

# Climate Change and the Newfoundland & Labrador Winter Tourism Industry

2030s



Natural Resources Canada

Ressources naturelles Canada

Canada

Newfoundland & Labrador

Funded by the Department of Environment and Climate Change

Zone 4



## What to expect by the 2030s for a high emissions scenario

### Warmer Winters



Colder temperatures will happen much less frequently

+3.7°C

average winter Temperature increase

13%

less deep freeze events

### Shorter Winters



Later Winters and earlier Springs

Duration from first to last snowfall

2-3

weeks shorter

9%

more Average total winter snowfall

### Wetter Winters



More rainy days and heavier rainfalls

2x

average total winter rain

1-2

winter rain events over 10 mm.

### Shrinking Snowpacks



Thinner snowpacks and less days with snow cover

9%

less average snow depth

10%

less days with snow cover more than 15cm

### Shorter Snow-making Season



Negligible changes in average Winter humidity

For operating temperatures below

-2°C

-5°C

-10°C

by 3

weeks

by 3

weeks

by 3

weeks

## Potential Operational Impacts Of Climate Change

Increased frequency of **temporary closures**



Increased **grooming and maintenance** requirements



More **wet or icy conditions** creating health and safety concerns



**Shorter operating season** lengths due to shorter winters



Winter recreation operations **typically close** during days with **more than 10 mm** of rain.



**Increased snowmaking** and snow storage capacities **required** to maintain operations.



Snowmaking will **start later** and **end earlier**



**Equipment** with higher snowmaking temperatures will have **longer operating seasons**



All future changes are calculated relative to the historical baseline of 1981 - 2010.



Understanding the impacts of climate change allows the industry and local operators to prepare and adapt to future conditions, unlocking new and innovative ways to successfully operate during the winter season.

# Climate Change and the Newfoundland & Labrador Winter Tourism Industry

2050s



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## What to expect by the 2050s for a high emissions scenario

### Warmer Winters



Colder temperatures will happen much less frequently

+6.0°C

average winter Temperature increase

26%

less deep freeze events

### Shorter Winters



Later Winters and earlier Springs

Duration from first to last snowfall

4-5

weeks shorter

9%

more Average total winter snowfall

### Wetter Winters



More rainy days and heavier rainfalls

4.5x

average total winter rain

2-3

winter rain events over 10 mm.

### Shrinking Snowpacks



Thinner snowpacks and less days with snow cover

18%

less average snow depth

15%

less days with snow cover more than 15cm

### Shorter Snow-making Season



Negligible changes in average Winter humidity

For operating temperatures below

-2°C

-5°C

-10°C

by 5 weeks

by 5 weeks

by 5 weeks

## Potential Operational Impacts Of Climate Change

Increased frequency of **temporary closures**



Increased **grooming and maintenance** requirements



More **wet or icy conditions** creating health and safety concerns



**Shorter operating season** lengths due to shorter winters



Winter recreation operations **typically close** during days with **more than 10 mm** of rain.



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