2022 MASSACHUSETTS CLIMATE CHANGE ASSESSMENT

2022 Massachusetts Climate Change Assessment

DRAFT | 11/2/22
For Public Comment

REGIONAL REPORTS

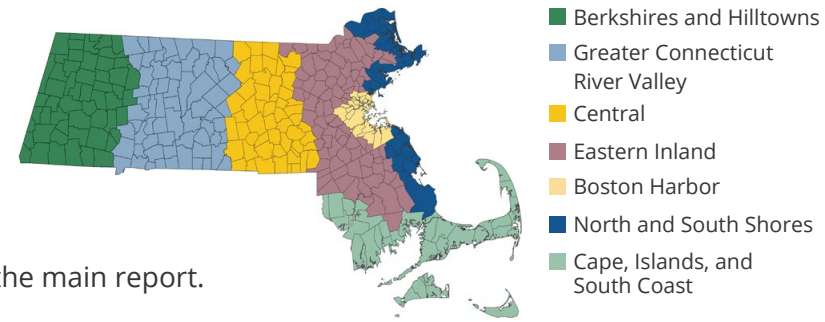
Impacts of Climate Change by Region

Regional and local adaptation action is critical to addressing the challenges of climate change. This report presents the impacts of climate change in seven regions of the Commonwealth.

Region-specific priorities reflect the unique hazards, natural and built environments, and demographics of each part of the Commonwealth. The sections that follow provide an impacts summary and report for each of the following:

- Berkshires and Hilltowns Region
- Greater Connecticut River Valley Region
- Central Region
- Eastern Inland Region
- Boston Harbor Region
- North and South Shores Region
- Cape, Islands, and South Coast Region

Climate Assessment Regions

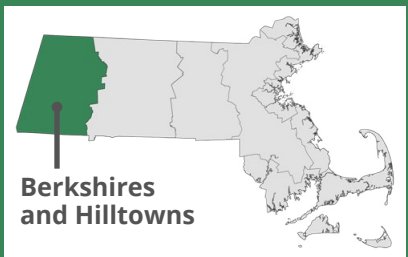


Further detail on methodology can be found in the main report.

Berkshires and Hilltowns Region Climate Impacts

Climate change is already resulting in dangerous outcomes in the Commonwealth of Massachusetts. The Berkshires and Hilltowns region is particularly vulnerable to climate hazards such as increasing temperatures, more extreme precipitation, and associated flooding. An understanding of the current and future impacts of climate change allows community decision-makers to best tailor adaptation plans to meet the specific challenges faced in this region. This report summarizes the highest urgency climate impacts across Human, Infrastructure, Natural Environment, Governance, and Economy sectors for the Berkshires and Hilltowns region.

The highest urgency impacts are based on a review of the latest climate data developed for Massachusetts and a statewide assessment of potential climate impacts, informed by expert analysis and stakeholder engagement. The prioritized list will be an important input to the 2023 State Hazard Mitigation and Climate Adaptation Planning report.



Regional Overview

Geography and Demographics*

- 55 cities and towns
- 156,400 people
- 13% minority
- 25% low-income
- 1.2% households with limited English language proficiency

Resources and Assets

- 84,000 residential properties
- 8,500 miles of road
- 104,000 acres of agricultural land

**For definitions of these demographic terms, please see the main report.*

Regional Climate Outlook

2030	2050	2070	2090
NEAR TERM The summer mean temperature could increase by 3.6°F from the historical period (1950-2013), causing impacts to Berkshire dairy and crop agriculture.	**MID-CENTURY** The 1 percent annual chance river flood could be three times more likely to occur, increasing Housatonic and other river flood risk.	**MID-LATE CENTURY** There could be 63 fewer days below freezing, increasing the chance of ticks overwintering and contributing to increased Lyme disease risk.	**END OF CENTURY** The historical 10 percent annual chance daily rainfall event (2.8 to 4 inches) could occur five times more frequently.

Most Urgent Impacts by Sector for the Berkshires and Hilltowns Region

This region is characterized by rural landscapes, open space, and low population density. Impacts in all sectors of this region tend to stem from changes to the natural resources that are critical to the economy and way of life in the region. Below are the top two impacts per sector (additional impacts are listed for tied scores). The bookmark icons identify unique regional priorities, meaning for each sector, impacts that are not a top three most urgent impact statewide but are a top impact regionally.

Human

Increase in Vector Borne Diseases Incidence and Bacterial Infections, including West Nile Virus and Lyme disease due to more favorable conditions for ticks and mosquitoes.

Reduction in Food Safety and Security due to production and supply chain issues, as well as spoilage during power outages.

Infrastructure

Damage to Inland Buildings from heavy rainfall and overwhelmed drainage systems.

Reduction in Clean Water Supply, particularly for communities reliant on well water.

Damage to Electric Transmission and Utility Distribution Infrastructure associated with heat stress and extreme events.

Natural Environment

Freshwater Ecosystem Degradation due to warming waters, drought, and increased runoff.

Forest Health Degradation, Soil Erosion, and **Shifting Distribution of Native and Invasive Species** (tie scores).

Governance

Increase in Costs of Responding to Climate Migration, including planning for abrupt changes in local populations.

Increase in Demand for State and Municipal Government Services, including emergency response, food assistance, and state-sponsored health care.

Economy

Reduction in the Availability of Affordably Priced Housing from direct damage (e.g., flooding) and the scarcity caused by increased demand.

Damage to Tourist Attractions and Recreation Amenities, particularly those associated with distinct New England seasons.

Featured Adaptation Effort

Housatonic Stream Restoration for Regional Flood Resilience Project

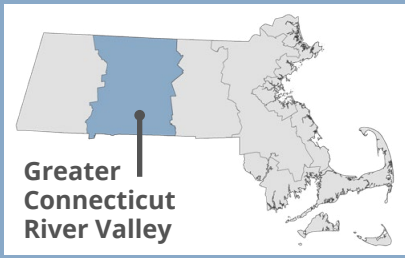
Four communities (Lenox, Pittsfield, Stockbridge, and New Marlborough) conducted regional, community-wide assessments of approximately 400 culverts, and designed the replacement of three priority culverts. In partnership with the youth organization Greenagers, youth from Environmental Justice communities were trained and hired to conduct the assessments.

Photo: Town of Lenox

Greater Connecticut River Valley Region Climate Impacts

Climate change is already resulting in dangerous outcomes in the Commonwealth of Massachusetts. The Greater Connecticut River Valley region is particularly vulnerable to climate hazards such as increasing temperatures, more extreme precipitation, and associated flooding. An understanding of the current and future impacts of climate change allows community decision-makers to best tailor adaptation plans to meet the specific challenges faced in this region. This report summarizes the highest urgency climate impacts across Human, Infrastructure, Natural Environment, Governance, and Economy sectors for the Greater Connecticut River Valley region.

The highest urgency impacts are based on a review of the latest climate data developed for Massachusetts and a statewide assessment of potential climate impacts, informed by expert analysis and stakeholder engagement. The prioritized list will be an important input to the 2023 State Hazard Mitigation and Climate Adaptation Planning report.



Regional Overview

Geography and Demographics*

- 65 cities and towns
- 788,200 people
- 33% minority
- 31% low-income
- 5% households with limited English language proficiency

Resources and Assets

- 267,000 residential properties
- 15,900 miles of road
- 129,500 acres of agricultural land

**For definitions of these demographic terms, please see the main report.*

Regional Climate Outlook

2030	2050	2070	2090
NEAR TERM The summer mean temperature could increase by 3.6°F from the historical period (1950-2013), causing impacts to local crop yields and food security.	**MID-CENTURY** The 1 percent annual chance river flood could be three times more likely to occur, increasing Connecticut River and other area flood risk.	**MID-LATE CENTURY** There could be 65 fewer days below freezing, increasing the chance of ticks overwintering and reducing winter recreation opportunities.	**END OF CENTURY** The historical 10 percent annual chance daily rainfall event (2.6 to 4 inches) could occur four times more frequently.

Most Urgent Impacts by Sector for the Greater Connecticut River Valley Region

Centered around the Connecticut River, this region includes rural towns and urban centers. Many of the most urgent climate impacts are already large concerns in the region (e.g., food security, agriculture, and housing). Below are the top two impacts per sector. The bookmark icons identify unique regional priorities, meaning for each sector, impacts that are not a top three most urgent impact statewide but are a top two impact regionally.

Human

Reduction in Food Safety and Security due to production and supply chain issues, as well as spoilage during power outages.

Health Effects of Extreme Storms and Power Outages, including from injuries, food safety, and medical device failure.

Infrastructure

Damage to Inland Buildings from heavy rainfall and overwhelmed drainage systems.

Damage to Electric Transmission and Utility Distribution Infrastructure associated with heat stress and extreme events.

Natural Environment

Shifting Distribution of Native and Invasive Species as changing climate conditions favor certain species.

Freshwater Ecosystem Degradation due to warming waters, drought, and increased runoff.

Governance

Increase in Costs of Responding to Climate Migration, including planning for abrupt increases in local populations.

Reduction in State and Municipal Revenues, including a reduced property tax base due to inland flood risk.

Economy

Decrease in Agricultural Productivity as crop yields are impacted by precipitation patterns, extreme weather, pests, and other climate factors.

Reduction in the Availability of Affordably Priced Housing from direct damage (e.g., flooding) and the scarcity caused by increased demand.

Featured Adaptation Effort

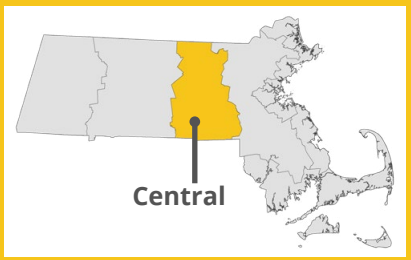
Pine Grove Golf Course Site Restoration

The City of Northampton, in partnership with MassAudubon, restored 105 acres of land formerly used as a golf course. The project included permanent protection of the land, removal of drainage infrastructure, and elimination of multiple stream crossings. Ten acres of previously drained wetlands were restored, and greenways were reverted to early successional forests.

Central Region Climate Impacts

Climate change is already resulting in dangerous outcomes in the Commonwealth of Massachusetts. The Central region is particularly vulnerable to climate hazards such as increasing temperatures, more extreme precipitation, and associated flooding. An understanding of the current and future impacts of climate change allows community decision-makers to best tailor adaptation plans to meet the specific challenges faced in this region. This report summarizes the highest urgency climate impacts across Human, Infrastructure, Natural Environment, Governance, and Economy sectors for the Central region.

The highest urgency impacts are based on a review of the latest climate data developed for Massachusetts and a statewide assessment of potential climate impacts, informed by expert analysis and stakeholder engagement. The prioritized list will be an important input to the 2023 State Hazard Mitigation and Climate Adaptation Planning report.



Regional Overview

Geography and Demographics*

- 55 cities and towns
- 960,200 people
- 27% minority
- 20% low-income
- 5% households with limited English language proficiency

Resources and Assets

- 303,600 residential properties
- 10,600 commercial properties
- 15,400 miles of road

**For definitions of these demographic terms, please see the main report.*

Regional Climate Outlook

2030	2050	2070	2090
NEAR TERM The summer mean temperature could increase by 3.6°F from the historical period (1950-2013), worsening stress on electric transmission and utility distribution infrastructure.	**MID-CENTURY** The 1 percent annual chance river flood could be two times more likely to occur, increasing Blackstone River and other river flood risk.	**MID-LATE CENTURY** There could be 38 more days above 90°F, contributing to extreme heat health impacts and impairing children's ability to learn.	**END OF CENTURY** The historical 10 percent annual chance daily rainfall event (2.8 to 4 inches) could occur five times more frequently.

Most Urgent Impacts by Sector for the Central Region

The Central region includes 55 cities and towns, including Worcester. Warming temperatures, resulting in more extreme heat days and shifting habitats, drive many of the most urgent impacts. Below are the top two impacts per sector (three listed for tied scores). The bookmark icons identify unique regional priorities, meaning for each sector, impacts that are not a top three most urgent impact statewide but are a top impact regionally.

Human

Reduction in Food Safety and Security due to production and supply chain issues, as well as spoilage during power outages.

Health and Cognitive Effects from Extreme Heat, including premature death and learning loss.

Infrastructure

Damage to Electric Transmission and Utility Distribution Infrastructure associated with heat stress and extreme events**.**

Loss of Urban Tree Cover due to heat, drought, and increased pests.

Natural Environment

Freshwater Ecosystem Degradation due to warming waters, drought, and increased runoff.

Shifting Distribution of Native and Invasive Species as changing climate conditions favor certain species.

Forest Health Degradation from warming temperatures, changing precipitation, increasing wildfire frequency, and increasing pest occurrence.

Governance

Increase in Demand for State and Municipal Government Services, including emergency response, food assistance, and state-sponsored health care.

Increase in Need for State and Municipal Policy Review and Adaptation Coordination, including training to expand capacity.

Economy

Reduced Ability to Work, particularly for outdoor workers during extreme heat, as well as commute delays due to damaged infrastructure.

Decrease in Agricultural Productivity as crop yields are impacted by precipitation patterns, extreme weather, pests, and other climate factors.

Featured Adaptation Effort

Integrated Vector-Borne Disease Control Program

The Town of Uxbridge is funding monitoring and biological control of mosquito populations. The project also includes designs and permitting for two priority culverts, an update to the town's Open Space and Recreation Plan, and a public education campaign focused on climate change and mosquito-transmitted diseases.

Eastern Inland Region Climate Impacts

Climate change is already resulting in dangerous outcomes in the Commonwealth of Massachusetts. The Eastern Inland region is particularly vulnerable to climate hazards such as increasing temperatures, more extreme precipitation, and associated flooding. An understanding of the current and future impacts of climate change allows community decision-makers to best tailor adaptation plans to meet the specific challenges faced in this region. This report summarizes the highest urgency climate impacts across Human, Infrastructure, Natural Environment, Governance, and Economy sectors for the Eastern Inland region.

The highest urgency impacts are based on a review of the latest climate data developed for Massachusetts and a statewide assessment of potential climate impacts, informed by expert analysis and stakeholder engagement. The prioritized list will be an important input to the 2023 State Hazard Mitigation and Climate Adaptation Planning report.

Regional Overview

Geography and Demographics*

- 88 cities and towns
- 2,112,500 people
- 31% minority
- 17% low-income
- 5% households with limited English language proficiency

Resources and Assets

- 267,000 residential properties
- 24,000 commercial properties
- 27,400 miles of road
- 5,500 miles of rail

**For definitions of these demographic terms, please see the main report.*

Regional Climate Outlook

2030	2050	2070	2090
NEAR TERM The summer mean temperature could increase by 3.6°F from the historical period (1950-2013), worsening stress on electric transmission and utility distribution infrastructure.	**MID-CENTURY** The 1 percent annual chance river flood could be two times more likely to occur, increasing Merrimack River and other river flood risk.	**MID-LATE CENTURY** There could be 58 fewer days below freezing, increasing the chance of ticks overwintering and reducing winter recreation opportunities.	**END OF CENTURY** The historical 10 percent annual chance daily rainfall event (2.8 to 4 inches) could occur four times more frequently.

Most Urgent Impacts by Sector for the Eastern Inland Region

The largest region by population, this region is home to significant transportation and housing infrastructure. Priority impacts suggest a need for maintaining infrastructure while protecting remaining natural resources. Below are the top two impacts per sector (three listed for tied scores). The bookmark icons identify unique regional priorities, meaning for each sector, impacts that are not a top three most urgent impact statewide but are a top two impact regionally.

Human

Increase in Vector Borne Diseases Incidence and Bacterial Infections, including West Nile Virus and Lyme disease due to more favorable conditions for ticks and mosquitoes.

Reduction in Food Safety and Security due to production and supply chain issues, as well as spoilage during power outages.

Infrastructure

Damage to Electric Transmission and Utility Distribution Infrastructure associated with heat stress and extreme events.

Damage to Inland Buildings from heavy rainfall and overwhelmed drainage systems.

Damage to Rails and Loss of Rail/ Transit Service, including flooding and track buckling during high heat events.

Natural Environment

Freshwater Ecosystem Degradation due to warming waters, drought, and increased runoff.

Forest Health Degradation from warming temperatures, changing precipitation, increasing wildfire frequency, and increasing pest occurrence.

Governance

Increase in Costs of Responding to Climate Migration, including planning for abrupt changes in local populations.

Increase in Demand for State and Municipal Government Services, including emergency response, food assistance, and state-sponsored health care.

Economy

Reduced Ability to Work, particularly for outdoor workers during extreme heat, as well as commute delays due to damaged infrastructure.

Reduction in the Availability of Affordably Priced Housing from direct damage (e.g., flooding) and the scarcity caused by increased demand.

Featured Adaptation Effort

Traphole Brook Flood Prevention and Stream Restoration Project

The Town of Norwood partnered with the Neponset River Watershed Association to remove the Mill Pond Dam, which was at risk of failure during the kind of major storm events that are increasing due to climate change. Restoring the natural flow of the brook significantly reduces flood risk for abutters.

Boston Harbor Region Climate Impacts

Climate change is already resulting in dangerous outcomes in the Commonwealth of Massachusetts. The Boston Harbor region is particularly vulnerable to climate hazards such as increasing temperatures, sea level rise, storm surge, and more extreme precipitation. An understanding of the current and future impacts of climate change allows community decision-makers to best tailor adaptation plans to meet the specific challenges faced in this region. This report summarizes the highest urgency climate impacts across Human, Infrastructure, Natural Environment, Governance, and Economy sectors for the Boston Harbor region.

The highest urgency impacts are based on a review of the latest climate data developed for Massachusetts and a statewide assessment of potential climate impacts, informed by expert analysis and stakeholder engagement. The prioritized list will be an important input to the 2023 State Hazard Mitigation and Climate Adaptation Planning report.

Regional Overview

Geography and Demographics*

- 18 cities and towns
- 1,623,600 people
- 51% minority
- 27% low-income
- 10% households with limited English language proficiency

Resources and Assets

- 384,000 residential properties
- 17,000 commercial properties
- 9,000 miles of road
- 2,000 acres of high marsh

**For definitions of these demographic terms, please see the main report.*

Regional Climate Outlook

2030	2050	2070	2090
NEAR TERM The summer mean temperature could increase by 3.6°F from the historical period (1950-2013), worsening air quality.	**MID-CENTURY** Area affected by a 1 percent annual chance of a foot or more of coastal flooding increases by 3.6 times compared to current area.	**MID-LATE CENTURY** There could be 39 more days above 90°F, contributing to extreme heat health impacts and impairing children's ability to learn.	**END OF CENTURY** Tropical cyclone frequency could increase by nearly 50 percent, leading to damage from storm surge, heavy rainfall, and high winds.

Most Urgent Impacts by Sector for the Boston Harbor Region

Including the City of Boston and 17 surrounding cities, this region is defined by dense population, economic activity, and coastal natural resources. Urban heat islands and coastal flooding drive many of the most urgent impacts. Below are the top two impacts per sector (additional impacts are listed for tied scores). The bookmark icons identify unique regional priorities, meaning for each sector, impacts that are not a top three most urgent impact statewide but are a top two impact regionally.

Human

Health and Cognitive Effects from Extreme Heat, including premature death and learning loss.

Health Effects from Degraded Air Quality, Emergency Service Response Delays and Evacuation Disruptions, and **Reduction in Food Safety and Security** (tie scores).

Infrastructure

Damage to Rails and Loss of Rail/ Transit Service, including flooding and track buckling during high heat events.

Loss of Urban Tree Cover due to heat, drought, and increased pests.

Natural Environment

Freshwater Ecosystem Degradation due to warming waters and increased runoff.

Marine Ecosystem Degradation because of warming, particularly in the Gulf of Maine, and ocean acidification.

Governance

Reduction in State and Municipal Revenues, including a reduced property tax base due to coastal flood risk.

Increase in Demand for State and Municipal Government Services, including emergency response, food assistance, and state-sponsored health care.

Economy

Reduction in the Availability of Affordably Priced Housing from direct damage (e.g., flooding) and the scarcity caused by increased demand.

Economic Losses from Commercial Structure Damage and Business Interruptions from flooding and storm damage, and climate-driven supply chain issues.

Featured Adaptation Effort

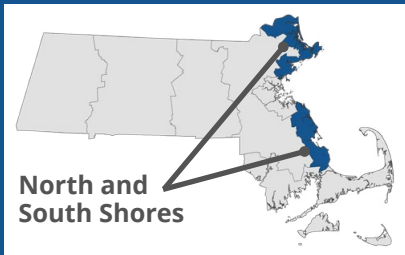
Heat Resilience Solutions for Boston

The City of Boston developed a comprehensive heat preparedness plan and implementation roadmap outlining a wide variety of strategies for addressing extreme heat, ranging from pop-up cooling stations to proposed zoning revisions to support cooler neighborhoods.

North and South Shores Region Climate Impacts

Climate change is already resulting in dangerous outcomes in the Commonwealth of Massachusetts. The North and South Shores region is particularly vulnerable to climate hazards such as increasing temperatures, sea level rise, storm surge, and more extreme precipitation. An understanding of the current and future impacts of climate change allows community decision-makers to best tailor adaptation plans to meet the specific challenges faced in this region. This report summarizes the highest urgency climate impacts across Human, Infrastructure, Natural Environment, Governance, and Economy sectors for the North and South Shores region.

The highest urgency impacts are based on a review of the latest climate data developed for Massachusetts and a statewide assessment of potential climate impacts, informed by expert analysis and stakeholder engagement. The prioritized list will be an important input to the 2023 State Hazard Mitigation and Climate Adaptation Planning report.



Regional Overview

Geography and Demographics*

- 32 cities and towns
- 731,000 people
- 25% minority
- 20% low-income
- 4% households with limited English language proficiency

Resources and Assets

- 243,800 residential properties
- 9,600 commercial properties
- 9,600 miles of road
- 21,500 acres of high marsh

**For definitions of these demographic terms, please see the main report.*

Regional Climate Outlook

2030	2050	2070	2090
NEAR TERM The summer mean temperature could increase by 3.6°F from the historical period (1950-2013), causing impacts to local agriculture.	**MID-CENTURY** Area affected by a 5 percent annual chance of a foot or more of coastal flooding increases by nearly two times compared to current area.	**MID-LATE CENTURY** Sea surface temperatures could increase by 5°F, reducing marine fish catch and increasing risks of vibriosis.	**END OF CENTURY** Tropical cyclone frequency in the coastal New England region could increase by nearly 50 percent, leading to damage from storm surge, heavy rainfall, and high winds.

Most Urgent Impacts by Sector for the North and South Shores Region

This region is characterized by its coastal economy, infrastructure, and natural resources. Local governments are tasked with maintaining services while facing potential revenue losses from threats to coastal properties. Below are the top two impacts per sector (three listed for tied scores). The bookmark icons identify unique regional priorities, meaning for each sector, impacts that are not a top three most urgent impact statewide but are a top impact regionally.

Human

Emergency Service Response Delays and Evacuation Disruptions during coastal storm surge events and inland floods.

Health Effects from Degraded Air Quality, including childhood asthma cases and premature death due to the climate impact on particulate matter and ozone air quality.

Reduction in Food Safety and Security due to production and supply chain issues, as well as spoilage during power outages.

Infrastructure

Damage to Electric Transmission and Utility Distribution Infrastructure associated with heat stress and extreme events.

Damage to Coastal Buildings and Ports from sea level rise and storm surge, coastal erosion, and high winds.

Natural Environment

Marine Ecosystem Degradation because of warming, particularly in the Gulf of Maine, and ocean acidification.

Coastal Wetland Degradation from sea level rise and storm surge.

Governance

Increase in Demand for State and Municipal Government Services, including emergency response, food assistance, and state-sponsored health care.

Reduction in State and Municipal Revenues, including a reduced property tax base due to coastal flood risk.

Increase in Costs of Responding to Climate Migration, including planning for abrupt changes in local populations.

Economy

Reduction in the Availability of Affordably Priced Housing from direct damage (e.g., flooding) and the scarcity caused by increased demand.

Reduced Ability to Work, particularly for outdoor workers during extreme heat, as well as commute delays due to damaged infrastructure.

Featured Adaptation Effort

Peabody-Salem Resilient North River Corridor & Riverwalk Project

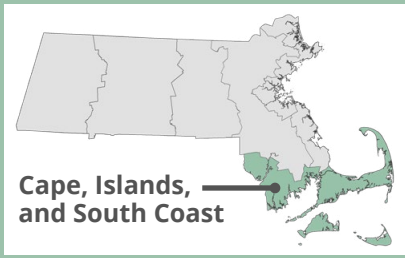
In Peabody and Salem, the North River Canal restoration project has installed and will continue to install elevated river walkways, rain gardens, and other recreational amenities. This work will improve flood resilience along this tidal river.

Photo: City of Salem

Cape, Islands, and South Coast Region Climate Impacts

Climate change is already resulting in dangerous outcomes in the Commonwealth of Massachusetts. The Cape, Islands, and South Coast region is particularly vulnerable to climate hazards such as sea level rise, storm surge, increasing temperatures, and more extreme precipitation. An understanding of the current and future impacts of climate change allows community decision-makers to best tailor adaptation plans to meet the specific challenges faced in this region. This report summarizes the highest urgency climate impacts across Human, Infrastructure, Natural Environment, Governance, and Economy sectors for the Cape, Islands, and South Coast region.

The highest urgency impacts are based on a review of the latest climate data developed for Massachusetts and a statewide assessment of potential climate impacts, informed by expert analysis and stakeholder engagement. The prioritized list will be an important input to the 2023 State Hazard Mitigation and Climate Adaptation Planning report.



Regional Overview

Geography and Demographics*

- 39 cities and towns
- 658,000 people
- 20% minority
- 25% low-income
- 4% households with limited English language proficiency

Resources and Assets

- 317,000 residential properties
- 14,400 miles of road
- 148 miles of marine beach
- 18,800 acres of high marsh

**For definitions of these demographic terms, please see the main report.*

Regional Climate Outlook

2030	2050	2070	2090
NEAR TERM The summer mean temperature could increase by 3.6°F from the historical period (1950-2013), increasing tick activity and the risks of Lyme disease.	**MID-CENTURY** Sea surface temperatures increase by 3.1°F, reducing marine fish catch and increasing risks of vibriosis.	**MID-LATE CENTURY** The historical 10 percent annual chance daily rainfall event (2.4 to 4 inches) could occur five times more frequently.	**END OF CENTURY** Tropical cyclone frequency could increase by nearly 50%, leading to damage from storm surge, heavy rainfall, and high winds.

Most Urgent Impacts by Sector for the Cape, Islands, and South Coast Region

Defined by nearly 150 miles of sandy beaches and an active fisheries economy, life in this region is closely tied to marine and coastal resources. Many of the most urgent impacts relate to the interconnectedness of natural resources and economic activity in the region. Below are the top two impacts per sector (additional impacts are listed for tied scores). The bookmark icons identify unique regional priorities, meaning for each sector, impacts that are not a top three most urgent impact statewide but are a top two impact regionally.

Human

Increase in Vector Borne Diseases Incidence and Bacterial Infections, including West Nile Virus and Lyme disease due to more favorable conditions for ticks and mosquitoes.

Health and Cognitive Effects from Extreme Heat, Health Effects of Extreme Storms and Power Outages, Emergency Service Response Delays and Evacuation Disruptions, Reduction in Food Safety and Security, and **Damage to Cultural Resources** (tie scores).

Infrastructure

Damage to Electric Transmission and Utility Distribution Infrastructure associated with heat stress and extreme events.

Reduction in Clean Water Supply, particularly for communities reliant on well water.

Natural Environment

Coastal Wetland Degradation from sea level rise and storm surge.

Coastal Erosion from sea level rise and storm surge, particularly in areas not protected by coastal wetlands.

Governance

Increase in Demand for State and Municipal Government Services, including emergency response, food assistance, and state-sponsored health care.

Reduction in State and Municipal Revenues, including a reduced property tax base due to coastal flood risk.

Economy

Reduction in the Availability of Affordably Priced Housing from direct damage (e.g., flooding) and the scarcity caused by increased demand.

Decrease in Marine Fisheries and Aquaculture Productivity from changing ocean temperatures and acidification, which leads to decreased catch and revenues, and impacts on related industries.

Featured Adaptation Effort

Coonamesset Bog Restoration

The Town of Falmouth removed a small dam, replaced an under-sized culvert, and restored a former cranberry bog to natural wetland and riverine habitat. This restoration led to increased native species, reduced invasives and a revived herring population.

Photo: Adam Soule