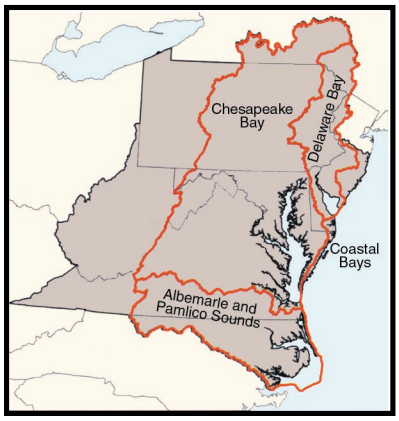
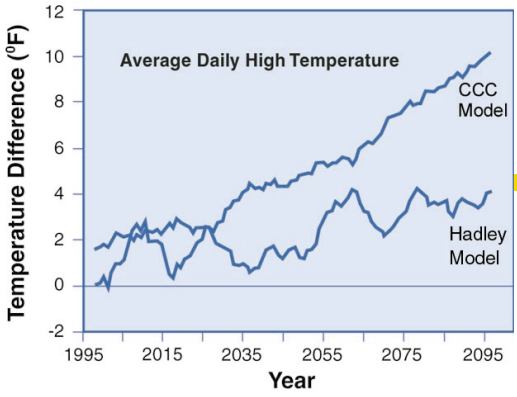
United States Environmental Protection Agency
Region 3 Philadelphia, PA 19103
EPA/903/F-00/002 June 2001 www.epa.gov

How Will Climate Change Affect the Mid-Atlantic Region?

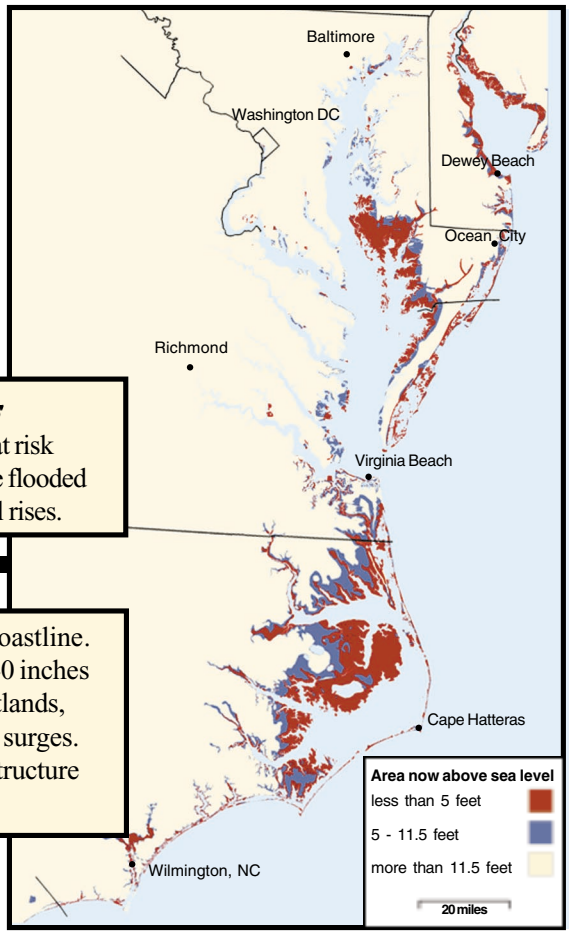


Average temperture has risen 1 degree F over the last century in the Mid-Atlantic Region as well as across the globe. Climate science is developing rapidly and many studies project additional warming. Although the future is uncertain and difficult to predict, our best science suggests the following changes are likely.

The Mid-Atlantic Region will be somewhat warmer and perhaps wetter, resulting in a wide range of impacts on plants, wildlife, and humans. Human activities that release heat-trapping gases into the atmosphere will continue to accelerate the observed warming trend. Climate change will compound existing stresses from population density and development. The region's overall economy is quite resilient, but impacts will be more severe for some economic activities and localities.



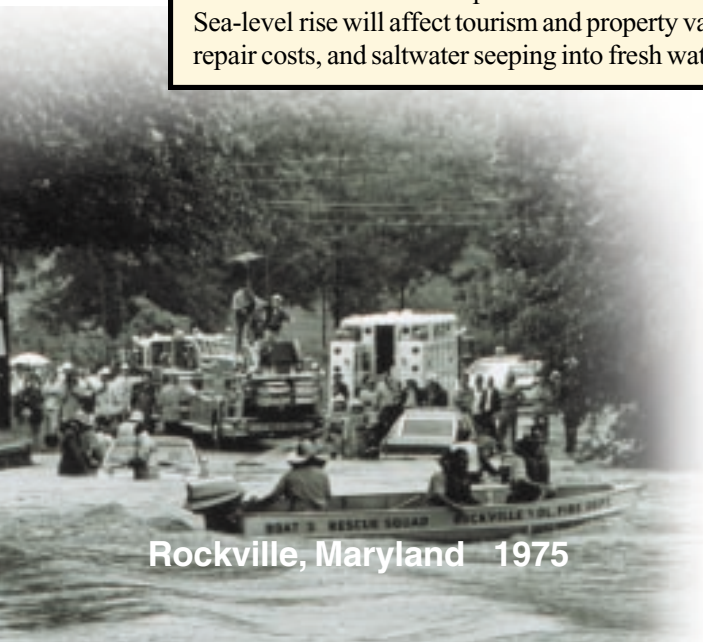
Two Projections for Temperature Rise Over the Next Century in the Mid-Atlantic Region



Coastal Lowlands
Areas in red are currently at risk when tides are high and will be flooded more frequently as sea level rises.

Titus and Richman, Climate Research, 2001

Sea-level is rising 1 - 2 inches per decade along the Mid-Atlantic coastline. Climate change will likely double that rate, causing sea level to rise 15 - 40 inches during this century. Sea-level rise threatens beaches, beach properties, wetlands, and barrier islands that help shield the mainland from the impacts of storm surges. Sea-level rise will affect tourism and property values, insurance and infrastructure repair costs, and saltwater seeping into fresh water wells.


Rockville, Maryland 1975

Floods and droughts could be more frequent and severe. More rain and snow could bolster fresh water supplies, but the region's growing population and industry will use more water. Runoff from heavy rain carries sediments, pesticides, fertilizers, and germs into nearby waterways. Degraded water quality disturbs aquatic life and leads to more stringent pollution discharge limits for industry and water treatment plants and higher costs for manufacturers, consumers, and taxpayers. Trout and other cold-water fish species will become less abundant; warm-water fish will become more plentiful.

Climate Change Effects on Animals and Plants



Birds' winter ranges will change.

Invasive species that thrive in warmer and wetter environments could displace beneficial Mid-Atlantic species and create pest control problems.





Reduction in biodiversity: Changes in the variety of organisms found within the Mid-Atlantic region will affect valued functions – pollinating crops, moderating and purifying water flows, and providing diverse wildlife.

Forests of maple, beech and birch gradually will be replaced by oak, hickory, and pine – making hardwoods that are valuable for furniture less abundant. Trees will, however, tend to grow faster and use water more efficiently. The distribution and abundance of pests, frequency of fires, and the extent of soil erosion and decomposition also will change.

Positive and negative effects will be experienced. The positive benefits to the region are fewer and smaller than the negative impacts. The following table summarizes these impacts and the certainty that they will happen.

Summary of Mid-Atlantic Impacts	Negative Impact	Positive Impact
Most Certain		
• *Agricultural production*	tobacco	soybeans, possibly corn and treefruits
• *Coastal zones*	erosion, saltwater intrusion	
• *Temperature related health status*	heat stress	
Moderately Certain		
• *Forestry production*	extreme events	more growth, different mix
• *Temperature related health status*		less cold stress
Uncertain		
• *Biodiversity*	migration barriers, invasive species	warmer temperatures
• *Fresh water quantity*	more variability	more average steamflow
• *Fresh water quality*	runoff	
• *Ecological functioning*	forest composition, cold water fisheries	warm water fisheries
• *Vector and water-borne disease health status*	Cryptosporidiosis	
• *Environmental effects from agriculture*	nutrient leaching, runoff	

Arrow length and thickness shows the relative size of potential impacts: bigger arrows mean bigger impacts. Arrows in the lower sections of the table have lighter shading because those impacts are less certain.

Learn more about global warming and what you can do by reading* Preparing for Climate Change, Mid-Atlantic Overview,** ***a copy of which can be obtained by writing to Penn State University/AERS, 107 Armsby Building, University Park, PA 16802. The Mid-Atlantic Region Study is part of the First National Assessment. More information about global warming is also available at the following websites: www.epa.gov/globalwarming/; www.essc.psu.edu/mara/; www.nacc.usgcrp.gov/. Additional copies of this fact sheet may be obtained by calling the Mid-Atlantic Integrated Assessment, EPA Region 3 at 410-305-2749.

Printed on chlorine free, 100% recycled/recyclable paper with 100% post-consumer fiber using vegetable-based ink.

Decisions NOW will affect the severity of impacts in the future. Individuals and local community, government, and corporate decision-makers can act now to take advantage of the benefits and lessen the negative impacts of climate change. Actions could be taken to minimize risks associated with both wet and dry extremes of climate. We can take simple steps – planting trees and using more energy-efficient appliances – while tackling more complex challenges – improving watershed management and revising policies that encourage coastal development.