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On thin ice p. 4

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Cover: Inuit hunter, Kavavow Kiguktak, jumps from one ice floe to another. Ellesmere Is., Nunavut, Canada.
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Editorial

More climate politics

As we go to press, there has been a flurry of political and media activity concerning the Arctic Climate Impact Assessment (ACIA). ACIA, to be released in November, is the first large-scale assessment of climate change impacts in the Arctic. It is the product of the Arctic Council, a high-level forum consisting of the eight arctic governments (Canada, Denmark-Greenland-Faeroe Islands, Finland, Iceland, Norway, Russia, Sweden and the United States) as well as arctic indigenous peoples' organisations and observers. ACIA shows major, sweeping changes occurring now, with much worse in store unless the world sharply cuts emissions of carbon dioxide.

ACIA was initially supposed to include a scientific assessment, a popular summary and a set of policy recommendations for the eight arctic governments. Negotiation of the policy recommendations has been difficult, to say the least. The current text is extremely weak. There is also an ongoing dispute over whether the recommendations will come as a stand-alone document, or in some other, less high-profile form.

The Inuit Circumpolar Conference (ICC) represents Inuit around the Arctic and has participated in the negotiation of the ACIA policy document. ICC chair Sheila Watt-Cloutier recently testified before the US Senate concerning the difficulties in negotiating the policy document (p. 4–5). Following Ms. Watt-Cloutier's testimony and press coverage of the issue, US senators John McCain, Frank Lautenberg and Olympia Snowe wrote to US Secretary of State Colin Powell. They urged him to ensure that the negotiations result in a stand-alone policy document.

Some arctic governments have now criticised ICC, arguing that the organisation should not have gone public with information about the negotiations. They say that when indigenous organisations have a seat at the table with governments, they are bound by the unwritten rules of diplomacy. These would include both confidentiality regarding ongoing negotiations, and accepting the result of negotiations, however inadequate that result might be.

There are three responses to these criticisms. First, going to the press is a familiar government tactic in international negotiations. Usually it is done anonymously – to gain support for a particular result, to spotlight obstructive behaviour, or to prepare the public for a likely bad result.

Second, arctic indigenous organisations do not have the same rights, resources or standing as governments. Indeed, in the Arctic Council they are only consulted – decisions are made by consensus of the governments. All of the arctic indigenous organisations are underfunded; some of them are financially dependent on the very governments with whom they must negotiate. Their leverage within this negotiation process, and their ability to influence the result by traditional means, pales to insignificance when compared to the power of Arctic Council member states. If they then use unconventional means to achieve results, this should not come as a surprise to anyone.

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Third, the Arctic Council likes to portray itself as a unique arena, one with indigenous partners at the table and a wide range of interests represented. This is fair enough. But then it must also be fair enough that governments accept that the price of having non-governmental partners at the table is that they do not behave like governments.

Governments and indigenous peoples' organisations met again at the end of October in Iceland, for another round of negotiations on the policy document. WWF was not there. As an environmental organisation, we are locked out of the formal process. Nonetheless, we'd like to send a message to the governments as they continue negotiations.

Don't be distracted by procedural arguments. You now have incontrovertible evidence that climate change is happening rapidly, and that we have limited time to act. If you fail to meet this challenge, first the Arctic, and then the rest of the world, will pay the price. This was ICC's message to the US Senate, and it's one that WWF fully supports.

MUSSEL POWER

Mussels have been found growing on the seabed just 800 miles from the North Pole in a likely sign of global warming, scientists announced in September according to Reuters.

The blue mussels, which normally favour warmer waters, were discovered last month off Norway's Svalbard archipelago in waters that are covered with ice most of the year.

"The climate is changing fast," said Geir Johnsen, a professor at the Norwegian University for Science and Technology who was among experts who found the bivalves. Molluscs were a "very good indicator that the climate is warming," he said.

GUILLEMOT DECLINE

Scientists studying the common guillemot off Finnmark in Northern Norway have concluded it is particularly sensitive to temperature rise because its staple food, capelin, does not thrive in warmer waters. An increase of one degree Centigrade in ocean temperature gave a four percent reduction in guillemot survival rates. This reduces life expectancy from 50 to 16 years, dramatically cutting the reproductive potential for a bird that only produces one chick per year. Major population declines are expected for this keystone arctic species given recent climate change scenarios for the arctic.

TROPICAL ARCTIC

An international scientific team, which has been drilling beneath the bed of the Arctic Ocean, says the Arctic experienced a sub-tropical climate 55 million years ago. The Arctic Coring Expedition (Acex) has recovered sediment cores from nearly 400m (1,300ft) below the sea floor. It says fossilised algae in the cores show the sea temperature was once about 20C, instead of the average now, -1.5C.

SCIENCE SYMPOSIUM

Jennifer Morgan, the global leader of WWF's climate work, will be taking part in a panel discussion at the Arctic Council Science Symposium in Iceland on November 9th and 10th. The findings of the Arctic Climate Impact Assessment (ACIA) will be discussed by scientists at the Symposium which is part-funded by WWF.

First arctic sites win World Heritage status

The Ilulissat Icefjord in Greenland and the Wrangel Island Reserve in northern Russia are the first arctic sites to be included on the United Nations Educational, Scientific and Cultural Organisation's (UNESCO) World Heritage List.

Greenland's Ilulissat Icefjord, on the west coast of Greenland, is the sea mouth of Sermeq Kujalleq, one of the few glaciers by which the Greenland ice cap reaches the sea.

Sermeq Kujalleq is one of the fastest glaciers in the world, travelling at around 19 metres per day. It annually calves over 35 cubic kilometres of ice, which is ten percent of the production of Greenland calf ice and more than any other glacier outside Antarctica.

The Wrangel Island Reserve includes the mountainous Wrangel Island (7,608-km^2), Herald Island (11-km^2) and surrounding waters.

The island boasts the world's largest population of Pacific walrus and the highest density of ancestral polar bear dens. Often referred to as the polar bear 'maternity ward', around 500 female polar bears give birth there every year.

It is also a major feeding ground for the grey whale and the northern-most nesting ground for 100 migratory bird species, many of which are endangered.

Currently, around 417 species and sub-species of vascular plants have been identified on the island, double that of any other arctic tundra

The United Nations Educational, Scientific and Cultural Organisation (UNESCO) seeks to encourage the identification, protection and preservation of cultural and natural heritage around the world considered to be of outstanding value to humanity. This is embodied in an international treaty called the Convention concerning *the Protection of the World Cultural and Natural Heritage*, adopted by UNESCO in 1972.

Natural heritage refers to outstanding physical, biological and geological formations, habitats of threatened species of animals and plants and areas with scientific, conservation or aesthetic value.

Cultural heritage refers to monuments, groups of buildings and properties with historical, aesthetic, archaeological, scientific, ethnological or anthropological value.

US drags its feet on climate

Sheila Watt-Cloutier, chair of the Inuit Circumpolar Conference (ICC), which represents 155,000 Inuit in Alaska, Canada, Greenland and Russia, has criticised the US administration for undermining the effectiveness of the forthcoming Arctic Climate Impact Assessment (ACIA).

She said: "The assessment is path-breaking and it is crucial that the world know and understand what it says. Yet the (US) Department of State is minimising and undermining the effectiveness of this assessment process by refusing to allow policy recommendations to be published in a stand alone form just like the assessment itself.

"Yet, this is what ministers of foreign affairs directed when, in Barrow Alaska in October 2000, they approved the assessment."

She was testifying in front of the US Senate Committee on Commerce, Science and Transportation in September.

Watt-Cloutier also drew attention to the speed with which climate change is occurring in the Arctic. "While global warming is affecting the entire planet, there is a scientific consensus that it is impacting the Arctic much faster. Our elders have experi-

Sheila Watt-Cloutier, chair of ICC, recently addressed the US Senate Committee on Commerce, Science and Transportation on the issue of climate change.

Ilulissat Icefjord, Greenland was one of two arctic locations added to the UNESCO World Heritage List for their outstanding natural heritage.

CREDIT: Bryan and Cherry Alexander, www.arcticphoto.co.uk

territory of comparable size and more than any other arctic island.

Wrangel is one of the last known habitats of the mammoth: it died out here around 3,500 years ago.

The inclusion of Wrangel Island on the list strongly increases the status of the preserve and will make it possible to draw new investment in the development of future nature conservation measures in northern Russia.

WWF-Russia played a key role in preparation for this nomination. In recent years WWF has actively collaborated with the Russian Administration of Preservation to protect Russian polar bear populations.

Þingvellir (*pronounced Thingvellir*) National Park in Iceland was also recognised as a site of cultural significance. Þingvellir is where the Althing – an open-air assembly, which represented the whole of Iceland – was established in 930 and continued to meet until 1798. The Althing has deep historical and symbolic associations for the people of Iceland and is located on an active volcanic site.

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enced these changes since the mid-1970s," she said.

She said these changes include:

- melting permafrost causing beach collapse and increased erosion and damage to infrastructure;
- longer sea-ice free seasons;
- new species of birds and salmon invading the region;
- invasion of mosquitoes and blackflies;
- unpredictable sea-ice conditions;
- glaciers melting, creating torrents in place of streams.

These findings, she said, are confirmed by "western science in the Arctic Climate Impact Assessment (ACIA)", which is to be presented to Ministers of Foreign Affairs of the eight Arctic states in November. She said the summary of ACIA concludes:

- Marine species dependent on sea-ice including polar bears, ice living seals, walrus, and some marine birds are very likely to decline, with some facing extinction; and
- For Inuit, warming is likely to disrupt or even destroy their hunting and food sharing culture as reduced sea-ice causes the animals on which they depend to decline, become less accessible or possibly go extinct.

The ACIA is the most comprehensive regional climate change assessment ever undertaken. More than 300 Scientists and many indigenous peoples of the Arctic actively participated in this assessment.

She said: "If we can reverse the emission of climate change inducing greenhouse gases in time to save the Arctic from the most devastating impact of global warming, then we can spare untold suffering for hundreds of millions of people around the globe. Protect the Arctic and we save the planet. Use us in the Arctic as your early warning system."

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Full text of Sheila Watt-Cloutier speech available at www.inuitcircumpolar.com/index.php?ID=261&Lang=En

BROWN IS THE NEW WHITE

Ideal for an ice age, white fur used as camouflage by animals from polar bears to arctic foxes may be going out of fashion because of global warming according to Reuters. Rising temperatures are not only disrupting habitats but they may also make white animals too obvious if melting ice and snow expose tracts of dark, bare ground. If whiteness no longer gives an evolutionary edge, polar bears will find it harder to sneak up on prey in Alaska, for instance, while white hares in Russia may be snatched more often by eagles and other predators.

MINE SPREADS DUST IN ALASKA

The US Park Service in Alaska recently released a study that revealed high levels of lead and other potentially harmful chemicals in the tundra of north-western Alaska. The lead dust is thought to have come from the Red Dog zinc mine, which is the largest producer of zinc concentrate in the world. The Canadian company that owns the mine, Teck Cominco, have been testing air and water since the mine opened in 1989, but not moss. Residents of the nearby communities of Noatak and Kivalina, often gather moss, berries and other foods in the area. Teck Cominco have funded a US $4-million study, that looks at the risks posed by the mining operations. The study is due out next spring.

PEEL PLATEAU

The Yukon government has invited bids to explore for oil and gas in the Peel Plateau, next to the Yukon-Northwest Territories border just inside the Arctic Circle. The area covers almost 100,000 acres and gas reserves are estimated at 2.8 trillion cubic feet. A major discovery could eventually open the way to a spur line connecting with the proposed Mackenzie Valley pipeline. Energy, Mines and Resources Minister Archie Lang said the Yukon government hopes to expand the potential for finds by opening up relatively unexplored prospects. Prior to the call, the government reduced the disposition area by two-thirds and designated 25 percent of the parcel as an "area of special consideration" to meet environmental concerns.

Three new scientific studies indicate that some polar bears are affected by PCBs and pesticides.

Photo: WWF-Canon/Svein B. Oppegaard

Toxic polar bears

Three new scientific studies published recently provide strong indications that polar bears are contaminated by PCBs (polychlorinated biphenyls) and pesticides, and are already being affected by these chemicals.

This confirms the findings of other scientific studies released over the last four years.

WWF is calling for the immediate phase out of the most hazardous chemicals.

The three new scientific studies show that biological changes in the hormone and immune systems of polar bears are linked to the levels of toxic contaminants in their bodies.

For example, the higher the level of PCBs and several pesticides in polar bears in Canada and on the Norwegian island of Svalbard, the lower the level of antibodies in their blood.

Toxic chemicals were also correlated with steroid hormone cortisol and thyroid hormone levels in Svalbard polar bears.

Reduced levels of antibodies leave bears more susceptible to infection. Altered hormone levels could result in a wide range of negative health impacts, such as development, behavior, and reproductive problems.

"The studies conducted on polar bears over the last few years all conclude that these animals are negatively affected by chemical pollution," said Dr Andrew Derocher from the University of Alberta, who has contributed to all of the recent studies on polar bear contamination in the Arctic.

"Most polar bears probably have several hundred man-made chemicals in their bodies and they have never evolved mechanisms to deal with them. The unintentional tinkering with the hormone and immune system of a polar bear is unlikely to be good for them."

WWF stresses that although the toxic contaminants that showed up in these studies are no longer widely used in manufacturing processes or in farming, they are slow to break down in the environment and can remain in water, ice, and soil for many years.

"Other contaminants, with similar properties, continue to be used on a day-to-day basis in manufacturing processes and products throughout the world," said Brettania Walker, toxics officer in WWF's Arctic Programme. "It is crucial to prevent these newer-generation chemicals from accumulating in, and polluting, the environment."

Most chemicals on the market today have not been adequately tested to determine their impacts on human and wildlife health.

WWF believes there is therefore an urgent need for safer chemical legislation, including a strong and protective version of the currently debated EU REACH legislation, which would help protect humans and animals such as the polar bear from potentially harmful chemicals.

The estimated 22,000 polar bears living in the Arctic are not only under threat from toxic chemicals, but also from the combined effects of climate change and habitat loss.

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Photo: WWF-Canon/Tanya Petersen

US senators, Hillary Clinton and John McCain were in Svalbard to discuss global warming and its effects on the Arctic.

US senators visit Svalbard

A high level delegation of US senators, including John McCain and Hillary Clinton, visited Svalbard in August to learn about the Arctic's changing climate and be briefed on the forthcoming Arctic Climate Impact Assessment.

Senators Lindsay Graham, John Sununu, and Susan Collins were also part of the delegation.

Hillary Clinton said: "The United States can no longer deny or ignore that climate change is actually happening. The issue is forcing itself into the limelight, and there are a lot of us that are searching for ways to push climate issues higher up the agenda. Now that we agree on the facts, which many in the Senate actually ignore, we can also reach agreement on what we are going to do about this."

John McCain has proposed legislation that would commit the US to reduce their emissions of greenhouse gases. The proposed bill is less ambitious that the Kyoto Protocol's targets for the US, but it commits them to reducing their emissions to 2000 levels by 2010, and to 1990 levels by 2016. The measure failed by a vote of 43 to 55 in the Senate but McCain is ready for a second attempt. "Sooner or later we will win this battle," he said.

The Arctic Climate Impact Assessment is likely to be launched in November in Iceland at the Arctic Ministerial Meeting.

Katherine Silverthorne, director of WWF-US Climate Change program said: "WWF's work in the Arctic has documented the growing threat climate change poses to polar bears and other wildlife. To give polar bears and other arctic species a chance to survive, we must act now to limit emissions of heat-trapping carbon dioxide before it's too late. The upcoming release of the Arctic Climate Impact Assessment will confirm the urgency of the situation.

"We admire the kind of leadership that takes these senators all the way to the Arctic to learn climate change impacts first hand. One cannot visit global warming's "ground zero" and not come away with a vivid picture of just how dire this problem will be if we don't take immediate steps to implement solutions."

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Apology

■ The article 'Global climate change may affect wolves in the high Arctic' in *Arctic Bulletin* issue 2.04 was attributed to L. David Mech. However it was an adaptation by our editorial team of an article by L. David Mech, 'Is climate change affecting wolf population in the high arctic?' due for publication in the journal *Climatic Change* later this year but already pre-published on the Internet. While the article we published was written with L. David Mech's permission, we wish to apologise to him – and to our readers – for giving the impression that he was the author of the piece in the *Arctic Bulletin*, and for failing to explain the article's origin.

Photo: (c)WWF-Canon/Quentin BATES

A fishing trawler emptying its catch.

Overfishing in Barents Sea

Russian ships in the Barents Sea have over-fished their quotas by between 130 and 215 thousand tonnes in 2002 and 2003, according to new reports from the Norwegian Fisheries Directorate and the Norwegian Coastguard.

This is the first time such estimates have been made public.

For 2002, Russia had a quota of 190,000 tonnes, but fished between 260,000 and 300,000 tonnes. For 2003 the quota was 191,000 tonnes, but the estimated catch was probably between 250,000 and 305,000 tonnes.

The report builds on information from various sources, and although there are uncertainties, the estimations are believed to be accurate, said Dag Nagoda, WWF's Barents Sea Ecoregion co-ordinator.

The most important sources include documentation of catches delivered to ports in Norway and Russia, documentation of re-loading of catches in the open ocean, and deliveries to other countries through systematic controls at sea and in ports, and through the use of electronic 'traceability' logging of Russian vessels which helps document deliveries made directly to other countries.

Around 200,000 tonnes of cod has a value of about 300 million US dollars.

So far Russian authorities have not commented on the figures.

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UNEP report

Overfishing of cod and haddock, nuclear waste storage, the invasion of the red king crab and a projected six-fold increase in oil and gas transportation are some of the issues threatening the unique Barents Sea arctic ecosystem, scientists are warning.

An absence of long-term planning and legislation are the main causes of these threats according to a new report prepared by the United Nations Environment Programme (UNEP) Global International Waters Assessment (GIWA).

The overexploitation of fish stocks is "the most alarming problem for the region at present," according to the report. It says, fish in the Barents Sea continue to be over-fished despite measures of regulation and control.

Pollution was identified as the next most important concern. While the report notes that the Barents Sea is much cleaner than other European seas, and that pollution does not constitute a threat to human health or ecosystems, it points out risks associated with the expansion of oil and gas industries in the region.

Speaking at the launch of the report at the end of August, Klaus Toepfer, UNEP's Executive Director, said, "The increased exploration activities for petroleum resources in the Barents Sea, the offshore developments and the shipping of oil and gas along the coasts represent significant potential threats to this vulnerable arctic ecosystem."

There are vast oil and gas reserves on Russia's arctic shelf. According to the report, the development of these oil and gas deposits will increase oil transport to 40 million tonnes by the year 2020. This will correspondingly increase the pressure on the Northern Sea Route (which crosses the Barents Sea) by a factor of six.

As a consequence, the risk of accidental oil spills is expected to increase in the near future says the report. It goes on to suggest a set of measures to reduce the risk of potential emergencies, including the development of safety plans to prevent accidental oil spills, and contingency plans to respond to accidents.

warns of threats to Barents

A third major issue of priority concern identified by the report is the storage facilities for radioactive wastes and possible contamination of the environment.

The Murmansk region houses more radioactive waste than any other region of the world. Although current levels of radioactivity are low and do not pose any threat to human health or the environment, there is need, according to the report, for long-term strategies for the handling of stored nuclear material in the region.

The fourth most important issue identified is the modification of ecosystems by invasive species.

The composition of the Barents Sea fauna has been changed by the intentional introduction of the red king crab, as well as other alien species. There are concerns that competition between the red king crab and commercial and non-commercial species could result in the decrease of some commercially important fish stocks. Another aspect of the problem is the unintentional introduction of alien species through ballast water of oil tankers. Alien species introduced unintentionally form a serious threat to the economy of northern Norway as well as to coastal communities in Russia, says the UNEP report.

In response to the problems identified, the report recommends that new regulations for different sectors should be adopted and enforced, along with rigorous adherence to existing international environmental agreements.

The report can be downloaded at: www.giwa.net/barentssea/

The Barents Sea report (Regional assessment 11) was produced by an expert team established by the UNEP GIWA. The team was chaired by the Russian Academy of Science and Murmansk Marine Biological Institute in Murmansk and supported by Akvaplan-Niva and the Norwegian College of Fisheries Science in Tromsö. The report was funded by the Global Environment Facility and the Norwegian government.

The GIWA assessment of the Barents Sea is part of a global comprehensive and systematic assessment of the environmental conditions and problems in transboundary waters, led by UNEP. It comprises marine, coastal and land areas, including ground waters. The assessment is done in 66 transboundary water regions where teams of local experts focus on five major concerns including 22 specific water related problems. For more information about GIWA see http://www.giwa.net/

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Water temperatures on the rise

Scientists have detected an exceptionally high temperature increase in the Arctic Ocean. The rise is leading to reductions in sea ice.

The findings are consistent with the preliminary conclusions of the Arctic Climate Impact Assessment (ACIA) due for release in November.

Scientists from the Alfred Wegener Institute for Polar and Marine Research (AWI) were investigating changes in ocean temperature and sea ice cover in the Fram Strait between Spitsbergen and Greenland aboard the research vessel *Polarstern*.

Temperatures in the West Spitsbergen Current in the Fram Strait, which carries warm Atlantic water into the Arctic Ocean, have risen by 1.2°C in the upper 500 metres of ocean current since 1990. And this year temperatures recorded were up to 0.6 °C higher than last year.

The rise in temperature was detectable to a depth of 2,000 metres.

The influx of warmer water has caused changes in sea ice cover. Satellite images have documented a clear recession of sea ice edges in the Fram Strait region and in the Barents Sea over the last three years.

Climate processes are not only affected by the horizontal extent of sea ice, but also by its thickness. In order to determine ice thickness, the sea ice research group of AWI has developed an airborne ice thickness sensor. It is towed by helicopter some 30 metres above ground and can cover up to 100 kilometres distance within one hour.

This method allows construction of a representative picture of sea ice thickness.

The thickness sensor is validated by flying a helicopter over a series of drilled ice holes of a known depth arrayed along a transect line.

The measurements will help with the calibration of the CryoSat satellite which, from March 2005, will measure sea ice thickness from 700 kilometres above the Arctic and Antarctic. It will be used to investigate whether regional changes occur in all polar regions because of global warming.

Photo: AWI

Ice drilling

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The Bush Administration's unbalanc

While there has been much attention paid to the ongoing battle in the US Congress over drilling in the Arctic National Wildlife Refuge, the Bush administration has been quietly leasing tracts in another wilderness area west of Prudhoe Bay on the north coast of Alaska.

Like the Arctic Refuge, the 23.5-million-acre Western Arctic Reserve – formally called the National Petroleum Reserve-Alaska – provides a haven for tens of thousands of caribou and tens of millions of shorebirds and waterfowl.

The Western Arctic Reserve contains America's largest single block of unprotected wilderness. From the mountains and river valleys of the Brooks Range to the Arctic Ocean, the Western Arctic Reserve includes coastal plain wetlands, rolling foothills and wild rivers. The expanse of wetlands represents globally important summer habitat for birds, such as yellow-billed loon, white fronted geese, threatened Steller's and spectacled eiders. Off its coast are the largest aggregations of beluga whales and spotted seals in northern Alaska. Likewise, it provides critical habitat for two caribou herds, the 450,000 Western Arctic herd and the 45,000 Teshekpuk Lake herd, as well as moose, grizzly bears, wolves and polar bears. The Inupiat Eskimo, who live in a number of villages in the Western Arctic Reserve, depend on the region's wildlife for subsistence, including food, clothing and shelter, and have a spiritual and cultural connection to the land.

The vast area was set aside in 1923 as the National Petroleum Reserve-Alaska, a potential oil source for the US Navy in the event of an emergency. It remained largely untouched through World War II and the 1970s oil crisis. In recent years the oil and gas industry has been able to muscle its way into the area, due to its increasing political power with the Bush Administration and the State of Alaska. One hundred thousands acres of pristine wilderness has been opened to leasing in the past six years. If the administration gets its way, the region could soon be covered with a network of gravel mines, roads, drill pads, pipelines and processing facilities that would destroy wildlife habitat for generations.

The US Geological Survey estimates that the entire reserve contains 3.7 billion barrels of economically recoverable oil at $25 per barrel and 6.8 billion barrels of economically recoverable oil at $40 per barrel. Americans currently use 7.2 billion barrels of oil a year, and even with the current spike in oil prices, US crude oil prices have averaged $24 a barrel over the past five years. To produce 6.8 billion barrels of oil from the reserve, world oil prices would have to average $40 a barrel for a number of years. In any case, the technology exists today to increase average vehicle fuel economy standards to 40 miles per gallon. If automakers could meet that standard over the next decade, the United States would save at least seven times more oil than the Western Arctic Reserve is likely to produce.

Divvying up the Western Arctic Reserve

Managed by the Interior Department's Bureau of Land Management (BLM) the Western Arctic Reserve is divided into three planning areas: northwest, northeast and south.

The Northwest Planning Area: In January, the Interior Department proposed oil and gas leasing in the 8.8-million-acre Northwest Planning Area. Natural Resources Defense Council (NRDC) and other conservation groups criticised the plan for failing to protect key areas from development and sued to block the lease sale. "Opening the Western Arctic Reserve is yet another flagrant example of this administration liquidating our natural heritage to benefit its friends in the oil and gas industry," said Chuck Clusen, director of NRDC's Alaska Project. "It refuses to permanently protect even a single acre of the Western Arctic Reserve's most critical wildlife habitat."

In June, the BLM leased approximately 1.5 million acres, mostly around Dease Inlet, a critical area for waterfowl, caribou and polar bears. The conservationists' lawsuit halts surface exploration until there is a court ruling. Another fragile wildlife area threatened by oil and gas leasing in the area is Kasegaluk Lagoon, but it is not slated for leasing until 2014. It provides habitat for the broadest range of birds of any coastal lagoon system in the Alaska arctic as well as critical habitat for beluga whales, spotted seals and polar bears. Musk oxen and arctic peregrine falcons also are threatened by oil development in the Northwest Planning Area.

The Northeast Planning Area: In 1998, the BLM made 87 percent of the 4.6-million-acre Northeast Planning Area available for oil and gas leasing, and about 1.3 million acres have been leased so far. To protect wildlife, nearly 590,000 acres around Teshekpuk Lake was placed off limits, and surface access was restricted on another 270,000 acres. Much of the 13 percent that remained off limits is critical goose molting habitat and caribou calving and insect relief habitat around Teshekpuk Lake.

A new BLM proposal would remove many of these protections around the lake, opening an additional 389,000 acres to oil and gas leasing. If the proposal is approved, only four percent of the planning area would be protected from development.

Scientists and conservationists are particularly concerned about the impact oil development would have on the area around Teshekpuk Lake, a critical area for molting geese and nesting birds, including yellow-billed loon and the threatened spectacled eider. Some 45,000 caribou use the area as a birthing ground. And those caribou are essential for subsistence hunters such as the Inupiat Eskimo. Subsistence hunters from Nuiqsut say that nearby oil development has made it necessary for them to travel

ed plan to drill in the western Arctic

30 miles or more to find caribou that used to pass right by their village.

The Southern Planning Area: The planning process for leasing the Western Arctic Reserve's Southern Planning Area is slated to begin later this year. This area is mostly mountainous highlands and provides the calving area in the Utukok uplands for the 450,000 Western Arctic caribou herd.

Other threats to the Western Arctic Reserve

Alpine Oil Field Expansion: Just east of the Western Arctic Reserve, the Alpine oil field in the Colville River delta was discovered in 1994; production began in 2000. The Bush administration cites Alpine field exploration and development as an example of environmentally responsible development that uses directional drilling and ice roads instead of permanent roads and bridges. However, the administration is poised to approve a ConocoPhillips proposal to build as many as 25 miles of permanent roads, airstrips, drilling pads, and a bridge across the Nigliq Channel. This plan would disrupt caribou calving and goose molting near Teshekpuk Lake and potentially threaten the endangered bowhead whale, which migrates every spring past the proposed project area. In addition, the Inupiat use this area for hunting and fishing, activities that would be disturbed by new oil development.

Colville River road to the village of Nuiqsut: The State of Alaska plans to build an 18-mile road that would connect North Slope oil industry facilities with the village of Nuiqsut along the Colville River on the edge of the Western Arctic Reserve, providing more direct access to the Western Arctic oil fields. The road would lower freight and fuel costs and provide year-round access to the Deadhorse airport. It also would lower oil industry operating costs.

These benefits for industry are offset by a number of significant problems the road would cause. The road, for example, would include the first bridge over the Colville River, which local residents fear would harm fish harvests and the overall flow of the river. The road also likely would disturb traditional caribou migration patterns and fragment moose habitat.

"It makes no sense to industrialize this incomparable wilderness area when there's less than a year's worth of economically recoverable oil in the entire Western Arctic Reserve," said Clusen. "The United States has only three percent of the world's proven oil reserves and we use 25 percent of the world's produced oil. We can't drill our way to oil independence. We have to wean ourselves off oil."

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Brooks Range, Alaska. Alaska's North Slope slopes gradually downward from the base of the Brooks Mountain Range to the Arctic Ocean.

Photo: WWF-Canon/Anthony B. Rath

North Slope at risk

The ecological integrity of the North Slope in Alaska is at serious risk from poorly planned, piecemeal and damaging development, a coalition of US NGOs claimed in an open letter to the US Department of the Interior Bureau of Land Management, Alaska in August.

The NGOs are demanding permanent protection of the most valuable and vulnerable parts of the National Petroleum Reserve-Alaska, known as the Western Arctic Reserve, and argue that any development must adhere to strict environmental standards.

The open letter is a response to the Draft Amended Integrated Activity Plan and Environmental Impacts Statement for the Northeast Planning Area of the National Petroleum Reserve.

Environmental NGOs that reviewed the Draft Plan, found: "failings in the planning process, analysis and propose agency action. The preferred alternatives is an extraordinary reversal devoid of scientific rationale that places the wildlife, fish and subsistence resources of Teshekpuk Lake Surface Protection Area at significant risk. As written, the draft…needlessly violates the law and the agency's trust responsibility."

The National Petroleum Reserve is the largest tract of public land in the US and harbours rich and important wildlife and wild areas.

"Healthy productive ecosystems are fundamental for ensuring a sustainable economy for Alaska and maintaining the quality of life style shared and valued by all Alaskans," the NGOs state in the letter.

The NGO coalition includes WWF-US, the Alaska Centre for the Environment, the Alaska Coalition, Alaska Wilderness League, Campaign for America's Wilderness, Centre for Biological Diversity, Defenders of Wildlife, Natural Resources Defense Council, Northern Alaska Environmental Centre, Sierra Club and The Wilderness Society.

Battle for Mackenzie

Oil giants stand ready to build a $5 billion pipeline through the Mackenzie Valley in Canada. Local people and conservation groups want special areas protected first. Wendy Douglas **reports.**

More than 30 years ago, oil and gas companies stepped up their interest in Canada's vast northern deposits of natural gas and oil. They also realised that one of the most ideal locations for flowing the gas from the region to eager markets in the south was the Mackenzie Valley in the Northwest Territories (NWT). At that time, the Canadian federal government decided that before it surrendered rights to exploration and development in the region it should find out more about what people living in the north thought about major economic development where they lived.

The results of the ensuing Royal Commission looking into the matter could not have been clearer. Based on hundreds of hours of testimony and presentations from northerners and aboriginal leadership in the Northwest Territories, the Commission (Canada's largest ever, led by Justice Thomas Berger) recommended that a ten-year moratorium on development be put in place until outstanding land claims were settled, key natural areas were protected, and well-balanced regional land use plans were put into place.

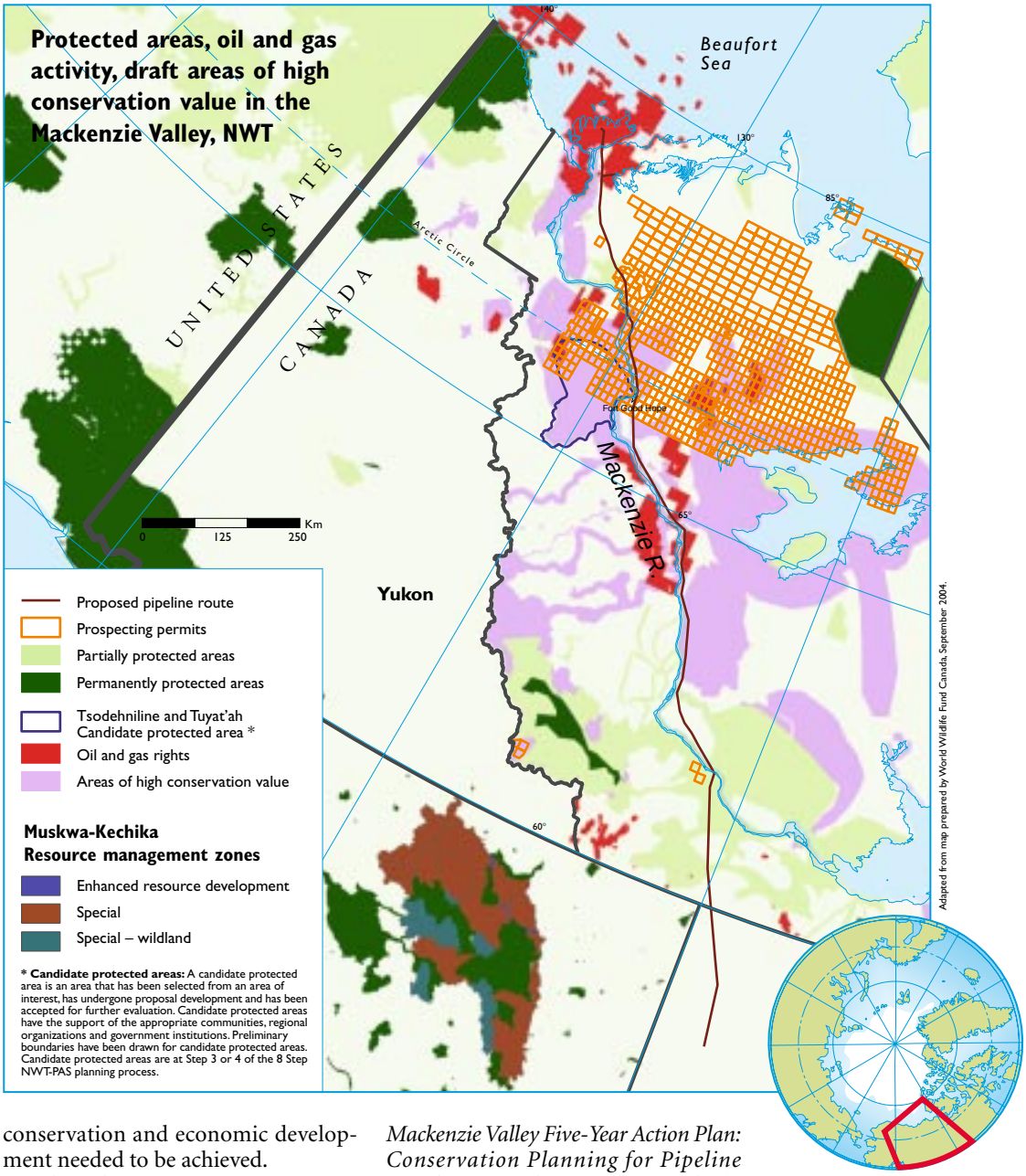
Today, Imperial Oil, Shell, Conoco Phillips and others stand ready to build a $5 billion pipeline through the Mackenzie Valley, to be completed perhaps by 2009. This major new energy corridor will undoubtedly trigger more gas and oil exploration and development in the region. But only five of the 16 ecoregions in the Northwest Territories' Mackenzie Valley that are directly intersected by the proposed pipeline or adjacent hydrocarbon development areas are reasonably represented by protected areas.

Photo: Leslie Leong

Deh Cho First Nations elder Mary Cazon, preparing duck on the shore of the Mackenzie River.

Mackenzie River, Northwest Territories, Canada

Photo: AIVA-Paul Noppe



Unlike the situation 30 years ago, many NWT residents now support a Mackenzie Valley pipeline – but not at any cost! They also insist that economic development occur in the right way, ensuring that the land, water, renewable resources and key cultural areas are protected for future generations.

The federal and NWT governments have had decades to prepare for northern development, including the responsibility to all Canadians for adhering to the core principles of sustainable development in Canada's north, in today's context of the proposed development of a major energy corridor through the Mackenzie Valley. WWF-Canada has consistently argued that based on the views of northerners expressed in Berger's Royal Commission, and based on good environmental science, a better balance of sequencing of habitat conservation and economic development needed to be achieved.

When the current Prime Minister was Minister of Finance in 1996, WWF-Canada received a letter stating the federal government's commitment to protecting a network of environmentally and culturally representative areas in the Arctic. In 1999, WWF-Canada was part of a steering group that included representatives from governments, industry, the Aboriginal community and other environmental organizations that launched the NWT Protected Areas Strategy (PAS). The purpose of the PAS was simply to reserve an adequate network of representative and key areas while the opportunity to do so was still intact, ahead of major new industrial projects.

At the behest of the same governments, the PAS partners developed the NWT *Protected Areas Strategy's Mackenzie Valley Five-Year Action Plan: Conservation Planning for Pipeline Development* (the PAS Action Plan). This five-year Action Plan began in April 2004. WWF-Canada believes that the PAS Action Plan, which is already supported by the Aboriginal, industry, government and environmental NGO partners in the PAS, must now be implemented fully to establish an adequate network of culturally significant and ecologically representative protected areas by 2009.

Along with the other NGO partners in the PAS (the Canadian Parks and Wilderness Society, and Ducks Unlimited Canada), WWF has committed to raising 33 percent of the funds needed to implement the PAS Action Plan (roughly ➤

The Conservation First principle

WWF's Conservation First principle states that: There should be no new or expanded large-scale industrial development until a network of protected areas is reserved which adequately represents the natural region(s) affected by that development

Photo: Leslie Leong

A couple of curious black bear cubs.

➤ CDN $18 million), subject to a 50 percent federal lead, with the remaining 17 percent to be provided by the Government of the NWT, Aboriginal organisations and industry. Despite widespread, community-based support for the plan and funding commitments from partner organisations such as WWF-Canada, well into the first year of the PAS Action Plan, the federal government has yet to commit its share of financial support to fully implement the Action Plan.

On August 18, 2004, a seven-member joint review panel was announced to review the environmental impact of the Mackenzie Valley Gas Project. The Minister of the Environment, Chairperson of the Mackenzie Valley Environmental Impact Review Board and the Chair of the Inuvialuit Game Council signed an agreement and finalised the Terms of Reference for the environmental review of the proposed project. The project proponents are expected to file their applications in September of this year. All of this despite the fact that, after more than 30 years of consideration of the issues, little to no conservation planning has been done for the region.

WWF-Canada held a major press conference in Ottawa in September, pressing the federal government to commit to full implementation of the PAS Action Plan (see details on www.wwf.ca).

"Anything less would fly in the face of the new Government's clearly expressed resolve to showcase, via this major project, Canada's 'new industrial revolution in which long-term economic success is no longer possible without environmental sustainability'," said Pete Ewins, director of WWF-Canada's Arctic programme, quoting from a speech by federal Environment Minister Stephane Dion in Calgary in September. "There could hardly be a more concrete, major project on which to gauge the sincerity of this commitment," he added.

With the support and direct involvement of John Turner, a former-Prime Minister and Stephen Kakfwi, former-Premier of the Northwest Territories (who is also a respected leader in the northern Aboriginal community), WWF-Canada expects proper sequencing of conservation planning ahead of major industrial development in Canada's north.

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Court action on Mackenzie

The Deh Cho First Nations (DCFN) filed a statement of claim in the Supreme Court of the Northwest Territories in Canada in September on the review process for the proposed Mackenzie Valley pipeline.

"We have been forced to this action by the federal government," said Herb Norwegian, the DCFN Grand Chief.

"We have tried all other routes to pursue our legitimate desire to have representation on the panel to review this project. We have a responsibility to our people to represent their interests. Forty percent of this proposed pipeline will cross Deh Cho lands. We could not just sit and watch as other people made the decisions on what is best for us."

The DCFN had asked the federal government to be allowed to participate in the appointment of two people to the seven-member panel that was set up to review the proposed pipeline. That is the same allowance as was given to the Inuvialuit Game Council, representing the interests of Inuvialuit people, further north along the pipeline route.

"We are being discriminated against because we do not have a settlement of our land and governance rights," said Grand Chief Norwegian. "This is clearly against section 15 of the Charter of Rights and Freedoms, that says 'Every individual is equal before and under the law'. It also is against section 35 of the Constitution Act which recognizes and affirms our aboriginal and treaty rights".

The statement of claim asks the court to consider granting an injunction, stopping the pipeline review until the Deh Cho First Nations are included in the review process. Alternatively, it asks the court to consider giving an order that invalidates any decision reached by the review panel.

"We are simply asking the court to recognise our right to have a say in this project," said Keyna Norwegian, chief of Liidli Koe First Nation in Fort Simpson. "This is the biggest development project to ever hit the Deh Cho. It has the potential to totally change our lives. We need a voice in this process."

Herb Norwegian,
Grand Chief, Deh Cho First Nations
Keyna Norwegian,
Chief, Liidli Koe First Nation
www.dehchofirstnations.com

Disappearing sea ice could reduce water availability in western US

The sea ice covering much of the Arctic Ocean is melting, a trend that may have dramatic consequences for the western United States. University of California researchers recently looked at the long-term effects of reduced arctic sea ice on the global climate, and their most striking finding was a significant reduction in rain and snowfall in the American West.

The study highlights the vulnerability of western states, which depend on winter precipitation for their water supplies, to changes in the regional climate.

The results also show the surprising ways in which a small change in one component of the global climate system can affect particular regions, said Lisa Sloan, professor of earth sciences.

"We were surprised at the result ourselves, but it shows how interconnected the climate system is. Here we are reducing arctic sea ice, and the biggest climatic response is felt in an entirely different part of the world," she said.

Sloan and graduate student Jacob Sewall used powerful computers running a global climate model developed by the National Center for Atmospheric Research to simulate the effects of reduced arctic sea ice. Their findings were published online by the journal Geophysical Research Letters on March 24 and will appear in a subsequent print issue of the journal.

Sewall and Sloan based their study on projections of recent trends in arctic sea ice cover published by a NASA researcher in 2002. Taking the projected ice cover in the year 2050 as a starting point, the researchers ran the model to see how the global climate would behave.

What they found was a change in atmospheric circulation patterns that caused a small northward shift in the paths of winter storms over western North America. This shift in winter storm tracks resulted in significantly reduced winter precipitation from southern British Columbia to the Gulf of California. In some areas, average annual precipitation dropped by as much as 30 percent. The reductions were greatest along the West Coast, with lesser changes further inland. But even as far inland as the Rocky Mountains, winter precipitation fell by 17 percent.

The sea ice acts like a lid over the ocean surface during the winter, blocking the transfer of heat from the ocean to the atmosphere, Sewall explained. Where the sea ice is reduced, heat transfer from the ocean warms the atmosphere, resulting in a rising column of relatively warm air. The shift in storm tracks over North America was linked to the formation of these columns of warmer air over areas of reduced sea ice in the Greenland Sea and a few other locations, Sewall said.

"The projected reduction in sea ice cover during the winter is small compared to the reduction in sea ice during the summer, but it ends up having a big effect on North America," he said.

Sewall noted that the study only looked at the direct climate response to a reduction in arctic sea ice and did not take into account additional climate effects that may result from increasing levels of greenhouse gases. Increased greenhouse gases, such as carbon dioxide, are a major factor driving global warming, a trend that is expected to continue well into the future.

"In a scenario with increased greenhouse gases, we would expect to see other effects on the climate that would interact with the effects of reduced sea ice," Sewall said.

Photo: Florian Gradwohl

Death Valley, California. Scientists predict that a decrease in arctic sea ice will result in less rain and more heat for the western US.

Higher temperatures due to global warming, for example, would increase the rate of evaporation and exacerbate the effects of decreased precipitation on the water supply. But there could also be effects on the climate system that might counteract the influence of reduced arctic sea ice on winter precipitation in the West, Sewall said.

Arctic sea ice has been declining gradually over the past century, but the pace of the decline has picked up during the past two decades. The cause of the decline remains unclear, and it is not certain that the trend will continue.

Nevertheless, the new study serves as a warning that climate change can have small effects in one location that propagate through the system to become big effects somewhere else, Sloan said.

"As the climate changes, the effects will vary a lot from one region to another, and it may be hard to predict where the effects will be felt most. What we saw in this study is not something one would have predicted in advance," she said.

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■ This article originally appeared in UCSC *Currents Online*

Photo: Susan Sang, WWF Canada

Arviat project coordinator Frank Nutarasungnik (left) interviews Arviat elder Tony Otuk. The community of Arviat is located north of Churchill, Manitoba, on the western side of Hudson Bay.

Traditional knowledge

Inuit elders and hunters are taking part in a study looking at the impacts of climate change and toxics. Susan Sang **reports.**

Once considered pristine, the arctic environment is now noticeably impacted by toxic chemicals and changing temperature, according to the Inuit elders and hunters living in the eastern Canadian Arctic. Both climate change and persistent organic pollutants (POPs) produced in the south and brought to the Arctic by air and ocean currents, are threatening the well-being of arctic wildlife and the livelihood of people who depend on them for subsistence.

Wildlife such as arctic char, beluga, caribou, and ringed seal are central to Inuit culture and way of life. Recently, Inuit have expressed concern that contaminants and climate change may be threatening wildlife health. In a survey conducted by WWF-Canada and Trent University, 30 participating Inuit elders and hunters from the communities of Pangnirtung, Coral Harbour and Arviat discussed their traditional knowledge (also known as Inuit Qaujimajatuqangit – IQ) of wildlife health based on their many years of hunting experiences.

In Nunavut, marine life is rich, and communities are dependent on marine species such as seals, beluga, polar bear, and fish for subsistence. These species are also rich in fat, which has become saturated with POPs and other harmful industrial chemicals and pesticides. The community elders and hunters believe that contaminants coming from afar as well as those produced locally have detrimental effects on wildlife species.

"Oil spills from far away would threaten lots of our wildlife," says Livee Kullak from Pangnirtung. Joanasie Maniapik, also an elder from Pangnirtung, thinks that contaminants from both past practices and local sources are contaminating the waters in his community; "Anything that is spilled on the land will run through the soil and eventually end up in the ocean. The contents of old barrels are gradually seeping into the soil and sea, and as a result contaminating them. All these originated from the south. We contribute to the contamination process with our snowmobiles and boats emitting fumes. All these have to be put into consideration," said Joanasie.

The community elders also believe that climate change is putting further stress on arctic wildlife. They are concerned that this changing climate may force them to change their traditional way of harvesting animals. "Global warming is getting stronger every year," says Pauloosie Nakoolak from Coral Harbour. "In the past, when lakes freeze over with ice some people would be jigging for fish. Now it takes longer for lakes to freeze. There used to be ice that never melted. Now there are more of them melting due to earth warming up. It is not like it used to be."

The community elders are concerned about the effects that climate change may have on marine life, particularly polar bear and walrus, who use ice as a platform for hunting and seals that depend on pack-ice for pupping, foraging, moulting, and resting.

"It's usually in springtime before

■ NWHP is a partnership between the Hunters' and Trappers' Organisations/ Associations of Arviat, Coral Harbour, and Pangnirtung, Trent University, and WWF-Canada. The traditional knowledge survey is the first step in an programme which includes scientific research (contaminant analysis and histology), a passive survey (hunters' documentation of current wildlife health condition), and communicating results.

the ice breaks up that a seal spends time basking on the ice," says Inusiq Nasalik an elder from Pangnirtung.

"At that time they are going through the moulting stage. But if the ice breaks up early, then the moulting is incomplete; therefore the hair will be old and brownish in colour. I will know right away that the moulting phase was disrupted by early ice break-up."

Land animals like caribou are not spared from these environmental stressors. All ten Pangnirtung hunters who participated in the survey described seeing more sick caribou than in the past. "Even just to look at them you can tell there is something wrong. They're skinny and sick looking. You can tell their health is ailing. We don't bother with caribou like that. Some have worm-like parasites and many of them swollen joints, usually medium-size males; it's rare to see females with problems like that," said Joanasie Maniapik.

On 17 May 2004, the Stockholm Convention on POPs became legally binding, committing participating countries to stop the production and use of the 12 highly toxic, persistent and bioaccumulative chemicals. However, the Stockholm Convention is the first step in phasing out chemical threats to arctic wildlife. There are many emerging chemicals of concern that are now being found in arctic wildlife including brominated flame retardants and perfluorooctane sulfonate (PFOS), used widely in a variety of industrial and consumer products. These potentially hazardous chemicals are building up in the arctic food chain including top predators such as polar bear and beluga whales as well as human.

Similarly, implementation of the Kyoto protocol will set the scene to begin to address climate change. The Arctic is particularly vulnerable to climate change, and indeed in some areas the impacts are already evident.

Both the Stockholm Treaty and the Kyoto protocol are primary tools for addressing the impact of toxic pollutants and climate change on arctic wildlife. However, much more work is needed to safeguard arctic wildlife and to ensure these important cultural and ecological resources remains healthy for generations to come.

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The Renaissance cruise ship in Ny Ålesund, Svalbard.

Impact of cruise tourism on Svalbard

Cruise tourism is big business around Svalbard. Norwegian authorities, environmental organisations and parts of the cruise industry itself are concerned that the existing cruise tourism management regime is unable to cope with in cruise traffic and its current and potential impacts on Svalbard's vulnerable arctic environment.

A new report by WWF's Arctic Programme addresses cruise tourism on Svalbard and its actual and potential environmental impacts on the environment. The report, *Cruise tourism on Svalbard – A risky business?* is not an environmental risk assessment or strategic environmental assessment of the industry but an attempt to shed light on the major impacts of cruise tourism. The report is designed to raise questions, stimulate discussion, and action, which will reduce the risks and uncertainties associated with cruise tourism.

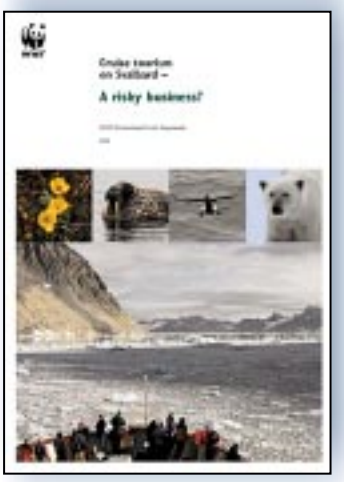
Cruise tourism is not the single biggest threat to Svalbard's ➤

Photo: Miriam Geitz

Tourists charmed by arctic fox cubs.

➤ environment. Climate change, toxic pollution, and destructive and excessive fishery activities will continue to have greater impacts on the archipelago and its biodiversity. Nonetheless, cruise tourism is a major activity, and one in which ships and passenger groups of all sizes are brought to remote and pristine areas of the archipelago during a short and vulnerable summer season.

Cruise tourism has a long history on Svalbard, but it was not until 2000 that reporting statistics for the two main cruise activities – overseas cruises and coastal cruises – were combined and gave a picture of overall cruise traffic. In the following three years (2000– 2003), the number of people going ashore outside the main settlement of Longyearbyen increased from around 44,000 to over 65,000 passenger landings per year. In 2003, those 65,000 landings were made at 180 sites across the archipelago.



What does this mean for the environment? While impact on particular landing sites, depending on its vegetation, might be small, the increase in the number of sites visited is an indication of the growing 'footprint' of cruise tourism. The biggest single threat posed by ship-based activity on Svalbard is from an oil spill. Cruise ships carry substantial volumes of fuel for their own use. Those fuels are most commonly heavy oil, the most toxic and potentially environmentally-damaging oil if released into the environment. Svalbard's characteristics, its climate and remoteness, make it extremely difficult to counter an oil spill before it does significant damage. Oil response capacity, provided by the authorities in Svalbard, is also limited. Cruise ships mainly operate close to the shore so increasing the likelihood of severe environmental damage if an accident occurs.

Norwegian authorities should address the risks presented by cruise tourism through a precautionary approach, which involves closing high-risk and high-biodiversity areas, demanding the use of best available fuels and matching oil spill response capacity to the increasing cruise traffic around Svalbard.

Other environmental threats from cruise tourism are based on cumulative impacts. Sites visited by cruise ships over a number of years show signs of degradation, both of cultural and historical remains, as well as vegetation. Wildlife disturbances are harder to quantify, but in the harsh arctic climate, where other factors increasingly challenge a species' survival, strict and precautionary measures must be taken to avoid negative impacts.

In addition, cruise ships also represent a source of pollution in pristine areas that are not otherwise directly affected by air emissions or waste discharges. The energy requirements of cruise ships, together with their function as floating hotels, means the vessels emit considerable amounts of emissions and large quantities of sewage, garbage and waste water. The extent to which such discharges cause pollution depends on a number of things, among them technical equipment and a ship operator's policy and practices.

Many of the measures which could be introduced to improve cruise management are realistic. The single most important one in the short-term is to reduce the risk of oil spills from cruise ships and other vessels. Norwegian authorities must reduce the risk of oil spills while at the same time closing valuable and vulnerable areas completely.

Reducing the negative impacts of cruise tourism on Svalbard must also be seen in a wider context. The number of ships and passengers visiting Svalbard is likely to increase because cruise tourism is a booming business globally. A cruise tourism management regime must be established on Svalbard to cope with further increases and diversification in cruise tourism activities. Svalbard authorities and industry are in a unique position: the time is ripe for the establishment of a "best practice" cruise management regime in Svalbard, which can set the standard not only for the rest of the Arctic, but also the rest of the world.

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INTERVIEW:

Financing environmental projects in Russia

Harro Pitkänen **has been director of the Nordic Environmental Finance Corporation (NEFCO) since 1990. He is a lawyer by training and previously worked for the Nordic Investment Bank. He has worked on financing issues for the last 21 years.** Samantha Smith**, director of WWF's Arctic Programme, asked him for his views on international financing of environmental projects in Russia.**

Samantha Smith: *What does NEFCO do?*

Harro Pitkänen

Harro Pitkänen: NEFCO is a fund management institution that manages public funds from the Nordic governments and others. It provides competence and capacity for professional fund management and experience in project lending. This is helpful for multi-country projects and gives efficiency and economies of scale. What makes NEFCO special is that 100 percent of its portfolio is environment-focused.

NEFCO makes investments in environmental projects where 1) there is a reasonable opportunity for repatriation of the funds, and 2) the project can demonstrate a positive environmental impact. The possibility of limiting environmental damage is not enough – the project must demonstrate concrete benefits.

NEFCO isn't a profit-maximizing institution, so its criteria and activities are different from normal commercial investment funds. It doesn't just look for projects where it can get the fastest economic returns. At the same time, however, NEFCO's goal is for investments to repay the capital invested, so that this money can then be redeployed in another project

Economic growth in Russia so far is not resulting in transfers of revenues into environmental measures

SS: *Where does NEFCO invest?*

HP: NEFCO invests in Russia primarily, to a lesser extent in three of the Baltic states, and it will also invest in the Ukraine starting this year. At the moment NEFCO has committed about 50,000,000 EUR for environmental cleanup projects in Russia, and it is foreseen that towards the end of this decade NEFCO will finance some 160,000,000 EUR in environmental projects in Russia and the Ukraine.

SS: *Some critics argue that Russia's expanding economy lessens the need for the international community to fund environmental projects there. What's your view?*

HP: Economic growth in Russia so far is not resulting in transfers of revenues into environmental measures, particularly those that deal with the legacy of environmental negligence and wasteful resource exploitation. One hopes this will come with time.

To stimulate this development, there's still a need to set up demonstration projects, show good examples, show that one can reverse trends and make a difference. And in order to do this there's a need for external cooperation and participation.

There's a difference as well between capital investments and repayable loans on the one hand, and grants and subsidies on the other. With the latter you have to be even more selective.

There are projects which by nature require financing, because cash flow is not sufficient to cover larger capital improvements. The problem is that Russian enterprises don't have a tradition for using borrowed funds. The only Russian businesses that do this are the ones that operate internationally. In most enterprises it's the older pattern of thinking that reigns: the threshold for loaning money is high, as is the threshold for financing capital investments and clean ups from revenue streams.

Moreover, financial markets in Russia are still fairly undeveloped, and interest rates are very high. This will change and that's good, but in the interim there is still a big gap where someone can come in and make a difference.

SS: *Shouldn't Russian federal, regional and local authorities provide grants and subsidies themselves?*

HP: In some cases one should not provide external assistance where authorities can and should provide it themselves. There are very many situations where this is not the reality, however, and where this funding is not forthcoming. And it might not be more envi- ➤

➤ ronmentally efficient to just lean back and say that the Russians should do this themselves. In any case, thorough and professional assessments are key in this decision

In many cases, it's more efficient to spend funds elsewhere rather than locally. NEFCO reviewed its portfolio and found that to achieve the same environmental results in the Nordic countries, it was seven times more expensive to invest in measures in the Nordic countries compared to investing in the neighboring Baltic states or in Russia.

For example, to reduce inputs of phosphorus and nitrogen to the Baltic Sea, one can get much greater results by investing in wastewater treatment improvements in St. Petersburg rather than investing in similar measures in Finland or Sweden.

SS: *What do you see as the biggest environmental challenges and priorities in northern Russia for next decade?*

To address the challenges in the Russian industrial sector, some structural changes are needed.

HP: First, there are a number of parallel priorities and concerns relating to the Russian industrial complex. There are substantial concentrations of industrial producers in the Russian north, not just in the Kola Peninsula but also farther east. Norilsk on the Kola Peninsula is one of the largest emitters globally. Looking at this from the point of view of arctic environmental protection, one must have a wider geographic scope than just plants that are physically located in the Arctic. Other facilities outside the region are also significant sources.

Improving the environmental performance of these enterprises is a complex matter because it involves the whole chain of production, from raw materials exploitation to energy efficiency, the production process and end of pipe measures. We see some signs of the effects of green consumerism, but it must cut through wider and deeper layers of the Russian industrial sector. Enterprises that work internationally are becoming more concerned with this, and are using ISO certification, environmental management and product certification, particularly in the pulp and paper sector.

In the industrial sector, there's nonetheless a very large potential for win-win projects. Improving environmental performance can bring huge profitability and productivity gains. These are very strong arguments for production managers. In fact, one doesn't even need to mention the 'side effects' of improved environmental performance. Market economy means profitability is a bigger and bigger issue for Russian small and medium sized enterprises too.

Another reason to invest in the industrial sector is that it by definition generates cash flow, which in turn means that there is money to be spent on investments. Enterprises have the capacity to generate internal revenue that then can be used for responsible practices.

To address the challenges in the Russian industrial sector, some structural changes are needed. We need adequately equipped monitoring and enforcement bodies; we need good societal governance; in short, we need institutional and regional framework for compliance. There is also a need for capacity building and institutional development in the environmental sector, to develop good regulatory counterparts for the entrepreneurial sector

Second, there are severe deficiencies in public infrastructure in Russia, particularly in three areas: water management; waste management and energy generation and distribution.

With water, the main issue is well-recognised: one needs to improve the supply and quality of drinking water. This issue goes hand-in-hand with ensuring adequate wastewater treatment. For example, drinking water intake in Archangelsk is downstream from a pulp and paper plant; in Murmansk, it is downstream from a poultry farm. Improving wastewater treatment will both reduce the load on the environment and contribute to public health.

Waste management capacity is another critical area. Russia's northern areas have inadequate treatment facilities for hazardous waste. Municipal landfills in many areas are nearly full, while at the same time the waste stream is increasing as the standard of living rises.

Energy generation and heat distribution are a final set of public infrastruture problems. Heat distribution in the Russian north is a major source of airborne pollution because of the use of coal and oil as energy sources, because of outdated equipment and because of plants where combustion is sub optimal. Perhaps more importantly, some communities in northern Russia still lack reliable access to energy sources and heat distribution networks. There have been catastrophes where communities have literally frozen.

The problem with all three of these public infrastructure sectors – water, waste management, and heat and energy – is that they are clearly not sustainably financed. It is arguable that the users cannot pay the full cost of these essential services. These sectors depend on subsidies and have too little resources. The result is no money for maintenance, a gradual degradation of systems and a worsening of problems.

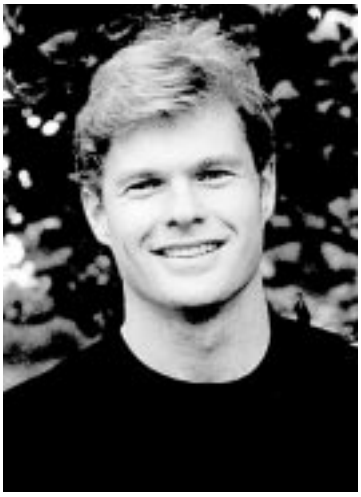
In these sectors there is clearly a larger need for budgetary resources because of the absolute lack of means. The only realistic course is to increase tariff revenues for utilities, and decree that within a certain time period there must be user fees that pay for the utilities. At the same time, grants and subsidies can be used to put utilities on the right path, towards (ultimately) cost recovery.

With water, the main issue is well-recognised: one needs to improve the supply and quality of drinking water.

The third and last major environmental challenge for northern Russia over the next decade is nuclear issues. The threat from nuclear installations, waste, fuel and so on is less an immediate environmental problem than a risk factor. At the same time, there is the likelihood of some of this material being lost or taken, and of a deliberate or accidental release.

Focus on Russia's Far East

Ranging from arctic tundra to dense forests, the Russian Far East supports a unique mixture of subtropical and northern plant and animal species. But the region is under threat as developers look to exploit its rich timber and mineral resources. An extensively updated second edition of *The Russian Far East*, a reference guide for conservation and development, provides a valuable starting point for conservation work in the region. WWF's Arctic Programme talked to its author, Josh Newell.



Josh Newell

■ *The Russian Far East: A Reference Guide for Conservation and Development*
Josh Newell and 90 contributors,
Daniel & Daniel,
ISBN 1 880284 75 8,
486 pages.

WWF: *What is the unifying theme throughout the new edition of your book?*

Josh Newell: My worldview is clearly that of the ecologist concerned about the unsustainable use of natural resources on our planet and the effects of that development on the planet's species. Of course, humans are also included in this species equation, and in the Russian Far East it is clear that the increasing control of natural resources in the hands of a select minority of powerful individuals, both in the private sector and in the government, is having a negative impact on social and economic well-being of the majority of the region's residents. I would say that, by and large, the Russian regional co-ordinators of this book share the same worldview.

WWF: *What do you see as the biggest social or environmental crisis in the Russian Far East?*

JN: There are so many I don't really know where to start. I guess what worries me most is that the region will continue to be a resource appendage for Northeast Asia, exporting raw materials rather than building manufacturing capacity and producing finished products in-country. The latter would have obvious benefits for the region's economy: providing jobs, increasing revenues, and probably reducing illegal resource harvest. It still needs to be researched further, but there is growing evidence that a manufacturing-based economy would slow the rate of resource extraction in the region. For me, many of the social and environmental problems the region faces stem from this resource export. Creating this manufacturing capacity is possible will take massive investment, both foreign and Russian. The Russian Far East was historically a raw material based for the Soviet Union. So, we are looking at almost an entire reconstruction of the region's industrial infrastructure. And none of this can take place until the region addresses its corruption.

WWF: *What is the most common misconception that non-Russians have about the Russian Far East?*

JN: Most people equate the region with Siberia, which evokes images of frozen tundra and gulags. But there is so much more, both in Siberia and in the Russian Far East. Did you know that you can scuba dive in 70-degree water? That there are subtropical birds? Tigers? Leopards? And many areas that reach 90 degrees in the summer? That there are cities with concert halls, basketball teams, and sushi restaurants? The Russian Far East is huge—more than two-thirds the size of the continental United States—with a lot more variety than most people realise.

WWF: *There are more than 90 contributors to the book. Why so many?*

JN: We placed a premium on being as authoritative as possible. We wanted the book to be a useful for the businessman travelling to the region, as it was for the ecologist. To reach such varied audiences, we needed experts from all sorts of disciplines: economists, biologists, environmentalists, journalists and government officials.

WWF: *Now that you are done with the book, what would you revise?*

JN: I always envisioned this book as similar to the State of the World series, which the Worldwatch Institute produces each year. I can't imagine updating The Russian Far East every year, but perhaps every three or four. The thought of producing this book again is overwhelming, but ask me the same question next year and I might feel differently. Russia, in general, remains very much in flux so continual updates would be useful. More than ten years after perestroika, the Putin administration is still dissolving government agencies, folding their responsibilities into other agencies and ministries. The country's underdeveloped legal framework means that laws and decrees are regularly issued and reformed. Privatisation of land is just beginning. These realities have obvious impacts on sustainable development of the region.

CD-ROM

■ *When the Weather is Uggianaqtuq*
Inuit Observations of environmental change
Fox, S.
Boulder, CO: National Snow and Ice Data Center.
2003

BOOK

■ *Watching Ice and Weather Our Way*
Sikumengllu Eslamengllu Esghapalleghput
Conrad Oozeva, Chester Noongwook, George Noongwook, Christina Alowa, and Igor Krupnik
The Arctic Studies Center, National Museum of Natural History, Smithsonian Institution and Savoonga Whaling Captains Association, Savoonga, AK
2004
pp. 208
ISBN: 0-96734-295-3

Many of the clearest indicators of the changing climate in the Arctic are coming from the people who have lived there for generations. It is through the recollections of arctic peoples that we are seeing a picture of a changing landscape as ice melts, seasons become warmer and species change their ancient habits.

On the CD-ROM *When the Weather is Uggianaqtuq*, Inuit from Clyde River and Baker Lake, two small communities in Nunavut, Canada present anecdotes of how the changing climate is affecting the arctic environment. Uggianaqtuq (pronounced OOG-gi-a-nak-took) is a North Baffin Inuktitut word that means to behave unexpectedly, or in an unfamiliar way.

The CD-ROM allows the user to listen to those at the front line of climate change explain in their own words and language (Inuktitut) how their traditional lifestyles are changing. Participants talk of changes in sea ice and the wind, the health of species such as seals and narwhal, weather variability, changes in seasons, changes in activities, and more. These different elements are nicely combined through a collection of video, text, maps and other images in an effective use of new media.

Watching Ice and Weather Our Way, is a collaboration between Yupik whalers and climate change researchers. In part it is an attempt for each group to make sense of what the other has to offer. Reading it gives a sense how keenly aware the Yupik are of the climate. They watch the ocean, note the behaviour of the wind and the patterns of the ice as it forms and flows. They discuss the weather with their peers and elders and read satellite pictures and listen to the radio.

Where modern science takes measurements and records data to build a picture of how our climate is changing, the Yupik observe the shift by noting the changes in their familiar landscapes and the appearance and disappearance of different animals.

What is most impressive about *When the Weather is Uggianaqtuq* and *Watching Ice and Weather Our Way* is how they build a picture of the complex relationship between sea-ice, the wind, species migration and northern indigenous culture. The knowledge that the participants have for their local environment is garnered from a close relationship that is spiritual, cultural and ultimately based on survival. It is an altogether different paradigm from that of western science and equally important in developing our understanding of the effect of climate change on the environment. It is nice to see this collaboration between western scientific knowledge and traditional knowledge taking place.

Nigel Allan, nallan@wwf.no

Welcome Tonje

■ Tonje Folkestad joined WWF's Arctic Programme in June as our new climate change officer. Tonje has a Master's degree in Nature Management from the Agricultural University of Norway, specialising in water and development. Her degree included a one-year undergraduate course at the Regional College of Alta, Finnmark, with a particular focus on management of natural resources in the arctic region.

Since 2000, she has been executive director of FIVAS (Association for International Water and Forest Studies), a Norwegian NGO working to promote fair and sustainable water management in developing countries. This included work on global warming.

Arctic Bulletin readership survey

Thanks to all of you who responded to our readership survey in issue 1/2004 and on our website. Your feedback is important and will help us to improve the *Arctic Bulletin*.

Most of our readers expressed

Forthcoming arctic meetings & events

Arctic Council events

Arctic Climate Impact Assessment (ACIA) International Scientific Symposium on Climate Change in the Arctic
WHERE: Reykjavik, Iceland • WHEN: November 9–12
CONTACT: bhameister@iarc.uaf.edu

Arctic Council Senior Arctic Officials (SAO) Meeting
WHERE: Reykjavik, Iceland • WHEN: November 22–23
CONTACT: birna@congress.is (for bookings) bk@mfa.is (program information)

Fourth Arctic Council Ministerial Meeting, Reykjavik
WHERE: Reykjavik, Iceland • WHEN: November 24
CONTACT: birna@congress.is (for bookings) bk@mfa.is (program information)

Conferences and workshops

People, Wildlife and Hunting: Emerging Conservation Paradigms
WHERE: Edmonton, Alberta, Canada • WHEN: October 22–24
CONTACT: mf2@ualberta.ca www.conservationhunting.ca or

5th Arctic Coastal Dynamics Workshop
WHERE: Montreal, Canada • WHEN: October 13–16
CONTACT: acd2004@geog.mcgill.ca

10th Annual Alaska Tribal Conference on Environmental Management
WHERE: Anchorage, Alaska • WHEN: October 18–22
CONTACT: http://www.anhb.org/sub/rasc/ATCEM.html

Beringia Days 2004
WHERE: Anchorage, Alaska • WHEN: October 21–23
CONTACT: http://www.nps.gov/akso/beringia

Arctic Pinniped Workshop
WHERE: Smithsonian Institution – Washington, D.C. • WHEN: November 4
CONTACT: scrock@tnet.net

12th Annual Arctic Conference: Archaeology, Anthropology and Environmental Studies
WHERE: Smithsonian Institution – Washington, D.C. • WHEN: November 5–6
CONTACT: rusk.katherine@nmnh.si.edu

7th International Workshop – Land-Ocean Interactions In The Russian Arctic (LOIRA)
WHERE: P P Shirshov Institute of Oceanology, RAS, Moscow, Russia • WHEN: November 15–18
CONTACT: gordeev@geo.sio.rssi.ru

Arctic Icebreaker Coordinating Committee Meeting
WHERE: Seattle, WA • WHEN: November 18–19
CONTACT: office@unols.org

3rd Annual Arctic Film Festival
WHERE: Minnesota, USA • WHEN: November 18–21
CONTACT: http://www.northhousefolkschool.com/events/ArcticFilmFest.html

For more on these events and other meetings, please visit:
http://www.arcus.org/Calendar/upcomingEvents.shtml • http://www.iasc.no/SAM/samtext.htm

satisfaction with the content, layout and design of the *Arctic Bulletin*. There were many different and interesting suggestions about the issues and topics that we could cover in our future issues and, wherever possible, we will try to include them.

Some of the topics readers expressed interest in were fisheries, ecotoxicology, ecotourism, urban regional development and impacts on the environment, sustainable housing, renewable energies, Nunavut government, traditional knowledge and sustainable hunting amongst other things.

While we always try to ensure that the *Arctic Bulletin* gives equal weight to every region of the Arctic, many respondents said they wanted to see more coverage of the Russian Arctic. We will be working with our colleagues in WWF-Russia to try and ensure we meet this request.

The five issues respondents expressed the most interest in reading about were climate change, biodiversity (including species-specific updates), protected areas, WWF's views and work in the Arctic, and northern indigenous people.

One point readers made clear is that they do not want to see the print version of the *Arctic Bulletin* disappear in favour of an online version. So, for the time-being at least, we will certainly be continuing with a hard copy as well as making a pdf version available on line at http://www.panda.org/arctic.

Naturally we continue to welcome feedback about the Arctic Bulletin. You can email Julian Woolford at jwoolford@wwf.no or Nigel Allan at nallan@wwf.no or fax +47 22 20 06 66.

Thanks again to all of you who took the time to send us your thoughts and ideas.

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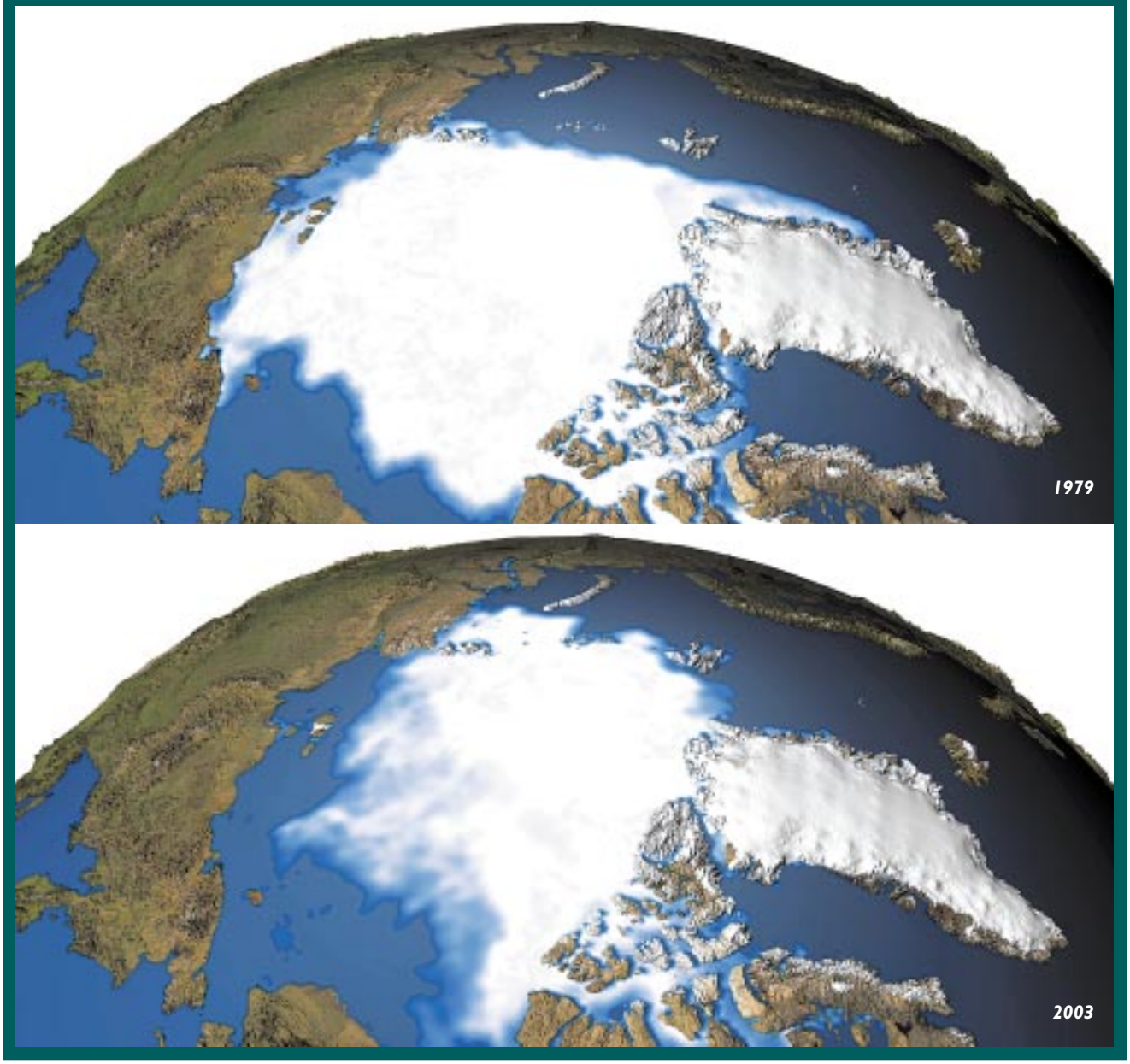
Decreasing sea ice

According to a new NASA study, arctic perennial sea ice has been decreasing at a rate of 9 percent per decade since the 1970s.



CREDIT: Scientific Visualizations Studio, NASA GSFC

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WWF is the world's largest and most experienced independent conservation organisation, with almost five million supporters and a global network active in 90 countries. WWF's mission is to stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature. WWF continues to be known as World Wildlife Fund in Canada and the United States of America.

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