

ClimateNews is a snapshot of new and emerging climate change adaptation and mitigation activities in BC's Natural Resource Sector.

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## FLNRORD – Integrating Climate Change into Decision-Making Processes

As part of the next steps to incorporate climate change into the daily business of the ministry, the ministry of Forests, Lands, Natural Resource Operations and Rural Development (FLNRORD) is looking at three specific areas of the ministry to identify ways to embed climate change considerations into the process of approving authorizations. These are currently being looked at for the Lands, Range, Water, Land Use Planning and Wildlife programs. FLNRORD is also beginning work

on developing a set of future climate change projections specifically tailored to help decision makers with questions on how a future climate state may affect authorizations made by the ministry. This work will be ongoing over the next year or so.

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## 2017 and 2018 Wildfires and Climate Change

2017 and 2018 have been the worst wildfire seasons on record since 1958 (Figure 1). Approximately 1.3 million hectares of forests were burned this year which is ten times more than the ten year average. On average, 7,000 wildfires are sparked across Canada every year, burning through 2.5 million hectares (about half the size of Nova Scotia). These numbers have doubled since 1970.

It is estimated that climate change in BC will lead to a temperature increase of between 1.3°C and 2.7°C by 2050 and that droughts will be more severe and more common. A 2014 study published in the journal [Science](#), predicted that for every 1°C increase in global temperature there is a 12% increase in lightning strikes. Given that more than half of BC's wildfires are started by lightning strikes increased fire ignition is possible.

Successful firefighting efforts and a lack of controlled burning have allowed fibre to build up on the forest floor across the province. Prescribed burning and other silvicultural tools such as use of deciduous plantations and thinning (with use or disposal of residual fibre) can reduce fuel loads and create natural barriers on the landscape. Allowing fire - whether through low intensity forest fires or prescribed burning - to again be part of the forest ecosystem is being considered to diminish the chance of catastrophic fires.

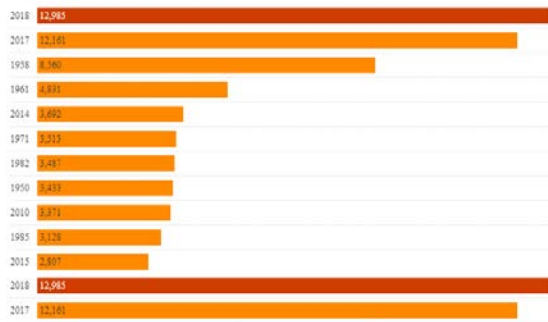
Preliminary research has found that the 2017 BC wildfires emitted approximately 150 million tons of carbon into the environment, or 2.5 to 3 times the total from all other sources. This number was almost three times BC's annual carbon footprint.

Climate change is a significant contributor to wildfires. Mike Flannigan from the University of Alberta said "The root of the problem is we've got to stop burning fossil fuels" he said. "Even if we stop producing greenhouse gases today, we will continue to warm for the next 50-100 years, because of the lag in our climate system. We are going to continue to warm, so the time to act is now".

Figure 1:

Top 10 fire seasons in B.C. since 1950

Chart shows number of square kilometres burned in wildfires each season. Does not include false alarms, nuisance fires or training fires.



Graph source:

<https://www.cbc.ca/news/canada/british-columbia/state-emergency-bc-wildfires-1.4803546>

<https://thenarwhal.ca/how-climate-change-is-making-b-c-s-wildfire-season-hotter-longer-dryer/>

## Is Climate Change Increasing the Probability of Large Wildfires?

Wildfires are hitting record highs in BC. They are becoming more intense than before and are occurring for longer periods of time. [This article](#) asks "what can we say about the role of global warming in causing them in this part of the world?"

Scientists hesitate to attribute single wildfires to the result of climate change. Researchers in the emerging field of attribution studies use observations and models to consider what we could expect to happen without global warming, which is called a "counterfactual" scenario. These scenarios are then compared to what actually happens in our environment. This shows the probability that an extreme weather event has been altered as the result of human influences.

We know from these attribution studies that fire seasons in boreal forests in Canada and around the world will likely go up in duration, intensity and frequency as a result of climate change. Few studies have tried reviewing the level of human influences on the fire risk in Western Canada.

Read the full article [here](#)

## FLNRORD- Reforestation Success Story

In the fall of 2018, 943,000 trees were planted in coastal British Columbia under the Forest Carbon Initiative through a recipient agreement with Strategic Natural Resource Consultants and funding from the Forest Enhancement Society of BC. The areas planted include two areas near Pemberton which had burned in wildfires in 2015. Minimal natural regeneration was occurring on these sites and they would not have been artificially reforested otherwise due to the high access costs associated. The planting did not require any removal of overstory trees and therefore avoided greenhouse gas emissions associated with overstory removal. Reforestation of the sites is estimated to equate to sequester 132,048 tCO<sub>2</sub>e. This number represents the amount of carbon sequestered in the wood, living tissue and organic matter of the trees planted through to 2050.



Reforestation of these areas will also aid in rehabilitation resulting in improved stability of steep slopes and improved habitat quality. The root reinforcement resulting from the newly planted trees is especially important as the slopes are steep and prone to soil erosion. The hydrology of the site is expected to benefit from the reforestation, specifically with regards to the flood risk posed by spring melting. The future forest will provide important habitat for a variety of wildlife. Another co-benefit of the reforestation will be improved visual appeal from the replacement of a dead, burnt stand with healthy, growing trees.

This project has also resulted in increased employment for companies such as Strategic Natural Resource Consultants as well as the planting companies - Evergreen Forest Services Ltd. and Fieldstone Resources Ltd.

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## The Canadian Centre for Climate Services - New Website

The Canadian Centre for Climate Services (CCCS) has been developed by the Government of Canada to give Canadians access to the data and tools to

understand and plan for climate change. The CCCS has launched a [new website](#) that provides access to a variety of climate change resources including the basics of climate change and data and resources that support adaptation decision-making. The website uses the Pacific Climate Impacts Consortium's (PCIC) daily historic and projected temperatures on a 10km grid. The CCCS has also launched the Climate Service Support Desk to help users understand and use climate information to support adaptation decision-making. The Climate Services Support Desk can be reached by email or by phone: 1-833-517-0376.

## Summary for Policymakers of IPCC Special Report on Global Warming of 1.5°C Approved by Governments

The Inter-Governmental Panel on Climate Change (IPCC) has stated in their new assessment that limiting global warming to 1.5°C would require rapid, far-reaching and unprecedented changes in all aspects of society.

The report gives policymakers and practitioners the information to help make decisions that tackle climate change while considering local context and people's needs. The next few years are probably the most important in our history," said Priyadarshi Shukla, Co-Chair of IPCC Working Group III.

To see the full Press Release click [here](#)  
To see the full Special Report click [here](#)

## New PCIC Science Brief on Paris Climate Accord Emissions and Temperature Limits

The 2015 Paris Climate Accord has a goal to limit climate change at most to a 2°C average increase but ideally 1.5°C on a global scale by the end of this century. This science brief covers greenhouse gas

(GHG) emissions budgets and pathways consistent with these warming limits.

Tokarska and Gillett (2018) use global climate model projections to calculate a new median remaining carbon budget of 208 billion tonnes from January 2016. This budget was found to be consistent with the warming limits of 1.5°C. By using an integrated assessment model, Tanaka and O'Neill (2018) find that in order to meet the Paris temperature limits, it may not require reducing greenhouse gas emissions to net zero. Reducing emissions to zero doesn't necessarily result in meeting the Paris temperature limits by the end of the century. They also found that imposing both temperature and emissions limits will cause temperatures to decline after meeting the initial temperature limit.

Read the full brief [here](#)

## **The 2015 Landslide and Tsunami in Taan Fjord, Alaska by Scientific Reports**

As temperatures have increased, diminishing glaciers have exposed unstable slopes allowing deep water to reach underneath the bedrock causing failure in the slopes. This type of event caused a failure at the terminus of Tyndall Glacier on 17 October, 2015 sending 180 million tons of rock into Taan Fjord, Alaska. From this a tsunami occurred reaching an elevation as high as 193m, which is one of the highest tsunami run-ups ever recorded worldwide.

The deformation of the slopes that caused this landslide and tsunami began decades before the actual event. This event left a distinct sedimentary record which showed geologic evidence that can help understand past occurrences of similar events, and might provide forewarning for future events. The results show an indirect effect of climate change

and an increase in natural hazards near glaciated mountains.

Read the full article [here](#)

## **Human Influence on Canadian Temperatures by Hui Wan, Xuebin Zhang, and Francis Zwiers**

Over the past few decades, Canada has experienced some of the most rapid warming on Earth. This warming rate is about twice the global mean temperature since 1948. By comparing the observed changes with climate model simulated responses to anthropogenic and natural external forcing, the causes of these changes are then observed. The influence of both anthropogenic and natural external forcing is clearly evident in Canada-wide mean and extreme temperatures, and can also be detected regionally over much of the country.

The authors suggest that anthropogenic forcing has contributed 1.0 °C and natural external forcing has contributed 0.2 °C to the observed warming.

Read the full article [here](#).