

CHEMAINUS CLIMATE SOLUTIONS

Education | Engagement | Action

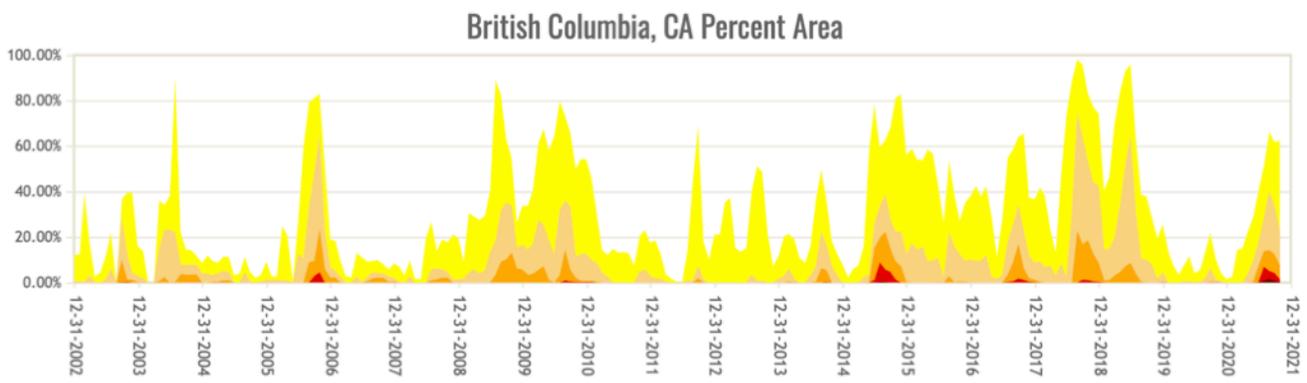
This Issue: Climate Change Hits BC Hard

Drought

This last year brought unprecedented drought conditions across BC. A recent study [published in the Journal of Hydrology](#), using tree rings concluded that over the last 332 years there have been some 16 distinct natural droughts. The study concluded that because of climate change the severity of streamflow drought in small watersheds could exceed any of those experienced in the past 350 years.

The following chart show the drought conditions for BC. This is generalized for the whole province. Yellow means abnormally dry, brown shows an exceptional drought.

<https://droughtmonitor.unl.edu/NADM/Maps.aspx>



- Intensity**
- D0 Abnormally Dry
 - D1 Moderate Drought
 - D2 Severe Drought
 - D3 Extreme Drought
 - D4 Exceptional Drought

This second graph shows the statistics for last year by region. Notice the brown areas of "Exceptional Drought."

		2021 DROUGHT LEVELS AT A GLANCE																				
		Drought Levels: 0 1 2 3 4 5																				
		26-May	09-Jun	23-Jun	07-Jul	14-Jul	21-Jul	28-Jul	04-Aug	11-Aug	18-Aug	25-Aug	01-Sep	08-Sep	15-Sep	22-Sep	29-Sep	06-Oct	13-Oct	20-Oct	27-Oct	03-Nov
BCSHR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
East Nelson	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
East Peace	0	0	0	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
North Peace	0	0	0	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
South Peace	0	0	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Northwest	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Okline	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Steele Pass	0	0	0	0	0	1	1	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0
Bulkley Lakes	0	0	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Fraser	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fraser	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Upper Fraser West	0	0	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Upper Fraser East	0	0	0	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Upper Columbia	0	0	0	0	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Lower Columbia	1	1	1	2	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
West Kootenay	1	1	1	2	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
East Kootenay	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Kettle	1	2	2	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Middle Fraser	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
North Thompson	0	0	0	1	3	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
South Thompson	1	1	1	2	3	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Salmon River	1	2	2	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Woods	1	1	2	3	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Coldwater River	1	1	1	3	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Okanagan	1	1	1	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Similkameen	0	0	1	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Fraser	1	1	1	1	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Lower Fraser	1	1	1	1	2	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
South Coast	1	1	1	1	3	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Central Coast	0	0	0	0	0	0	0	0	0	0	0	1	1	2	2	2	2	2	2	2	2	2
West Vancouver Island	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
East Vancouver Island	2	2	2	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Haida Gwaii	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Droughts are here to stay and they are likely going to be worse as climate change increases.

Send your ideas to:

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Forest Fires

Along with the drought we are watching an ever increasing number of forest fires in our province. The table below is taken from the BC Governments statistics. The row for 2021 was added manually from the most recent statistics. Compare the average since 2008, the 10 year average and the average since 2015. This shows an ever increasing threat and cost from forest fires. The cost increases rapidly if the forest fires are near populated areas. Sadly, the town of Lytton was caught in the forest fire and was completely wiped out. I know someone who was there. She heard a funny crackling noise in her house. Turned around and realized it was her house on fire. She picked up her dog, she and her partner got out to her car and the drove off. They had no warning at all.

<https://www2.gov.bc.ca/gov/content/safety/wildfire-status/about-bcws/wildfire-statistics/wildfire-averages>

Year	Total Fires	Total Hectares	Total Cost (millions)	Person-caused	Person-caused (%)	Lightning-caused	Lightning-caused (%)
2021	1610	868,203	\$ 565	564	35%	966	60%
2020	670	14,536	\$ 194	395	-59%	275	-41%
2019	825	21,138	\$ 183	450	-55%	375	-45%
2018	2,117	1,354,284	\$ 615	628	-30%	1,489	-70%
2017	1,353	1,216,053	\$ 649	580	-43%	773	-57%
2016	1,050	100,366	\$ 129	564	-54%	486	-46%
2015	1,858	280,605	\$ 277	621	-33%	1,237	-67%
2014	1,481	369,168	\$ 298	664	-45%	817	-55%
2013	1,861	18,298	\$ 122	564	-30%	1,297	-70%
2012	1,649	102,122	\$ 134	708	-43%	941	-57%
2011	653	12,604	\$ 54	444	-68%	209	-32%
2010	1,672	337,149	\$ 212	680	-41%	992	-59%
10 year average	1,352	348,917	\$ 265	562	-42%	790	-58%
2009	3,064	247,419	\$ 382	881	-29%	2,183	-71%
2008	2,023	13,240	\$ 82	848	-42%	1,175	-58%
Average since 2008	1,560	314,383	\$ 256	617	-40%	942	-60%
Average Since 2015	1,355	550,741	373	543	-34%	800	-38%

Heat Dome

During June 25 to July 1, 2021 British Columbia recorded its highest temperatures ever. The town of Lytton recorded 49.6°C. Jane and I were in Arizona once at 50°C. It is extraordinary, one has to take a step and drink a sip while outside, the take a step and drink a sip. In Arizona we only spent a couple of hours outside and then had to return to air-conditioned space.

Many people in BC could not access air conditioned space and it is reported by the BC Coroners Service that 595 people died as a result. This is now classed as the "Deadliest Weather Event in Canadian History." Always those who are less healthy, poorer, old or younger and on their own, were the ones who were most effected.

Atmospheric River:

While we used to call this the Pineapple Express, the last group of these that have hit BC in November are more extreme than usual. Hope, in one stretch from Saturday to Monday received 252mm of rain. The average rainfall for the whole month of November is 344mm in Hope. Officials are calling this a once-in-a-century event. Thankfully the number of people who have died is relatively small. The amount of damage to roads, rail, pipelines, agricultural land, businesses and buildings is yet to be determined. The number of animals that have been killed is horrific. What about the losses to business, trucking and railways?



What do we face?

The cost for the cleanup and restoration of all of the infrastructure and private property is yet to be determined. Most is not covered by insurance. The cost of building resilient systems to help prevent future occurrence is also hard to imagine. Do we make better dikes, better air conditioned buildings, more coordinated emergency services? Do we build up a large fund to help people who lose everything to rebuild?

How can we pay for this?

From the beginning, the nay sayers of climate change have said we cannot afford to alter our ways regarding fossil fuel. It's just too expensive and will hurt the economy. Well, the weather can hurt the economy more.

Canada burns 44.8 billion litres of gasoline per year. This releases 103 megatons of CO₂. At \$200 per ton this would be \$20.6 billion per year. To put things into perspective the rebuilding of Fort McMurray in Alberta was \$9 billion.

Our current carbon tax is \$50 per ton and is scheduled to go up to \$170 in 2030. The carbon tax is set up to be revenue neutral, meaning that the majority of the money is given back to the people through rebates. Unfortunately most of the people don't trust the Federal Government to do this. So one idea is to say "fine". All the money from the carbon tax will go directly into rebuilding, restoration, and adding resilience to our infrastructure and make the increase to the carbon tax match the need for action as climate change rather than some goal date like 2030.

What can we do?

It is now fair to say that the effects of Human Caused Climate Change are not far off in the future and only a problem for our grandchildren. They are a significant threat to people today. Hundreds of thousands of chickens died in the heat dome, now hundreds of thousands have died in the flood. At least 500 cows and thousands of pigs also died in the floods. What will happen to our food costs now that the farmland in the Fraser Valley has been inundated? The costs for building in resilience and repairing our infrastructure, buildings, and farms far outweigh the impact of carbon tax or any transition to a carbon free society.

Write to your Provincial and Federal Governments

Our governments are not moving fast enough to properly manage the threats of climate change. The Federal Government, while they did enact the country wide carbon tax, are still promoting fossil fuel pipelines, and subsidies. Our Provincial Government is slow to restrict logging in old growth forests and are promoting LNG plants. Each government has a climate plan, but neither plan will work with their current focus on fossil fuels. So write and ask them why they are doing this. Reduce our own personal Carbon Footprint.

Humans are dumping 42 gigatons of GHG per year into the atmosphere. That is a cube 28km per side. While Canada produces only 1.5% of the worlds GHG emissions, we only represent 0.4% of the population. Our vehicles produce more CO2 per km than any other country. We can blame India and China but their carbon footprint per capita is much less than our own.

Here are some ideas for reducing your own personal GHG emissions.

- Calculate how much GHG you produce now.
- Drive as little as possible. If you can, walk or ride a bike, combine trips, try transit if possible
- Don't idle, choose a car that gets better milage, consider a hybrid, plug n hybrid or an electric car.
- Reduce your Natural Gas consumption. Replace natural gas with heat pump, purchase Renewable Natural Gas.
- Reduce meat consumption, especially beef and lamb. Consider a few vegetarian meals each week.
- Be diligent with waste, compost, and recycle all you can.
- Reduce purchases. Many items are throw away. For Christmas give experiences instead of stuff.

Anything you can do will help

I have a T-Shirt that says: "If you think you are too small to make a difference....Try sleeping with a mosquito." Dali Lama.

We have to believe that we can make a difference. The world knows what to do, the world has the tools it needs, it is a lack of political will that is holding us back.