEMA, utility providers, local governments | low | TBD | TBD |
| | Identify State investment needs to prepare for future weather emergencies. | MDOT, MEMA | utility providers, local governments | low | TBD | TBD |
| | Accelerate use of improved stormwater management strategies and environmental site design (ESD). | MDE | DGS, DNR, MDOT, UMD, local governments | high | ongoing | high |
| | Enhance the preparedness of transportation system and utility providers. | MDOT, MEMA | PSC, MEA, utility providers, MPOs | low | TBD | TBD |
| | Develop operation contingency plans for critical infrastructure. | MDOT, MEMA | utility providers | medium | ongoing | TBD |
| | Increase urban tree canopy. | DNR | local government | high | ongoing | high |
| | Strengthen building and infrastructure design standards. | DHCD | local government, MDOT, MEA, MDE, MEMA | high | ongoing | TBD |
| Institutionalize consideration of climate change. | Promote integration of climate change adaptation strategies into State and local policies and programs. | MDP | DNR, MEMA | high | long-term | medium |
| | Integrate climate vulnerability data into State and local spatial planning frameworks. | MDP | DNR | high | long-term | medium |
| | Consider climate change issues in combination with ongoing growth and development planning efforts. | MDP | Sustainable Growth Commission, local governments | high | short-term | low |
| | Explore incentives to promote sound planning practices. | MDP | MEA, UMD | high | medium-term | TBD |
| | Investigate the impacts of climate change on future energy needs. | DNR | MDE, MEA, MDA, DBED, MDP, MDOT | high | ongoing | medium |
| | Create a framework and standards for the placement and use of alternative energy. | DNR, MEA | MDE, MDA, DBED, MDP, MDOT, Critical Area Commission, UMD | high | ongoing | medium |



FORESTS AND TERRESTRIAL ECOSYSTEMS

| | Priority Recommendations | Lead Agency | Key Partners | Priority | Timeframe | Potential Cost |
|---|--|-------------|---|----------|-------------|----------------|
| Expand land protection and restoration and revise targeting priorities. | Integrate climate data and models into existing resource assessments and spatial planning frameworks. | DNR | EPA, CBP, USDOJ, USFWS, NGOs, NASA, NOAA | high | medium-term | medium |
| | Incorporate climate change adaptation strategies into State resource management plans. | DNR | MDP, EPA, CBP, USDOJ, USFWS, NOAA, USFS, NGOs | high | medium-term | low |
| | Collaborate with federal partners to support regional and national adaptation planning. | DNR | EPA, CBP, USDOJ, USFWS, NOAA, USFS, NGOs | medium | medium-term | low |
| | Update existing land protection targeting programs and project evaluation protocols. | DNR | EPA, CBP, USDOJ, USFWS, NOAA, USFS, NGOs | high | ongoing | medium |
| | Develop climate change adaptation guidance and technical tools suitable for local government planning. | DNR | MDP, UME | high | ongoing | medium |
| Adjust management practices and reduce existing stressors. | Strengthen State and local programs to slow the loss and fragmentation of forest and terrestrial ecosystems to new development. | DNR | MDP, MDE, MDOT, USFWS, USFS, EPA, CBP, NGOs | high | ongoing | medium |
| | Review and revise forestry best management practices. | DNR | UME | medium | medium-term | medium |
| | Continue to support incorporation of the policies and strategies of Maryland's Sustainable Forestry Act of 2009 into State and local planning decisions. | DNR | State Forest Conservancy District Boards | high | ongoing | low |
| | Evaluate sustainable forestry certification programs for opportunities to enhance climate resilience. | DNR | Sustainable Forestry Initiative, Forestry Boards, Forest Stewardship Councils | medium | medium-term | medium |
| | Improve capacity to manage and respond to stressors exacerbated by climate change. | DNR | MDA, MD Invasive Species Council, Forest Health Emergency Contingency Program | medium | short-term | high |
| Foster stewardship on private lands. | Develop new tools to guide adaptation stewardship activities on private lands. | DNR | Forest Stewardship Councils, UMD Extension | high | short-term | medium |
| | Incorporate adaptation concerns into existing programs. | DNR | USFS, Forest Stewardship Councils, UMD Extension | high | short-term | medium |
| | Develop new conservation easement mechanisms to promote adaptation stewardship activities on private lands. | DNR | USFS, Forest Stewardship Councils, UME, MDA | high | ongoing | low |



AGRICULTURE

| Priority Recommendations | Lead Agency | Key Partners | Priority | Timeframe | Potential Cost | |
|---|---|--------------|---|-----------|----------------|------|
| Increase crop diversity, protect against pests and disease, and intensify water management. | Promote diversification of crop species and varieties. | MDA | UMD Extension (UME), local agricultural producers | low | ongoing | TBD |
| | Intensify water management and conservation through research, funding, and incentives. | MDA | UME, MDE, DNR, USDA, EPA, Bay Trust | high | ongoing | high |
| | Protect against incoming pests, weeds, and disease. | MDA | UME | low | ongoing | TBD |
| | Support innovative solutions that foster adaptation and also reduce energy costs and carbon footprints. | MDA | UME, MEA | medium | ongoing | TBD |
| Strengthen applied research, risk communication, and technical support | Enhance dissemination channels to improve the relay of climate information. | MDA | UME, SCDs, NRCS, NGOs, commodity orgs | low | ongoing | TBD |
| | Identify opportunities to support the transition of farm and agricultural practices. | MDA | UME, NRCS, Farm Credit, insurance industry | low | long-term | TBD |
| | Enhance emergency response and risk management. | MDA | UME, Farm Credit, insurance industry | low | ongoing | TBD |
| Enhance existing best management practices and land conservation targets. | Evaluate the effectiveness of BMPs under future climate change scenarios. | MDA | UMD, DNR, MDE | low | ongoing | TBD |
| | Assess and revise targets for agricultural land preservation. | MDA | local and regional land trusts | low | ongoing | TBD |



HUMAN HEALTH

| | Priority Recommendations | Lead Agency | Key Partners | Priority | Timeframe | Potential Cost |
|--|--|-------------|-------------------------|----------|-------------|----------------|
| Conduct vulnerability assessments to gain a better understanding of risk and inform preventative measures. | Assess potential health threats and the sufficiency of Maryland's response capacity. | DHMH | MEMA | TBD | TBD | TBD |
| | Evaluate impacts to food safety and availability. | DHMH | MDA | medium | medium-term | TBD |
| | Assess the vulnerability of Maryland's populations and communities to changing health threats. | DHMH | MDP, MDE | medium | long-term | TBD |
| | Identify potential barriers to effective emergency response. | DHMH | MEMA | high | medium-term | TBD |
| Integrate impact reduction strategies into State and local planning practices. | Improve response capacity through the development of new or expanded programs. | DHMH | MEMA | medium | long-term | high |
| | Address climate-related health risks in hazard mitigation and emergency response plans. | DHMH | MEMA | medium | TBD | TBD |
| | Support community engagement in planning and emergency response decisions. | DHMH | MEMA | medium | long-term | TBD |
| Streamline and revise data collection and information dissemination channels. | Improve the resolution and availability of health and population data. | DHMH | UMD, MDP, CDC, EPA | high | ongoing | high |
| | Analyze health and population data along with other spatially explicit information (e.g., land use, air quality, water quality). | DHMH | DNR, MDP, MDE, EPA, CDC | high | ongoing | high |

Strategy: Give State and local governments the right tools to plan and adapt



DEPARTMENT OF NATURAL RESOURCES

Climate Change Impact Area Mapper

The Climate Change Impact Area Mapper is an online tool provided by the Maryland Department of Natural Resources (DNR) for management decision-making, planning and education purposes. The Climate Change Impact Area Mapper brings together multiple data layers from different sources to illustrate land areas in Maryland that are projected to be the most sensitive to anticipated changes in climate. The layers include areas vulnerable to sea level rise, storm surge, flooding, drought, and rising temperatures.

Disclaimer:

Every reasonable effort has been made to provide complete and accurate information and to produce high-quality map information. The Department of Natural Resources (DNR) provides this information with no guarantees of its accuracy, reliability, correctness, or completeness. Users rely on the information contained in the Climate Change Impact Area Mapper at their own risk, and any conclusions drawn from such information are done at the sole risk and the responsibility of the user. The data, maps, and information provided should be used only as a screening-level tool for management and planning decisions.

The Climate Change Impact Area Mapper is a compilation of multiple data layers from different sources, and thus is challenged by spatial and temporal scales. In many instances, the information was created and is maintained by other federal, state and local governments as well as the commercial entities. DNR has collected these data and made them available in a ready-only format for management decision-making, planning and education purposes, only. If you have any questions about this viewer, please contact Zoe Johnson at zjohnson@dnr.state.md.us.

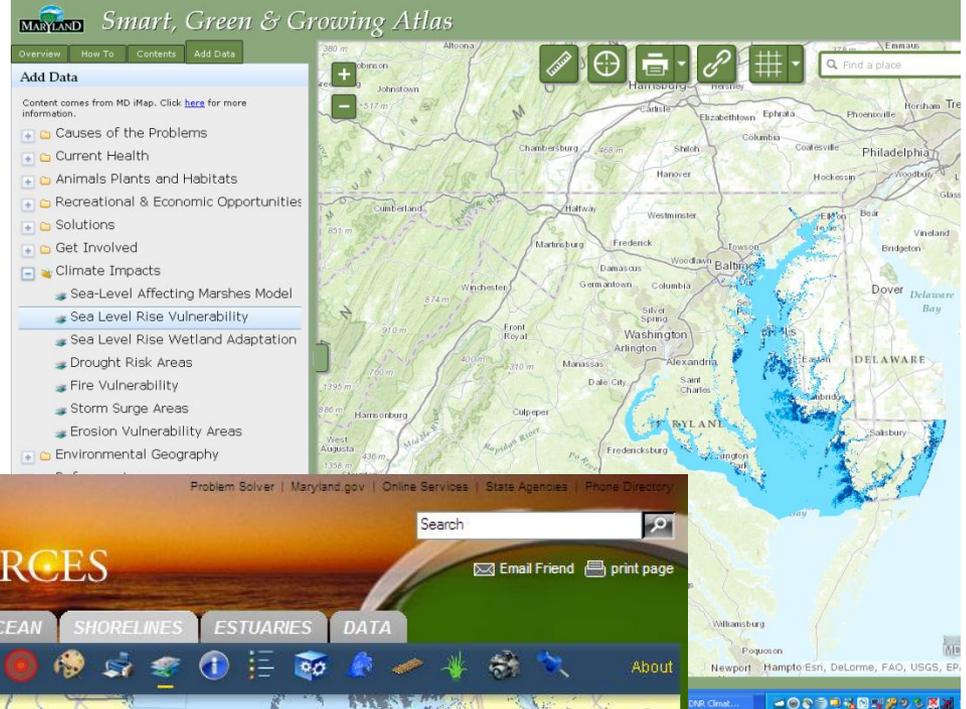
News & Events

Maryland Issues New Guidelines for State Construction in Areas Vulnerable To Coastal Flooding and Sea Level Rise

State of Maryland Announces New Guidelines for State Construction in Areas Vulnerable To Coastal Flooding and Sea Level Rise

Governor O'Malley Releases Final Greenhouse Gas Reduction Plan

New Sea Level Rise Projections



MARYLAND Smart, Green & Growing Atlas

Overview | How To | Contents | Add Data

Add Data

Content comes from MD iMap. Click [here](#) for more information.

- Causes of the Problems
- Current Health
- Animals Plants and Habitats
- Recreational & Economic Opportunities
- Solutions
- Get Involved
- Climate Impacts
 - Sea-Level Affecting Marshes Model
 - Sea Level Rise Vulnerability
 - Sea Level Rise Wetland Adaptation
 - Drought Risk Areas
 - Fire Vulnerability
 - Storm Surge Areas
 - Erosion Vulnerability Areas
- Environmental Geography

Find a place



DEPARTMENT OF NATURAL RESOURCES

COASTAL ATLAS: Shorelines

DNR HOME | COASTAL ATLAS HOME | OCEAN | SHORELINES | ESTUARIES | DATA

Problem Solver | Maryland.gov | Online Services | State Agencies | Phone Directory

Search

Email Friend | print page

Layer List

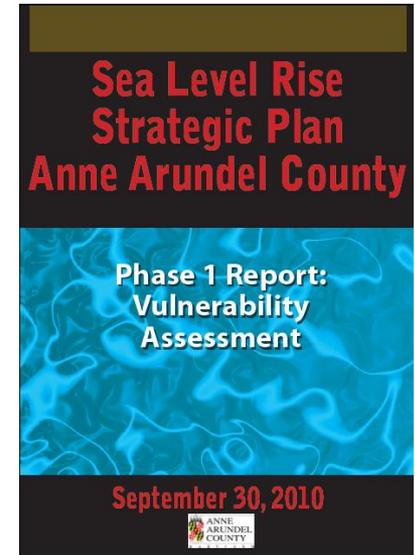
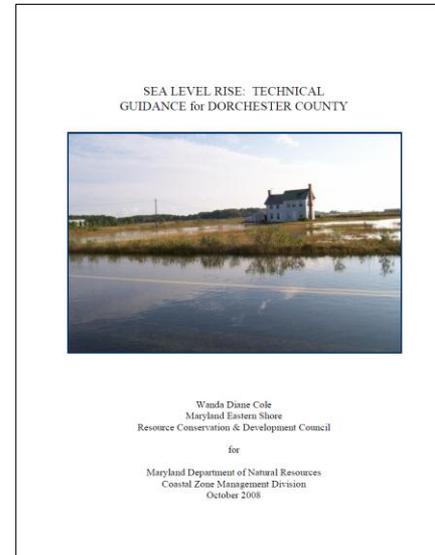
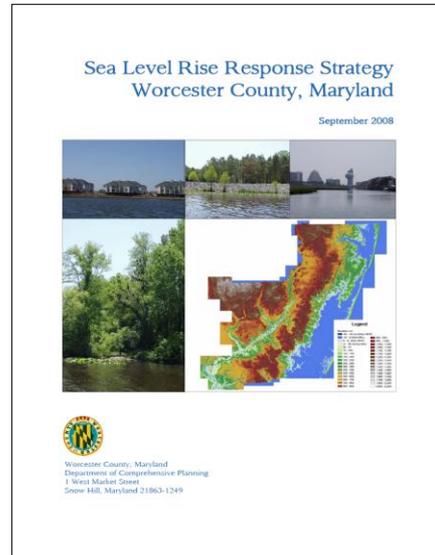
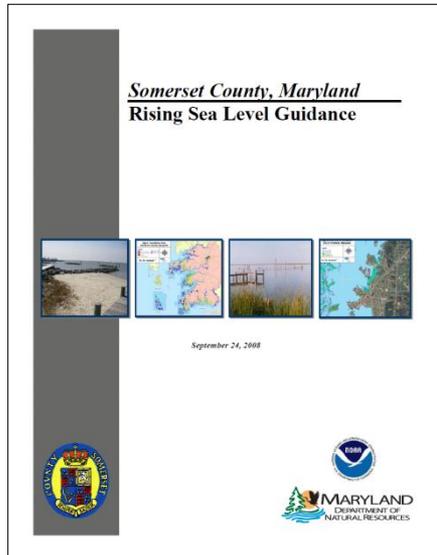
- Shoreline Rates of Change
- Historical Shorelines
- Shoreline Inventory
- Living Shoreline Suitability
- Sea Level Rise Vulnerability
- Sea Level Rise Vulnerable Wetlands
- Storm Surge Areas
- Bruun Profile Study
- Erosion Vulnerability Assessment

Calvert

Dorchester

Strategy: Foster & Advise Local-Level Adaptation Planning

The Coastal Communities Initiative (CCI) competitive grant program provides financial and technical assistance to local governments to promote the incorporation of natural resource and/or coastal management issues into local planning and permitting activities.

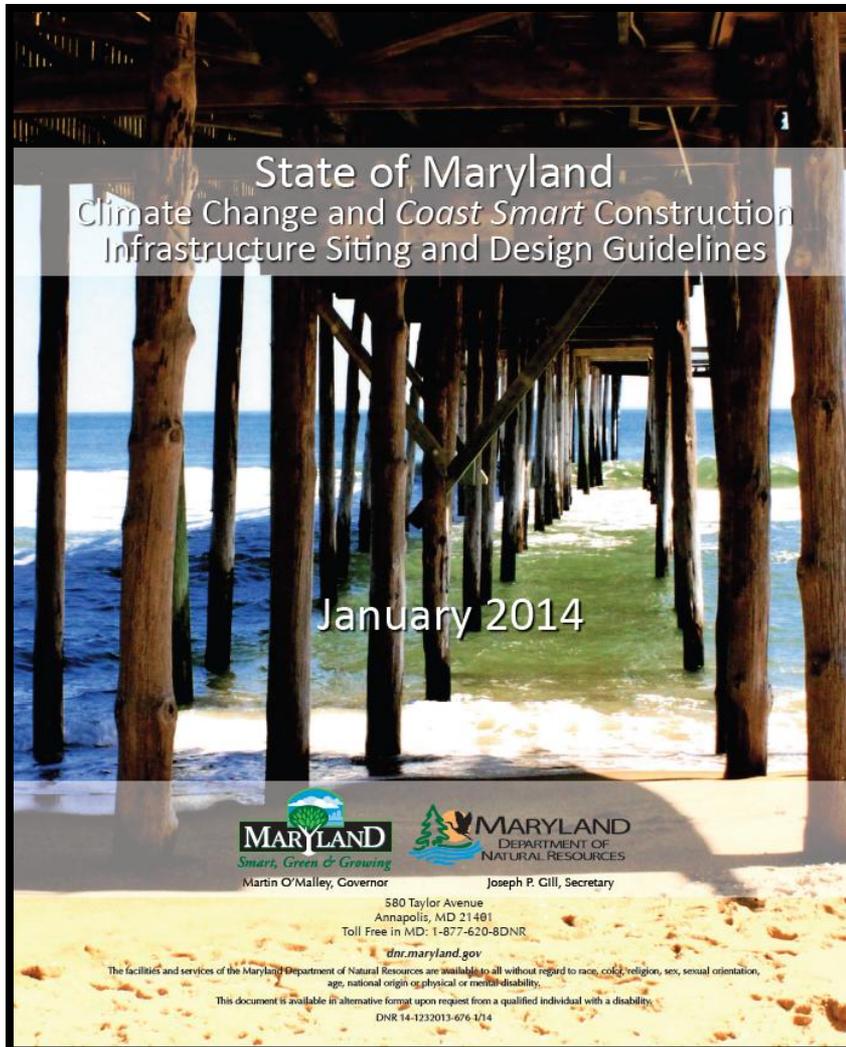


Strategy: Promote Sustainable Shoreline & Buffer Area Management

- **Living Shoreline Protection Act (2008)**
 - Requires non-structural shore protection practices unless proven infeasible
- **Chesapeake & Coastal Bays Critical Area Amendments (2008)**
 - Increased vegetative buffers
 - Updated jurisdictional boundaries to account for sea level rise
 - Allows for consideration of coastal impacts during growth allocation decisions
- **DNR Policy: Building Resiliency to Climate Change (2010)**
 - New land investment practices and procedures
- **Critical Area State Development – Climate Change Regulations**
 - Final Regulations published in Maryland Register Dec. 4, 2014



Strategy: Enhance Siting & Design for Coastal Infrastructure



HOUSE BILL 615

M3

4lr0128

By: Chair, Environmental Matters Committee (By Request - Departmental - Natural Resources)

Introduced and read first time: January 30, 2014

Assigned to: Environmental Matters

Committee Report: Favorable with amendments

House action: Adopted

Read second time: March 8, 2014

CHAPTER _____

1 AN ACT concerning

2 ~~Climate Risk Reduction Act~~

3 Coast Smart Council

4 FOR the purpose of establishing a Coast Smart Council in the Department of Natural
5 Resources; providing for the membership, chair, and staffing of the Council;
6 establishing the membership term for certain members of the Council;
7 prohibiting certain members of the Council from receiving certain
8 compensation, but authorizing the reimbursement of certain expenses;
9 providing for the duties of the Council; authorizing the chair of the Council to
10 establish subcommittees under certain circumstances; requiring certain
11 structures to be constructed in accordance with certain siting and design
12 criteria established by the Council; requiring the Council, in consultation with
13 the Department, to develop certain criteria in accordance with certain
14 requirements on or before a certain date; declaring the intent of the General
15 Assembly; requiring the Departments of Budget and Management, General
16 Services, and Natural Resources to review and incorporate certain criteria
17 established by the Council into certain instructions and policies; providing for
18 the application of certain provisions of this Act; defining certain terms; and
19 generally relating to the application of certain siting and design criteria related
20 to sea level rise and coastal flood impacts to the construction or reconstruction
21 of certain capital projects and the Coast Smart Council.

22 BY adding to

EXPLANATION: CAPITALS INDICATE MATTER ADDED TO EXISTING LAW.

[Brackets] indicate matter deleted from existing law.

Underlining indicates amendments to bill.

~~Strike out~~ indicates matter stricken from the bill by amendment or deleted from the law by amendment.





Special Preservation/Conservation Planning Area:

Climate Change Impact Areas

- Sea Level Rise Vulnerability
- Erosion Vulnerability
- Wetland Adaptation Areas
- Storm Surge Risk
- 100 and 500-Year Floodplain
- Drought Hazard Risk
- Wildfire Priority Risk
- High Quality Cold Water Resource Areas
- Climate Sensitive Wildlife and Rare Species Habitats (coming soon)

2014 Chesapeake Bay Agreement

Resiliency

Monitoring & Assessment: Continually monitor and assess the trends and likely impacts of changing climatic and sea level conditions on the Chesapeake Bay ecosystem, including the effectiveness of restoration and protection policies, programs and projects.

Adaptation: Continually pursue, design, and construct restoration and protection projects to enhance the resiliency of bay and aquatic ecosystems from the impacts of coastal erosion, coastal flooding, more intense and more frequent storms and sea level rise.

State-Level Accomplishments

- Transportation Vulnerability Assessment (SHA)
- Climate Change Vulnerability Assessment and Recommendations (MPA)
- Historical, Archaeological, and Cultural Resources Vulnerability Study (MHT)
- Higher Regulatory Standards for Floodplain Management (MDE)
- Review of Current Statewide Building Codes and Recommendations for Enhancement in Coastal Regions of Maryland & “Sustainable Communities” Designation Reviews (DHCD)
- State Hazard Mitigation Plan & State Recovery Plan (MEMA)
- DHMH: State Climate Change Environmental Health Capacity Building Grant (DHMH)
- Temperature Sensitive Stream Regulations (DNR)
- Bay Acidification Task Force (DNR)

Greenhouse Gas Reduction Plan Chapter 8: Adaptation



Strengthening Climate Action in MD

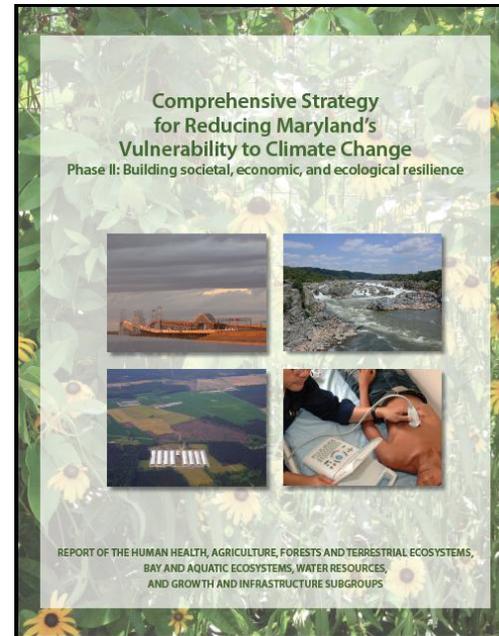
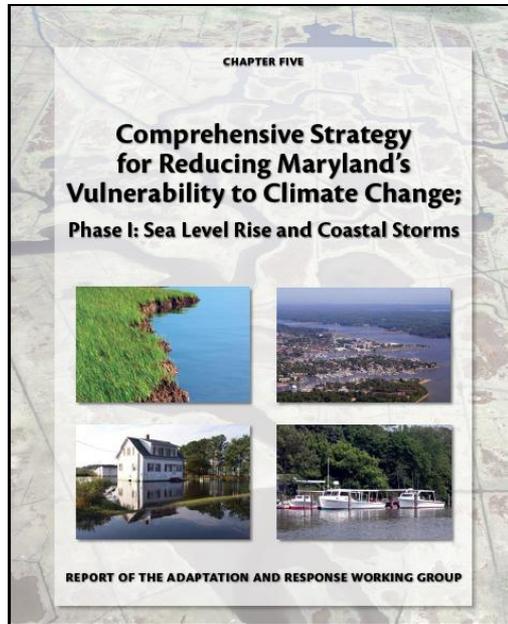
- **Expands the membership, mission and work of the Maryland Commission on Climate Change (MCCC).**
- **Establishes the following charge for the Adaptation and Response Working Group (ARWG):**
 - Strengthen and maintain existing State action plans to further address, prepare for and adapt to the consequences of climate change;
 - Reestablish the Adaptation and Response Working Group, as needed;
 - Convene regular Working Group meetings to ensure that sufficient progress is being made across all sectors and communities in Maryland; and
 - Establish a comprehensive and accountable annual work plan that set annual goals and performance benchmarks, and prioritizes new and existing climate change adaptation actions and initiatives.
- **Under the umbrella of the MCCC, the efforts of the ARWG will be undertaken in conjunction with the efforts of the MCCC's Mitigation (MWG), Scientific and Technical (STWG), and Education, Communication and Outreach (ECO) Working Groups.**

EO 01.01.2014.14

Enhanced State Actions

- Task #1: The Department of Information Technology (DoIT), with support from Departments of Planning and Natural Resources, will create an online climate data and information portal to increase public access to the latest climate science, projections and technical resources.
- Task #2: Review State planning, regulatory and fiscal programs to identify and recommend actions to more fully integrate the consideration of the impacts of climate change; including sea level rise, increased precipitation and temperature, and extreme weather.
 - For planning, regulatory and fiscal programs that currently include climate considerations, quantify and assess performance and effectiveness; and recommend programmatic, regulatory or fiscal changes that would serve to enhance Maryland's preparedness and resilience to future climate change impacts; and ensure both wise and sustainable use of state fiscal resources; and
 - Identify and recommend specific policy, planning regulatory and fiscal changes for existing programs that do not currently address climate change impacts.
- Task #3: DNR to recommend Maryland Environmental Policy Act (MEPA) guidelines that require consideration of climate change factors, including both mitigation and adaptation.

Establish 2015-2016 State Agency Priorities



| <i>ARWG Sector</i> | <i>Lead State Agency</i> | <i>Agency Lead</i> |
|---------------------------------|--------------------------|--------------------------|
| Human Health | DHMH | Clifford Mitchell |
| Agriculture | MDA | Susan Payne |
| Sea Level Rise & Coastal Storms | DNR | Zoë Johnson |
| Forest & Terrestrial Ecosystems | DNR | Don Van Hassent |
| Bay & Aquatic Ecosystems | DNR | Bruce Michael |
| Water Resources | MDE | Lyn Poorman |
| Growth & Infrastructure | MDP/MDOT | Jason Dubow/Don Halligan |

2015-2016 ARWG Action Priorities (to be established)

- Develop broader public/private and State/local partnerships to better address the consequences of climate change, and to better communicate with and educate citizens about the urgency of the challenge and options to address it.
- Address the challenge that low income and otherwise vulnerable communities will likely be disproportionately impacted by climate change.
- Assess the impacts that climate change will likely have on the State's economy, revenues, and investment decisions.
- Recommend short and longer-term strategies and initiatives to better address the consequences of climate change.
- Deliver tools and assistance to local governments to support community-scale climate vulnerability assessments and the development and integration of specific strategies for enhancing resilience to the impacts of climate change into local plans and ordinances.

Reporting Requirements

In accordance with the provisions of EO 01.01.2014.14, DNR will provide quarterly progress updates on State agency actions through ClimateStat sessions.

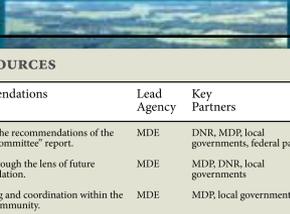
The ARWG will also provide an update to the MCCC on or before November 15, 2015, on the status of the ARWG work plan efforts, including future plans and recommendations for legislation, if any, for consideration by the General Assembly.

Greenhouse Gas Reduction Plan

Chapter 8: Adaptation







|  WATER RESOURCES | | | | | |
|--|---|-------------|---|----------|------------|
| | Priority Recommendations | Lead Agency | Key Partners | Priority | Timeframe |
| | Adopt and fund the recommendations of the 2008 "Wolman Committee" report. | MDE | DNR, MDP, local governments, federal partners | high | ongoing |
| | Manage water through the lens of future climate and population. | MDE | MDP, DNR, local governments | high | ongoing |
| Ensure long-term safe and adequate water supply for humans and ecosystems. | Enhance planning and coordination within the water resource community. | MDE | MDP, local governments | high | long-term |
| | Encourage water suppliers to evaluate and improve their resilience. | MDE | water utilities, local governments, MEMA, EPA | high | long-term |
| | Promote demand management and water conservation practices. | MDE | local governments, MDA, business community | medium | ongoing |
| | Assess, target, and protect high quality water recharge areas. | MDE | DNR, MDP | medium | long-term |
| | Encourage the removal of vulnerable or high-hazard water supply and treatment infrastructure. | MDE | water utilities, local governments | low | long-term |
| Reduce the impacts of flooding and stormwater. | Prevent inundation and overflow of on-site disposal systems. | MDE | local governments | medium | long-term |
| | Revise Clean Water Revolving Fund criteria. | MDE | | low | short-term |
| | Invest in an improved understanding and communication of flood probabilities and hazards. | MDE | DNR | medium | long-term |

ARWG Membership Concept – to be discussed

MCCC

ARWG

MCCC Liaisons

**Sector-Based State Agency Leads
Stakeholders**

Subgroups

(to address select AWRG Priorities or Emerging Issues)

Coast Smart Construction

Public Health Climate Change Strategy

Bay Acidification

Public-Private Partnerships



Thank you.

For more information, visit:
climatechange.maryland.gov
dnr.state.md.us/climatechange