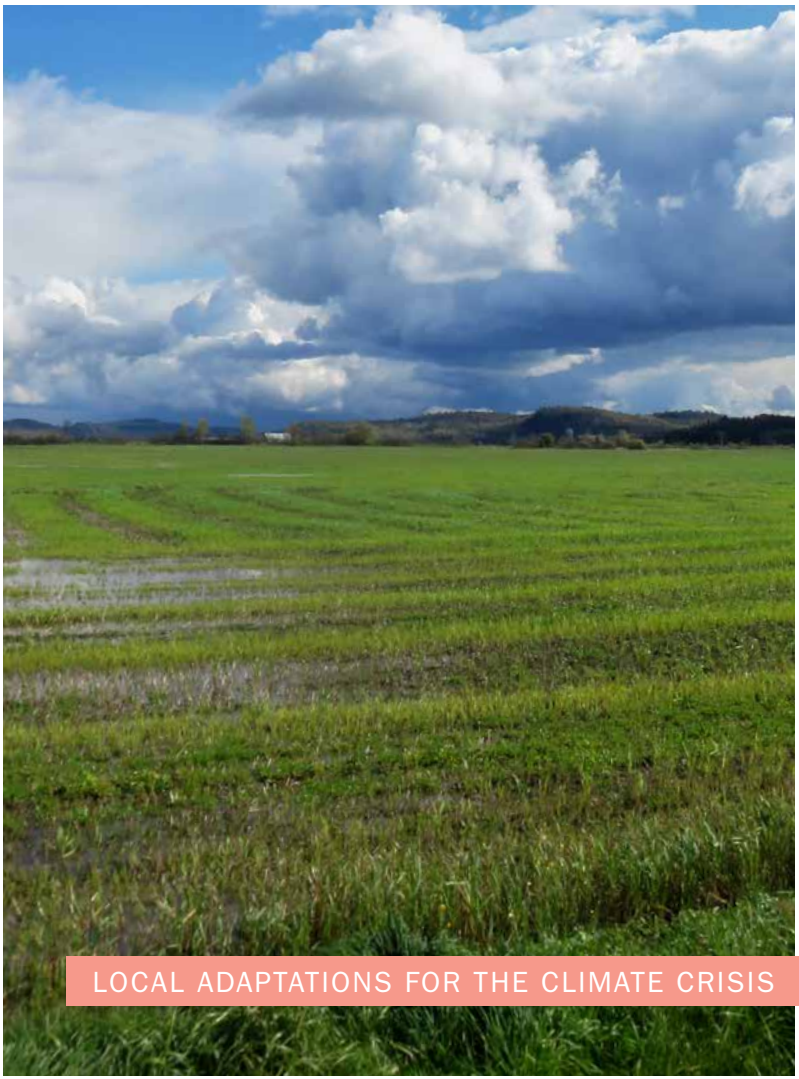
A GUIDE FOR ALGOMA

Central Algoma Freshwater Coalition

Living with Climate Change



LOCAL ADAPTATIONS FOR THE CLIMATE CRISIS

A Publication of the Central Algoma Freshwater Coalition

Climate Change is Local

Last summer, when the smoke from distant forest fires darkened the skies of Algoma, I realized how thin our planet's atmosphere truly is. Travel 12 km in altitude (the distance between the communities of Bruce Mines and Rydal Bank) and you'd find yourself in an environment inhospitable to life. This narrow envelope also contains the forces that shape climate patterns and day-to-day weather that influence our lives on Earth. Is it any wonder carbon emissions from industrial society are degrading the planet's most important life support structure?

Hotter weather, longer droughts, volatile storms, and warmer water temperature; Algoma's new normals are just as indicative of climate change as wildfires, floods and insect outbreaks occurring elsewhere in Canada. Experience suggests we adopt a different outlook; yet we insist on patterns of consumption and waste, even if these routines are certain to lead us to calamity. Under threat, we double-down on existing views — even denying the logic of science.

This paradox is the greatest challenge in responding to climate change. How to encourage action rather than apathy? One way is to focus on how we can adapt our behaviours as individuals, households and communities.

We believe the future is local—and that there's no better place to live than Algoma. As the writer and farmer Wendell Berry insists, it's time for all of us to "go home and go to work in good ways."

Chuck

Chuck Miller
President, Central Algoma Freshwater Coalition

Adapting to a New Reality

Individual and community actions reduce the vulnerability of natural and human systems to climate change.

Global warming is a "sudden departure from the temperatures that have been typical for the past 10,000 years." Unlike previous changes, humans are responsible for what we're witnessing today. Industry, agriculture, transportation and household activities have enhanced the atmosphere's "greenhouse effect" altering temperatures and precipitation.

Canadians face changes over the next century, with the climate predicted to warm up to 6.3°C.

Even the strongest mitigation efforts, like immediately replacing gasoline and natural gas with renewable energy, will not reverse climate change within the lifespan of Earth's current human population.

Reducing carbon emissions is imperative; yet it's equally critical for individuals and communities to adapt to the new reality by taking the threats of climate change seriously, understanding the local impacts, and adapting our lifestyles.

> "Weather records from across Canada show that every year since 1998 has been warmer than the 20th century average. This means that a whole generation of Canadians has never experienced what most of modern history considered a 'normal' Canadian climate."
>
> — *Climate Atlas of Canada*

New Climate Normals

Ice storms, tornadoes and torrential rains will become more likely, and summer heat waves will last longer; the annual average temperature will increase from 5° C to 7.5° C; and Central Algoma's growing season will lengthen by 3 weeks. Changes are already taking place.

Temperature influences the survival of plants and animals and shapes humans' energy use for buildings and transportation. **Hot days** impact human health and affect outdoor recreation. **Cold days** impact the range of pests, such as ticks.

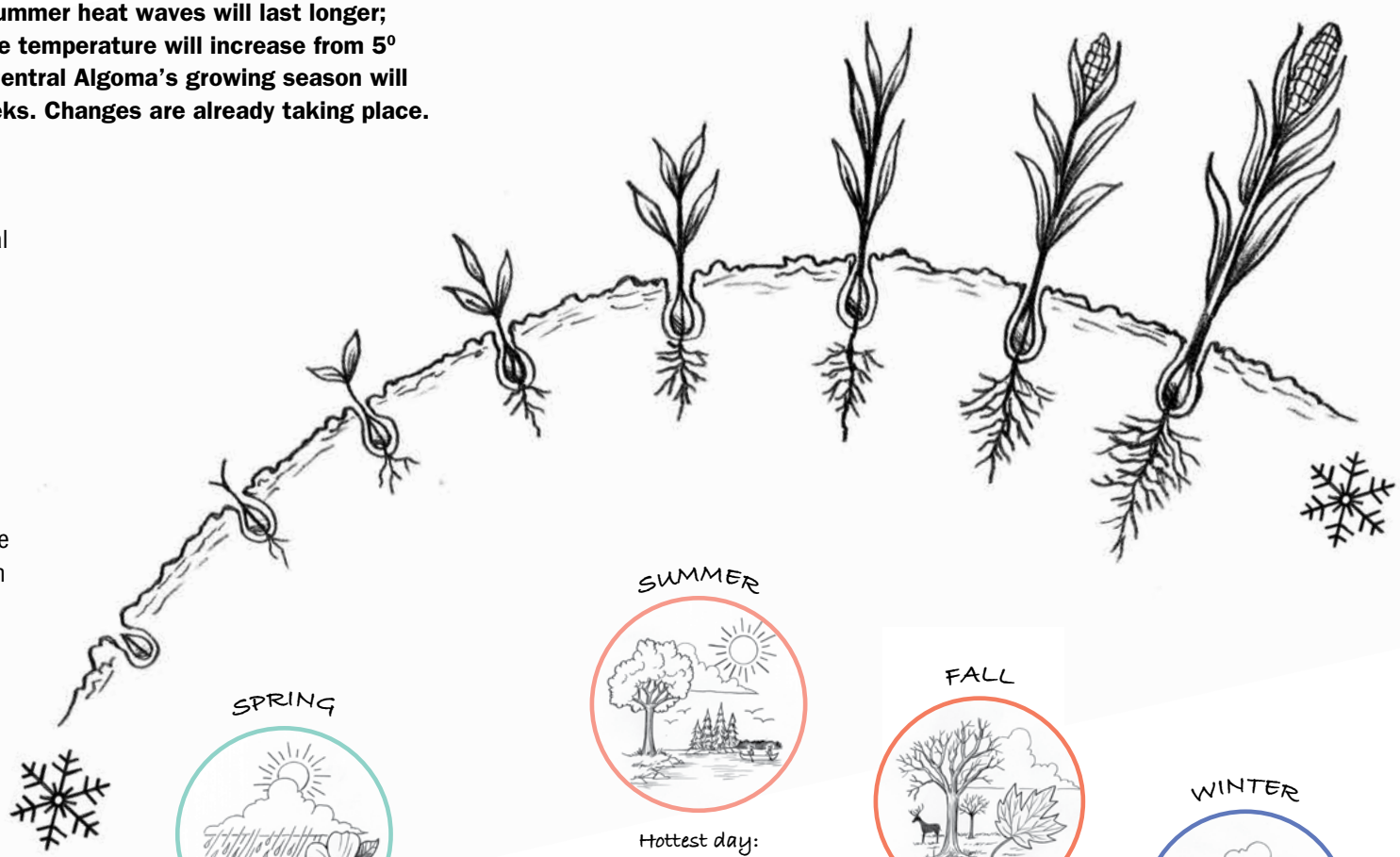
Frost-free season is the number of days the temperature remains above zero, which reflects the growing season for plants.

Growing degree days are based on temperature thresholds for plant growth. Corn and beans, for example, require temperatures greater than 10°C.

Future climate scenarios are created with advanced statistical analysis using multiple models and variables. These projections reflect a "low carbon" future, with greenhouse gas emissions significantly reduced.

Data for Central Algoma (referencing Blind River, Ont.) synthesized from the Climate Atlas of Canada (*climateatlas.ca*)

Frost-free season - Increase by 21 days
Growing degree days (above 10°C) - Increase by 50%



SPRING

Last frost:
May 16 (Historic)
May 6 (2050)

SUMMER

Hottest day:
30°C (Historic)
34°C (2050)

Days above 30°C:
1 (Historic)
10 (2050)

FALL

First frost:
October 1 (Historic)
October 12 (2050)

WINTER

Coldest day:
- 32°C (Historic)
- 26°C (2050)

Days below -30°C:
4 (Historic)
0 (2050)

Inland Waters

Algoma's abundance of inland lakes and waterways are especially sensitive to changes in climate.

Warmer temperatures mean longer seasons for swimming and boating, but also less desirable changes in lakes and rivers. Cold-water fish such as lake trout are already suffering while warm-water species like bass are thriving, driving larger ecosystem changes.

Meanwhile, extreme weather, such as torrential rain, damages shoreline habitat and washes pollutants and bacteria into lakes.

Blue-green algae occurs in warm, shallow and stagnant waters, often in conjunction with excessive nutrient loads. Blooms have a clumpy, pea soup appearance; they can be toxic to animals, pets and livestock.

Report suspected blooms to the Ontario Ministry of Environment, Conservation and Parks and keep tabs on Algoma Public Health's Beach Warnings to stay safe.

"In the early 1980s, we were snowmobiling to our Algoma forest research sites by Remembrance Day. The climate is warming up and so are lakes; there are now three more ice-free weeks compared to four decades ago. Changes in lake ice cover affect everything from fish to forests, as well as people."

— Paul Hazlett, retired researcher, Canadian Forest Service

Great Lakes

Warmer water temperatures are a clear indicator of climate change—and an urgent call for action.

The Great Lakes have always demanded respect from coastal residents. Warmer lake water means greater volatility—including storm surges, dynamic water levels and extreme winds.

Adapting to these changes, rather than imposing ourselves on fragile coastal ecosystems, builds resilience in all forms of life.

Larger setbacks protect waterfront infrastructure from storm damage; and investments in storm sewers protects water quality.

Coastal habitats like beach dunes and wetlands support communities of plants, birds and amphibians. These areas also provide ecosystem services that humans rely on, including water filtration and flood control.

"I spent my childhood on the North Channel, and much of the time since as a marine contractor. Changes in water levels cause adjustments of docks, piers, and breakwalls. More recently, the time between highs and lows is shorter. In 2013 we were barely able to secure our boats and barges due to record low water. Six years later, marinas were overcome by record high water. Rapid changes make our work more challenging."

— Sandy Gardiner, Gardiner Marine Ltd, St.Joseph Island

Agriculture

Farmers in Algoma will benefit from a longer growing season, comparable to southern Ontario. But they will also face longer droughts and more frequent heavy rains.

More profitable farming is the greatest benefit to a proactive response to climate change. Simple upgrades and modifications to how we farm will improve access to local foods, support biological diversity in insects and wildlife, and protect water quality.

Installing tile drainage manages excess water and allows farmers to prepare and plant fields earlier in the season and harvest during wet periods, as well as promoting deeper, healthier, more drought-resistant roots in crops.

Small-scale irrigation counteracts drought and aids in growing moisture-sensitive vegetable crops.

New strategies require experimentation; learn ways to make agriculture more resilient from the Rural Agri-Innovation Network (*rainalgoma.ca*)

> “Farmers know there’s no such thing as ‘climate same.’ We always have to adapt to the weather. We are already benefiting from a longer growing season. On the flipside, we are experiencing sharper contrasts when the weather changes. There’s a lot of all or nothing. For example, we’re now seeing both heavy rain and drought in the same season.”
>
> *— Melanie and Martti Lemieux, Valleyfield Farm, Sylvan Valley*

Rural Municipalities

A new climate demands us to build more liveable communities.

Residents play a huge role in encouraging their local municipality to reduce sprawl and bring amenities—including good things like grocery stores, schools, recreation facilities, health care, libraries and banks—to the places people live.

With less need to travel, there’s more time to enjoy your local surroundings. Cycling trails, walking paths and protected urban greenspace have similar benefits.

More extreme weather demands careful planning: Revised floodplain mapping to restrict new construction and manage existing buildings in hazardous (and environmentally sensitive) areas; enhanced stormwater infrastructure; altered tax regimes to address damage to roads and bridges due to freeze-thaw events; and strategies to protect local food systems and support small-scale farmers.

> “Climate change can have significant impacts on municipal infrastructure. In Thessalon, we have already had to undertake bank stabilization projects as a result of erosion caused by water and wind. In the future these impacts could be greater—and could be more costly and challenging to address for rural communities.”
>
> *— Tracey Cooke, councillor, Town of Thessalon*

Cottaging

By caring for shorelines, cottagers make Algoma more resilient to climate change.

Maintaining a natural waterfront of native vegetation and fallen deadwood preserves an important buffer to filter pollutants and withstand erosion in heavy rains. This helps ensure clean water and reduces the likelihood of algal blooms, as well as protecting fish habitat and providing space for native species of birds, aquatic mammals, amphibians and plants. A natural shoreline also doesn't require fertilizers to maintain.

Climate change stresses waterfront landscapes. Reduce impacts by installing approved septic systems and inspecting them annually.

You can also volunteer with the Ontario Ministry of Environment, Conservation and Parks' Lake Partner Program to collect basic data like phosphorous levels and water clarity to assist in measuring changes to your lake.

"The most obvious changes at my cottage over the years relate to the climate. We swim later into the fall; mosquitoes are more plentiful; and the first frost happens later. It seems the grass is greener and grows longer, and tomato plants ripen sooner. There's an awareness amongst cottage folk that climate change is upon us—and there's a heightened desire to care for the lake."

— Mark Harvey, Cottager

Nature

Ecosystems are being altered by global warming and extreme weather, forcing all forms of life to adapt—or face extinction.

Humans aren't the only species impacted by climate change; global warming is a major factor in the current extinction crisis. Algoma's vast networks of waterways, wetlands and forests play a huge role in giving ecosystems a chance to adapt. It's our responsibility to ensure these areas remain healthy and intact.

Flora and fauna are often unable to adapt to rapid changes in temperature and precipitation. As a result Algoma's cold-climate species including moose, Canada jays and lake trout, are suffering due to warmer temperatures.

Preserving natural shorelines, restoring and protecting wetlands and planting native trees and plants are nature-based solutions to climate change that promote biological diversity. Check out the "Grow Me Instead" guide at *ontarioinvasiveplants.ca* for tips to make your yard more welcoming to wildlife.

"Birds are expanding their range northward. Red-bellied Woodpeckers are a relatively common species in Central Algoma these days, but they used to be non-existent. We had our first local breeding record of Common Gallinule. Carolina Wrens are more common and Great Egrets will likely become established in the future. Birds are an indicator of climate change and the ecological health of an area."

— Carter Dorscht, Executive Director CAPS, Kensington Conservatory

Outdoor Recreation

Explore locally and discover the abundance of hiking, paddling, cycling, and skiing routes in Algoma's big backyard.

The Covid-19 pandemic reminded us of the joys of local outdoor adventure; this lesson is also an ideal response to climate change. Rather than traveling to exotic locations, adaptation encourages us to explore local. This, in turn, fosters a sense of place and urges us to protect our shared landscape.

Outdoor enthusiasts can already see a shift in winter sports to activities that are more versatile. It's likely that the region will remain snowy long into the future, but pursuits like fat biking are becoming more viable than cross-country skiing as freeze-thaw cycles and shorter winters become more prominent.

Changing weather patterns, including more intense rains, along with more people in the outdoors, make adhering to leave-no-trace principles even more important—including sticking to established trails and being aware of our impacts on wildlife and other visitors.

> "Novembers used to be cold, windy and sloppy with rain and snow. Now, we hunt in hot temperatures with springlike sunshine and dry conditions. Deer have become more nocturnal, and we've adjusted our hunting patterns to dawn and dusk. If we're fortunate to harvest a deer, it can be a race to recover and process it quickly to protect the meat from spoilage due to heat."
>
> *— Paul Kyostia, Outdoor enthusiast*

Public Health

Medical professionals describe climate change as the "defining public health issue of our time."

The direct effects of a warmer climate are obvious, even in Algoma. Torrential rain and tornadoes damage homes and infrastructure, and extreme temperatures cause heat injuries and aggravate respiratory conditions like asthma.

Climate change also reduces food security, forces people to abandon their homes, and increases the risk of contaminated wells and water.

Black-legged ticks are expanding their range into Algoma, increasing the risk of tick-borne illnesses. Black-legged ticks are the main cause of Lyme disease. They're tiny and hard to detect, particularly during spring nymphal stages.

Ticks are most prolific in spring and fall, but they can be active at any time of year as long as the temperature is above freezing—particularly in areas with low bushes and tall grass. Adapting to climate change means conducting thorough tick checks after venturing outdoors on people and pets.

> "Ticks have become more plentiful on our property in Laird. This year was the worst yet. Even with precautions like applying insect repellent, my wife and I found about six attached to us in the spring and summer of 2021. Thankfully all were American dog ticks which do not carry Lyme Disease."
>
> *— Errol Caldwell, Central Algoma resident*

12 Things You Can Do

Adaptations to climate change are easy to make and ultimately improve our lives at a local level.

People often feel helpless in the battle to reverse climate change, since transportation, home heating and food production, among other necessities of life, are currently reliant on fossil fuels. Until renewable energy and electric vehicles become more viable, we can take action to create resilient human and natural ecosystems. These simple changes will help to increase food security, support biodiversity and protect freshwater—all of which provide time to determine long-term solutions to eliminate greenhouse gas emissions.

LOCAL ADAPTATIONS FOR THE CLIMATE CRISIS

FRESHWATER

Safeguard your lake by preserving at least **10 m of natural buffer along the shore**, as well as eliminating pesticides and fertilizers and replacing grass with native vegetation.

The **Green Shores** building certification focuses on sea level rise, and includes many good guidelines for responsible development on the Great Lakes.

AGRICULTURE

Manage soil quality by rotating livestock regularly to allow forage to recover; planting cover crops can also enhance nutrients, prevent erosion and protect water quality.

Support local farmers and try to obtain a minimum 30% of your food from local producers.

PUBLIC HEALTH

Wear light-colours, long-sleeves, pants and socks when you go outdoors. Do a **tick check** as soon as you're done, inspecting your cuff areas, waistline and scalp for ticks.

Don't swim after heavy rain events and monitor Algoma Public Health for beach closures.

MUNICIPALITIES

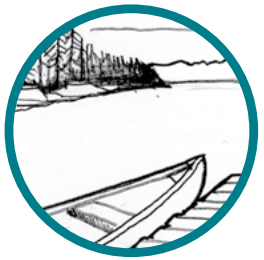
Rediscover "**old ways**", including clotheslines, local gardens and food preservation.

Be aware of how extreme precipitation influences floodplains, and **develop them according to new climate norms** with larger culverts, less sprawl and upgraded storms sewers.

NATURE

Conserve **Coastal wetlands** along the St. Marys River and Lake Huron, which provide habitat, filter pollutants, protect shorelines under variable water levels, and absorb flood water.

Become a "**citizen scientist**": use apps like eBird and iNaturalist, report invasive species (*eddmaps.org/ontario*), and participate in lake surveys.



RECREATION

Explore local and **travel thoughtfully,** attempting to stay at your destination longer and make fewer long-distance trips.

Stick to established trails when hiking, mountain biking or using off-road vehicles to minimize erosion, especially in wet and sloped areas.

About Us

The Central Algoma Freshwater Coalition is a not-for-profit organization dedicated to keeping Central Algoma a place to live, swim, drink, fish and play for generations to come.

We are committed to working with residents, cottagers, businesses, organizations and municipalities to become good stewards of our natural communities. Let's work together to protect freshwater! We need your involvement to effectively engage the wide-ranging and sometimes competing interests of a vibrant Central Algoma. The membership, networking and support of a strong and diverse community are what sustain us. We require a strong, diverse group to achieve our goals.

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