



# Arctic Bulletin



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## Fighting for survival

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WWF International  
Arctic Programme  
PO Box 6784  
St Olavs plass  
N-0130 Oslo, Norway  
Ph: +47 22 03 65 00  
Fax: +47 22 20 06 66  
Internet: [www.panda.org/arctic](http://www.panda.org/arctic)

**Programme Director:**  
Neil Hamilton  
[nhamilton@wwf.no](mailto:nhamilton@wwf.no)

**Editor:**  
Clive Tesar  
[ctesar@wwf.no](mailto:ctesar@wwf.no)

**Design and production:**  
Film & Form/Ketill Berger  
[ketill.berger@eunet.no](mailto:ketill.berger@eunet.no)

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## Editorial

# Changing Arctic, Changing Magazine

When WWF's Arctic Programme started the Arctic Bulletin in the early 1990s, the Arctic was a very different place. The Arctic barely registered in international consciousness. Even countries with arctic territory rarely thought about it. The Arctic Council was still years away from being formed, and the first signals were starting to appear of an arctic that was less pristine and untouched than we had assumed. WWF realized then that there were in fact threats to the health and sustainability of the Arctic, but that too many people were unaware of these threats, and consequently were not thinking too hard about solutions.

Part of the solution lay in communicating about the Arctic, starting with treating the Arctic as what it is – not a few scattered communities littered across a vast remote wasteland, but a linked living circumpolar system, enormously powerful, but at the same time enormously fragile. We needed the people in the north and in the centres of power and control often located in the south to look at the Arctic as a whole, to realize that what happened in one part of the north might well affect another part. Even more importantly, the people of the south needed to understand that they were having an increasingly negative effect on the north. Pesticides applied to cotton crops in China were showing up in lakes in Canada's Yukon Territory; chemicals used to stop fires in computers were showing up in the blood of people in Greenland.

The Bulletin raised awareness of issues such as pollutants, and of the need to better plan and manage increasingly industrialized arctic lands and waters. The Bulletin found news in one part of the Arctic, and spread it across the Arctic, contributing to a circumpolar consciousness. It also made sure that decision and policy-makers across the world were aware of southern impacts on the north.

Over time however, the Bulletin has become less relevant as a source of news. One of the major changes of the last two decades, the information revolution, has made the idea of a quarterly source of arctic news less innovative than it once was. There are now many websites, including our own, which can instantly update readers on arctic news. The increasing profile of the Arctic internationally has also ensured that news about the Arctic is increasingly widespread in mainstream media.

WWF has also undergone

many changes over the period since the Arctic Bulletin was first published in 1992. We are now unashamedly the largest and most effective NGO in the region, indeed the only environmental organisation with pan-arctic field and policy presence and capacity. Over the past couple of years we have redoubled our efforts in the Arctic and now work on issues as diverse as climate change and carbon cycling, fishing, shipping, oil and gas, spatial planning, governance, conservation and species protection.

We therefore decided that the Bulletin's role as an arctic news magazine needed a rethink. We will still be gathering news of interest to Arctic readers to appear on our website, [www.panda.org/arctic](http://www.panda.org/arctic), along with a variety of articles, photographs, video, and audio highlighting WWF's work around the Arctic.

This does not mean the end of WWF's flagship arctic publication, but a new beginning. The change in the communications environment gives us the freedom to change the way we communicate with all of the people who have read the Bulletin over the years. Instead of telling them what is happening now, we are now free to focus more on what should happen in the future. We will look at the current trends and conditions in the Arctic through the WWF lens of conservation and sustainability, examining issues in more depth, and posing potential solutions.

With this change in emphasis comes a change in name. The new publication, The Circle, will tackle one major

issue per edition, bringing together a variety of different perspectives from inside and outside WWF. For instance, the first edition due out in March 2009 will look at the issue of arctic governance. We will discuss with the help of several experts in the field what a future governance model for the Arctic might look like, whether the Arctic Council will continue to be relevant, the role of Indigenous peoples, and many other angles. As always we are eager for your feedback and contributions to arctic dialogue so watch for the first edition of The Circle, and tell us what you think.



**Dr NEIL HAMILTON**

Director,  
WWF International  
Arctic Programme  
[nhamilton@wwf.no](mailto:nhamilton@wwf.no)



# Rigs in the Fish Basket

**W**WF recently highlighted the possibilities of growing conflict between offshore arctic oil and gas development and a sustainable fishery. WWF US co-sponsored a panel discussion, titled “Rigs in the Nation’s Fish Basket? What Fishermen Should Know About Offshore Drilling in Bristol Bay and the Southeast Bering Sea” at the annual Pacific Marine Expo in Seattle, in the United States. The expo is the largest commercial marine trade show on the west coast.

An offshore oil and gas lease sale is slated to take place in 2011 amid the United States’ richest

fishing grounds of Bristol Bay. The 5.6-million-acre (22,662 km<sup>2</sup>) area proposed for leasing overlaps fishing grounds and important habitat for halibut, red king crab, cod, pollock, flatfish, and Bristol Bay’s famous wild sockeye salmon, all of which help provide a livelihood for indigenous peoples and fishermen throughout Alaska and the West Coast of the United States. Bristol Bay is also home to important staging areas and wintering grounds for tens of millions of seabirds. It is a feeding ground and migration corridor for 25 marine mammal species. Five of these are endangered species, including the

North Pacific Right Whale.

WWF is working on permanent protection for this area through its education and outreach efforts, such as building local grassroots action and meeting with members of the U.S. Congress. The panel of experts and industry representatives discussed the oil and gas proposal, the risks, and how development could affect fishing in these waters vital to the fishing industry. The panel was attended by a packed audience and was followed by a fishermen’s reception to celebrate Bristol Bay’s rich fisheries.

*Verner Wilson, WWF US*

## Canadian Environment Minister Calls Polar Bear Meeting

■ Following pressure from WWF Canada, Canada’s Minister of the Environment has scheduled a national round table on polar bear conservation. In a news release, the government says the round table “will be an opportunity to increase awareness of the many conservation actions underway by various parties and to hear views regarding priority areas for action.” Almost two-thirds of the world’s polar bear population is in Canada.

WWF Canada had pressed the government for such a national meeting after raising concerns over hunting quotas for a polar bear population shared by communities on Canada’s Baffin Island and Greenland. The government’s move meets the first of three actions proposed by WWF Canada. WWF is also calling for a bilateral agreement between Canada and Greenland to prevent future over-harvesting of the shared bear population, and for the federal government to put in place a conservation action plan for the entire Canadian polar bear population by the end of 2009.

WWF is working with other countries to get them to agree to an international conservation plan for the bears. Although hunting presents some immediate threats to

some bear populations, the largest threat remains climate change, as it shrinks the sea ice habitat on which the bears depend.

## No glow area

■ The Saami Council representative on the board of the Arctic Council Indigenous Peoples’ Secretariat is calling for a ban on uranium exploration in Saami reindeer herding areas. Stefan Mikaelson says the environmental and health risks of uranium development are too great. He says that Saami parliaments and municipalities should have the right to veto any uranium development activities.

Mikaelson says even the fact that companies are exploring for uranium in Saami reindeer herding areas raises image problems for their products. The explosion at the Chernobyl nuclear power plant in 1986 was catastrophic for Saami reindeer herders. The radioactivity absorbed by the reindeer led to the labelling of much reindeer meat as unfit for human consumption, and caused a major image problem for reindeer meat.

Mikaelson says that rather than encouraging uranium exploration, national governments in the region should invest more in renewable energy, and in energy conservation projects.

## Smithsonian Ocean Kiosk Success!

■ A WWF video about arctic climate change has a prominent place in the world’s most visited natural history museum. The video – featuring Dr. Neil Hamilton and Dr. Martin Sommerkorn discussing WWF’s climate change work in the Arctic – is showcased at the Smithsonian Museum of Natural History in Washington DC, thanks to WWF US. It is part of a new exhibit on oceans and is part of a broader ocean initiative at the Smithsonian to increase understanding of oceans and to encourage ocean-friendly behavior. The museum receives almost six million visitors a year.

If you cannot visit the Smithsonian, you can still see the video at: <http://www.youtube.com/watch?v=Jak1pExql0U>

# “Ground Truthing” Arctic Ice Loss

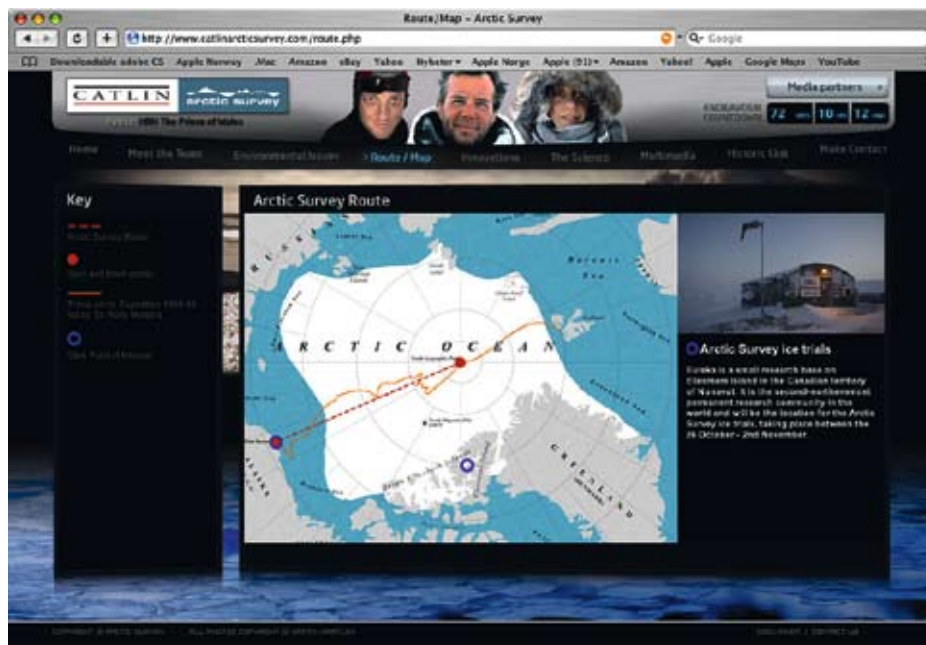
It is not often that old-fashioned muscle-power can be said to add to scientific understanding, yet that is exactly the quest of three polar explorers. The three-member Ice Team of the Catlin Arctic Survey is now hard into training for its expedition to the sea ice of the Arctic Ocean.

WWF is a partner in the survey project which will measure the thickness of the ice in unprecedented detail over a 1,300 kilometre route to the North Geographic Pole starting in February 2009. The measurements will be used to help calibrate the readings taken by satellites and submarines, improving the accuracy of predictions about the fast-disappearing arctic ice. The Catlin Arctic Survey's main scientific advisor and leading ice-modeller, Professor Weislaw Maslowski, believes the ice may disappear completely in the summer months within the next five to seven years.

“This job is something only explorers can do, it's as simple as that” says team leader Pen Hadow. “Scientists need the information and only we can get it. It hasn't been an easy project to get off the ground. For the last 48 months our technology team has been developing pioneering equipment which makes this surface survey possible. The most important technology is our SPRITE ice penetrating radar which we've designed to be ultra light weight so we can pull it behind one of our sledges.”

The radar measurements will be taken every 10 centimetres, then transmitted back via satellite to Professor Maslowski's team at the US Navy's Department of Oceanography in California. The data team will feed the information into their ice-modelling programme on a daily basis throughout the survey.

Professor Maslowski and Professor Peter Wadhams from the University of Cambridge in the UK have been advising on the route the ice team will take. It will survey multi-year ice as well as first year ice, verifying its density with cores drilled each day.



For now, team members are concentrating on getting into shape for their extreme venture. Each of them has a demanding training regime. Pen Hadow and colleague Ann Daniels have schedules which include exhausting running sessions over Dartmoor in south-west England, sometimes dragging tyres behind them to simulate the extra sledge-weight they will be pulling. Martin Hartley is training independently in London.

“The bit of preparation I dislike most is our amphibious training” says Ann Daniels. “There'll be a lot of water to cross as the ice is constantly fracturing to create open leads of water, so we're practicing swimming in some huge immersion suits. It's a challenge because they have to be worn over our expedition clothing which is bulky enough. And we're each attached to a sledge to make things even more problematic.”

Unlike any previous expedition to the Arctic the Catlin Arctic Survey will be able to share the experience throughout the 100 day trek using its unique multi-channel satellite phone system for audio, video and photo reports.

“People will be able to follow the expedition on a daily basis, even hearing live from the ice when things are happening. We want to

be able to tell our story to people directly from the ice, and highlight the fragility of this astonishing region” says Pen Hadow.

The explorers will be sending reports and making live video links to WWF's Earth Hour event and providing regular updates to a global audience. “It is so important to us that besides helping the scientists better understand what is happening to the permanent ice, that we also highlight the serious significance of the impacts of global warming in the high Arctic to a world-wide audience,” says Hadow. “Our results will be available ahead of the climate change talks in Copenhagen next November. They should help to bolster support for a major global agreement to significantly cut carbon dioxide emissions.”

By Rod Macrae,  
Head of Communications,  
Catlin Arctic Survey

**Daily data, video and audio will be sent to the expedition headquarters in London. It can be viewed online at [www.catlinarcticssurvey.com](http://www.catlinarcticssurvey.com). You can also sign up for your own RSS feed and regular email bulletins.**

## EXPEDITION FACT BOX:

- Route: Starting at 80° longitude along 140° latitude.
- Flying from: Resolute, Canada to the starting point.
- Length: 1300 kilometres
- Actual length of trek: 2,500 kilometres (accounting for the movements of the ice)
- Duration: 100-120 days
- Weight of sledges – 200lbs
- No. of ice measurements: 13 million
- Temperature: Down to minus 50 degrees Celsius
- Hazards: Thin ice, water leads, polar bears.



# Planning for Shtokman

WWF Russia, along with other NGOs, has established an agreement for regular meetings with the group of companies developing the Shtokman gas field in the Barents Sea. The NGO group will meet with the developers every three months.

The development of the gas field will be particularly challenging, as it is 600 km northeast of the city of Murmansk, and in waters more than 300 metres deep.

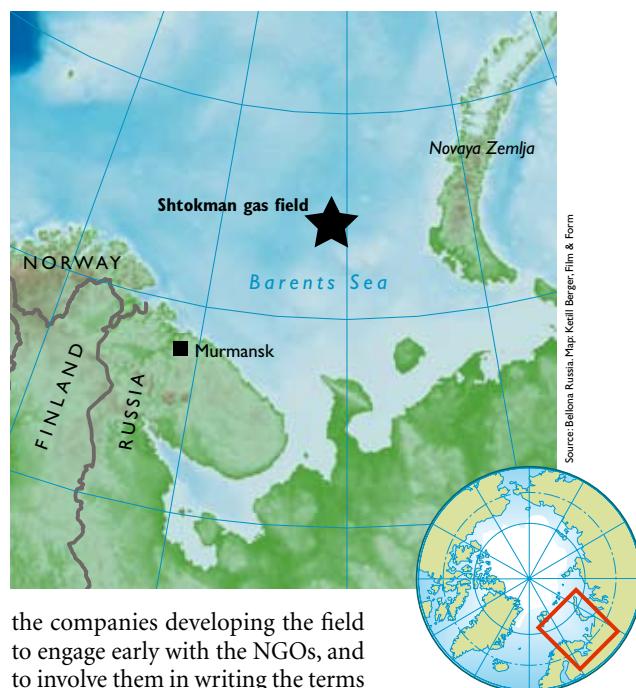
The companies involved in the project, Gazprom, Total, and Statoil Hydro, announced earlier this year that they have started construction of two drilling rigs, to be delivered in late 2010-early 2011. The project is expected to produce about 70 billion cubic metres of gas annually, about the same amount as is currently produced by Norway.

The Barents Sea is one of the most productive marine ecosystems in the world and among the most biologi-

cally diverse in the Arctic. Among its spectacular features are the world's largest deep-water coral reef, the world's highest density of seabirds, exceptionally large fish stocks and unique habitats for seals, whales, walrus and polar bears. The Barents is also home to one of the world's most valuable fisheries, providing more than half of the world's cod.

WWF Russia wants to ensure that the companies developing the field adhere to a set of principles on oil and gas development developed by Russian NGOs. These principles include adopting precaution as a priority in decision-making, the adoption of best practices in any oil and gas development, public monitoring of project impacts, and forbidding oil and gas development in identified areas of particular ecological value.

Alexey Knizhnikov, an Oil & Gas Environmental Policy Officer with WWF Russia, says it is important for



the companies developing the field to engage early with the NGOs, and to involve them in writing the terms of reference for the Environmental Impact Assessment. Knizhnikov wants the companies to consider a transboundary EIA, to ensure that the total effects of the project are examined, both on people and on the natural environment.

# In the wake of the Fram: the DAMOCLES project

Developing Arctic Modeling and Observing Capabilities for Long-term Environmental Studies (DAMOCLES) is an integrated ice-atmosphere-ocean monitoring and forecasting system designed for observing, understanding and quantifying climate changes in the Arctic. It is a European contribution to the International Polar Year and is financed by the European Union. Forty-eight institutions in 11 European countries form the DAMOCLES consortium.

There are five core research themes: (1) to measure the variability of the essential climate variables that control sea ice; (2) to improve observations and modeling of arctic atmosphere and air-sea-ice interaction; (3) to advance understanding of large-scale circulation in the Arctic Ocean; (4) to integrate and assimilate data from (1-3) in large-scale modeling and forecasting; and, (5) to assess climate change impacts.

DAMOCLES is particularly



*Fram in the arctic sea ice during the Nansen expedition of 1893-96*

concerned with the potential for a significantly reduced sea ice cover, and the impacts this might have on the environment and on human activities, both regionally and globally.

The Tara Expedition is a recent project success. The expedition involves a French schooner that began its drift through the arctic ice in August 2006. The Tara's crew noticed that the height of pressure ridges, formed when two ice floes collide, never exceeded 5 to 6 meters when several decades ago it was common to encounter ridges 10 meters high. That is mainly due to the depletion in thickness of the

ice-pack. In another finding, when the team studied the water column below *Tara*, they discovered a relatively warm layer of water at a depth of 250 metres resulting from the entrance of warmer Atlantic water through the Fram Strait and spreading across the Arctic Ocean. The Fram Strait is between Eastern Greenland, and the Spitsbergen Islands north of Norway. The Strait carries ice from the Arctic Ocean southward, and this movement is linked to the important ocean processes that move water between the pole and the tropics.

In the 1890s, the schooner *Fram* carried the Norwegian explorer Fridtjof Nansen to the highest northern latitudes reached up to that time. The *Fram* became frozen in sea ice after drifting into a polar current, but withstood tremendous forces and went on to further polar exploration. The *Fram* and *Tara* have been featured in a DAMOCLES-sponsored photo exhibit at the Fram Museum in Oslo.

# Contributing to Funding a Future for Norwegian Arctic Islands

The Norwegian government has introduced a novel way of preserving the environmental and cultural heritage of its arctic islands. A visitors' fee will be applied to a fund to support environmental projects on the islands.

The islands above Norway go by the collective name of Svalbard, which includes all the territory between 74 and 81 degrees north, and 10 and 35 degrees east. It has a land area of 61,000 km<sup>2</sup>, which is twice the size of Belgium. 60 percent of this area is permanently covered in ice and snow.

A defining feature of Svalbard is its almost untouched wilderness areas – only a small proportion of the area is settled or used. 65 percent of the area is protected by nature reserves or national parks. Most of Svalbard's significant landscapes, fauna, flora and cultural heritage sites are covered by the protected areas. The ecosystem is little influenced by human activity, and the cultural heritage is very well preserved because of the cold and dry climate. Svalbard has completely unique environmental and cultural heritage values in a European context.

These are under increasing pressure due to both natural and man-made influences. Threats to Svalbard's natural environment include global warming, pollutants from distant areas, travel/tourism, local pollution, and damage to and wear on cultural monuments.

Threats such as global warming and long range pollution are more pronounced in arctic areas, and Svalbard is no exception to that rule.

The Norwegian authorities intend for Svalbard to be one of the world's best managed wilderness areas. All visitors to the island, both tourists and locals, must be careful about their travel through the wilderness areas, to ensure that the quality or size of the wilderness areas are not reduced.

The Norwegian government



Photo Stefan Norström/WWF

recently passed a law that makes possible the introduction of an environmental fee for visitors to Svalbard, and fees for hunting and fishing cards. The income from the fees is added to Svalbard's environmental fund. The fund can only be used for initiatives in Svalbard that are designed to protect the environment and cultural heritage. Resources from the fund can be used to pave the way for experiences of Svalbard's nature and cultural environment, among other things, by establishing initiatives for looking after a natural state or cultural monument which is exposed to natural or human influence. The environmental fee is NOK 150 per person per entry. It is expected that the fees will generate income of about 8 million NOK (just under one and a half million \$US) per year.

The fund will be used for initiatives such as, management and maintenance, restoring environ-

mental degradation, mapping environmental conditions and investigations into what is causing changes to the environment. The fund can also be used for information or training initiatives.

Since its start last year, the fund has already contributed to 57 projects and initiatives. These range from a study of environmental impacts from human traffic at Svalbard, to waste management in a kindergarten in the community of Longyearbyen, to establishing websites about birds and flowers on Svalbard.

## Application

The next deadline for applications to the Svalbard Environmental Fund is the 1st of February 2008. Application forms will be published on [www.syssemmannen.no](http://www.syssemmannen.no).

Svalbard shack

By Trine Krystad, Advisor,  
Svalbard Environmental Protection Fund

# Why I welcome the European Commission's statement on the Arctic

By Diana Wallis, MEP

For some time I have been quite convinced that the European Union needs to play a greater role in the Arctic. The EU has three arctic states amongst its members and a further two countries are linked through the European Economic Area Agreement. Besides this, it is of course widely recognised that the Arctic is something of a nexus of converging issues: climate change, energy supply, the opening of hitherto closed sea routes, sustainability, rural development, and migrating fish stocks amongst others. These are all issues where the EU is developing policy.

Eight years ago, I heard Sheila Watt-Cloutier of the Inuit Circumpolar Council speak movingly about the developments in her arctic home caused by climate change. This inspired in me a conviction about the importance of the Arctic to all of us. At the same Arctic Parliamentarians meeting, a presentation from Professor Oran Young made it quite clear that the pressure of gathering issues in the Arctic highlighted the inadequacy of existing structures of governance in that region. I returned from that meeting determined to force some sort of change at an EU level and over the years I have sought out opportunities to forward the argument within the EU institutions, particularly Parliament and the Commission.

It looked for a while as if the EU's Northern Dimension policy,



Photo: European Parliament

Diana Wallis is the Liberal Democrat Member of the European Parliament for Yorkshire & the Humber in the UK. She is a Vice-President of the European Parliament with a special responsibility for the Arctic.

which from an early stage had a so-called 'Arctic Window', might do the job.

Geographically, the Northern Dimension covers a broad area including parts of the Arctic Region. However, the focus was on the Baltic countries, then candidates for EU enlargement, and on Kaliningrad and north-west Russia, for 'soft security' reasons – including nuclear waste and border questions. Some have argued that above all else the Northern Dimension was principally designed as a policy

for managing bilateral relations with Russia and as a method of targeting money into the then candidate countries around the Baltic Sea. Since enlargement the Baltic has become particularly important within the Northern Dimension to the extent that a Baltic Sea Strategy is now being prepared by the Commission. In turn the arctic aspect was in danger of being forgotten or at least having only a very secondary status.

I felt it was important that the issue of arctic governance

■ ■ In view of the role of climate change as a "threats multiplier", the Commission and the High Representative for the Common Foreign and Security Policy have pointed out that environmental changes are altering the geo-strategic dynamics of the Arctic with potential consequences for international stability and European security interests calling for the development of an EU Arctic policy. On the whole, Arctic challenges and opportunities will have significant repercussions on the life of European citizens for generations to come. It is imperative for the European Union to address them in a coordinated and systematic manner, in cooperation with Arctic states, territories and other stakeholders. This Communication sets out EU interests and proposes action for EU Member States and institutions around three main policy objectives:

- Protecting and preserving the Arctic in unison with its population
- Promoting sustainable use of resources
- Contributing to enhanced Arctic multilateral governance

*Communication from the Commission to the European Parliament and the Council: The European Union and the Arctic Region, pp. 2–3*

**Editor's Note:** The past few months have seen a definite sharpening of the EU's interest in the Arctic. First, the European Parliament passed a resolution dealing with the EU and the Arctic, then the European Commission published a 'Communication' on the Arctic that laid out a possible future direction for the EU in its dealings with arctic issues.



was brought to the attention of a wider audience in the European Parliament and so in May 2007 I co-hosted a seminar which brought together academics, elected representatives, scientists and others to consider whether it was time for an arctic charter.

By coincidence it was at this time that the Commission had begun to look at publishing a Communication on the EU and the Arctic. Coming out of the Maritime Policy (the so-called 'Blue Book') it was a brave attempt to bring disparate elements of the Commission together in formulating the cross-cutting Arctic Policy that had been argued for. In this spirit of movement the European Parliament overwhelmingly approved a cross-party resolution on the Arctic in October. It called on the EU to take a more 'proactive' role in these matters.

So that is why the Communication from the Commission is to be warmly welcomed. It is only right that the EU develops a cross-cutting policy to deal with the key issues that exist in the Arctic.

If there is one disappointment with the Communication, it is that the Commission has not taken up the Parliament's call to open international negotiations designed to lead to the adoption of an international treaty for the protection of the Arctic. However, the issue of governance in the Arctic is not closed in the Communication (it says, for example, work on further developing some of the frameworks, adapting them to new conditions or Arctic specificities should not be precluded). This issue of governance will remain key, and the Parliament will continue to contribute to the debate.

I hope the Council approves the Communication and allows the EU to play a part in the future of the Arctic. As a starting point the Commission should be supported in its bid to take up observer status on the Arctic Council. The Arctic Council may be able to answer some of the geopolitical challenges facing the world in the Arctic; time will tell if it is capable of the political leadership that this requires. The EU's greater involvement should serve to enhance the likelihood of success.

# Upbeat Students and the Beaufort Blues

By John Park

**A**s a 17 year old student who lives in this critical era of the climate change crisis, I couldn't but see obvious room for improvement. So did Graham Clark, Adam Kelner, Joanna Salsberg, and Payal Patel. That is how Environmentally Concerned Students (ECS) was created. We wanted to be heard as a student voice for the environment. There is so much science and knowledge out there – enough to prove that climate change is happening at an incredibly disastrous rate. We wanted to show that the care and concern were there too.

Most importantly, we wanted to take action. The incredible amount of scientific knowledge that people have acquired is not at all balanced by the required action. There are some individuals, and organizations such as WWF, that are setting the much needed examples

of successful global action. But as long as there is climate change, as long as species are perishing every day, and as long as the Arctic keeps melting at record rates, we can always do more.

A few months ago we embarked on a campaign that we call 'Blue Beaufort'. The Beaufort Sea, off the northwest corner of Canada, is a critical habitat for many key arctic species and the home of the indigenous Inuvialuit. Large parcels of seabed have been auctioned off for oil and gas exploration. As things stand, there are no sufficient oil spill response plans for ice covered seas such as the Beaufort. A spill there could be catastrophic. This is clearly an

issue that needs heightened attention and timely action.

We have two main goals – and they are simple. First, we want to raise public awareness of the issue. With heightened collective awareness, we aim to build a stronger voice that will be heard by the government and the oil companies. We are giving presentations around Toronto – in schools, churches and other communities. Second, we aim to directly urge Canadian Prime Minister Stephen Harper to delay the sales of oil and gas rights until more realistic, reliable, and tested oil spill response plans and necessary infrastructure are in place. For this purpose, we have put together a petition.

ECS has been giving passionate presentations for a couple of months now, and the reaction already has been inspirational. It was exactly what we wanted to reveal in the first place – that people actually care. Other youths, even from different parts of the country, have stepped up and offered to help in spreading the word and distributing the petition.

We have a long way to go. As the name of our campaign, Blue Beaufort, suggests, we will keep speaking out until the Beaufort Sea, and ultimately the whole arctic which is so critical to our planet's health, will safely remain blue and unspoiled – free from the black stains of oil activity and irresponsible development. As students, we don't have as much knowledge as scientists do, and we don't have as much control over government policies as lawyers and politicians do. But we do have the passion, concern and ability to raise awareness and show the decision makers that people care. And that's what we are striving to contribute to the concerted efforts towards a more sustainable future.

● Please email us at [ecsbluebeaufort@gmail.com](mailto:ecsbluebeaufort@gmail.com) for comments and/or suggestions.

**As things stand, there are no sufficient oil spill response plans for ice covered seas such as the Beaufort.**



# Waiting with the ice

## — reflections from the tundra



**H**ave you ever wondered what it would be like to live for a time on the arctic tundra surrounded by polar bears who are awaiting the return of winter sea ice? Have you ever considered living for several days in a large bus-like vehicle that stands off the ground and awaking to northern lights or a curious white furry face staring into your “bedroom” window?

Neither had I. However, this is exactly what I did for ten days this autumn in Churchill, Manitoba. At the invitation of Polar Bears International (PBI), an organization that does education and outreach on polar bears, I travelled to Hudson Bay to help spread the word about the tight spot in which polar bears now find themselves.

There are no roads to this far northern town, so you have to fly in or take a very long and slow train. As my flight touches down on the small airstrip next to Hudson Bay, the winds are blowing 50 knots and gusting to 70. Sparse snow is scattered across the tundra landscape and the small ponds are just starting to freeze. I have a few hours to arrange my gear and grab some lunch before heading out to meet the rest of my team on PBI’s Buggy One and the Tundra Buggy® Lodge.

The “Lodge” is actually a series of big, boxy vehicles joined together. These are the tundra buggies, standing two metres (six feet) off the ground with large wheels for the rocky trails. The evening I arrived, a helicopter was heading out with space for one more passenger. A short flight later we touched down at PBI’s Buggy One- a customized Tundra Buggy® turned mobile production studio designed to deliver real time high definition video, web casting, and video conferencing for education and outreach on polar bear conservation.

WWF, PBI and other partners, including North America’s top polar bear researchers and conservationists, joined together this year to report on climate change, its impacts on the Arctic, and the subsequent impacts on polar bears. During my stay we conducted video conference calls with thousands of people across North America. We also partnered with Apple Learning Interchange (<http://edcommunity.apple.com/ali/story.php?itemID=16609>) to conduct a series of webcasts which at last count had received over 7,000 hits!

As the polar bear viewing capital of the world and the epicenter of climate change impacts on polar bears, Hudson Bay is the



ideal backdrop for these public science and policy discussions. Polar bears gather every year in October and November along the shoreline of Hudson Bay while they wait for the bay to freeze. The polar bears in this part of the world are unique in that they have been onshore since early summer. Most of the world’s polar bears remain with the retreating ice pack and do not come ashore. In Hudson Bay the sea ice melts completely each summer forcing the bears to shore where they spend



# bears



Photos: Geoff York/WWF



poorer condition, the females are having fewer cubs, and fewer cubs are surviving to adulthood. Research from the Canadian Wildlife Service documents an average decline of over one percent per year for the Hudson Bay population (a staggering 22% decline since 1987). With less and less time on the sea ice, this iconic group of polar bears is in significant trouble.

Our mission in Churchill was twofold: alert people that higher temperatures are having a direct and harmful effect not only on polar bears in Hudson Bay, but on populations across the Arctic; and let them know they could do something about the situation. The messages from the Arctic are grim, but it is important people realize it is not too late to reverse these trends.

Through sharing the troubles facing polar bears, we engaged and encouraged people to join us in efforts to reduce carbon emissions. Global warming is a problem of enormous reach and significance to every living thing in this world. The issues are so big and complex that we sometimes think there is nothing we can do. The exact opposite is true. It is only through personal leadership and individual action that we can collectively make a differ-

ence. It is only through leading by example in reducing our energy use, in becoming smarter consumers, in voting with our feet and our spending that we can truly become the change the world desperately needs. It is only through personal action and grassroots leadership that we will create a chain reaction from the local to regional to national to global scale that will ultimately decarbonize our economies and create the conditions needed for a sustainable and living planet. If we are all doing this, our governments will have no choice but to follow.

Living with polar bears in Hudson Bay is transformative. One cannot leave the experience without being affected by seeing these magnificent animals interact with one another and with their environment. We simply must do everything we can to turn down the world's thermostat and give the ice and the bears a fighting chance. As the Arctic acts to regulate and cool the rest of the world, we also need to save the sea ice to save ourselves.

by Geoff York,  
Polar Bear Conservation Coordinator,  
WWF International Arctic Programme

4–9 months fasting. The bears rely on the sea ice returning to resume hunting seals, their primary prey. Trouble is, the ice is freezing later each year and is also melting earlier each spring. For the bears, this means more time without their most significant food source.

The situation in Hudson Bay is clear: the climate is warming, the sea ice is rapidly melting, and as a result these polar bears have lost five weeks of feeding time in the last 20 years. Adult bears are returning to shore in

# Polar Bears and Climate Change

The evidence for climate change effects on polar bears is not definitive. The definitive effects will come when subpopulations disappear. The status of the various subpopulations of polar bears varies widely: some are in decline due to climate change effects, and others are not showing any indications of change. The effects of climate change can differ in space and time, but only two or three subpopulations are monitored adequately to be able to confirm long-term trends in abundance and thus provide some insight into what may befall the species over a broader area.

The most telling impacts of climate change on polar bears have been noted in western Hudson Bay, where declines in their body condition, reproduction, and survival have resulted in a 22% reduction in subpopulation size between 1987 and 2004. Earlier melting of the sea ice in Hudson Bay is the major driving force behind the population decline, but a continuing unsustainable harvest of seals has aggravated the situation. Earlier melting of sea ice has two consequences for polar bears: It shortens the feeding period at a time when recently weaned seal pups are available, and it lengthens the period the bears must fast with less stored fat. While polar bears are well adapted to extended fasts, there is a limit to how long they can survive without food. Females in poor condition give birth to small

cubs that weigh less, and lighter cubs have lower survival rates. Over time, low survivorship to adulthood means the subpopulation will decline in number. There are data showing that polar bears in both the southern Beaufort Sea and southern Hudson Bay are also declining in condition, which is often a precursor to subpopulation declines.

A warming climate is altering sea ice conditions and affecting polar bears in other ways. Sea ice in many areas shifts with wind and water currents, and polar bears often walk against the ice flow to remain in contact with their preferred habitats. Climate warming is reducing ice thickness and extent, which may result in greater ice drift. In effect, the polar bears are on a treadmill, and we are turning up the speed. More energy used for locomotion means there is less energy available for growth and reproduction. Like deforestation in terrestrial habitats, altered sea ice dynamics can increase habitat fragmentation, making movement across the landscape more difficult.

Other events are more difficult to directly link to climate change but are consistent with predictions. Polar bears observed drowning off the coast of Alaska may have died due to the rapid northward retraction of the sea ice; more open water and greater distances between land and sea ice make it difficult for bears to find refuge. In the same area, killing and cannibalism observed among polar bears may be related to changes in sea ice conditions and lower availability of prey. Adult males appeared desperate enough to prey on other bears. Despite decades of research, such events were never recorded in the past in the Beaufort Sea, but are consistent with a population under stress.

Changing sea ice conditions are affecting the bears' hunting abilities.

In the southern Beaufort Sea, bears were observed in 2005 through 2008 digging through solid ice trying to prey on seal pups. Normally, ringed seal pups are born under snow drifts, which the bears can excavate with relative ease, but clawing through ice up to 70 cm thick is inefficient and possibly an indication of low seal availability. Seals appear to be pupping under sea ice because of altered sea ice conditions and storm events that rafted thinner ice. The long-term consequences for polar bears are unknown, but a reduction in energy intake is likely to affect many aspects of the bear's ecology.

A new study in Alaska revealed that polar bear dens on the pack ice declined from 62% between 1985 and 1994 to 37% between 1998 and 2004. This was probably a result of declines in the amount of stable old ice; increases in unconsolidated ice; lengthening of the ice-free period, which reduced the availability and quality of pack ice den habitat; and the long-term protection of denning females, which has resulted

## Examples of the expected effects of changes in sea ice on polar bears:

- increased energetic costs of movement
- altered home range size and configuration
- altered subpopulation boundaries
- reduced access to den areas
- increased periods without access to prey
- altered prey species
- increased time spent swimming, which may chill small cubs and reduce their survival





in bears with a fidelity to denning on land not being killed by hunters. As the ice continues to change, we can expect some den areas to be abandoned.

In some areas, the number of human-bear interactions is increasing. Nutritionally stressed bears that are spending more time on land are approaching settlements or hunting camps seeking food. As the sea ice continues to change and bears become increasingly stressed, further increases in interactions are expected.

### The future

Will polar bears just adapt to a terrestrial life without the presence of sea ice? This notion has been naïvely proposed by some. Polar bears regularly attain body masses of over 300 kg for females and 500 kg for males. In contrast, brown bears living in the Arctic right next to polar bears rarely exceed 200 kg, reflecting the meager food resources of high latitude terrestrial environments. It is an odd view of evolution that would propose that a highly

specialized species with over 200,000 years of evolution could respond in decades or, at best, centuries to the projected loss of its sea ice habitat. Regardless, the niche of a terrestrial arctic bear is already filled by the brown bear, of which the grizzly is a subspecies.

Loss of sea ice is similar to deforestation of tropical rain forests: lose the habitat and, with few exceptions, you lose the species. Unlike other species, polar bears are unlikely to do well shifting their range further north because the polar basin is deep, cold, and unproductive. Losing the productive coastal habitats would be a serious loss, but the sea ice is more than just a platform, it is the habitat of polar bears and many of the species they rely upon. From phytoplankton to fish, the sea ice is an integral part of the Arctic marine ecosystem.

Andrew E. Derocher, PhD  
University of Alberta

(Abridged version of article published in ActionBioscience.org)

## Can we predict the future for polar bears?

■ Predicting the future is a precarious venture, but it is clear that the sea ice habitat of polar bears is changing rapidly. Highly specialized species are particularly vulnerable to the effects of habitat loss. In summary, the expected changes in polar bears related to climate warming include:

- reduced access to prey species
- reduced body condition
- lower cub survival
- lower reproductive rates
- lower growth rates
- increased intraspecific aggression
- increased cannibalism
- lower adult survival
- altered movement rates
- shifting den areas
- shifting population boundaries
- increased bear-human interactions
- altered prey composition
- reduction in population size

*Bear swimming far from the ice and shore off Alaska.*





# Too much fishing fleet, too

**L**ow economic efficiency of fishing vessels hampers elimination of such practices as unreported catch and illegal transshipment at sea, as well as discards of juvenile fish. WWF Russia is making several recommendations to reduce overcapacity of the Russian Barents fishing fleet.

The Barents Sea is home to the world's largest stocks of Atlantic cod and is a valuable natural resource for Russia and Norway, providing incomes for thousands of fishermen and their families. It is largely covered by Russia and Norway's Exclusive Economic Zones (see map right). Super-capitalization of cod fisheries during the last 15 years has led to overcapacity of the Russian Barents fishing fleet, aggravated by decreasing cod stocks. The capital assets (Russian fishing fleet) in the Barents Sea demonstrate low economic efficiency. About 40 per



*Fishing trawler Nerey.*

Photos: JSC "Vega"

cent of the total Russian fishing effort is conducted by medium-sized fishing freezer trawlers. Paradoxically, these vessels are the least efficient, but they comprise the

lion's share of the Russian commercial fishing fleet operating in the Barents Sea.

The productivity of SRTM-type vessels is 7.2 MTs per fishing

Photo: Kevin Schafer/WWF-Canon

*Unloading halibut, Bering sea*



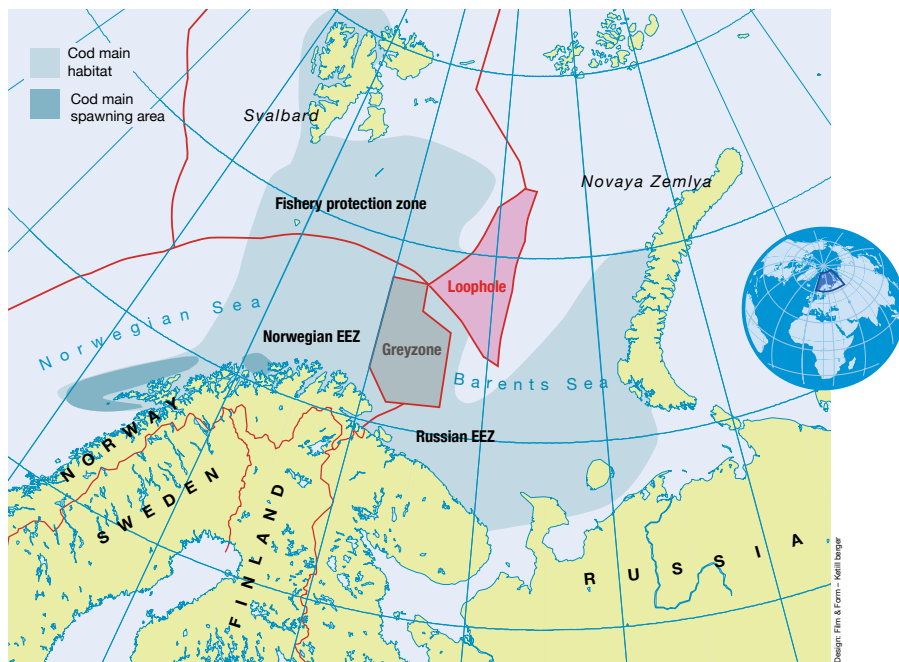


# few fish

day – 50 per cent less than most of the other vessels, and three and four times lower than the larger models of freezer trawler. This low productivity drags down the economic efficiency of the Russian cod fishery.

Data estimates from 2005 in the box below show that the average catches for the Russian fleet was 1.2 MTs regardless of species composition, and 1 MT of cod and/or haddock per 1 MT of gross tonnage. These figures are very low compared to the Northern European countries. For example, the fishermen of Iceland and Norway manage 2 to 2.5 times higher production per 1 MT of gross tonnage, apart from the quality issue and associated wholesale prices offered by fish processing companies.

Apart from boat design, there are other factors contributing to the Russian fleet's comparative



inefficiency. Juvenile fish bycatch figures in the Russian Exclusive Economic Zone (REEZ) and the Grey Zone are considerably higher than in the adjacent areas of the Barents Sea (see map). For example, data from January to May 2004 indicates that small-size fish ➤ 16

## Number of Russian vessels fishing cod

and other species in the Barents Sea:	190
Total gross tonnage of all vessels:	248,000
Average tonnage per vessel:	1,290
Total official catch of entire fleet (MT):	308,000
	(200,000 cod)
	(48,000 haddock)

Source: PINRO

## Of Pollock and Precaution

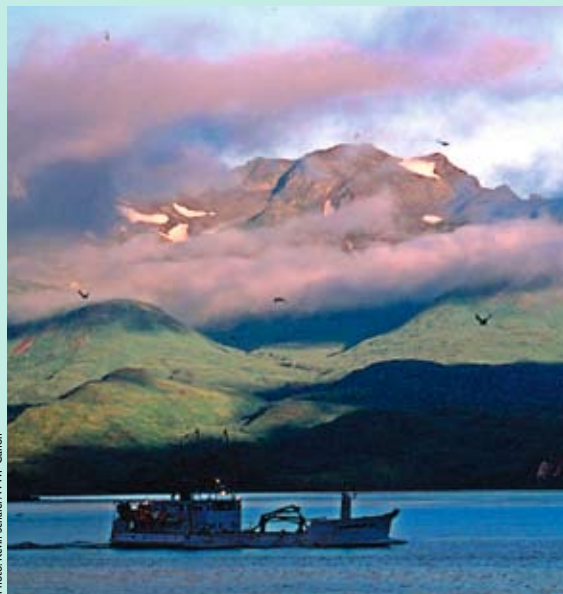
A fishing group in the US is calling for a stop to commercial fishing in new fishing grounds in the US Arctic, a call supported by WWF. The arctic ecosystem stands at the edge of unprecedented change. Fishermen and scientists alike have noticed the northward migration of commercially valuable stocks of pollock, cod, and flatfish into areas where they have not historically been abundant. Scientists have noted the changes in what species are present as the ice retreats. Ice dependent organisms will soon have to adapt...or perish.

In light of these changes, the North Pacific Fishery Management Council (Council), the body charged with managing fisheries in the Arctic and arctic sub-regions of the United States, is considering establishing a Fisheries Management Plan (FMP) to restrict and regulate commercial fishing in arctic waters before the region becomes subject to substantial commercial fishing. Currently, no significant commercial fishing activity occurs in the US Arctic north of the Bering Strait.

WWF, in collaboration with other NGO partners, is advocating an option

before the Council that would prohibit commercial fishing north of Point Hope and prohibit commercial fishing for forage species north of the Bering Strait. The prohibition on commercial fishing would be instituted with the expectation that solid scientific studies on the resiliency and productivity of the ecosystem must be conducted prior to any commercial fishing activity. This action represents a watershed moment in U.S. fisheries management and the application of the precautionary approach, as it constitutes the first in U.S. history that baseline information has been sought regarding fisheries resources and ecosystem impacts prior to commercial fishing activity.

Tatjana Gerling and Bubba Cook of WWF US testified before the Council regarding the implementation of the Arctic FMP. Their testimony, in addition to others, prompted the Council to take the next step in closing the U.S. Arctic to industrial fishing. The Council voted to release for public comment a Fishery Management Plan for the Arctic that closes the Arctic to further expansion of commercial fishing activities until more is known about the potential impacts of



such activities on arctic communities, animals, and ecosystems. The Council plans to take final action to implement the plan in early February 2009.

This action shows exemplary leadership by U.S. fishery managers for other arctic nations. WWF hopes that a similar precautionary approach is adopted across the Arctic.

Bubba Cook



Photo: Sergey Zolotarev/WWF Russia

System and observers' effectiveness improvement, though.

WWF recommends the following measures to raise the economic efficiency of the Russian commercial fishing fleet in the Barents Sea:

1. Raise the minimum quota requirements for certain vessel types to encourage ship owners to stop using economically inefficient vessels;

2. Introduce restrictions on the numbers of days at sea (depending on quota availability and vessel type) to enable vessels to fish their assigned quota and minimize the chances for IUU fishing;

3. Establish mutually beneficial tools for transfer to efficient companies of quotas from companies that own old and inefficient fleets that do not qualify for aforementioned proposed regulations and thus will not be able to fish their quotas;

4. Develop a program of buying old vessels from ship owners, their utilisation and refurbishment of old inefficient vessels;

5. Support companies in substituting old inefficient vessels with new, efficient vessels by providing:

- low-interest credits;
- property tax and resources charge relief during the credit payback period;
- permission to treat credit return installments as costs for taxation purposes if the credits in question are invested into vessels building;
- customs fee and VAT relief for the fishing vessels provided they are registered in the port of the Russian Federation.

The full report can be downloaded from the publications section at: [www.panda.org/arctic](http://www.panda.org/arctic)

*Dr. Konstantin Zgurovsky*  
Head of Marine Programme  
WWF-Russia

*Stanislaw Fomin*  
Barents Sea Marine Program Coordinator  
WWF-Russia

- 15 ► rarely occurs in the catch within the Norwegian Exclusive Economic Zone (NEEZ), whereas such fish constituted about 14 per cent of the total catch in REEZ during June through December 2004. Some of this difference can be explained by the fact that the Russian area is a breeding ground for cod, and some by the difference in fishing equipment.

Introducing restrictions on fishing gear alone will not prevent problems of over-capacity in the fishing fleet. However, application of such restrictions in combination with other measures (such as fishing gear - vessel type combination specific bans) may reduce over-investment and even bring it in line with the commercial stock-size fluctuations. This would lead to favourable effects both on commercial stocks and fisheries economics.

Such restrictions may include limitations or bans on the use of specific vessel sizes or types, regulations on trawl techniques, mesh size or main engine power. These measures are easier to enforce than so called "soft regulations" that require demanding and exhaustive site-specific monitoring of fishing operations and permanent improvement of surveillance systems. It does not mean that we do not need Vessel Monitoring

# Indigenous Peo



*Moving a traditional Inuit skin boat (umiaq) across the ice to open water*

Climate change is the ultimate threat to the ways of life, cultures, and environment-based economies of Indigenous peoples. Having helped to prepare the Arctic Climate Impact Assessment (ACIA) published in 2005, arctic Indigenous peoples know this only too well. But Indigenous peoples from all parts of the world—mountains, deserts, coasts, rainforests—are struggling with the impacts and effects of climate change. This is why their representatives are meeting at the Dena'ina Centre in Anchorage Alaska on April 20–24 2009.

The goals of this summit—the first of its kind—are ambitious. Rather than focus solely on what is happening to their environments and cultures, this summit aims to strengthen, amplify, and coordinate the voices of the world's Indigenous peoples on behalf of the Earth. Drawing upon age-old traditional knowledge and ongoing daily observations, Indigenous peoples have a very good idea of what climate change and some policy responses to it by national governments are doing to the Earth.

The global summit is a means for Indigenous peoples to share their knowledge with governments, industry and civil society, and to

■ Figures indicate quota levels that would result in a gross profit margin of 20 per cent for Russian trawlers operating at least 286 days per year at the present productivity level and selling first hand cod species products at USD\$2,000 per MT and higher. Data from 2005.

Medium-sized fishing freezer trawlers (SRTM type)	1,459 – 1,544 MT
Medium fishing trawler freezer (PST type)	2,059 MT
Freezer seiner-trawler (STM type)	2,273 – 2,516 MT



# Peoples Gather for Global Climate Summit



Photo: Patricia Cochran

plead for the Earth. In doing so they are defending their ways of life and reminding all of their rights as, for example, articulated by the United Nations in the Declaration of the Rights of Indigenous Peoples. Key messages from the summit, including the need to adopt processes to allow their voices to be heard in the negotiation and implementation of international conven-

tions, will be presented to the world at the Conference of Parties to the UN Framework Convention on Climate Change in Copenhagen, Denmark in 2009.

We hope that in years ahead this summit will be seen as seminal; an event and a time when the voices and wisdom of Indigenous peoples were offered to the world for the benefit of the world. We also hope the summit will provide a platform for Indigenous peoples to more fully partner with civil society to ensure that future development is truly sustainable both ecologically and culturally. This is particularly important for we intend the summit to be far more than a one-off meeting. Our intent is for it to establish relationships and set in train processes that will gather strength and mature over the years with lasting impacts. Indigenous peoples are ancient peoples. The world can benefit from our sense of history, our knowledge, and our commitment to the Earth.

*Patricia Cochran*

Patricia Cochran is the Chair of the Inuit Circumpolar Council and Chair of the Steering Committee, Indigenous Peoples' Global Summit on Climate Change and can be reached at [pcochran@iccalaska.org](mailto:pcochran@iccalaska.org)

## Objectives of the Global Summit

- Consolidate, share and draw lessons from the views and experience of Indigenous Peoples around the world on the impacts and effects of climate change on their ways of life and their natural environment, including responses;
- Raise the visibility, participation and role of Indigenous Peoples in local, national, regional and international processes in formulating strategies and partnerships that engage local communities and other stakeholders to respond to the impacts of climate change;
- Analyze, discuss and promote public awareness of the impacts and consequences of programs and proposals for climate change mitigation and adaptation, and assess proposed "solutions" to climate change from the perspective of Indigenous Peoples;
- Advocate effective strategies and solutions in response to climate change from the perspective of the cultures, world views, and traditional knowledge of Indigenous Peoples, including local, national, regional and international rights-based approaches.

■ The Indigenous Peoples' Summit is only one of the ways in which Indigenous peoples on the Arctic are engaging with the rest of the world of climate change issues. They are also involved in the "Many Strong Voices" Programme (MSV) that brings together stakeholders from the Arctic and Small Island Developing States (SIDS). There is a community of interest between these two groups, as the Arctic peoples feel climate change faster and more drastically than most other parts of the world. People who live on small islands around the world are threatened by rising global sea levels, and other climate change effects. Both groups are in communities relatively isolated from the rest of the world, and have limited resources

to deal with change.

The joint programme helps to collaboratively devise strategic solutions to the challenges of climate change, and to raise the voices of peoples in the two regions so they may be heard in international fora on climate change adaptation and mitigation. Programme members are trying to influence climate change negotiations in order to keep global average temperature increases well below 2 degrees Celsius. MSV is linking people in the Arctic and SIDS who are working on adaptation strategies. It initiates project like the Portraits of Resilience where school children in the Arctic and SIDS use photographs to document their communities' responses to

climate change. MSV is participating in an Indigenous Peoples Climate Change Assessment led by the UN University. MSV partners include organizations in the north and south, such as the Inuit Circumpolar Council, the Secretariat of the Pacific Regional Environment Programme, the Sea Level Rise Foundation in Seychelles, and the Caricom Community Climate Change Centre. MSV was active at the UNFCCC COP XIV in Poznan and will hold a major stakeholders' meeting in Washington in spring 2009. MSV is coordinated by UNEP/GRID-Arendal and CICERO. For more information, go to [www.manystrongvoices.org](http://www.manystrongvoices.org).



# Caribou and the North: A Shared Future

Caribou on river ice in the Arctic National Wildlife Refuge, Alaska, US

Photo: Ken Madsen, WWF Canada

**In a timely new book, Monte Hummel, President Emeritus of WWF Canada, and Justina C. Ray of Wildlife Conservation Canada outline the current state of the North American caribou herds, and also the potential management responses needed to maintain these magnificent wild herds.**

As the authors point out, “If the caribou are still there, chances are the land is still healthy. If they aren’t, chances are there’s trouble. And trouble is what caribou are now experiencing.” The book is published

at a time when several of the largest North American herds are undergoing steep declines in numbers. There is a natural variability in herd sizes, but local people are worried that either the latest declines are

not natural, or that natural declines are being further exacerbated by increasing human influence.

The following extracts talk more about the place of the caribou in the north and in the world.

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## The Arctic Fox in Scandinavia

**T**he arctic fox (*Alopex lagopus*) lives on the treeless tundra in the northern hemisphere. On a global scale, it is abundant in countries across the north, but in Scandinavia, the population is just hanging on. It has been hunted for its dense fur, first by native people and later by fur traders as well. In Scandinavia, the arctic fox is one of the oldest mammalian species. As the ice retreated after the last ice age, the fox colonised Scandinavia from Russia, and was a common species in Scandinavia until the 19th century. During lemming peak years, the population reached about 10,000 individuals and arctic foxes were observed not only on the mountain tundra, but also far away

from the Arctic region in forests of southern Sweden.

Demand for arctic fox fur increased as the fashion industry expanded during the 19th century. The price paid for a fur increased dramatically and became an important source of income for local mountain villages in Scandinavia. Due to the intense hunting pressure, the population decreased drastically. After being a common sight on the mountain tundra, the population declined to a few hundred individuals before it was protected by law in Sweden in the 1920s.

Despite having legal protection for more than eighty years, the population has still not recovered.

Today, the Scandinavian arctic fox population is classified as critically endangered and consists of just over a hundred animals between Sweden, Norway and Finland. Several factors are keeping populations low. The Scandinavian arctic fox is highly dependent on a regular pattern of population cycles of small rodents; lack of food due to absence of rodent peaks limits population growth. In addition, during the last hundred years, the tree line has climbed higher and higher up on the mountain slopes in Scandinavia and within the next hundred years, scientists predict that a large proportion of the tundra habitat in Sweden, Finland and Norway will be gone. In the





“By virtue of their sensitivity to changes in the condition of their range,

caribou can be the first among the obvious components to disappear from a natural ecosystem. How well caribou are thriving in a given landscape, therefore, is often an indication of how secure it is overall as a natural system. The collapse or disappearance of a caribou population can be the harbinger of the fate of other less visible, but equally sensitive, elements of the same ecosystem. On the other hand, when humans begin to modify a landscape, if the continued survival of caribou is *not* compromised, then we have a good chance of conserving the rest of the natural puzzle pieces as well.

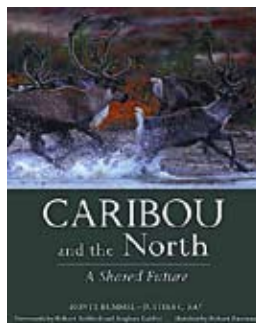
Just over 20 percent of the planet still has intact large mammal fauna. Large portions of the North American caribou distribution constitute one such area – a big chunk of the world’s total. This remains true despite the fact that caribou are among the twenty species of the world’s large mammals that have experienced the greatest documented range retraction in the past several centuries. The disappearance of any large mammal is generally

representative of human impact on the full spectrum of wildlife species in a given natural system. Therefore, maintaining the full extent of caribou occurrence represents one of the best opportunities in the world to safeguard the benefits we all derive from functioning ecosystems (otherwise known as “ecosystem services”) and to conserve biodiversity itself. It is particularly impor-

tant that we grasp this opportunity now, because caribou occur in one of the world’s regions with the highest likelihood of future species loss, and the traits of wildlife there render them particularly sensitive to human impact.

Our collective challenge, therefore, is not to “manage wildlife” but to manage ourselves in such a way that caribou will continue to be a remarkable part of northern landscapes.” (pp. 57–58)

“There is just no question about the overwhelming ecological and cultural importance of caribou, first and foremost for



*Caribou and the North:  
A Shared Future*  
Monte Hummel and  
Justina C. Ray  
Published 2008  
Dundurn Press, Toronto,  
Ontario, Canada.  
ISBN 978-1-55002-893-3

northerners, and increasingly for North Americans at large. This animal stands at the very centre of things in the North. It has come to symbolize the future of inspiring landscapes and a way of life that has much to teach us.

In his essay *Wilderness*, under the sub-heading “The Remnants”, the great American conservationist Aldo Leopold wrote, “In Canada and Alaska there are still large expanses of virgin country...to

what extent Canada and Alaska will be able to see and grasp their opportunities is anybody’s guess.”

More than fifty years later, Leopold’s challenge to see and grasp our opportunities remains before us all – Canadians and Americans alike. But now the opportunities are fewer; the options are being foreclosed. In many ways, the future of caribou will be the measure for whether we saw and grasped our opportunities while we still had the chance.” (p.80)



future, the barren tundra will to a large degree be covered by willows and birch trees – a habitat that is not optimal for the arctic fox. With the elevated tree line, the red fox (*Vulpes vulpes* – a dominant competitor and a predator of juvenile arctic foxes) is expanding its range, taking over dens and excluding arctic foxes from parts of their breeding range.

Furthermore, there may be a negative impact on population growth of the arctic fox in Scandinavia caused by the small and widely dispersed population. Difficulties in finding a non-related partner have led to inbreeding. Disturbances from free-ranging dogs, diseases and parasites as well as hybridisation with escaped farm foxes are also threats. Ptarmigan hunting with free-ranging dogs has now been prohibited in all areas with arctic fox litters during summer.

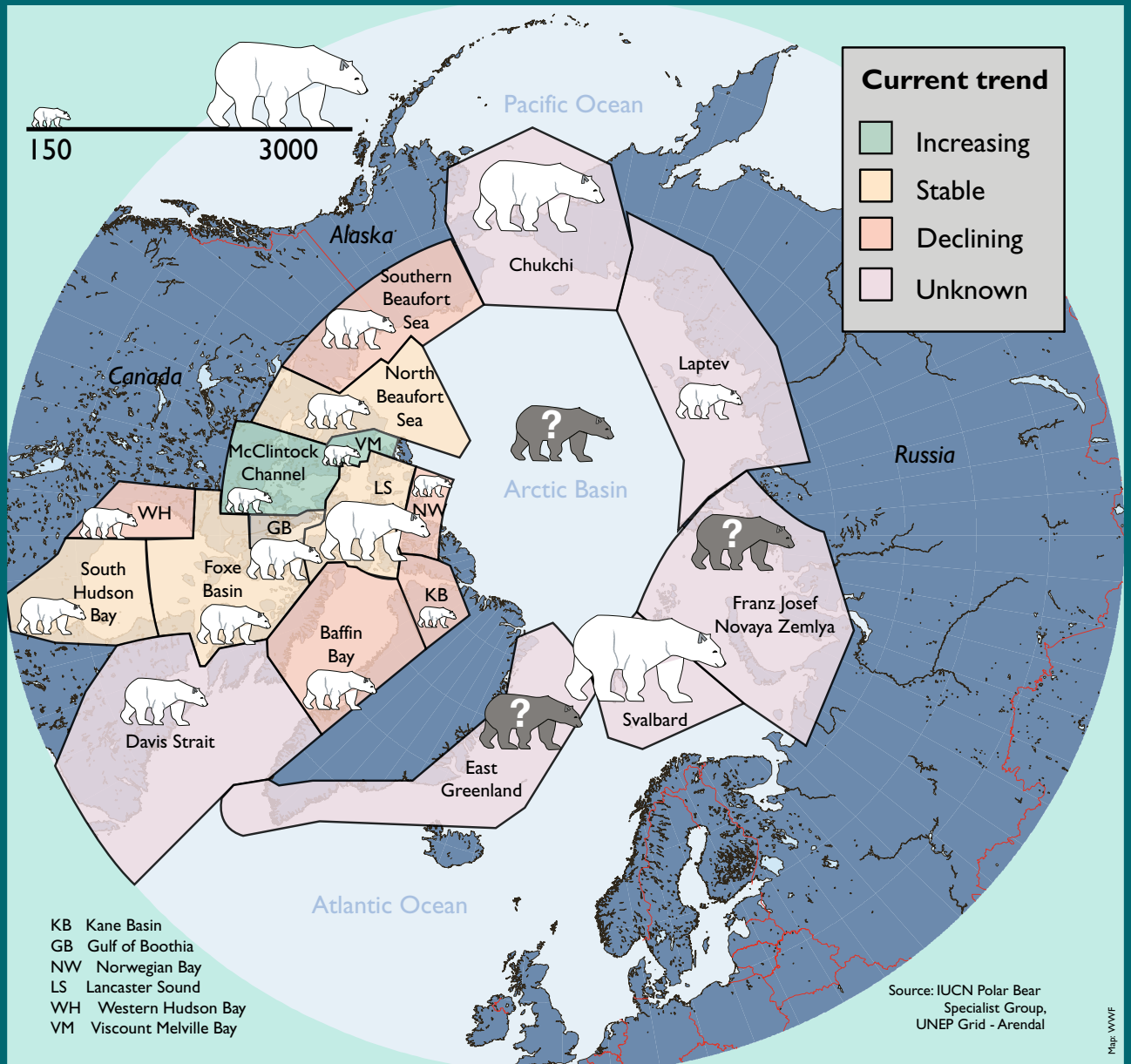
To save the arctic fox in Scandinavia, a large cross-boundary project was launched in 1998 using mainly funding from EU-Life Nature. The project will end in its current phase in 2008. The aim of the project (SEFALO/SEFALO+, *Saving the Endangered Fennoscandian Alopex*) is to halt the population decline and increase the possibilities for recovery. It is coordinated from Stockholm University with a range of different stakeholders, and WWF has been part of the funding since the start.

The conservation actions have focused on minimising the effect of the threats, aiming to increase the reproductive output and decrease mortality for arctic foxes, and thereby substantially increase population viability. The arctic fox population is fragmented into four subpopulations: Northern Scandinavia, Borgafjäll-Börgefjell,

Helags and Hardangervidda with low or no migration in between. Actions are implemented in all populations since they are isolated and actions within one population will not benefit others. The main focus has been supplemental feeding and red fox culling in order to increase the population size. Supplemental feeding has been conducted using dog pellets during summer, and meat during winter. In areas where supplemental feeding and culling have been conducted, the population has been doubled between each rodent peak. During the summer of 2007, 24 arctic fox litters were recorded in Sweden and 13 in Norway, which is the best result since the project started.

Dr Tom Arnbom  
WWF-Sweden  
tom.arnbom@wwf.se

## Status and distribution of the polar bear



### WWF ARCTIC OFFICES AND CONTACTS

**WWF INTERNATIONAL ARCTIC PROGRAMME**  
Kristian Augusts gate 7a,  
P.O. Box 6784 St. Olavs  
plass, N-0130 Oslo,  
Norway  
Ph.: +47 22 03 65 00  
Fax: +47 22 20 06 66  
[www.panda.org/arctic](http://www.panda.org/arctic)  
Contact: Dr Neil Hamilton

**WWF-CANADA**  
245 Eglinton Ave.,  
East Suite 410  
Toronto, Ontario M4P 3J1  
Canada  
Ph.: +1 416 489 8800  
Fax: +1 416 489 3611  
[www.wwf.ca](http://www.wwf.ca)  
Contact: Craig Stewart

**WWF-DENMARK**  
Ryesgade 3F  
DK 2200 Copenhagen N,  
Denmark  
Ph.: +45 35 36 36 35  
Fax: +45 35 39 20 62  
[www.wwf.dk](http://www.wwf.dk)  
Contact: Anne-Marie Bjerg

**WWF-FINLAND**  
Lintulahdenkatu 10  
SF-00500 Helsinki, Finland  
Ph.: +358 9 7740 100  
Fax: +358 9 7740 2139  
[www.wwf.fi](http://www.wwf.fi)  
Contact: Jari Luukkonen

**WWF-NORWAY**  
Kristian Augusts gate 7a  
P.O. Box 6784  
St. Olavs Plass  
N-0130 Oslo, Norway  
Ph.: +47 22 03 65 00  
Fax: +47 22 20 06 66  
[www.wwf.no](http://www.wwf.no)  
Contact: Tor Christian Sletner

**WWF-SWEDEN**  
Ulriksdals Slott  
S-171 71 Solna, Sweden  
Ph.: +46 862 47 400  
Fax: +46 885 13 29  
[www.wwf.se](http://www.wwf.se)  
Contact: Tom Arnbom

**WWF-US**  
1250 24th St. NW  
Washington,  
DC, 20037 USA  
Ph: +1 202 293 4800  
Fax: +1 202 861 8378  
[www.worldwildlife.org](http://www.worldwildlife.org)  
Contact: Margaret Williams

**WWF-RUSSIA**  
Contact: Victoria Elias  
■ mail within Russia:  
P.O. Box 55  
125319 Moscow, Russia  
Ph: +7 095 7270939  
Fax: +7 095 7270938  
[www.wwf.ru](http://www.wwf.ru)

■ mail from Europe:  
WWF Russian  
Programme Office  
Account No. WWF 232  
P.O. Box 289 Weybridge  
Surrey KT 13 8VJ, UK

■ mail from the US:  
WWF Russian  
Programme Office  
Account No. WWF 232  
208 East 51st Street  
Suite 295  
New York, NY 10022, USA

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