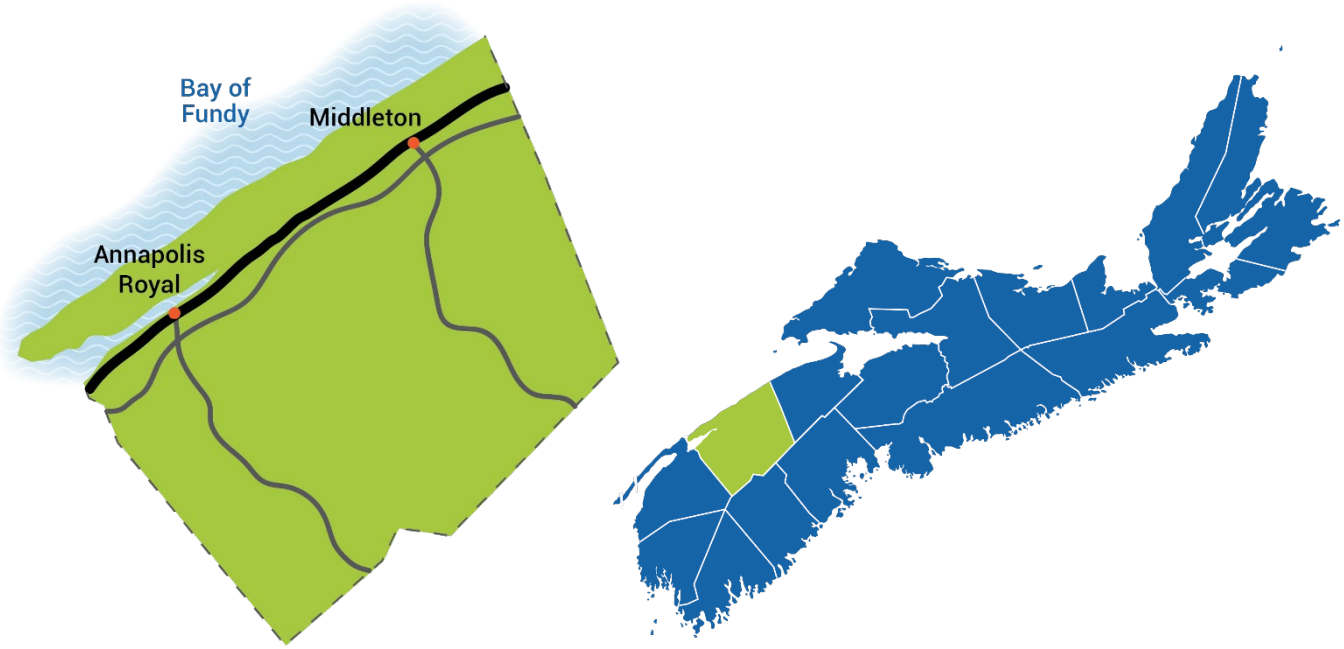
Annapolis Census Division: Climate Risk Summary

December 2022

Prepared by:
Nova Scotia Department of Environment and Climate Change
climatechange@novascotia.ca

Annapolis Census Division



Climate Change Projections

The evidence is clear – Nova Scotia's climate is changing. Analysis of local climate change projections and literature has identified how the province's climate is expected to change over the coming decades. The trends presented here are based on model runs for a high emissions scenario (RCP8.5, median) from the Intergovernmental Panel on Climate Change (IPCC)'s Fifth Assessment Report (AR5) from 2013, with the outputs from these global climate simulations statistically downscaled by the Pacific Climate Impacts Consortium (PCIC) to better account for local geography and climate patterns.

Temperatures are continuing to rise.

Average annual temperature is projected to increase 2.6ºC by mid-century and 4.5°C by the end of the century. More frequent extreme heat will make days and nights more uncomfortable, drought and wildfire more likely, and average winter temperatures may rise above freezing.

Precipitation patterns are changing.

Warmer temperatures will mean less snow and more rain, while rainfall events are also increasing in intensity. Total annual precipitation will likely increase, but more of that water will evaporate in warmer air or run off in more intense downpours. Risks of flooding and erosion are likely to increase.

Storms will be more frequent and more intense.

Warming oceans will enable tropical storms to track further north without losing strength, bringing higher peak wind speeds and more powerful storm surges. It will be more likely for larger storms to impact the province.

Sea levels are rising.

Projections for Nova Scotia indicate an increase of up to 1 metre in relative sea level by the end of the century. Higher sea levels have the potential to damage coastal communities and infrastructure, infiltrate freshwater supplies, and threaten sensitive coastal species and ecosystems. Storm surge and high tides will be more impactful with rising seas.

Ocean conditions are changing.

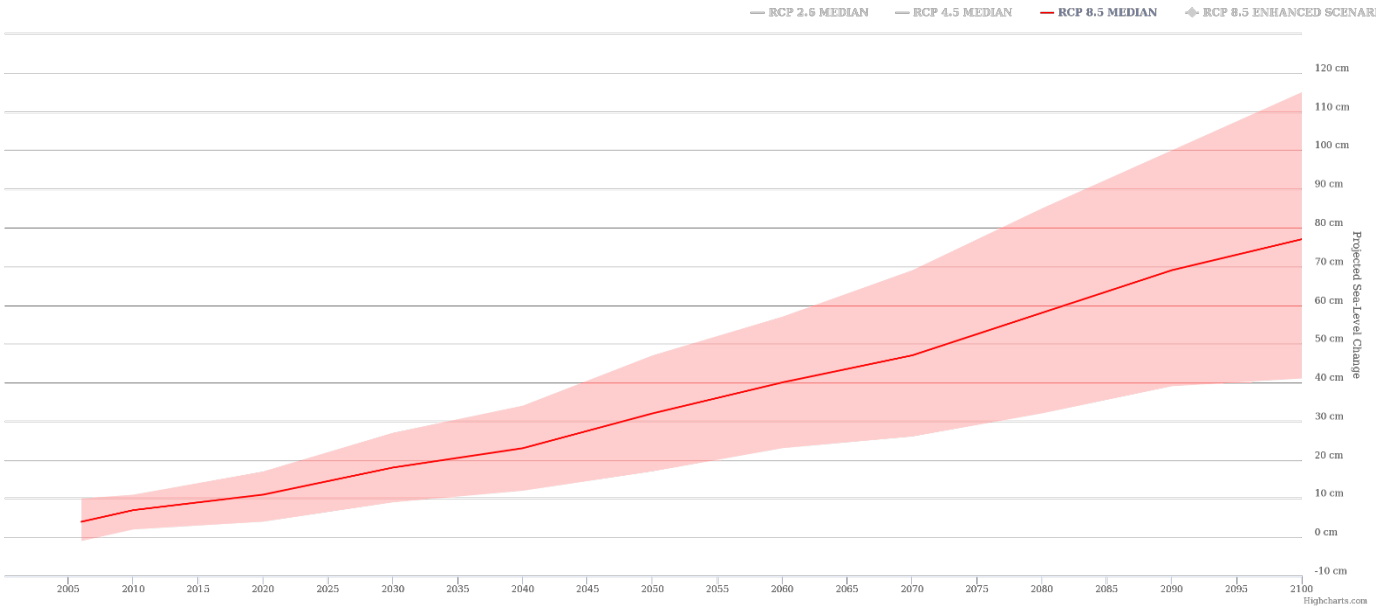
Sea surface and deep-water temperatures are increasing, ocean waters are becoming more acidic, dissolved oxygen levels are decreasing, and ocean currents could weaken due to the changing physics and chemistry of ocean waters. These changing conditions will likely make it harder for current ocean life and coastal ecosystems to thrive.

Climate Change Projections for Annapolis Census Division

Climate Index	Baseline (1981-2010)	Early century (2015-2045)	Mid century (2035-2065)	End century (2065-2095)
Annual hottest day	30.3°C	31.8°C	33.2°C	35.4°C
Days > 29°C	2.7 days	8.8 days	18.9 days	41.4 days
Nights > 18°C	2.3 nights	7.8 nights	17.3 nights	40.1 nights
Annual coldest day	-20.9°C	-18.7°C	-16.3°C	-12.4°C
Days < -15°C	12.7 days	5.8 days	2.1 days	0.1 days
Growing season length	205 days	219 days	233 days	257 days
Total precipitation	1293 mm	1344 mm	1377 mm	1438 mm
Days with snow	37.5 days	30.6 days	24.1 days	16.2 days
Intense rain days > 20	16.4 days	17.8 days	18.7 days	20.3 days

Median results for a high emissions scenario averaged over 30-year periods.

Sea Level Rise Projections for Annapolis Census Division



Relative sea level in this region is expected to rise approximately 80 cm by the year 2100.

Climate Risks for Annapolis Census Division

A provincial climate change risk assessment was completed in 2022 to explore what is at risk and the different effects of climate change on the well-being of Nova Scotians. A climate change risk assessment helps us to understand how the climate is changing. It also helps us to understand issues of concern and opportunities to act. Risks were explored across the province and for each census division, which align with the 18 counties in Nova Scotia. The assessment combines climate projections (AR5) with social, environmental, and economic information.

The background research and quantitative analysis identified:

- climate hazards of greatest relative concern
- priority regions, groups, and issues for further exploration, and
- opportunities.

Nineteen different climate hazards and opportunities were assessed. These climate impacts fall into four categories and offer the potential to improve or negatively affect the well-being of Nova Scotians.

Each climate impact was scored and ranked within each of these four impact categories for each census division and provincially. It is important to note that a lower ranking for a climate hazard or opportunity does not mean the impact is insignificant. The ranking indicates that the potential consequences for well-being are relatively higher or lower compared with other hazards or opportunities within that category.

Climate Risks for Annapolis (High Emissions Scenario)

As in all parts of Nova Scotia, the Annapolis census division is likely to experience all the climate impacts explored in the provincial climate change risk assessment to some extent during the next century. These hazards interact and change over time. **Taking an all-hazards approach to strengthening adaptive capacity and improving well-being will offer the most long-term benefit in the context of a changing climate.**

The following are the top five ranked climate hazards that negatively affect well-being in order of higher to lower for Annapolis for early and mid century under a high emissions scenario.

Early century (2015-2045)	Mid century (2035-2065)
 Heat extremes – agriculture	 Heat extremes – agriculture
 Shifting ecoregions	 Sea level rise and coastal flooding
 Sea level rise and coastal flooding	 Shifting ecoregions
 Agricultural pests and disease	 Agricultural pests and disease

By mid century, the reduction in heavy snowfall has the potential to contribute more to improved well-being for Annapolis relative to the other two impacts in this category.

While benefits from winter tourism will decrease over time, a longer growing season and conditions for favourable summer tourism may present additional opportunities. However, the opportunities need to be considered in the context of increasing adverse outcomes, such as increases in heat stress and agricultural pests and diseases. In addition, those within Annapolis census division need to be a good position to take advantage of opportunities presented.

Potential Adaptation Opportunities

The risk assessment offers some insights into opportunities to reduce risk and adapt to the changing climate by looking at how we can reduce exposure and sensitivity to climate hazards and improve the capacity to cope and adapt.

Annapolis has been identified as one of the regions with a higher need to adapt to both reduce risks and take advantage of opportunities. This is through the projected extent of climatic change for Annapolis compared with other census divisions, the opportunities and risks relating to agricultural activity, the risks to ecosystems, and vulnerability to climate hazards.

The following are the common adaptation approaches across census divisions.

- Further investigation based on specific climate hazards may yield insights into how to **reduce exposure**, such as for people, the natural environment, and infrastructure.
- Across all hazards, opportunities to enhance economic opportunities, improve financial security, and improvements to health could reduce **sensitivity**.
- Improvements to financial security and civic engagement and governance offer opportunities to improve **adaptive capacity**.

Every region in Nova Scotia has a unique mix of rural communities and regional centres with different populations, which offer strengths and vulnerabilities in relation to climate change. More information at the local level can help guide adaptation action, including for those who may be disproportionately impacted within communities. Regional collaboration is an equally important approach to address climate impacts and risks that are not confined within census division boundaries.

For More Information

For more information on how the climate is changing, climate risks for Nova Scotia, and additional regional information, please see ***Weathering What's Ahead: Climate Change Risk and Nova Scotia's Well-being*** and the associated technical report at https://climatechange.novascotia.ca.

Antigonish Census Division: Climate Risk Summary

December 2022

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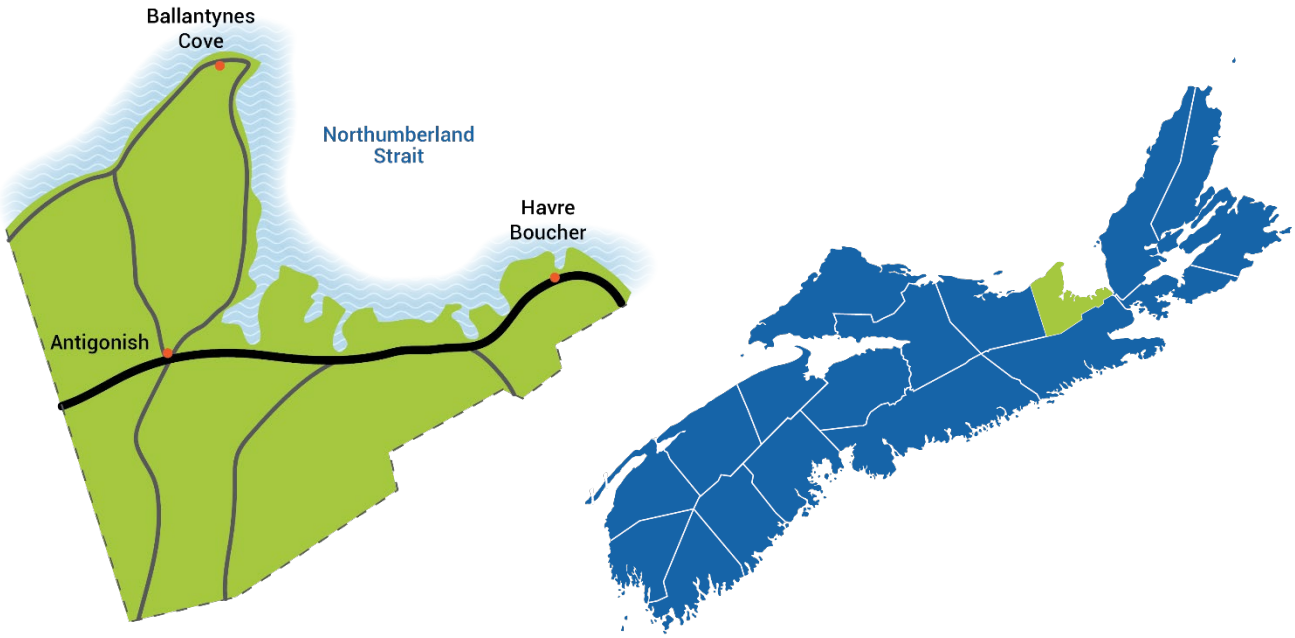
Antigonish Census Division



Climate Change Projections

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Temperatures are continuing to rise.

Average annual temperature is projected to increase 2.6ºC by mid-century and 4.5°C by the end of the century. More frequent extreme heat will make days and nights more uncomfortable, drought and wildfire more likely, and average winter temperatures may rise above freezing.

Precipitation patterns are changing.

Warmer temperatures will mean less snow and more rain, while rainfall events are also increasing in intensity. Total annual precipitation will likely increase, but more of that water will evaporate in warmer air or run off in more intense downpours. Risks of flooding and erosion are likely to increase.

Storms will be more frequent and more intense.

Warming oceans will enable tropical storms to track further north without losing strength, bringing higher peak wind speeds and more powerful storm surges. It will be more likely for larger storms to impact the province.

Sea levels are rising.

Projections for Nova Scotia indicate an increase of up to 1 metre in relative sea level by the end of the century. Higher sea levels have the potential to damage coastal communities and infrastructure, infiltrate freshwater supplies, and threaten sensitive coastal species and ecosystems. Storm surge and high tides will be more impactful with rising seas.

Ocean conditions are changing.

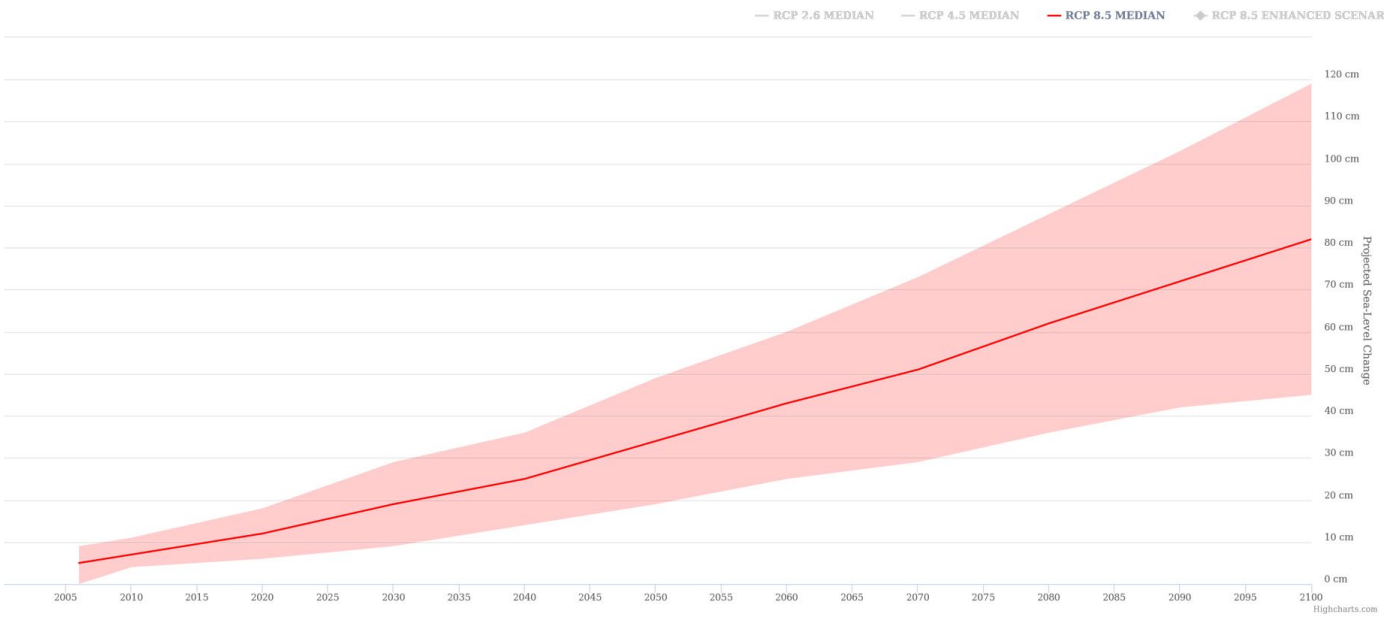
Sea surface and deep-water temperatures are increasing, ocean waters are becoming more acidic, dissolved oxygen levels are decreasing, and ocean currents could weaken due to the changing physics and chemistry of ocean waters. These changing conditions will likely make it harder for current ocean life and coastal ecosystems to thrive.

Climate Change Projections for Antigonish Census Division

Climate Index	Baseline (1981-2010)	Early century (2015-2045)	Mid century (2035-2065)	End century (2065-2095)
Annual hottest day	30.8°C	32.3°C	33.6°C	35.7°C
Days > 29°C	3.5 days	8.6 days	17.3 days	37.4 days
Nights > 18°C	2.9 nights	9.3 nights	19.4 nights	42.5 nights
Annual coldest day	-23.3°C	-20.7°C	-18.4°C	-14.6°C
Days < -15°C	17.9 days	10.3 days	4.9 days	1.0 days
Growing season length	194 days	209 days	222 days	247 days
Total precipitation	1278 mm	1330 mm	1365 mm	1412 mm
Days with snow	41.7 days	34.3 days	28.0 days	19.7 days
Intense rain days > 20	13.6 days	15.3 days	16.2 days	17.8 days

Median results for a high emissions scenario averaged over 30-year periods.

Sea Level Rise Projections for Antigonish Census Division



Relative sea level in this region is expected to rise approximately 80 cm by the year 2100.

Climate Risks for Antigonish Census Division

A provincial climate change risk assessment was completed in 2022 to explore what is at risk and the different effects of climate change on the well-being of Nova Scotians. A climate change risk assessment helps us to understand how the climate is changing. It also helps us to understand issues of concern and opportunities to act. Risks were explored across the province and for each census division, which align with the 18 counties in Nova Scotia. The assessment combines climate projections (AR5) with social, environmental, and economic information.

The background research and quantitative analysis identified:

- climate hazards of greatest relative concern
- priority regions, groups, and issues for further exploration, and
- opportunities.

Nineteen different climate hazards and opportunities were assessed. These climate impacts fall into four categories and offer the potential to improve or negatively affect the well-being of Nova Scotians.

Each climate impact was scored and ranked within each of these four impact categories for each census division and provincially. It is important to note that a lower ranking for a climate hazard or opportunity does not mean the impact is insignificant. The ranking indicates that the potential consequences for well-being are relatively higher or lower compared with other hazards or opportunities within that category.

Climate Risks for Antigonish (High Emissions Scenario)

As in all parts of Nova Scotia, the Antigonish census division is likely to experience all the climate impacts explored in the provincial climate change risk assessment to some extent during the next century. These hazards interact and change over time. **Taking an all-hazards approach to strengthening adaptive capacity and improving well-being will offer the most long-term benefit in the context of a changing climate.**

The following are the top five ranked climate hazards that negatively affect well-being in order of higher to lower for Antigonish for early and mid century under a high emissions scenario.

Early century (2015-2045)	Mid century (2035-2065)
 Pluvial flooding	 Sea level rise and coastal flooding
 Fluvial flooding	 Pluvial flooding
 Se level rise and coastal flooding	 Heat extremes – agriculture
 Heat extremes – agriculture	 Fluvial flooding

By the mid century, the reduction in freeze-thaw cycles has the potential to contribute more to improved well-being for Annapolis relative to the other two impacts in this category.

While benefits from winter tourism will decrease over time, conditions for favourable summer tourism and recreation may present additional opportunities.

Potential Adaptation Opportunities

The risk assessment offers some insights into opportunities to reduce risk and adapt to the changing climate by looking at how we can reduce exposure and sensitivity to climate hazards and improve the capacity to cope and adapt. The following are the common adaptation approaches across census divisions.

- Further investigation based on specific climate hazards may yield insights into how to **reduce exposure**, such as for people, the natural environment, and infrastructure.
- Across all hazards, opportunities to enhance economic opportunities, improve financial security, and improvements to health could reduce **sensitivity**.
- Improvements to financial security and civic engagement and governance offer opportunities to improve **adaptive capacity**.

Every region in Nova Scotia has a unique mix of rural communities and regional centres with different populations, which offer strengths and vulnerabilities in relation to climate change. More information at the local level can help guide adaptation action, including for those who may be disproportionately impacted within communities. Regional collaboration is an equally important approach to address climate impacts and risks that are not confined within census division boundaries.

For More Information

For more information on how the climate is changing, climate risks for Nova Scotia, and additional regional information, please see ***Weathering What's Ahead: Climate Change Risk and Nova Scotia's Well-being*** and the associated technical report at https://climatechange.novascotia.ca.

Cape Breton Census Division: Climate Risk Summary

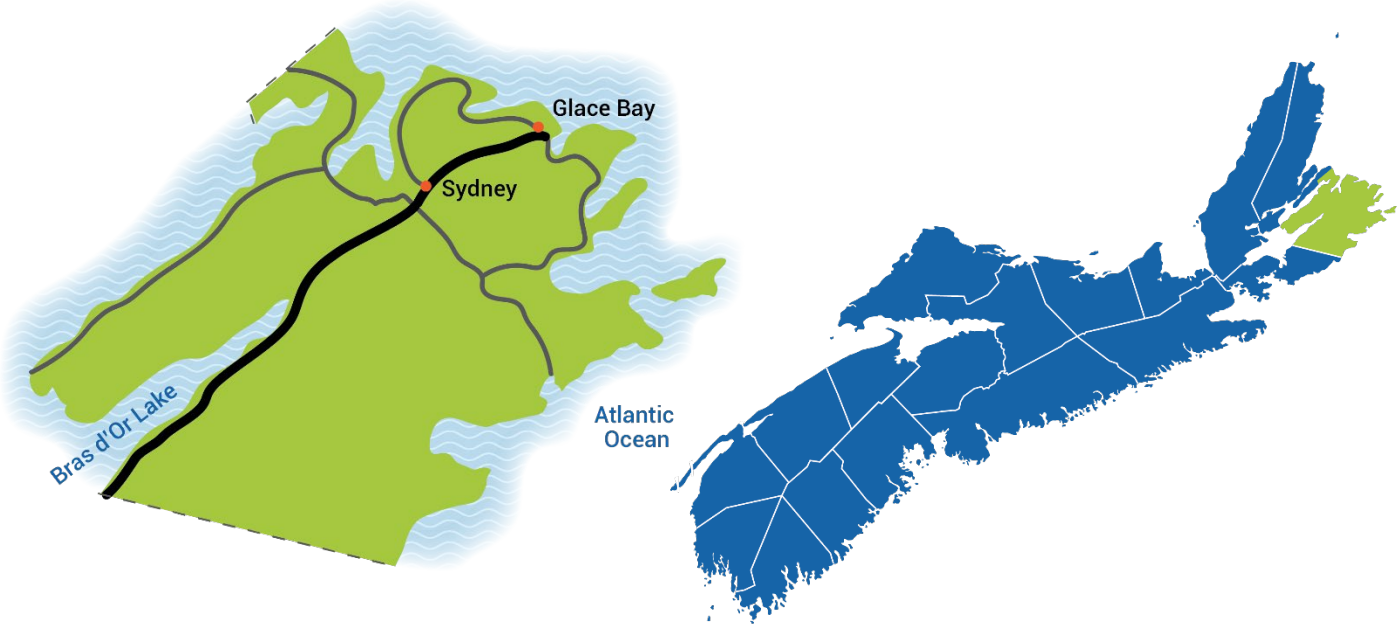
December 2022

Prepared by:

Nova Scotia Department of Environment and Climate Change

climatechange@novascotia.ca

Cape Breton Census Division



Climate Change Projections

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Temperatures are continuing to rise.

Average annual temperature is projected to increase 2.6ºC by mid-century and 4.5°C by the end of the century. More frequent extreme heat will make days and nights more uncomfortable, drought and wildfire more likely, and average winter temperatures may rise above freezing.

Precipitation patterns are changing.

Warmer temperatures will mean less snow and more rain, while rainfall events are also increasing in intensity. Total annual precipitation will likely increase, but more of that water will evaporate in warmer air or run off in more intense downpours. Risks of flooding and erosion are likely to increase.

Storms will be more frequent and more intense.

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Sea levels are rising.

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Ocean conditions are changing.

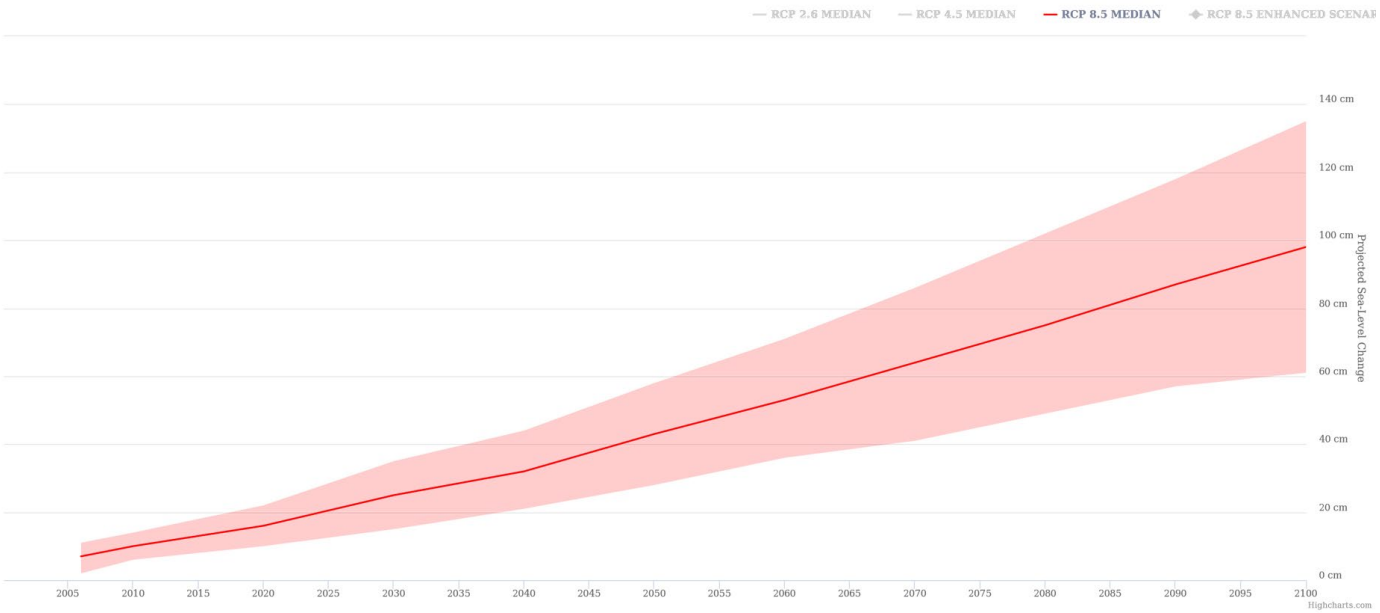
Sea surface and deep-water temperatures are increasing, ocean waters are becoming more acidic, dissolved oxygen levels are decreasing, and ocean currents could weaken due to the changing physics and chemistry of ocean waters. These changing conditions will likely make it harder for current ocean life and coastal ecosystems to thrive.

Climate Change Projections for Cape Breton Census Division

Climate Index	Baseline (1981-2010)	Early century (2015-2045)	Mid century (2035-2065)	End century (2065-2095)
Annual hottest day	28.6°C	30.0°C	31.2°C	33.2°C
Days > 29°C	0.5 days	2.3 days	6.6 days	21.4 days
Nights > 18°C	1.3 nights	6.8 nights	17.9 nights	42.7 nights
Annual coldest day	-19.8°C	-17.4°C	-15.2°C	-11.7°C
Days < -15°C	8.4 days	3.4 days	1.3 days	0.1 days
Growing season length	193 days	209 days	225 days	252 days
Total precipitation	1417 mm	1467 mm	1504 mm	1563 mm
Days with snow	44.9 days	35.4 days	27.9 days	17.6 days
Intense rain days > 20	16.8 days	18.6 days	19.7 days	21.6 days

Median results for a high emissions scenario averaged over 30-year periods.

Sea Level Rise Projections for Cape Breton Census Division



Relative sea level in this region is expected to rise approximately 100 cm by the year 2100.

Climate Risks for Cape Breton Census Division

A provincial climate change risk assessment was completed in 2022 to explore what is at risk and the different effects of climate change on the well-being of Nova Scotians. A climate change risk assessment helps us to understand how the climate is changing. It also helps us to understand issues of concern and opportunities to act. Risks were explored across the province and for each census division, which align with the 18 counties in Nova Scotia. The assessment combines climate projections (AR5) with social, environmental, and economic information.

The background research and quantitative analysis identified:

- climate hazards of greatest relative concern
- priority regions, groups, and issues for further exploration, and
- opportunities.

Nineteen different climate hazards and opportunities were assessed. These climate impacts fall into four categories and offer the potential to improve or negatively affect the well-being of Nova Scotians.

Each climate impact was scored and ranked within each of these four impact categories for each census division and provincially. It is important to note that a lower ranking for a climate hazard or opportunity does not mean the impact is insignificant. The ranking indicates that the potential consequences for well-being are relatively higher or lower compared with other hazards or opportunities within that category.

Climate Risks for Cape Breton (High Emissions Scenario)

As in all parts of Nova Scotia, the Cape Breton census division is likely to experience all the climate impacts explored in the provincial climate change risk assessment to some extent during the next century. These hazards interact and change over time. **Taking an all-hazards approach to strengthening adaptive capacity and improving well-being will offer the most long-term benefit in the context of a changing climate.**

The following are the top five ranked climate hazards that negatively affect well-being in order of higher to lower for Cape Breton for early and mid century under a high emissions scenario.

Early century (2015-2045)	Mid century (2035-2065)
 Wildfire	 Fluvial flooding
 Vector-borne diseases	 Vector-borne diseases
 Heat extremes for human health	 Wildfire
 Fluvial flooding	 Heat extremes for human health

By mid century, the reduction in freeze-thaw cycles has the potential to contribute more to improved well-being for Cape Breton relative to the other two impacts in this category.

While benefits from winter tourism will decrease over time, conditions for favourable summer tourism may present additional opportunities. Cape Breton could also be well positioned to take advantage of the longer growing season

Potential Adaptation Opportunities

The risk assessment offers some insights into opportunities to reduce risk and adapt to the changing climate by looking at how we can reduce exposure and sensitivity to climate hazards and improve the capacity to cope and adapt.

Cape Breton has been identified as one of the regions with a higher need to adapt to reduce risks and take advantage of opportunities. Cape Breton has the potential to take advantage of both kinds of climatic changes that could improve well-being. While the capacity to cope is considered relatively high in Cape Breton, so is exposure to multiple climate hazards. Care is needed to ensure that the capacity to cope and adapt is effectively mobilized to moderate risk and avoid the worst effects.

The following are the common adaptation approaches across census divisions.

- Further investigation based on specific climate hazards may yield insights into how to **reduce exposure**, such as for people, the natural environment, and infrastructure.
- Across all hazards, opportunities to enhance economic opportunities, improve financial security, and improvements to health could reduce **sensitivity**.
- Improvements to financial security and civic engagement and governance offer opportunities to improve **adaptive capacity**.

Every region in Nova Scotia has a unique mix of rural communities and regional centres with different populations, which offer strengths and vulnerabilities in relation to climate change. More information at the local level can help guide adaptation action, including for those who may be disproportionately impacted within communities. Regional collaboration is an equally important approach to address climate impacts and risks that are not confined within census division boundaries.

For More Information

For more information on how the climate is changing, climate risks for Nova Scotia, and additional regional information, please see ***Weathering What's Ahead: Climate Change Risk and Nova Scotia's Well-being*** and the associated technical report at https://climatechange.novascotia.ca.

Colchester Census Division: Climate Risk Summary

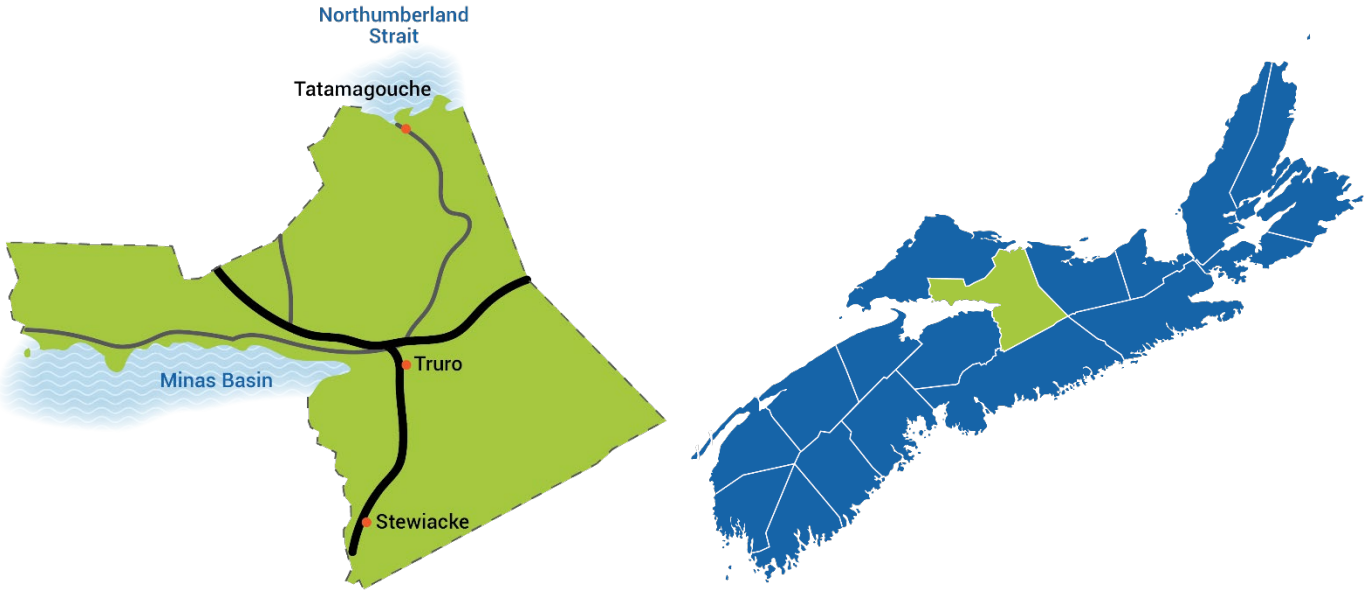
December 2022

Prepared by:

Nova Scotia Department of Environment and Climate Change

climatechange@novascotia.ca

Colchester Census Division



Climate Change Projections

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Temperatures are continuing to rise.

Average annual temperature is projected to increase 2.6ºC by mid-century and 4.5°C by the end of the century. More frequent extreme heat will make days and nights more uncomfortable, drought and wildfire more likely, and average winter temperatures may rise above freezing.

Precipitation patterns are changing.

Warmer temperatures will mean less snow and more rain, while rainfall events are also increasing in intensity. Total annual precipitation will likely increase, but more of that water will evaporate in warmer air or run off in more intense downpours. Risks of flooding and erosion are likely to increase.

Storms will be more frequent and more intense.

Warming oceans will enable tropical storms to track further north without losing strength, bringing higher peak wind speeds and more powerful storm surges. It will be more likely for larger storms to impact the province.

Sea levels are rising.

Projections for Nova Scotia indicate an increase of up to 1 metre in relative sea level by the end of the century. Higher sea levels have the potential to damage coastal communities and infrastructure, infiltrate freshwater supplies, and threaten sensitive coastal species and ecosystems. Storm surge and high tides will be more impactful with rising seas.

Ocean conditions are changing.

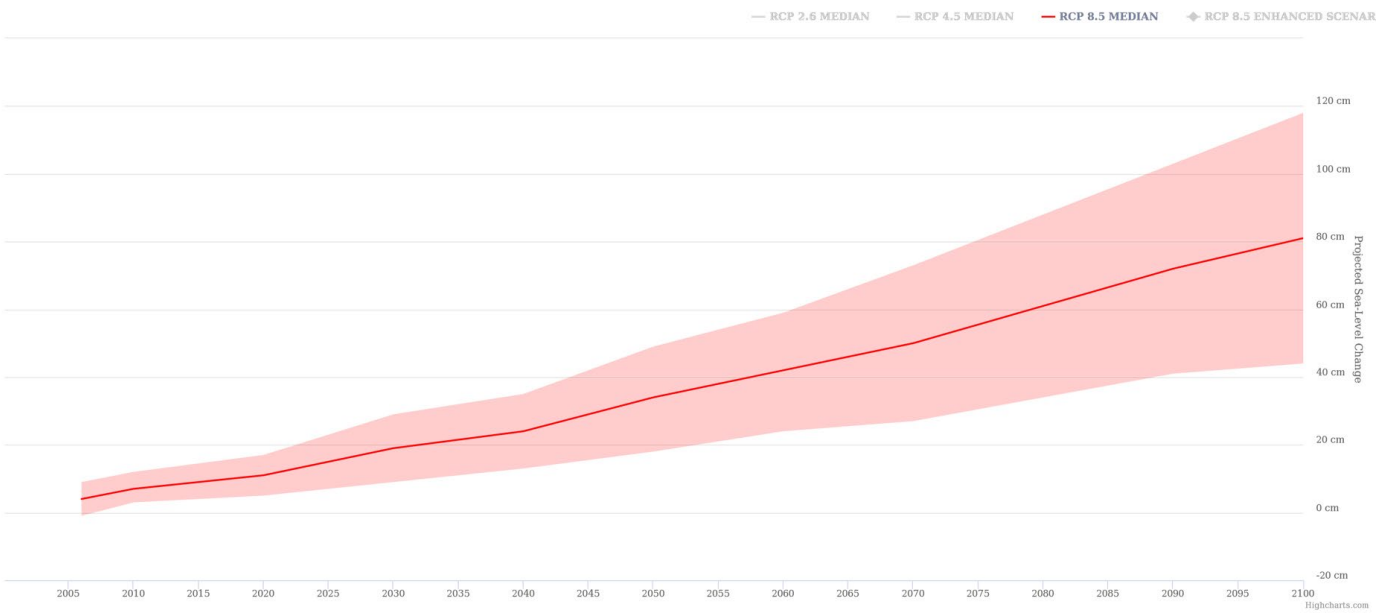
Sea surface and deep-water temperatures are increasing, ocean waters are becoming more acidic, dissolved oxygen levels are decreasing, and ocean currents could weaken due to the changing physics and chemistry of ocean waters. These changing conditions will likely make it harder for current ocean life and coastal ecosystems to thrive.

Climate Change Projections for Colchester Census Division

Climate Index	Baseline (1981-2010)	Early century (2015-2045)	Mid century (2035-2065)	End century (2065-2095)
Annual hottest day	30.7°C	32.3°C	33.6°C	35.8°C
Days > 29°C	3.7 days	10.9 days	21.7 days	43.8 days
Nights > 18°C	2.8 nights	9.3 nights	18.9 nights	40.5 nights
Annual coldest day	-25.3°C	-22.9°C	-20.3°C	-16.3°C
Days < -15°C	24.5 days	15.8 days	8.3 days	2.2 days
Growing season length	195 days	210 days	224 days	246 days
Total precipitation	1209 mm	1263 mm	1294 mm	1344 mm
Days with snow	40.1 days	33.4 days	27.4 days	20.1 days
Intense rain days > 20	13.5 days	15.3 days	16.0 days	17.6 days

Median results for a high emissions scenario averaged over 30-year periods.

Sea Level Rise Projections for Colchester Census Division



Relative sea level in this region is expected to rise approximately 80 cm by the year 2100.

Climate Risks for Colchester Census Division

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Each climate impact was scored and ranked within each of these four impact categories for each census division and provincially. It is important to note that a lower ranking for a climate hazard or opportunity does not mean the impact is insignificant. The ranking indicates that the potential consequences for well-being are relatively higher or lower compared with other hazards or opportunities within that category.

Climate Risks for Colchester (High Emissions Scenario)

As in all parts of Nova Scotia, the Colchester census division is likely to experience all the climate impacts explored in the provincial climate change risk assessment to some extent during the next century. These hazards interact and change over time. **Taking an all-hazards approach to strengthening adaptive capacity and improving well-being will offer the most long-term benefit in the context of a changing climate.**

The following are the top five ranked climate hazards that negatively affect well-being in order of higher to lower for Colchester for early and mid century under a high emissions scenario.

Early century (2015-2045)	Mid century (2035-2065)
 Cooling demand	 Cooling demand
 Heat extremes for human health	 Heat extremes for human health
 Pluvial flooding	 Heat extremes for transport infrastructure
 Heat extremes for transport	 Wildfire

By mid century, the reduction in heating demand for buildings has the potential to contribute more to improved well-being for Colchester relative to the other two impacts in this category but will need to be balanced with the increased demand to keep buildings cool as projected temperatures rise.

While benefits from winter tourism will decrease over time, conditions for favourable summer tourism may present additional opportunities. Colchester could also be well positioned to take advantage of the longer growing season.

Potential Adaptation Opportunities

The risk assessment offers some insights into opportunities to reduce risk and adapt to the changing climate by looking at how we can reduce exposure and sensitivity to climate hazards and improve the capacity to cope and adapt.

Colchester has been identified as one of the regions with a higher need to adapt to reduce risks and take advantage of opportunities. Colchester has the potential to take advantage of both kinds of climatic changes that could improve well-being. However, efforts to adapt to heat extremes for human health will be of importance for Colchester, especially by the end of the century.

The following are the common adaptation approaches across census divisions.

- Further investigation based on specific climate hazards may yield insights into how to **reduce exposure**, such as for people, the natural environment, and infrastructure.
- Across all hazards, opportunities to enhance economic opportunities, improve financial security, and improvements to health could reduce **sensitivity**.
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Cumberland Census Division: Climate Risk Summary

December 2022

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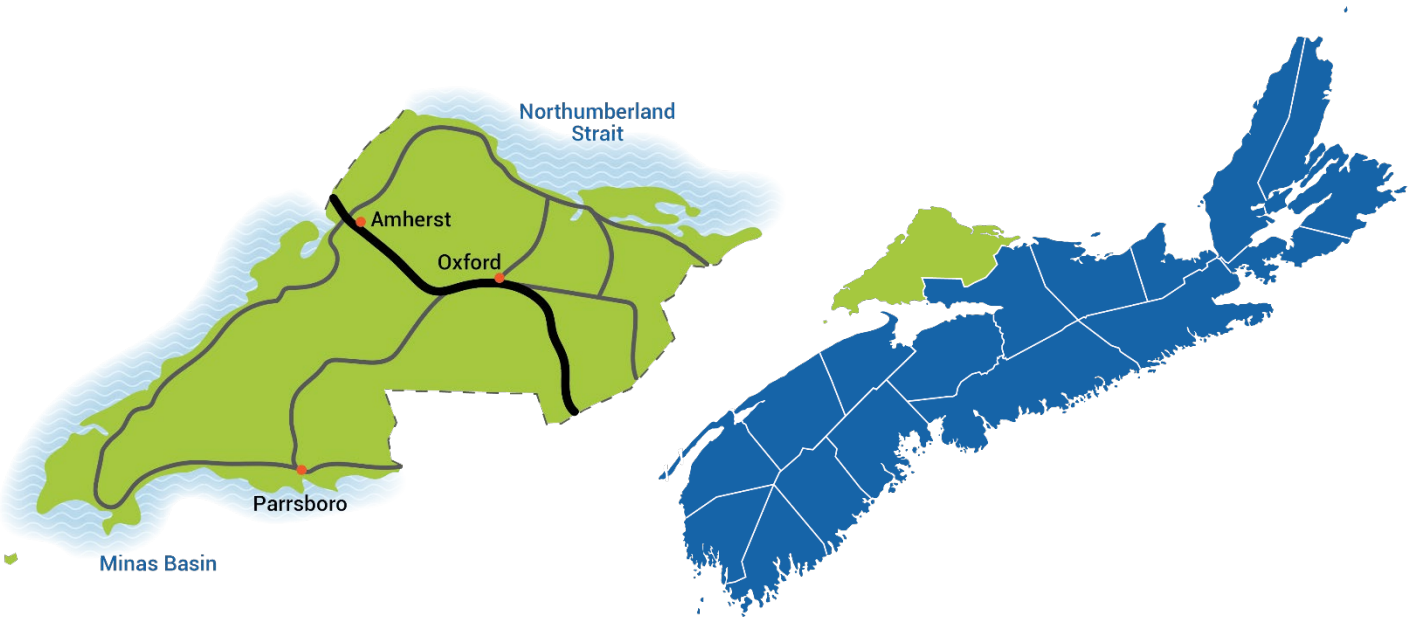
climatechange@novascotia.ca

Cumberland Census Division



Climate Change Projections

The evidence is clear – Nova Scotia's climate is changing. Analysis of local climate change projections and literature has identified how the province's climate is expected to change over the coming decades. The trends presented here are based on model runs for a high emissions scenario (RCP8.5) from the Intergovernmental Panel on Climate Change (IPCC)'s Fifth Assessment Report (AR5) from 2013, with the outputs from these global climate simulations statistically downscaled by the Pacific Climate Impacts Consortium (PCIC) to better account for local geography and climate patterns.

Temperatures are continuing to rise.

Average annual temperature is projected to increase 2.6ºC by mid-century and 4.5°C by the end of the century. More frequent extreme heat will make days and nights more uncomfortable, drought and wildfire more likely, and average winter temperatures may rise above freezing.

Precipitation patterns are changing.

Warmer temperatures will mean less snow and more rain, while rainfall events are also increasing in intensity. Total annual precipitation will likely increase, but more of that water will evaporate in warmer air or run off in more intense downpours. Risks of flooding and erosion are likely to increase.

Storms will be more frequent and more intense.

Warming oceans will enable tropical storms to track further north without losing strength, bringing higher peak wind speeds and more powerful storm surges. It will be more likely for larger storms to impact the province.

Sea levels are rising.

Projections for Nova Scotia indicate an increase of up to 1 metre in relative sea level by the end of the century. Higher sea levels have the potential to damage coastal communities and infrastructure, infiltrate freshwater supplies, and threaten sensitive coastal species and ecosystems. Storm surge and high tides will be more impactful with rising seas.

Ocean conditions are changing.

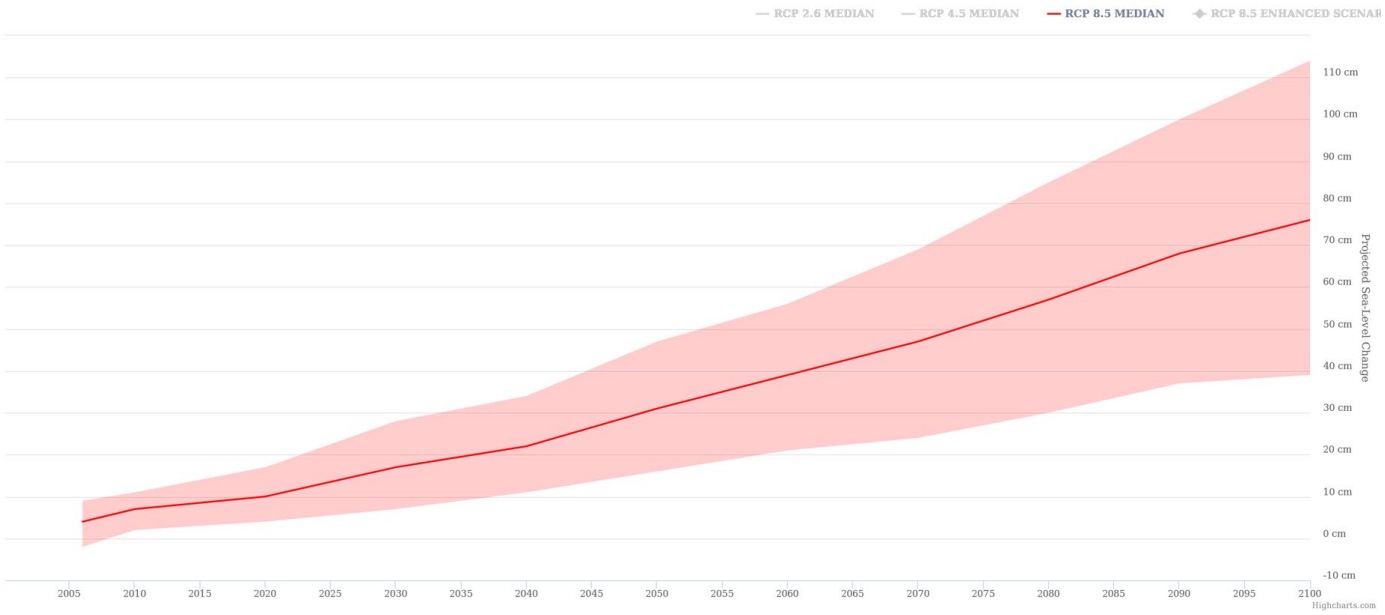
Sea surface and deep-water temperatures are increasing, ocean waters are becoming more acidic, dissolved oxygen levels are decreasing, and ocean currents could weaken due to the changing physics and chemistry of ocean waters. These changing conditions will likely make it harder for current ocean life and coastal ecosystems to thrive.

Climate Change Projections for Cumberland Census Division

Climate Index	Baseline (1981-2010)	Early century (2015-2045)	Mid century (2035-2065)	End century (2065-2095)
Annual hottest day	30.0°C	31.7°C	33.2°C	35.4°C
Days > 29°C	2.5 days	8.7 days	19.5 days	41.4 days
Nights > 18°C	2.3 nights	7.8 nights	17.3 nights	43.1 nights
Annual coldest day	-25.1°C	-22.4°C	-19.7°C	-15.6°C
Days < -15°C	24.7 days	14.7 days	7.6 days	1.6 days
Growing season length	197 days	211 days	225 days	246 days
Total precipitation	1145 mm	1195 mm	1225 mm	1279 mm
Days with snow	39.1 days	32.6 days	26.8 days	19.2 days
Intense rain days > 20	12.1 days	13.6 days	14.3 days	15.9 days

Median results for a high emissions scenario averaged over 30-year periods.

Sea Level Rise Projections for Cumberland Census Division



Relative sea level in this region is expected to rise approximately 75 cm by the year 2100.

Climate Risks for Cumberland Census Division

A provincial climate change risk assessment was completed in 2022 to explore what is at risk and the different effects of climate change on the well-being of Nova Scotians. A climate change risk assessment helps us to understand how the climate is changing. It also helps us to understand issues of concern and opportunities to act. Risks were explored across the province and for each census division, which align with the 18 counties in Nova Scotia. The assessment combines climate projections (AR5) with social, environmental, and economic information.

The background research and quantitative analysis identified:

- climate hazards of greatest relative concern
- priority regions, groups, and issues for further exploration, and
- opportunities.

Nineteen different climate hazards and opportunities were assessed. These climate impacts fall into four categories and offer the potential to improve or negatively affect the well-being of Nova Scotians.

Each climate impact was scored and ranked within each of these four impact categories for each census division and provincially. It is important to note that a lower ranking for a climate hazard or opportunity does not mean the impact is insignificant. The ranking indicates that the potential consequences for well-being are relatively higher or lower compared with other hazards or opportunities within that category.

Climate Risks for Cumberland (High Emissions Scenario)

As in all parts of Nova Scotia, the Cumberland census division is likely to experience all the climate impacts explored in the provincial climate change risk assessment to some extent during the next century. These hazards interact and change over time. **Taking an all-hazards approach to strengthening adaptive capacity and improving well-being will offer the most long-term benefit in the context of a changing climate.**

The following are the top five ranked climate hazards that negatively affect well-being in order of higher to lower for Cumberland for early and mid century under a high emissions scenario.

Early century (2015-2045)	Mid century (2035-2065)
 Heat extremes for agriculture	 Heat extremes for agriculture
 Cooling demand	 Cooling demand
 Heat extremes for transport infrastructure	 Heat extremes for transport infrastructure
 Agricultural pests and disease	 Agricultural pests and disease

By mid century, the reduction in freeze-thaw cycles has the potential to contribute more to improved well-being for Cumberland relative to the other two impacts in this category.

While benefits from winter tourism will decrease over time, summer tourism and recreation opportunities could increase. Cumberland could take advantage of the longer growing season but this will need to be balanced with hazards, such as agricultural pests and disease.

Potential Adaptation Opportunities

The risk assessment offers some insights into opportunities to reduce risk and adapt to the changing climate by looking at how we can reduce exposure and sensitivity to climate hazards and improve the capacity to cope and adapt.

Cumberland has been identified as one of the regions with a higher need to adapt to reduce risks and take advantage of opportunities. It is ranked in the top census divisions for both impacts that can worsen well-being and impacts that could improve well-being. For impacts that could worsen well-being, Cumberland is projected to see a relatively high extent of climatic change, along with exposure and vulnerability to these climate hazards. Adaptation efforts will also be needed to ensure Cumberland is well positioned to take advantage of opportunities.

The following are the common adaptation approaches across census divisions.

- Further investigation based on specific climate hazards may yield insights into how to **reduce exposure**, such as for people, the natural environment, and infrastructure.
- Across all hazards, opportunities to enhance economic opportunities, improve financial security, and improvements to health could reduce **sensitivity**.
- Improvements to financial security and civic engagement and governance offer opportunities to improve **adaptive capacity**.

Every region in Nova Scotia has a unique mix of rural communities and regional centres with different populations, which offer strengths and vulnerabilities in relation to climate change. More information at the local level can help guide adaptation action, including for those who may be disproportionately impacted within communities. Regional collaboration is an equally important approach to address climate impacts and risks that are not confined within census division boundaries.

For More Information

For more information on how the climate is changing, climate risks for Nova Scotia, and additional regional information, please see ***Weathering What's Ahead: Climate Change Risk and Nova Scotia's Well-being*** and the associated technical report at https://climatechange.novascotia.ca.

Digby Census Division: Climate Risk Summary

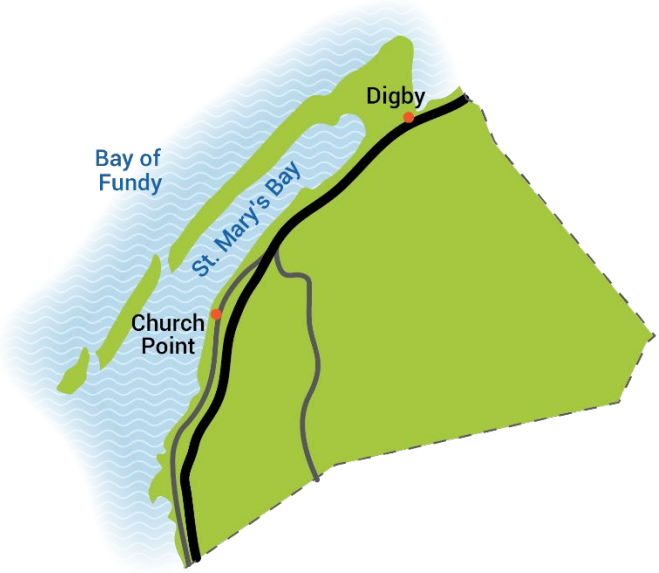
December 2022

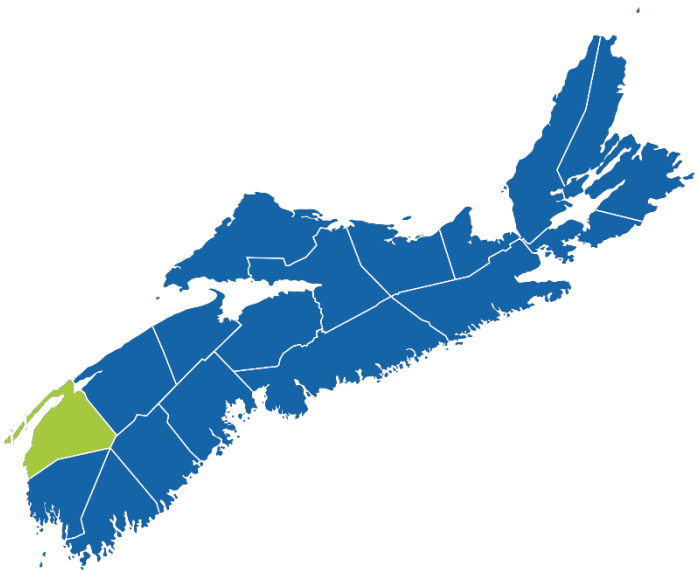
Prepared by:

Nova Scotia Department of Environment and Climate Change

climatechange@novascotia.ca

Digby Census Division





Climate Change Projections

The evidence is clear – Nova Scotia's climate is changing. Analysis of local climate change projections and literature has identified how the province's climate is expected to change over the coming decades. The trends presented here are based on model runs for a high emissions scenario (RCP8.5) from the Intergovernmental Panel on Climate Change (IPCC)'s Fifth Assessment Report (AR5) from 2013, with the outputs from these global climate simulations statistically downscaled by the Pacific Climate Impacts Consortium (PCIC) to better account for local geography and climate patterns.

Temperatures are continuing to rise.

Average annual temperature is projected to increase 2.6ºC by mid-century and 4.5°C by the end of the century. More frequent extreme heat will make days and nights more uncomfortable, drought and wildfire more likely, and average winter temperatures may rise above freezing.

Precipitation patterns are changing.

Warmer temperatures will mean less snow and more rain, while rainfall events are also increasing in intensity. Total annual precipitation will likely increase, but more of that water will evaporate in warmer air or run off in more intense downpours. Risks of flooding and erosion are likely to increase.

Storms will be more frequent and more intense.

Warming oceans will enable tropical storms to track further north without losing strength, bringing higher peak wind speeds and more powerful storm surges. It will be more likely for larger storms to impact the province.

Sea levels are rising.

Projections for Nova Scotia indicate an increase of up to 1 metre in relative sea level by the end of the century. Higher sea levels have the potential to damage coastal communities and infrastructure, infiltrate freshwater supplies, and threaten sensitive coastal species and ecosystems. Storm surge and high tides will be more impactful with rising seas.

Ocean conditions are changing.

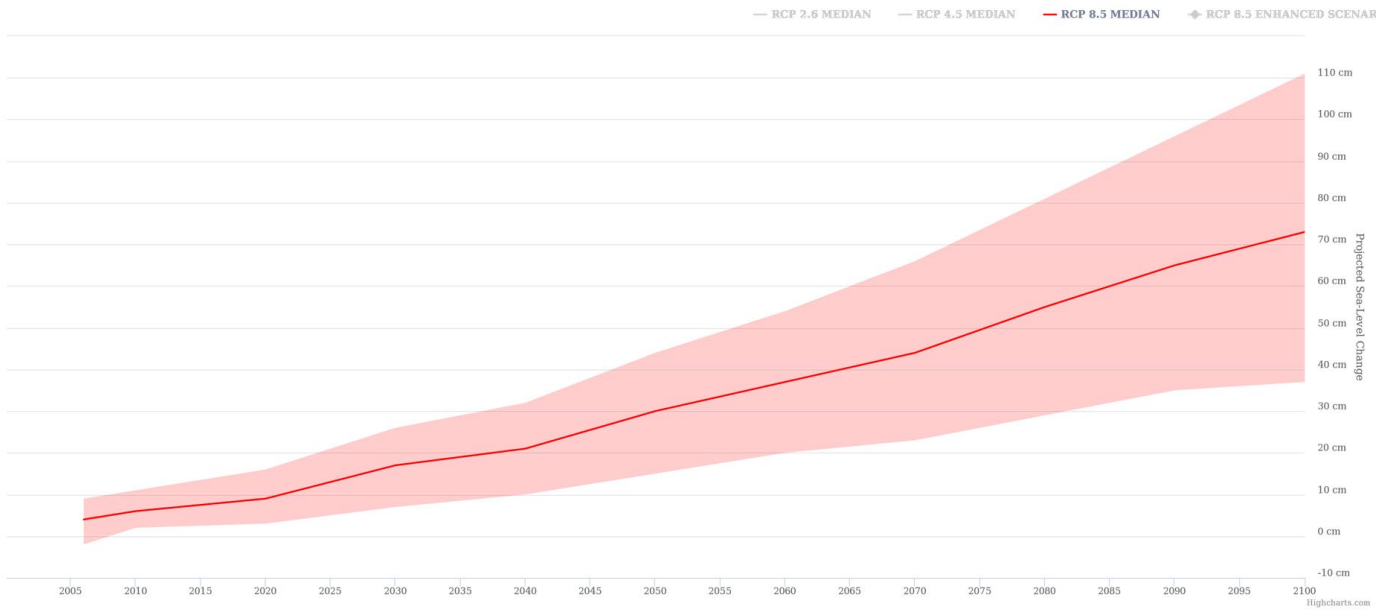
Sea surface and deep-water temperatures are increasing, ocean waters are becoming more acidic, dissolved oxygen levels are decreasing, and ocean currents could weaken due to the changing physics and chemistry of ocean waters. These changing conditions will likely make it harder for current ocean life and coastal ecosystems to thrive.

Climate Change Projections for Digby Census Division

Climate Index	Baseline (1981-2010)	Early century (2015-2045)	Mid century (2035-2065)	End century (2065-2095)
Annual hottest day	27.7°C	29.2°C	30.5°C	32.5°C
Days > 29°C	0.2 days	1.4 days	4.9 days	19.3 days
Nights > 18°C	0.4 nights	3.2 nights	11.0 nights	35.4 nights
Annual coldest day	-18.5°C	-16.5°C	-14.2°C	-10.5°C
Days < -15°C	5.8 days	2.2 days	0.6 days	0.0 days
Growing season length	212 days	228 days	244 days	273 days
Total precipitation	1291 mm	1336 mm	1370 mm	1426 mm
Days with snow	31.7 days	24.7 days	18.8 days	11.1 days
Intense rain days > 20	15.9 days	17.2 days	18.1 days	19.9 days

Median results for a high emissions scenario averaged over 30-year periods.

Sea Level Rise Projections for Digby Census Division



Relative sea level in this region is expected to rise approximately 75 cm by the year 2100.

Climate Risks for Digby Census Division

A provincial climate change risk assessment was completed in 2022 to explore what is at risk and the different effects of climate change on the well-being of Nova Scotians. A climate change risk assessment helps us to understand how the climate is changing. It also helps us to understand issues of concern and opportunities to act. Risks were explored across the province and for each census division, which align with the 18 counties in Nova Scotia. The assessment combines climate projections (AR5) with social, environmental, and economic information.

The background research and quantitative analysis identified:

- climate hazards of greatest relative concern
- priority regions, groups, and issues for further exploration, and
- opportunities.

Nineteen different climate hazards and opportunities were assessed. These climate impacts fall into four categories and offer the potential to improve or negatively affect the well-being of Nova Scotians.

Each climate impact was scored and ranked within each of these four impact categories for each census division and provincially. It is important to note that a lower ranking for a climate hazard or opportunity does not mean the impact is insignificant. The ranking indicates that the potential consequences for well-being are relatively higher or lower compared with other hazards or opportunities within that category.

Climate Risks for Digby (High Emissions Scenario)

As in all parts of Nova Scotia, the Digby census division is likely to experience all the climate impacts explored in the provincial climate change risk assessment to some extent during the next century. These hazards interact and change over time. **Taking an all-hazards approach to strengthening adaptive capacity and improving well-being will offer the most long-term benefit in the context of a changing climate.**

The following are the top five ranked climate hazards that negatively affect well-being in order of higher to lower for Digby for early and mid century under a high emissions scenario.

Early century (2015-2045)	Mid century (2035-2065)
 Cooling demand	 Cooling demand
 Drought	 Agricultural pests and disease
 Agricultural pests and disease	 Drought
 Heat extremes for agriculture	 Heat extremes for agriculture

By mid century, the reduction in heating demand for homes has the potential to contribute more to improved well-being for Digby relative to the other two impacts in this category.

Digby could take advantage of the longer growing season, but this will need to be balanced with hazards, such as agricultural pests and disease and heat extremes. Summer tourism and recreation opportunities could increase.

Potential Adaptation Opportunities

The risk assessment offers some insights into opportunities to reduce risk and adapt to the changing climate by looking at how we can reduce exposure and sensitivity to climate hazards and improve the capacity to cope and adapt.

Digby has been identified as one of the regions with a higher need to adapt to reduce risks and take advantage of opportunities. Digby has high vulnerability to several of the top ranked climate hazards for the region that could worsen well-being. Adaptation efforts will also be needed to ensure Digby is well positioned to take advantage of any opportunities.

The following are the common adaptation approaches across census divisions.

- Further investigation based on specific climate hazards may yield insights into how to **reduce exposure**, such as for people, the natural environment, and infrastructure.
- Across all hazards, opportunities to enhance economic opportunities, improve financial security, and improvements to health could reduce **sensitivity**.
- Improvements to financial security and civic engagement and governance offer opportunities to improve **adaptive capacity**.

Every region in Nova Scotia has a unique mix of rural communities and regional centres with different populations, which offer strengths and vulnerabilities in relation to climate change. More information at the local level can help guide adaptation action, including for those who may be disproportionately impacted within communities. Regional collaboration is an equally important approach to address climate impacts and risks that are not confined within census division boundaries.

For More Information

For more information on how the climate is changing, climate risks for Nova Scotia, and additional regional information, please see ***Weathering What's Ahead: Climate Change Risk and Nova Scotia's Well-being*** and the associated technical report at https://climatechange.novascotia.ca.

Guysborough Census Division: Climate Risk Summary

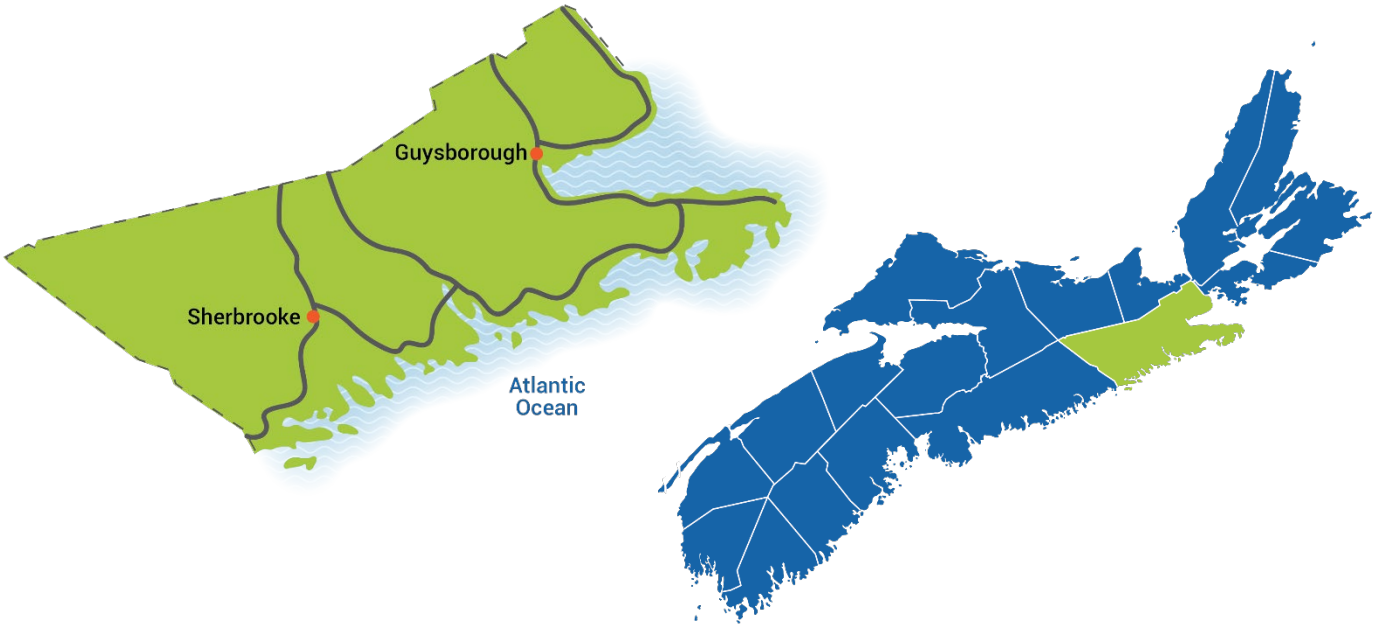
December 2022

Prepared by:

Nova Scotia Department of Environment and Climate Change

climatechange@novascotia.ca

Guysborough Census Division



Climate Change Projections

The evidence is clear – Nova Scotia's climate is changing. Analysis of local climate change projections and literature has identified how the province's climate is expected to change over the coming decades. The trends presented here are based on model runs for a high emissions scenario (RCP8.5) from the Intergovernmental Panel on Climate Change (IPCC)'s Fifth Assessment Report (AR5) from 2013, with the outputs from these global climate simulations statistically downscaled by the Pacific Climate Impacts Consortium (PCIC) to better account for local geography and climate patterns.

Temperatures are continuing to rise.

Average annual temperature is projected to increase 2.6ºC by mid-century and 4.5°C by the end of the century. More frequent extreme heat will make days and nights more uncomfortable, drought and wildfire more likely, and average winter temperatures may rise above freezing.

Precipitation patterns are changing.

Warmer temperatures will mean less snow and more rain, while rainfall events are also increasing in intensity. Total annual precipitation will likely increase, but more of that water will evaporate in warmer air or run off in more intense downpours. Risks of flooding and erosion are likely to increase.

Storms will be more frequent and more intense.

Warming oceans will enable tropical storms to track further north without losing strength, bringing higher peak wind speeds and more powerful storm surges. It will be more likely for larger storms to impact the province.

Sea levels are rising.

Projections for Nova Scotia indicate an increase of up to 1 metre in relative sea level by the end of the century. Higher sea levels have the potential to damage coastal communities and infrastructure, infiltrate freshwater supplies, and threaten sensitive coastal species and ecosystems. Storm surge and high tides will be more impactful with rising seas.

Ocean conditions are changing.

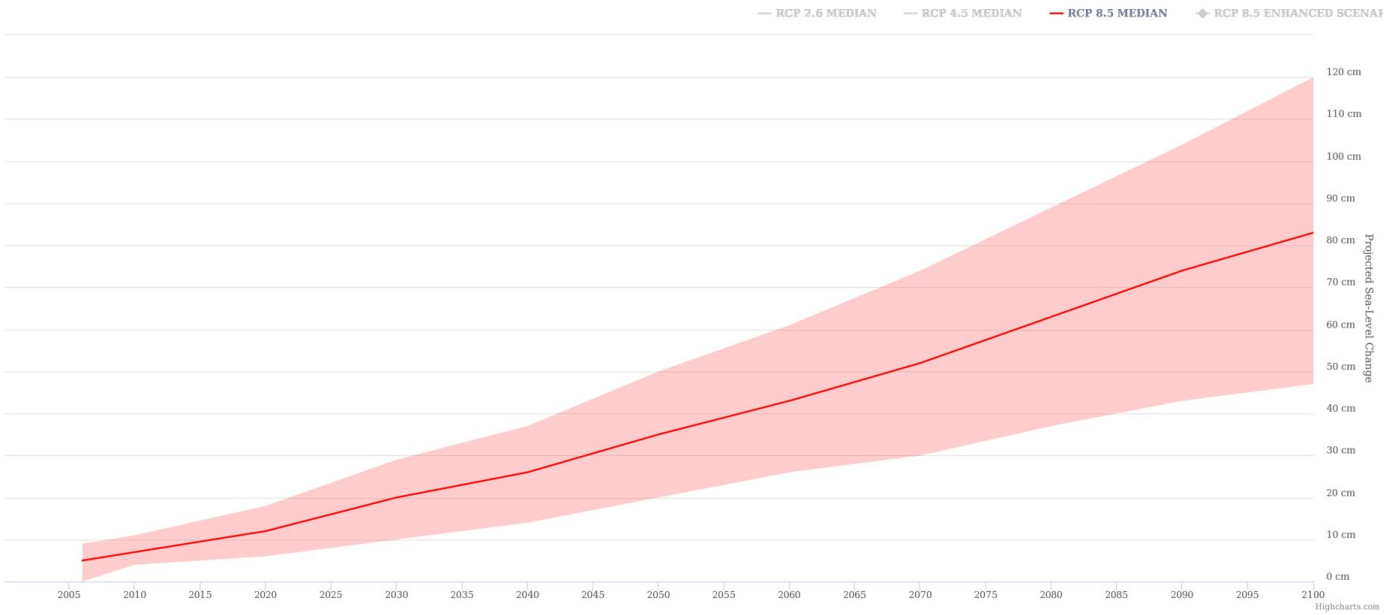
Sea surface and deep-water temperatures are increasing, ocean waters are becoming more acidic, dissolved oxygen levels are decreasing, and ocean currents could weaken due to the changing physics and chemistry of ocean waters. These changing conditions will likely make it harder for current ocean life and coastal ecosystems to thrive.

Climate Change Projections for Guysborough Census Division

Climate Index	Baseline (1981-2010)	Early century (2015-2045)	Mid century (2035-2065)	End century (2065-2095)
Annual hottest day	28.4°C	29.8°C	31.1°C	33.2°C
Days > 29°C	0.7 days	2.6 days	7.0 days	22.1 days
Nights > 18°C	0.8 nights	5.7 nights	15.1 nights	37.3 nights
Annual coldest day	-22.9°C	-20.6°C	-18.3°C	-14.7°C
Days < -15°C	16.2 days	9.6 days	4.7 days	1.1 days
Growing season length	196 days	211 days	226 days	251 days
Total precipitation	1379 mm	1435 mm	1467 mm	1523 mm
Days with snow	37.3 days	30.0 days	24.1 days	16.6 days
Intense rain days > 20	17.3 days	19.0 days	19.9 days	21.3 days

Median results for a high emissions scenario averaged over 30-year periods.

Sea Level Rise Projections for Guysborough Census Division



Relative sea level in this region is expected to rise approximately 85 cm by the year 2100.

Climate Risks for Guysborough Census Division

A provincial climate change risk assessment was completed in 2022 to explore what is at risk and the different effects of climate change on the well-being of Nova Scotians. A climate change risk assessment helps us to understand how the climate is changing. It also helps us to understand issues of concern and opportunities to act. Risks were explored across the province and for each census division, which align with the 18 counties in Nova Scotia. The assessment combines climate projections (AR5) with social, environmental, and economic information.

The background research and quantitative analysis identified:

- climate hazards of greatest relative concern
- priority regions, groups, and issues for further exploration, and
- opportunities.

Nineteen different climate hazards and opportunities were assessed. These climate impacts fall into four categories and offer the potential to improve or negatively affect the well-being of Nova Scotians.

Each climate impact was scored and ranked within each of these four impact categories for each census division and provincially. It is important to note that a lower ranking for a climate hazard or opportunity does not mean the impact is insignificant. The ranking indicates that the potential consequences for well-being are relatively higher or lower compared with other hazards or opportunities within that category.

Climate Risks for Guysborough (High Emissions Scenario)

As in all parts of Nova Scotia, the Guysborough census division is likely to experience all the climate impacts explored in the provincial climate change risk assessment to some extent during the next century. These hazards interact and change over time. **Taking an all-hazards approach to strengthening adaptive capacity and improving well-being will offer the most long-term benefit in the context of a changing climate.**

The following are the top five ranked climate hazards that negatively affect well-being in order of higher to lower for Guysborough for early and mid century under a high emissions scenario.

Early century (2015-2045)	Mid century (2035-2065)
 Heat extremes for ecosystems	 Heat extremes for ecosystems
 Shifting ecoregions	 Shifting ecoregions
 Fluvial flooding	 Fluvial flooding
 Agricultural pests and diseases	 Agricultural pests and diseases

By the mid century, the reduction in heating demand for buildings has the potential to contribute more to improved well-being for Guysborough relative to the other two impacts in this category.

The longer growing season offers benefits, but will need to be balanced with shifting ecoregions, heat extremes, and agricultural pests and diseases. While benefits from winter tourism will decrease over time, conditions for favourable summer tourism and recreation may present additional opportunities.

Potential Adaptation Opportunities

The risk assessment offers some insights into opportunities to reduce risk and adapt to the changing climate by looking at how we can reduce exposure and sensitivity to climate hazards and improve the capacity to cope and adapt. The following are the common adaptation approaches across census divisions.

- Further investigation based on specific climate hazards may yield insights into how to **reduce exposure**, such as for people, the natural environment, and infrastructure.
- Across all hazards, opportunities to enhance economic opportunities, improve financial security, and improvements to health could reduce **sensitivity**.
- Improvements to financial security and civic engagement and governance offer opportunities to improve **adaptive capacity**.

Every region in Nova Scotia has a unique mix of rural communities and regional centres with different populations, which offer strengths and vulnerabilities in relation to climate change. More information at the local level can help guide adaptation action, including for those who may be disproportionately impacted within communities. Regional collaboration is an equally important approach to address climate impacts and risks that are not confined within census division boundaries.

For More Information

For more information on how the climate is changing, climate risks for Nova Scotia, and additional regional information, please see ***Weathering What's Ahead: Climate Change Risk and Nova Scotia's Well-being*** and the associated technical report at https://climatechange.novascotia.ca.

Halifax Census Division: Climate Risk Summary

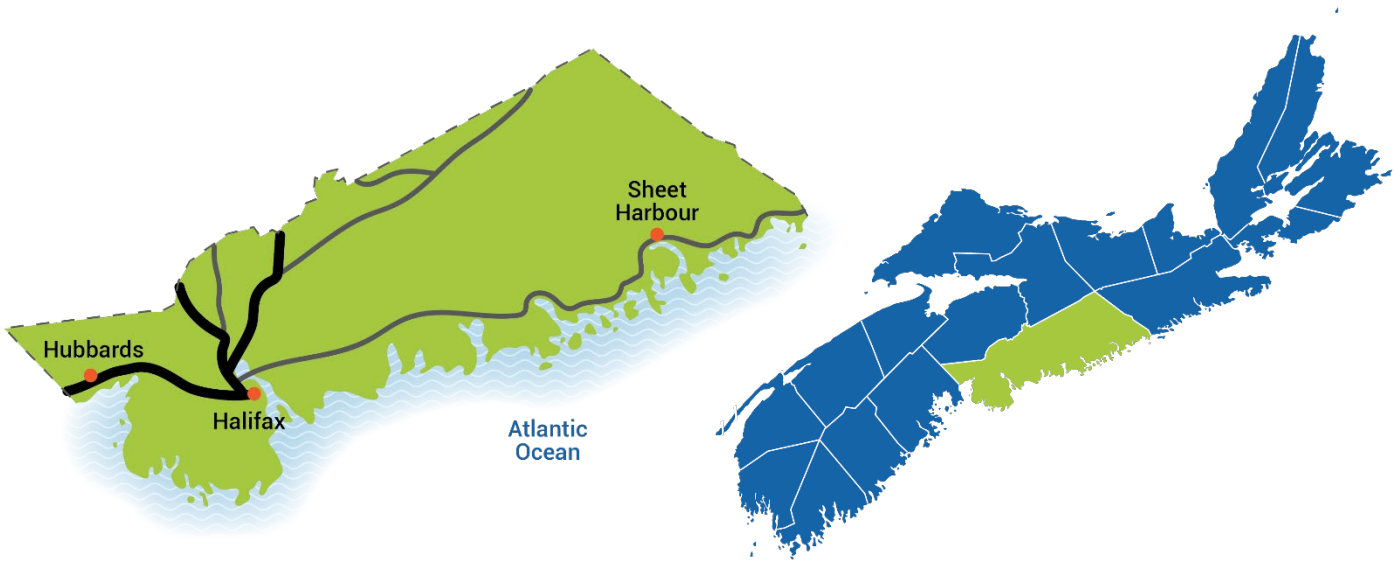
December 2022

Prepared by:

Nova Scotia Department of Environment and Climate Change

climatechange@novascotia.ca

Halifax Census Division



Climate Change Projections

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Temperatures are continuing to rise.

Average annual temperature is projected to increase 2.6ºC by mid-century and 4.5°C by the end of the century. More frequent extreme heat will make days and nights more uncomfortable, drought and wildfire more likely, and average winter temperatures may rise above freezing.

Precipitation patterns are changing.

Warmer temperatures will mean less snow and more rain, while rainfall events are also increasing in intensity. Total annual precipitation will likely increase, but more of that water will evaporate in warmer air or run off in more intense downpours. Risks of flooding and erosion are likely to increase.

Storms will be more frequent and more intense.

Warming oceans will enable tropical storms to track further north without losing strength, bringing higher peak wind speeds and more powerful storm surges. It will be more likely for larger storms to impact the province.

Sea levels are rising.

Projections for Nova Scotia indicate an increase of up to 1 metre in relative sea level by the end of the century. Higher sea levels have the potential to damage coastal communities and infrastructure, infiltrate freshwater supplies, and threaten sensitive coastal species and ecosystems. Storm surge and high tides will be more impactful with rising seas.

Ocean conditions are changing.

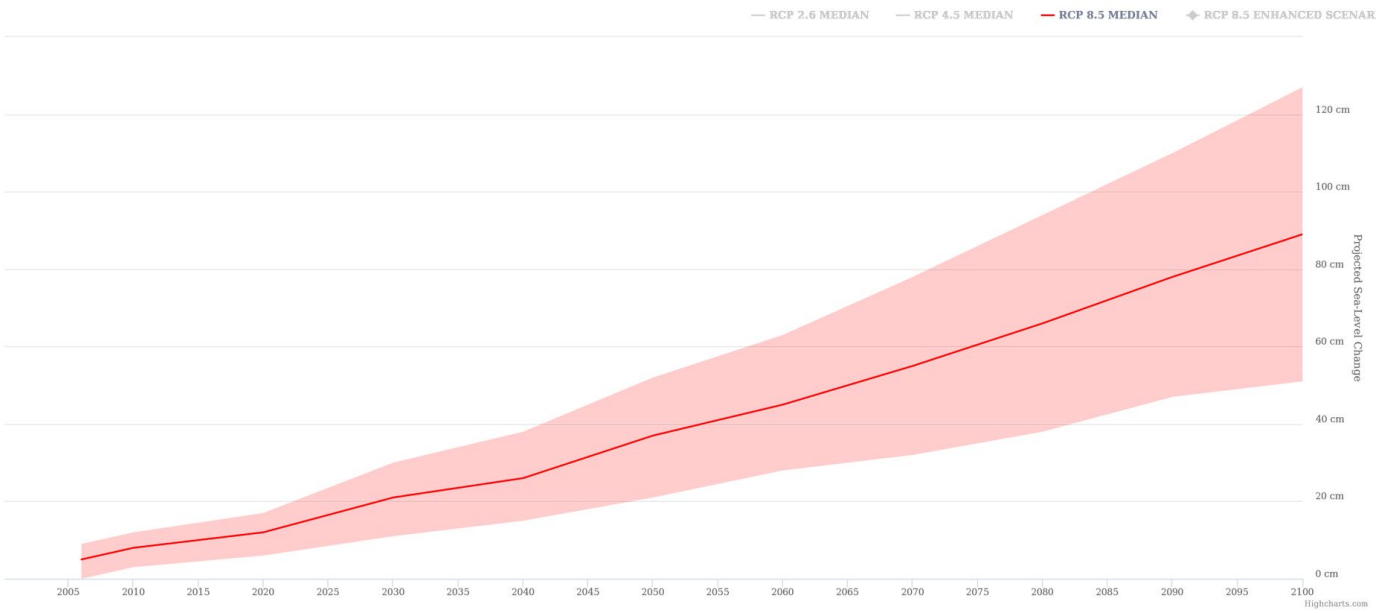
Sea surface and deep-water temperatures are increasing, ocean waters are becoming more acidic, dissolved oxygen levels are decreasing, and ocean currents could weaken due to the changing physics and chemistry of ocean waters. These changing conditions will likely make it harder for current ocean life and coastal ecosystems to thrive.

Climate Change Projections for Halifax Census Division

Climate Index	Baseline (1981-2010)	Early century (2015-2045)	Mid century (2035-2065)	End century (2065-2095)
Annual hottest day	29.8°C	31.2°C	32.5°C	34.5°C
Days > 29°C	1.7 days	5.1 days	11.7 days	29.1 days
Nights > 18°C	1.1 nights	6.7 nights	16.4 nights	38.9 nights
Annual coldest day	-22.6°C	-20.4°C	-18.1°C	-14.4°C
Days < -15°C	16.0 days	9.5 days	4.6 days	0.9 days
Growing season length	204 days	218 days	233 days	258 days
Total precipitation	1378 mm	1441 mm	1468 mm	1527 mm
Days with snow	32.9 days	26.6 days	21.1 days	14.5 days
Intense rain days > 20	18.7 days	20.5 days	21.1 days	22.7 days

Median results for a high emissions scenario averaged over 30-year periods.

Sea Level Rise Projections for Halifax Census Division



Relative sea level in this region is expected to rise approximately 90 cm by the year 2100.

Climate Risks for Halifax Census Division

A provincial climate change risk assessment was completed in 2022 to explore what is at risk and the different effects of climate change on the well-being of Nova Scotians. A climate change risk assessment helps us to understand how the climate is changing. It also helps us to understand issues of concern and opportunities to act. Risks were explored across the province and for each census division, which align with the 18 counties in Nova Scotia. The assessment combines climate projections (AR5) with social, environmental, and economic information.

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Nineteen different climate hazards and opportunities were assessed. These climate impacts fall into four categories and offer the potential to improve or negatively affect the well-being of Nova Scotians.

Each climate impact was scored and ranked within each of these four impact categories for each census division and provincially. It is important to note that a lower ranking for a climate hazard or opportunity does not mean the impact is insignificant. The ranking indicates that the potential consequences for well-being are relatively higher or lower compared with other hazards or opportunities within that category.

Climate Risks for Halifax (High Emissions Scenario)

As in all parts of Nova Scotia, the Halifax census division is likely to experience all the climate impacts explored in the provincial climate change risk assessment to some extent during the next century. These hazards interact and change over time. **Taking an all-hazards approach to strengthening adaptive capacity and improving well-being will offer the most long-term benefit in the context of a changing climate.**

The following are the top five ranked climate hazards that negatively affect well-being in order of higher to lower for Halifax for early and mid century under a high emissions scenario.

Early century (2015-2045)	Mid century (2035-2065)
 Fluvial flooding	 Shifting ecoregions
 Shifting ecoregions	 Fluvial flooding
 Vector-borne diseases	 Vector-borne diseases
 Heat extremes for human health	 Wildfire

By mid century, the reduction in freeze-thaw cycles has the potential to contribute more to improved well-being for Halifax relative to the other two impacts in this category.

Halifax could take advantage of the longer growing season, but this will need to be balanced with other hazards. While benefits from winter tourism will decrease over time, summer tourism and recreation opportunities could increase.

Potential Adaptation Opportunities

The risk assessment offers some insights into opportunities to reduce risk and adapt to the changing climate by looking at how we can reduce exposure and sensitivity to climate hazards and improve the capacity to cope and adapt.

Halifax has been identified as one of the regions with a higher need to adapt to reduce risks and take advantage of opportunities. It is ranked in the top five census divisions for both impacts that can worsen well-being and impacts that could improve well-being. Halifax is the largest census division with the largest population in Nova Scotia and exposure to climate hazards influences risk. Adaptation efforts will be needed to ensure Halifax is well positioned to take advantage of any opportunities.

The following are the common adaptation approaches across census divisions.

- Further investigation based on specific climate hazards may yield insights into how to **reduce exposure**, such as for people, the natural environment, and infrastructure.
- Across all hazards, opportunities to enhance economic opportunities, improve financial security, and improvements to health could reduce **sensitivity**.
- Improvements to financial security and civic engagement and governance offer opportunities to improve **adaptive capacity**.

Every region in Nova Scotia has a unique mix of rural communities and regional centres with different populations, which offer strengths and vulnerabilities in relation to climate change. More information at the local level can help guide adaptation action, including for those who may be disproportionately impacted within communities. Regional collaboration is an equally important approach to address climate impacts and risks that are not confined within census division boundaries.

For More Information

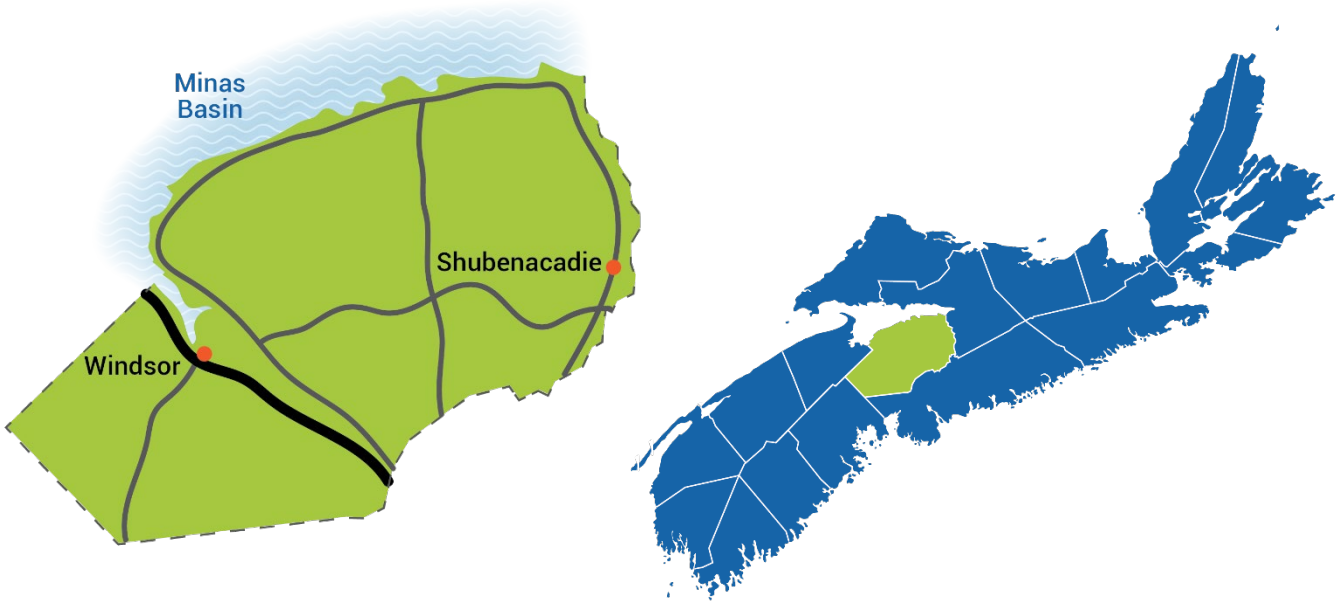
For more information on how the climate is changing, climate risks for Nova Scotia, and additional regional information, please see ***Weathering What's Ahead: Climate Change Risk and Nova Scotia's Well-being*** and the associated technical report at https://climatechange.novascotia.ca.

Hants Census Division: Climate Risk Summary

December 2022

Prepared by:
Nova Scotia Department of Environment and Climate Change
climatechange@novascotia.ca

Hants Census Division



Climate Change Projections

The evidence is clear – Nova Scotia's climate is changing. Analysis of local climate change projections and literature has identified how the province's climate is expected to change over the coming decades. The trends presented here are based on model runs for a high emissions scenario (RCP8.5) from the Intergovernmental Panel on Climate Change (IPCC)'s Fifth Assessment Report (AR5) from 2013, with the outputs from these global climate simulations statistically downscaled by the Pacific Climate Impacts Consortium (PCIC) to better account for local geography and climate patterns.

Temperatures are continuing to rise.

Average annual temperature is projected to increase 2.6ºC by mid-century and 4.5°C by the end of the century. More frequent extreme heat will make days and nights more uncomfortable, drought and wildfire more likely, and average winter temperatures may rise above freezing.

Precipitation patterns are changing.

Warmer temperatures will mean less snow and more rain, while rainfall events are also increasing in intensity. Total annual precipitation will likely increase, but more of that water will evaporate in warmer air or run off in more intense downpours. Risks of flooding and erosion are likely to increase.

Storms will be more frequent and more intense.

Warming oceans will enable tropical storms to track further north without losing strength, bringing higher peak wind speeds and more powerful storm surges. It will be more likely for larger storms to impact the province.

Sea levels are rising.

Projections for Nova Scotia indicate an increase of up to 1 metre in relative sea level by the end of the century. Higher sea levels have the potential to damage coastal communities and infrastructure, infiltrate freshwater supplies, and threaten sensitive coastal species and ecosystems. Storm surge and high tides will be more impactful with rising seas.

Ocean conditions are changing.

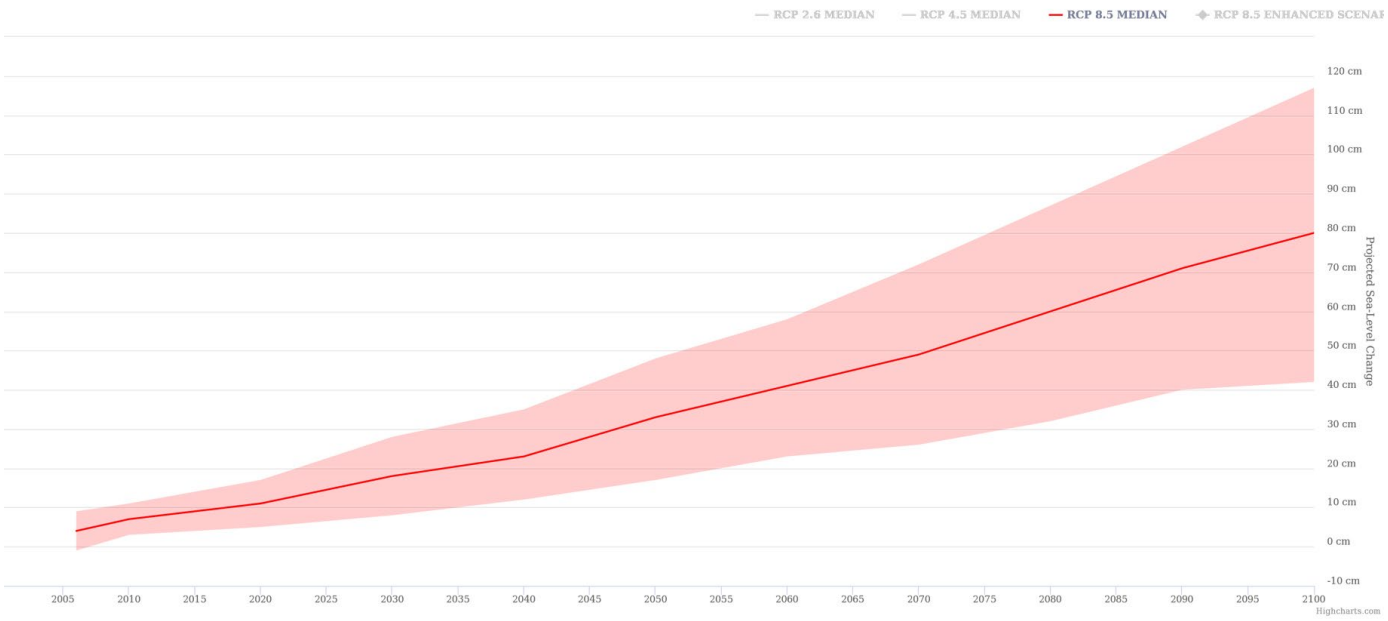
Sea surface and deep-water temperatures are increasing, ocean waters are becoming more acidic, dissolved oxygen levels are decreasing, and ocean currents could weaken due to the changing physics and chemistry of ocean waters. These changing conditions will likely make it harder for current ocean life and coastal ecosystems to thrive.

Climate Change Projections for Hants Census Division

Climate Index	Baseline (1981-2010)	Early century (2015-2045)	Mid century (2035-2065)	End century (2065-2095)
Annual hottest day	31.0°C	32.5°C	33.9°C	36.0°C
Days > 29°C	4.4 days	12.3 days	23.5 days	46.5 days
Nights > 18°C	2.2 nights	8.8 nights	18.9 nights	41.9 nights
Annual coldest day	-22.8°C	-20.6°C	-18.1°C	-14.2°C
Days < -15°C	17.9 days	9.8 days	4.5 days	0.7 days
Growing season length	204 days	217 days	232 days	254 days
Total precipitation	1267 mm	1327 mm	1357 mm	1408 mm
Days with snow	36.3 days	29.8 days	24.0 days	16.8 days
Intense rain days > 20	15.6 days	17.3 days	18.1 days	19.7 days

Median results for a high emissions scenario averaged over 30-year periods.

Sea Level Rise Projections for Hants Census Division



Relative sea level in this region is expected to rise approximately 80 cm by the year 2100.

Climate Risks for Hants Census Division

A provincial climate change risk assessment was completed in 2022 to explore what is at risk and the different effects of climate change on the well-being of Nova Scotians. A climate change risk assessment helps us to understand how the climate is changing. It also helps us to understand issues of concern and opportunities to act. Risks were explored across the province and for each census division, which align with the 18 counties in Nova Scotia. The assessment combines climate projections (AR5) with social, environmental, and economic information.

The background research and quantitative analysis identified:

- climate hazards of greatest relative concern
- priority regions, groups, and issues for further exploration, and
- opportunities.

Nineteen different climate hazards and opportunities were assessed. These climate impacts fall into four categories and offer the potential to improve or negatively affect the well-being of Nova Scotians.

Each climate impact was scored and ranked within each of these four impact categories for each census division and provincially. It is important to note that a lower ranking for a climate hazard or opportunity does not mean the impact is insignificant. The ranking indicates that the potential consequences for well-being are relatively higher or lower compared with other hazards or opportunities within that category.

Climate Risks for Hants (High Emissions Scenario)

As in all parts of Nova Scotia, the Hants census division is likely to experience all the climate impacts explored in the provincial climate change risk assessment to some extent during the next century. These hazards interact and change over time. **Taking an all-hazards approach to strengthening adaptive capacity and improving well-being will offer the most long-term benefit in the context of a changing climate.**

The following are the top five ranked climate hazards that negatively affect well-being in order of higher to lower for Hants for early and mid century under a high emissions scenario.

Early century (2015-2045)	Mid century (2035-2065)
 Heat extremes for agriculture	 Wildfire
 Fluvial flooding	 Heat extremes for agriculture
 Heat extremes for human health	 Heat extremes for human health
 Pluvial flooding	 Fluvial flooding

By the mid century, the reduction in heating demand for buildings has the potential to contribute more to improved well-being for Hants relative to the other two impacts in this category.

While benefits from winter tourism will decrease over time, conditions for favourable summer tourism and recreation may present additional opportunities. There may also be opportunities with the longer growing season, but will need to be balanced with other hazards, such as heat extremes for agriculture.

Potential Adaptation Opportunities

The risk assessment offers some insights into opportunities to reduce risk and adapt to the changing climate by looking at how we can reduce exposure and sensitivity to climate hazards and improve the capacity to cope and adapt. The following are the common adaptation approaches across census divisions.

- Further investigation based on specific climate hazards may yield insights into how to **reduce exposure**, such as for people, the natural environment, and infrastructure.
- Across all hazards, opportunities to enhance economic opportunities, improve financial security, and improvements to health could reduce **sensitivity**.
- Improvements to financial security and civic engagement and governance offer opportunities to improve **adaptive capacity**.

Every region in Nova Scotia has a unique mix of rural communities and regional centres with different populations, which offer strengths and vulnerabilities in relation to climate change. More information at the local level can help guide adaptation action, including for those who may be disproportionately impacted within communities. Regional collaboration is an equally important approach to address climate impacts and risks that are not confined within census division boundaries.

For More Information

For more information on how the climate is changing, climate risks for Nova Scotia, and additional regional information, please see ***Weathering What's Ahead: Climate Change Risk and Nova Scotia's Well-being*** and the associated technical report at https://climatechange.novascotia.ca.

Inverness Census Division: Climate Risk Summary

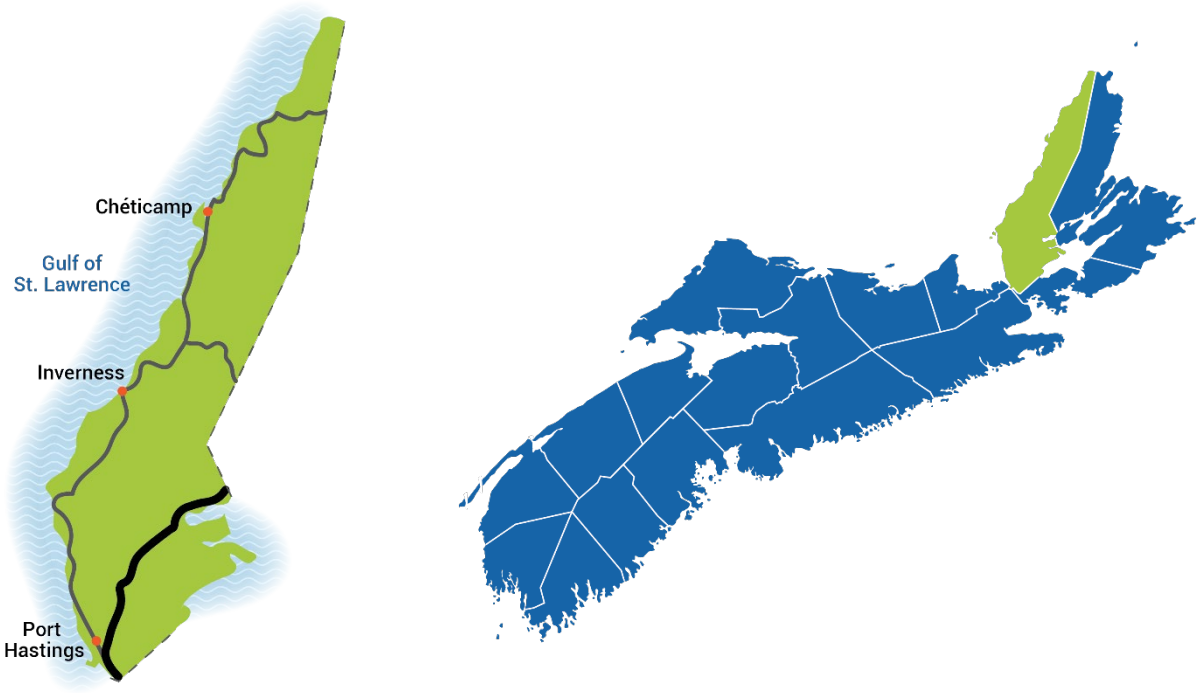
December 2022

Prepared by:

Nova Scotia Department of Environment and Climate Change

climatechange@novascotia.ca

Inverness Census Division



Climate Change Projections

The evidence is clear – Nova Scotia's climate is changing. Analysis of local climate change projections and literature has identified how the province's climate is expected to change over the coming decades. The trends presented here are based on model runs for a high emissions scenario (RCP8.5) from the Intergovernmental Panel on Climate Change (IPCC)'s Fifth Assessment Report (AR5) from 2013, with the outputs from these global climate simulations statistically downscaled by the Pacific Climate Impacts Consortium (PCIC) to better account for local geography and climate patterns.

Temperatures are continuing to rise.

Average annual temperature is projected to increase 2.6ºC by mid-century and 4.5°C by the end of the century. More frequent extreme heat will make days and nights more uncomfortable, drought and wildfire more likely, and average winter temperatures may rise above freezing.

Precipitation patterns are changing.

Warmer temperatures will mean less snow and more rain, while rainfall events are also increasing in intensity. Total annual precipitation will likely increase, but more of that water will evaporate in warmer air or run off in more intense downpours. Risks of flooding and erosion are likely to increase.

Storms will be more frequent and more intense.

Warming oceans will enable tropical storms to track further north without losing strength, bringing higher peak wind speeds and more powerful storm surges. It will be more likely for larger storms to impact the province.

Sea levels are rising.

Projections for Nova Scotia indicate an increase of up to 1 metre in relative sea level by the end of the century. Higher sea levels have the potential to damage coastal communities and infrastructure, infiltrate freshwater supplies, and threaten sensitive coastal species and ecosystems. Storm surge and high tides will be more impactful with rising seas.

Ocean conditions are changing.

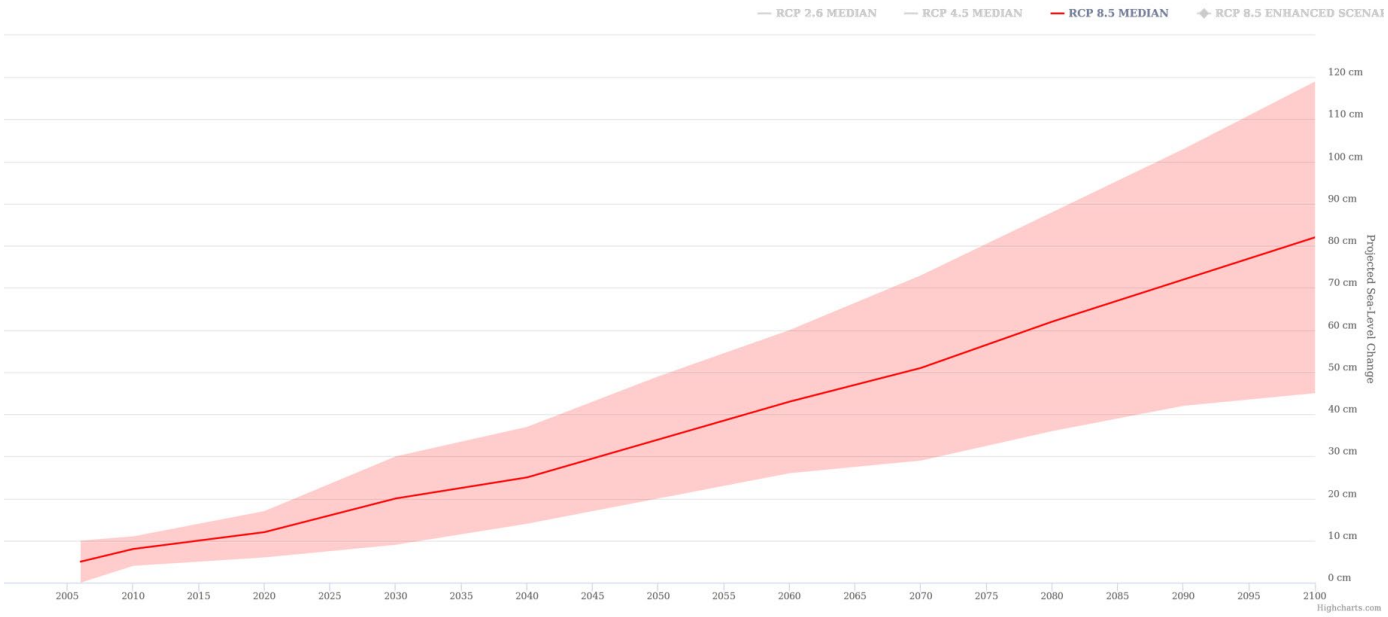
Sea surface and deep-water temperatures are increasing, ocean waters are becoming more acidic, dissolved oxygen levels are decreasing, and ocean currents could weaken due to the changing physics and chemistry of ocean waters. These changing conditions will likely make it harder for current ocean life and coastal ecosystems to thrive.

Climate Change Projections for Inverness Census Division

Climate Index	Baseline (1981-2010)	Early century (2015-2045)	Mid century (2035-2065)	End century (2065-2095)
Annual hottest day	29.2°C	30.6°C	31.9°C	33.9°C
Days > 29°C	0.9 days	3.4 days	8.7 days	24.7 days
Nights > 18°C	2.2 nights	7.4 nights	16.7 nights	38.9 nights
Annual coldest day	-21.5°C	-18.8°C	-16.4°C	-12.9°C
Days < -15°C	12.9 days	6.4 days	2.7 days	0.4 days
Growing season length	185 days	200 days	213 days	239 days
Total precipitation	1335 mm	1385 mm	1422 mm	1473 mm
Days with snow	55.0 days	45.6 days	36.9 days	25.3 days
Intense rain days > 20	12.6 days	14.2 days	15.3 days	17.1 days

Median results for a high emissions scenario averaged over 30-year periods.

Sea Level Rise Projections for Inverness Census Division



Relative sea level in this region is expected to rise approximately 80 cm by the year 2100.

Climate Risks for Inverness Census Division

A provincial climate change risk assessment was completed in 2022 to explore what is at risk and the different effects of climate change on the well-being of Nova Scotians. A climate change risk assessment helps us to understand how the climate is changing. It also helps us to understand issues of concern and opportunities to act. Risks were explored across the province and for each census division, which align with the 18 counties in Nova Scotia. The assessment combines climate projections (AR5) with social, environmental, and economic information.

The background research and quantitative analysis identified:

- climate hazards of greatest relative concern
- priority regions, groups, and issues for further exploration, and
- opportunities.

Nineteen different climate hazards and opportunities were assessed. These climate impacts fall into four categories and offer the potential to improve or negatively affect the well-being of Nova Scotians.

Each climate impact was scored and ranked within each of these four impact categories for each census division and provincially. It is important to note that a lower ranking for a climate hazard or opportunity does not mean the impact is insignificant. The ranking indicates that the potential consequences for well-being are relatively higher or lower compared with other hazards or opportunities within that category.

Climate Risks for Inverness (High Emissions Scenario)

As in all parts of Nova Scotia, the Inverness census division is likely to experience all the climate impacts explored in the provincial climate change risk assessment to some extent during the next century. These hazards interact and change over time. **Taking an all-hazards approach to strengthening adaptive capacity and improving well-being will offer the most long-term benefit in the context of a changing climate.**

The following are the top five ranked climate hazards that negatively affect well-being in order of higher to lower for Inverness for early and mid century under a high emissions scenario.

Early century (2015-2045)	Mid century (2035-2065)
 Shifting ecoregions	 Shifting ecoregions
 Agricultural pests and diseases	 Agricultural pests and diseases
 Wildfire	 Vector-borne diseases
 Pluvial flooding	 Heat extremes for ecosystems

By the mid century, the reduction in freeze thaw cycles has the potential to contribute more to improved well-being for Inverness relative to the other two impacts in this category.

While benefits from winter tourism will decrease over time, conditions for favourable summer tourism and recreation may present additional opportunities.

Potential Adaptation Opportunities

The risk assessment offers some insights into opportunities to reduce risk and adapt to the changing climate by looking at how we can reduce exposure and sensitivity to climate hazards and improve the capacity to cope and adapt. The following are the common adaptation approaches across census divisions.

- Further investigation based on specific climate hazards may yield insights into how to **reduce exposure**, such as for people, the natural environment, and infrastructure.
- Across all hazards, opportunities to enhance economic opportunities, improve financial security, and improvements to health could reduce **sensitivity**.
- Improvements to financial security and civic engagement and governance offer opportunities to improve **adaptive capacity**.

Every region in Nova Scotia has a unique mix of rural communities and regional centres with different populations, which offer strengths and vulnerabilities in relation to climate change. More information at the local level can help guide adaptation action, including for those who may be disproportionately impacted within communities. Regional collaboration is an equally important approach to address climate impacts and risks that are not confined within census division boundaries.

For More Information

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Kings Census Division: Climate Risk Summary

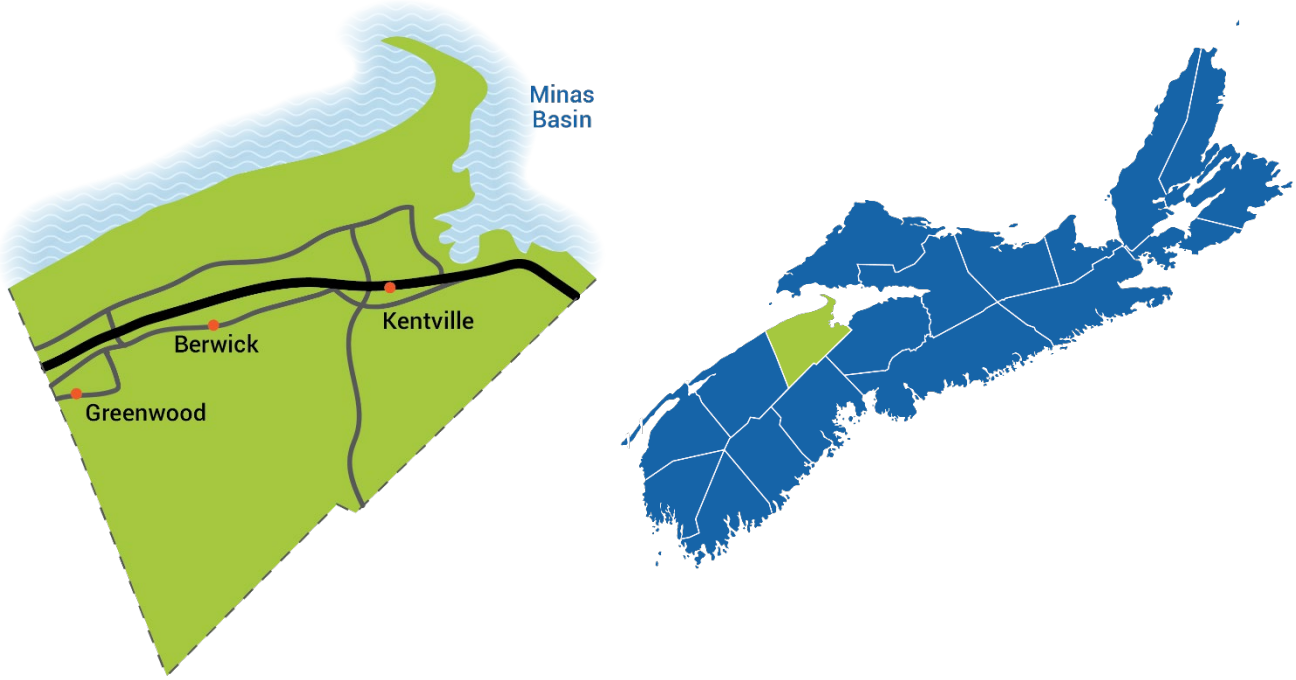
December 2022

Prepared by:

Nova Scotia Department of Environment and Climate Change

climatechange@novascotia.ca

Kings Census Division



Climate Change Projections

The evidence is clear – Nova Scotia's climate is changing. Analysis of local climate change projections and literature has identified how the province's climate is expected to change over the coming decades. The trends presented here are based on model runs for a high emissions scenario (RCP8.5) from the Intergovernmental Panel on Climate Change (IPCC)'s Fifth Assessment Report (AR5) from 2013, with the outputs from these global climate simulations statistically downscaled by the Pacific Climate Impacts Consortium (PCIC) to better account for local geography and climate patterns.

Temperatures are continuing to rise.

Average annual temperature is projected to increase 2.6ºC by mid-century and 4.5°C by the end of the century. More frequent extreme heat will make days and nights more uncomfortable, drought and wildfire more likely, and average winter temperatures may rise above freezing.

Precipitation patterns are changing.

Warmer temperatures will mean less snow and more rain, while rainfall events are also increasing in intensity. Total annual precipitation will likely increase, but more of that water will evaporate in warmer air or run off in more intense downpours. Risks of flooding and erosion are likely to increase.

Storms will be more frequent and more intense.

Warming oceans will enable tropical storms to track further north without losing strength, bringing higher peak wind speeds and more powerful storm surges. It will be more likely for larger storms to impact the province.

Sea levels are rising.

Projections for Nova Scotia indicate an increase of up to 1 metre in relative sea level by the end of the century. Higher sea levels have the potential to damage coastal communities and infrastructure, infiltrate freshwater supplies, and threaten sensitive coastal species and ecosystems. Storm surge and high tides will be more impactful with rising seas.

Ocean conditions are changing.

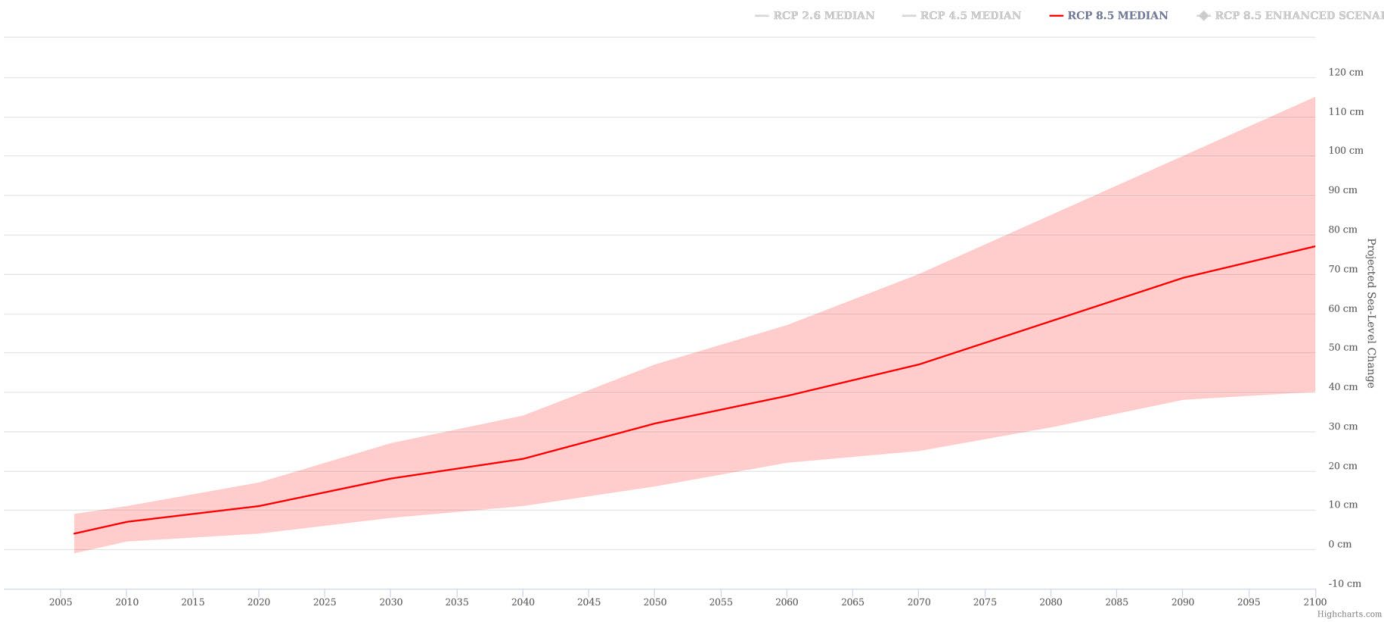
Sea surface and deep-water temperatures are increasing, ocean waters are becoming more acidic, dissolved oxygen levels are decreasing, and ocean currents could weaken due to the changing physics and chemistry of ocean waters. These changing conditions will likely make it harder for current ocean life and coastal ecosystems to thrive.

Climate Change Projections for Kings Census Division

Climate Index	Baseline (1981-2010)	Early century (2015-2045)	Mid century (2035-2065)	End century (2065-2095)
Annual hottest day	31.3°C	32.8°C	34.2°C	36.5°C
Days > 29°C	5.3 days	14.2 days	25.5 days	48.7 days
Nights > 18°C	3.3 nights	9.9 nights	20.0 nights	42.4 nights
Annual coldest day	-22.0°C	-19.7°C	-17.1°C	-13.1°C
Days < -15°C	16.0 days	7.9 days	3.1 days	0.2 days
Growing season length	203 days	217 days	230 days	252 days
Total precipitation	1227 mm	1283 mm	1313 mm	1363 mm
Days with snow	38.6 days	31.9 days	25.6 days	17.6 days
Intense rain days > 20	14.5 days	16.1 days	16.9 days	18.6 days

Median results for a high emissions scenario averaged over 30-year periods.

Sea Level Rise Projections for Kings Census Division



Relative sea level in this region is expected to rise approximately 75 cm by the year 2100.

Climate Risks for Kings Census Division

A provincial climate change risk assessment was completed in 2022 to explore what is at risk and the different effects of climate change on the well-being of Nova Scotians. A climate change risk assessment helps us to understand how the climate is changing. It also helps us to understand issues of concern and opportunities to act. Risks were explored across the province and for each census division, which align with the 18 counties in Nova Scotia. The assessment combines climate projections (AR5) with social, environmental, and economic information.

The background research and quantitative analysis identified:

- climate hazards of greatest relative concern
- priority regions, groups, and issues for further exploration, and
- opportunities.

Nineteen different climate hazards and opportunities were assessed. These climate impacts fall into four categories and offer the potential to improve or negatively affect the well-being of Nova Scotians.

Each climate impact was scored and ranked within each of these four impact categories for each census division and provincially. It is important to note that a lower ranking for a climate hazard or opportunity does not mean the impact is insignificant. The ranking indicates that the potential consequences for well-being are relatively higher or lower compared with other hazards or opportunities within that category.

Climate Risks for Kings (High Emissions Scenario)

As in all parts of Nova Scotia, the Kings census division is likely to experience all the climate impacts explored in the provincial climate change risk assessment to some extent during the next century. These hazards interact and change over time. **Taking an all-hazards approach to strengthening adaptive capacity and improving well-being will offer the most long-term benefit in the context of a changing climate.**

The following are the top five ranked climate hazards that negatively affect well-being in order of higher to lower for Kings for early and mid century under a high emissions scenario.

Early century (2015-2045)	Mid century (2035-2065)
 Heat extremes for agriculture	 Heat extremes for agriculture
 Sea level rise and coastal flooding	 Wildfire
 Pluvial flooding	 Sea level rise and coastal flooding
 Heat extremes for human health	 Heat extremes for human health

By the mid century, the reduction in freeze thaw cycles has the potential to contribute more to improved well-being for Kings relative to the other two impacts in this category.

The longer growing season could benefit agricultural activity and the natural environment but will need to be balanced with heat extremes for agriculture. Similarly, winter tourism and recreation opportunities will decline, while summer tourism and recreation opportunities will increase.

Potential Adaptation Opportunities

The risk assessment offers some insights into opportunities to reduce risk and adapt to the changing climate by looking at how we can reduce exposure and sensitivity to climate hazards and improve the capacity to cope and adapt. The following are the common adaptation approaches across census divisions.

- Further investigation based on specific climate hazards may yield insights into how to **reduce exposure**, such as for people, the natural environment, and infrastructure.
- Across all hazards, opportunities to enhance economic opportunities, improve financial security, and improvements to health could reduce **sensitivity**.
- Improvements to financial security and civic engagement and governance offer opportunities to improve **adaptive capacity**.

Every region in Nova Scotia has a unique mix of rural communities and regional centres with different populations, which offer strengths and vulnerabilities in relation to climate change. More information at the local level can help guide adaptation action, including for those who may be disproportionately impacted within communities. Regional collaboration is an equally important approach to address climate impacts and risks that are not confined within census division boundaries.

For More Information

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Lunenburg Census Division: Climate Risk Summary

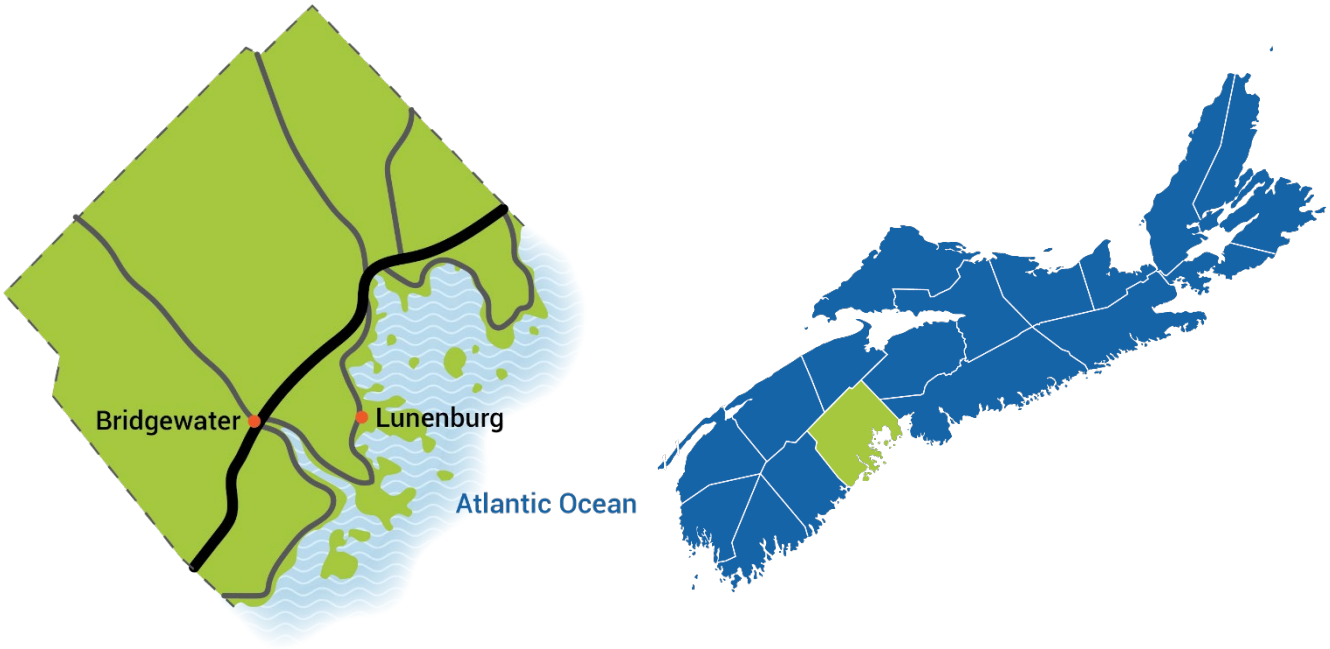
December 2022

Prepared by:

Nova Scotia Department of Environment and Climate Change

climatechange@novascotia.ca

Lunenburg Census Division



Climate Change Projections

The evidence is clear – Nova Scotia's climate is changing. Analysis of local climate change projections and literature has identified how the province's climate is expected to change over the coming decades. The trends presented here are based on model runs for a high emissions scenario (RCP8.5) from the Intergovernmental Panel on Climate Change (IPCC)'s Fifth Assessment Report (AR5) from 2013, with the outputs from these global climate simulations statistically downscaled by the Pacific Climate Impacts Consortium (PCIC) to better account for local geography and climate patterns.

Temperatures are continuing to rise.

Average annual temperature is projected to increase 2.6ºC by mid-century and 4.5°C by the end of the century. More frequent extreme heat will make days and nights more uncomfortable, drought and wildfire more likely, and average winter temperatures may rise above freezing.

Precipitation patterns are changing.

Warmer temperatures will mean less snow and more rain, while rainfall events are also increasing in intensity. Total annual precipitation will likely increase, but more of that water will evaporate in warmer air or run off in more intense downpours. Risks of flooding and erosion are likely to increase.

Storms will be more frequent and more intense.

Warming oceans will enable tropical storms to track further north without losing strength, bringing higher peak wind speeds and more powerful storm surges. It will be more likely for larger storms to impact the province.

Sea levels are rising.

Projections for Nova Scotia indicate an increase of up to 1 metre in relative sea level by the end of the century. Higher sea levels have the potential to damage coastal communities and infrastructure, infiltrate freshwater supplies, and threaten sensitive coastal species and ecosystems. Storm surge and high tides will be more impactful with rising seas.

Ocean conditions are changing.

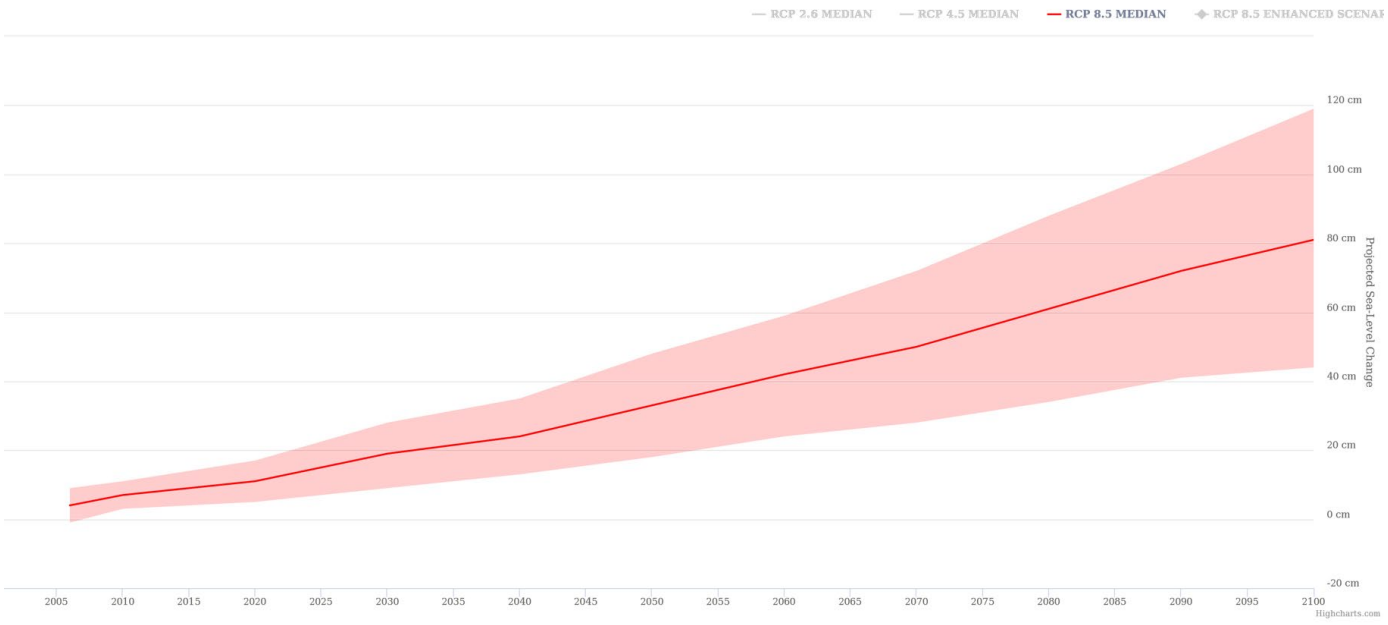
Sea surface and deep-water temperatures are increasing, ocean waters are becoming more acidic, dissolved oxygen levels are decreasing, and ocean currents could weaken due to the changing physics and chemistry of ocean waters. These changing conditions will likely make it harder for current ocean life and coastal ecosystems to thrive.

Climate Change Projections for Lunenburg Census Division

Climate Index	Baseline (1981-2010)	Early century (2015-2045)	Mid century (2035-2065)	End century (2065-2095)
Annual hottest day	31.4°C	32.7°C	34.1°C	36.0°C
Days > 29°C	4.6 days	12.0 days	22.3 days	44.1 days
Nights > 18°C	2.3 nights	8.5 nights	18.3 nights	40.2 nights
Annual coldest day	-21.9°C	-20.0°C	-17.5°C	-13.8°C
Days < -15°C	14.8 days	8.0 days	3.5 days	0.4 days
Growing season length	207 days	220 days	235 days	260 days
Total precipitation	1382 mm	1441 mm	1477 mm	1533 mm
Days with snow	34.1 days	27.7 days	21.9 days	15.2 days
Intense rain days > 20	19.0 days	20.8 days	21.5 days	23.3 days

Median results for a high emissions scenario averaged over 30-year periods.

Sea Level Rise Projections for Lunenburg Census Division



Relative sea level in this region is expected to rise approximately 80 cm by the year 2100.

Climate Risks for Lunenburg Census Division

A provincial climate change risk assessment was completed in 2022 to explore what is at risk and the different effects of climate change on the well-being of Nova Scotians. A climate change risk assessment helps us to understand how the climate is changing. It also helps us to understand issues of concern and opportunities to act. Risks were explored across the province and for each census division, which align with the 18 counties in Nova Scotia. The assessment combines climate projections (AR5) with social, environmental, and economic information.

The background research and quantitative analysis identified:

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- priority regions, groups, and issues for further exploration, and
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Nineteen different climate hazards and opportunities were assessed. These climate impacts fall into four categories and offer the potential to improve or negatively affect the well-being of Nova Scotians.

Each climate impact was scored and ranked within each of these four impact categories for each census division and provincially. It is important to note that a lower ranking for a climate hazard or opportunity does not mean the impact is insignificant. The ranking indicates that the potential consequences for well-being are relatively higher or lower compared with other hazards or opportunities within that category.

Climate Risks for Lunenburg (High Emissions Scenario)

As in all parts of Nova Scotia, the Lunenburg census division is likely to experience all the climate impacts explored in the provincial climate change risk assessment to some extent during the next century. These hazards interact and change over time. **Taking an all-hazards approach to strengthening adaptive capacity and improving well-being will offer the most long-term benefit in the context of a changing climate.**

The following are the top five ranked climate hazards that negatively affect well-being in order of higher to lower for Lunenburg for early and mid century under a high emissions scenario.

Early century (2015-2045)	Mid century (2035-2065)
 Fluvial flooding	 Wildfire
 Pluvial flooding	 Fluvial flooding
 Vector-borne diseases	 Pluvial flooding
 Heat extremes for agriculture	 Heat extremes for agriculture

By the mid century, the reduction in heating demand for buildings has the potential to contribute more to improved well-being for Lunenburg relative to the other two impacts in this category.

The longer growing season could benefit agricultural activity and the natural environment but will need to be balanced with heat extremes for agriculture. Similarly, winter tourism and recreation opportunities will decline, while summer tourism and recreation opportunities will increase.

Potential Adaptation Opportunities

The risk assessment offers some insights into opportunities to reduce risk and adapt to the changing climate by looking at how we can reduce exposure and sensitivity to climate hazards and improve the capacity to cope and adapt. The following are the common adaptation approaches across census divisions.

- Further investigation based on specific climate hazards may yield insights into how to **reduce exposure**, such as for people, the natural environment, and infrastructure.
- Across all hazards, opportunities to enhance economic opportunities, improve financial security, and improvements to health could reduce **sensitivity**.
- Improvements to financial security and civic engagement and governance offer opportunities to improve **adaptive capacity**.

Every region in Nova Scotia has a unique mix of rural communities and regional centres with different populations, which offer strengths and vulnerabilities in relation to climate change. More information at the local level can help guide adaptation action, including for those who may be disproportionately impacted within communities. Regional collaboration is an equally important approach to address climate impacts and risks that are not confined within census division boundaries.

For More Information

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Pictou Census Division: Climate Risk Summary

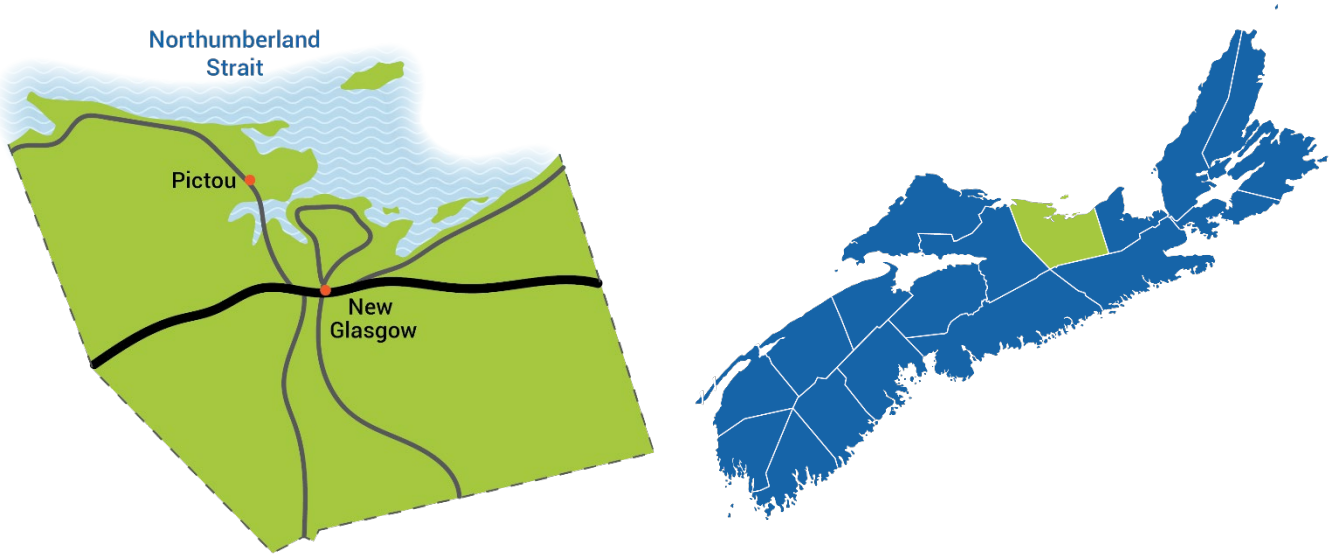
December 2022

Prepared by:

Nova Scotia Department of Environment and Climate Change

climatechange@novascotia.ca

Pictou Census Division



Climate Change Projections

The evidence is clear – Nova Scotia's climate is changing. Analysis of local climate change projections and literature has identified how the province's climate is expected to change over the coming decades. The trends presented here are based on model runs for a high emissions scenario (RCP8.5) from the Intergovernmental Panel on Climate Change (IPCC)'s Fifth Assessment Report (AR5) from 2013, with the outputs from these global climate simulations statistically downscaled by the Pacific Climate Impacts Consortium (PCIC) to better account for local geography and climate patterns.

Temperatures are continuing to rise.

Average annual temperature is projected to increase 2.6ºC by mid-century and 4.5°C by the end of the century. More frequent extreme heat will make days and nights more uncomfortable, drought and wildfire more likely, and average winter temperatures may rise above freezing.

Precipitation patterns are changing.

Warmer temperatures will mean less snow and more rain, while rainfall events are also increasing in intensity. Total annual precipitation will likely increase, but more of that water will evaporate in warmer air or run off in more intense downpours. Risks of flooding and erosion are likely to increase.

Storms will be more frequent and more intense.

Warming oceans will enable tropical storms to track further north without losing strength, bringing higher peak wind speeds and more powerful storm surges. It will be more likely for larger storms to impact the province.

Sea levels are rising.

Projections for Nova Scotia indicate an increase of up to 1 metre in relative sea level by the end of the century. Higher sea levels have the potential to damage coastal communities and infrastructure, infiltrate freshwater supplies, and threaten sensitive coastal species and ecosystems. Storm surge and high tides will be more impactful with rising seas.

Ocean conditions are changing.

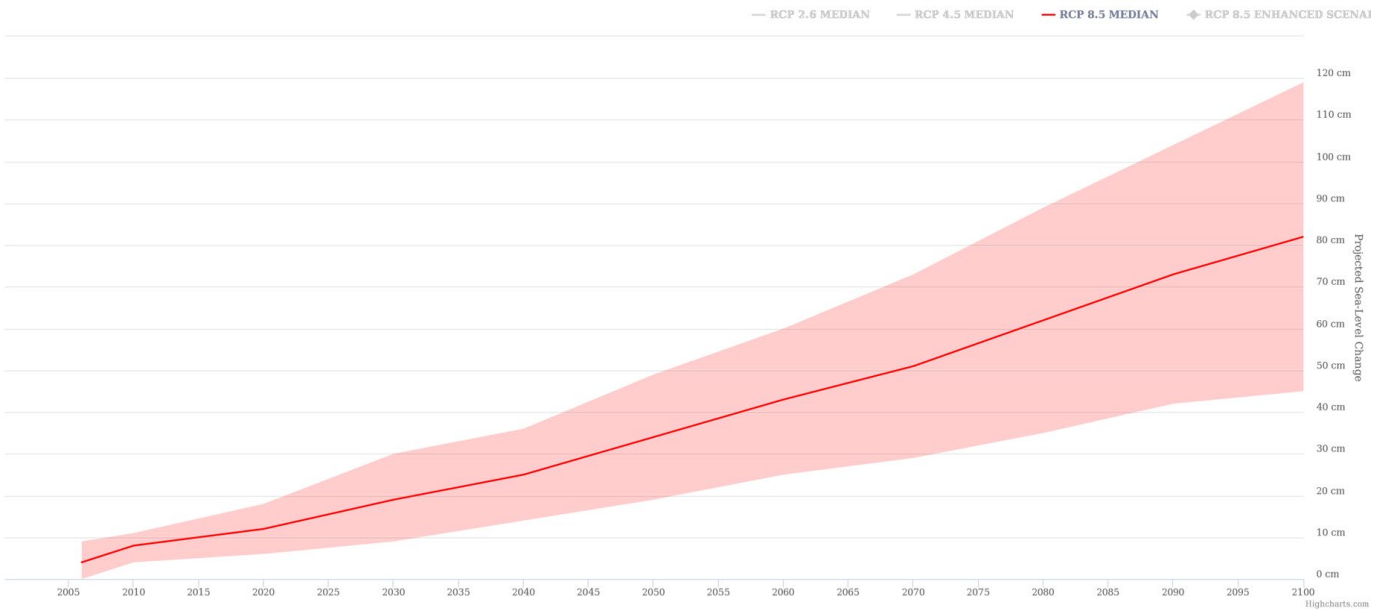
Sea surface and deep-water temperatures are increasing, ocean waters are becoming more acidic, dissolved oxygen levels are decreasing, and ocean currents could weaken due to the changing physics and chemistry of ocean waters. These changing conditions will likely make it harder for current ocean life and coastal ecosystems to thrive.

Climate Change Projections for Pictou Census Division

Climate Index	Baseline (1981-2010)	Early century (2015-2045)	Mid century (2035-2065)	End century (2065-2095)
Annual hottest day	31.1°C	32.5°C	33.9°C	36.1°C
Days > 29°C	4.5 days	11.3 days	21.4 days	42.3 days
Nights > 18°C	3.5 nights	10.4 nights	20.5 nights	42.8 nights
Annual coldest day	-24.7°C	-22.2°C	-19.7°C	-15.8°C
Days < -15°C	22.9 days	14.1 days	7.2 days	1.8 days
Growing season length	194 days	209 days	222 days	245 days
Total precipitation	1215 mm	1267 mm	1299 mm	1346 mm
Days with snow	41.7 days	34.7 days	28.5 days	20.6 days
Intense rain days > 20	12.8 days	14.4 days	15.2 days	16.8 days

Median results for a high emissions scenario averaged over 30-year periods.

Sea Level Rise Projections for Pictou Census Division



Relative sea level in this region is expected to rise approximately 80 cm by the year 2100.

Climate Risks for Pictou Census Division

A provincial climate change risk assessment was completed in 2022 to explore what is at risk and the different effects of climate change on the well-being of Nova Scotians. A climate change risk assessment helps us to understand how the climate is changing. It also helps us to understand issues of concern and opportunities to act. Risks were explored across the province and for each census division, which align with the 18 counties in Nova Scotia. The assessment combines climate projections (AR5) with social, environmental, and economic information.

The background research and quantitative analysis identified:

- climate hazards of greatest relative concern
- priority regions, groups, and issues for further exploration, and
- opportunities.

Nineteen different climate hazards and opportunities were assessed. These climate impacts fall into four categories and offer the potential to improve or negatively affect the well-being of Nova Scotians.

Each climate impact was scored and ranked within each of these four impact categories for each census division and provincially. It is important to note that a lower ranking for a climate hazard or opportunity does not mean the impact is insignificant. The ranking indicates that the potential consequences for well-being are relatively higher or lower compared with other hazards or opportunities within that category.

Climate Risks for Pictou (High Emissions Scenario)

As in all parts of Nova Scotia, the Pictou census division is likely to experience all the climate impacts explored in the provincial climate change risk assessment to some extent during the next century. These hazards interact and change over time. **Taking an all-hazards approach to strengthening adaptive capacity and improving well-being will offer the most long-term benefit in the context of a changing climate.**

The following are the top five ranked climate hazards that negatively affect well-being in order of higher to lower for Pictou for early and mid century under a high emissions scenario.

Early century (2015-2045)	Mid century (2035-2065)
 Cooling demand for buildings	 Cooling demand for buildings
 Heat extremes for human health	 Heat extremes for human health
 Pluvial flooding	 Heat extremes for transportation
 Heat extremes for transport infrastructure	 Sea level rise and coastal flooding

By mid century, the reduction in freeze-thaw cycles has the potential to contribute more to improved well-being for Pictou relative to the other two impacts in this category.

Pictou could take advantage of the longer growing season for agriculture and ecosystems. While benefits from winter tourism will decrease over time, summer tourism and recreation opportunities could increase.

Potential Adaptation Opportunities

The risk assessment offers some insights into opportunities to reduce risk and adapt to the changing climate by looking at how we can reduce exposure and sensitivity to climate hazards and improve the capacity to cope and adapt.

Pictou has been identified as one of the regions with a higher need to adapt to reduce risks and take advantage of opportunities. Relatively high vulnerability, along with moderate exposure and projected extent of climatic changes are influencing risk in Pictou for hazards that could worsen well-being. There is also a need for adaptation efforts in Pictou to be well positioned to take advantage of any opportunities.

The following are the common adaptation approaches across census divisions.

- Further investigation based on specific climate hazards may yield insights into how to **reduce exposure**, such as for people, the natural environment, and infrastructure.
- Across all hazards, opportunities to enhance economic opportunities, improve financial security, and improvements to health could reduce **sensitivity**.
- Improvements to financial security and civic engagement and governance offer opportunities to improve **adaptive capacity**.

Every region in Nova Scotia has a unique mix of rural communities and regional centres with different populations, which offer strengths and vulnerabilities in relation to climate change. More information at the local level can help guide adaptation action, including for those who may be disproportionately impacted within communities. Regional collaboration is an equally important approach to address climate impacts and risks that are not confined within census division boundaries.

For More Information

For more information on how the climate is changing, climate risks for Nova Scotia, and additional regional information, please see ***Weathering What's Ahead: Climate Change Risk and Nova Scotia's Well-being*** and the associated technical report at https://climatechange.novascotia.ca.

Queens Census Division: Climate Risk Summary

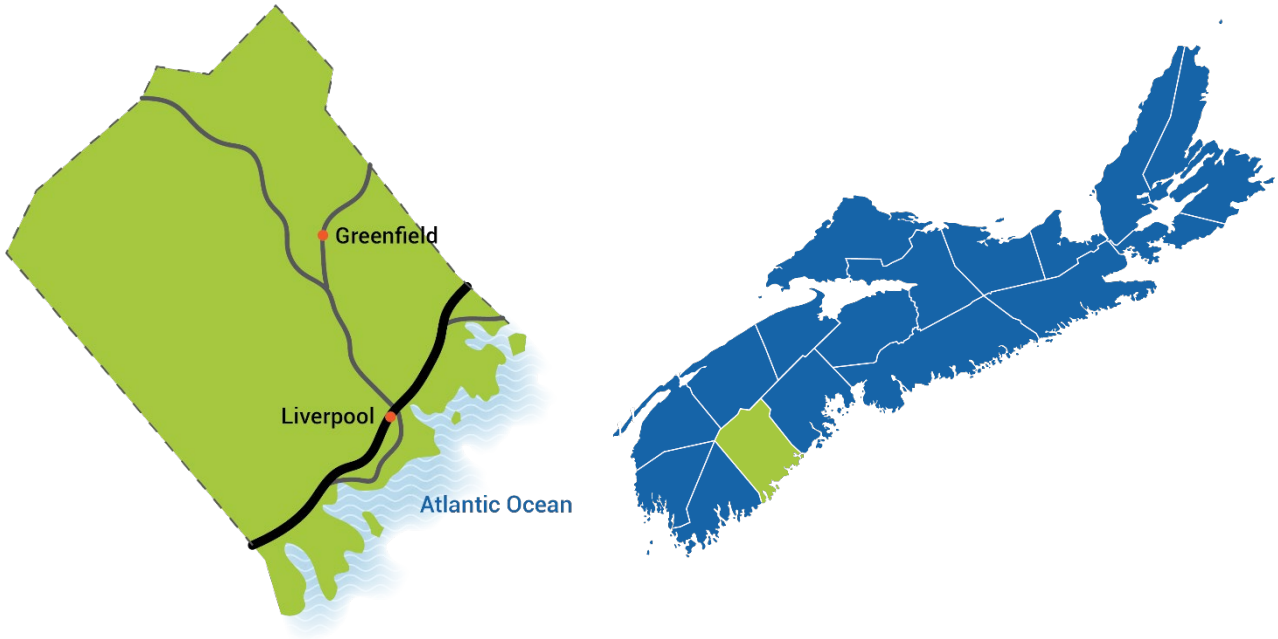
December 2022

Prepared by:

Nova Scotia Department of Environment and Climate Change

climatechange@novascotia.ca

Queens Census Division



Climate Change Projections

The evidence is clear – Nova Scotia's climate is changing. Analysis of local climate change projections and literature has identified how the province's climate is expected to change over the coming decades. The trends presented here are based on model runs for a high emissions scenario (RCP8.5) from the Intergovernmental Panel on Climate Change (IPCC)'s Fifth Assessment Report (AR5) from 2013, with the outputs from these global climate simulations statistically downscaled by the Pacific Climate Impacts Consortium (PCIC) to better account for local geography and climate patterns.

Temperatures are continuing to rise.

Average annual temperature is projected to increase 2.6ºC by mid-century and 4.5°C by the end of the century. More frequent extreme heat will make days and nights more uncomfortable, drought and wildfire more likely, and average winter temperatures may rise above freezing.

Precipitation patterns are changing.

Warmer temperatures will mean less snow and more rain, while rainfall events are also increasing in intensity. Total annual precipitation will likely increase, but more of that water will evaporate in warmer air or run off in more intense downpours. Risks of flooding and erosion are likely to increase.

Storms will be more frequent and more intense.

Warming oceans will enable tropical storms to track further north without losing strength, bringing higher peak wind speeds and more powerful storm surges. It will be more likely for larger storms to impact the province.

Sea levels are rising.

Projections for Nova Scotia indicate an increase of up to 1 metre in relative sea level by the end of the century. Higher sea levels have the potential to damage coastal communities and infrastructure, infiltrate freshwater supplies, and threaten sensitive coastal species and ecosystems. Storm surge and high tides will be more impactful with rising seas.

Ocean conditions are changing.

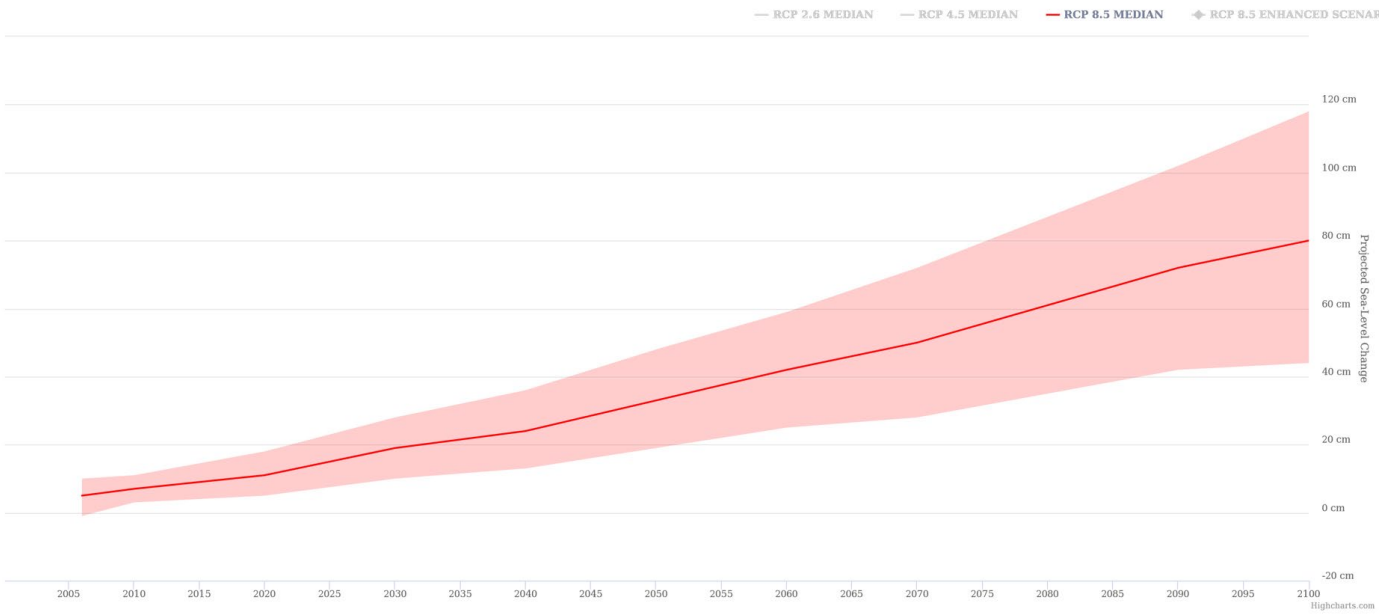
Sea surface and deep-water temperatures are increasing, ocean waters are becoming more acidic, dissolved oxygen levels are decreasing, and ocean currents could weaken due to the changing physics and chemistry of ocean waters. These changing conditions will likely make it harder for current ocean life and coastal ecosystems to thrive.

Climate Change Projections for Queens Census Division

Climate Index	Baseline (1981-2010)	Early century (2015-2045)	Mid century (2035-2065)	End century (2065-2095)
Annual hottest day	30.7°C	31.9°C	33.2°C	35.0°C
Days > 29°C	3.2 days	9.0 days	17.5 days	37.3 days
Nights > 18°C	1.6 nights	6.6 nights	15.6 nights	37.8 nights
Annual coldest day	-21.3°C	-19.6°C	-17.3°C	-13.8°C
Days < -15°C	11.7 days	6.3 days	2.7 days	0.3 days
Growing season length	211 days	226 days	242 days	269 days
Total precipitation	1412 mm	1468 mm	1503 mm	1562 mm
Days with snow	31.2 days	24.8 days	19.3 days	12.8 days
Intense rain days > 20	19.9 days	21.4 days	22.2 days	23.8 days

Median results for a high emissions scenario averaged over 30-year periods.

Sea Level Rise Projections for Queens Census Division



Relative sea level in this region is expected to rise approximately 80 cm by the year 2100.

Climate Risks for Queens Census Division

A provincial climate change risk assessment was completed in 2022 to explore what is at risk and the different effects of climate change on the well-being of Nova Scotians. A climate change risk assessment helps us to understand how the climate is changing. It also helps us to understand issues of concern and opportunities to act. Risks were explored across the province and for each census division, which align with the 18 counties in Nova Scotia. The assessment combines climate projections (AR5) with social, environmental, and economic information.

The background research and quantitative analysis identified:

- climate hazards of greatest relative concern
- priority regions, groups, and issues for further exploration, and
- opportunities.

Nineteen different climate hazards and opportunities were assessed. These climate impacts fall into four categories and offer the potential to improve or negatively affect the well-being of Nova Scotians.

Each climate impact was scored and ranked within each of these four impact categories for each census division and provincially. It is important to note that a lower ranking for a climate hazard or opportunity does not mean the impact is insignificant. The ranking indicates that the potential consequences for well-being are relatively higher or lower compared with other hazards or opportunities within that category.

Climate Risks for Queens (High Emissions Scenario)

As in all parts of Nova Scotia, the Queens census division is likely to experience all the climate impacts explored in the provincial climate change risk assessment to some extent during the next century. These hazards interact and change over time. **Taking an all-hazards approach to strengthening adaptive capacity and improving well-being will offer the most long-term benefit in the context of a changing climate.**

The following are the top five ranked climate hazards that negatively affect well-being in order of higher to lower for Queens for early and mid century under a high emissions scenario.

Early century (2015-2045)	Mid century (2035-2065)
 Heat extremes for ecosystems	 Heat extremes for ecosystems
 Shifting ecoregions	 Agricultural pests and diseases
 Agricultural pests and diseases	 Fluvial flooding
 Fluvial flooding	 Shifting ecoregions

By the mid century, the reduction in heating demand for buildings has the potential to contribute more to improved well-being for Queens relative to the other two impacts in this category.

The longer growing season could benefit agricultural activity and the natural environment but will need to be balanced with agricultural pests and diseases. Similarly, winter tourism and recreation opportunities will decline, while summer tourism and recreation opportunities will increase.

Potential Adaptation Opportunities

The risk assessment offers some insights into opportunities to reduce risk and adapt to the changing climate by looking at how we can reduce exposure and sensitivity to climate hazards and improve the capacity to cope and adapt.

The following are the common adaptation approaches across census divisions.

- Further investigation based on specific climate hazards may yield insights into how to **reduce exposure**, such as for people, the natural environment, and infrastructure.
- Across all hazards, opportunities to enhance economic opportunities, improve financial security, and improvements to health could reduce **sensitivity**.
- Improvements to financial security and civic engagement and governance offer opportunities to improve **adaptive capacity**.

Every region in Nova Scotia has a unique mix of rural communities and regional centres with different populations, which offer strengths and vulnerabilities in relation to climate change. More information at the local level can help guide adaptation action, including for those who may be disproportionately impacted within communities. Regional collaboration is an equally important approach to address climate impacts and risks that are not confined within census division boundaries.

For More Information

For more information on how the climate is changing, climate risks for Nova Scotia, and additional regional information, please see ***Weathering What's Ahead: Climate Change Risk and Nova Scotia's Well-being*** and the associated technical report at https://climatechange.novascotia.ca.

Richmond Census Division: Climate Risk Summary

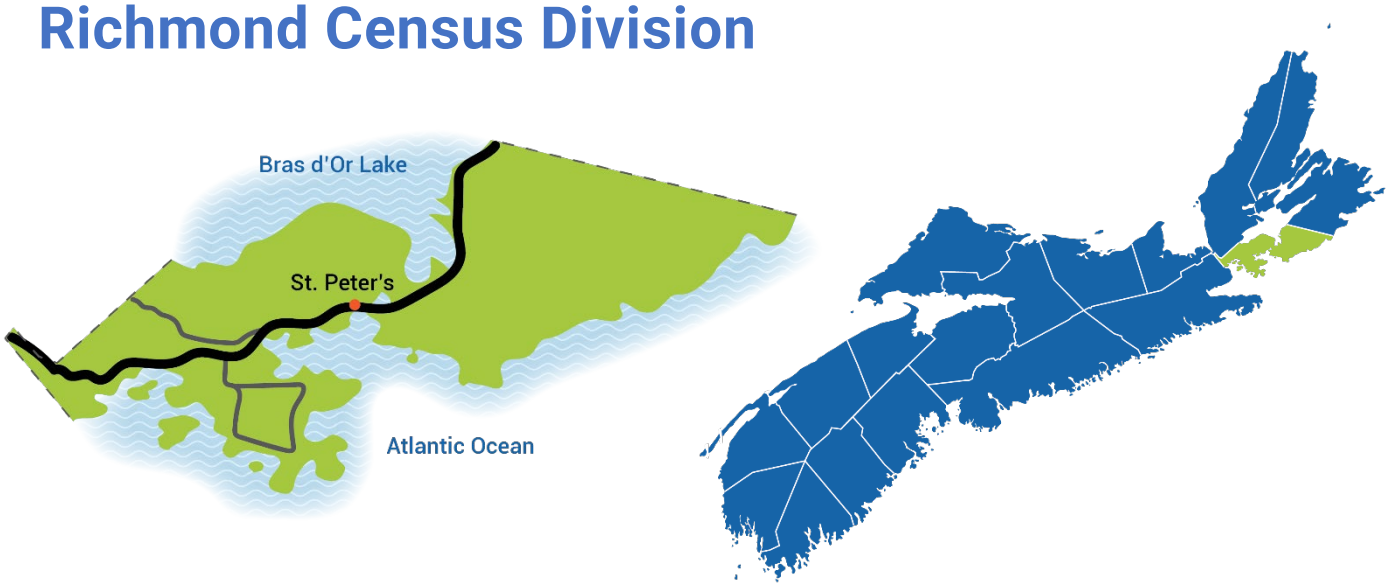
December 2022

Prepared by:

Nova Scotia Department of Environment and Climate Change

climatechange@novascotia.ca

Richmond Census Division



Climate Change Projections

The evidence is clear – Nova Scotia's climate is changing. Analysis of local climate change projections and literature has identified how the province's climate is expected to change over the coming decades. The trends presented here are based on model runs for a high emissions scenario (RCP8.5) from the Intergovernmental Panel on Climate Change (IPCC)'s Fifth Assessment Report (AR5) from 2013, with the outputs from these global climate simulations statistically downscaled by the Pacific Climate Impacts Consortium (PCIC) to better account for local geography and climate patterns.

Temperatures are continuing to rise.

Average annual temperature is projected to increase 2.6ºC by mid-century and 4.5°C by the end of the century. More frequent extreme heat will make days and nights more uncomfortable, drought and wildfire more likely, and average winter temperatures may rise above freezing.

Precipitation patterns are changing.

Warmer temperatures will mean less snow and more rain, while rainfall events are also increasing in intensity. Total annual precipitation will likely increase, but more of that water will evaporate in warmer air or run off in more intense downpours. Risks of flooding and erosion are likely to increase.

Storms will be more frequent and more intense.

Warming oceans will enable tropical storms to track further north without losing strength, bringing higher peak wind speeds and more powerful storm surges. It will be more likely for larger storms to impact the province.

Sea levels are rising.

Projections for Nova Scotia indicate an increase of up to 1 metre in relative sea level by the end of the century. Higher sea levels have the potential to damage coastal communities and infrastructure, infiltrate freshwater supplies, and threaten sensitive coastal species and ecosystems. Storm surge and high tides will be more impactful with rising seas.

Ocean conditions are changing.

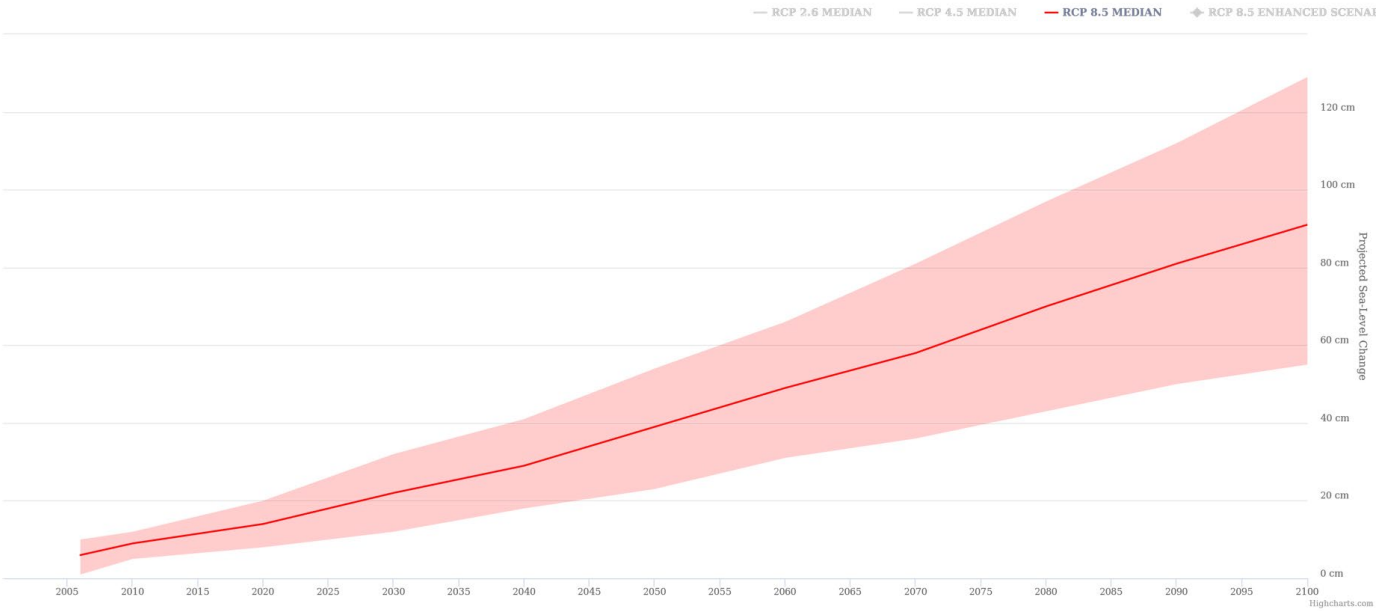
Sea surface and deep-water temperatures are increasing, ocean waters are becoming more acidic, dissolved oxygen levels are decreasing, and ocean currents could weaken due to the changing physics and chemistry of ocean waters. These changing conditions will likely make it harder for current ocean life and coastal ecosystems to thrive.

Climate Change Projections for Richmond Census Division

Climate Index	Baseline (1981-2010)	Early century (2015-2045)	Mid century (2035-2065)	End century (2065-2095)
Annual hottest day	27.4°C	28.9°C	30.0°C	32.1°C
Days > 29°C	0.1 days	0.6 days	2.8 days	14.8 days
Nights > 18°C	1.0 nights	6.5 nights	17.2 nights	42.2 nights
Annual coldest day	-19.7°C	-17.3°C	-15.1°C	-11.6°C
Days < -15°C	8.0 days	3.3 days	1.1 days	0.0 days
Growing season length	195 days	212 days	228 days	255 days
Total precipitation	1388 mm	1438 mm	1472 mm	1529 mm
Days with snow	39.5 days	30.9 days	23.9 days	15.0 days
Intense rain days > 20	16.2 days	18.0 days	19.0 days	20.8 days

Median results for a high emissions scenario averaged over 30-year periods.

Sea Level Rise Projections for Richmond Census Division



Relative sea level in this region is expected to rise approximately 90 cm by the year 2100.

Climate Risks for Richmond Census Division

A provincial climate change risk assessment was completed in 2022 to explore what is at risk and the different effects of climate change on the well-being of Nova Scotians. A climate change risk assessment helps us to understand how the climate is changing. It also helps us to understand issues of concern and opportunities to act. Risks were explored across the province and for each census division, which align with the 18 counties in Nova Scotia. The assessment combines climate projections (AR5) with social, environmental, and economic information.

The background research and quantitative analysis identified:

- climate hazards of greatest relative concern
- priority regions, groups, and issues for further exploration, and
- opportunities.

Nineteen different climate hazards and opportunities were assessed. These climate impacts fall into four categories and offer the potential to improve or negatively affect the well-being of Nova Scotians.

Each climate impact was scored and ranked within each of these four impact categories for each census division and provincially. It is important to note that a lower ranking for a climate hazard or opportunity does not mean the impact is insignificant. The ranking indicates that the potential consequences for well-being are relatively higher or lower compared with other hazards or opportunities within that category.

Climate Risks for Richmond (High Emissions Scenario)

As in all parts of Nova Scotia, the Richmond census division is likely to experience all the climate impacts explored in the provincial climate change risk assessment to some extent during the next century. These hazards interact and change over time. **Taking an all-hazards approach to strengthening adaptive capacity and improving well-being will offer the most long-term benefit in the context of a changing climate.**

The following are the top five ranked climate hazards that negatively affect well-being in order of higher to lower for Richmond for early and mid century under a high emissions scenario.

Early century (2015-2045)	Mid century (2035-2065)
 Sea level rise and coastal flooding	 Sea level rise and coastal flooding
 Pluvial flooding	 Fluvial flooding
 Fluvial flooding	 Pluvial flooding
 Vector-borne diseases	 Vector-borne diseases

By the mid century, the reduction in heating demand for buildings has the potential to contribute more to improved well-being for Richmond relative to the other two impacts in this category.

While winter tourism and recreation opportunities will decline, summer tourism and recreation opportunities will increase.

Potential Adaptation Opportunities

The risk assessment offers some insights into opportunities to reduce risk and adapt to the changing climate by looking at how we can reduce exposure and sensitivity to climate hazards and improve the capacity to cope and adapt.

The following are the common adaptation approaches across census divisions.

- Further investigation based on specific climate hazards may yield insights into how to **reduce exposure**, such as for people, the natural environment, and infrastructure.
- Across all hazards, opportunities to enhance economic opportunities, improve financial security, and improvements to health could reduce **sensitivity**.
- Improvements to financial security and civic engagement and governance offer opportunities to improve **adaptive capacity**.

Every region in Nova Scotia has a unique mix of rural communities and regional centres with different populations, which offer strengths and vulnerabilities in relation to climate change. More information at the local level can help guide adaptation action, including for those who may be disproportionately impacted within communities. Regional collaboration is an equally important approach to address climate impacts and risks that are not confined within census division boundaries.

For More Information

For more information on how the climate is changing, climate risks for Nova Scotia, and additional regional information, please see ***Weathering What's Ahead: Climate Change Risk and Nova Scotia's Well-being*** and the associated technical report at https://climatechange.novascotia.ca.

Shelburne Census Division: Climate Risk Summary

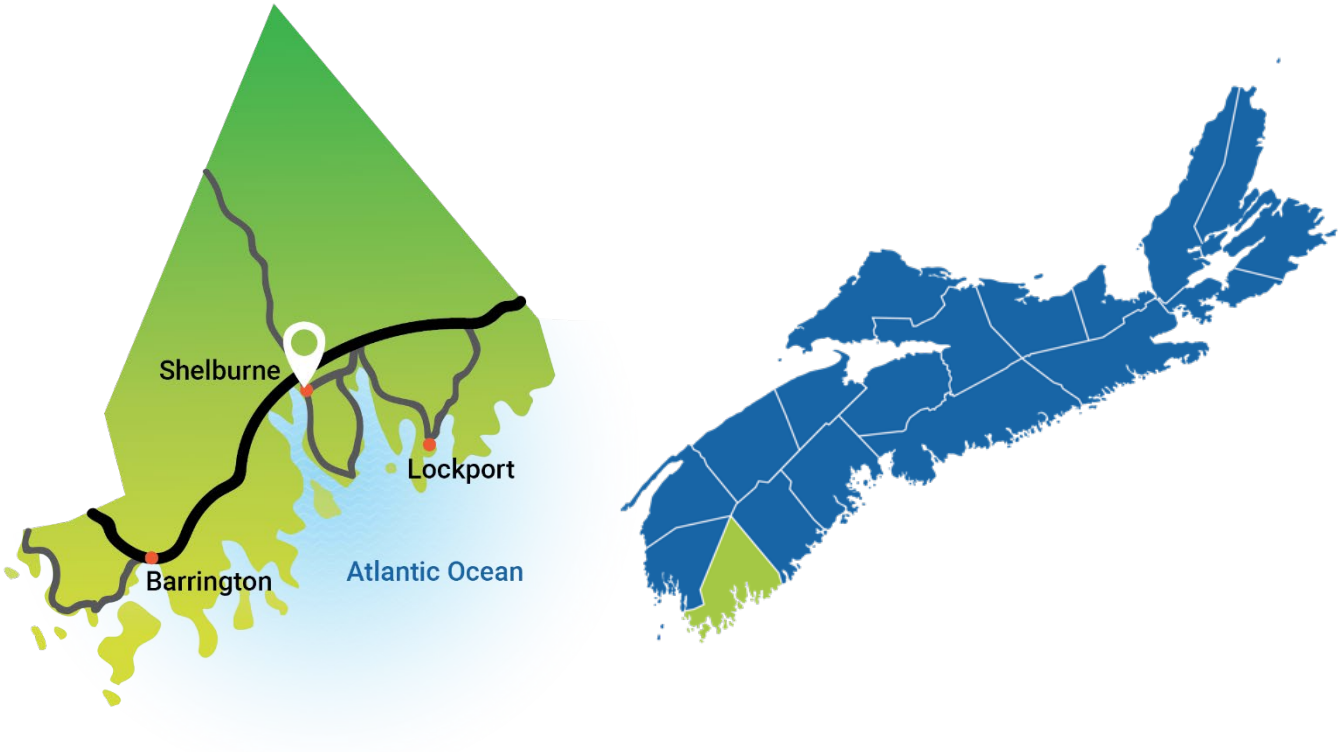
December 2022

Prepared by:

Nova Scotia Department of Environment and Climate Change

climatechange@novascotia.ca

Shelburne Census Division



Climate Change Projections

The evidence is clear – Nova Scotia's climate is changing. Analysis of local climate change projections and literature has identified how the province's climate is expected to change over the coming decades. The trends presented here are based on model runs for a high emissions scenario (RCP8.5) from the Intergovernmental Panel on Climate Change (IPCC)'s Fifth Assessment Report (AR5) from 2013, with the outputs from these global climate simulations statistically downscaled by the Pacific Climate Impacts Consortium (PCIC) to better account for local geography and climate patterns.

Temperatures are continuing to rise.

Average annual temperature is projected to increase 2.6ºC by mid-century and 4.5°C by the end of the century. More frequent extreme heat will make days and nights more uncomfortable, drought and wildfire more likely, and average winter temperatures may rise above freezing.

Precipitation patterns are changing.

Warmer temperatures will mean less snow and more rain, while rainfall events are also increasing in intensity. Total annual precipitation will likely increase, but more of that water will evaporate in warmer air or run off in more intense downpours. Risks of flooding and erosion are likely to increase.

Storms will be more frequent and more intense.

Warming oceans will enable tropical storms to track further north without losing strength, bringing higher peak wind speeds and more powerful storm surges. It will be more likely for larger storms to impact the province.

Sea levels are rising.

Projections for Nova Scotia indicate an increase of up to 1 metre in relative sea level by the end of the century. Higher sea levels have the potential to damage coastal communities and infrastructure, infiltrate freshwater supplies, and threaten sensitive coastal species and ecosystems. Storm surge and high tides will be more impactful with rising seas.

Ocean conditions are changing.

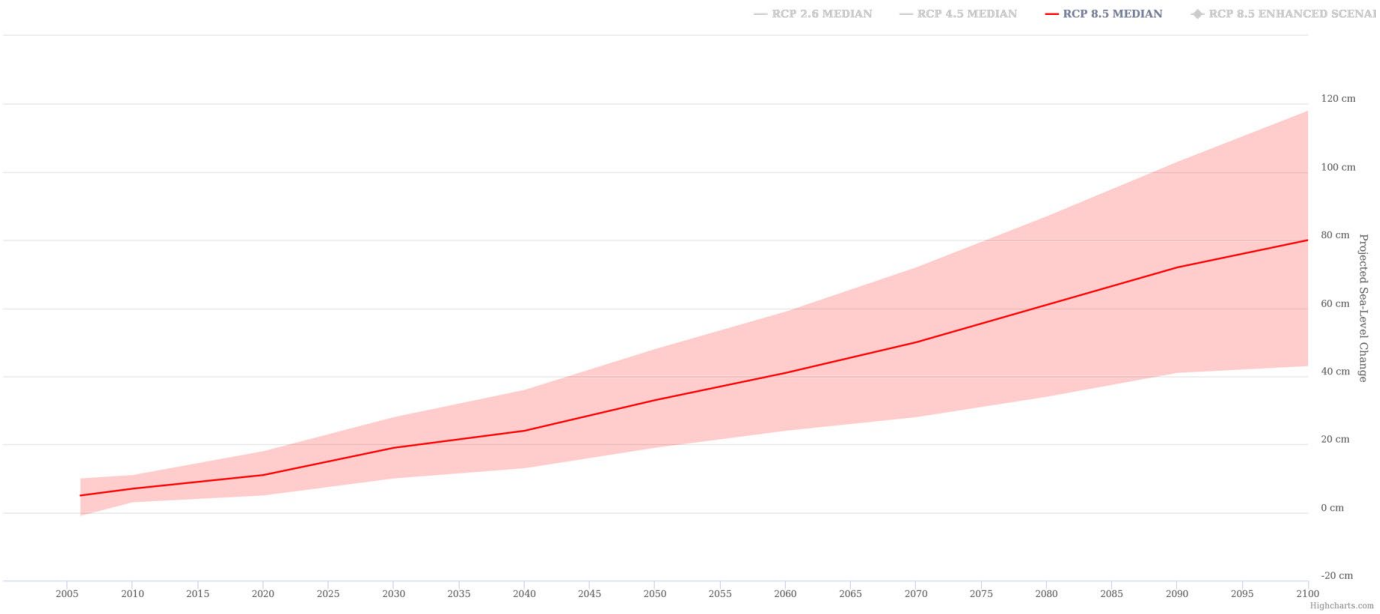
Sea surface and deep-water temperatures are increasing, ocean waters are becoming more acidic, dissolved oxygen levels are decreasing, and ocean currents could weaken due to the changing physics and chemistry of ocean waters. These changing conditions will likely make it harder for current ocean life and coastal ecosystems to thrive.

Climate Change Projections for Shelburne Census Division

Climate Index	Baseline (1981-2010)	Early century (2015-2045)	Mid century (2035-2065)	End century (2065-2095)
Annual hottest day	27.6°C	28.9°C	30.2°C	31.8°C
Days > 29°C	0.3 days	1.4 days	4.0 days	13.7 days
Nights > 18°C	0.2 nights	1.9 nights	7.7 nights	28.7 nights
Annual coldest day	-18.9°C	-17.4°C	-15.2°C	-11.8°C
Days < -15°C	6.0 days	2.8 days	1.0 days	0.0 days
Growing season length	216 days	233 days	251 days	282 days
Total precipitation	1368 mm	1414 mm	1444 mm	1504 mm
Days with snow	28.4 days	22.1 days	16.7 days	9.9 days
Intense rain days > 20	18.4 days	19.6 days	20.5 days	22.0 days

Median results for a high emissions scenario averaged over 30-year periods.

Sea Level Rise Projections for Shelburne Census Division



Relative sea level in this region is expected to rise approximately 80 cm by the year 2100.

Climate Risks for Shelburne Census Division

A provincial climate change risk assessment was completed in 2022 to explore what is at risk and the different effects of climate change on the well-being of Nova Scotians. A climate change risk assessment helps us to understand how the climate is changing. It also helps us to understand issues of concern and opportunities to act. Risks were explored across the province and for each census division, which align with the 18 counties in Nova Scotia. The assessment combines climate projections (AR5) with social, environmental, and economic information.

The background research and quantitative analysis identified:

- climate hazards of greatest relative concern
- priority regions, groups, and issues for further exploration, and
- opportunities.

Nineteen different climate hazards and opportunities were assessed. These climate impacts fall into four categories and offer the potential to improve or negatively affect the well-being of Nova Scotians.

Each climate impact was scored and ranked within each of these four impact categories for each census division and provincially. It is important to note that a lower ranking for a climate hazard or opportunity does not mean the impact is insignificant. The ranking indicates that the potential consequences for well-being are relatively higher or lower compared with other hazards or opportunities within that category.

Climate Risks for Shelburne (High Emissions Scenario)

As in all parts of Nova Scotia, the Shelburne census division is likely to experience all the climate impacts explored in the provincial climate change risk assessment to some extent during the next century. These hazards interact and change over time. **Taking an all-hazards approach to strengthening adaptive capacity and improving well-being will offer the most long-term benefit in the context of a changing climate.**

The following are the top five ranked climate hazards that negatively affect well-being in order of higher to lower for Shelburne for early and mid century under a high emissions scenario.

Early century (2015-2045)	Mid century (2035-2065)
 Shifting ecoregions	 Shifting ecoregions
 Drought	 Sea level rise and coastal flooding
 Sea level rise and coastal flooding	 Drought
 Fluvial flooding	 Wildfire

By the mid century, the reduction in heavy snowfall has the potential to contribute more to improved well-being for Shelburne relative to the other two impacts in this category, followed by reduced heating demand for buildings.

Longer growing seasons could enable more agricultural activity and benefits for ecosystems but will need to be managed with drought and shifting ecoregions.

Potential Adaptation Opportunities

The risk assessment offers some insights into opportunities to reduce risk and adapt to the changing climate by looking at how we can reduce exposure and sensitivity to climate hazards and improve the capacity to cope and adapt.

The following are the common adaptation approaches across census divisions.

- Further investigation based on specific climate hazards may yield insights into how to **reduce exposure**, such as for people, the natural environment, and infrastructure.
- Across all hazards, opportunities to enhance economic opportunities, improve financial security, and improvements to health could reduce **sensitivity**.
- Improvements to financial security and civic engagement and governance offer opportunities to improve **adaptive capacity**.

Every region in Nova Scotia has a unique mix of rural communities and regional centres with different populations, which offer strengths and vulnerabilities in relation to climate change. More information at the local level can help guide adaptation action, including for those who may be disproportionately impacted within communities. Regional collaboration is an equally important approach to address climate impacts and risks that are not confined within census division boundaries.

For More Information

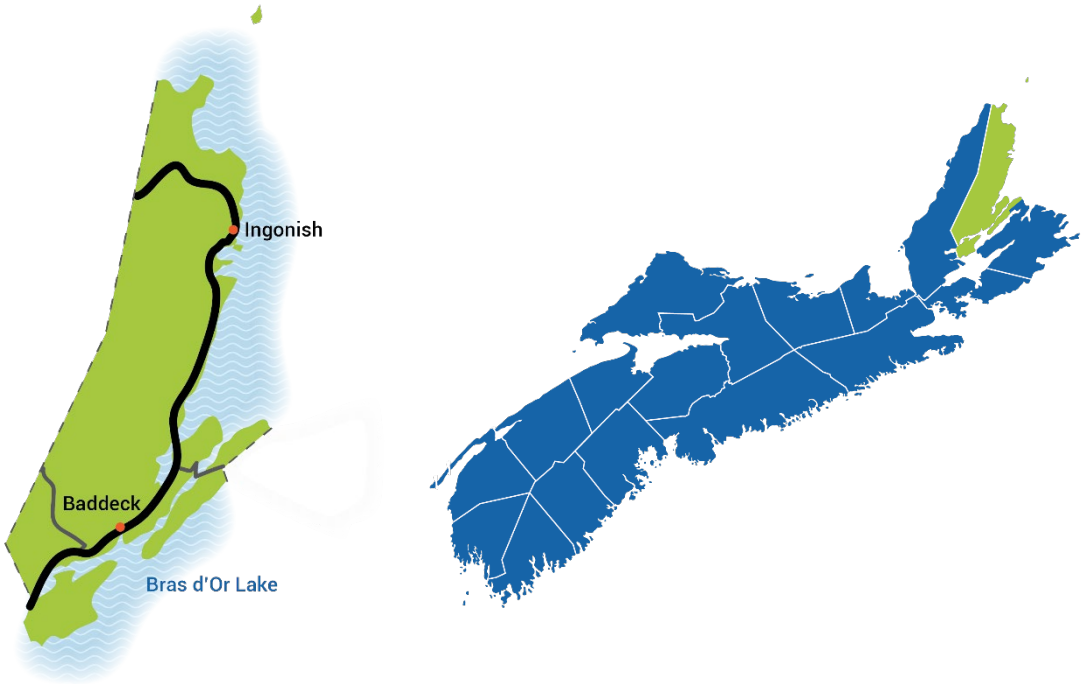
For more information on how the climate is changing, climate risks for Nova Scotia, and additional regional information, please see ***Weathering What's Ahead: Climate Change Risk and Nova Scotia's Well-being*** and the associated technical report at https://climatechange.novascotia.ca.

Victoria Census Division: Climate Risk Summary

December 2022

Prepared by:
Nova Scotia Department of Environment and Climate Change
climatechange@novascotia.ca

Victoria Census Division



Climate Change Projections

The evidence is clear – Nova Scotia's climate is changing. Analysis of local climate change projections and literature has identified how the province's climate is expected to change over the coming decades. The trends presented here are based on model runs for a high emissions scenario (RCP8.5) from the Intergovernmental Panel on Climate Change (IPCC)'s Fifth Assessment Report (AR5) from 2013, with the outputs from these global climate simulations statistically downscaled by the Pacific Climate Impacts Consortium (PCIC) to better account for local geography and climate patterns.

Temperatures are continuing to rise.

Average annual temperature is projected to increase 2.6ºC by mid-century and 4.5°C by the end of the century. More frequent extreme heat will make days and nights more uncomfortable, drought and wildfire more likely, and average winter temperatures may rise above freezing.

Precipitation patterns are changing.

Warmer temperatures will mean less snow and more rain, while rainfall events are also increasing in intensity. Total annual precipitation will likely increase, but more of that water will evaporate in warmer air or run off in more intense downpours. Risks of flooding and erosion are likely to increase.

Storms will be more frequent and more intense.

Warming oceans will enable tropical storms to track further north without losing strength, bringing higher peak wind speeds and more powerful storm surges. It will be more likely for larger storms to impact the province.

Sea levels are rising.

Projections for Nova Scotia indicate an increase of up to 1 metre in relative sea level by the end of the century. Higher sea levels have the potential to damage coastal communities and infrastructure, infiltrate freshwater supplies, and threaten sensitive coastal species and ecosystems. Storm surge and high tides will be more impactful with rising seas.

Ocean conditions are changing.

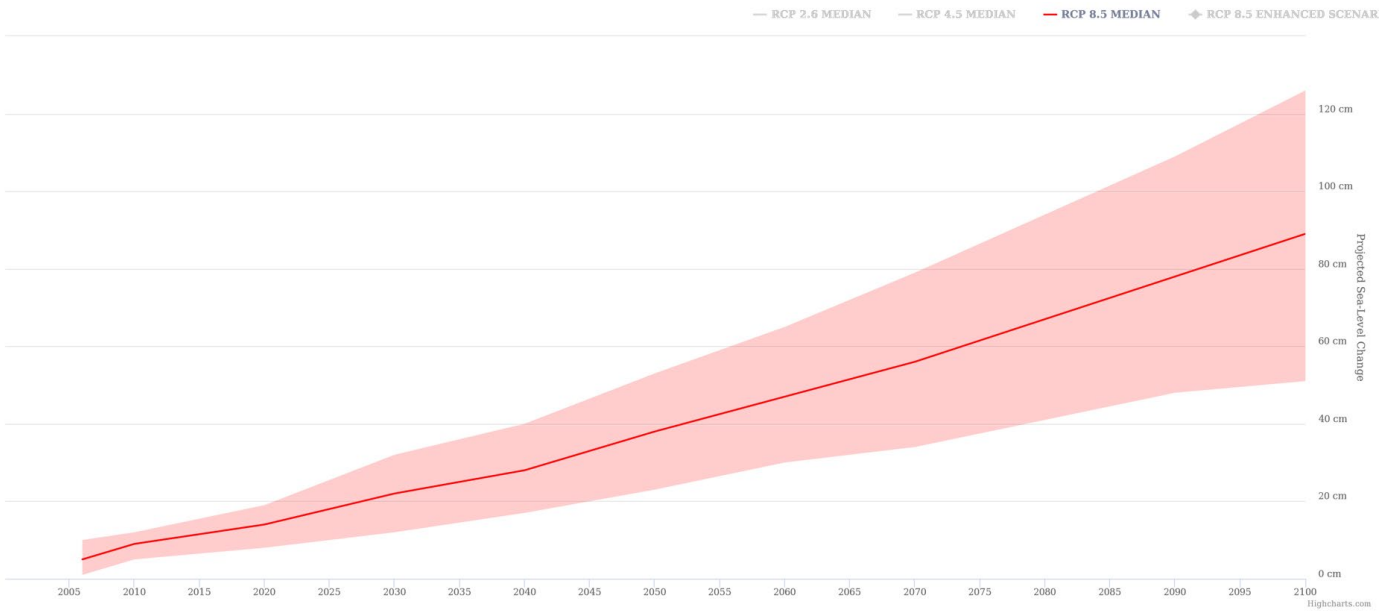
Sea surface and deep-water temperatures are increasing, ocean waters are becoming more acidic, dissolved oxygen levels are decreasing, and ocean currents could weaken due to the changing physics and chemistry of ocean waters. These changing conditions will likely make it harder for current ocean life and coastal ecosystems to thrive.

Climate Change Projections for Victoria Census Division

Climate Index	Baseline (1981-2010)	Early century (2015-2045)	Mid century (2035-2065)	End century (2065-2095)
Annual hottest day	29.0°C	30.3°C	31.6°C	33.6°C
Days > 29°C	0.7 days	2.9 days	7.4 days	21.8 days
Nights > 18°C	1.6 nights	6.1 nights	14.9 nights	36.8 nights
Annual coldest day	-20.9°C	-18.3°C	-15.9°C	-12.4°C
Days < -15°C	12.0 days	5.6 days	2.3 days	0.4 days
Growing season length	182 days	196 days	209 days	236 days
Total precipitation	1421 mm	1475 mm	1512 mm	1571 mm
Days with snow	60.0 days	50.0 days	40.5 days	27.5 days
Intense rain days > 20	14.6 days	16.1 days	17.4 days	19.3 days

Median results for a high emissions scenario averaged over 30-year periods.

Sea Level Rise Projections for Victoria Census Division



Relative sea level in this region is expected to rise approximately 90 cm by the year 2100.

Climate Risks for Victoria Census Division

A provincial climate change risk assessment was completed in 2022 to explore what is at risk and the different effects of climate change on the well-being of Nova Scotians. A climate change risk assessment helps us to understand how the climate is changing. It also helps us to understand issues of concern and opportunities to act. Risks were explored across the province and for each census division, which align with the 18 counties in Nova Scotia. The assessment combines climate projections (AR5) with social, environmental, and economic information.

The background research and quantitative analysis identified:

- climate hazards of greatest relative concern
- priority regions, groups, and issues for further exploration, and
- opportunities.

Nineteen different climate hazards and opportunities were assessed. These climate impacts fall into four categories and offer the potential to improve or negatively affect the well-being of Nova Scotians.

Each climate impact was scored and ranked within each of these four impact categories for each census division and provincially. It is important to note that a lower ranking for a climate hazard or opportunity does not mean the impact is insignificant. The ranking indicates that the potential consequences for well-being are relatively higher or lower compared with other hazards or opportunities within that category.

Climate Risks for Victoria (High Emissions Scenario)

As in all parts of Nova Scotia, the Victoria census division is likely to experience all the climate impacts explored in the provincial climate change risk assessment to some extent during the next century. These hazards interact and change over time. **Taking an all-hazards approach to strengthening adaptive capacity and improving well-being will offer the most long-term benefit in the context of a changing climate.**

The following are the top five ranked climate hazards that negatively affect well-being in order of higher to lower for Victoria for early and mid century under a high emissions scenario.

Early century (2015-2045)	Mid century (2035-2065)
 Agricultural pests and diseases	 Agricultural pests and diseases
 Shifting ecoregions	 Shifting ecoregions
 Heat extremes for ecoregions	 Heat extremes for ecoregions
 Sea level rise and coastal flooding	 Vector-borne diseases

By the mid century, the reduction in freeze thaw cycles has the potential to contribute more to improved well-being for Victoria relative to the other two impacts in this category, followed by reduced heating demand for buildings.

Conditions favourable for summer tourism and recreation opportunities could offer benefits, although winter tourism and recreation conditions are projected to decrease.

Potential Adaptation Opportunities

The risk assessment offers some insights into opportunities to reduce risk and adapt to the changing climate by looking at how we can reduce exposure and sensitivity to climate hazards and improve the capacity to cope and adapt.

The following are the common adaptation approaches across census divisions.

- Further investigation based on specific climate hazards may yield insights into how to **reduce exposure**, such as for people, the natural environment, and infrastructure.
- Across all hazards, opportunities to enhance economic opportunities, improve financial security, and improvements to health could reduce **sensitivity**.
- Improvements to financial security and civic engagement and governance offer opportunities to improve **adaptive capacity**.

Every region in Nova Scotia has a unique mix of rural communities and regional centres with different populations, which offer strengths and vulnerabilities in relation to climate change. More information at the local level can help guide adaptation action, including for those who may be disproportionately impacted within communities. Regional collaboration is an equally important approach to address climate impacts and risks that are not confined within census division boundaries.

For More Information

For more information on how the climate is changing, climate risks for Nova Scotia, and additional regional information, please see ***Weathering What's Ahead: Climate Change Risk and Nova Scotia's Well-being*** and the associated technical report at https://climatechange.novascotia.ca.

Yarmouth Census Division: Climate Risk Summary

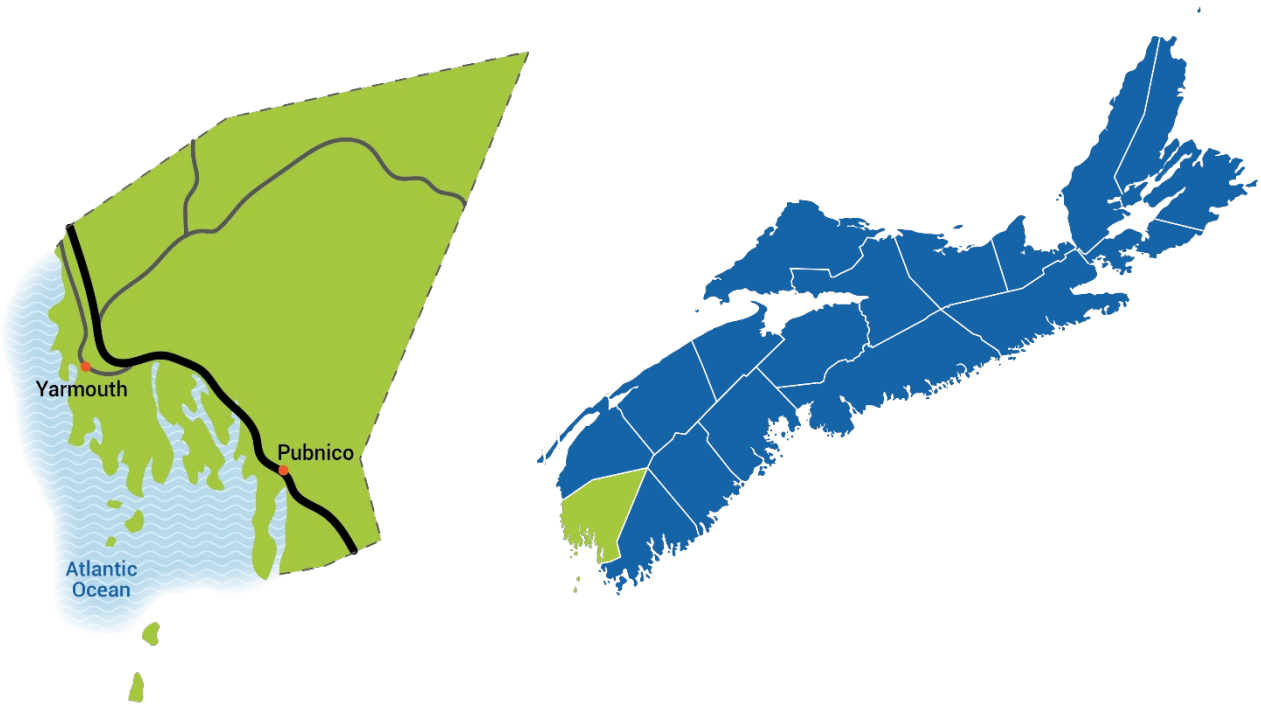
December 2022

Prepared by:

Nova Scotia Department of Environment and Climate Change

climatechange@novascotia.ca

Yarmouth Census Division



Climate Change Projections

The evidence is clear – Nova Scotia's climate is changing. Analysis of local climate change projections and literature has identified how the province's climate is expected to change over the coming decades. The trends presented here are based on model runs for a high emissions scenario (RCP8.5) from the Intergovernmental Panel on Climate Change (IPCC)'s Fifth Assessment Report (AR5) from 2013, with the outputs from these global climate simulations statistically downscaled by the Pacific Climate Impacts Consortium (PCIC) to better account for local geography and climate patterns.

Temperatures are continuing to rise.

Average annual temperature is projected to increase 2.6ºC by mid-century and 4.5°C by the end of the century. More frequent extreme heat will make days and nights more uncomfortable, drought and wildfire more likely, and average winter temperatures may rise above freezing.

Precipitation patterns are changing.

Warmer temperatures will mean less snow and more rain, while rainfall events are also increasing in intensity. Total annual precipitation will likely increase, but more of that water will evaporate in warmer air or run off in more intense downpours. Risks of flooding and erosion are likely to increase.

Storms will be more frequent and more intense.

Warming oceans will enable tropical storms to track further north without losing strength, bringing higher peak wind speeds and more powerful storm surges. It will be more likely for larger storms to impact the province.

Sea levels are rising.

Projections for Nova Scotia indicate an increase of up to 1 metre in relative sea level by the end of the century. Higher sea levels have the potential to damage coastal communities and infrastructure, infiltrate freshwater supplies, and threaten sensitive coastal species and ecosystems. Storm surge and high tides will be more impactful with rising seas.

Ocean conditions are changing.

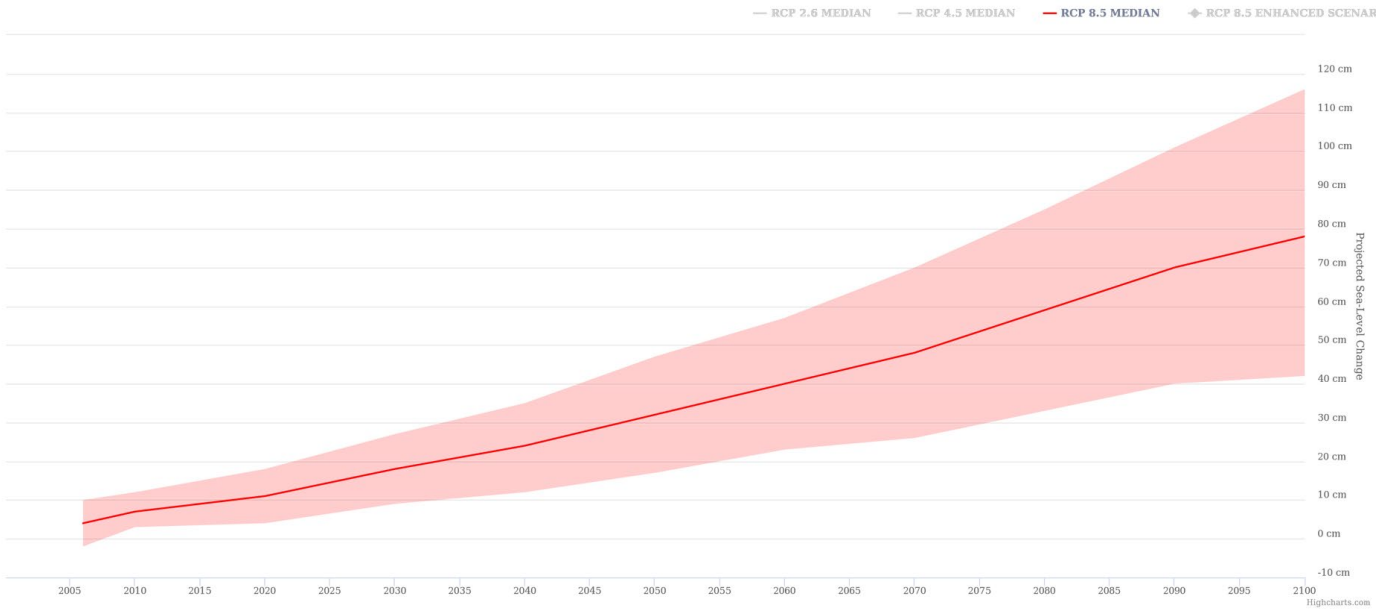
Sea surface and deep-water temperatures are increasing, ocean waters are becoming more acidic, dissolved oxygen levels are decreasing, and ocean currents could weaken due to the changing physics and chemistry of ocean waters. These changing conditions will likely make it harder for current ocean life and coastal ecosystems to thrive.

Climate Change Projections for Yarmouth Census Division

Climate Index	Baseline (1981-2010)	Early century (2015-2045)	Mid century (2035-2065)	End century (2065-2095)
Annual hottest day	26.6°C	27.9°C	29.2°C	30.9°C
Days > 29°C	0.0 days	0.4 days	1.8 days	9.7 days
Nights > 18°C	0.1 nights	1.6 nights	8.0 nights	31.6 nights
Annual coldest day	-17.6°C	-15.9°C	-13.7°C	-10.2°C
Days < -15°C	3.9 days	1.5 days	0.3 days	0.0 days
Growing season length	217 days	234 days	251 days	282 days
Total precipitation	1321 mm	1362 mm	1392 mm	1450 mm
Days with snow	29.8 days	22.8 days	17.2 days	9.7 days
Intense rain days > 20	16.9 days	18.2 days	19.0 days	20.8 days

Median results for a high emissions scenario averaged over 30-year periods.

Sea Level Rise Projections for Yarmouth Census Division



Relative sea level in this region is expected to rise approximately 80 cm by the year 2100.

Climate Risks for Yarmouth Census Division

A provincial climate change risk assessment was completed in 2022 to explore what is at risk and the different effects of climate change on the well-being of Nova Scotians. A climate change risk assessment helps us to understand how the climate is changing. It also helps us to understand issues of concern and opportunities to act. Risks were explored across the province and for each census division, which align with the 18 counties in Nova Scotia. The assessment combines climate projections (AR5) with social, environmental, and economic information.

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Nineteen different climate hazards and opportunities were assessed. These climate impacts fall into four categories and offer the potential to improve or negatively affect the well-being of Nova Scotians.

Each climate impact was scored and ranked within each of these four impact categories for each census division and provincially. It is important to note that a lower ranking for a climate hazard or opportunity does not mean the impact is insignificant. The ranking indicates that the potential consequences for well-being are relatively higher or lower compared with other hazards or opportunities within that category.

Climate Risks for Yarmouth (High Emissions Scenario)

As in all parts of Nova Scotia, the Yarmouth census division is likely to experience all the climate impacts explored in the provincial climate change risk assessment to some extent during the next century. These hazards interact and change over time. **Taking an all-hazards approach to strengthening adaptive capacity and improving well-being will offer the most long-term benefit in the context of a changing climate.**

The following are the top five ranked climate hazards that negatively affect well-being in order of higher to lower for Yarmouth for early and mid century under a high emissions scenario.

Early century (2015-2045)	Mid century (2035-2065)
Drought	Drought
Vector-borne diseases	Heat extremes for transport infrastructure
Pluvial flooding	Fluvial flooding
Fluvial flooding	Pluvial flooding

By the mid-century, the reduction in heavy snowfall has the potential to contribute more to improved well-being for Yarmouth relative to the other two impacts in this category, followed by reduced heating demand for buildings.

Longer growing seasons will offer opportunities for Yarmouth but will need to be managed with the risks of drought.

Potential Adaptation Opportunities

The risk assessment offers some insights into opportunities to reduce risk and adapt to the changing climate by looking at how we can reduce exposure and sensitivity to climate hazards and improve the capacity to cope and adapt.

The following are the common adaptation approaches across census divisions.

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