Support for Understanding Land Use and Climate Change in the Appalachian Landscape

Appalachia | U.S. Fish and Wildlife Service (FWS)

Status: Ongoing, *<please provide the expected completion date>*

Type of Document
- Measurement and Evaluation
- Adaptation Plan

Impact
- Ecosystems

Description
This research will compile climate change vulnerability assessments and other relevant information on vulnerable species and habitats, discern the various methodologies and criteria used in these assessments, and use a team of exert peer reviewers to recommend the most efficient, effective, and appropriate methods for adoption by the Appalachian LCC for conservation and adaptation planning.

URL: http://applcc.org/research/climate-change-vulnerability-group

NOAA Chesapeake Bay Office - Chesapeake Atlantis Model

Chesapeake Bay | National Oceanic and Atmospheric Administration (NOAA)

Status: Ongoing, *<please provide the expected completion date>*

Type of Document
- Measurement and Evaluation
- Webpage

Impact
- Air Temperature
- Ecosystems

Description
NOAA has been working on the Chesapeake Atlantis Model, a full system ecosystem model designed for identification of the cumulative effects of system changes, like climate.

URL: http://chesapeakebay.noaa.gov/ecosystem-modeling/chesapeake-atlantis-model

Chesapeake Bay Interpretive Buoy System

Chesapeake Bay | National Oceanic and Atmospheric Administration (NOAA)

Status: Ongoing, *<please provide the expected completion date>*

Type of Document
- Measurement and Evaluation
- Webpage

Impact
- Sea Level Rise
- Water Temperature
- Storm Surge
- Ocean Acidification
- Precipitation

Description
NOAA operates a network of observing platforms in the Bay that provide real-time data on weather and water conditions.

URL: http://buoybay.noaa.gov/

NOAA National Center for Coastal Ocean Science (Cooperative Oxford Lab)

Chesapeake Bay | National Oceanic and Atmospheric Administration (NOAA)

Status: Ongoing, *<please provide the expected completion date>*

Type of Document
- Measurement and Evaluation

Impact
- Ecosystems

Description
Oxford Lab helps local decision-makers understand the pressures on the Chesapeake Bay watershed, among them: climate change, urbanization, and pollution. Developing a model to forecast striped bass recruitment in the Chesapeake Bay: Unlike other models, this one accounts for weather and climate variability, as well as fishing pressure.

URL: http://coastalscience.noaa.gov/about/centers/col

Chesapeake Bay Climate Sensitivity Assessment

Chesapeake Bay

National Oceanic and Atmospheric Administration (NOAA)

Status: Completed, 2015

Type of Document
- Measurement and Evaluation

Impact
- Ecosystems

Description
This assessment uses weather, water, biological, and climate data from a variety of sources and a state of the art biophysical model (the Chesapeake Bay Ecological Prediction System) to address the needs and goals of the Chesapeake Bay NERRS, the Chesapeake Bay Program, and NOAA's Chesapeake Bay Sentinel Site Cooperative.

URL: http://coastalscience.noaa.gov/projects/detail?key=217

Chesapeake Bay Sentinel Site Cooperative

Chesapeake Bay

National Oceanic and Atmospheric Administration (NOAA)

Status: Ongoing, *<please provide the expected completion date>*

Type of Document
- Climate Action Plan
- Adaptation Plan
- Decision Making Processes

Impact
- Sea Level Rise
- Flooding
- Storm Surge

Description
National Oceanic and Atmospheric Administration (NOAA) initiated a Sentinel Site Program (SSP) to encourage federal, state and local partners to cooperatively address impacts of climate change, with an initial emphasis placed on rising sea levels. In 2011, NOAA selected the Chesapeake Bay as one of five initial regional Sentinel Site Cooperatives to demonstrate the value of using a place-based approach to address issues of local, regional and national significance. The Cooperative provides integrated observations across a host of environmental monitoring programs within the Bay area. The goal of the cooperative is to provide information to Chesapeake Bay communities and managers who need to address challenges such as storm flooding, long term, local sea level rise, barrier island movement, degraded water quality, and wetland loss.

URL: http://oceanservice.noaa.gov/sentinelsites/chesapeake.html

Coastal SEES: Chesapeake Bay Sustainability: Implications Of Changing Climate And Shifting Management Objectives

Chesapeake Bay | National Science Foundation

Status: Ongoing, *<please provide the expected completion date>*

Type of Document
- Adaptation Plan

Impact
- Ecosystems

Description
A National Science Foundation-funded collaborative project lead by VIMS that aims to develop an advanced modeling framework that integrates the physical, biogeochemical, and human components needed to simulate and select climate change adaptation strategies that will support a sustainable system. The National Science Foundation - Science, Engineering and Education for Sustainability (SEES) Program provides a funding mechanism to advance science, engineering, and education to inform the societal actions needed for environmental and economic sustainability and sustainable human well-being.

URL: http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=504816

Managing Coastal Watersheds to Address Climate Change: Vulnerability Assessment and Adaptation Options for the Middle Patuxent Subwatershed of the Chesapeake Bay

Chesapeake Bay | National Wildlife Federation and NOAA

Status: Completed, 2013

Type of Document
- Adaptation Plan
- Vulnerability Assessment

Impact
- Air Temperature
- Ecosystems
- Precipitation
- Sea Level Rise
- Water Temperature

Description
NWF and NOAA partnered to produce a report examining the anticipated climate change impacts as they relate to conservation and restoration actions that benefit vulnerable species and habitats in the watershed.

URL: http://www.nwf.org/pdf/Climate-Smart-Conservation/Middle%20Patuxent%20Subwatershed%20Vulnerability%20Assessment%20and%20Adaptation%20Report%20August%202013.pdf

Case Study Application of the Basins Climate Assessment Tool, And Development of a Framework for Assessing Climate Change Impacts on Water Quality in the Chesapeake Bay Watershed

Chesapeake Bay | U.S. EPA

Status: Completed, 2008

Type of Document
- Case Study
- Measurement and Evaluation

Impact
- Ecosystems
- Extreme Heat
- Flooding
- Precipitation
- Salt Water Intrusion
- Sea Level Rise

Description
The EPA Global Change Research Program (GCRP) supported the development of a Climate Assessment Tool (CAT) for the Office of Water's BASINS water quality modeling system. The BASINS CAT provides users with the ability to modify historical climate, generate synthetic weather time series, and conduct systematic sensitivity analyses of specific hydrologic and water quality end-points to changes in climate using the BASINS models (e.g. HSPF). This project will demonstrate the use and capabilities of the BASINS CAT, as well as support on-going efforts to achieve Bay-wide integrated climate and land use change scenarios for 2030 and, ultimately, 2100.

URL: http://cfpub.epa.gov/si/si_public_record_report.cfm?dirEntryId=158295&simpleSearch=1&searchAll=climate

Chesapeake Bay Climate Sensitivity Project

Chesapeake Bay | UMCES/CBL (NOAA Ocean Acidification Program)

Status: Ongoing, *<please provide the expected completion date>*

Type of Document
- Measurement and Evaluation

Impact
- Ecosystems

Description
Use a combination of field, experimental and biogeochemical modeling to delineate contributions of atmospheric and eutrophication drivers to Chesapeake Bay acidification. Identify shellfish restoration areas most and least prone to acidification, and future impacts to long-term oyster restoration goals. Quantify carbonate and nutrient exchange between oyster reefs and surrounding waters and observe the change in those fluxes as a result of reef structures and acidification.

URL: http://www.umces.edu/cbl

VIMS: Climate Change Impacts to the Chesapeake Bay's Carbonate System

Chesapeake Bay | VIMS

Status: Ongoing, expected completion 2018

Type of Document
- Measurement and Evaluation

Impact
- Ecosystems
- Sea Level Rise
- Water Temperature
- Other (Ocean Conditions)

Description
Conduct shipboard and autonomous sampling to study the diurnal, seasonal, and interannual variability of the CO2 system in the Chesapeake Bay. Use biogeochemical models to distinguish the impacts between eutrophic and global climate change impacts to the bay's carbonate system.

URL: http://ccrm.vims.edu/

Chesapeake Bay Sustainability: Implications of Changing Climate and Shifting Management Objectives

Chesapeake Bay | VIMS, NCBO CAM

Status: Ongoing, expected completion 2016

Type of Document
- Climate Action Plan

Impact
- Ecosystems

Description
Undertake the NSF Coastal SEES Project: Chesapeake Bay Sustainability: Implications of Changing Climate and Shifting Management Objectives. This project, awarded in 2013, aims to develop an advanced modeling framework that integrates the physical, biogeochemical, and human components needed to simulate and select climate change adaptation strategies that will support a sustainable system. It merges a fine resolution hydrodynamic model with a broader-scale whole-ecosystem model that is capable of simulating socioeconomic interactions to characterize human-natural linkages in the system. The research specifically uses hypothetical alterations to the Chesapeake Bay designed to reduce storm surge to examine the impacts on estuarine dynamics, fisheries production, and potential flooding risks, with emphasis on feedbacks to the human system.

URL: http://www.nsf.gov/awardsearch/showAward?AWD_ID=1325518

Climate Change Study in Chesapeake Bay

Chesapeake Bay	Virginia Polytechnic Institute and State University (Virginia Tech)

Status: Ongoing, *<please provide the expected completion date>*

Type of Document
- Measurement and Evaluation
- Webpage

Description
Scientists at Virginia Tech were awarded $2 Million to study climate change effects on Chesapeake Bay.

Impact
- Sea Level Rise

URL: http://www.vtnews.vt.edu/articles/2014/07/072214-cals-nsfwater.html

Climate Resiliency Through Wetland Restoration

Chesapeake Bay Watershed	Mid Atlantic Regional Council on the Ocean (MARCO)

Status: Ongoing, expected completion 2016

Type of Document
- Climate Action Plan
- Resilience

Description
Develop wetland restoration priorities for climate risk reduction and resilience in the Mid-Atlantic region.

Impact
- Ecosystems

URL: http://midatlanticocean.org/

Chesapeake Bay Climate Sensitivity Project

Chesapeake Estuary	MD and VA Chesapeake Bay National Estuarine Research Reserve, Chesapeake Environmental Communications, University of Maryland Center for Environmental Science, NOAA/National Centers for Coastal Ocean Science

Status: Ongoing, *<please provide the expected completion date>*

Type of Document

- Measurement and Evaluation

Impact

- Ecosystems

Description

Assess Chesapeake Bay (CB) climate sensitivity, utilizing CB National Estuarine Research Reserve (NERR), National Weather Service and other data sets. Assessment will be informed by direct engagement with staff from MD and VA CB NERRS staff. Analyze available climate monitoring and climate sensitive data on extreme events to document past trends and impacts. Analyze climate model projections similarly to predict future. Use CB NERRS data in conjunction with other available data to tell specific stories about climate impacts on NERRS. Develop climate change chapter for Chesapeake Bay Ecosystem Atlas for use in formal and informal education.

URL: https://coastalscience.noaa.gov/about/centers/col

Coastal Maryland and Delaware Sea Level Rise Adaptation

Coastal Maryland and Delaware	Maryland DNR, MADE CLEAR, NCBO

Status: Ongoing, expected completion 2016

Type of Document

- Adaptation Plan
- Resilience

Impact

- Ecosystems
- Sea Level Rise

Description

Undertake the Exploration to Explanation, Education to Conservation project, which will use emerging technology to explore and communicate coastal resiliency as sea levels rise and address green infrastructure solutions to climate change impacts specific to coastal areas.

URL: http://www.madeclear.org/

Executive Order Number Forty-One

Delaware

Status: Completed, 2013

Type of Document
- Resilience
- Vulnerability Assessment
- Economic Development/Strategy Plan

Impact
- Flooding
- Sea Level Rise
- Ecosystems

Description
Preparing Delaware for Emerging Climate Impacts and Seizing Economic Opportunities from Reducing Emissions (2013) – The Executive Order establishes the Governor's Committee on Climate Change and Resiliency. It charges the Committee with overseeing the development of an implementation plan to continue reducing emissions and develop agency-specific actionable recommendations for improving Delaware's preparedness and resiliency to climate impacts.

URL: http://www.governor.delaware.gov/orders/EO041.pdf

Delaware Climate Change Impact Assessment

Delaware

Status: Completed, 2014

Type of Document
- Resilience
- Adaptation Plan

Impact
- Flooding
- Sea Level Rise
- Ecosystems

Description
Provides a summary of the potential impacts of climate change to Delaware, the assessment lends strong scientific foundation for the development of the state's mitigation and adaptation planning and strategies.

URL: http://www.dnrec.delaware.gov/energy/Pages/The-Delaware-Climate-Impact-Assessment.aspx

Climate Change Projections and Indicators for Delaware

Delaware

Status: Completed, 2013

Type of Document
- Climate Action Plan

Impact
- Flooding
- Sea Level Rise

Description
This report documents how global changes are expected to affect Delaware and supports the state's Assessment.

URL: http://www.dnrec.delaware.gov/energy/Documents/Climate%20Change%202013-2014/ARC_Final_Climate_Report_Dec2013.pdf

Preparing for Tomorrow's High Tide: Recommendations for Adapting to Sea Level Rise in Delaware

Delaware

Status: Completed, 2013

Type of Document
- Adaptation Plan

Impact
- Flooding
- Sea Level Rise

Description
Delaware's Sea Level Rise Advisory Committee approved recommendations for adapting to sea level rise. Public comment, investigation and discussion helped to formulate the recommendations.

URL:
http://www.dnrec.delaware.gov/coastal/Documents/SeaLevelRise/SLR%20Final%20Draft%20for%20Publication%20082013.pdf

Flood Avoidance and Design Guidance

Delaware — State of Delaware

Status: Ongoing, expected completion 2016

Type of Document
- Adaptation Plan

Impact
- Flooding

Description
Develop a "Flood Avoidance and Design Guidance" document for Delaware state agencies, under Executive Order 41, to use in the development of state projects.

URL: https://www.deldot.gov/information/business/drc/winter_workshop/pdf/2016/day1/08Presentation9-EO41.Update.2016.WW.pdf

Delaware Environmental Monitoring & Analysis Center - Satellite imagery

Delaware — University of Delaware

Status: Ongoing, *<please provide the expected completion date>*

Type of Document
- Measurement and Evaluation
- Webpage

Impact
- Ecosystems
- Air Temperature

Description
The University of Delaware, College of Earth, Ocean, and Environment maintains a satellite receiving station (UD SRS) for real-time feeds of satellite imagery for the Delaware region.

URL: http://demac.udel.edu/data/satellite-data

Climate Variability and Change

Delaware — University of Delaware

Status: Ongoing, *<please provide the expected completion date>*

Type of Document
- Measurement and Evaluation
- Webpage

Impact
- Ecosystems

Description
Through the University of Delaware Cooperative Extension research on climate variability and change is being conducted with partners such as: USDA, USGS, and Delaware Environmental Monitoring & Analysis Center, which maintains real-time feeds of satellite imagery for the Delaware region.

URL: http://extension.udel.edu/ag/climate-variability-and-change/

Sustainable DC Act of 2012

District of Columbia

Status: Completed, 2012

Type of Document
- Adaptation Plan

Impact
- Ecosystems

Description
The Act is intended to promote various energy-related programs including energy efficiency, renewable energy, and financing. It supports a robust sustainability plan for the District, Sustainable DC.

URL: http://dcclims1.dccouncil.us/images/00001/20130124112432.pdf

2013-2016 Climate, Energy, and Environment Policy Committee Resource Guide

District of Columbia

Status: Completed, 2016

Type of Document
- Climate Action Plan
- Case Study

Impact
- Ecosystems
- Air Temperature
- Extreme Heat
- Precipitation
- Seasonal Shift

Description
The Committee drafted a Resource Guide that provides descriptions, best practice examples, and resources needed for implementing the Plan.

URL: http://www.mwcog.org/uploads/pub-documents/uF5bVlY20160106103949.pdf

National Capital Region Climate Change Report

District of Columbia

Status: Completed, 2008

Type of Document
- Climate Action Plan

Impact
- Ecosystems
- Air Temperature
- Extreme Heat
- Precipitation
- Seasonal Shift

Description
The report reflects the work of representatives from the District, Maryland, Virginia and other regional organizations. It presents a regional climate change strategy to meet the regional greenhouse gas reduction goals.

URL: http://www.mwcog.org/uploads/pub-documents/zldXXg20081203113034.pdf

Sustainable DC Omnibus Amendment Act of 2014

District of Columbia

Status: Completed, 2014

Type of Document
- Adaptation Plan

Impact
- Ecosystems

Description
The amendment includes provisions that support climate adaptation. These include more public access to energy and water use data and protections for urban forests.

URL: http://sustainable.dc.gov/page/sustainable-dc-act

2013-2016 Climate, Energy, and Environment Policy Committee Action Plan

District of Columbia

Status: Completed, 2016

Type of Document
- Climate Action Plan
- Case Study

Impact
- Ecosystems
- Air Temperature
- Extreme Heat
- Precipitation
- Seasonal Shift

Description
The Committee drafted an Action Plan that identifies goals and implementation actions for sectors such as greenhouse gas reduction, infrastructure, and transportation. The Guide provides descriptions, best practice examples, and resources needed for implementing the Plan.

URL: http://www.mwcog.org/uploads/pub-documents/pF5cW1w20131031125921.pdf

DC Climate Change Adaptation Plan

District of Columbia

District of Columbia

Status: Ongoing, expected completion 2016

Type of Document

- Adaptation Plan
- Climate Action Plan

Impact

- Ecosystems
- Erosion
- Flooding
- Precipitation
- Sea Level Rise
- Storm Surge

Description

The District will release a draft climate adaptation plan for public comment in early 2016. Through targeted outreach to the communities identified as most vulnerable, the District will seek to facilitate a discussion about climate change and resilience with underserved communities.

URL: http://doee.dc.gov/service/climate-change

Summary of Potential Climate Change Impacts, Vulnerabilities, and Adaptation Strategies in the Metropolitan Washington Region

District of Columbia Metro Area

Metropolitan Washington Council of Governments (MWCOG)

Status: Completed, 2013

Type of Document

- Adaptation Plan
- Climate Action Plan
- Case Study

Impact

- Ecosystems
- Extreme Heat
- Flooding
- Precipitation
- Sea Level Rise
- Storm Surge

Description

COG staff has written a report that is a synopsis of lessons learned during the project.

URL: http://www.mwcog.org/store/item.asp?PUBLICATION_ID=460

Using Smart Growth Strategies to Create More Resilient Communities in the Washington, D.C., Region

District of Columbia Metro Area

Metropolitan Washington Council of Governments (MWCOG)

Status: Completed, 2013

Type of Document
- Adaptation Plan
- Climate Action Plan
- Case Study
- Resilience

Impact
- Ecosystems
- Extreme Heat
- Flooding
- Precipitation
- Sea Level Rise
- Storm Surge

Description
EPA published this guidebook that provides an overview of general climate adaptation approaches that pulls most of its case studies from the National Capital Region.

URL: http://www.epa.gov/smartgrowth/using-smart-growth-strategies-create-more-resilient-communities-washington-dc-region

Climate Change Report

District of Columbia Metro Area

Metropolitan Washington Council of Governments (MWCOG)

Status: Completed, 2008

Type of Document
- Adaptation Plan
- Climate Action Plan

Impact
- Ecosystems
- Flooding
- Water Temperature

Description
In 2008, the Metropolitan Washington Council of Governments (COG) Board adopted the National Capital Region (NCR) Climate Change Report, which established regional greenhouse gas (GHG) reduction goals and identified over 100 actions, including adaptation measures. A key focus of COG's adaptation initiatives has been to build the capacity of regional leaders to understand and address the unavoidable impacts of climate change. In order to help facilitate COG's initiatives, COG applied for and received technical assistance through the U.S. Environmental Protection Agency's Smart Growth Implementation Assistance Program (EPA SGIA).

URL: http://www.mwcog.org/store/item.asp?PUBLICATION_ID=334

Building Resilience

District of Columbia Metro Area

Metropolitan Washington Council of Governments (MWCOG)

Status: Completed, 2014

Type of Document

- Adaptation Plan
- Climate Action Plan
- Resilience

Description

For more information and additional resources on MWCOG climate resilience and adaptation efforts

Impact

- Ecosystems

URL: http://www.mwcog.org/environment/climate/resilience.asp

Adapting to a Changing Climate

District of Columbia Metro Area

National Aeronautics and Space Administration (NASA)

Status: Completed, 2012

Type of Document

- Adaptation Plan
- Climate Action Plan

Impact

- Ecosystems
- Extreme Heat
- Flooding
- Precipitation
- Sea Level Rise
- Storm Surge

Description

A report for Federal Agencies in the Washington, DC Metro Area

URL:

http://www.mwcog.org/environment/climate/adaptation/building/NASA_DCmetroClimCg%20FINAL%20NOV%202012.pdf

Climate Change Impact Area Mapper

Maryland

Status: Completed, *<please provide the completion date>*

Type of Document

- Measurement and Evaluation
- Webpage

Impact

- Ecosystems
- Erosion
- Flooding
- Precipitation
- Storm Surge

Description
The mapper is an online map service which shows land areas in Maryland that are projected to be the most sensitive to anticipated changes in climate.

URL: http://www.dnr.maryland.gov/climatechange/mapper.asp

CoastSmart Communities Scorecard

Maryland

Status: Completed, *<please provide the completion date>*

Type of Document

- Climate Action Plan
- Adaptation Plan

Impact

- Ecosystems

Description
The Scorecard provides planning guidance in five major sectors: Risk and Vulnerability Assessment; People and Property; Infrastructure and Critical Facilities; Natural Resources; and Societal and Economic Impacts, and can be used to develop a custom made strategic planning and response guide.

URL: http://dnr2.maryland.gov/ccs/coastsmart/Pages/default.aspx

Updated Sea Level Rise Projections

Maryland

Status: Completed, 2013

Type of Document
- Vulnerability Assessment
- Case Study

Impact
- Sea Level Rise

Description
Dr. Donald F. Boesch, UMCES President, convened a panel of highly qualified scientific experts on sea level rise drawn from Maryland and the Mid-Atlantic region (VA, DE, NJ, PA). A report detailing best estimates for MD was issued in June 2013. The "Best" estimate of mean sea level rise along Maryland's shorelines by 2050 (over the mean level in the year 2000) is 1.4 feet; based on present scientific understanding. It is unlikely to be less than 0.9 foot or greater than 2.1 feet. The "Best" estimate for mean sea level rise by 2100 is 3.7 feet; it is unlikely to be less than 2.1 feet or greater than 5.7 feet.

URL: http://www.umces.edu/sites/default/files/pdfs/SeaLevelRiseProjections.pdf

Climate Change and Conservation Practices

Maryland

Status: Completed, 2012

Type of Document
- Adaptation Plan
- Climate Action Plan
- Landuse Planning

Impact
- Sea Level Rise
- Flooding
- Storm Surge

Description
DNR has developed new conservation criteria and easement provisions to identify coastal habitats that may help Maryland proactively adapt to sea level rise and increased storm events associated with climate change. Climate change targeting criteria was used to develop new conservation areas for "GreenPrint" and a parcel-level scorecard used to review land acquisition projects.

URL: http://dnr2.maryland.gov/ccs/Pages/habitats_slr.aspx

Greenhouse Gas Reduction Plan: Adaptation Update

Maryland

Status: Completed, 2012

Type of Document
- Climate Action Plan
- Coastal Plan

Impact
- Ecosystems
- Sea Level Rise

Description
The 2012 Greenhouse Gas Emissions Reduction Act (GGRA) Plan was released by the Governor on July 25, 2013. Chapter 8 of the Plan details the strategies underway within State Government to address the impacts of climate change, including sea level rise.

URL: http://climatechange.maryland.gov/wp-content/uploads/sites/16/2014/12/chap8_adaptation_final_lowres1.pdf

Climate Change and Coast Smart Construction - Infrastructure Siting and Design Guidelines

Maryland

Status: Completed, 2014

Type of Document
- Adaptation Plan
- Climate Action Plan
- Coastal Erosion Hazard Area
- Coastal Plan

Impact
- Ecosystems
- Flooding
- Sea Level Rise
- Erosion
- Storm Surge

Description
The report (issued in response to directives outlined in executive order) recommends specific siting and design guidelines for State construction projects to protect against the impacts of climate change. The report recommends that Coast Smart practices also be applied to non-state buildings and infrastructure projects if partially or fully funded by the State, as well as projects on state lands. Recommended practices include: increasing the elevation requirements for State buildings, and critical and essential facilities, such as 911 centers and fire stations; increasing the setback requirements for State structures to avoid areas likely to be impacted by sea level rise within the next 50 years; and protecting natural storm surge buffers on construction sites.

URL: http://dnr.maryland.gov/climatechange/pdfs/climatechange_coastsmartreport013114.pdf

Greenhouse Gas Reduction Act Plan

Maryland

Status: Completed, 2013

Type of Document
- Climate Action Plan

Impact
- Ecosystems

Description
The Plan advances strategies to: reduce greenhouse gas emissions, transition to new energy sources, and stimulate technological development.

URL: https://climatechange.maryland.gov/wp-content/uploads/sites/16/2015/03/ggra_executive_summary_4_7_2014.pdf

Coast Smart Council (House Bill 0615)

Maryland

Status: Completed, 2012

Type of Document
- Coastal Plan

Impact
- Ecosystem
- Erosion
- Flooding
- Sea Level Rise
- Storm Surge

Description
House Bill 615 codifies into law and builds on key provisions of Executive Order 01.01.2012.29 by creating a Coast Smart Council chaired by the head or designee of DNR, with membership comprised of the head or designee of DBM, MDE, DGS, MDP, MDOT, DBED, MEMA, Critical Area Commission, University of Maryland, and 5 members appointed by the Governor to represent local government, environmental, and business interests.

URL: http://www.dnr.state.md.us/climatechange/CSCouncil/index.asp

Bay Acidification Task Force

Maryland

Status: Completed, 2015

Type of Document
- Measurement and Evaluation

Impact
- Ecosystems
- Drought
- Extreme Heat
- Precipitation
- Flooding
- Ocean Acidification
- Salt Water Intrusion
- Sea Level Rise
- Precipitation
- Seasonal Shift
- Water Temperature

Description
House Bill 118 required the State to devise a team, or Task Force, of State leaders, and water quality, fishery and climate experts, to address how changing Bay chemistry negatively impacts Maryland's coast and shellfish industry. The Task Force studied and assessed water quality in Maryland's Chesapeake and coastal bays, and review ocean acidification studies and findings from other states. The group presented recommendations for monitoring and addressing acidification, and its effects on Maryland's commercial fishery and aquaculture industry in January, 2015. The Task Force included State agency representatives, along with representatives from the State's aquaculture industry, the Maryland Watermen's Association, the National Aquarium in Baltimore, the University of Maryland Center for Environmental Science, and the Chesapeake Bay Foundation.

URL:
http://msa.maryland.gov/megafile/msa/speccol/sc5300/sc5339/000113/020000/020856/unrestricted/20150253e.pdf

Coast Smart Construction Executive Order (EO 01.01.2012.29)

Maryland

Status: Completed, 2012

Type of Document
- Climate Action Plan
- Coastal Plan

Impact
- Ecosystems
- Sea Level Rise

Description
EO 01.01.2012.29, issued in December 2012, enacts a number of policy directives, including directing all State agencies to consider the risk of coastal flooding and sea level rise when they design capital budget projects and charging the Department of General Services with updating its architecture and engineering guidelines to require new and rebuilt State structures be elevated two or more feet above the 100-year base flood level.

URL: http://wetlandswatch.org/Portals/3/WW%20documents/sea-level-rise/exec_order.pdf

Comprehensive Strategy for the Reducing Maryland's Vulnerability to Climate Change, Phase II: Building Societal, Economic, and Ecological Resilience

Maryland

Status: Completed, 2011

Type of Document
- Climate Action Plan
- Resilience

Impact
- Ecosystems

Description
The strategy lays out policy recommendations and identifies implementation targets including aquatic and terrestrial ecosystems and water resources.

URL: http://www.dnr.state.md.us/climatechange/climatechange_phase2_adaptation_strategy.pdf

Comprehensive Strategy for the Reducing Maryland's Vulnerability to Climate Change, Phase 1: Sea-level Rise and Coastal Storms

Maryland

Status: Completed, 2008

Type of Document
- Climate Action Plan
- Coastal Plan

Impact
- Ecosystems
- Sea Level Rise

Description
A report by state agencies that lays out policy recommendations and identifies implementation targets with respect to sea level rise and coastal hazards.

URL:
http://www.esf.edu/glrc/library/documents/MarylandComprehensiveStrategyforReducingVulnerabilitytoClimateChange_2008.pdf

Climate Action Plan

Maryland

Status: Completed, 2008

Type of Document
- Climate Action Plan

Impact
- Ecosystems
- Drought
- Extreme Heat
- Precipitation
- Flooding

Description
The plan addresses strategies to reduce the state's vulnerability to climate change by considering impacts, mitigation, and other concerns. The Plan includes a report to the Maryland Commission on Climate Change from the Scientific and Technical Working Group on the impacts and recommended actions to protect Maryland's property and people from the effects of climate change.

URL: http://www.mde.maryland.gov/programs/air/climatechange/pages/air/climatechange/legislation/index.aspx

Building Resilience to Climate Change, MDNR

Maryland

Status: Completed, 2010

Type of Document
- Climate Action Plan
- Adaptation Plan
- Resilience

Impact
- Ecosystems

Description
Policy applied to MDNR that provides direction and guidance in the management of land, resources, and assets in facing climate change impacts. In addition, MDNR lists as a resource a report published by Restore America's Estuaries provides extensive recommendations on adaptation through the restoration of coastal habitat.

URL: http://www.dnr.state.md.us/dnrnews/pdfs/climate_change.pdf

Coastal Atlas

Maryland

Status: Completed, *<please provide the completion date>*

Type of Document

- Measurement and Evaluation
- Webpage
- Floodplain
- Coastal Erosion Hazard Area

Impact

- Sea Level Rise
- Ecosystems
- Flooding
- Storm Surge
- Erosion

Description
The Atlas is an online interactive mapping tool, developed by Maryland DNR to access and assess sea level rise, coastal hazard data and imagery.

URL: http://www.dnr.state.md.us/ccs/coastalatlas/index.asp

Aberdeen Proving Ground Climate Resiliency Projects

Maryland

Aberdeen Proving Ground, USACE Baltimore and Philadelphia

Status: Ongoing, expected completion 2020

Type of Document

- Measurement and Evaluation
- Resilience

Impact

- Ecosystems
- Sea Level Rise

Description
Aberdeen Proving Ground will attempt to seek funding in order for USACE, Baltimore District to assist with ecosystem restoration on Poole's Island in the northern Chesapeake Bay and enable USACE, Philadelphia District to provide dredged materials from the Chesapeake and Delaware Canal dredging project for beneficial use as part of the project. The project, when fully funded, will include monitoring actions related to sea level change and its impacts.

URL: http://www.nab.usace.army.mil/

Climate Communication Consortium of Maryland (Public Engagement)

Maryland	Climate Communication Consortium of Maryland

Status: Ongoing, *<please provide the expected completion date>*

Type of Document
- Adaptation Plan
- Climate Action Plan
- Webpage

Impact
- Ecosystems
- Extreme Heat
- Precipitation

Description
The Consortium's mission is to broaden and deepen public engagement in climate change and energy issues across all of Maryland's communities and sectors by encouraging and facilitating collaboration in the communication efforts of government agencies and elected officials, businesses, non-profit organizations, advocates and citizens.

URL: http://www.climatemaryland.org/monthly-social-media-graphics/2014-september-smg/rising-waters-7/

Maryland Coastal Resiliency Assessment

Maryland	Maryland DNR and The Nature Conservancy

Status: Ongoing, expected completion 2016

Type of Document
- Coastal Plan
- Measurement and Evaluation
- Resilience

Impact
- Ecosystems
- Erosion
- Flooding
- Precipitation
- Sea Level Rise

Description
Maryland DNR's Chesapeake and Coastal Service, in collaboration with The Nature Conservancy, will undertake a year-long project to establish priorities for natural infrastructure solutions within tidal regions of Maryland's coastal zone. The goal of this project is to enhance coastal community resiliency by evaluating risk reduction benefits of existing natural infrastructure and providing Maryland with the means of integrating risk-reduction values into statewide conservation and restoration targeting efforts.

URL: http://dnr2.maryland.gov/ccs/Documents/NF_MDResAssess_FactSheet.pdf

NOAA Habitat Focus Area – Delmarva/Choptank River Complex

Maryland | National Oceanic and Atmospheric Administration (NOAA)

Status: Ongoing, *<please provide the expected completion date>*

Type of Document
- Climate Action Plan
- Adaptation Plan
- Coastal Plan
- Resilience

Impact
- Ecosystems
- Erosion
- Flooding
- Sea Level Rise
- Storm Surge

Description
NOAA is concentrating its resources to improve and sustain the ecological health of the Delmarva/Choptank River Complex, located on Maryland's Eastern Shore. Climate change and sea level rise, combined with land subsidence, further threaten losses of nearshore marshes and coastal environments. This is an ideal location to see how habitat can be a part of increased coastal resilience. One key objective for the Choptank Habitat Focus area is to improve the decision-making and resilience of coastal communities by improving the delivery of NOAA's habitat and climate science.

URL: http://www.habitat.noaa.gov/habitatblueprint/choptank.html

Blackwater 2100: A Strategy for Salt Marsh Persistence in an Era of Climate Change

Maryland | The Conservation Fund

Status: Completed, *<please provide the completion date>*

Type of Document
- Adaptation Plan
- Climate Action Plan
- Measurement and Evaluation

Impact
- Ecosystems
- Erosion
- Flooding
- Sea Level Rise
- Storm Surge

Description
Working with Audubon MD-DC and US Fish and Wildlife, The Conservation Fund developed a comprehensive set of strategies for ensuring the continued presence of healthy, productive high salt marsh in Dorchester County (MD) world-class Blackwater NWR. Integrated strategies include slowing rates of loss of existing salt marsh, improving in the transition of upland fields and forests into high quality salt marsh, and protecting targeted marsh migration "corridors" from disruptive development and uses. MD DNR and Chesapeake Conservancy assisted in assessment of sea level rise projections with other land use characteristics in identifying high-promise migration corridors. Summary of strategy and underlying models and research is available at URL.

URL: http://www.conservationfund.org/images/projects/files/Blackwater-2100-report_email.pdf

Increasing Salt Marsh Acreage and Resiliency for Blackwater National Wildlife Refuge (Maryland)

Maryland | The Conservation Fund

Status: Ongoing, *<please provide the expected completion date>*

Type of Document
- Adaptation Plan
- Climate Action Plan
- Webpage
- Resilience
- Measurement and Evaluation

Impact
- Ecosystems
- Erosion
- Flooding
- Sea Level Rise
- Storm Surge

Description
Increasing Salt Marsh Acreage and Resiliency for Blackwater National Wildlife Refuge (Maryland) - Funded by the National Fish and Wildlife Foundation, The Conservation Fund in cooperation with USFWS, Audubon MD-DC, USGS and USACE, is leading a set of projects to increase the resiliency of the Atlantic Coast's largest salt marsh ecosystem centered on the Blackwater NWR and Fishing Bay Wildlife Management Area to the effects of sea level rise and other climate factors. Project mechanisms include 1) thin-layer marsh elevation, 2) tidal exchange system modeling, 3) invasive plant mapping and control in marsh migration corridor, and 4) invasive animal eradication in regional watersheds.

URL: http://www.conservationfund.org/projects/blackwater-national-wildlife-refuge

Creating Green Infrastructure Resiliency in Greater Baltimore and Annapolis Watersheds

Maryland | The Conservation Fund

Status: Ongoing, expected completion 2016

Type of Document
- Adaptation Plan
- Climate Action Plan
- Webpage
- Resilience
- Coastal Plan

Impact
- Erosion
- Flooding
- Sea Level Rise

Description
2014-2016 project led by The Conservation Fund and American Planning Association on behalf of the Greater Baltimore Wilderness Coalition (local governments, DNR, regional federal agencies and NGOs) to identify green infrastructure network and key opportunities for increasing regional resiliency to impacts of coastal storms and climate change.

URL: http://www.conservationfund.org/what-we-do/strategic-conservation-planning/our-projects

The Joint Global Change Research Institute (JGCRI)

Maryland | University of Maryland (UMD)

Status: Ongoing, *<please provide the expected completion date>*

Type of Document
- Measurement and Evaluation
- Webpage

Impact
- Ecosystems

Description
The Joint Global Change Research Institute (JGCRI) houses an interdisciplinary team dedicated to understanding the problems of global climate change and their potential solutions. Joint Institute staff bring decades of experience and expertise to bear in science, technology, economics, and policy. One of the strengths of the Joint Institute is a network of domestic and international collaborators that encourages the development of global and equitable solutions to the climate change problem.

URL: http://www.globalchange.umd.edu

UMCES (University of Maryland Center for Environmental Science) - Climate Change

Maryland | University of Maryland (UMD)

Status: Ongoing, *<please provide the expected completion date>*

Type of Document
- Measurement and Evaluation
- Webpage

Impact
- Ecosystems
- Air Temperature

Description
There are efforts dedicated to widening the understanding and mitigating the effects of climate change that are being undertaken.

URL: http://www.umces.edu/research-discovery/climate-change

Climate Information Responding to User Needs (CIRUN)

Maryland | University of Maryland (UMD)

Status: Ongoing, *<please provide the expected completion date>*

Type of Document
- Measurement and Evaluation
- Webpage

Impact
- Ecosystems

Description
Climate Information Responding to User Needs (CIRUN) seeks to form a partnership among climate scientists, experts from disciplines such as agriculture, engineering, public health, and risk management, companies which deliver specialized information, and decision makers in the private and public sectors.

URL: http://www.climateneeds.umd.edu/

Paul S. Sarbanes Ecosystem Restoration Project

Maryland | USACE

Status: Ongoing, *<please provide the expected completion date>*

Type of Document
- Adaptive Management
- Case Study

Impact
- Ecosystems
- Sea Level Rise

Description
The Paul S. Sarbanes Ecosystem Restoration Project at Poplar Island (Poplar Island) is a large-scale, active construction ecosystem restoration project, which includes the beneficial use of dredged materials to restore 1,715 acreas of wetland and upland Chesapeake Bay remote island habitat. Through 2014, approximately 177 acres of tidal wetland habitat has been restored. The Water Resources Development Act of 2007 authorized the expansion of the Poplar Island ecosystem restoration project to achieve the 1,715 acres of restored habitat. Construction for the expansion is anticipated to begin in fiscal year 2017, depending on funding and regulatory permitting schedules. The expansion project would restore an additional 575 acres of remote island habitat. Adaptive management considerations as part of planned design and construction actions will address sea level rise of each new wetland cell in accordance with USACE policy guidance Engineer Regulation 1100-2-8162, dated December 31, 2013.

URL: http://www.menv.com/pages/outreach/poplar.html

Blackwater National Wildlife Refuge Projects

Maryland (Dorchester County, Blackwater NWR)	USFWS, The Conservation Fund, Audubon MD-DC, USACE, National Fish & Wildlife Foundation

Status: Ongoing, expected completion 2016

Type of Document
- Case Study

Impact
- Ecosystems

Description
Elevate & restore failing salt marsh site within Blackwater NWR with locally obtained materials to: 1) Extract eroded marsh material from Blackwater River and 2) elevate target tidal marsh to 30 cm NAVD 88 (for ideal veg. productivity).

URL: http://www.nfwf.org/hurricanesandy/documents/doi-projects.pdf

Farm Creek Marsh Climate Resiliency Projects

Maryland (Dorchester County, Fishing Bay)	Audubon MD-DC, USGS Water Science Center MD-DC-DE, The Conservation Fund, MD DNR

Status: Ongoing, expected completion 2016

Type of Document
- Measurement and Evaluation
- Resilience

Impact
- Ecosystems

Description
Determine source, solution, of increased ponding at Farm Creek Marsh to 1) assess cause of surface water ponding on tidal marsh; and 2) design tidal exchange network to remediate

URL: http://www.nfwf.org/hurricanesandy/documents/doi-projects.pdf

Working Waterfronts Program

Maryland Coastal Zone Maryland Dept. of Natural Resources

Status: Ongoing, expected completion 2016

Type of Document
- Climate Action Plan
- Coastal Plan
- Resilience

Impact
- Ecosystems
- Erosion
- Flooding
- Precipitation
- Sea Level Rise
- Storm Surge

Description
Integrate resiliency into the state's Working Waterfronts Program. DNR to offer Working Waterfronts Enhancement Grants to local governments to support revitalization of working waterfront communities and economies. Maryland will seek projects that consider natural resource conservation and/or restoration, potential flooding, storm surge impacts, and MD's Climate Change and Coast Smart Construction Infrastructure Siting and Design Guidelines.

URL: http://dnr2.maryland.gov/ccs/Pages/workingwaterfronts.aspx

Maryland DNR Climate Resiliency Actions

Maryland Coastal Zone Maryland DNR

Status: Ongoing, expected completion 2017

Type of Document
- Climate Action Plan
- Resilience
- Case Study

Impact
- Ecosystems

Description
Plan, design and pursue construction of 7 on-the-ground resiliency projects in the State of Maryland, (Arundel on the Bay (AA CO), Annapolis Maritime Museum (AA CO) Flag Pond (Calvert Co), Cambridge Beach (Dorchester CO), Ellis Road (St. Mary's CO), Livie Property (St. Mary's CO) and Conquest Wildlife Preserve (QA CO).

URL: http://dnr2.maryland.gov/ccs/Pages/restoration.aspx

Climate Resiliency Through Green Infrastructure

Maryland western Bay shore & Gunpowder, Patapsco, Patuxent watersheds	The Conservation Fund, APA, USGS MD-DE-DC Water Science Center, Chesapeake Conservancy, NFWF

Status: Ongoing, expected completion 2016

Type of Document
- Adaptation Plan
- Climate Action Plan
- Resilience

Impact
- Ecosystems
- Flooding
- Precipitation

Description
Undertake planning project on use of green infrastructure to increase regional resiliency to coastal storms and climate change project supported by NFWF in central MD (parts of 7 counties + major cities)

URL: http://www.conservationfund.org/projects/greater-baltimore-wilderness-coalition

MADE CLEAR Initiative - Maryland and Delaware Climate Change Education Assessment and Research

Maryland, Delaware	Various (including University of Delaware)

Status: Ongoing, *<please provide the expected completion date>*

Type of Document
- Webpage

Impact
- Ecosystems

Description
MADE CLEAR is a cooperative agreement led by the University System of Maryland and the University of Delaware and funded by the National Science Foundation. The MADE CLEAR partnership brings together of a group of experts in the fields of climate science and education, led by the University System of Maryland and University of Delaware, to provide a system of support for teachers in Maryland and Delaware. Focusing on middle and high school, the network also engages universities, state departments of education, and educators from natural resources agencies, museums, and aquariums.

URL: http://www.madeclear.org/

A Framework for Assessing Climate Change Impacts on Water and Watershed Systems

Mid-Atlantic

Status: Completed, 2009

Type of Document
- Decision Making Processes
- Case Study

Impact
- Ecosystems

Description
Article presents a framework for assessing climate change impacts on water and watershed systems to support management decision-making. The framework addresses three issues complicating assessments of climate change impacts—linkages across spatial scales, linkages across temporal scales, and linkages across scientific and management disciplines.
Johnson, T.E., and C.P. Weaver. 2009. A Framework for Assessing Climate Change Impacts on Water and Watershed Systems. Environmental Management. 43(1): 118-134.

URL: http://link.springer.com/article/10.1007%2Fs00267-008-9205-4

The Potential Impacts of Climate Change on the Mid-Atlantic Coastal Region

Mid-Atlantic N/A

Status: Completed, 2000

Type of Document
- Measurement and Evaluation

Impact
- Ecosystems
- Sea Level Rise
- Water Temperature
- Air Temperature

Description
Paper assesses the potential impacts of climate change on the Mid-Atlantic Coastal (MAC) region of the United States. In order of increasing uncertainty, it is projected that sea level, temperature and streamflow will increase in the MAC region in response to higher levels of atmospheric CO2.
Najjar, R.G., et al. 2000. The potential impacts of climate change on the mid-Atlantic coastal region. Climate Research. 14: 219-233.

URL: http://www.cara.psu.edu/about/publications/Najjar_et_al_2000.pdf

Hampton Roads Intergovernmental Pilot Project

Mid-Atlantic

Old Dominion University (ODU)

Status: Ongoing, *<please provide the expected completion date>*

Type of Document

- Adaptation Plan

Impact

- Ecosystems
- Sea Level Rise

Description

The Hampton Roads Pilot Project The Hampton Roads Sea Level Rise Preparedness and Resilience Intergovernmental Planning Pilot Project is a two-year project that seeks to develop adaptive planning for sea level rise by combining the efforts of federal, state and local agencies with private industries and researchers.

URL: http://www.centerforsealevelrise.org/

North Atlantic Landscape Conservation Cooperative

Mid-Atlantic

U.S. Fish and Wildlife Service (FWS)

Status: Ongoing, *<please provide the expected completion date>*

Type of Document

- Climate Action Plan
- Measurement and Evaluation
- Webpage

Impact

- Ecosystems

Description

North Atlantic Landscape Conservation Cooperative works with a number of potentially relevant data layers related to climate and resilience. The Chesapeake Conservancy and its partners use these layers to develop conservation projects that will protect the Susquehanna's ecological and cultural resources. A project entitled "Envisioning the Susquehanna: Incorporating Landscape Science into Large Landscape Conservation", may be related and tied into work done by Mid-Atlantic Regional Ocean Agreement Climate Change Work Group.

URL: http://lccprojects.org/?action=showone&gid=5476

Vulnerability Assessment Guidance Document

National Parks

NPS Northeast Region (NER) collaborators at the University of Rhode Island

Status: Ongoing, expected completion 2016

Type of Document
- Vulnerability Assessment

Impact
- Ecosystems

Description
Develop a vulnerability assessment guidance document for NER parks based on lessons learned from completed and ongoing NER vulnerability assessments and the broader existing literature and resources applicable to coastal parks.

URL: http://www.nps.gov/subjects/climatechange/adaptation.htm

New York State Climate Action Interim Report

New York

Status: Completed, 2010

Type of Document
- Adaptation Plan

Impact
- Air Quality: Outdoor
- Ecosystems

Description
The interim report focuses on achieving the goal of reducing greenhouse gas emissions by 80 percent below the levels emitted in 1990 by the year 2050. Adaptation policy options and relevant financial aspects are identified and examined.

URL: http://www.dec.ny.gov/energy/80930.html

Responding to Climate Change in New York Synthesis Report

New York

Status: Completed, 2011

Type of Document
- Measurement and Evaluation
- Adaptation Plan

Impact
- Ecosystems

Description
This state level assessment of climate change impacts is intended to assist with developing adaptation strategies.

URL: http://www.nyserda.ny.gov/-/media/Files/Publications/Research/Environmental/EMEP/climaid/ClimAID-synthesis-report.pdf

North Atlantic Coast Comprehensive Study: Resilient Adaptation to Increasing Risk

Northeastern United States U.S. Army Corps of Engineers (Corps)

Status: Completed, 2015

Type of Document
- Measurement and Evaluation

Impact
- Flooding
- Sea Level Rise
- Storm Surge

Description
USACE recently released the North Atlantic Coast Comprehensive Study (NACCS): Resilient Adaptation to Increasing Risk, a two-year study to address coastal storm and flood risk to vulnerable populations, property, ecosystems and infrastructure in the North Atlantic region of the United States affected by Hurricane Sandy in October 2012. The study, authorized by Congress in January 2013 in the Disaster Relief Appropriations Act of 2013 (Public Law 113-2), brought together experts from Federal, state, and local agencies, as well as non-governmental organizations and academia, to assess the flood risks facing coastal communities and ecosystems, and collaboratively develop a coastal storm and flood risk management framework to address increasing risks, which are driven in part by climate and sea level change.

URL: http://www.nad.usace.army.mil/CompStudy.aspx

Climate Change Vulnerability Index for Northeast species

Northeastern United States U.S. Fish and Wildlife Service (FWS)

Status: Ongoing, *<please provide the expected completion date>*

Type of Document
- Climate Action Plan
- Measurement and Evaluation
- Webpage

Impact
- Ecosystems
- Water Temperature
- Ocean Acidification

Description
Part of Fish and Wildlife Service Landscape Conservation Cooperatives (LCC) - Collaborators in the Northeast Regional Vulnerability Assessment have developed a Climate Change Vulnerability Index (CCVI) to provide a rapid, scientifically defensible assessment of species' vulnerability to climate change.

URL: http://northatlanticlcc.org/projects/CCVI-northeast-spp/CCVI-northeast-spp

Patapsko Valley State Park Climate Resiliency Projects

Patapsko Valley State Park NOAA, MDNR, American Rivers, and USFWS

Status: Ongoing, expected completion 2017

Type of Document

- Climate Action Plan
- Resilience

Impact

- Ecosystems
- Flooding
- Storm Surge

Description

Project partners to remove the 34-foot high by 220-foot long, state-owned Bloede Dam in the Patapsco Valley State Park (Ilchester, MD). In 2016-2017, major construction activities include removal of the Bloede Dam, relocation of a 42-inch sanitary sewer line, relocation of a 12-inch sanitary sewer line connection at Bonnie Road, replacement of the Grist Mill Trail and placement of stone along a portion of the riverbank for infrastructure protection.

URL: http://www.nfwf.org/hurricanesandy/documents/doi-projects.pdf

Pennsylvania Climate Adaptation Planning Report: Risks and Practical Recommendations

Pennsylvania

Status: Completed, 2014

Type of Document

- Adaptation Plan

Impact

- Ecosystems

Description

The report provides climate adaptation information to government agencies, businesses, researchers, other stakeholders and the public. Statewide planning efforts cover infrastructure, public health, natural resources and tourism sectors.

URL: http://www.elibrary.dep.state.pa.us/dsweb/Get/Document-103584/2700-RE-DEP4303%20Combined. Pdf

TreeVitalize

Pennsylvania — PA DCNR Bureau of Forestry and PSU Extension

Status: Ongoing, expected completion 2017

Type of Document
- Climate Action Plan

Impact
- Ecosystems

Description
Pennsylvania's TreeVitalize program is a public-private partnership to help restore tree cover, educate citizens about planting trees as an act of caring for our environment, and build capacity among local governments to understand, protect and restore their urban trees. The program is administered through PA Department of Conservation and Natural Resources. TreeVitalize is a funding mechanism that is included in the Chesapeake Bay Program Urban Tree Canopy's Biennial Work plan.

URL: http://www.treevitalize.net/

Pennsylvania Climate Impacts Assessment Update (2013)

Pennsylvania — PA DEP

Status: Completed, 2013

Type of Document
- Measurement and Evaluation

Impact
- Ecosystems

Description
Climate impact assessment for Pennsylvania.
Shortle, J., Abler, D., Blumsack, S., McDill, M., Najjar, R., Ready, R., Ross, A., Rydzik, M., Wagener, T., Wardrop, D., 2013. Pennsylvania Climate Impacts Assessment Update, Report to the Pennsylvania Department of Environmental Protection. Environment and Natural Resources Institute, The Pennsylvania State University, University Park, Pennsylvania, 155 pp.

URL: http://www.elibrary.dep.state.pa.us/dsweb/Get/Document-97037/PA%20DEP%20Climate%20Impact%20Assessment%20Update.pdf

Pennsylvania Climate Impacts Assessment Update (2015)

Pennsylvania — PA DEP

Status: Completed, 2015

Type of Document
- Measurement and Evaluation

Impact
- Ecosystems

Description
Climate impact assessment for Pennsylvania.
Shortle, J., Abler, D., Blumsack, S., Britson, A., Fang, K., Kemanian, A., Knight, P., McDill, M., Najjar, R., Ready, R., Ross, A., Rydzik, M., Shen, C., Wang, S., Wardrop, D., and Yetter, S. 2015. Pennsylvania Climate Impacts Assessment Update. Pennsylvania Department of Environmental Protection.

URL: http://www.elibrary.dep.state.pa.us/dsweb/Get/Document-108470/2700-BK-DEP4494.pdf

Pennsylvania Climate Impact Assessment (2009)

Pennsylvania | PA DEP

Status: Completed, 2009

Type of Document
- Measurement and Evaluation

Impact
- Ecosystems

Description
Climate impact assessment for Pennsylvania.
Shortle, J., Abler, D., Blumsack, S., Crane, R., Kaufman, Z., McDill, M., Najjar, R., Ready, R., Wagener, T., Wardrop, D., 2009. Pennsylvania Climate Impact Assessment, Report to the Pennsylvania Department of Environmental Protection, Environment and Natural Resources Institute, The Pennsylvania State University, 350 pp.

URL: http://www.elibrary.dep.state.pa.us/dsweb/Get/Document-75375/7000-BK-DEP4252.pdf

Pennsylvania DEP Climate Change Adaptation Plan

Pennsylvania | PA DEP

Status: Ongoing, expected completion 2017

Type of Document
- Adaptation Plan
- Climate Action Plan

Impact
- Ecosystems
- Air Temperature

Description
PA DEP, in coordination with the PA Climate Change Advisory Committee, is currently drafting a Climate Change Action Plan, which will include climate change adaptation strategies. A 60-day public comment period for the draft plan will begin in November 2015. This plan was drafted with input from and endorsed by the PA Climate Change Advisory Committee.

URL: http://www.dep.pa.gov/Business/Air/BAQ/ClimateChange/Pages/default.aspx#.Vur0VeIrKHs

Earth System Science Center (ESSC)

Pennsylvania | Pennsylvania State University (PSU)

Status: Ongoing, *<please provide the expected completion date>*

Type of Document
- Measurement and Evaluation
- Webpage

Impact
- Air Temperature

Description
Founded within the College of Earth and Mineral Sciences in 1986, the Earth System Science Center (ESSC) maintains a mission to describe, model, and understand the Earth's climate system. ESSC is one of seven centers supported by the Earth & Environmental Systems Institute.

URL: http://www.essc.psu.edu/

The Center for Solutions to Weather and Climate Risk (CSWCR)

Pennsylvania | Pennsylvania State University (PSU)

Status: Ongoing, *<please provide the expected completion date>*

Type of Document
- Measurement and Evaluation
- Webpage

Impact
- Air Temperature

Description
CSWCR's vision is to create the knowledge, training and solutions to enable the optimal outcome for every decision where weather and climate matter. Achieving this vision will extract the maximum value out of every forecast, best serve the public and private sectors, and highlight Penn State's skill and relevance in creating significant additional value to the Weather and Climate Enterprise. CSWCR's Mission is to leverage and integrate the capabilities of the University, in particular those found in Meteorology, Engineering, Statistics, e-Education and Communications, along with external partners, to advance the science of exploiting environmental opportunities and understanding environmental impacts to manage risk.

URL: http://solutions2wxrisk.psu.edu/about-us/

Center for Climate Risk Management (CLIMA)

Pennsylvania | Pennsylvania State University (PSU)

Status: Ongoing, *<please provide the expected completion date>*

Type of Document
- Measurement and Evaluation
- Webpage

Impact
- Air Temperature

Description
CLIMA brings together scholars to catalyze transformative, integrated research on climate change, mitigation, adaptation, and decision making that transcends disciplinary boundaries and advances real-world climate risk management.

URL: http://www.clima.psu.edu/

USGS Climate Resiliency Actions

Pocomoke River — USGS in partnership with USDA and TNC

Status: Ongoing, expected completion 2017

Type of Document
- Measurement and Evaluation
- Resilience

Impact
- Ecosystems

Description
Improve technical understanding for successful restoration projects. USGS activities include research to optimize the design of restored nontidal freshwater wetlands for water-quality benefits and an addition study of the water-quality benefits of floodplain restoration along the Pocomoke River.

URL: http://md.water.usgs.gov/

Navy Climate Change Roadmap

United States — Department of the Navy

Status: Ongoing, *<please provide the expected completion date>*

Type of Document
- Adaptation Plan
- Climate Action Plan

Impact
- Ecosystems
- Precipitation
- Sea Level Rise
- Storm Surge
- Water Temperature

Description
In 2010 the Vice Chief of naval Operations prepared a Navy Climate Change Roadmap which provides a list of Navy actions to assess, predict, and adapt to global climate change from 2010-2014 and assigns responsibility for implementation.

URL: http://greenfleet.dodlive.mil/files/2010/08/US-Navy-Climate-Change-Roadmap-21-05-10.pdf

Global Impacts and Adaptation Program

United States | Environmental Protection Agency (EPA)

Status: Ongoing, *<please provide the expected completion date>*

Type of Document
- Adaptation Plan
- Climate Action Plan
- Resilience
- Vulnerability Assessment
- Webpage

Impact
- Ecosystems
- Sea Level Rise
- Drought
- Erosion
- Flooding
- Water Temperature
- Storm Surge

Description
EPA National Center for Environmental Assessment (NCEA) Global Impacts and Adaptation Program within the Office of Research and Development (ORD)/National Center for Environmental Assessment (NCEA) - NCEA's Global Change Impacts and Adaptation program, as part of the ORD Air, Climate and Energy Program, assesses the potential vulnerability to climate change (and other global change stressors such as land-use change) of EPA's air, water, ecosystems, and human health protection efforts at the federal, regional, state, municipal, and tribal levels, as well as adaptation options to build resilience in the face of these vulnerabilities. The focus is on interdisciplinary syntheses across newly emerging scientific findings to identify potential impacts, and characterize and communicate the uncertainty in the science, to provide support for decision makers and managers.

URL: http://www.epa.gov/global-adaptation/

EPA Office of Research and Development Science Inventory

United States | Environmental Protection Agency (EPA)

Status: Ongoing, *<please provide the expected completion date>*

Type of Document
- Webpage

Impact
- Ecosystems

Description
EPA Office of Research and Development Science Inventory - Catalogue of ORD Research relevant to climate change.

URL: http://www.epa.gov/climate-research/research-areas-climate-change-impacts-adaptation-and-mitigation

NOAA Coastal Storms Program

United States | National Oceanic and Atmospheric Administration (NOAA)

Status: Ongoing, *<please provide the expected completion date>*

Type of Document
- Climate Action Plan
- Adaptation Plan
- Resilience

Impact
- Ecosystems
- Erosion
- Flooding
- Precipitation
- Storm Surge

Description
The Coastal Storms Program is a nationwide effort to make communities safer by reducing the loss of life and negative impacts caused by coastal storms. This work is accomplished by bringing together organizations from all sectors. Each funded project lasts three to five years and brings additional manpower, focus, and funding to a specific region. In 2015, the program will be focusing on the Mid-Atlantic/Chesapeake Bay area and will have a coordinator working in the region. The results often include new data and predictive tools, new ways of keeping the public informed and enlightened, and new partnerships that strengthen existing resilience efforts.

URL: http://coastalstorms.noaa.gov/

NOAA Coastal Mapping

United States | National Oceanic and Atmospheric Administration (NOAA)

Status: Ongoing, *<please provide the expected completion date>*

Type of Document
- Measurement and Evaluation
- Decision Making Processes

Impact
- Erosion
- Sea Level Rise

Description
Oceanic and Atmospheric Administration (NOAA's) National Geodetic Survey (NGS) is surveying coastal regions to provide the Nation with accurate, consistent, up-to-date national shoreline. The national shoreline provides the critical baseline data for demarcating America's marine territorial limits, including its Exclusive Economic Zone, and for the geographic reference needed to manage coastal resources and many other uses.

URL: http://www.ngs.noaa.gov/RSD/cmp.shtml

NOAA Coastal Blue Carbon

United States | National Oceanic and Atmospheric Administration (NOAA)

Status: Ongoing, *<please provide the expected completion date>*

Type of Document
- Measurement and Evaluation

Impact
- Ecosystems
- Extreme Heat
- Water Temperature;

Description
NOAA is working to advance awareness of coastal blue carbon, the carbon captured by living coastal and marine organisms and stored in coastal ecosystems. Salt marshes, mangroves, and seagrass beds absorb large quantities of the greenhouse gas carbon dioxide from the atmosphere and store it, thus decreasing the effects of global warming.

URL: http://www.habitat.noaa.gov/noaabluecarbonefforts.html

NOAA's Coastal Zone Management Program

United States | National Oceanic and Atmospheric Administration (NOAA)

Status: Ongoing, *<please provide the expected completion date>*

Type of Document
- Climate Action Plan
- Adaptation Plan
- Decision Making Processes

Impact
- Ecosystems
- Sea Level Rise
- Drought
- Erosion
- Flooding
- Water Temperature
- Storm Surge

Description
A voluntary partnership between the federal government and U.S. coastal and Great Lakes states and territories authorized by the Coastal Zone Management Act (CZMA) of 1972 to address national coastal issues. The program is administered by NOAA. The act provides the basis for protecting, restoring, and responsibly developing our nation's diverse coastal communities and resources. To meet the goals of the CZMA, the national program takes a comprehensive approach to coastal resource management-balancing the often competing and occasionally conflicting demands of coastal resource use, economic development, and conservation. A wide range of issues are addressed through the program, including coastal development, water quality, public access, habitat protection, energy facility siting, ocean governance and planning, coastal hazards, and climate change.

URL: http://coast.noaa.gov/czm/about/

NOAA's Coastal Zone Management Program

United States | National Oceanic and Atmospheric Administration (NOAA)

Status: Ongoing, *<please provide the expected completion date>*

Type of Document
- Coastal Plan
- Adaptation Plan
- Climate Action Plan

Impact
- Sea Level Rise
- Ecosystems
- Erosion
- Flooding

Description
A voluntary partnership between the federal government and U.S. coastal and Great Lakes states and territories authorized by the Coastal Zone Management Act (CZMA) of 1972 to address national coastal issues. The program is administered by NOAA. The act provides the basis for protecting, restoring, and responsibly developing our nation's diverse coastal communities and resources. To meet the goals of the CZMA, the national program takes a comprehensive approach to coastal resource management-balancing the often competing and occasionally conflicting demands of coastal resource use, economic development, and conservation. A wide range of issues are addressed through the program, including coastal development, water quality, public access, habitat protection, energy facility siting, ocean governance and planning, coastal hazards, and climate change.

URL: http://coast.noaa.gov/czm/about/

National Estuarine Research Reserve System

United States | National Oceanic and Atmospheric Administration (NOAA)

Status: Ongoing, *<please provide the expected completion date>*

Type of Document
- Climate Action Plan
- Adaptation Plan

Impact
- Ecosystems

Description
NOAA and the Reserve System have identified climate change and its impacts as strategic priorities. Currently, the Reserve System is developing an initiative with key actions to address climate change adaptation, mitigation, and promotes resilience of estuary ecosystems. As one of three 2011-2016 priority areas for the Reserve System, reserves are supporting both the Climate Adaptation and Mitigation goal as well as the Resilient Coastal Communities and Economies goal in NOAA's Next Generation Strategic Plan.

URL: http://www.nerrs.noaa.gov/BGDefault.aspx?ID=470http://www.vims.edu/cbnerr/

NOAA National Ocean Service

United States | National Oceanic and Atmospheric Administration (NOAA)

Status: Ongoing, *<please provide the expected completion date>*

Type of Document
- Webpage
- Case Study
- Resilience

Impact
- Flooding
- Sea Level Rise
- Water Temperature

Description
NOAA scientists engaged in and support research that supports resiliency goals, e.g. a project to assess the influence of changes to the shoreline on Chesapeake Bay and Delmarva ecosystems.

URL: http://www.coastalscience.noaa.gov/projects/region

NOAA Technical Report NOS CO-OPS 073: Sea Level Rise and Nuisance Flood Frequency Changes around the United States

United States | National Oceanic and Atmospheric Administration (NOAA)

Status: Completed, 2014

Type of Document
- Measurement and Evaluation

Impact
- Ecosystems
- Erosion
- Flooding
- Precipitation
- Storm Surge

Description
This report discusses results of measuring water levels around the United States. It shows exceedances above minor coastal flooding impacts have been increasing in time and frequency and regional patterns are changing and how those changes effect coastal communities.

URL: http://tidesandcurrents.noaa.gov/publications/NOAA_Technical_Report_NOS_COOPS_073.pdf

National Climatic Data Center (NCDC)

United States | National Oceanic and Atmospheric Administration (NOAA)

Status: Ongoing, *<please provide the expected completion date>*

Type of Document
- Measurement and Evaluation
- Webpage

Impact
- Air Temperature
- Water temperature

Description
The Center provides access to climate and historical weather data and information that scientists need to understand climate change, e.g., paleoclimatology data which is data derived from natural sources such as ice cores.

URL: http://www.ncdc.noaa.gov/

Regional Climate Trends and Scenarios for U.S. National Climate Assessment

United States | National Oceanic and Atmospheric Administration (NOAA)

Status: Completed, 2013

Type of Document
- Measurement and Evaluation

Impact
- Air Temperature
- Water temperature

Description
NOAA has developed regional climate change descriptions that can be used to develop regional reports for the National Climate Assessment.

URL: http://www.nesdis.noaa.gov/technical_reports/142_Climate_Scenarios.html

NOAA National Data Buoy Center

United States | National Oceanic and Atmospheric Administration (NOAA)

Status: Ongoing, *<please provide the expected completion date>*

Type of Document
- Webpage
- Measurement and Evaluation

Impact
- Sea Level Rise
- Water Temperature
- Storm Surge
- Ocean Acidification
- Precipitation

Description
NDBC designs, develops, operates, and maintains a network of data collecting buoys and coastal stations in U.S. waters, including in the Mid-Atlantic region.

URL: http://www.ndbc.noaa.gov/

Climate Change Adaptation Plan

United States | U.S. Army Corps of Engineers (Corps)

Status: Completed, 2014

Type of Document
- Adaptation Plan
- Climate Action Plan
- Resilience

Impact
- Ecosystems
- Drought
- Flooding
- Precipitation
- Sea Level Rise
- Storm Surge

Description
The Corps' Plan mainstreams climate change adaptation and increased preparedness and resiliency into its missions and operations including constructed and natural water-resources infrastructure. Four strategies, e.g., focus on priority areas and external collaboration, are employed to integrate and incorporate considerations of climate change and variability in all phases of project lifecycle.

URL:
http://www.usace.army.mil/Portals/2/docs/Sustainability/Performance_Plans/2014_USACE_Climate_Change_Adaptation_Plan.pdf

Engineering Technical Letter NO. 1100-2-1

United States | U.S. Army Corps of Engineers (Corps)

Status: Completed, 2014

Type of Document
- Adaptation Plan
- Climate Action Plan

Impact
- Ecosystems
- Flooding
- Precipitation
- Sea Level Rise
- Storm Surge

Description
Procedures to Evaluate Sea Level Change: Impacts, Responses, and Adaptation – Coastal climate change effects vary depending on project type, planning horizon, and other factors. Guidance is provided to promote understanding direct and indirect physical and ecological effects of projected future sea level change on USACE operations, missions, programs and projects.

URL: http://www.publications.usace.army.mil/Portals/76/Publications/EngineerTechnicalLetters/ETL_1100-2-1.pdf

SAGE Initiative (Systems Approach to Geomorphic Engineering)

United States | U.S. Army Corps of Engineers (Corps)

Status: Ongoing, *<please provide the expected completion date>*

Type of Document
- Webpage
- Adaptation Plan
- Climate Action Plan
- Coastal Plan

Impact
- Ecosystems
- Erosion
- Flooding
- Sea Level Rise
- Storm Surge

Description
Institute for Water Resources - U.S. Army Corps of Engineers webpage: Collaborative effort between the Army Corps of Engineers, the National Oceanic and Atmospheric Administration, Federal Emergency Management Agency, the Nature Conservancy, the Conservation Fund, and the Virginia Institute for Marine Sciences, SAGE is an initiative that brings together technical experts and field practitioners from the government, academic, non-profit and private sectors to advance a comprehensive view of shoreline change that seeks to reduce impacts to coastal communities from the consequences of land cover and climate change through prevention, mitigation and/or adaptation.

URL: http://www.iwr.usace.army.mil/Missions/Coasts/ProgramsandInitiatives.aspx

USDA Climate Change Program Office

United States | U.S. Department of Agriculture

Status: Ongoing, *<please provide the expected completion date>*

Type of Document

- Adaptation Plan
- Climate Action Plan
- Webpage

Impact

- Drought
- Ecosystems
- Erosion
- Extreme Heat
- Flooding
- Precipitation
- Seasonal Shift

Description

The office coordinates USDA's responses to climate change, focusing on implications of climate change on agriculture, forests, grazing lands, and rural communities.

URL: http://www.usda.gov/oce/climate_change/

USDA-ARS Crop Systems and Global Change Laboratory

United States | U.S. Department of Agriculture

Status: Ongoing, *<please provide the expected completion date>*

Type of Document

- Measurement and Evaluation

Impact

- Air Temperature

Description

USDA-ARS Crop Systems and Global Change Laboratory investigate plant response to climate change related environmental variables (temperature, CO2).

URL: http://www.ars.usda.gov/ba/csgcl

USDA Climate Change Hubs (Forest Service, NRCS, ARS)

United States | U.S. Department of Agriculture

Status: Ongoing, *<please provide the expected completion date>*

Type of Document
- Adaptation Plan
- Climate Action Plan
- Webpage

Impact
- Drought
- Ecosystems
- Erosion
- Extreme Heat
- Flooding
- Precipitation
- Seasonal Shift

Description
The Northeast Hub, building on capacity within USDA, delivers science-based knowledge and practical information to farmers, ranchers and forest landowners in Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Maryland, Delaware, West Virginia and D.C.

URL: http://www.nrs.fs.fed.us/niacs/

USDA Forest Service

United States | U.S. Department of Agriculture

Status: Ongoing, *<please provide the expected completion date>*

Type of Document
- Adaptation Plan
- Climate Action Plan
- Webpage

Impact
- Drought
- Ecosystems
- Erosion
- Extreme Heat
- Flooding
- Precipitation
- Seasonal Shift

Description
The Service has various inter-related programs to help mitigate and adapt to global climate change.

URL: http://www.fs.fed.us/climatechange/

EPA Climate Change and Urban Stormwater Guide

United States U.S. EPA

Status: Ongoing, *<please provide the expected completion date>*

Type of Document
- Adaptation Plan
- Stormwater Management Plan

Impact
- Flooding
- Precipitation
- Storm Surge

Description
EPA is developing a climate change design guide for stormwater management practices to inform on how climate change will affect stormwater control performance of gray and green infrastructure. The guide will provide information on factors affecting urban stormwater controls due to climatic changes in order to support adaptation in the stormwater community.

URL: https://www.epa.gov/climate-change-water-sector/climate-change-and-water-tools

Implications of Climate Change for State Bioassessment Programs and Approaches to Account for Effects

United States U.S. EPA

Status: Completed, 2012

Type of Document
- Decision Making Processes
- Measurement and Evaluation

Impact
- Ecosystems

Description
The study investigates the potential to identify biological response signals to climate change within existing bioassessment data sets; analyzes how biological responses can be categorized and interpreted; and assesses how they may influence decision-making processes. The analyses suggest that several biological indicators may be used to detect climate change effects and such indicators can be used by state bioassessment programs to document changes at high-quality reference sites.

URL: http://cfpub.epa.gov/ncea/global/recordisplay.cfm?deid=239585

Climate Change Effects on Stream and River Biological Indicators: A Preliminary Analysis

United States | U.S. EPA

Status: Completed, 2008

Type of Document
- Measurement and Evaluation

Impact
- Ecosystems

Description
A preliminary assessment that describes how biological indicators are likely to respond to climate change, how well current sampling schemes may detect climate-driven changes, and how likely it is that these sampling schemes will continue to detect impairment.

URL: http://cfpub.epa.gov/si/si_public_record_report.cfm?dirEntryId=190304&simpleSearch=1&searchAll=climate

2013 Highlights of Progress: Responses to Climate Change by the National Water Program

United States | U.S. EPA & NOAA

Status: Completed, 2013

Type of Document
- Adaptation Plan
- Climate Action Plan
- Stormwater Management Plan

Impact
- Flooding
- Precipitation
- Storm Surge

Description
This is a joint EPA-NOAA report on incorporating climate change considerations into stormwater planning efforts.

URL: http://www.epa.gov/sites/production/files/2015-03/documents/final-2013-nwp-climate-highlights-report.pdf

Climate Change Final Report: A Climate Change Action Plan

Virginia

Status: Completed, 2008

Type of Document
- Climate Action Plan

Impact
- Ecosystems

Description
The report presents recommendations to meet the state greenhouse gas reduction target of 30 percent below the business-as-usual projection by 2025. It includes findings and recommendations for effects on the built environment and insurance, natural systems, human health; general strategies; and greenhouse gas reduction goals. In 2014 the Governor convened the Climate Change and Resiliency Update Commission to review, update, and prioritize the recommendations of the 2008 Climate Change Action Plan. Moreover, the updated report will work to identify sources of revenue to fund the implementation of these recommendations.

URL: http://www.sealevelrisevirginia.net/docs/homepage/CCC_Final_Report-Final_12152008.pdf

Virginia's Strategy for Safeguarding Species of Greatest Conservation Need from the Effects of Climate Change

Virginia

Status: Completed, 2009

Type of Document
- Adaptation Plan
- Climate Action Plan

Impact
- Ecosystems

Description
A climate change strategy for the Virginia's Wildlife Action Plan. This strategy outlines the importance of considering a changing climate in developing and implementing successful wildlife conservation practices, particularly for those species already experiencing stressors that threaten their long-term viability and persistence in Virginia.

URL: http://bewildvirginia.org/climate-change/

VA Sea Grant Adaptation Efforts – Wetlands Watch

Virginia

Status: Ongoing, *<please provide the expected completion date>*

Type of Document
- Adaptation Plan

Impact
- Ecosystems
- Flooding
- Sea Level Rise

Description
Wetlands Watch awarded a grant to help a Hampton Roads neighborhood design a sea level rise/flooding adaptation approach. This project also incorporates ecosystem services while protecting against flooding.

URL:
http://www.wetlandswatch.org/NewsPublications/DirectorsBlog/tabid/110/articleType/ArticleView/articleId/140/Adaptation-Design-Work-in-Virginia.aspx

Recommendations to the Secure the Commonwealth Panel on the Issue of Sea Level Rise and Recurrent Flooding in Coastal Virginia

Virginia

Status: Completed, 2014

Type of Document
- Adaptation Plan
- Climate Action Plan

Impact
- Ecosystems
- Flooding
- Sea Level Rise
- Erosion
- Storm Surge

Description
In addition to recurrent flooding issues and future flooding challenges, the report evaluates adaptation strategies for reducing the impact of flood events.

URL: http://ccrm.vims.edu/SCPRecommendationsReport_Sept2014.pdf

Rockefeller 100 Resilient Cities

Virginia | City of Norfolk

Status: Ongoing, *<please provide the expected completion date>*

Type of Document
- Resilience

Impact
- Ecosystems

Description
The city of Norfolk Virginia was selected in 2013 to participate in the Rockefeller Foundation's 100 Resilient Cities (100RC) Challenge for the purpose of building the practice of urban resilience in the face of climate change.

URL: http://www.100resilientcities.org/cities/entry/norfolks-resilience-challenge#/-_/

Virginia's Climate Modeling and Species Vulnerability Assessment: How Climate Data Can Inform Management and Conservation

Virginia | National Wildlife Federation and others

Status: Completed, 2013

Type of Document
- Adaptation Plan
- Climate Action Plan
- Measurement and Evaluation

Impact
- Ecosystems

Description
How Climate Data Can Inform Management and Conservation - Recognizing the need to use more regionally explicit, or "downscaled," set of climate models Virginia's vulnerability assessment can provide more detailed and locally relevant climate projections to better inform the species threat assessments. This report includes a summary of the findings from the modeling effort and assessment as well as highlights management concerns and implications based on the assessment results. The information developed through this project and included in this document will help inform the update of Virginia's Wildlife Action Plan.

URL: http://www.bewildvirginia.org/climate-change/virginias-climate-vulnerability-assessment.pdf

Center for Sea level Rise - The Pilot Project

Virginia | Old Dominion University (ODU)

Status: Ongoing, *<please provide the expected completion date>*

Type of Document
- Adaptation Plan
- Resilience

Impact
- Sea Level Rise

Description
The mission of the Pilot Project is to develop a regional "whole of government" and "whole of community" approach to sea level rise preparedness and resilience planning in Hampton Roads that also can be used as a template for other regions.

URL: http://www.centerforsealevelrise.org/

Mitigation and Adaptation Research Institute (MARI)

Virginia | Old Dominion University (ODU)

Status: Ongoing, *<please provide the expected completion date>*

Type of Document
- Measurement and Evaluation
- Webpage

Impact
- Erosion
- Flooding
- Sea Level Rise

Description
The Mitigation and Adaptation Research Institute (MARI) at Old Dominion University engages in research that produces the practice-relevant knowledge needed to cope with the impacts of climate change and sea level rise on the coastal zone and the urban coast in particular. In doing so, MARI responds to the knowledge needs of a wide range of community stakeholders, including government, military, private sector, and citizens.

URL: http://www.mari.odu.edu/

Update to VA's 2008 Climate Change Action Plan

Virginia

VA Climate Change and Resiliency Update Commission

Status: Ongoing, *<please provide the expected completion date>*

Type of Document

- Climate Action Plan
- Resilience

Impact

- Ecosystems

Description

Review, update, and prioritize the recommendations of VA's 2008 Climate Change Action Plan and identify sources of revenue to fund the implementation. One recommendation in from the Commission is a green infrastructure bank of resilience projects and clean energy investments.

URL: http://www.deq.virginia.gov/Programs/CoastalZoneManagement/CZMIssuesInitiatives/ClimateChange.aspx

Development of strategies to improve conservation of Virginia headwater wetland ecosystems in the face of climate change

Virginia

Virginia Institute of Marine Science (VIMS)

Status: Ongoing, expected completion 2017

Type of Document

- Measurement and Evaluation

Impact

- Drought
- Ecosystems
- Flooding
- Precipitation
- Salt Water Intrusion
- Sea Level Rise
- Seasonal Shift
- Water Temperature

Description

Researchers at the Virginia Institute of Marine Science received a 3-year grant (2014-2017) from the Environmental Protection Agency to identify the streams and wetlands most vulnerable to sea-level rise, and to develop tools to help local governments and citizens conserve these important ecosystems. The project team will analyze climate-induced changes in downstream marshes, evaluate the connections between these marshes and the headwater wetlands that feed them, refine the protocol used to identify the headwater wetlands at greatest risk, and identify management options for sustaining headwater acreage and function. These outcomes will inform strategies for long-term protection of headwater resources in Virginia.

URL: http://ccrm.vims.edu/coastal_zone/climate_change/index.html

VIMS Coastal Climate Change Research (IC3R)

Virginia | Virginia Institute of Marine Science (VIMS)

Status: Ongoing, *<please provide the expected completion date>*

Type of Document
- Measurement and Evaluation
- Webpage

Impact
- Ecosystems
- Sea Level Rise

Description
The Virginia Institute of Marine Science (VIMS) is committed to conducting state-of-the-art scientific research on issues related to climate change, particularly in the world's coastal zones, where half of humanity lives and where climate-change impacts are expected to be felt most acutely. VIMS' Initiative for Coastal Climate Change Research (IC3R): encourages further collaboration among the many research programs at VIMS that are engaged in issues of climate and global change, serves as a central source of knowledge concerning the effects of climate change on our environment, society, and economy, and provides recommendations concerning the most effective responses to sea-level rise and other climate-change impacts.

URL: http://www.vims.edu/research/units/programs/icccr/index.php

Virginia Coastal Policy Clinic, W&M Law School/VIMS

Virginia | Virginia Institute of Marine Science (VIMS)

Status: Ongoing, *<please provide the expected completion date>*

Type of Document
- Webpage

Impact
- Ecosystems

Description
Virginia Coastal Policy Clinic, W&M Law School/VIMS
The Virginia Coastal Policy Center (VCPC) at the College of William & Mary Law School provides science-based legal and policy analysis of ecological issues affecting the state's coastal resources, providing education and advice to a host of Virginia's decision-makers, from government officials and legal scholars to non-profit and business leaders.

URL: http://law.wm.edu/academics/programs/jd/electives/clinics/vacoastal/index.php

Wetlands Watch

Virginia

Wetlands Watch

Status: Ongoing, *<please provide the expected completion date>*

Type of Document

- Measurement and Evaluation

Impact

- Ecosystems
- Erosion
- Flooding
- Sea Level Rise

Description

Wetlands Watch is a non-profit environmental group dedicated to protecting and conserving Virginia's wetlands using grass roots education and activism to influence local government land use and regulatory decisions. They are currently collaborating with state and local organizations to develop innovative land-use models that can be used by Virginia tidewater communities in coming years to protect our wetland resources as the sea rises. Wetlands Watch is conducting education and advocacy programs at the local level to educate and motivate citizens to press our state and local governments to take sea level rise into account in wetlands regulation and conservation.

URL: http://www.wetlandswatch.org/WetlandScience/SeaLevelRise.aspx

USACE Climate Change Adaptation Plan

Watershed

USACE

Status: Ongoing, annual

Type of Document

- Adaptation Plan
- Climate Action Plan
- Resilience

Impact

- Ecosystems
- Drought
- Flooding
- Precipitation
- Sea Level Rise
- Storm Surge

Description

The USACE Climate Preparedness and Resilience Community of Practice will release annually its Climate Change Adaptation Plan, which tracks climate preparedness and resilience through annual metrics that address external collaboration, improving knowledge about climate impacts and adaptation, progress assessing vulnerability, and development of policy and guidance.

URL: http://www.corpsclimate.us/docs/USACE_Adaptation_Plan_30-JUN-2015_final_hires.pdf

Gulf and Atlantic Coast Vulnerability/Resilience

Watershed	USFWS, Landscape Conservation Cooperatives

Status: Ongoing, expected completion 2016

Type of Document
- Measurement and Evaluation
- Resilience
- Vulnerability Assessment

Impact
- Ecosystems
- Sea Level Rise
- Storm Surge

Description
Compile and synthesize existing Gulf and Atlantic Coast vulnerability/resilience information on ~30 priority coastal species and models that quantitatively link SLR and increased storm severity and frequency with system response, impacts to habitats and species, and restoration and management alternatives.

URL: http://northatlanticlcc.org/

USGS Climate Resiliency Actions

Watershed	USGS

Status: Ongoing, expected completion 2017

Type of Document
- Measurement and Evaluation
- Resilience
- Vulnerability Assessment

Impact
- Ecosystems
- Flooding
- Salt Water Intrusion
- Sea Level Rise
- Seasonal Shift

Description
Provide science on wetlands prioritization by (1) modeling marsh migration due to sea-level rise using monitoring data from near Blackwater National Wildlife Refuge and other coastal wetlands, (2) conducting research on the effects of sea-level rise, salinification, and watershed sediment loading on the resilience and services of tidal freshwater wetlands (along the Pamunkey and Mattaponi rivers), (3) providing forecasts of land development throughout the watershed to help assess potential wetland loss, and (4) better document long-term changes in wetlands due to climate variability.

URL: http://md.water.usgs.gov/

USGS and Chesapeake Bay (CB) Climate Sensitivity Projects

Watershed	USGS, CBP Modeling Team

Status: Ongoing, expected completion 2017

Type of Document

- Measurement and Evaluation

Impact

- Ecosystems

URL: http://md.water.usgs.gov/

Description

Assess effects of climate change on flow, temperature, and water-quality in streams of the Bay watershed. Work will build off USGS analysis examining changes in flow and temperatures in streams. USGS will be working with fish biologists on implications for freshwater populations and will also be looking at potential approaches to assess effects on nutrient and sediment loads.