earthwatch expeditions
by Nat Hab

Explore with Purpose

From Polar Bears to Permafrost: Churchill's Changing Arctic

In Wild Polar Bear Habitat, Measure Permafrost Thaw & Track Ecosystem Change Across Tundra & Taiga

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Trip Details:

Days
8 Days /
Aug–Sep

Price
From $7963
(+Air)

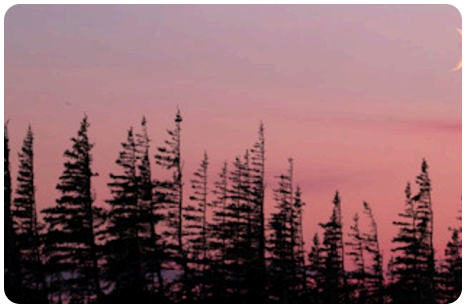
From Polar Bears to Permafrost: Churchill's Changing Arctic

In Wild Polar Bear Habitat, Measure Permafrost Thaw & Track Ecosystem Change Across Tundra & Taiga

At the edge of Hudson Bay, polar bears roam near Churchill, where the tundra, boreal forest and ocean meet—and where global warming is rapidly reshaping Arctic ecosystems. Rising air and sea temperatures are thawing permafrost, shifting wetlands and pushing trees into once-open ground, changing how wild animals—including polar bears—move and feed across the region. Join scientists on land and water to track these transformations as we explore one of the most dynamic environments on Earth. Survey the tundra landscape by Polar Rover and helicopter as we keep an eye out for polar bears, ride behind a dog team, learn about northern cultures, and discover why the impacts of a changing Arctic climate matter far beyond Churchill.

Research at a Glance

Your Role in Research



The Research Focus

Contribute to hands-on field research focused on permafrost thaw, depth of the active soil layer atop the permafrost, and shifting treelines in one of the fastest-warming regions on Earth

What You'll Do

Join scientists to measure permafrost thaw and study the advancing treeline, tracking changes within the Arctic ecosystem with implications for wildlife and humans alike.

Why It Matters

Churchill lies at the nexus of ocean, tundra and boreal forest, revealing impacts of climate change in real time that help scientists understand Arctic ecosystem shifts globally.

Trip Highlights

Measure permafrost thaw, active soil layer depth and document the advance of forest into tundra, contributing data to understand rapid changes on Arctic ecosystems

Aboard a custom Polar Rover, look for polar bears gathering along Hudson Bay as freeze-up nears, their white coats standing out against the red and gold terrain

Spend five nights at the Churchill Northern Studies Center on Hudson Bay where scientists live and work, with close-up access to the Arctic research environment

Itinerary At A Glance

Day 1
Winnipeg, Manitoba

Day 2
Winnipeg / Flight to Churchill—Northern Activities

Day 3
Churchill—Tundra Exploration / Helicopter Flight / Research Orientation

Day 4
Churchill—Polar Bear Tracking

Day 5
Churchill—Permafrost Research

Day 6
Churchill—Shifting Treeline Research / Evening Aurora Viewing

Day 7
Sled Dog Experience / Flight to Winnipeg

From Polar Bears to Permafrost: Churchill's Changing Arctic Itinerary

In Wild Polar Bear Habitat, Measure Permafrost Thaw & Track Ecosystem Change Across Tundra & Taiga

Day 1: Winnipeg, Manitoba

Your Churchill Arctic science expedition begins in Winnipeg, a former fur-trading outpost turned railway hub, now Manitoba's cultural center set against the sweep of the prairie. On arrival, settle into the Fort Garry Hotel, a 1913 landmark from the golden age of rail. This evening, meet your Field Guide over a welcome dinner as the journey begins to take shape. You'll be introduced to Churchill, where tundra, forest and Hudson Bay converge, and to the research ahead, from polar bears and belugas to the climate forces reshaping the Arctic today.

Itinerary At A Glance

Day 8
Winnipeg / Depart

Day 2: Winnipeg / Flight to Churchill—Northern Activities

Fly this morning to Churchill, a remote subarctic community accessible only by air or rail. Founded as a Hudson's Bay Company outpost, it's now known as the Polar Bear Capital of the World, set where tundra meets Hudson Bay, with beluga-filled waters offshore and a front-row seat to Arctic science in action. Your first bear sighting may even come on the drive from the airport.

Upon arrival, explore Churchill and its surroundings. Visit the Itsanitaq Museum, home to one of the most significant collections of Inuit artifacts in the world, and gain perspective on the region's cultural and historical roots. Time in town offers a glimpse into daily life in this isolated northern outpost.

Continue to the Churchill Northern Studies Centre, your home for the next five nights. Located just outside town along the Hudson Bay coast, this working research station places you directly within the landscapes you'll be studying. After settling in, join your Field Guide and the research team for orientation, safety briefings and an introduction to the fieldwork ahead.

Day 3: Churchill—Tundra Exploration / Helicopter Flight / Research Orientation

Wake at the Churchill Northern Studies Centre, surrounded by open tundra stretching to Hudson Bay. If conditions aligned overnight, you may have already seen the northern lights from the Centre's elevated viewing deck or dome, an early look at this active Arctic sky.

This morning's plan is shaped by current wildlife activity and local insight. Based on recent sightings, your Field Guide will choose the best approach—by vehicle to a remote trailhead or directly onto the tundra. Out on the landscape, details come into focus: low shrubs, lichen and moss underfoot, tracks etched into the ground and subtle shifts in vegetation that signal a changing climate. You may encounter Arctic fox, hare and migratory birds, with the possibility of polar bears along the coast.

Midday, take a helicopter flight along the Hudson Bay coastline. From above, the structure of this transition zone becomes clear, where boreal forest gives way to tundra and land meets sea. Watch for polar bears, seals, beluga whales and moose while gaining a broader perspective on the systems you'll study in the days ahead.

Back at the Centre, meet with scientists for a detailed research orientation. Learn how permafrost thaw is measured, how vegetation plots are surveyed and how your fieldwork contributes to long-term monitoring of Arctic change. As darkness returns, conditions may align for another chance to watch the aurora move across the sky.

Day 4: Churchill—Polar Bear Tracking

This morning, turn your focus to polar bears as you head out across the tundra by Polar Rover, a custom-built, high-clearance vehicle designed for travel along the Arctic coast. With oversized tundra tires and elevated platforms, it moves smoothly across the landscape, offering wide, unobstructed views.

Search for bears gathering along Hudson Bay as they wait for the ice to form. From the elevated platform, watch them move across the tundra, rest along the shoreline or interact with one another in this open environment. At this time of year, the tundra is alive with color, and the bears' white coats stand out sharply against the reds and golds of the landscape—creating exceptional opportunities for observation and photography.

Day 5: Churchill—Permafrost Research

The tundra appears still at first glance, but beneath the surface, change is underway. Beneath the surface lies permafrost, ground that has remained frozen for thousands of years and stores an estimated 1,400–1,600 billion metric tons of carbon, roughly half of all terrestrial carbon. When it thaws, microbes break down previously frozen organic matter, releasing carbon dioxide and methane into the atmosphere, accelerating global warming and reshaping ecosystems far beyond the Arctic.

Head today to field sites near the Churchill Northern Studies Centre, where scientists have monitored permafrost for decades. These long-term plots reveal how warming temperatures are deepening the seasonal thaw and destabilizing the ground. We'll collect data alongside scientists, using metal probes to measure the active layer, the depth of soil that thaws each summer, and record soil moisture, surface conditions and vegetation cover. Compare sites and see how small shifts in terrain reflect larger environmental change. Each measurement adds to long-term datasets used to track how quickly permafrost is thawing and how those changes influence Arctic landscapes and global carbon cycles.

As evening settles in, gather at the Boreal Lounge. With darkness returning, conditions may align for a chance to watch the northern lights move across the Arctic sky.

Day 6: Churchill—Shifting Treeline Research / Evening Aurora Viewing

Today, explore one of the most visible signs of a warming Arctic—the quiet advance of trees into the tundra. North of Churchill, the boreal forest gives way to tundra, marking one of the most climate-sensitive ecological boundaries on Earth. Here, average temperatures have risen by about 4–5°F in recent decades, lengthening the growing season and allowing tree species such as black spruce and tamarack to establish beyond their historic range. As this treeline advances, it alters snow retention, soil temperatures and carbon storage, reshaping the structure and function of Arctic ecosystems.

With your research team, visit long-term monitoring plots to study this transition. At first glance, the landscape may appear unchanged, but with closer observation, subtle patterns begin to emerge. Identify and count tree seedlings, record plant species and ground cover and compare sites with different soil, moisture and exposure conditions to understand where and why the treeline is advancing. These observations help scientists answer a critical question: how quickly is the Arctic landscape transforming—and what happens next? (Even small seedlings can signal large-scale ecological change, influencing wildlife habitat, soil conditions and the future structure of the tundra itself.)

Day 7: Sled Dog Experience / Flight to Winnipeg

Begin your final day in Churchill with one more connection to life in the North. Visit a local musher and their sled dog team to learn about this enduring form of transportation and its role in northern culture and history. Then climb aboard for a ride behind these powerful, eager dogs as they move across the landscape. Afterward, fly back to Winnipeg and return to the historic Fort Garry Hotel. This evening, gather with your team for a final dinner and a chance to reflect on everything you've experienced, from close encounters with belugas and polar bears to the hands-on science that brought deeper meaning to every experience.

Day 8: Winnipeg / Depart

After breakfast, your Arctic science expedition concludes with a transfer to the airport for departing flights.

Accommodation Details:

Fort Garry Hotel

Churchill Northern Studies Centre

For detailed descriptions, visit nathab.com/earthwatch-expeditions/arctic-polar-bear-climate-change-travel/accommodations

From Polar Bears to Permafrost: Churchill's Changing Arctic Accommodations

In Wild Polar Bear Habitat, Measure Permafrost Thaw & Track Ecosystem Change Across Tundra & Taiga

Fort Garry Hotel

The grande dame of Winnipeg hospitality and one of the city's most prestigious landmarks, this historic downtown hotel provides a genteel welcome before and after our northern adventures in Churchill.

Churchill Northern Studies Centre

Set on the tundra outside Churchill, this research station offers communal dining and an elevated outdoor platform for wildlife viewing, with warm interiors designed for comfort in a remote subarctic setting.

Meet the Scientists

Ph.D. LeeAnn Fishback

Resource Conservation Manager, Parks Canada

LeeAnn Fishback is an environmental geochemist based in Churchill, Manitoba, where she is a Research Associate at the Churchill Northern Studies Centre. Her research focuses on freshwater lake and pond chemistry across Arctic and subarctic regions, examining how these systems respond to environmental change. Prior to joining Parks Canada in 2020, she spent 18 years in research management and as a research scientist at the Churchill Northern Studies Center. She holds a Ph.D. from the University of Western Ontario.

Dr. Fishback's work centers on understanding how climate change is altering northern systems, from small tundra ponds of the Hudson Bay Lowlands to permafrost and treeline environments. By tracking changes over time, she identifies how shifts in temperature, permafrost and hydrology are reshaping Arctic landscapes. Her research contributes to long-term environmental monitoring in the North, providing data that help the broader scientific community understand and manage the impacts of climate change on sensitive ecosystems.

In the field, she leads hands-on data collection in remote locations, working with research teams to sample across seasons. Early in her career, she spent months living on a glacier in the high Arctic, where record summer temperatures caused widespread surface melt—an experience that highlighted the pace and scale of change in northern environments. Through her work, she helps build a clearer picture of how Arctic systems are evolving, providing the long-term perspective needed to understand and respond to a changing climate.

Education

Ph.D., University of Western Ontario, Canada

Supporting Scientists

Ph.D. Steven Mamet

Adjunct Professor, University of Saskatchewan
Arctic Research, Churchill

Science & Impact

The Arctic has warmed nearly four times faster than the global average, and the effects show up quickly. Sea ice forms later and melts sooner. Permafrost softens. Coastlines and wetlands shift locations. Wildlife adjusts in response. In Churchill, where tundra, taiga forest and Hudson Bay meet, you contribute to the research tracking these changes—following polar bears along the coast, photographing belugas in the estuary, and measuring changes in the ground beneath your feet, all of which provide data that help scientists better understand the dynamics and consequences of climate change in Arctic environments.

Research Focus

This project investigates how Arctic ecosystems are changing as temperatures rise, with fieldwork centered on permafrost thaw and the encroachment of boreal forest into the tundra. Participants join scientists at long-term monitoring sites near Churchill to measure seasonal thaw, record vegetation changes and track where new trees are taking hold. These shifts affect how carbon is stored, how stable the ground remains, and how wildlife adjust to changes in the landscape in terms of movement, feeding and other behaviors. The data collected helps scientists understand how quickly these Arctic environs are changing and what those changes may mean beyond the region.

Conservation Impact

Research in Churchill combines long-term climate monitoring with studies on belugas and polar bears, producing data used to guide real-world conservation and management across the Arctic.

- **More than 20 years of climate data** used to track how quickly permafrost is thawing —informing climate models and projections that shape global policy
- **Measurements of treeline advance and wetland change** used to predict how Arctic habitats will shift, guiding land and ecosystem management
- **Permafrost research helping scientists estimate carbon release** from thawing ground—critical to understanding future warming scenarios
- **Long-term datasets that allow scientists to distinguish short-term variation** from permanent change—critical for making informed conservation decisions
- **Findings that connect Arctic change to global systems**, including climate regulation, sea levels and biodiversity

This research informs the urgent decisions being made in real time about how to manage and protect these Arctic systems as they warm at a rate that's nearly four times faster than the global average.

Your Role in the Research

On foot near the research station, measure permafrost thaw. Probe the ground to record the depth of the active layer and document soil and environmental conditions across field sites. At the treeline, identify seedlings, record vegetation and compare sites to understand how trees are establishing in open tundra. Each observation contributes to long-term research tracking how Arctic ecosystems are changing.

Life in the Field

Each day's agenda is determined by weather conditions, wildlife activity and research priorities. Vegetation research days start on foot, crossing open ground to reach field sites where we measure permafrost and vegetation. Time on the tundra brings long views and steady movement, with pauses for observation—watching a bear at distance or documenting subtle changes in the landscape. Bring your binoculars! Tens of thousands of birds nest in and around Churchill during the late spring and summer, drawn by the rich resources and abundance of water. Afternoons may include data review, discussion with scientists, or preparation for the next day’s fieldwork. During the evenings, we gather at the research station where conversations continue around our findings. After dark, don't forget to look up: the northern lights can be visible once night falls.

Field Conditions

Fieldwork takes place across tundra and boreal forest, accessed on foot and by vehicle. On land, expect uneven terrain and moderate walking over open ground. Activities may involve standing, crouching and working close to the ground. Weather can shift quickly, with cool temperatures, wind and variable conditions. Wildlife sightings vary and cannot be guaranteed. Some days bring close encounters. Others focus on fieldwork. Plans adjust with weather, conditions and research needs. Flexibility is essential.

Discovery in the Field

1 **Discover One of the North's Most Dynamic Landscapes**
Though Churchill is techically subarctic, it sits within an Arctic environment where tundra, bog, boreal forest and Hudson Bay converge—a living laboratory in which to study and understand these interconnected ecosystems.

2 **Work Alongside Arctic Scientists in the Field**
Join top scientists studying climate change and its impact on Arctic species, taking part in field research and learning how observations become insight into a changing Arctic.

3 **Fly by Helicopter Over the Arctic Landscape**
Soar over the tundra and Hudson Bay for a rare aerial perspective on our remote northern environs, with the chance to spot polar bears, caribou, belugas and even moose from above.

4 **Gain Insight From Our Expert Field Guides**
Travel with experienced naturalist guides who bring deep knowledge of Northern natural history, helping you connect your daily fieldwork experiences to the larger picture of climate change impacting the region.

5 **Learn About Churchill's Cultures and Community**
Meet members of First Nations, Inuit and Metis communities in Churchill, learning about their cultural traditions, lived experience and deep connections to the northern landscape over centuries.

6 **Watch for the Northern Lights as Darkness Returns**
As nights lengthen in late summer and fall, look up after dark in hopes of seeing the aurora borealis, enriching your encounter with Arctic nature.

7 **Ride Behind Sled Dogs Through the Boreal Forest**
Visit with a local dog musher and let his team of huskies whisk you through the forest in a wheeled cart for a firsthand experience of a traditional northern way of life.

8 **Explore in a Small, Focused Group**
Our limited group size allows closer interactions with the scientists who lead our expeditions and a more active role in daily research activities.

Explore with Purpose

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Travel with Purpose

Take part in fieldwork that supports long-term climate research, contributing to a deeper understanding of how a warming Arctic is altering the environment, and the impacts of those changes.

Dates & Pricing Summary:

Prices:
From $7963 (+Air)

Group Size:
Limited to 14 Travelers

From Polar Bears to Permafrost: Churchill's Changing Arctic Dates, Pricing & Info

In Wild Polar Bear Habitat, Measure Permafrost Thaw & Track Ecosystem Change Across Tundra & Taiga

2027 Departures

Departure	Return	Notes
Aug 29, 2027	Sep 5, 2027	$7963 USD (+internal air)
Sep 3, 2027	Sep 10, 2027	$7963 USD (+internal air)
Sep 8, 2027	Sep 15, 2027	$7963 USD (+internal air)
Sep 13, 2027	Sep 20, 2027	$7963 USD (+internal air)
Sep 18, 2027	Sep 25, 2027	$7963 USD (+internal air)

Dates & Pricing Summary:

Prices:
From $7963 (+Air)

Group Size:
Limited to 14 Travelers

Departure	Return	Notes
Sep 23, 2027	**Sep 30, 2027**	$7963 USD (+internal air)
Sep 28, 2027	**Oct 5, 2027**	$7963 USD (+internal air)

2028 Departures

Departure	Return	Notes
! Prices and dates not confirmed for 2028		
Aug 29, 2028	**Sep 5, 2028**	$8463 USD (+internal air)
Sep 3, 2028	**Sep 10, 2028**	$8463 USD (+internal air)
Sep 8, 2028	**Sep 15, 2028**	$8463 USD (+internal air)
Sep 13, 2028	**Sep 20, 2028**	$8463 USD (+internal air)
Sep 18, 2028	**Sep 25, 2028**	$8463 USD (+internal air)
Sep 23, 2028	**Sep 30, 2028**	$8463 USD (+internal air)
Sep 28, 2028	**Oct 5, 2028**	$8463 USD (+internal air)

Pricing

See https://nathab.com/earthwatch-expeditions/arctic-polar-bear-climate-change-travel/dates-fees for the latest pricing details.

Included

Accommodations, services of Nat Hab's professional hosts, local guides and camp staff, all meals from dinner on Day 1 through lunch on final day, some alcoholic beverages, some gratuities, airport transfers on Day 1 and final day, all activities and entrance fees, all taxes, permits and service fees.

Internal air cost includes: All fllights within the itinerary (this will be listed separately on our invoicing).

Not Included

Travel to and from the start and end point of your trip, some alcoholic beverages, some gratuities, passport and visa fees (if any), optional activities, items of a personal nature (phone calls, laundry, etc.), airline baggage fees, airport and departure taxes (if any), required medical evacuation insurance, optional travel protection insurance.

Important Information About This Trip

Meals
Meals in the far north are hearty and delicious, but they also require special planning and preparation far in advance. With ample notice, we can meet dietary requirements that accommodate serious medical conditions or strict personal restrictions; however this restricted meal plan must continue to be adhered to while on the adventure. If you have a highly restricted diet, we recommend you bring along some of your preferred snacks and an appreciation that certain foods are limited in this part of the world.

A note regarding northern lights: In Churchill, you're located directly under the auroral oval at one of the world's best places to see northern lights. By September, longer nights and darker skies create even stronger viewing potential when there is no cloud cover. As autumn settles across the tundra, aurora borealis sightings become more frequent and often more vivid, adding another unforgettable dimension to your time in Churchill.

Mandatory Insurance

Since the areas we travel to are remote and wild (that's why we go there!), we require that all guests have, at minimum, medical evacuation insurance for this program. This is for the safety of all guests. We require that your chosen independent insurance plan includes at least $250,000 in medical evacuation coverage.

To protect your investment and to provide peace of mind while you travel, we also strongly recommend purchasing comprehensive travel insurance. Plans may cover everything from medical treatment to trip cancellations and delays and lost luggage. Please contact our office if you would like more information about the medical evacuation and comprehensive travel insurance policies we offer by calling 800-548-7555.

Getting There & Getting Home

This trip begins and ends in Winnipeg, Manitoba. Because weather delays are possible, **we recommend that you arrive at least one night prior to Day 1** to rest from your travels and begin the trip refreshed. For guests who come in early, our recommended hotel will be included in your pre-departure materials. If you plan to arrive on Day 1, you must arrive in Winnipeg by 5 pm in order to attend the 7 pm orientation dinner.

You are free to depart Winnipeg at any time on the final day.

Our Earthwatch Expeditions Travel Desk can best assist with your travel reservations, as our staff is familiar with the specific requirements of this program and can help arrange the most efficient itinerary. Please call us at 800-548-7555.

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