TUNDRA TIMES

The Annual Newsmagazine of Polar Bears International

Fall 2013

The Path Forward

40 years later...

It's early October and I'm standing on the coast of Hudson Bay, watching waves roll in and break on the shore. A fall nip is in the air … with polar bear weather not far behind.

Like the polar bears, I'm waiting for the sea ice to return, hoping for an early freeze-up and a long season of hunting seals.

It's extraordinary to think that 40 years ago, scientists were deeply concerned about the polar bear's survival for a very different reason. Modern hunters using light aircraft, set traps, and high-powered rifles caused their numbers to plummet. So serious was the threat that the five polar bear nations signed an historic agreement to regulate hunting and ensure their survival. The agreement was a first in the Far North, all the more extraordinary because it took place at the height of the Cold War.

Thinking back on that success story gives me hope, even though polar bears now face a much graver threat: the loss of their sea ice habitat due to human-caused climate change.

It's a big issue. A difficult issue. And a complex issue. But it's one that, with your help, we're committed to solving.

In this edition of the Tundra Times, we take you from the sea ice to the early days of bear-watching at Cape Churchill. We share updates on our research, education, and action programs. And we offer insights from a range of experts on the steps needed to stop climate change.

At PBI, polar bears are our sole focus and always have been—and that means we must all work together to save the remarkable habitat where they roam.

Krista Wright
Executive Director
Polar Bears International

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ON THE COVER: PBI remains fully invested in its philosophy of espousing and supporting fact-based, data-driven, scientifically sound research and information with regard to polar bears and their arctic realm. Rather than hanging onto the past and accepting the current trajectory of the warming planet, we look to the future. We stay committed to doing our part to educate as many as we can on the steps we all must take to create a path forward.

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Daniel J. Cox | NaturalExposures.com

Dan generously provides PBI with total access to his award-winning images free of charge.

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sea ice and polar bears

by Dr. Andrew E. Derocher

The sea ice of the circumpolar Arctic is one of the last truly wild parts of the world. Melting and reforming through the seasons, it can be a challenging habitat for people to grasp—but it's as vital to the arctic marine ecosystem as soil is to a forest.

No species typifies arctic sea ice better than the polar bear. Sometimes incorrectly called the "largest terrestrial carnivore," the polar bear is actually a marine mammal. Virtually all of its life history is tied to the presence of sea ice and the resources it can obtain there. Some polar bears live their entire lives without ever touching land.

A simple examination of the distribution of polar bears, their prey, and the distribution of sea ice is all one really needs to understand the link between polar bears and their sea ice habitat. Most polar bears make a living from two species of seals: the smaller and incredibly abundant ringed seal and the five to eight times larger, but less abundant, bearded seal. Both species rely on the presence of sea ice for reproducing and moulting. No sea ice, no ice seals. No ice seals, no ice bears. It really is that simple.

Some have suggested that polar bears will adapt to a warmer world by becoming more "terrestrial." I find this suggestion mystifying. Is it denial, delusion, or dishonesty? At the end of the last ice age, the fossil records show that polar bears did not become more terrestrial in southern areas as the ice retreated. They didn't eat more goose eggs or berries or become more terrestrial: their habitat disappeared and so did they.

Dr. Andrew E. Derocher is a professor of biological sciences at the University of Alberta and a scientific advisor to PBI. He has studied polar bears in the circumpolar Arctic for 30 years and has published over 100 scientific papers on them.

> *"Climate scientists are often accused by critics of being 'alarmist.' Yet when it comes to issues like the dramatic retreat we are seeing in arctic sea ice, the climate model predictions made by the scientists have actually been far too conservative. The rate of decline in arctic summer sea ice extent has been far more rapid than even the most extreme model predictions. That means that animals that rely on the sea ice environment, like polar bears, are actually at far greater risk than scientists originally suggested."*
>
> Dr. Michael E. Mann,
> Distinguished Professor
> Pennsylvania State University
> Author of *The Hockey Stick and the Climate Wars*

Cape Memories

By Fred Bruemmer

I remember Cape Churchill as an exhilarating experience. It had a strange, oddly Wild West ambience with an extraordinary cast of characters. Over time it developed into a slightly Arthurian Fellowship of the Cape. All day we focused on the mighty bears, adrenaline soaring, and in the evening came the raucous parties in the Muktuk Saloon.

I spent 23 seasons at the cape: 17 with the Tundra Buggies® and, before that, three seasons with scientists, starting with Dr. Charles Jonkel in 1967 and then three seasons on my own, living for weeks in a little cabin atop the tower at the Cape, with an entourage of polar bears beneath me.

For me one of the greatest pleasures of the Cape trip—apart from the never-ending joy and thrill and fascination of polar bear watching—was that I met many of the world's finest wildlife photographers whose work I had admired for years.

Dan Guravich, of course—crusty, opinionated, endlessly energetic, fussy, and the kindest of men. We met early, in 1968 or 1969 when he came to Churchill on an assignment. These were the pre-buggy days, so Dan and I rented a heavy truck, loaded the back with sandbags, and cruised the deeply snow-covered trails in search of polar bears. If they were far off the trail, we simply walked up to them (no guns, of course) and took pictures—ready to run should a bear attack.

Tom Mangelsen—with his great charm and easy laugh, his super lenses and that wonderful ability to meld bears and icescape and sky and mood into a perfect picture. One night over drinks in the diner, Tom said he wanted to do a book on polar bears and would I write the text. I must have mumbled "Yes," and thus was born *Polar Dance*, that superb book of Tom's pictures and my text.

Hans Reinhard—the farmer from a village high in the hills north of Heidelberg, who also happens to be one of Germany's best and certainly most prolific animal photographers: short, stocky, bubbling with enthusiasm. He would take wonderful pictures and talked to polar bears endearingly in his soft, lilting mountain dialect.

Michio Hoshino—totally dedicated to his work. While we sat in relative comfort in the buggy, he stood outside in the cold and cutting wind to get those glorious pictures that later appeared in *National Geographic*. Years later, he was killed by a brown bear in Siberia.

And then there was **Len Smith**—the father of the Tundra Buggy, a mechanical genius who could fix nearly everything. To fill a deflated buggy tire, he sprayed in ether—or something equally explosive—and lit it. A horrific bang and the great tire was round and full. "Better than pumping," he said.

After supper the younger crowd drifted into the Muktuk Saloon. The American poet William Mills. Anne Fadiman of *Life Magazine*, who came to write about men and bears and, when one of us got severely mauled, wrote the dramatic "Tale of Arctic Beauty and Brutality." The film crews, the drivers—all came for late night revelry, loud, cheerful, boisterous, the ghetto-blaster thumping in the packed little room. Outside it was 30° C below zero, the landscape a glimmering white, still, and serene. Inside it was 30° C above, with most of us in a happy haze.

Our common bond was our genuine love, admiration, and compassion for the bears. One day a young, hungry female with two small cubs came to the diner, allured by food smells. Once the males spotted the female and small cubs, they slowly fanned out in an encircling movement. We tried to chase them away but they were determined. One rushed in for the kill. The female, young and inexperienced, could not defend both cubs. The male grabbed one cub. She raced after him, slashed, roared, grabbed the cub, both tore at it, she ripped it free and we managed to chase the males away. The cub was dead.

I still remember that tragic picture: the female bowed over her bloody, mangled cub and huddled against her, the other cub, scared and uncomprehending.

Dan, unable to help, had watched the unfolding tragedy from the diner. When I shortly afterwards joined him, there was Dan, the tough, often grumpy World War II tank commander, slumped in a seat, tears streaming down his face.

We did love and admire the bears. They became a part of us—of those fortunate ones who were part of those early, free, sometimes wild and nearly always wonderful days when we belonged to the Fellowship of the Cape.

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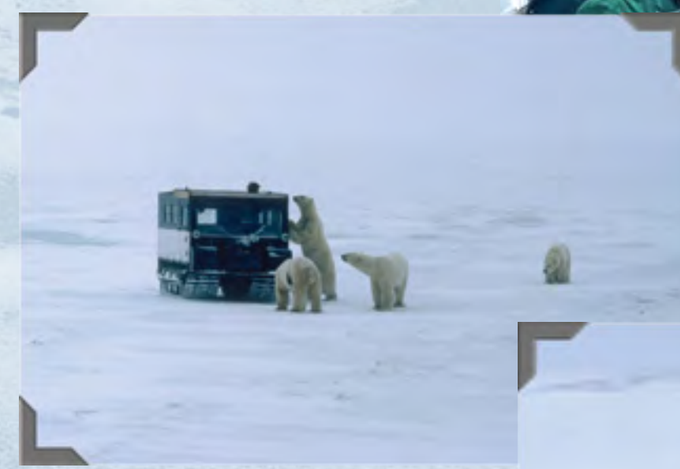
Author Fred Bruemmer, in yellow toque and green parka, during the early days of polar bear watching at Cape Churchill. Rustic and prone to breakdowns, the first Tundra Buggies lacked the creature comforts found today. Fred remembers those early days as "... a wonderful, exhilarating, sometimes fairly wild time—a bunch of adrenaline-high people photographing bears, with a joyful enthusiasm and a love for the bears and the cape and the thrill of being." These historic photographs were taken by Dan Guravich, one of the original members of the Fellowship of the Cape.



Polar Bears in a Warming World: Certainties and Uncertainties

By Dr. Steven C. Amstrup

As a scientist who has studied polar bears for more than 30 years, people often ask me when the Arctic will be completely ice-free in summer and when polar bears will disappear.

Neither of those questions can be answered with complete certainty. But we do know that unless action is taken to greatly reduce the emissions caused by burning fossil fuels like coal and oil, two-thirds of the world's polar bears could disappear by mid-century and ultimately all of them will vanish.

As polar bears disappear, so will the whole arctic marine ecosystem— a system that is not only beautiful, but critical to maintaining the climate allowing humans to flourish.

The laws of planetary physics require that the world will grow warmer and warmer as long as greenhouse gas concentrations rise. There is no uncertainty about this: we've understood the correlation for over a hundred years.

As the world warms, however, natural climate fluctuations (which always have occurred) might alternately increase or decrease the warming trend. Therefore, we are uncertain of precisely when we will see the first year it is too hot to grow wheat in Kansas or the first summer the Arctic will be ice-free.

What we must remember is that although natural fluctuations in the climate system mean the exact timing of those future events is uncertain, crossing both thresholds is assured unless we reduce greenhouse gas emissions. And because crossing those thresholds will be bad news for polar bears and the rest of life on Earth, focusing on that uncertainty—as some politicians do—is only relevant if we don't care about what kind of world we are leaving for our children and grandchildren.

Dr. Steven C. Amstrup is PBI's chief scientist and the 2012 recipient of the Indianapolis Prize, the world's leading award for animal conservation. Prior to working with PBI, he was Polar Bear Project Leader for the U.S.G.S. for 30 years.

Global warming is a problem that extends well beyond the Arctic and is already affecting life on Earth as we know it. It brings with it not just warmer temperatures but climate chaos, including an increase in extreme weather events, from floods to droughts to massive storms.

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feast to famine: two stories, one season

Data from two James Bay polar bears collared in September 2012 tell two different stories of survival: one bear hunted on the sea ice all winter after a delayed freeze-up; the other perished on a coastal island in early December, ten days before the ice returned.

"She apparently just ran out of fat reserves," says Dr. Martyn Obbard of the Ontario Ministry of Natural Resources. "She was in very poor condition when we collared her, with months to go before freeze-up."

Scientists discovered the bear's body this spring when they went to retrieve the satellite collar, which they assumed had just dropped off. Because the body had been frozen all winter, the crew was able to examine it and found no signs of trauma. But the bear was literally skin and bones, her pelvic girdle and ribs easily seen.

The polar bears of Southern Hudson Bay live farther south than any polar bears in the world, with the broad finger of the James Bay extending from the southernmost end of Hudson Bay. Sea ice losses there have been large and are expected to be more dramatic than in other parts of the polar bear's range.

"How these bears respond to climate change will help us understand what might happen with other populations as the Arctic continues to warm," Obbard says.

PBI is helping to fund a study on the James Bay polar bears, led by Obbard with a team of scientists. Objectives include:

- Following the movement patterns of collared bears in relation to the sea ice
- Documenting the body condition of handled bears and analyzing fat samples from them to see what they are feeding on
- Determining where pregnant females are denning
- Recapturing some bears captured before to better understand feeding patterns in relation to sea ice conditions

A unique part of the study is an effort to gather traditional knowledge on polar bears and sea ice conditions by meeting with local Cree communities, outreach they hope to later expand to the Sanikiluaq community.

In addition to Dr. Obbard, members of the team include Dr. Greg Thiemann of York University in Toronto, Ontario; Brandon Laforest, a Ph.D. student at York University; and Kevin Middel of the Ontario Ministry of Natural Resources.

Photo taken in August 2013 by Dr. Ian Stirling in Svalbard, Norway. The bear likely starved, unable to reach its prey due to a lack of sea ice.

Research

PBI relies on the guidance of the world's leading polar bear scientists to ensure the projects we help fund have the greatest impact on polar bear conservation. In addition to Southern Hudson Bay, our projects include:

- Population Studies in Western Hudson Bay
- Maternal Den Studies monitoring den behavior of mothers and cubs in Alaska
- Sensory Studies of hearing, sense of smell
- Citizen Science Project, providing photo documentation of body composition
- Ice In, Ice Out analysis of sea ice patterns
- Cortisol Study measuring stress levels in polar bears

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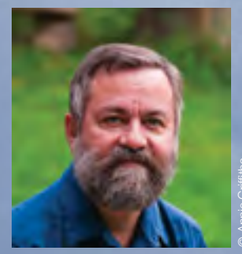
The Path Forward

Scientists agree that the only way to save polar bears and their sea ice habitat is to stop global warming by drastically reducing greenhouse gas emissions. But what can be done? How is that possible? We turn to experts for their insights.

"An entire ecosystem is disappearing before our eyes. It's time for a collective group of concerned citizens to let our political leaders know we want aggressive action. We need renewable energy and we need to pay the real price for a carbon-based society."

Krista Wright, Executive Director
Polar Bears International



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"If every U.S. citizen ate just ONE meal a week (any meal) composed of locally or organically raised meats and produce, we would reduce our country's oil consumption by over 1.1 million BARRELS of oil every week."

Biologist Steven L. Hopp
in Animal, Vegetable, Miracle
with Barbara and Camille Kingsolver

"One of the most important things you can do is write (by regular mail) or call your local, state or federal representatives. Letting your decision-maker know what you think, especially about specific policy proposals being considered, can make a real difference."

Dr. Anthony Leiserowitz, Director
Yale Project on Climate Change Communication

"To ever truly make progress on climate change, the issue must be amplified beyond the audiences of traditional environmental groups. What we need is the commitment of the private sector to stand together in the call for global carbon policy by signing the BICEP Corporate Climate Declaration."

Mike Bellamente, MBA
Executive Director, Climate Counts

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"There are lots of things we all can do. First, at the personal level, in every one of our daily choices as we go through life, we must reduce our dependence on fossil fuels. That is, build, choose, and live green! Next, we must work in our communities to effect change. Most important, we need to speak up and let our elected leaders know that we support action on climate change—including legislation that levels the playing field for renewable energy by setting a fair price for carbon."

Dr. Steven C. Amstrup, Chief Scientist
Polar Bears International

"The good news is that technology on the shelf today can deliver deep carbon pollution cuts. And the U.S. has the strongest environmental laws in the world, with proven programs to reduce greenhouse gas emissions. All we need now is the political will to put these tools to work to solve the climate crisis. And that's where citizens come in. It's important that we all speak up, spread the word, and demand change."

Kassie Siegel, Director
Climate Law Institute, Center for Biological Diversity

"Fundamentally, the challenge is to undergo a rapid transition away from burning fossil fuels. To do so, we must factor the cost of emitting carbon into our business decisions. How we accomplish that—a carbon tax, tradable emissions rights, or other market incentive—is a matter of worthy debate. The urgency of lowering our carbon emissions, however, is not."

Dr. Michael E. Mann, Distinguished Professor
Pennsylvania State University
Author of The Hockey Stick and the Climate Wars

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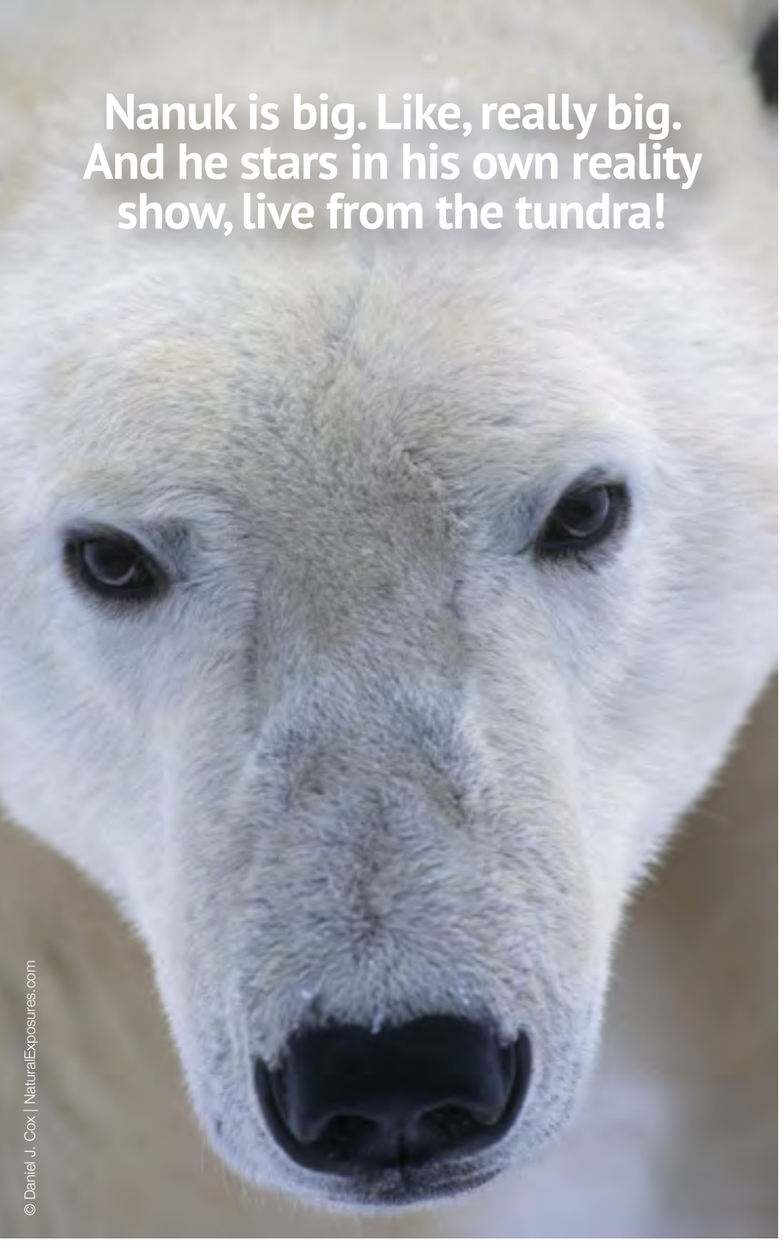
"But while nature has considerable resilience, there is a limit to how far that resilience can be stretched. No one knows how close to the limit we are getting."

Douglas Adams, Author

"Trying to live eco-perfectly in today's system is like trying to swim upstream, when the current is pushing us all the other way. But by changing what our economy prioritizes, we can change the current so that the right thing becomes the easiest thing to do.

"So how do we do that? The millions of ordinary people who have made extraordinary changes in the past didn't try to do it alone. They didn't just say, 'I will be more responsible.' They said, 'We will work together until the problem is solved.'"

Annie Leonard
***The Story of Stuff* Project**



Every fall, we broadcast our Tundra Connections® series from the shores of Hudson Bay as polar bears wait for freeze-up, providing you with an insider's view of the legendary migration. Our coverage includes a live Polar Bear Cam hosted by explore.org, with our partners Frontiers North Adventures and Parks Canada, where you can watch the bears going about their daily routines. We also air a series of webcasts from a Tundra Buggy® that give you the chance to meet an incredible cast of experts and ask questions.

This year our webcasts begin in late October and continue through mid November. Here's a snapshot of what we've planned:

October 21 – 25
Designed especially for STEMx educators and classrooms, Google Street View joins us this week. Panelists include a snowy owl expert and polar bear scientists, with maps, tracking, and technology part of the discussion.

October 28 – Nov 1
We partner with Climate Counts this week as we focus on what you can do to help polar bears and their sea ice habitat. Panelists share perspectives from carbon-conscious businesses and green universities along with polar bear scientists.

November 4 – 8 (Polar Bear Week!)
Discovery Education joins us during Polar Bear Week, when our focus is all about the bears—from denning to adaptations. You'll meet scientists who work with polar bears and dig into the facts on how you can help.

November 11 – 14
We partner with Taking It Global for our final week of broadcasts, with a target audience of secondary and higher education and an emphasis on taking action. Scientists with a wide range of specialities explore global issues from water to deforestation and coral reefs.

Visit our website for the list of panelists and the complete schedule, including dates and times.

Education

PBI is committed to conveying accurate and timely information on polar bears, the threats they face, and how we can help. In addition to Tundra Connections and the Polar Bear Cam, our outreach includes:

- #1 Polar Bear Website, the go-to site on polar bears
- Educational Tools & Materials, including our Bear Tracker map, IMAX *To the Arctic* curriculum, and other lesson plans
- HP Catalyst Academy Mini Courses, online teacher training
- Media Relations, trusted source for accurate information
- Arctic Documentary Project, extensive library of photos and film from the past and present

Saving their seal-hunting platform is what it's all about for polar bears ... and that means drastically reducing the greenhouse gas emissions causing the Arctic to warm and sea ice to melt.

But how do we get there? To stop global warming, we must speak up in support of policies that help us transition from a carbon-based society. We must also vote with our wallets by supporting businesses that operate sustainably and favor climate change policies And we must continue to do all we can in our communities and on a personal level to reduce our energy consumption and model green behavior.

Our SOS campaign provides a framework throughout the year to help you do just that. It's structured around a series of Earth Awareness events. Each focuses on a critical conservation action to speak out about. We then couple this with a recommendation for a personal behavior change to reduce greenhouse gases over time. And, finally, we provide suggestions on how to invite others to join you.

Our first event, Polar Bear Week, coincides with the annual migration of polar bears to Churchill, Manitoba, to wait for the sea ice to form. Longer and longer ice-free seasons are straining the limits of the bears' fat reserves, making this the perfect time to speak up in favor of action on climate change and to commit to buying locally, buying less, and supporting climate friendly companies.

Action

For PBI, taking action on climate change is a natural extension of our educational outreach. On top of our SOS Campaign, our programs include:

- Arctic Ambassador Centers, zoos, museums, science centers, and aquariums that support our climate outreach
- PBI Climate Alliance, exercising positive pathways to change
- Project Polar Bear Contest, a CO_2 reduction challenge for ages 11-18
- Acres for the Atmosphere, tree-planting and other community projects

SOS Schedule

Polar Bear Week, November 4-10
Speak up for action on climate change and commit to buying locally, buying less, and supporting Climate Friendly Companies

International Polar Bear Day, February 27
Speak up for green energy and take our Thermostat Challenge

Earth Hour, March 29
Speak up for energy conservation and join our Power Down Effort

Earth Day, April 22
Speak up for Idle Free Zones and take our No Idling Challenge

Endangered Species Day, May 17
Speak up for alternative commuting and join our Bike Commute Challenge

World Oceans Day, June 8
Speak up for local and sustainable food choices and make a Green House Grocery List

Arctic Sea Ice Day, July 12
Speak up about the true cost of carbon and take our Green House Energy Challenge

Visit our website and social media sites for details on how to become involved in Polar Bear Week and other SOS actions.

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Climate Change Facts & Fiction

Are scientists still debating the causes of global warming? No: 97% of climate experts agree the current planet warming is human-caused.

In addition to warmer temperatures, scientists link climate change to more extreme weather events, including heat waves, droughts, and stronger hurricanes.

Over the past 30 years, the Arctic has warmed more than any other region on Earth.

During the same time period, arctic sea ice declined by 30 percent in September, which marks the end of the summer melt season.

Scientists first started to see changes in the arctic climate in the 1970s and 1980s.

Arctic sea ice reached record lows in 2012. This year's losses are not quite as steep, but still well above the 1981-2010 average.

The arctic permafrost has started to thaw and the snow cover over land in the Arctic has decreased.

Changes in the Arctic could lead to feedback loops that amplify the warming: for example, open water absorbs more heat than sea ice, leading to warmer temperatures that melt more ice.

Aside from polar bears, why should we care about arctic warming and sea ice losses? Because the Arctic acts as a refrigerator for the rest of the world. Its climate could affect the climate of the entire planet.

Sources: National Snow & Ice Data Center, NOAA, NASA.

Ways You Can Help PBI

- Make an automatic monthly pledge
- Adopt a polar bear
- Shop online in our Gift Center
- Give a gift membership
- Donate goods or services
- Tell others about PBI
- Share our social media content

To receive timely email news and updates on polar bears and their arctic habitat, please complete the *sign-up* form on our website.

We neither sell nor distribute our mailing lists. You can view our complete Privacy Policy on our website.

Thank You!

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Our sincere gratitude to explore.org for its generous funding of several PBI programs.

A very special thanks to all those who support our Churchill events.

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