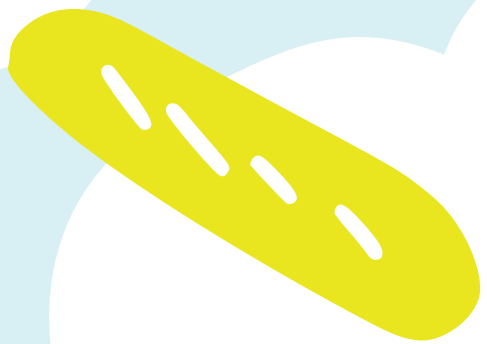


AN EATER'S GUIDE TO

# CLIMATE ACTION





*An Eater's Guide to Climate Action* was developed by Food For All NB | Aliments pour tous NB.  
This document was published in March 2021.

Thank you to the advisors who contributed to this guide's development:

- Adam Cheeseman, Nature NB
- Marc-André Chiasson, ECO 360
- Lois Corbett, Conservation Council of New Brunswick
- Melanie Jellett, Canadian Parks and Wilderness Society – New Brunswick Chapter
- Ariane Juneau-Godin
- Amanda Marlin, EOS Eco-Energy
- Tim Murphy, New Brunswick Environmental Network
- Marc Picard, Pays de Cocagne Sustainable Development Group
- Adrian Prado, Northwest Regional Service Commission
- Jessica Sargent, Public Health, Government of New Brunswick
- Rachel Scoville, RD
- Bernard Soubry, Environmental Change Institute, University of Oxford

We would also like to thank Nicole Arsenault, Louise Comeau, Briana Cowie, Kaleigh Holder, Sarah Lazarovic, Prativa Pradhan, Deana Sappier, and Sasha Wood for their input and advice. Our thanks to Food and Climate intern Jasmine Tremblay D'Ettorre for the intense amount of research that she compiled.

Food For All NB envisions a New Brunswick that is informed, connected, and engaged in food security for all. Its mission is to provide leadership in the advancement of food security and food movements in New Brunswick. Food For All NB is an initiative of the United Way of Central New Brunswick.

For more information, visit [foodforallnb.ca](http://foodforallnb.ca).

This document was revised and translated by Bourret Translation Inc.



Your Environmental Trust Fund at Work  
Votre Fonds en fiducie pour l'environnement au travail

# LETTER FROM THE DIRECTOR

**Climate change is the single biggest issue facing our species and our planet. We must act urgently. We may not all be in a position to install solar panels or legislate climate policy, but we are all eaters.**

I have always believed in the power of food. Food is deeply social and cultural. Food brings us together. Food connects us to the land and to one another.

Food can also be a source of conflict and concern. Currently, our food systems contribute to climate change because of the many ways that we produce, control, distribute, and consume food. It doesn't have to be this way. Our food systems can be part of the solution.

**Through food, we can meet the urgent challenge of climate change.** Food is intimate. It brings us into the solution in a very human way. Every bite is part of a chain reaction that connects us at a bigger level.

I'm reminded of the now-famous quote from zero-waste champion Anne-Marie Bonneau, "We don't need a handful of people doing zero waste perfectly. We need millions of people doing it imperfectly."<sup>1</sup> The same can be applied to climate action, and it is not too late to start.

On behalf of Food For All NB, I'm thrilled to present *An Eater's Guide to Climate Action*. This guide is not intended to provide all of the answers. It does, however, aim to pull together locally relevant information and resources on how New Brunswickers can connect food and climate change towards positive action.



**Laura Reinsborough**  
Director, Food For All NB

**“You are alive at just the right moment  
to change everything.”<sup>2</sup>**

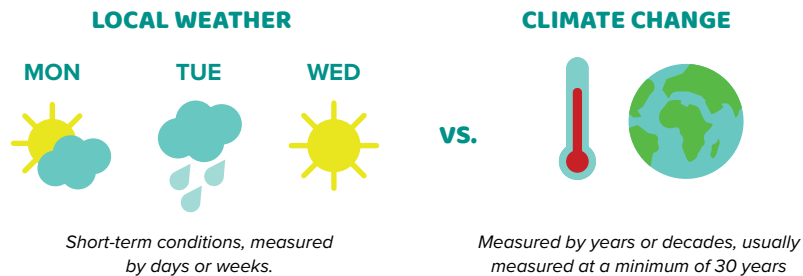
**– Eric Holthaus**

# TABLE OF CONTENTS

What is Climate Change? .....	6	Food Loss & Waste .....	20
Climate Change & Our Food .....	10	On Your Plate .....	22
Land & Soil .....	12	Self & Community Provisioning .....	24
Oceans & Waterways .....	14	Ideas for Action .....	26
Wild Foodways .....	16	Further Readings & Resources .....	28
Energy Use & Transportation .....	18	References .....	29

# WHAT IS CLIMATE CHANGE?

**Climate change** describes a change in the average conditions — such as temperature and rainfall — in a region over a long period of time.<sup>3</sup>



The overwhelming majority of scientists agree that temperatures are now rising faster than at any other time, and that the greenhouse gases (GHGs) emitted by human activities are the primary cause.<sup>4</sup>

Temperatures in Canada are rising, on average, at about **twice the rate** of the rest of the world.<sup>5</sup>

## Why is our climate changing so rapidly?

Carbon is stored all over the planet — in plants, soil, oceans, Earth’s crust, even in us.<sup>6</sup>

We release carbon into the atmosphere as carbon dioxide (CO<sub>2</sub>) through activities such as burning fossil fuels (coal, oil and gas) for transportation, energy, food production, and more.<sup>6</sup>

Carbon dioxide is one of several greenhouse gases. Other more potent greenhouse gases include nitrous oxide (N<sub>2</sub>O) and methane (CH<sub>4</sub>).<sup>7</sup>

Meanwhile, we’ve been cutting down forests, destroying wetlands, plowing over soil, and generally limiting our planet’s ability to reabsorb these gases.<sup>6</sup>

The overabundance of greenhouse gases built up in the atmosphere, and the Earth’s inability to reabsorb them, traps more heat around the planet. This phenomenon is often referred to as the “greenhouse effect,” which acts like a blanket - trapping energy from the sun and causing the Earth’s temperature to rise.<sup>8</sup> This causes our climate to become imbalanced and to change more rapidly than it naturally would.

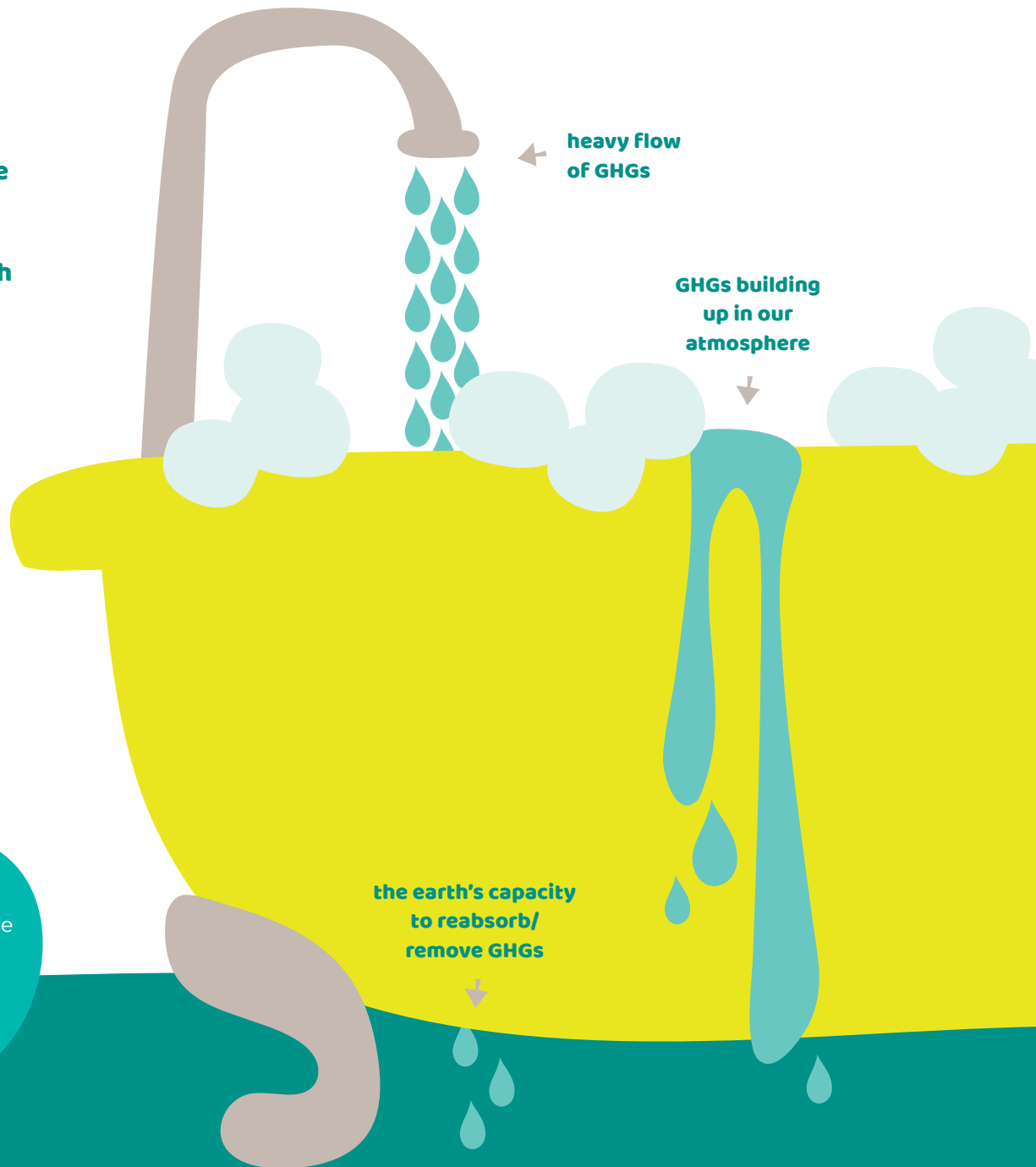
Today, the atmosphere contains **42% more carbon dioxide** than it did before the Industrial Revolution.<sup>6</sup>

**Consider the atmosphere as a bathtub: Right now, we're producing more greenhouse gas emissions (GHGs) than the atmosphere can handle. The tap is on full blast, the drain is too small and getting clogged, and the bath is overflowing!**

**So, what can we do?**

**Mitigation** means “turning off the tap” by reducing greenhouse gases and increasing “carbon sinks” like forests and healthy oceans.<sup>10</sup>

**Adaptation** means “widening the drain” by taking steps to reduce our vulnerability and to increase our preparedness when facing the impacts of climate change such as more extreme weather events, flooding, heat waves, coastal erosion and wildfires.<sup>11</sup>



91% of Canadians say that climate change is a serious issue and 88% report that climate change has impacted them.<sup>9</sup>

## WHAT IS CLIMATE CHANGE? (CONT'D)

### Who is causing climate change?

“The **poorest half** of the global population is only responsible for around **10% of global emissions**, yet live overwhelmingly in the countries most vulnerable to climate change – while the **richest 10%** of people in the world are responsible for around **50% of global emissions**.”<sup>12</sup>

**Climate justice** “insists on a shift from a discourse on greenhouse gases and melting ice caps into a civil rights movement with the people and communities most vulnerable to climate impacts at its heart.”<sup>15</sup>

**“The environmental movement needs to be centered around climate justice, decolonization and anti-capitalism. Anything else, and we’ll just further entrench the same systems of power that have gotten us to where we are now.”<sup>14</sup>**

- [Indigenous Climate Action](#)

**Did you know?** Canada has an average per person footprint of **15.6 tonnes** of carbon dioxide (CO<sub>2</sub>). The global average, in 2017, was **4.8 tonnes** per person.<sup>16</sup> In 2018, Canada ranked **11<sup>th</sup>** out of the 20 countries that emitted the most carbon dioxide (CO<sub>2</sub>) emissions and **5<sup>th</sup>** in per person emissions.<sup>17</sup>



**“The climate crisis is the result of social, political, and economic systems that are wildly skewed to benefit those who already have so much.”<sup>13</sup>**

**- Ayana Elizabeth Johnson and Katherine K. Wilkinson**

### **Food for Thought...**

**Climate change is a “threat multiplier.” This means that it makes conditions worse for people who are already vulnerable.<sup>18</sup>**

New Brunswick’s high rate of household food insecurity puts many New Brunswickers at risk. **13%** of New Brunswick households are food insecure. When considering youth and children (under the age of 18), the numbers rise to **one in every five** children<sup>19</sup>. And yet, these statistics do not include First Nations communities. A separate study determined that **31%** of Indigenous households in Atlantic Canada are food insecure.<sup>20</sup> **Evidence clearly demonstrates that household food insecurity is determined by socio-economic factors such as income and racial inequality.<sup>21</sup>**

The [David Suzuki Foundation](#) and many others have started using stronger terms such as **climate emergency**, **climate crisis**, **climate disruption** and **climate chaos** to reflect the severity of our situation.<sup>6</sup>

**Yes, we are in a precarious position. But there is still time to act.**

The Intergovernmental Panel on Climate Change (IPCC) stated in 2018 that we have to slash emissions by about **45%** from **2010** levels by **2030**. Then we have to reach **net-zero** around **2050**.<sup>22</sup> It can be done! There is still time.

**13%** of New Brunswick households are **food insecure**<sup>19</sup>

**1 in every 5** children in New Brunswick is **food insecure**<sup>19</sup>

**31%** of **Indigenous** households in Atlantic Canada are **food insecure**<sup>20</sup>

# CLIMATE CHANGE & OUR FOOD

**Global food systems account for around 26% of greenhouse gas emissions on the planet.<sup>23</sup>**

## **Eating from a Global Food System**

The food we eat in New Brunswick is almost entirely produced outside our province. For example, of the vegetables we consume, only 7% are produced here in New Brunswick. That means we're importing 93% of our vegetables.<sup>24</sup>


**Climate change is already affecting our [global food systems](#), causing food shortages, increasing food prices, and endangering food-related jobs and livelihoods.**

In 2020, Canada's Food Price Report predicted an increase of **2-4%** where the average Canadian family would spend \$487 more on food than in 2019. Calling climate change "the elephant in the room," the authors went on to state: "As it becomes more difficult to mitigate risks due to climate change, we should expect more outbreaks and food safety recalls thus affecting food availability and affordability."<sup>25</sup>

## **Close to Home**

[Climate projections for New Brunswick<sup>26 27</sup>](#) indicate that New Brunswickers can expect more extreme and more frequent weather events,<sup>28</sup> which will lead to impacts such as:

- Increase in high intensity rainfall → increase in severe flooding events in the spring and winter
- Longer and more frequent dry spells and heat waves (days above 30 °C in summer) → droughts leading to dry wells and water sources, increase in new pests, diseases and invasive species, crop damage
- Hurricanes that maintain their tropical strength in fall and increase in sea-level rise<sup>29</sup> → increased coastal erosion and flooding
- Higher intensity winter storms (more snow accumulation) → increase in ice storms, power outages, and lack of transportation leading to disruptions in food distribution
- Variation in freeze days → lost and damaged crops



Of the vegetables we consume, only **7%** are produced here in New Brunswick<sup>24</sup>

New Brunswick is seeing **more frequent extreme weather events**, and the resulting impacts on our food such as the repeat flooding of the Wolastoq (Saint John River)<sup>30</sup> affecting fiddlehead foraging<sup>31</sup> and the 2020 summer of drought affecting hay supplies<sup>32</sup>.

### Remember when?

In January 2017, an ice storm hit central and eastern New Brunswick, from Miscou Island to Sackville. At its peak, 133,000 customers (impacting almost **300,000 people**) were without power. Miramichi, Kent County, and the Acadian Peninsula regions were the hardest hit.<sup>33</sup>

In the Acadian Peninsula during this time, food bank requests at Au Rayon d'Espoir in Tracadie went from **40 to 140 visits** per day, **an increase of 350%**.<sup>34</sup>



# LAND & SOIL

**“The soil is the great connector of our lives, the source and destination of us all.”<sup>35</sup>**

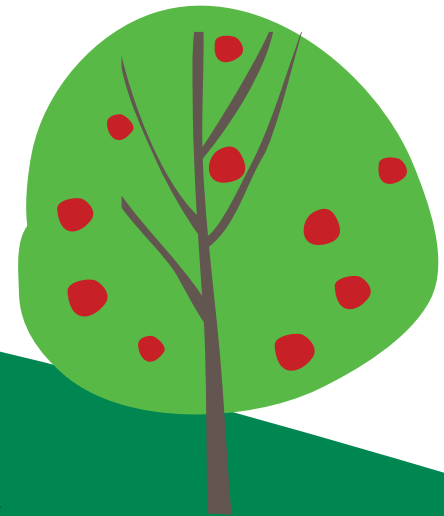
- Wendell Berry

**Agricultural** production is extremely dependent on weather and **climate**. Rainfall and temperatures play a big role in crop success, and without the right conditions, crops fail and pastures can become infertile. Interestingly, weather and **climate** are also highly influenced by **agricultural** practices.<sup>36</sup>

The [Climate Atlas map of very hot days](#)<sup>37</sup> shows large increases in heat coming to many of Canada’s agricultural regions, including the Maritimes.<sup>38</sup>

Lands used for agricultural production occupy about **40-50%** of the Earth’s land surface and are a major contributor to global greenhouse gas emissions.<sup>40</sup> These include farmlands, grasslands, permanent crops like trees and shrubs, and bioenergy crops (which produce energy from organic materials from plants or animals).

- At the same time, natural land processes absorb carbon dioxide (CO<sub>2</sub>) equivalent to almost a third of carbon dioxide (CO<sub>2</sub>) emissions from fossil fuels and industry!<sup>41</sup>



**“ My planning has changed in order to adapt to later frosts, earlier frosts, and midsummer heat waves. The farm (and hopefully the farmer) will always adapt, but it is less stressful (emotionally and financially) to be proactive rather than to be reactive.”<sup>39</sup>**

- Sarah Smith, Farmer, Sweet Soil Organic Farm, Centre Village, New Brunswick

*Climate Change and Land* asserts that the best way to address climate change is by putting a **focus on sustainability**. [Regenerative organic farming](#) can help mitigate climate change by working with natural systems to produce food, instead of relying on synthetic inputs like chemical fertilizers.<sup>41</sup>

Methods like [organic no-till](#) allows the soil to remain undisturbed, which improves its ability to capture and store atmospheric *carbon dioxide* (CO<sub>2</sub>) in the ground and return nutrients to our food.<sup>41</sup>

**Check it out:** [Regeneration Canada's map of regenerative farms in Canada](#)<sup>44</sup> features New Brunswick's own **Diddley Squash Farm** in **Salisbury, New Brunswick!**

**Did you know?** Farmers for Climate Solutions<sup>45</sup> is a [national alliance of farmer organizations and supporters](#) who believe that agriculture must be part of the solution to climate change.

**To mitigate climate change, we must drastically change our land use practices.**<sup>46</sup>

**Did you know?**

Globally, small-scale farmers – the majority of whom are women – feed **70%** of the people on Earth.<sup>42</sup> In many world regions, laws, cultural restrictions, patriarchy and social structures such as discriminatory laws and norms reduce women's capacity in supporting the sustainable use of land resources.<sup>43</sup>

**“By growing food using ecological methods, food production can regenerate air, water, soil, species and wildlife, and conserve healthy forests, wetlands and waterways.”<sup>47</sup>**



# OCEANS & WATERWAYS

**“Even if you never have the chance to see or touch the ocean, the ocean touches you with every breath you take, every drop of water you drink, every bite you consume. Everyone, everywhere is inextricably connected to and utterly dependent upon the existence of the sea.”<sup>48</sup>**

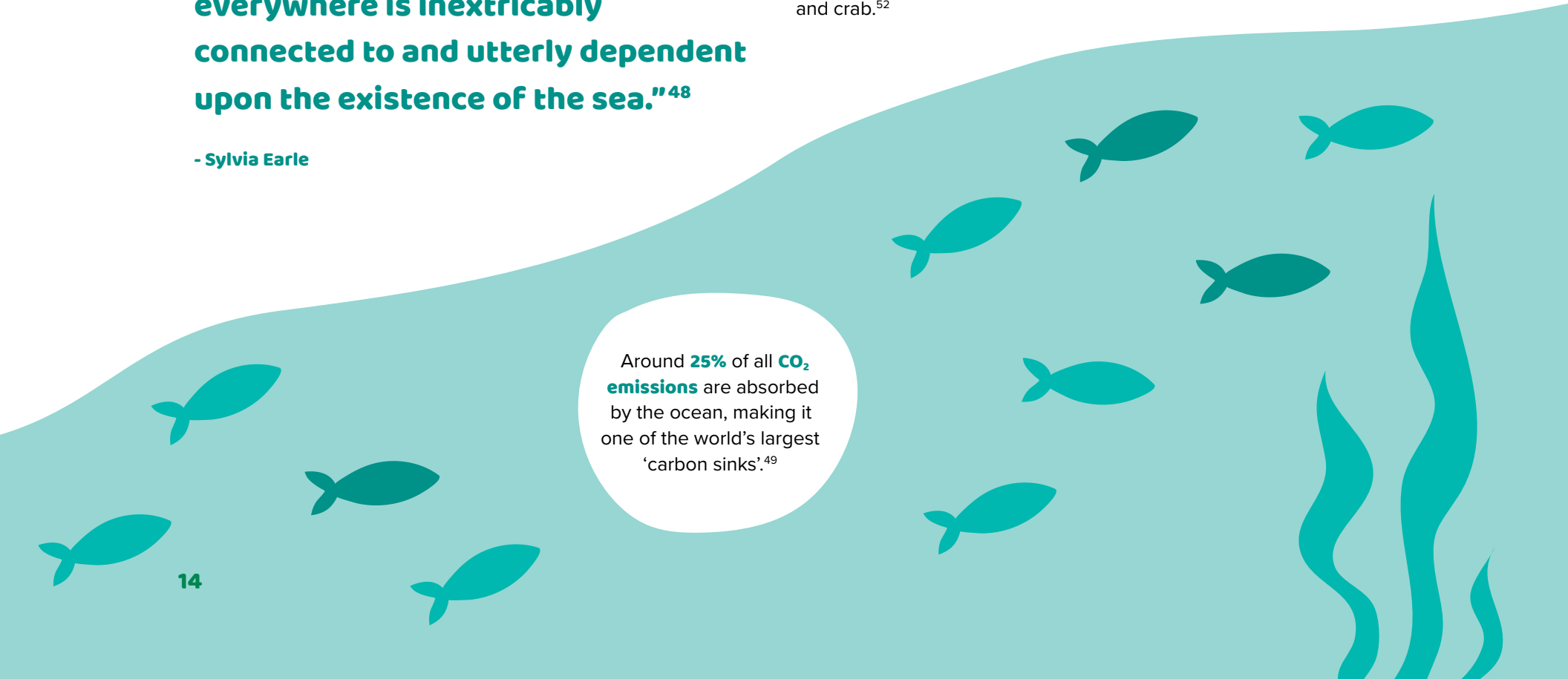
- Sylvia Earle

**Oceans play a critical role in capturing CO<sub>2</sub> from the atmosphere.**

Around 25% of all CO<sub>2</sub> emissions are absorbed by the ocean, making it one of the world’s largest ‘carbon sinks’<sup>49</sup> and making the ocean 30% more acidic in the last 200 hundred years.<sup>50</sup> This is faster than any known change in ocean chemistry in the last 50 million years.<sup>51</sup>

Ocean acidification can kill and degrade coral (an important habitat for many species) and degrades the shells of shellfish like lobster and crab.<sup>52</sup>

Around **25%** of all **CO<sub>2</sub> emissions** are absorbed by the ocean, making it one of the world’s largest ‘carbon sinks’.<sup>49</sup>





## Warming Waters

Oceans also absorb most of the heat generated by the growing concentration of greenhouse gases trapping heat at the Earth's surface.<sup>53</sup> The Gulf of Maine is warming faster than **99%** of the rest of the world's oceans. This will bring a change in marine biodiversity and in the distribution and availability of species.<sup>54</sup>

## Did you know?

- Conservationists are enhancing cold-water habitat for Atlantic salmon and trout in the Miramichi River watershed, providing first aid for fish in the face of climate change and deforestation.<sup>55</sup>
- Magellan Aqua Farms located in Saint Stephen, New Brunswick, grows two species of algae, sweet kelp and sea lettuce, using an underwater garden at the end of Passamaquoddy Bay. Kelp and lettuce absorb nitrogen, phosphorus and carbon dioxide produced by shellfish. In return, they produce oxygen, which scallops need to grow.<sup>58</sup>
- Seafood provides **17%** of the world's animal protein.<sup>59</sup> This amount is increasing daily due to the rapid expansion of aquaculture practices. The [Seafood Carbon Emissions Tool](#)<sup>59</sup> can help you explore, calculate and compare the relative carbon footprints of wild and farmed seafood.

**Salmon** and **trout**, which need cold rivers to thrive, will likely be found in **fewer** rivers and lakes.<sup>55</sup>

The **Miramichi River** can be expected to be more severely impacted, as water temperatures are already at the upper lethal limit for salmonids.<sup>56</sup>

In 2019, **heat waves** resulted in the closure or reduced angling in **27 salmon fishing pools** on two rivers in New Brunswick.<sup>57</sup>

You can **adopt a baby lobster** and take part in the sustainability of the lobster resource at [Homarus Eco-Centre](#) in Shediac, New Brunswick.



# WILD FOODWAYS

For thousands of years, First Nations in this part of the world have sourced their foods from wild foodways.<sup>60</sup> Traditional diets include **fish, shellfish, cod, lobster, oysters, eel, Atlantic salmon, scallops**, as well as seaweeds like **dulse, Irish moss, kelp**, wild greens like **fiddleheads, blueberries**, and **cranberries**.<sup>61</sup>

**Colonialism** and **climate change** have massively disrupted these traditions.<sup>61 62</sup>

**“Climate change poses threats and dangers to the survival of Indigenous communities worldwide, even though Indigenous peoples contribute the least to greenhouse emissions. In fact, Indigenous peoples are vital to and active in the many ecosystems that inhabit their lands and territories and may therefore help enhance the resilience of these ecosystems.”<sup>63</sup>**



Our global food supply does not reflect our wild foodways. **75%** of the world’s food on our grocery store shelves is generated from only **12 plants** and **5 animal species**.<sup>69</sup>

Community Forests International, based in Sackville, New Brunswick, has secured more than **1,200 hectares** of degraded land and replanted a diversity of Wabanaki-Acadian forest. The amount of carbon dioxide saved equals the greenhouse gas emissions of **8,229 passenger vehicles** driven for a year.<sup>67 68</sup>

The average American child can recognize **1,000 corporate logos**, but can’t identify **10 plants or animals** native to their own region.<sup>70</sup>



The Pays de Cocagne Sustainable Development Group created “Ethical Guidelines for Foraging for Food and Medicines in the Wild.”<sup>71</sup>



Hunting, foraging, fishing, trapping, and wild gathering remain important cultural traditions in New Brunswick for both Indigenous and non-Indigenous people.<sup>60</sup> Many of these traditions are deeply rooted within Indigenous cultures including the Mi'kmaq, Wolastoqiyik, and Passamaquoddy (Peskotomuhkati) peoples of the Wabanaki Confederacy.<sup>64</sup>

In 2020 alone, the Government of New Brunswick issued thousands of hunting, fishing, and trapping licences.<sup>65</sup>

Angling (except salmon): 56,079	Deer and Game Bird: 45,112
Salmon: 8,730	Moose: 8,302
Bear: 7,372	Rabbit: 1,007
Bird and Small Game: 13,213	

**Restoring our forests is an essential strategy to address societal challenges of today, like global food security, access to clean water, soil erosion, and species loss.<sup>66</sup>**



# ENERGY USE & TRANSPORTATION

## Bringing food home

According to the 2016 Census, **91%** of New Brunswickers commuted to work in a vehicle.<sup>72</sup> We rely heavily on automobiles to get us where we need to go.

### To rise to the challenge of climate change, the vast majority of our transportation systems will need to be electrified.<sup>73</sup>

Some municipalities are already swapping out their combustion engines for electric and hybrid vehicles.<sup>74,75</sup> Will New Brunswick's food distribution fleets be next?

When bringing our food and groceries home, you can consider public or active transportation such as **cycling** or **walking**, if you're close enough and able to.

On average, food travels more than **8,000 km** to get to our plates.<sup>77</sup> That's the same distance as from Fredericton, New Brunswick, to Rio de Janeiro, Brazil!

That said, **how food is transported matters more than distance.** Transport by truck or ship is about ten times more energy efficient than air, and rail is about 10 times more efficient than truck or ship.<sup>78</sup>

### Did you know?

New Brunswick has the best provincial electric vehicle charging network (per capita) in Canada with a charger every **65 km!**<sup>76</sup>

Transport by **truck** or **ship** is about **ten times more energy efficient** than **air**.<sup>78</sup>

Transport by **rail** is about **10 times more efficient** than **truck** or **ship**.<sup>78</sup>

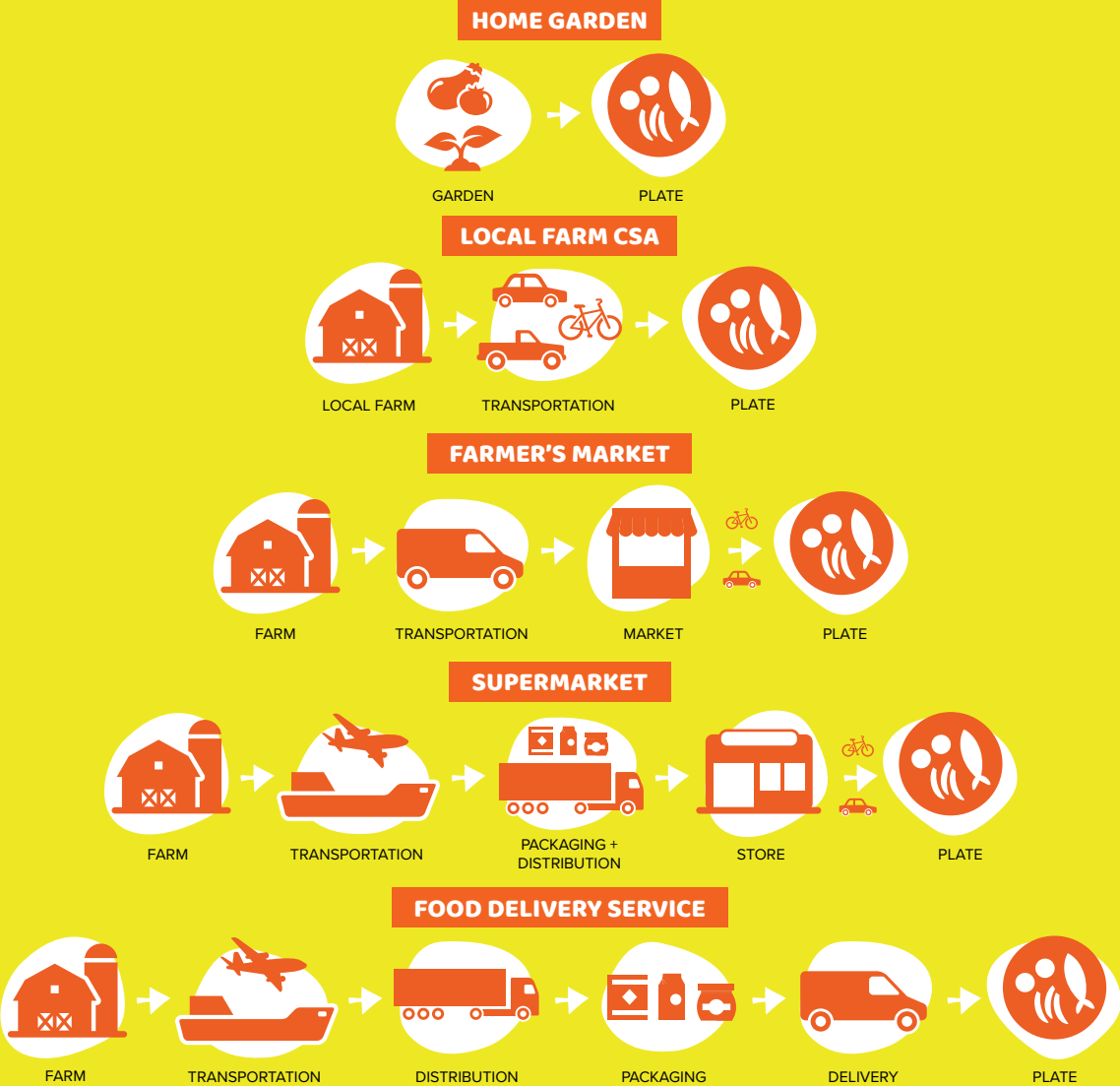
For every **\$10** spent in New Brunswick, **\$4.50** “leaks” out of our local economy.<sup>80</sup>

**Buying locally** may reduce the energy required for transportation. Plus, it offers many benefits for a strong local economy, vibrant communities, and positive environmental impact.<sup>79</sup>

For every **\$10** spent in New Brunswick, **\$4.50** “leaks” out of our local economy, the highest “leakage” rate of all Atlantic provinces. A small shift towards buying locally in the Atlantic region - just **10%** - would result in an increase in GDP of **\$4.7 billion**.<sup>80</sup>

### Shorten your foodchain

*Infographic inspired by Sandia Seed Company*



# FOOD LOSS & FOOD WASTE

Globally **about half of all food produced is not eaten**. This is not only a waste of food but also a waste of the resources associated with its production, processing and distribution.<sup>81</sup>

## What is Food Loss and Waste?

**Food loss** is food that is lost in the stages between production and distribution, such as when edible foods are discarded because they won't be what the customer wants (e.g., too small, not perfect shape, etc.) or when a lack of labour on the farm causes produce to not be picked.<sup>81</sup>

**Food waste** is the loss of edible food at the point of retail or consumer use.<sup>81</sup>

## Canada's Food Loss and Waste:

**58%** of all the food produced in Canada is lost or wasted (35.5 M Metric Tonnes)<sup>82</sup> That's the environmental equivalent of **7,669,547 Passenger Vehicles** on the road for a year!<sup>83</sup>

**32%** of lost and wasted food in Canada is edible food that could be rescued and put to good use.<sup>82</sup>

## What is the environmental cost?

Food that ends up in landfills creates methane gas. Over a 100-year timeline, methane is at least **28 times** more damaging to the environment than carbon dioxide.<sup>84</sup>

## Did you know?

- **Expiration dates** tell consumers the last day a product is safe to consume. **Best before dates**, on the other hand, tell you that the food is no longer in its perfect shape from that date. It may just lose its freshness, taste, aroma or nutrients. It does not necessarily mean that the food is no longer safe to eat.<sup>85</sup>
- [Foodrescue.ca](http://Foodrescue.ca) is a free, online tool that rescues good, edible food instead of throwing it away. Community organizations can sign up to receive rescued food donations and businesses can sign up to offer their food.



**58%** of all the food produced in Canada is lost or wasted.<sup>82</sup>

**32%** of lost and wasted food in Canada is edible food that could be rescued and put to good use.<sup>82</sup>



## What you can do:

**Get creative** in the kitchen, and find uses for your food scraps like never before! Vegetable ends can make great soup stock, for example.

**Put a “use this next” bowl** in your fridge, so you immediately see what needs to be used when you open the fridge door.

**Composting** is a valuable way to build soil in your own backyard and divert food waste and food scraps from landfills. Set up a backyard composter or get in on community composting such as made available by [Imaginons la Péninsule acadienne autrement](#).

**Make an extra effort** to avoid food waste of high-impact (animal-based) foods first.

**Get worms!** That’s right, vermicomposting can be done in a home of any size, even without your own backyard.

**Organize a disco soup!** Work with farmers to give their gleaned produce a new life through a fun community event.<sup>86</sup>



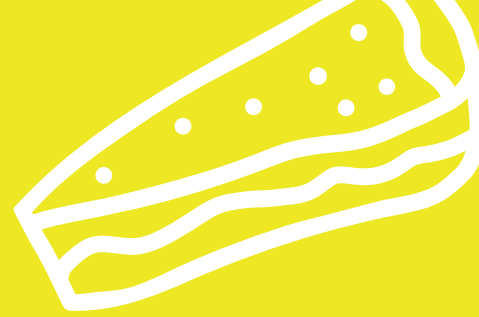
# ON YOUR PLATE

Messages about what to eat - and what not to eat - are coming at us all the time. And these messages are often conflicting. How do we sort out what it means to eat in a “climate-friendly” way?

**It's true:** Some foods generate more greenhouse gas emissions than others. Take beef versus beans, for example. Producing beef uses **20 times** the land and emits **20 times** the greenhouse gases as producing beans, per gram of protein.<sup>87</sup>

“The production of meat, fish (aquaculture), eggs, and dairy uses approximately **83%** of the world’s farmland and emits **56 to 58%** of food’s various pollutants to air, water and soils. These foods, however, provide only **37%** of global protein requirements and **18%** of our caloric intake.”<sup>88</sup>

**In Canada, we eat a lot more meat per person than the global average. A full switch to a vegan diet could reduce greenhouse gas emissions by as much as 61-73%! In general, it would have a big impact on climate change if meat eaters reduced their meat consumption by at least 50%.<sup>88</sup> Think you can do it? One way to start is #MeatlessMondays!**



## What influences the foods we put on our plate?

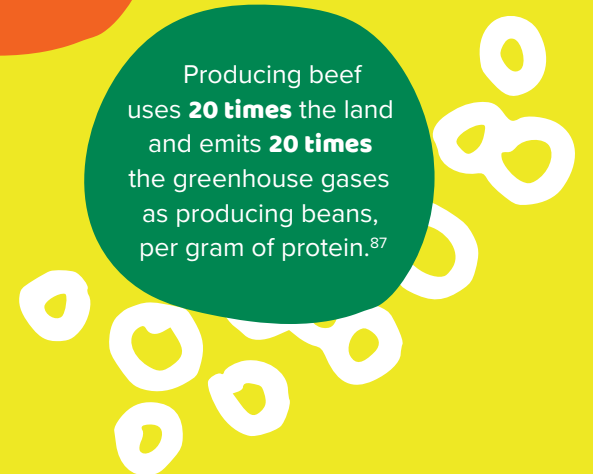
A 2020 study from the Yale Program on Climate Change Communication showed that half of consumers in the United States are willing to choose more sustainable foods if they have access to information about their diets’ environmental impact.<sup>91</sup>



### Did you know?

Canada’s Food Guide was completely overhauled in 2019 and now provides recommendations on how to include more plant-based proteins in what you eat.<sup>89</sup>

In Canada, we eat a lot **more meat per person** than the global average.<sup>88</sup>



Producing beef uses **20 times** the land and emits **20 times** the greenhouse gases as producing beans, per gram of protein.<sup>87</sup>



**“Eat food,  
not too much,  
mostly plants.”<sup>90</sup>**

**- Michael Pollan**

# SELF & COMMUNITY PROVISIONING

**“We need a system change rather than individual change. But you cannot have one without the other.”<sup>92</sup>**

**- Greta Thunberg**

“It is a common misconception that individuals can’t meaningfully contribute to solving the climate crisis. Paul Hawken’s [Project Drawdown](#) identifies over **30** climate change mitigation strategies that are based on individual level behaviour change that could mitigate **20-37%** of global carbon emissions until 2050.”<sup>93</sup>

**Self-provisioning** (household food production) has the potential to reduce individual food-related transportation which uses substantial amounts of materials and energy and is a source of pollution.<sup>94</sup> It also has many connected benefits including improving mental health, increasing your relationship with the environment, and improving physical health.<sup>95</sup>

From seed saving to canning, self-provisioning remains an important part of New Brunswick’s cultural landscape. There is less reliance on these activities for fulfilling basic needs than was the case 100 years ago, and yet **82%** of rural Canadian households report participating in at least one self-provisioning activity.<sup>96</sup>

“**Food sovereignty**<sup>97</sup> emphasizes food as not only a commodity but also something that can support sustainable livelihoods, reduce distance between suppliers and consumers, resist dependence on unaccountable corporations, place control in the hands of local food suppliers, reject privatization of natural resources, promote knowledge and skills, all while working with nature in a responsible, productive manner.”<sup>98</sup>

## Seed saving

Due to climate change, **75%** of our global agricultural biodiversity has disappeared over the past century. Activities like seed saving (putting seeds aside from one growing season to another) can preserve plant species, save local and heritage seed varieties, facilitate environmental education and skill sharing, and enable community building and networks that support food sovereignty.<sup>99</sup>



## Did you know?

[Pays de Cocagne Sustainable Development Group's Seeds for Life project](#) offers an inventory of seeds, more than **40 different vegetables, herbs and flowers**, to be shared in the region.<sup>71</sup>

## Gardening

In total, 48.1% of Atlantic Canadians have a food garden at home.<sup>100</sup> Depending on your unique situation, you may wish to try [rain gardens](#)<sup>101</sup>, [food forests](#)<sup>102</sup>, [urban foraging](#)<sup>103</sup>, [permaculture](#)<sup>104</sup> or a [three sisters garden](#)<sup>105</sup>.

## Preserving at home

Cold storage, canning, dehydrating, freezing, drying, pickling... The choice is yours!

## Food Swaps and Food Sharing

Collective kitchens and food swaps are great to build and sustain strong community bonds. A food swap is a recurring event where members of a community share homemade, homegrown, or foraged foods with each other.<sup>106</sup> Find out more about [how to host](#)<sup>107</sup> and [how to attend](#)<sup>108</sup> a food swap on the [Food Swap Network website](#)<sup>109</sup>.

**“The idea of interdependence is that we can meet each other’s needs in a variety of ways, that we can truly lean on others and they can lean on us.”<sup>110</sup>**

- adrienne maree brown

**82%** of rural Canadian households report participating in at least one self-provisioning activity.<sup>96</sup>

In total, **48.1%** of Atlantic Canadians have a food garden at home.<sup>100</sup>



# IDEAS FOR ACTION

**“Action is the antidote to despair.”<sup>111</sup>**

- Joan Baez

There isn't just one way to solve climate change. There are many, many right ways! Many examples are already peppered throughout the guide. Here are a few more to spark your imagination

## Talk to others

about the climate change issues that are important to you. Use this guide as a starting point! Ask curious questions to find out which issues matter most to them, too.

**Reduce your consumption** of dairy and meat, especially beef. Shift to a more plant-based diet.

**Ensure that the people who are most marginalized** and most adversely affected by climate change are included and respected in transitions to a healthier planet.

**Seek out the positive examples** of how the world is already changing for the better, to gain inspiration.

**Participate in your local government** (e.g., attend a band/municipal council meeting and ask your chief/mayor and council what they are doing to address climate change) → A number of New Brunswick communities have been working on adaptation plans and Community Energy Plans, find out if your community has one.

**Did you know** that the City of Edmundston was the first municipality in New Brunswick to declare a climate emergency? Bathurst, Tracadie, and Moncton have since followed suit!<sup>114</sup>

**Level up your gardening**, preserving, and other self-provisioning skills and share these skills with others.

**Become a Community Food Mentor (CFM)!** Take the CFM Program training and join 600+ New Brunswickers who are using food for positive change in their communities. Find out more at [www.cfmprogram.ca](http://www.cfmprogram.ca).<sup>112</sup>



**Join an organization** that is advocating for climate action or [start a group of your own](#).<sup>113</sup>



**Write your MLA and MP** so they know that bold climate action is important to you. You can find their contact information at [OurCommons.ca/en](http://OurCommons.ca/en)<sup>115</sup> and [GNB.ca/legis](http://GNB.ca/legis)<sup>116</sup>

**One thing that stood out to me from this guide is...**

---

---

---

---

**By the year \_\_\_\_\_, my one wish about food and climate change is...**

---

---

---

---

**One thing I can do is..**

---

---

---

---

# FURTHER READINGS & RESOURCES



- [Our Regions/Nos Régions](#), *Climate Change in New Brunswick*
- [Recovery Policies and Actions](#), *Climate Interactive*
- [ClimateTelling](#) (website)
- [Healthy Climate, Healthy New Brunswickers](#), *Conservation Council of New Brunswick*
- [Take Action](#), *David Suzuki Foundation*
- [Steady Path: How a Transition to a Fossil-Free Canada is in Reach for Workers and their Communities](#), *Environmental Defence*
- [Seven Ways to Fight for Food Justice](#), *Food Tank*
- [Transitioning to a Low-Carbon Economy: New Brunswick's Climate Change Action Plan Progress Report 2020](#), *Government of New Brunswick*
- [So you're ready to take action against climate change Flowchart](#), *GrandGather*
- [Harvesting Freedom](#) (website)
- [Indigenous Climate Action](#) (website)
- [Tackling the Farm Crisis and the Climate Crisis](#), *NFU*
- [Our Climate Voices](#) (website)

- [The Avoidable Crisis of Food Waste, Second Harvest](#)
- [Slow Factory Foundation](#) (website)
- [India's Historic Farmers Movement](#), *Spring Magazine*

## [RESOURCES BELOW IN FRENCH ONLY]

- [Pour une justice climatique féministe](#), *AQOCI*
- [Climat de Justice](#), *OXFAM Québec*
- [On s'appelle et on déjeune](#), *Radio-Canada*
- [Trousse d'outils pour les alliées aux luttes autochtones](#) (PDF)



# REFERENCES

1. How to Cope With Environmental Guilt Syndrome (EGS). *The Zero-Waste Chef* <https://zerowastechef.com/2019/02/14/how-to-cope-with-environmental-guilt-syndrome-egs/> (2019).
2. Eric Holthaus. You are alive at just the right moment to change everything. *The Correspondent* <https://thecorrespondent.com/607/you-are-alive-at-just-the-right-moment-to-change-everything/80358689873-333eca96> (2020).
3. What Is Climate Change? NASA *Climate Kids* <https://climatekids.nasa.gov/climate-change-meaning/>.
4. Scientific Consensus: Earth's Climate is Warming. NASA <https://climate.nasa.gov/scientific-consensus>.
5. Headline Statements - Canada's Changing Climate Report. <https://changingclimate.ca/CCCR2019/chapter/headline-statements/> (2019).
6. What is climate change? *David Suzuki Foundation* <https://david Suzuki.org/what-you-can-do/what-is-climate-change/>.
7. Greenhouse gases and agriculture. *Government of Canada* <https://www.agr.gc.ca/eng/agriculture-and-the-environment/agricultural-practices/climate-change-and-agriculture/greenhouse-gases-and-agriculture/?id=1329321969842> (2012).
8. Carbon Dioxide, Methane, Nitrous Oxide, and the Greenhouse Effect. *Conservation in a Changing Climate* <https://climatechange.ita.org/get-started/learn/co2-methane-greenhouse-effect/>.
9. Steve Randall. Climate change outranks economic concerns for Canadians. *Wealth Professional* <https://www.wealthprofessional.ca/news/industry-news/climate-change-outranks-economic-concerns-for-canadians/332961> (2020).
10. Responding to Climate change. NASA <https://climate.nasa.gov/solutions/adaptation-mitigation>.
11. What is adaptation? *Government of Canada* <https://www.nrcan.gc.ca/climate-change/impacts-adaptations/what-adaptation/10025>.
12. Timothy Gore. EXTREME CARBON INEQUALITY Why the Paris climate deal must put the poorest, lowest emitting and most vulnerable people first. *Oxfam International*. <https://policy-practice.oxfam.org/resources/extreme-carbon-inequality-why-the-paris-climate-deal-must-put-the-poorest-lowes-582545/> (2015)
13. Ayana Elizabeth Johnson & Katharine K. Wilkinson. *All We Can Save: Truth, Courage, and Solutions for the Climate Crisis*. (2020).
14. Indigenous Climate Action. Land Reparations for Indigenous Peoples are the future of our planet. <https://www.facebook.com/indigenousclimateaction/photos/pb.1637675763150406.-2207520000..2650994731818499> (2020).
15. Climate Justice. *United Nations Sustainable Development* <https://www.un.org/sustainabledevelopment/blog/2019/05/climate-justice/> (2019).
16. Hannah Ritchie. Where in the world do people emit the most CO<sub>2</sub>? *Our World in Data* <https://ourworldindata.org/per-capita-co2> (2019).
17. Each Country's Share of CO<sub>2</sub> Emissions. *Union of Concerned Scientists* <https://www.ucsusa.org/resources/each-countrys-share-co2-emissions> (2020).
18. Climate change recognized as 'threat multiplier', UN Security Council debates its impact on peace. *Nations Unies* <https://www.un.org/peacebuilding/fr/news/climate-change-recognized-%E2%80%99%E2%80%99-un-security-council-debates-its-impact-peace>.
19. Tarasuk V & Mitchell A. Household Food Insecurity in Canada. *Research to identify policy options to reduce food insecurity (PROOF)* <https://proof.utoronto.ca/resources/proof-annual-reports/household-food-insecurity-in-canada-2017-2018/>.
20. Laurie Chan *et al.* Results from the Atlantic. *First Nations Food, Nutrition and Environment Study (FNFNES)* <http://www.fnfnes.ca/download> (2014).
21. Household Food Insecurity in Canada. *PROOF Food Insecurity Policy Research* <https://proof.utoronto.ca/food-insecurity/>.
22. Summary for Policymakers - Global Warming of 1.5 oC. *IPCC* <https://www.ipcc.ch/sr15/chapter/spm>.
23. Hannah Ritchie & Max Roser. Environmental impacts of food production. *Our World Data* <https://ourworldindata.org/environmental-impacts-of-food#food-production-is-responsible-for-one-quarter-of-the-world-s-greenhouse-gas-emissions> (2020).
24. New Local Food and Beverages Strategy to benefit the agriculture, agri-food and seafood sectors. *Government of New Brunswick* [https://www2.gnb.ca/content/gnb/en/departments/10/news/news\\_release.2021.01.0033.html](https://www2.gnb.ca/content/gnb/en/departments/10/news/news_release.2021.01.0033.html) (2021).
25. Canada's Food Price Report 2020. *Dalhousie University* <https://www.dal.ca/sites/agri-food/research/canada-s-food-price-report.html> (2020).
26. New Brunswick's Future Climate Projections: AR5 Data and Maps. <http://acasav2.azurewebsites.net/>.
27. Our Regions/Nos Régions. *Climate Change in New Brunswick* <https://climatechange.nb.wordpress.com/our-regions/>.
28. Climate Change in New Brunswick. <https://cpawnsb.org/campaigns/climate-change>.
29. Réal Daigle. R.J. Daigle Enviro. Updated Sea-Level Rise and Flooding Estimates for New Brunswick Coastal Sections (2020).
30. Canada's Changing Climate Report. *Government of Canada* <https://www.nrcan.gc.ca/climate-change/impacts-adaptations/canadas-changing-climate-report/21177> (2019).
31. Elizabeth Fraser. Be cautious consuming fiddleheads, chief medical officer warns. *CBC* <https://www.cbc.ca/news/canada/new-brunswick/flooding-fiddle-heads-water-contamination-1.5125716> (2019).
32. Gail Harding. Hay shortage means herd downsizing for some N.B. farmers. *CBC* <https://www.cbc.ca/news/canada/new-brunswick/nb-hay-shortage-herd-downsizing-farmers-1.5677336> (2020).
33. Ice Storm Review 2017. *Government of New Brunswick* [https://www.electionsnb.ca/content/gnb/en/corporate/promo/ice\\_storm\\_review.html](https://www.electionsnb.ca/content/gnb/en/corporate/promo/ice_storm_review.html) (2017).
34. Tracadie faces food shortage on Day 9 of power outages from ice storm. *CBC* <https://www.cbc.ca/news/canada/new-brunswick/nb-power-tracadie-food-emergency-1.3963492> (2017).
35. Wendell Berry. *The Unsettling of America: Culture & Agriculture*. (1977).
36. Climate scenarios for agriculture. *Government of Canada* <https://www.agr.gc.ca/eng/agriculture-and-the-environment/agricultural-practices/climate-change-and-agriculture/climate-scenarios-for-agriculture/?id=1329321981630#d> (2020).
37. Interactive Map. *Climate Atlas of Canada* [https://climateatlas.ca/map/canada/plus30\\_2030\\_85](https://climateatlas.ca/map/canada/plus30_2030_85).
38. Agriculture and Climate Change. *Climate Atlas of Canada* <https://climateatlas.ca/agriculture-and-climate-change>.

39. Bernard Soubry. Climate Resilience on Maritime Farms. <https://www.bernardsoubry.com/crmf/>.
40. Pete Smith *et al.* Chapter 8 Greenhouse Gas Mitigation in Agriculture. (2007).
41. Land is a Critical Resource, IPCC report says. [https://www.ipcc.ch/2019/08/08/land-is-a-critical-resource\\_srccl/](https://www.ipcc.ch/2019/08/08/land-is-a-critical-resource_srccl/) (2019).
42. Karla D. Maass Wolfenson. Coping with the food and agriculture challenge. *Food and Agriculture Organization of the United Nations* <http://www.fao.org/family-farming/detail/en/c/27384/> (2013).
43. Special Report on Climate Change and Land. Framing and Context. *IPCC* <https://www.ipcc.ch/srccl/chapter/chapter-1/>.
44. Farm map. *Régénération Canada* <https://regenerationcanada.org/en/map/>.
45. Farmers For Climate Solutions <https://farmersforclimatesolutions.ca/about-us>.
46. Ula Chrobak. We can't stop climate change unless we drastically change how we use our land. *Popular Science* <https://www.popsoci.com/change-land-use-global-warming-ipcc/> (2019).
47. Canadian Commission for UNESCO and UNESCO Chair on Food, Biodiversity, and Sustainability Studies. Now is the time to build sustainable food system resilience. *iPolitics* <https://ipolitics.ca/2020/07/15/now-is-the-time-to-build-sustainable-food-system-resilience/> (2020).
48. Sylvia A Earle. *The World Is Blue: How Our Fate and the Ocean's Are One*. (2010).
49. Dr Jamie Shutler & Prof Andy Watson. The oceans are absorbing more carbon than previously thought. *World Economic Forum* <https://www.weforum.org/agenda/2020/10/oceans-absorb-carbon-seas-climate-change-environment-water-co2/> (2020).
50. Renee Cho. How Climate Change Will Alter Our Food. *State of the Planet* <https://blogs.ei.columbia.edu/2018/07/25/climate-change-food-agriculture/> (2018).
51. Oceans on Acid. *Sailors for the Sea* <https://www.sailorsforthesea.org/programs/ocean-watch/oceans-acid> (2015).
52. Alejandra Borunda. Ocean acidification, explained. *National Geographic* <https://www.nationalgeographic.com/environment/article/critical-issues-ocean-acidification> (2019).
53. S. Levitus *et al.* Global ocean heat content 1955-2008 in light of recently revealed instrumentation problems. *Geophys. Res. Lett.* (2009) doi:10.1029/2008GL037155.
54. Laura Poppick. Why Is the Gulf of Maine Warming Faster Than 99% of the Ocean? *Eos* <https://eos.org/features/why-is-the-gulf-of-maine-warming-faster-than-99-of-the-ocean> (2018).
55. Nathan Wilbur. Thermal refuge. *Atlantic Salmon Federation* <https://www.asf.ca/news-and-magazine/in-the-field/cold-water-enhancement> (2020).
56. Daniel Caissie. Impact of climate change on water temperature for selected rivers in New Brunswick and potential implications on Atlantic salmon (2013).
57. Gail Harding. Heat wave closes salmon pools on 2 N.B. rivers. *CBC* <https://www.cbc.ca/news/canada/new-brunswick/nb-heat-wave-close-salmon-pools-1.5231630> (2019).
58. New Brunswick company hopes to make sea vegetables the next big thing. *CBC* <https://www.cbc.ca/news/canada/new-brunswick/seafood-company-algae-1.4699535> (2018).
59. Seafood Carbon Emissions Tool. <http://seafoodco2.dal.ca/>.
60. Angie Turner. Honouring Earth. *Assembly of First Nations* <https://www.afn.ca/honoring-earth/>.
61. Priscilla Settee & Shailesh Shukla. *Indigenous Food Systems: Concepts, Cases, and Conversations*. (Canadian Scholars, 2020).
62. Tables. Promoting decolonization and reconciliation. *Earth to Tables Legacies* <https://earthtotables.org/conversations/tables/>.
63. Climate Change. *United Nations* <https://www.un.org/development/desa/indigenouspeoples/climate-change.html/>.
64. Dr. Harald E.L.Prins. The Wabanaki. *Passamaquoddy at Sipayik* [http://www.wabanaki.com/wabanaki\\_new/The\\_Wabanaki.html#1](http://www.wabanaki.com/wabanaki_new/The_Wabanaki.html#1).
65. Natural Resources and Energy Development. *Government of New Brunswick* [https://www2.qnb.ca/content/gnb/en/departments/erd/natural\\_resources.html](https://www2.qnb.ca/content/gnb/en/departments/erd/natural_resources.html).
66. Forest restoration. *The Alliance of Biodiversity International and CIAT* <https://www.biodiversityinternational.org/restoration/>.
67. Amy Floyd. Food for the future: food forests in New Brunswick. *NB Media Co-op* <https://nbmediacoop.org/2020/11/25/food-for-the-future-food-forests-in-new-brunswick/> (2020).
68. Lindsay Jones. Could 80,000 family woodlot owners be the key to saving the Acadian forest? <https://thenarwhal.ca/acadian-forest-climate-change/> (2020).
69. Biodiversity. The Intersection of Taste and Sustainability. *The Future Market* <http://thefuturemarket.com/biodiversity>.
70. Jan Tucker. Ever Heard of Nature Deficit Disorder? *Perfect Inner Peace* <https://perfectinnerpeace.com/nature-deficit-disorder/>.
71. Seeds for Life. *Groupe de développement durable du Pays de Cocagne Sustainable Development Group* <https://ecopaysdecocagne.ca/en/projects/12-seeds-for-life>.
72. Census Profile, 2016 Census. *Statistics Canada's* <https://www12.statcan.gc.ca/census-recensement/2016/dp-pd/prof/details/page.cfm?Lang=E&Geo1=PR&Code1=13&Geo2=PR&Code2=01&SearchText=Canada&SearchType=Begins&SearchPR=01&B1=Journey%20to%20work&TABID=1&type=1> (2017)
73. Electric Vehicles. *BREATHE the lung association* <https://nb.lung.ca/driveelectricnb>.
74. Kate Letterick. 5 francophone communities to buy electric cars for residents to share. *CBC* <https://www.cbc.ca/news/canada/new-brunswick/electric-car-sharing-dieppe-1.5325066> (2019).
75. Champions - eCharge Network. *Énergie NB Power* <https://echargenetwork.com/champions>.
76. Charge your EV. *Énergie NB Power* <https://www.nbpower.com/en/products-services/electric-vehicles/charge-your-ev/>.
77. The Our Food Project. Plants to Plates. Session 5: Food miles: where does our food come from? *Ecology Action Centre* <https://ecologyaction.ca/plantstoplastes>.
78. Marla MacLeod & Jennifer Scott. Is Nova Scotia Eating Local? And if not, where is our food coming from? (2010).
79. Why Buy Local? *Sustainable Connections* <https://sustainableconnections.org/why-buy-local/>.
80. Import Replacement: Local Prosperity For Rural Atlantic Canada. *The Centre For Local Prosperity* <http://centreforlocalprosperity.ca/import-replacement/> (2018).
81. Food Waste - The Issue. *National Zero Waste Council* <http://www.nzwc.ca/focus-areas/food/issue/Pages/default.aspx>.
82. The Avoidable Crisis of Food Waste. <https://secondharvest.ca/research/the-avoidable-crisis-of-food-waste/>.
83. Greenhouse Gas Equivalencies Calculator. *US EPA* <https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator> (2020).
84. Basic Information about Landfill Gas. *US EPA* <https://www.epa.gov/lmop/basic-information-about-landfill-gas>.
85. Date labelling on pre-packaged foods. *Government of Canada* <https://www.inspection.gc.ca/food-label-requirements/labelling/consumers/date-labelling/eng/1332357469487/1332357545633> (2019).
86. Run a Disco Soup event. *Eden Project Communities* <https://www.edenprojectcommunities.com/stuff-to-do/run-disco-soup-event>.

87. Richard Waite, Tim Searchinger, & Janet Ranganathan. 6 Pressing Questions About Beef and Climate Change, Answered. *World Resources Institute* <https://www.wri.org/blog/2019/04/6-pressing-questions-about-beef-and-climate-change-answered> (2019).
88. Nicole Arseneault. Does it matter what I put on my plate? Yep! Not all foods are created equal. <https://blogs.dal.ca/openthink/does-it-matter-what-i-put-on-my-plate-yep-not-all-foods-are-created-equal/> (2020).
89. Canada's Food Guide. Eat protein foods. *Government of Canada* <https://food-guide.canada.ca/en/healthy-eating-recommendations/make-it-a-habit-to-eat-vegetables-fruit-whole-grains-and-protein-foods/eat-protein-foods/>.
90. Michael Pollan & Maira Kalman. *Food Rules: An Eater's Manual*. (2011).
91. Anthony Leiserowitz, Matthew Ballew, Seth Rosenthal, & Jillian Semaan. Climate Change and the American Diet. *Yale Program on Climate Change Communication* <https://climatecommunication.yale.edu/publications/climate-change-and-the-american-diet/> (2020).
92. Greta Thunberg. *Speech at Brilliant Minds conference in Stockholm 13/6 19*. (2019).
93. Individual climate action matters. *Tomorrow Blog* <https://www.tmrow.com/blog/individual-climate-action-matters/> (2020).
94. Lucie Sovová. Self-provisioning, Sustainability and Environmental Consciousness in Brno Allotment Gardens. *Soc. Stud.* (2015) doi:10.5817/SOC2015-3-11.
95. Richard Thompson. Gardening for health: a regular dose of gardening. *R. Coll. Physicians Clin. Med.* (2018) doi:10.7861/clinmedicine.18-3-201.
96. Sara Teitelbaum & Thomas M. Beckley. Hunted, Harvested and Homegrown: The Prevalence of Self-provisioning in Rural Canada. *J. Rural Community Dev.* (2006).
97. Gustavo Gordillo & Obed Méndez Jorónimo. Food Security and Sovereignty. *Food and Agriculture Organization of the United Nations* <http://www.fao.org/policy-support/tools-and-publications/resources-details/en/c/1268249/> (2013).
98. Hannah Moore. COVID-19: A wake-up call for food security/sovereignty in New Brunswick. *NB Media Co-op* <https://nbmediacoop.org/2020/05/09/covid-19-a-wake-up-call-for-food-security-sovereignty-in-new-brunswick/>(2020).
99. Norma Jean Worden-Rogers, Kathleen Glasgow, Irena Knezevic, & Stephanie Hughes. Seed saving in Atlantic Canada: Sustainable food through sharing and education. *Can. Food Stud. Rev. Can. Études Sur L'alimentation* (2019) doi:10.15353/cfs-rcea.v6i3.352.
100. Lisa Mullins, Sylvain Charlebois, Janet Music, & Erica Finch. Home Food Gardening in Response to the Covid-19 Pandemic. *Dalhousie University* <https://www.dal.ca/sites/agri-food/research/home-food-gardening-during-covid-19.html> (2020).
101. Gail Harding. Rain gardens to the rescue: A colourful way to prevent flooding in your yard. *CBC* <https://www.cbc.ca/news/canada/new-brunswick/nb-rain-garden-plant-prevention-flooding-1.4272349> (2017).
102. Creating a Food Forest – Step by Step Guide. *Permaculture Apprentice* <https://permacultureapprentice.com/creating-a-food-forest-step-by-step-guide/> (2017).
103. Avalon Bunge, Stewart A W Diemont, John A Bunge, & Stephen Harris. Urban foraging for food security and sovereignty: quantifying edible forest yield in Syracuse, New York using four common fruit- and nut-producing street tree species. *J. Urban Ecol.* (2019).
104. What is Permaculture ? *Permaculture Research Institute* <https://www.permaculturenews.org/what-is-permaculture/>.
105. Melissa Kruse-Peebles. How to Grow a Three Sisters Garden. *Native Seeds Search* <https://www.nativeseeds.org/blogs/blog-news/how-to-grow-a-three-sisters-garden> (2016).
106. What is a food swap? *Food Swap Network* <https://foodswapnetwork.com/what-is-a-food-swap/>.
107. How to host. *Food Swap Network* <https://foodswapnetwork.com/how-to-host/>.
108. How to attend. *Food Swap Network* <https://foodswapnetwork.com/how-to-attend/>.
109. *Food Swap Network* <https://foodswapnetwork.com/>.
110. adrienne maree brown. *Emergent Strategy: Shaping Change, Changing Worlds*. (2017).
111. Kurt Loder. Joan Baez: The Rolling Stone Interview. *Rolling Stone* <https://www.rollingstone.com/music/music-features/joan-baez-the-rolling-stone-interview-71113/> (1983).
112. New Brunswick Community Food Mentors. *Food For All NB* <https://foodforallnb.ca/cfm/>.
113. How to Get Involved. *New Brunswick Environmental Network* <https://nben.ca/en/how-to-get-involved-eng>.
114. ICEF - Governments emergency declaration spreadsheet. <https://docs.google.com/spreadsheets/d/1tb-LkIFWLuYnjmCSvCWRcLUJCCWAL27dKPzVcFq9CQ/edit#gid=0>.
115. *House of Commons Chambre des Communes Canada* <https://www.ourcommons.ca/en>.
116. *Legislative Assembly of New Brunswick / Assemblée législative du Nouveau-Brunswick* <https://www.gnb.ca/legis/index.asp>.

