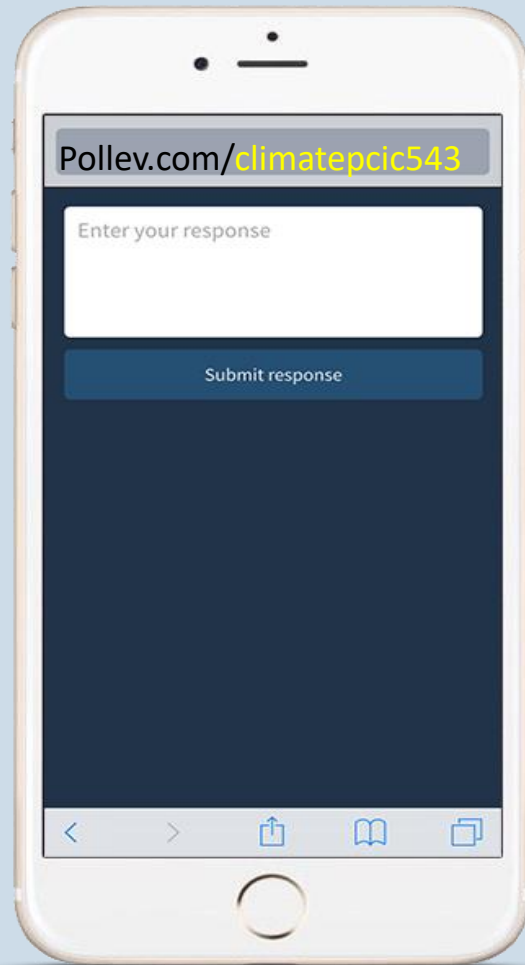
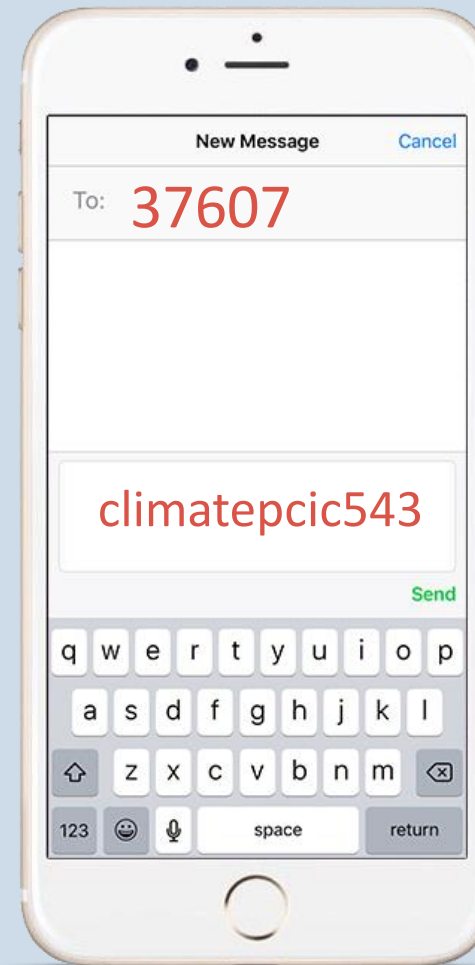


Responding with Poll Everywhere



Web voting



Text voting





What are the most pressing issues you face in your work today?

Preparing for a changing climate

26 November 2019

8th Annual Public Sector Climate Leadership Symposium

Vancouver, BC



University
of Victoria

Trevor Murdock

Nutrition Facts

Serving Size 1 presentation

Amount Per Serving

Slides 60

Minutes 80

% Daily Value*

Maps 2

0%

Plots 15

250%

Polling questions 4

150%

Photos 10

20%

Cartoons 0

0%

Humour

5% ?

* Percent Daily Values are based on a diet of one two-day symposium

Assessing risk based on future climate

is necessary,

and possible,

and requires change.

Resource: climate change in BC

BC Agricultural Climate Adaptation
Research Network

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Get Involved

MODULE 1: USING FUTURE CLIMATE PROJECTIONS

Home / BC Agriculture and Climate Change Education Series / Module 1: Using Future Climate Projections

| Home | Module 1 | Module 2 | Module 3 | Module 4 |

Module 1: Using Future Climate Projections

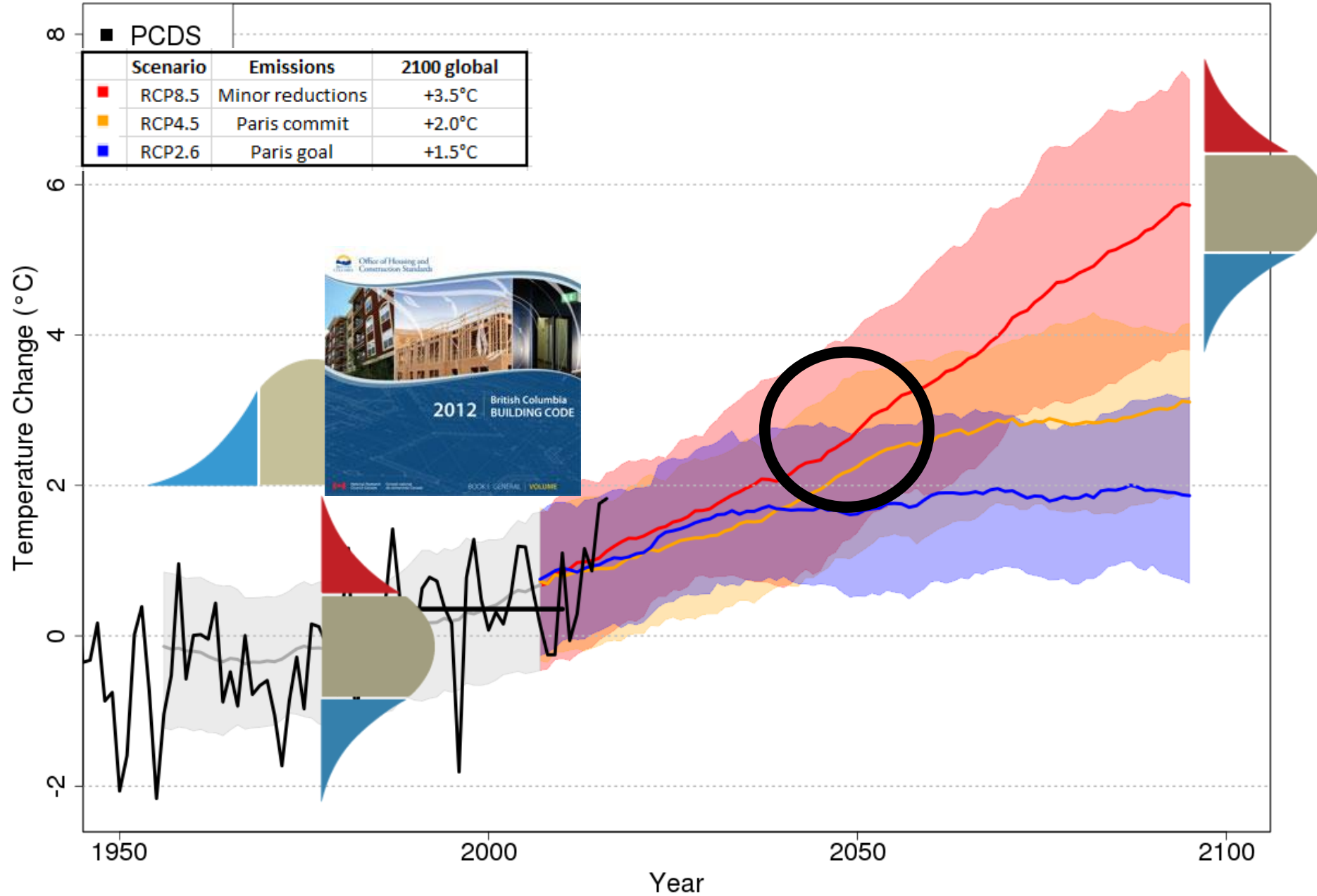
Trevor Murdock and Kari Tyler, Pacific Climate Impacts Consortium

Trevor Murdock explains how climatology is being used for projecting climate change related challenges and opportunities in the British Columbia agriculture sector. This includes an overview of climate science concepts and tools and case study examples of regional work that the Pacific Climate Impacts Consortium has done for agricultural stakeholders across the province. Kari Tyler provides an introduction to how climate science can be integrated into programming and move organizations and institutions along the path of adaptation to climate change impacts.

Live recording of Module 1 webcast (1 hr, 12 mins)

www.bcacarn.com/educationseries/module-1-using-future-climate-projections/

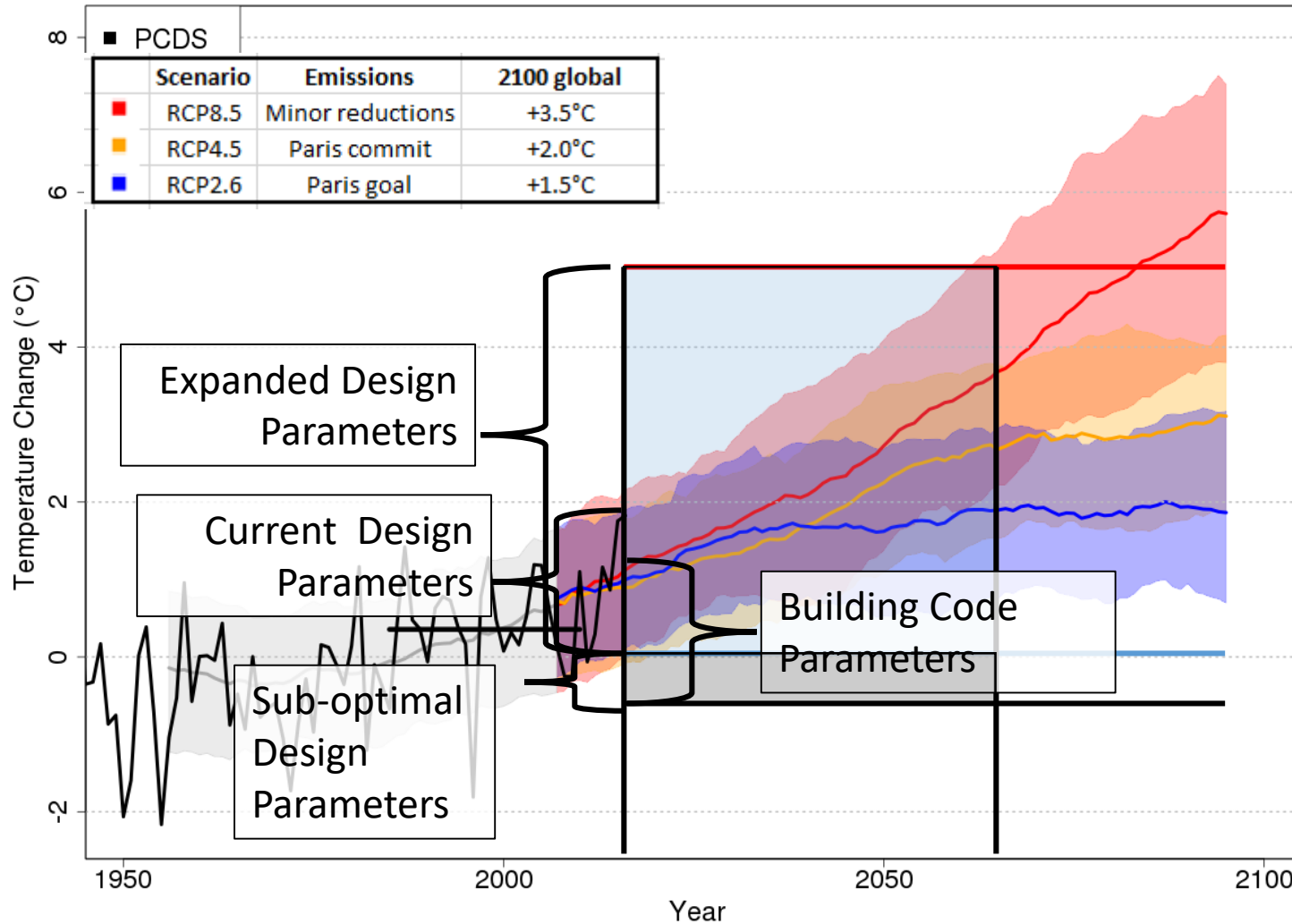
Future Warming in BC



What does this image tell us?



Climate Design Parameters



1. Past conditions not a good guide for future
2. Past conditions don't even represent today
3. Building code values use past → inadequate
4. Conditions keep changing with time in all but best case
5. Must accommodate wider range of conditions in all cases
6. 2050s cautious roughly equals 2070s optimistic

BC Building Code 2012



- “Climate is not static”
- “greenhouse gas emissions are expected to alter most climatic regimes in the future”
- “buildings will need to be designed, maintained, and operated to adequately withstand ever changing climate loads.”
- “The analysis generally assumes that the past climate will be representative of the future climate”

Thank you

More information

www.PacificClimate.org

Climate Insights 101

[http://pics.uvic.ca/education/climate-insights-101#quicktabs-climate insights 101=1](http://pics.uvic.ca/education/climate-insights-101#quicktabs-climate%20insights%20101=1)

BC Agricultural Climate Adaptation Research Network

<https://www.bcacarn.com/educationseries/module-1-using-future-climate-projections/>

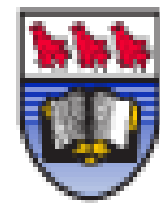


Now what?

26 November 2019

8th Annual Public Sector Climate Leadership Symposium

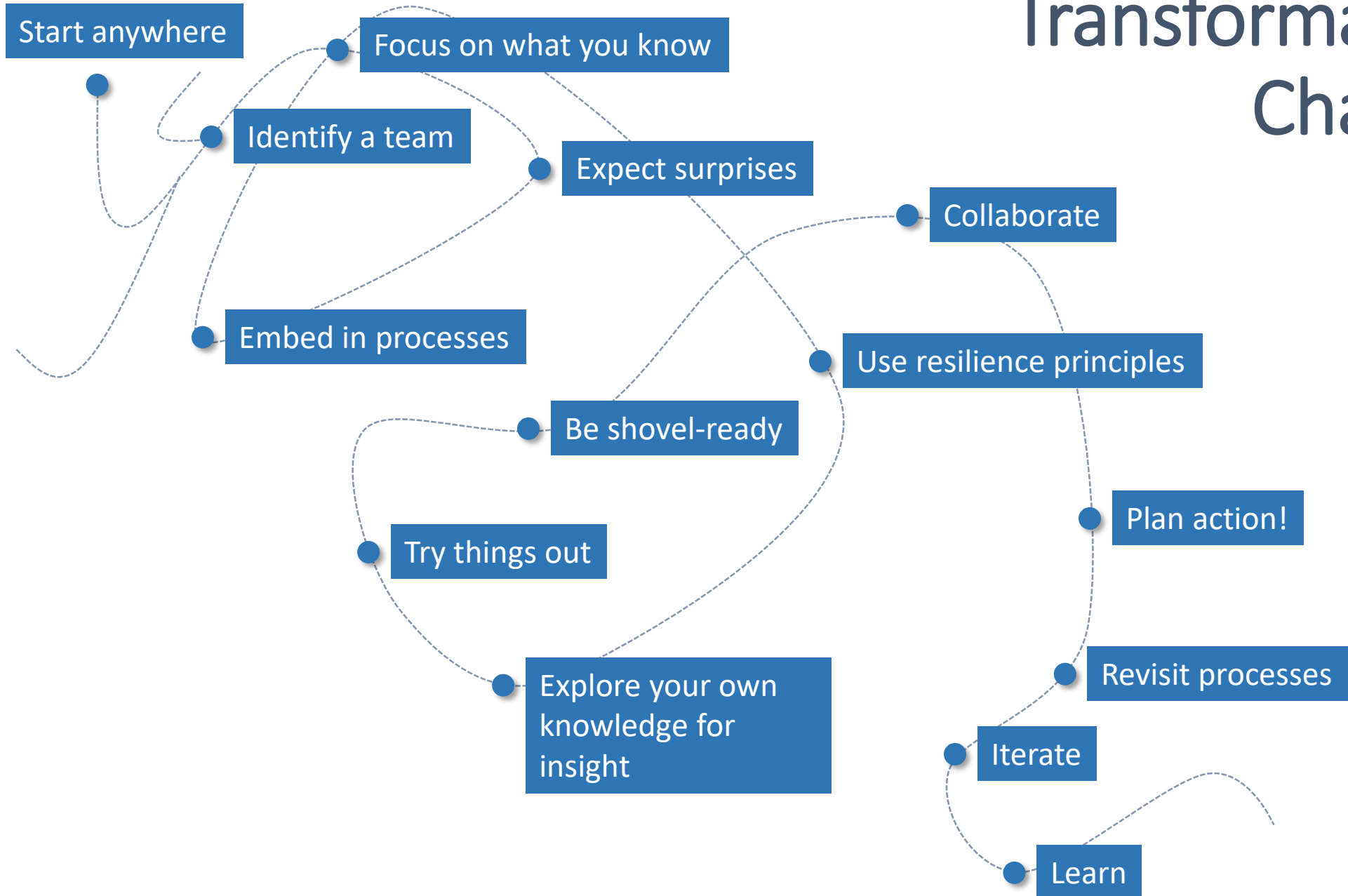
Vancouver, BC

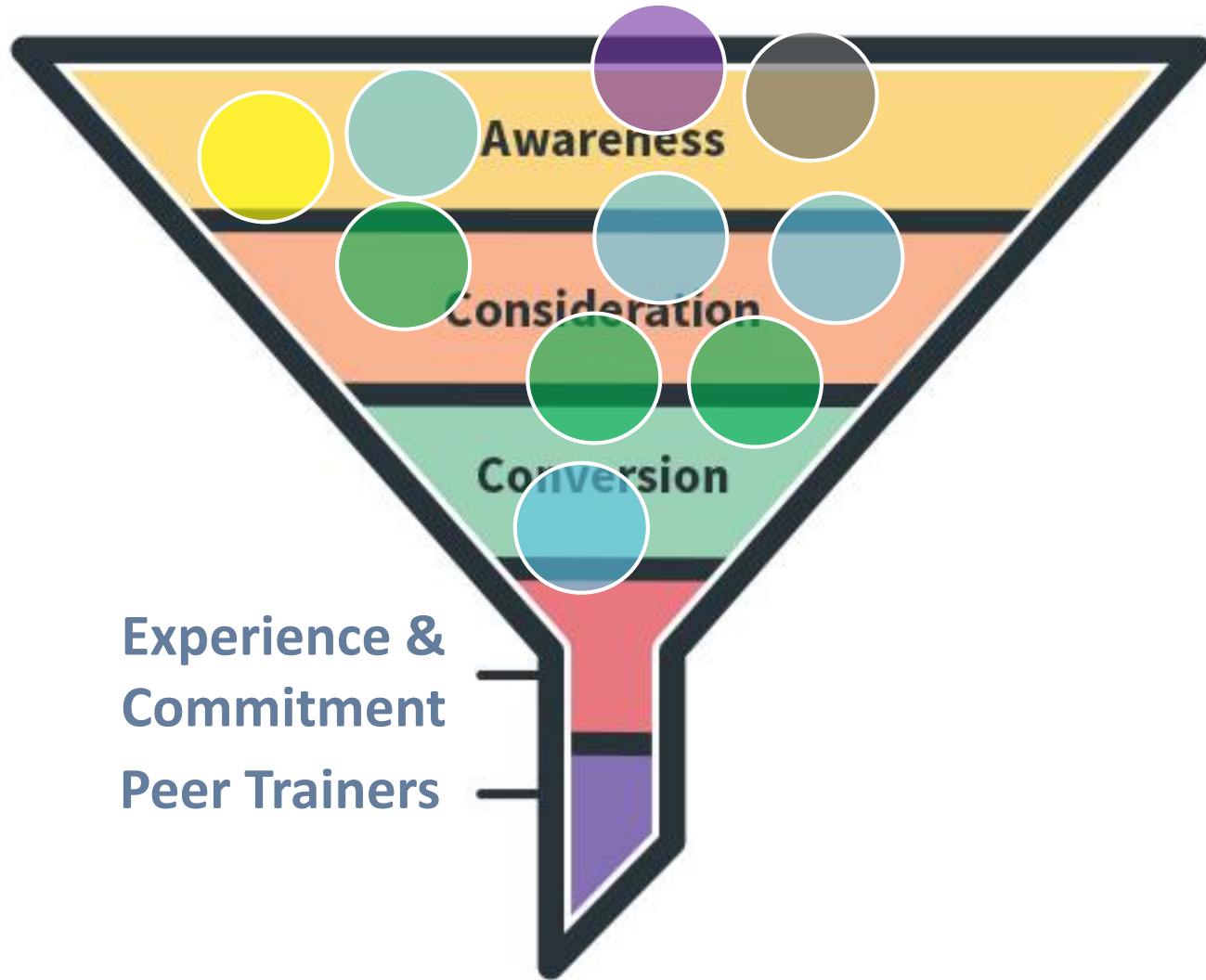


University
of Victoria

Kari Tyler

Transformative Change





Location of Current Pilot Projects

Vancouver



North Shore



Victoria



Nelson



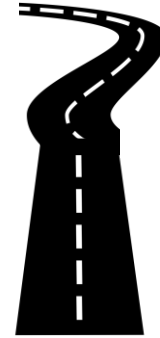
Burnaby



Given what you've heard so far, what did you learn about your role in adaptation?

Mindset shifts to plan for climate change

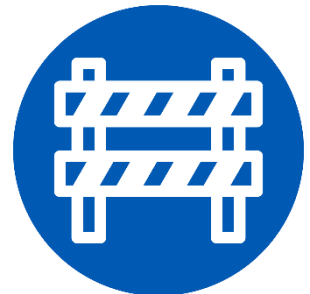
“Stationarity is dead”



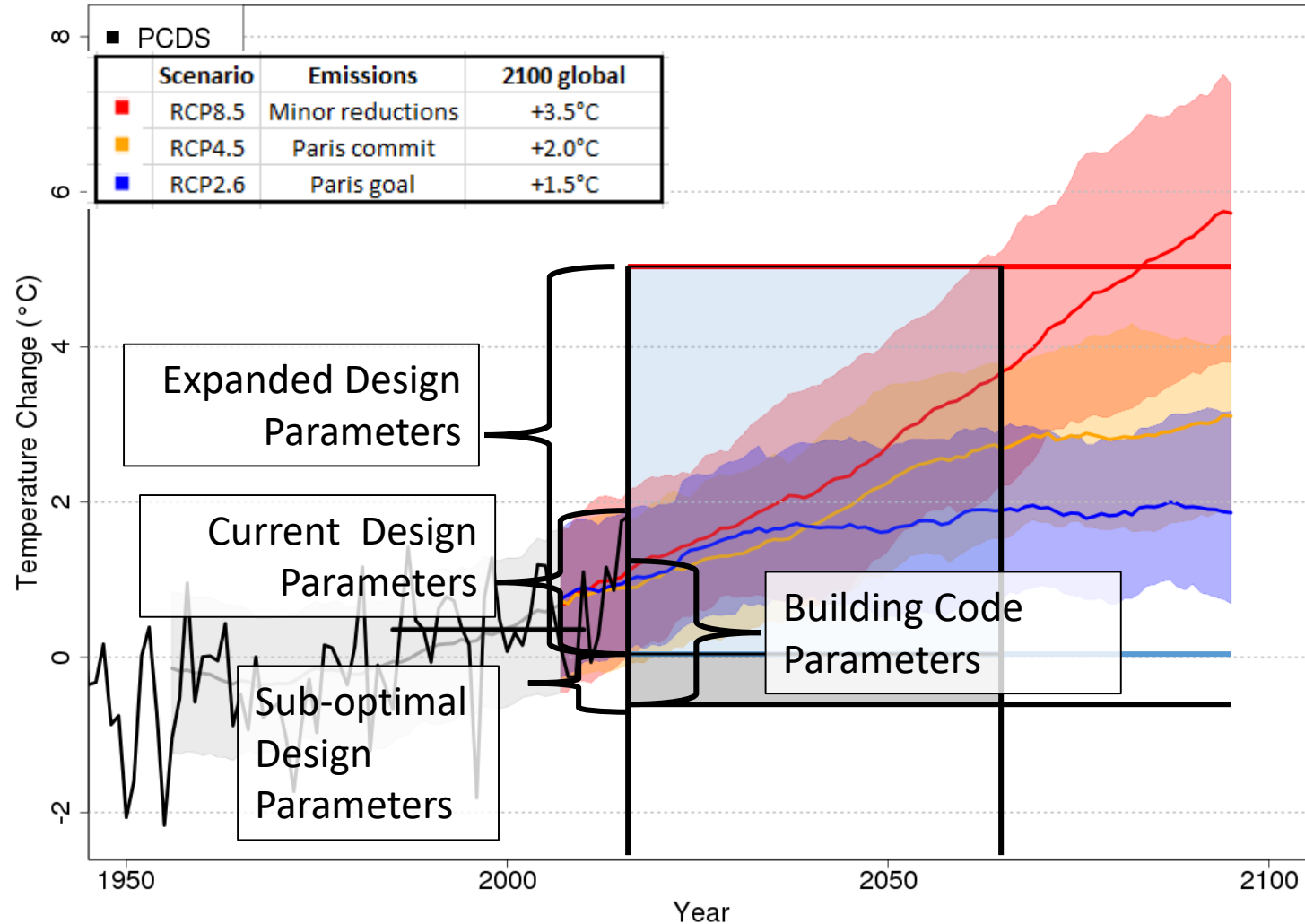
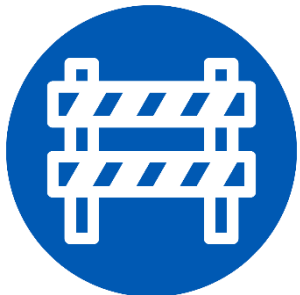
Plan for Resilience

“Restrictions breed creativity”

- *Mark Rosewater*

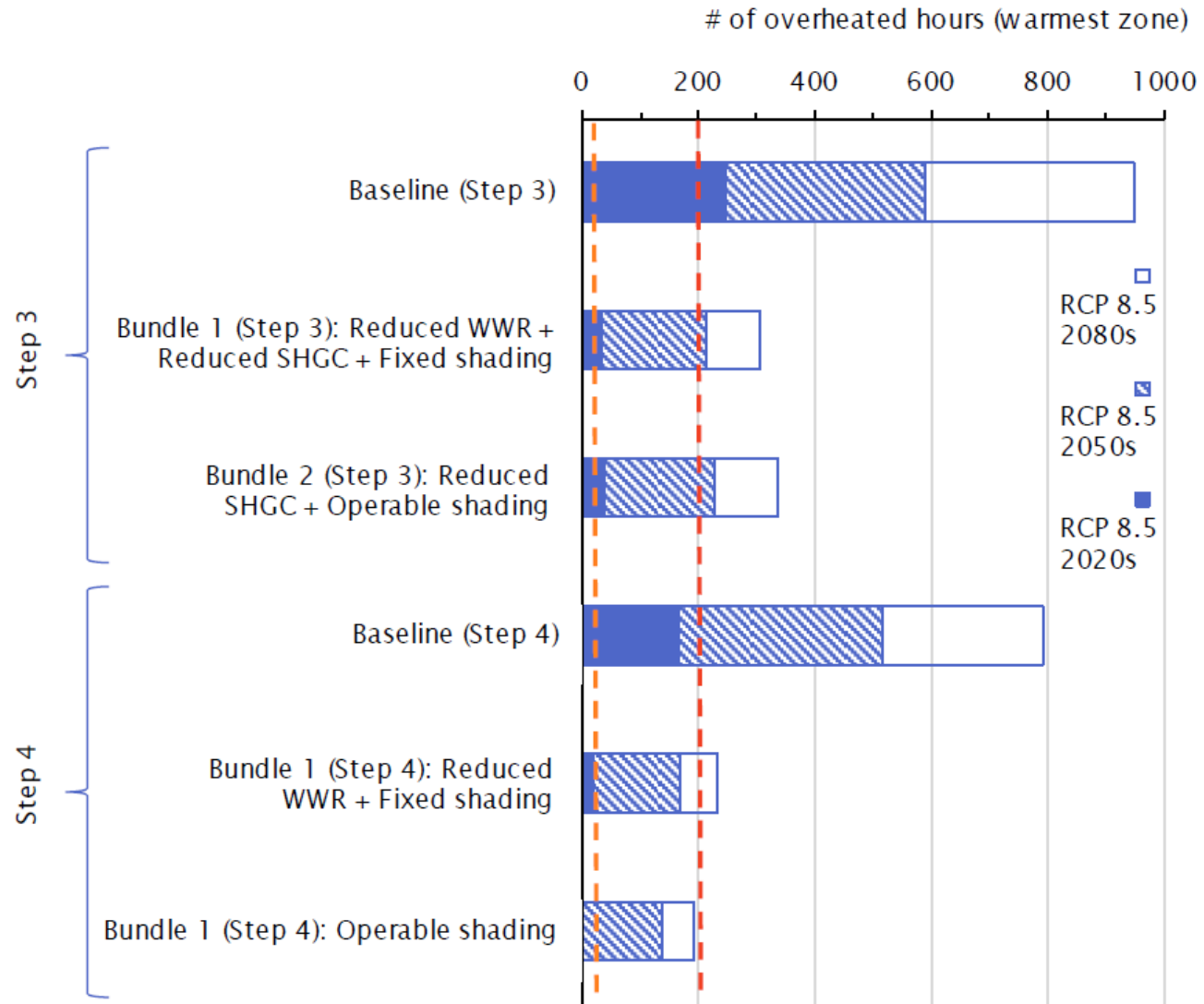


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Resilience to Summer Heating Events: New Low Rise Archetype



Weather Files Training and Engagement

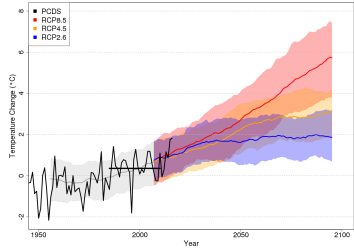
www.pacificclimate.org/data/weather-files

- Engage with energy modellers & their colleagues
- Training workshops
- Feedback to inform design of web portal; what info, where?
- Coming spring 2020

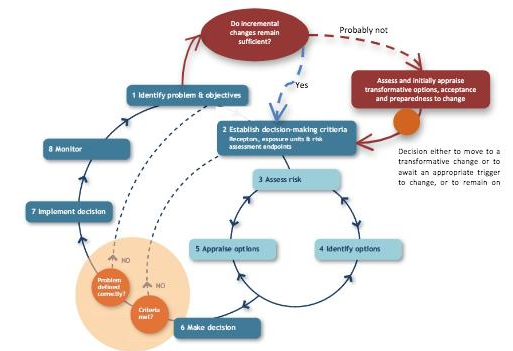


The image shows a screenshot of the Pacific Climate Impacts Consortium (PCIC) website. The top navigation bar includes the University of Victoria logo, a search bar, and links for HOME, CONTACT, and SEARCH. Below this, the PCIC logo is displayed alongside navigation links for ABOUT PCIC, DATA PORTAL, ANALYSIS TOOLS, and RESOURCES. The main content area features a "DATA PORTAL" sidebar with links to various datasets: Daily Gridded Meteorological Datasets, BC Station Data, PRISM Climatology and Monthly Timeseries Portal, Statistically Downscaled Climate Scenarios, Gridded Hydrologic Model Output, and Station Hydrologic Model Output. The main content area has a header image of a forest with autumn foliage and a banner that reads "Furthering Our Understanding of the Climate". Below the banner, the page title "WEATHER FILES" is displayed in green, followed by a breadcrumb trail: "Home / Data Portal / Weather Files". The main text explains that future shifted weather files are available in the EPW file format for conditions in the 2050s and 2080s emissions scenarios, and that future-shifting (morphing) smoothing is applied to daily adjustments of the files. Overlaid on the bottom right of the screenshot is a photograph of a training workshop. Several people are seated around a long table, working on laptops and looking at documents. A woman in a pink shirt is standing and presenting to the group.

Best Practices for Adaptation to Enable Resilience



- Start using future projections
- Expect future climate information to be imperfect or incomplete
- Talk to people with different roles
- Iterate: learn, rinse, repeat, learn, bump, turn, keep going, try again...



What is an action you can take to help the integrate future climate projections into your work?

Thank you

tmurdock@uvic.ca

ktyler@uvic.ca

www.PacificClimate.org



Questions?

Resource – BC climate projections reports

[Metro Vancouver](#)

[Capital Regional District](#)

[Cowichan Valley Regional District](#)

[Vancouver Coastal Health](#)

[BC Agriculture & Food Climate Action Initiative](#)

Resource: online tools

Resources to accompany BC Regional Adaptation Collaborative webinar
30 November 2016

Plan2Adapt <http://pacificclimate.org/analysis-tools/plan2adapt>

PICS short course http://pics.uvic.ca/education/climate-insights-101#quicktabs-climate_insights_101=1

ClimateBC

- HectaresBC <http://www.hectaresbc.org>
- ClimateWNA <http://genetics.forestry.ubc.ca/cfcg/ClimateWNA/ClimateWNA.html>
- ClimateBC Online <http://www.genetics.forestry.ubc.ca/cfcg/ClimateBC40/Default.aspx>
- BC Climate Explorer <http://www.bc-climate-explorer.org/>

PCIC Data Portals <https://pacificclimate.org/data>

Data Basin

<https://nplcc.databasin.org/galleries/5a3a424b36ba4b63b10b8170ea0c915e#expand=105363%2C106698%2C106712%2C110010%2C105359%2C105364>

<https://pacificclimate.org/news-and-events/news/2016/webinar-climate-tools>

Summary

Region & Time

Temperature

Precipitation

Snowfall

Growing DD

Heating DD

Frost-Free Days

Impacts

Notes

References

Summary of Climate Change for Fraser-Fort George in the 2050s

Climate Variable	Season	Projected Change from 1961-1990 Baseline	
		Ensemble Median	Range (10th to 90th percentile)
Mean Temperature (°C)	Annual	+1.7 °C	+1.2 °C to +2.6 °C
Precipitation (%)	Annual	+7%	-1% to +13%
	Summer	-1%	-8% to +5%
Snowfall* (%)	Winter	+10%	-3% to +18%
	Spring	-2%	-10% to +9%
Growing Degree Days* (degree days)	Annual	+245 degree days	+152 to +407 degree days
Heating Degree Days* (degree days)	Annual	-624 degree days	-944 to -432 degree days
Frost-Free Days* (days)	Annual	+20 days	+12 to +31 days

The table above shows projected changes in average (mean) temperature, precipitation and several derived climate variables from the baseline historical period (1961-1990) to the 2050s for the Fraser-Fort George region. The ensemble median is a mid-point value, chosen from a PCIC standard set of Global Climate Model (GCM) projections (see the 'Notes' tab for more information). The range values represent the lowest and highest results within the set. Please note that this summary table does not reflect the 'Season' choice made under the 'Region & Time' tab. However, this setting does affect results obtained under each variable tab.

* These values are derived from temperature and precipitation. Please select the appropriate variable tab for more information.

Resource – guidance documents

[BC Ministry of Transportation and Infrastructure Technical Circular](#)

[EGBC guidance document](#)

[National guidebook on climate scenarios](#)

Resource: review

BC Agricultural Climate Adaptation
Research Network

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Module 1: Using Future Climate Projections

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Live recording of Module 1 webcast (1 hr, 12 mins)

www.bcacarn.com/educationseries/module-1-using-future-climate-projections/

Resource: inspiring climate action

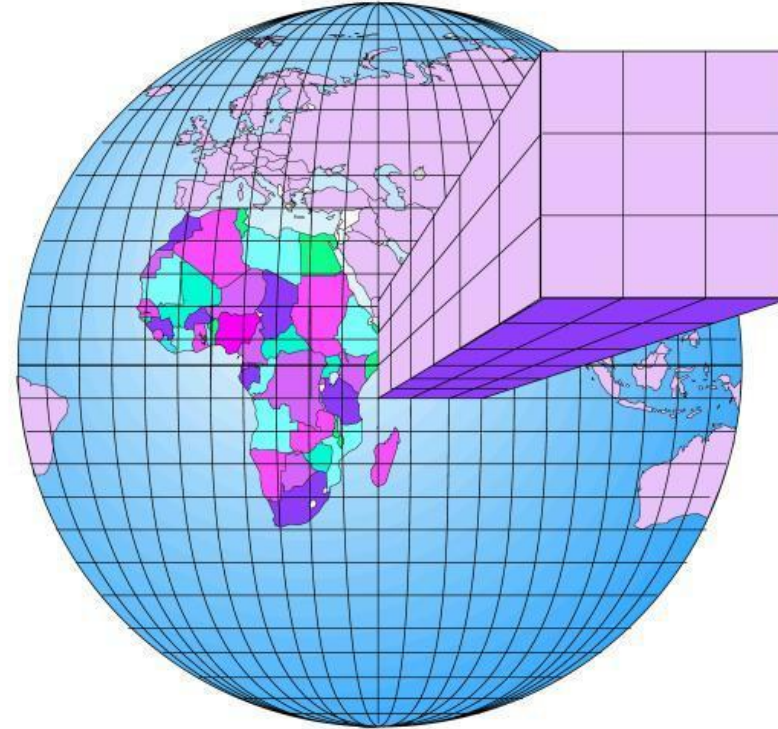


The ResiliencebyDesign Lab's **Inspiring Climate Action (ICA)** project has just launched its website. This site will be a hub for connecting those interested in climate adaptation in BC and beyond.

www.royalroads.ca/current-students/news/inspiring-climate-action-project-website

Resource: What are Global Climate Models?

- Mathematical representations of the global climate system
- Used to understand and predict changes in the global climate system
- GCMs are the “...only credible tools currently available for simulating the physical processes that determine global climate...” [IPCC]



https://pics.uvic.ca/insights/module1_lesson4/player.html

Resource:

PICS climate insights 101


1 Climate Science Basics

2 BC Climate Impacts & Adaptation


3 Mitigation

Climate change is already here and will speed up over time. This course is a how-to guide for projecting future climate within British Columbia and preparing for those changes.


The Climate of British Columbia
BC's climate variability over time, decadal oscillations, how baselines are changing...
[WATCH LESSON 1](#)




Projected Climate Change in British Columbia
Why BC will heat faster than the global average, downscaling, and handy tools to predict local climate...
[WATCH LESSON 2](#)



Climate Impacts in British Columbia
What lies ahead for BC's critical river basins, forests, marine habitat and shorelines...
[WATCH LESSON 3](#)



Adaptation
Minimizing risk for BC communities, new opportunities for agriculture and a how-to guide for adaptation planning...
[WATCH LESSON 4](#)



Resource: general climate education



<https://www.youtube.com/channel/UCi6RkdaEggRVKi3AzidF4ow>

Resource:

[CBC Podcast](#)



Resource: what to do with all the climate feels

[EcoAnxious.ca](https://www.ecoanxious.ca)

twitter.com/EcoAnxiousCa

TAKE A DEEP BREATH

tips for individuals
navigating eco-anxiety

make room for mixed emotions



think both/and

- Make space for conflicted feelings without jumping to judgement about "good" & "bad" ways to feel/think.
- Find constructive ways to express what you're experiencing.



practice self-companionship

- Model compassion and balance how much you take in that is distressing.
- Rather than repress things, focus on building skills for a life-long relationship with your feelings about the climate crisis.

create new patterns



reduce dissonance

- Reflect on the parts of your daily life that misalign with the future you hope to live into.
- Re-frame your personal choices as a daily reminders that conditions for choices are about to change in a big way.



focus on choices

- Remember that you're not powerless. Focus on the choices you have while acknowledging the limits you experience.
- Take time to connect with others. Start conversations and organize projects with folks you already know.

locate a sense of belonging



link up with others

- Connect with other people who are experiencing eco-anxiety and pool your energy/resources.
- Open your eyes to new perspectives and be ready to listen to & learn from those on the front-lines of the fight.



contribute your power

- There's no one-size-fits-all approach to the climate crisis, so reflect on your unique "super-powers" and your spheres of influence.
- Offer your privilege, power, resources, voice, and energy to those already advancing meaningful solutions.

Thank you to our contributors:
Leslie Davenport
Dan Rubin
Renee Lertzman



@ecoanxiousca
www.ecoanxious.ca

Resources for you:
How to tell your story
How to break the silence
How to make a difference

START A CONVERSATION

tips for groups
navigating eco-anxiety

create space to share



come together

- Create opportunities for people to express their conflicted feelings without judgement about the proper way to process.
- Offer tools for working through complex feelings and thoughts.



prioritize group dynamics

- Put care and intention into the space you create for sharing about eco-anxiety.
- Establish boundaries for a safe environment, such as confidentiality, respecting others, speaking only for yourself & sharing the air.

make actions tangible



connect the dots

- Draw connections between global impacts of the climate crisis and the local-level experience.
- Highlight values that are shared between folks in the group and explore how those values relate to collective climate action.



point to barriers

- Acknowledge barriers to meaningful action, like built environments, political structures, and cultural norms.
- Discuss policy changes, local efforts, and new systems that would make it easier to act.

explore multisolving



focus on systems

- Analyze the systems that contribute to the conditions for our choices individually and collectively.
- Pay attention to the voices of people who study systems and of those disadvantaged by systems.



identify intersection

- Talk about how multi-level, overlapping problems offer a chance for multi-level, overlapping solutions.
- Explore how taking ambitious action on the climate crisis could improve life for those currently under-served by today's systems and structures.

Inspired by works from:
Leslie Davenport
Climate Interactive
Mary Anissa Hegler
and many more



@ecoanxiousca
www.ecoanxious.ca

Resources for you:
How to tell your story
How to break the silence
How to make a difference

Resource:
reducing
emissions

OUTRAGE AND OPTIMISM



globaloptimism.com/podcast

Resource: reducing emissions

[Drawdown.org](https://drawdown.org)

The screenshot shows the Project Drawdown website interface. At the top, there is a navigation bar with the Project Drawdown logo, a hamburger menu icon, social media icons for Twitter, LinkedIn, Facebook, and Instagram, a search icon, and buttons for 'email sign up' and 'donate'. Below the navigation bar, the main content area is divided into five columns, each representing a different sector. Each column has a blue header and a list of solutions. The sectors and their respective solutions are: Electricity Generation, Food, Buildings and Cities, Transport, and Coming Attractions. There is also a 'MATERIALS' section under the Transport column.

ELECTRICITY GENERATION	FOOD	BUILDINGS AND CITIES	TRANSPORT	COMING ATTRACTIONS
Biomass	Biochar	Bike Infrastructure	Airplanes	A Cow Walks Onto A Beach
Cogeneration	Clean Cookstoves	Building Automation	Cars	Artificial Leaf
Concentrated Solar	Composting	District Heating	Electric Bikes	Autonomous Vehicles
Energy Storage (Distributed)	Conservation Agriculture	Green Roofs	Electric Vehicles	Building With Wood
Energy Storage (Utilities)	Farmland Irrigation	Heat Pumps	High-speed Rail	Direct Air Capture
Geothermal	Farmland Restoration	Insulation	Mass Transit	Enhanced Weathering of Minerals
Grid Flexibility	Improved Rice Cultivation	Landfill Methane	Ridesharing	Hydrogen-Boron Fusion
In-Stream Hydro	Managed Grazing	LED Lighting (Commercial)	Ships	Hyperloop
Methane Digesters (Large)	Multistrata Agroforestry	LED Lighting (Household)	Telepresence	Industrial Hemp
Methane Digesters (Small)	Nutrient Management	Net Zero Buildings	Trains	Intensive Silvopasture
Micro Wind	Plant-Rich Diet	Retrofitting	Trucks	Living Buildings
Microgrids	Reduced Food Waste	Smart Glass		Marine Permaculture
Nuclear	Regenerative Agriculture	Smart Thermostats		Microbial Farming
Rooftop Solar	Silvopasture	Walkable Cities	MATERIALS	Ocean Farming
Solar Farms	System of Rice Intensification	Water Distribution	Alternative Cement	Pasture Cropping
Solar Water	Tree Intercropping		Bioplastic	Perennial Crops
Waste-to-Energy	Tropical Staple Trees	LAND USE	Household Recycling	Repopulating the Mammoth Steppe
Wave and Tidal		Afforestation	Industrial Recycling	Smart Grids
Wind Turbines (Offshore)	WOMEN AND GIRLS	Bamboo	Recycled Paper	Smart Highways
Wind Turbines (Onshore)	Educating Girls	Coastal Wetlands	Refrigerant Management	Solid-state Wave Energy
	Family Planning	Forest Protection	Water Saving - Home	
	Women Smallholders	Indigenous Peoples' Land Management		
		Peatlands		
		Perennial Biomass		
		Temperate Forests		
		Tropical Forests		

Resource: myth busting



SkepticalScience.com

Resource: climate denial logical fallacies



Cranky Uncle

CrankyUncle.com