Arctic Bulletin

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Heading for the Pole p. 4–5

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Photo: Pole Track 2005.

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Editorial

Reach for a solution

Man-made chemicals are all around us, some 30,000 to 70,000 of them. They're in wildlife, in water, in the food we eat and in our bodies. They've leaked into the environment from consumer, industrial and agricultural products. The Arctic is particularly affected – not because people in the Arctic use a lot of chemicals, but primarily because wind and water currents carry chemicals used elsewhere to the region.

For about 90 percent of the chemicals currently on the market, we don't have basic safety data. Without that knowledge, we, and our governments, can't choose to use chemicals wisely, to maximise their benefits and at the same time protect nature and human health.

Because many chemicals end up far from their sources, our choices affect not only ourselves but also the rest of the world. In the Arctic, we see the consequences of other Governments' bad choices in the form of high levels of toxic chemicals in some wildlife and even in some people. In the developing world, we see chemical problems exported from the industrialised world, in the form of toxic waste or products that have been banned elsewhere.

We now have a unique opportunity to change this and to make better choices about chemicals. In the next year, the European Union will vote on a wide-ranging reform of its laws governing chemicals. This reform is known as REACH – Registration, Evaluation and Authorization of Chemicals (see p 11). It will shift the burden of proof onto industry to show that the chemicals they are producing are safe (rather than the current "safe until proven otherwise" system); make chemical safety information available to the public so they can choose cleaner products; and promote the development of safer alternatives.

In addition to gains for wildlife and human health, REACH will bring enormous benefits to the public and even to the industry, though chemicals companies are doing their best to weaken the legislation. The public will have access to safety information about the products they buy, as well as the security of knowing that the chemicals used in products on the market have been tested for basic safety. REACH will encourage the development of safer chemical alternatives, which will bring health benefits and create new markets and products for industry. Industry will face fewer liability lawsuits, and may well gain more trust from consumers.

REACH will have world-wide effects. Europe produces more chemicals than any other region, accounting for about 35 percent of sales worldwide. It is also a major market for chemicals. Producers will have to comply with the requirements of REACH if they want to make or sell chemicals in the major markets of the European Union. This will in turn mean that they will have strong economic incentives, not to mention an ethical obligation, to use REACH's standards outside of Europe as well as within it.

SAMANTHA SMITH
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For the Arctic, REACH will greatly reduce toxics reaching the region. Experience shows us that when chemicals are proven to be toxic, they get banned regionally and even globally; and when they get banned, levels go down – albeit slowly – in the Arctic. REACH will start to pay off within our lifetimes in the form of healthier arctic wildlife and healthier people.

It's in the interest of all arctic countries to support strong international and global chemicals legislation. Three of these countries – Denmark, Finland and Sweden – are members of the European Union. They should work actively for a strong version of the REACH legislation. In particular Sweden, whose domestic legislation on toxic chemicals is arguably the world's best and most precautionary, should take the lead on ensuring that the rest of Europe gets chemical legislation that is at least as good.

WWF believes that REACH is a gigantic step forward. At the same time, the reform needs to be strengthened. It should include a method to identify and phase out the worst chemicals and a requirement that safer alternatives are used wherever possible. Only then can we be sure that we really are making wise choices, for ourselves and the rest of the world.

Explorers en route to Pole

Two WWF-backed arctic expeditions are on course for the North Pole.

Both expeditions set off from Cape Artichesky, a small island on the Russian Severnaya Zemlya archipelago on the edge of the Arctic Ocean, in early March.

Backed by some of the world's leading scientific institutions and WWF, the Pole Track 2005 expedition is helping draw up a new 'climate map' of a region of the Arctic previously uncharted by arctic climatologists.

The expedition is contributing to two scientific programmes. It will gather data on ice movement, temperature and barometric pressure from specially developed meteorological buoys in different locations over a period of at least three months. The data will be fed into the database of the International Arctic Buoy Programme (IABP) that will provide meteorological and oceanographic data for weather forecasts and research purposes, including the World Climate Research Programme (WCRP).

The expedition will also classify the terrain and weather conditions and take daily readings of the snow cover thickness and temperature. This will help validate the observations of an European Space Agency (ESA) satellite which is going to test predictions of thinning arctic ice due to global warming.

Team leader Marc Cornelissen said: "This is the first time that polar explorers have teamed up with scientists to do this type of research in a part of the Arctic where scientists have been unable to take measurements before. The expedition will provide unique and uninterrupted data across more than 1000 kilometers that will help scientists improve their models of the impact of climate change on the Arctic."

WWF is also backing polar explorers Liv Arnesen and Ann Bancroft who aim to become the first women to ski and ski-sail nearly 2000 kilometers across the Arctic Ocean via the North Pole.

The expedition will last about 100 days at temperatures dipping to –50 degrees Fahrenheit (-46 degrees Celsius).

Liv Arnesen: "As former schoolteachers, we want to share our adventures from the top of the earth with a global audience. We hope to encourage others to pursue their passions and push themselves to new levels of achievement. By working with WWF, the expedition will also help highlight how the species and peoples of the Arctic are

Two degrees too much

Dangerous levels of climate change could be reached in just over 20 years' time according to a new WWF International Arctic Programme report.

The review of global climate simulations suggests that if nothing is done, the earth will have warmed by two degrees C (3.6 degrees F) above pre-industrial levels (c. 1750) by some time between 2026 and 2060.

In the Arctic this could lead to a loss of summer sea ice, species and some types of tundra vegetation as well as to a fundamental change in the ways of life of Inuit and other arctic residents.

The WWF study, *2° is too much!*, says the models show that, if the rest of the planet warms by an average of two degrees C, the Arctic will warm by up to three times that amount (3.2 to 6.6 degrees C depending on the model).

Dr Mark New, a report contributor, said: "A very robust result

Photo: Pole Track 2005

The Pole Track 2005 team pulling their sleds. Explorers are teaming up with scientists to gather data.

under threat from climate change and other environmental threats."

The explorers have partnered with the World Association of Girl Guides and Girl Scouts to share their journey with more than ten million women and girls around the globe. Additionally, Ann and Liv introduced the Expedition classroom curriculum, Journey Toward Peace, as part of a partnership between Norge 2005 and the Expedition.

In 2001 Bancroft and Arnesen became the first women to ski across Antarctica.

For more on the expeditions visit www.panda.org/arctic.

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from global climate models is that warming due to greenhouse gases will reduce the amount of snow and ice cover in the Arctic, which will in turn produce an additional warming as more solar radiation is absorbed by the ground and the ocean." Ice and snow reflect more solar radiation back to space than unfrozen surfaces.

"Global warming threatens to wreak havoc on the traditional ways of life of Inuit, putting an end to our hunting and food-sharing culture," said Sheila Watt-Cloutier, elected chair of the Inuit Circumpolar Conference (ICC), another contributor to the WWF report.

The WWF report finds that summer sea ice is melting at a rate of 9.6 per cent per decade. If this continues for more than a few decades, the study warns, this perennial ice will disappear entirely by the end of the century. This could mean that polar bears and some ice-dwelling seals would die out.

Boreal forests will also spread north and overwhelm up to 60 percent of dwarf shrub tundra, a critical habitat for birds like ravens, snow buntings, falcons, loons, sandpipers and terns. Migratory birds will lose a vital breeding ground in the Arctic, affecting biodiversity around the globe.

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SHELL SAKHALIN WARNING

WWF says Shell should abide by the recommendations of an independent panel of renowned whale experts, which has warned that oil and gas activities in Russia's Far East may drive the critically endangered western gray whale into extinction.

The panel, set up by the World Conservation Union (IUCN), concluded that existing and planned large-scale offshore oil and gas development off the northeast coast of Sakhalin Island poses "potentially catastrophic threats" to this critically endangered whale population.

Shell, along with Japan's Mitsui and Mitsubishi, plans to build a pipeline through the sole feeding grounds of the gray whale, of which there are fewer than 100 remaining. The panel warns that the death of just one each year out of the 23 reproductive females left would be enough to drive the population to extinction.

GREENLAND GRASS

Scientists drilling ice cores in Greenland have recovered what appear to be plant remains from nearly two miles below the surface.

Team members said reddish clumps of material, found in the muddy ice in the cores, contain what look like pine needles or blades of grass. If confirmed, it will be the first organic material to be recovered from a deep ice core drilling project. Scientists think the material could be several million years old (BBC).

RAIN INCREASE

Arctic rivers are discharging increasing amounts of freshwater into the Arctic Ocean, say researchers at the Hadley Centre for Climate Prediction and Research in the UK.

The change is the result of increased precipitation, itself the result of global warming.

Researchers took into account both human inputs and natural factors in their modelling, including solar variability and volcanic eruptions.

They concluded that had there been no human inputs, there would have been no increase in precipitation in the Arctic over the last 100 years.

Photo: WWF-Canon/Peter PROKOSCH

Lena Delta Nature Reserve, Siberia, Russian Federation.

LAKE CHANGE

Aquatic organisms in arctic lakes are undergoing dramatic changes in response to climate warming, according to Canadian experts. The changes over the last 150 years are consistent with human-induced effects, they claim.

Details appear in *Proceedings of the National Academy of Sciences* journal.

"Polar regions are expected to show the first signs of climatic warming, and are therefore considered sentinels of environmental change," said co-author Alexander Wolfe, from the University of Alberta, Canada.

Huge new marine protected area

US authorities have closed off to destructive bottom-trawling nearly one million square kilometers of north Pacific Ocean surrounding the Aleutian Islands, an area equal to Texas and California combined.

The protected area includes exquisite deep-sea coral and sponge gardens off the Aleutians.

Photo: Alberto Lindner/NOAA

Corals and sponges in the Aleutians are very diverse and come in many shapes and sizes.

It is the first time in US history that such a large-scale fishing-gear ban has been adopted to protect seafloor habitat rather than because of falling fish stocks.

The North Pacific Fishery Management Council, the federal agency in charge of managing that area of the Pacific Ocean off America's northwest coast, voted unanimously on February 10 to protect 960,495 square kilometers of seafloor from destructive bottom trawling, a commercial fishing practice that drags heavy nets across the ocean bottom, destroying nearly everything in its path.

The vote included 380 square kilometers banned to all bottom gear contact in the deep-sea coral and sponge gardens in the Aleutian Islands, and 7,156 square kilometers of seafloor in the Gulf of Alaska banned to bottom trawling.

It was the latest action in a new trend in ocean management, an ocean-protection approach called for in the Sustainable Fisheries Act of 1996 and in two recent ocean commission reports.

Environmental groups claim the approach adopted in the North Pacific with this recent action sets an example for the Bering Sea ecosystem, for councils that have not yet taken action to protect deep-sea corals and other essential ocean habitat, and for international bodies seeking to ensure the ocean health in international waters.

In addition to freezing the bottom trawl footprint to historically fished areas, the Council also requested a comprehensive plan for research and monitoring

The Aleutian Islands archipelago supports more than 450 species of fish, millions of seabirds hailing from all seven continents, 25 species of marine mammals, and unique lush coral gardens.

In 2002 the National Marine Fisheries Service scientists discovered the exquisite coral gardens of the Aleutians. At the same time, the National Academy of Sciences released a report documenting the detrimental effects of bottom trawling on seafloor habitat — particularly on long-lived, slow growing species like corals and sponges. It was also the year that the Fisheries Service was required to do an Environmental Impact Statement in the North Pacific to evaluate the effects of fishing on essential fish habitat.

"This is a tremendous victory for sustaining America's oceans," said Jim Ayers, environmental group Oceana's director for the Pacific Region. "While we are still concerned about important known areas of corals that remain in the open bottom trawling area, this kind of leadership from the North Pacific Fishery Management Council that maintains vibrant fisheries while protecting ocean habitat is the keystone to restoring and protecting our oceans."

Iceland push on national park

The Icelandic Government has announced plans to create what could become Europe's largest national park.

The national park will include the entire 10,000-square-kilometre watershed of the largest free-flowing rivers in Iceland, the Jökulsá á Fjöllum.

The park will protect the river from its source in the central highland glaciers to the northern coastline of Iceland, where it forms a biologically-rich delta, teeming with shorebirds and other wildlife.

Iceland has in recent years been heavily criticised by environmental organisations for damming and diverting its rivers for hydropower development. There are very few large rivers remaining in Iceland that are either not already developed or slated for development.

Samantha Smith, director of the WWF International Arctic Programme, said: "WWF campaigned against Iceland's decision to build an enormous hydropower project that harnessed two of the three largest rivers in the north. The environmental consequences of that project are already serious. So it's a fantastic change to be able to celebrate protection of Iceland's biggest remaining wild river."

WWF has been working together with the Iceland Nature Conservation Association (INCA) for years to get increased protection of the Icelandic highlands.

Arni Finnsson, the Director of INCA, says: "It is very good news indeed. Icelanders, and the many visitors to this magnificent island, can now rejoice in knowing that future generations will be able to experience the power of a naturally flowing glacial river, and will find not only ice and snow protected, but also habitats important to birds and other wildlife, and some of Iceland's richest and most diverse natural landscapes."

Julian Woolford, jwoolford@wwf.no

Photo: Alaska Wilderness League

The annual migration of the Porcupine caribou herd is one of the greatest wildlife spectacles in North America.

Refuge on brink

The US Senate has voted by a razor-thin margin to take the first step towards drilling for oil in the Arctic National Wildlife Refuge as part of the Federal Budget Resolution.

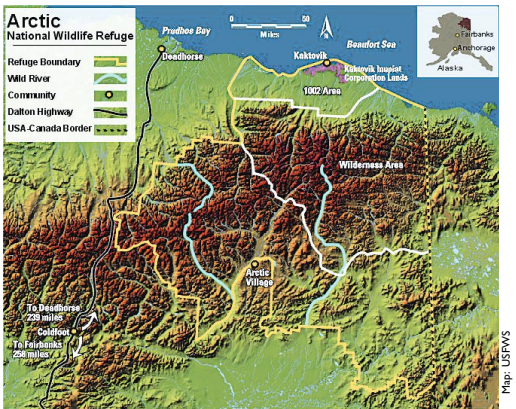
A bipartisan group of Senators attempted to safeguard the Refuge and the native people and wildlife that depend on it, but 51 Senators voted against an amendment to strip arctic drilling revenues from the Budget Resolution. The vote took place on March 16.

Despite claims of drilling proponents and the tone of some media reports, the battle for the Refuge is far from over.

Randy Snodgrass, WWF-US director of Government Relations, said: "The budget resolution does not have the force of law: it is the first step in the budget process that can lead to the enactment of legislation. This process is long and complex, and the arctic drilling provision will make an already-controversial budget even more contentious. It is important to note, however, that Congress has not successfully passed a budget bill in recent years.

"The majority of the American people are overwhelmingly opposed to drilling in the Arctic Refuge. And we are confident that Congress will ultimately heed their pleas to protect this national treasure."

The Refuge is home to 45 species of mammals, ranging from the small pygmy shrew to the large bowhead whale. Others include caribous, wolves, Dall's sheep, moose, musk oxen, and polar, grizzly and black bears. It covers 19.6 million acres.



Map: USFWS

POLAR BEAR UPDATE

The Center for Biological Diversity, a US-based NGO, has filed a formal petition requesting that polar bears are added to the list of threatened species under the United States Endangered Species Act.

It says polar bears may become extinct by the end of this century because their sea-ice habitat is melting away due to global warming.

In response to the Petition, US Senator Joseph Lieberman, co-sponsor of the Climate Stewardship Act, stated: "The potential listing of the polar bear as an endangered species because of the effects of global warming should set off alarm bells around the world. Global warming is removing the bears' habitat and wreaks havoc in the arctic climates where they live and grow."

GREENLAND TOURIST HUNT

Greenland plans to join Canada and allow tourists to hunt polar bears. A Government decree is being drafted for presentation to Greenland's Parliament with a quota and rules expected by the summer.

Stefan Norris, head of conservation at the WWF International Arctic Programme, said: "WWF respects the rights and traditions of Greenlanders. As a conservation organization, however, WWF is concerned that the current hunting of polar bears in Greenland will result in longer-term decreases in the populations at issue.

"In our view, authorities, communities and scientists simply do not know enough about the status of the different polar bear populations in Greenland, the number of animals hunted, and the effects of toxics and climate change on these polar bears in order to be able to manage this hunt effectively. In WWF's view, the management of polar bears in Greenland is inadequate. WWF believes that Greenland, as soon as possible, must ensure that its management of polar bears is sustainable."

NUNAVUT QUOTA DEBATE

Officials in Nunavut, Canada, have found themselves caught in a debate over the size of polar bear quotas.

Nunavut had increased the number of polar bears that hunters could kill across the territory by 28 per cent to 518 animals. That number was partly justified because hunters were reporting more sightings on the land and around northern communities.

But now new data suggest there aren't as many bears as hunters thought. "When you see more bears, that doesn't mean there are more bears," said Nick Lunn, a biologist who chaired a recent meeting of international polar bear experts where the new information was introduced. He said hunters may be seeing more bears because environmental factors, like climate change, are forcing bears to scavenge for food nearer to settlements.

Oil spill threat

A major oil spill from a tanker is more of a threat to the arctic environment than oil exploration, claims one of the co-chairs of an Arctic Monitoring and Assessment Programme (AMAP) study on oil exploration in the Arctic, due to be released next year.

Dennis Thurston works for the Alaska office of the United States' Minerals Management Service (MMS). MMS is responsible for minerals leasing on US federal lands, including oil and gas leasing.

In an interview with Reuters in February, Thurston said: "The technology is really safe and there's been a tremendous amount of risk assessment done on arctic projects. Personally I think they are safe operations," he said. "The question is transportation of the product, especially with tankers, because there's so much more human error potential," he added. Thurston said the study will recommend that countries improve their plans for coordinating handling of a major oil spill in the arctic seas.

"Three things happen with a big spill: there's a lot of death of animals, there's the long-term effects with oil persisting in the environment and there's the psychological effect," he said. "Seeing a pristine area covered in oil changes policy, people's perceptions, and it's certainly bad for the oil business," he added. Scientists said last month effects still lingered in Alaska from the 1989 Exxon Valdez spill.

Another Arctic Council working group, Protection of the Arctic Marine Environment, is carrying out a parallel assessment of shipping in the Arctic. A first expert meeting was held in Copenhagen, in February.

Samantha Smith, director of the WWF International Arctic Programme, said: "These Arctic Council assessments are supposed to be scientific, objective processes. The oil and gas assessment won't be done until fall 2006 and parts of it haven't even been written, let alone subjected to peer review. It's problematic that one of the assessment co-chairs has already come out and said that oil and gas development in the Arctic isn't a big environmental problem. Maybe all of us should wait until the scientists have done their work before we start saying what the conclusions are."

Julian Woolford, jwoolford@wwf.no

Photo: U.S. Fish and Wildlife Service – Alaska

A sea otter killed by the recent oil spill in the Bering Sea.

Alaska spill plans

Environmental organisations, fishermen's groups and local government departments have teamed up to discuss ideas to reduce the risk of oil spills in the seas off Alaska, following the grounding of the Selendang Ayu cargo ship in December last year (see feature page 19, and interview page 20.)

Participants include Unalaska residents, Oceana, WWF, the Nature Conservancy, Alaska Marine Conservation Council and the US Fish and Wildlife Service amongst others.

The group believes there is a 'window of opportunity' to reduce the risk associated with the freight shipping trade through the Aleutians following the recent spill.

The informal group has formed itself into a coalition of interest groups called The Shipping Safety Partnership (SPP), which will look at ways of introducing cost-effective measures to reduce the risk of oil spills.

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Barents Sea action

Environmental campaigners could take to the streets unless there is more transparency about oil and gas development plans in the Barents region.

The warning was given by a group of environmental NGOs at a meeting of the Northern NGO Coalition in Murmansk, Russia in January.

The meeting was organized by the WWF Barents Ecoregion office in Murmansk and included WWF-Russia, Bellona, the Kola Biodiversity Conservation Center, the Kola Coordinating Ecological Center "Geya", the "Kola Saami Coalition", the NGO for the Saami Murmansk oblast', and representatives of the working group of Coalition of indigenous people of the Barents Euro-Arctic region.

The warning followed a protest in January by indigenous people on Sakhalin Island in the Russian Far East. Pickets protested on access roads to oil and gas facilities over concerns for environmental safety.

The NGO coalition in Murmansk highlighted the lack of complete and reliable information on oil and gas projects in the Barents Region saying that 'disinformation' has been published in project documentation.

They also claim that companies are not prepared to engage in constructive dialogue with environmental organisations and indigenous peoples, which leads to deepening conflict.

The coalition wants oil and gas companies to listen to demands highlighted at the Oil and Gas Arctic Shelf 2004 conference.

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Map shows impact of gas pipeline

A series of maps released in February shows for the first time the true impact of the planned Mackenzie Valley gas pipeline project in Canada's Northwest Territories.

The maps show that the pipeline's footprint is likely to affect thousands of square kilometres of land. The areas around the Mackenzie Delta and Beaufort Sea, and Colville Lake are particularly affected.

Kevin O'Reilly, past research director at the Canadian Arctic Resources Committee (CARC), which produced the maps, said: "We wanted to show people that this project is not simply a case of putting a thin ribbon of steel down the Mackenzie Valley.

"There are many more impacts, and northerners deserve to be shown that, clearly and plainly, as the environmental review of this project is set to begin. We are not telling people what to think, we are just giving them more information to think about."

CARC used modelling techniques and the pipeline developers' own studies to predict the impact.

The maps also show the possible impact of the pipeline development on large mammals such as caribou.

The maps are available on CARC's website, www.carc.org.

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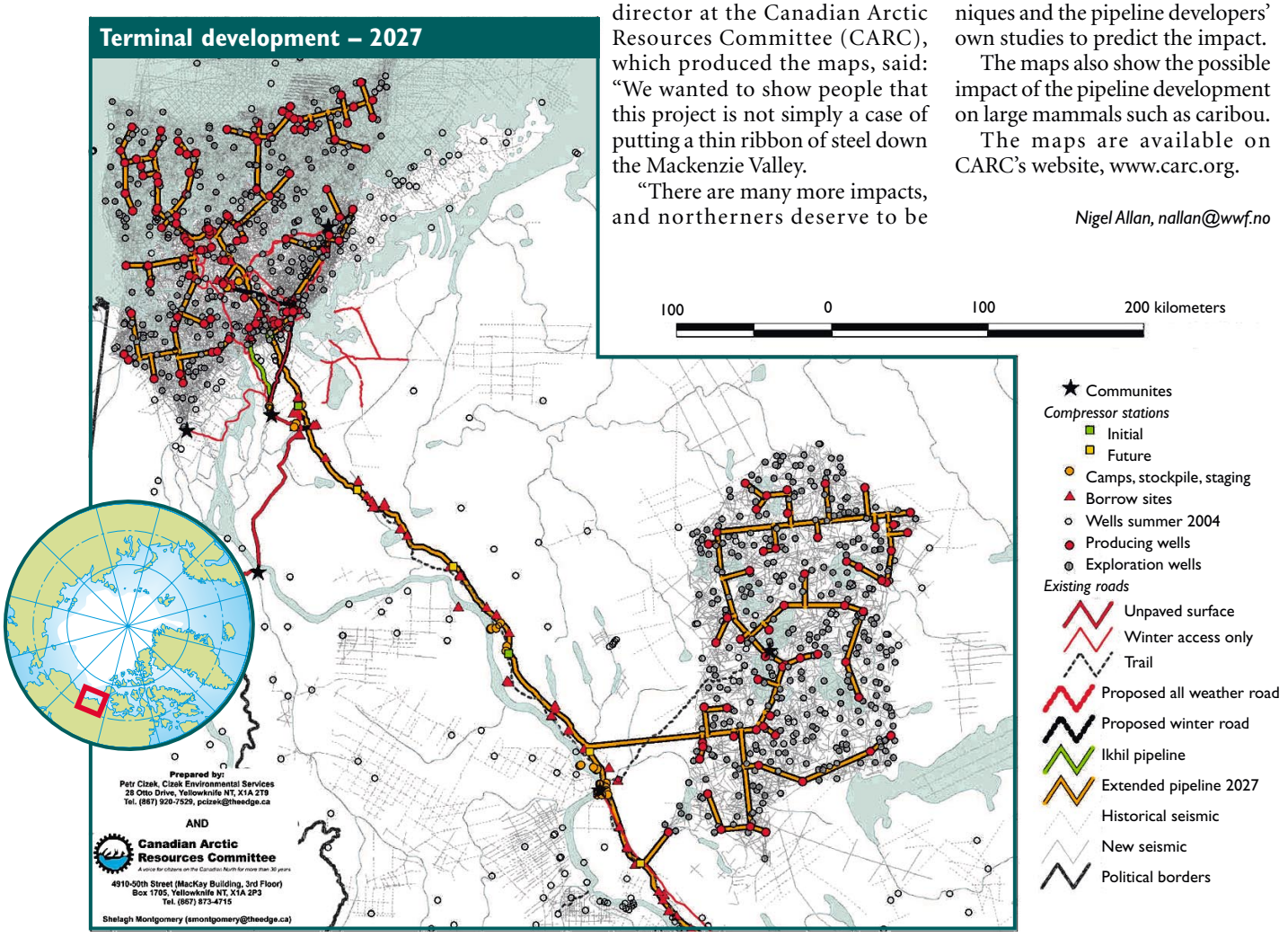

Canada Government backs Mackenzie plan

The Canadian Government committed $9 million to support community-based protected areas planning in the Northwest Territories' Mackenzie Valley in December.

The costs of implementation are $18 million over five years, half of which was the federal government's share ($1.8 million per year).

Community-based protected areas planning is an essential component of sequencing conservation planning ahead of major industrial development.

The NWT Protected Areas Strategy, the formal name for the planning process, is a product of a collaboration between aboriginal communities, territorial and federal governments, industry and conservation organisations.

Monte Hummel, President Emeritus of WWF-Canada, said: "The financial commitment by the federal government means that the other partners to the NWT Protected Areas Strategy can now raise the remaining $9 million.

"Now that we have half of the $18 million we need, our goal is to ensure that the land, which is so important to the people who live there, is adequately protected."

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Nunavut failure

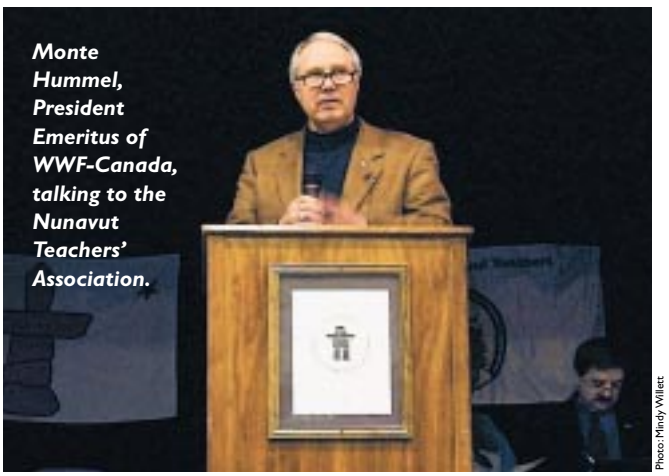
Nunavut politicians are sacrificing the future of the territory's wildlife and people to mining companies who are racing to stake claims over the majority of the eastern Arctic, says a leading environmentalist.

Monte Hummel, President Emeritus of WWF-Canada, blasted the territorial government during a keynote address at the Nunavut teachers conference in Iqaluit on Feb 21. He said mining development in Nunavut is surpassing conservation efforts so quickly, that the territory risks coming in "dead last" behind every province in the Canada, when it comes to protecting land, water and wildlife.

"This should concern all of you," Hummel told the gymnasium full of teachers. "There has been no conservation vision articulated by the leaders of Nunavut."

Later, Nunavut leaders shot back that Hummel is distorting how development is done in Nunavut. Moreover, they promised to always balance protection of natural resources, with industrial development, such as creating mines in the territory.

Hummel expected his controversial speech to stir up trouble, as he took stabs at several major decision-making bodies in the territory.



Monte Hummel, President Emeritus of WWF-Canada, talking to the Nunavut Teachers' Association.

Photo: Mindy Willett

Despite the clash, Hummel said he wanted to bring Nunavut's conservation record "out into the open."

Reading from a prepared text, Hummel accused the government of failing to uphold the conservation commitments laid out in the Nunavut land claims agreement.

Hummel said the government has repeatedly ignored the wishes of the communities and pursued mining development "at any cost."

"Concerns about the environment are being… outgunned by pro-development forces in Nunavut," he said.

Hummel gave several examples of why he believes Nunavut leaders are pushing mining more than conservation.

He said the government recently neglected recommendations to protect the Beverly caribou herd in the Thelon Wildlife Sanctuary, by allowing prospectors to explore adjacent areas that are reportedly sensitive calving and post-calving grounds for several herds.

During his speech, Hummel unveiled a map showing how various companies, including international business giants like DeBeers, have prospecting permits for more than 400,000 square kilometers of land in Nunavut.

Meanwhile, Nunavut has 300,000 square kilometers of land protected in parks.

Hummel said Nunavummiut need to follow the development model set up in the Northwest Territories, where aboriginal communities pick out areas for conservation before setting out on large-scale development.

Nunavut teachers get support

The Canadian Arctic is changing. Impacts from climate change are becoming increasingly evident, while new industrial developments such as diamond mines, the Mackenzie Valley Pipeline, the Bathurst Port and Road and the pipeline in the Yukon are having huge impacts on the economy and social structure of the north.

Northerners now have new opportunities, but also face new challenges such as learning how to develop in a sustainable way. WWF is working hard in the north to develop educational resources that address these issues.

To help Nunavut educators work through conservation issues with students, WWF has sponsored several new teacher resources including;

Tariaq 11: Wildlife Management in Nunavut: Written for grade 11 teachers, this guide gives students an understanding of how animal populations are estimated and how quotas are determined. The guide also discusses the many issues surrounding wildlife management, and the organisations responsible for making the decisions.

Nunavut Wildlife Health Assessment Project: this teacher's guide uses presentations and hands-on activities to explain current research on contaminants in marine mammals in Nunavut.

Teacher on the Tundra: Inuit Qaujimajatuqangit (traditional knowledge), Conservation and Resource Development in Nunavut presents the Bathurst Inlet Port and Road from the different viewpoints of the various stakeholders. The guide uses the text *Thunder on the Tundra*, which shares the Elders Inuit Qaujimajatuqangit of the Bathurst caribou, which calve near Bathurst Inlet.

Your Land; Your Future: WWF is developing a CD-ROM to help teachers explore the historical and current context of development and sustainability in the NWT. It will capture the many stakeholder points of view in Canada's North. The stakeholders are being selected to cover the sustainability debate from

"Here in Nunavut, you are doing exactly the opposite," he said.

The main voice of the mining industry in the North disagrees.

Mike Vaydik, who heads the Northwest Territories and Nunavut Chamber of Mines, said Hummel's attack is misleading, by showing a picture of prospecting activity, instead of actual mines. A prospecting permit doesn't give companies an automatic right to start a mine in that area.

Vaydik points out that prospectors are only allowed to search for valuable mineral deposits.

"We have to put this in perspective," Vaydik said. "Only one-three-thousandth of one per cent of the land in Nunavut and the NWT is being mined or has ever been mined.

"Out of that small proportion of land comes economic development, jobs and training opportunities."

Inuit leaders also rejected most of Hummel's claims. Paul Kaludjak, president of Nunavut Tunngavik Inc., said the territory is "open for business" for mining and exploration on Inuit-owned land. But he said the same land is being guarded by NTI and the GN, who are balancing the needs for economic development and environmental protection.

Greg Younger-Lewis, Nunatsiaq News

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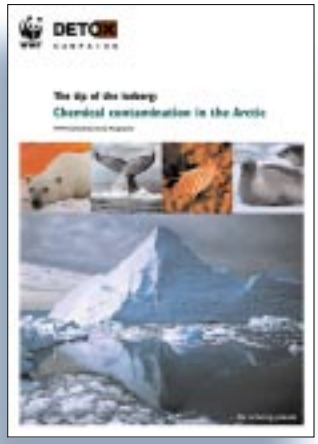
multiple dimensions: social, cultural, economic and environmental. The package will also contain background information on the project, the Environmental Impact Assessment process, the Berger Inquiry and the NWT Protected Areas Strategy. The CD will be available in the autumn of 2005.

As one of the major challenges for teachers in the North is getting access to the available information, WWF has developed a new website, which provides a clearing-house to environmental education resources for all three Territories. To view any of the above resources or others written by and for northerners, visit the website at www.eenorth.com.

Mindy Willett, mindy@internorth.com

Toxic report



The Arctic and its wildlife are increasingly contaminated with chemicals and pollutants that were never produced or used in the region before. Sometimes their concentration in the area is higher than in the countries where they were made and produced, warns WWF, in a new report.

The report, *The tip of the iceberg: Chemical contamination in the Arctic*, shows that air, river and ocean currents, drifting sea ice and migrating wildlife species carry industrial and agricultural chemicals from distant sites of production and use to the polar environment.

Not only chemical contamination is increasing in the Arctic, but also modern chemicals are now appearing in many arctic species alongside older chemicals (some of them banned for 20 years).

This alarming trend will continue if the current chemical regulation does not improve, says WWF. REACH, the new EU chemical legislation, provides an opportunity to set a new global standard, putting chemical production and use on a safe and sustainable path.

WWF's report points out that recent studies of polar bears in the Norwegian and Canadian Arctic indicate that exposure to older chemicals, such as polychlorinated biphenyls (PCBs) and organochlorine pesticides (OCs), is already at levels where effects are seen in their hormone, immune, and reproductive systems.

Many of the newer chemicals now reaching the Arctic are capable of similar effects and mixtures of both older and current-use chemicals could lead to even more harmful combined effects.

The report shows that chlorinated paraffins – un-restricted chemicals used in paints, sealants, adhesives, leather, and rubber processing – have been detected in grey and ringed seals, beluga whales and walruses, as well as in fish, birds and ocean sediments from the United Kingdom. Brominated flame-retardants and fluorinated chemicals, many of which are inadequately regulated, have already contaminated polar bears, whales, arctic foxes, seals, porpoises, and birds from Greenland, Norway, Canada and Sweden. If current trends and inadequate regulation continue, levels of brominated flame-retardants could reach similar levels as polychlorinated biphenyls (PCBs, phased out in the 1970s) within the next 10 to 20 years.

WWF believes the European Union's proposed REACH chemical legislation must be strengthened to require identification and phase-out of the most hazardous chemicals (see page 17).

Brettania Walker, bwalker@wwf.no

Recent studies on polar bears show effects of exposure to chemicals on hormone, immune, and reproductive systems.

Photo: WWF-Peter Prokosch

By-catch bygone?

Around the world, long-line fishing kills hundreds of thousands of seabirds each year as they become entangled in driftnets and ensnared on long-line hooks when they dive for bait. Margaret Williams, **WWF's Bering Sea Ecoregion co-ordinator, reports on a WWF project that is helping reduce the threat in the western Bering Sea.**

The Bering Sea is one of the most productive seas in the world. More than six million seabirds breed there. On the western side, gulls, cormorants, puffins, fulmars, terns and many other species use the Russian mainland and islands to nest. Even more species migrate here from other parts of the world to feed. But more than a third of these nesting areas are close to zones where driftnet and long-line fishing occurs. By-catch is a real threat.

In Alaska, scientists and fishermen have designed simple, inexpensive and easy-to-use devices, like 'streamers', that frighten birds away from baited fishing lines. These measures have, in some cases, reduced by-catch by up to 100 percent. WWF's Bering Sea programme wanted to try and mirror the Alaskan success in the Bering Sea.

The first step was to support a team of Russian experts to develop a pilot project to reduce seabird mortality. One of WWF's key collaborators was Dr Yuri Artyukhin, senior scientist and seabird specialist at the Pacific Institute of Kamchatka in Petropavlovsk. With no documentation on by-catch available, Artyukhin studied fisheries records and spent three field seasons on a long-line vessel. His work confirmed that seabird bycatch was a hazard.

With advice and seed funding Kim Rivera, the national seabird coordinator of the National Oceanic and Atmospheric Administration (NOAA) in the US, Greg Balogh of the migratory bird division at the US Fish and Wildlife Service

WWF observers started t
are paired, creating a "co
keeps them away from b

Freezer long-liner

(USFWS); and Dr Ed Melvin of Washington University, WWF and Artyukhin began to adapt Alaskan methods in Russia. Members of the Alaskan long-line fleet also helped. Thorn Smith of the North Pacific Longliners Association supported WWF's efforts, and contributed the costs and coordination of a Russian-language albatross guide, now being distributed in Russia.

Retired fisherman Mark Lundsten joined Dr Melvin on a WWF-sponsored trip to Petropavlovsk and Vladivostok in May, 2004, to meet with their Russian counterparts. For Russian fishermen, hearing a conservation message delivered by a fisherman, was an unusual but welcome event. The visit of Dr Melvin and Mark Lundsten caught the attention of the managing director of Kamchatka's largest long-line company, AKROS. He became a supporter of WWF's pilot project, allowing observers on board his vessels to deploy streamers this autumn. They orridor" which frightens the birds and aited hooks.

Mark Lundsten, former Bering Sea halibut fisherman, talks to Russian fishermen in the Petropavlovsk harbour.

to conduct experiments with streamers and another device, an integrated weight line that sinks faster than most long-lines, so reducing the chance of seabird depredation.

In Russia, two scientists from the Kamchatka branch of TINRO ("KamchatNIRO" – Kamchatka Institute for Fisheries Research and Oceanography), Dr Andrey Vinnikov and Dmitry Terentyev recorded seabird by-catch and more recently, the effect of experimental streamers on Russian vessels.

Russia's fishing and wildlife conservation regulations are different from those in the US, so there is less motivation to take action in Russia. However, one motivating factor that does generate a response is economics. Using a model from the Falkland Islands, Dr Artyukhin conducted an economic assessment of the cost of bait loss incurred by the company AKROS due to seabird by-catch. Artyukhin's calculations pointed to significant losses over a five-year period.

WWF's Kamchatka field coordinator Andrey Yablochkov called fishermen together in a seminar in early 2004, where Artyukhin presented the results of his estimated costs of bait loss due to seabird bycatch. Then, he and Yablochkov presented the good news: a solution was available – the use of streamers – and they could be attained free of charge as part of the WWF pilot project. The combination of financial savings and a readily-available solution persuaded a number of fishermen to work with WWF.

Engaging the fishing fleet in Russia is highly challenging, and requires time, patience and trust. Fluctuation and instability within the process of fisheries management reform in Russia have also created difficulties, but also opportunities. Currently WWF works with two companies in Petropavlovsk, Kamchatka – the gateway to the Bering Sea – and one in Vladivostok. We envision having several successful demonstration projects that will allow the results, and the fishermen, to speak for themselves. We're hopeful that this approach to engaging the fishing fleet in this important research and experimental deployment of streamer lines will help us meet our goal of implementing the best conservation practices possible to protect seabird populations and promote sustainable fishing in the Bering Sea.

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Caribou conundrum

Should Canada's caribou calving areas be protected as permanent legislated protected areas with no industrial development? WWF-Canada's Monte Hummel **reports.**

One of the most important species to Canadian northerners, past and present, is caribou. And we won't conserve caribou unless we protect their habitat: calving and post-calving areas on the tundra, wintering areas in the boreal forest, and migration routes and crossing sites along the way. Probably the most sensitive of these are the calving and post-calving areas occupied by cows and calves in the spring and early summer.

Many people have heard about current efforts to protect the calving grounds of the porcupine caribou herd on the coastal plain of the Arctic National Wildlife Refuge in Alaska. This has also been strongly supported by the Canadian Government, ➤

A herd of caribou moving across the tundra in northern Canada.

Photo: Alex Hall

➤ because those caribou migrate across the border into our country and are crucial to the Gwitch'in people of the Yukon.

But, if Canada is insisting that the US protect critical caribou habitat on US soil, the question arises as to how well we are doing right here at home?

Recently, one of the most respected multi-party caribou management boards in Canada, the Beverly Qamanirjuaq Board, issued a strong, clear position paper on what really needs to be done to conserve caribou for the long term. The board has representatives from the federal, provincial and territorial governments, plus 20 'user-communities' made up of aboriginal people who still depend on caribou for their livelihoods.

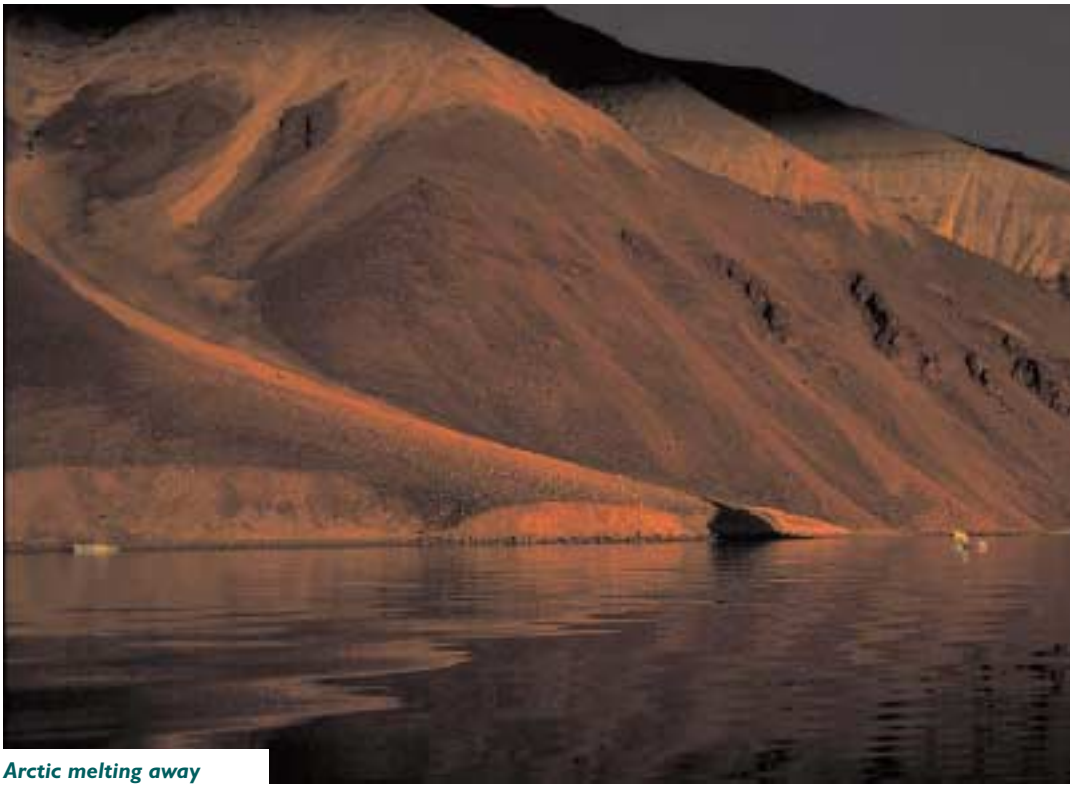
Having weighed and experimented with various habitat protection measures since 1982, the Beverly Qamanirjuaq Board now says that caribou calving and post-calving areas must be protected as permanent legislated protected areas, with no industrial development.

This is quite a brave statement, because no government in Canada has accepted this as standard policy. Nevertheless, WWF-Canada strongly supports the Board's recommendations, not just for the Beverly and Qamanirjuaq herds, but for all barren-ground caribou in Canada. The implications of this would be very far-reaching for Canada's Arctic, where at least 12 different barren-ground herds are found, totalling some two million animals – one of the last great large-mammal migrations on Earth.

WWF-Canada has committed $60,000 to help the Beverly Qamanirjuaq Board translate a summary of its position paper into Dene and Inuit languages, to hold meetings in northern communities to recruit support for their recommendations, and to channel these into various land use planning exercises.

This project shows the importance of WWF positioning itself to support conservation initiatives that are being championed and led by the people most directly affected. It also points out that if Canada wants other countries to do the right thing, then we must do it ourselves.

Monte Hummel
President Emeritus ,WWF-Canada



Arctic melting away

Understanding dangerous climate change

The guiding principle of the United Nations Framework Convention on Climate Change, signed by nearly 200 countries – including the United States – after the Rio Earth Summit in 1992, is to avoid "dangerous anthropogenic interference with the climate system." But what level of warming is dangerous? Tonje Folkestad**, the WWF International Arctic Programme's climate officer, and** Lynn Rosentrater**, editor of WWF's most recent climate report, investigate.**

Various threshold levels of global warming have been used in studies of what constitutes dangerous climate change. Some governments and NGOs, including the European Union and WWF, have supported restricting the global mean temperature increase to less than two degrees C above pre-industrial levels.

In the Arctic, even a slight shift in temperature, pushing averages to above freezing, can bring about rapid and dramatic changes in an

Photo: Staffan Widstrand

ecosystem that is defined by being frozen. In the newly published study *2° is Too Much! Evidence and Implications of Dangerous Climate Change in the Arctic*, WWF – with the help of fours scientists, and representatives of the Inuit Circumpolar Conference – explored what this level of warming would mean for the Arctic.

Evidence and implications of dangerous climate change

Global warming is not even: it varies substantially from one geographical area to another, as well as from season to season. In a study contributing to WWF's new report, Dr Mark New from Oxford University examined how much temperature and precipitation will change in the Arctic at a global mean temperature change of two degrees C. His findings were in line with those of the Arctic Climate Impact Assessment (ACIA), showing that warming in the Arctic is two to three times greater than the global average. Interestingly, he also found that such a level of global warming might be reached already in 20 years, with estimates ranging from 2026 to 2060.

Dr Jed Kaplan, from the European Commission's Joint Research Centre, demonstrated that tundra vegetation types would lose ground to taller vegetation and forests in a two degrees C global warming scenario. For instance the extension of dwarf shrub tundra is likely to be reduced by 60 percent. In the Arctic, temperature-sensitive plant species might be lost because they are unable to keep up with the changing climate by migrating quickly to suitable habitats.

Changes in sea ice will affect marine habitats as well. Dr Josefino Comiso at NASA, studying the impact on arctic sea ice of two degrees C global warming, found that perennial sea ice is now melting at a rate of nearly ten percent a decade. If current trends continue, polar bears and other species that require a stable ice platform for survival could face extinction by the end of the century.

Projected changes such as these present serious challenges to the health and food security of indigenous peoples and could result in the demise of some cultures. In the WWF report, Sheila Watt-Cloutier and advisers at the Inuit Circumpolar Conference, discussed the policy responses needed to avoid a social and ecological catastrophe, in light of the recently concluded process around the ACIA.

Local dangers have global consequences

Arctic tundra is the main breeding habitat for more than 20 million geese and waders that winter in the mid-latitudes of Europe, Asia, and North America. In order to provide an indication of the potential biodiversity loss induced by climate change, Dr Christoph Zöckler of ArcCona Ecological Consulting, Cambridge, analysed current distributions and potential habitat loss for waders and geese. Species like the dunlin (*calidris alpina*) and the spoon-billed sandpiper (*eurynorhynchus pygmeus*) may lose up to 45 percent of their breeding habitat if global temperature increases by two degrees C; the red-breasted goose (*branta ruficollis*) and the white-fronted goose (*anser albifrons*) could lose as much as half their habitat.

The findings of the ACIA, reported in previous issues of this magazine, serve as proof that dangerous climate change is well under way and serve as a wake-up call for the international community. WWF in its recent study provides a snapshot of what the Arctic might look like at a particular temperature level corresponding to the political goal of many bodies.

Solving the climate problem requires a shift away from fossil fuels in our energy system, efficient energy solutions, and the widespread adoption of renewable energy sources such as wind, biomass, geothermal, and solar electricity. The technologies and policies for putting these in place are achievable at low cost and carry additional benefits for human health and food and energy security. What is needed now is the political leadership to ensure that dangerous climate change is kept to a minimum. Rapid change in the Arctic, evidenced in this report, tells us there is no time to lose.

To read the report, visit WWF's Arctic Programme website, www.panda.org/arctic

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Arctic societies transforming

***The Arctic Human Development Report (AHDR)* was a major event at the Arctic Council's November 2004 Ministerial Meeting. Professor** Oran Young **reports.**

Mandated under the terms of the 2002 Inari Declaration and carried out under the guidance of a Report Steering Committee, the Arctic Human Development Report (AHDR) is a scientific assessment that documents the state of human development throughout the circumpolar North. In so doing, it provides "… a comprehensive knowledge base for the development of the Arctic Council's Sustainable Development Programme."

The work was carried out by dozens of scientists representing all the arctic countries and brought to bear the expertise of numerous disciplines. It is the first report of its kind to analyse the state of human development in an international region treated as ➤

a single, integrated whole rather than as the sum of a number of distinct parts.

Several substantive themes emerge from the extensive documentation included in the AHDR. Arctic societies have a well-deserved reputation for resilience in the face of change. But today they are facing an unprecedented combination of socioeconomic and biophysical pressures that have given rise to cumulative stress of a sort unknown in the past. In the aggregate, the Arctic is a net exporter of wealth. The importance of transfer payments provided by central governments to sustain regional and local economies is well known. But wealth flowing out of the Arctic in the form of rents and royalties derived from the extraction and sale of natural resources exceeds the total value of transfer payments by a substantial margin.

Recent decades have witnessed a marked trend toward the decentralisation of political authority in the Arctic, both through the creation of new public governments in the region (eg the North Slope Borough in Alaska, the Greenland Home Rule, Nunavut in Arctic Canada) and through the transfer of authority to indigenous peoples organisations (eg the Saami Parliaments in Fennoscandia). With some exceptions, however, these innovative political and legal arrangements have not been accompanied by a reallocation of the material resources needed to perform the functions of governance effectively under arctic conditions.

The report makes it clear that the era in which paternalistic agencies, located in Copenhagen, Moscow, or Ottawa, ran the Arctic is a thing of the past. Yet there is much to be done to create a new order in the Arctic that is both effective and responsive to the needs of the region's residents. Meanwhile, the regional impacts of global processes, like climate change and the long-range transport of persistent organic pollutants (POPs) are growing steadily.

More generally, the AHDR sheds light on the meaning of human development in an international region like the Arctic. The UN's Human Development Index (UNHDI), with its emphasis on longevity and education, is an important improvement over GDP per capita as a measure of human well being. But the AHDR documents the need to supplement this index in a number of ways to gain an accurate picture of human well being in the Arctic. Residents of the Arctic place a high value on fate control, cultural integrity, and contact with nature on a day-to-day basis in evaluating the quality of their lives. For them, trade-offs involving formal education, material welfare, and even some measure of longevity are worth making in return for gains in these terms. The Arctic is thus a source of lessons about the meaning of human development in settings that extend beyond mainstream western systems.

The AHDR provides a benchmark against which we can monitor developments occurring in the Arctic in the coming years, and against which we can compare conditions prevailing in other parts of the world. The report also identifies gaps in knowledge pertaining to issues ranging from the need for a harmonised and integrated demographic profile for the Arctic, to the experiences of recent settlers and arctic residents of mixed heritage, to the impacts of large scale industrial activities on the viability of local communities in the circumpolar North.

In accepting the AHDR with appreciation, the ministers who signed the November 2004 Reykjavik Declaration "… direct Member States and the relevant working groups of the Arctic Council to consider appropriate follow up actions." The first steps in this direction are to be taken at the next meeting of the Sustainable Development Working Group in Moscow during April. By itself, the AHDR is a landmark in efforts to supplement the well-established concern for environmental protection in the Arctic with a complementary concern for human well being and sustainable development more broadly. It can become as well the point of departure for a process that will broaden and deepen our understanding of the meaning of human development at the regional level.

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Home rule – but no money?

Photo: Staffan Widstrand

Brussels interest in Arctic grows

A new WWF report, *The tip of the iceberg: chemical contamination in the Arctic*, was launched on February 16 in Brussels. Brettania Walker**, toxics officer for the WWF International Arctic Programme, and** Dr Jon Odland**, a physician and professor at the University of Tromsø in northern Norway, spent two days in the European Parliament.**

Although politicians in Brussels generally have a good understanding of what REACH* is, they face substantial and powerful industry lobbying in favour of weakening specific parts of the proposal.

As the Arctic is a final destination for pollution from around the world, it is important to make politicians aware that the use of hazardous chemicals is already having global effects, even in areas where many of these chemicals are not used or produced. That's why we launched our new report in Brussels.

While we were in Brussels, we held individual meetings with politicians representing the arctic countries of Norway, Sweden, Finland, Iceland, Denmark, and Canada to discuss recent contaminant research findings in the Arctic and the pressing need for better chemical regulation.

As well as the meetings with politicians, we also ran a midday seminar in the Parliament to discuss arctic chemical contamination, health effects, and the REACH chemical legislation. The seminar was sponsored by the chair of the European Parliament's Arctic Delegation Diana Wallis.

The reactions of the politicians we met were – in general – positive. However, this was to be expected as the meetings we set up were with representatives from the traditionally 'green' Nordic countries and Canada. Opponents of a tough REACH were not even willing to meet us!

REACH legislation:

■ The European Union's REACH legislation aims to ensure adequate testing of chemicals on the market, phase-outs of the most hazardous substances, and development of safer alternatives. REACH* stands for Registration, Evaluation and Authorisation of Chemicals.

Photo: European Community

The politicians' knowledge and interest in REACH and chemical contamination ranged from very basic knowledge of the risk posed by use of hazardous chemicals to extensive in-depth knowledge of the REACH proposal itself.

Politicians were visibly moved and concerned, especially during the presentations on wildlife and human health effects that have already been documented in the Arctic. Many politicians expressed an interest in further following up on this issue, discussing the topic with their colleagues, and distributing WWF's report.

The REACH debate is gaining momentum and receiving more news coverage. Awareness is being raised among the public and politicians about the need for stronger and better chemical legislation. However, industry lobbying against REACH is also increasing at the same time.

The decisions on REACH, whether to amend, adopt or reject it, will be made by both the European Parliament and the European Union (EU) Council of Ministers, represented by the Environment and Industry Ministers from each EU country.

Although WWF believes the EU's proposed REACH legislation must be strengthened, especially to require mandatory identification and phase-out of the most hazardous chemicals, WWF supports REACH as a way to reduce harmful contamination both in the Arctic and globally. There is a need for continued targeted NGO advocacy in support of REACH and demands to strengthen specific parts of the proposal in the next year. Advocacy work targeted at representatives of key important countries, such as Germany, will be important.

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REACH timetable

2001: White Paper called *Strategy for a future Chemicals Policy* presented by the European Commission.

2003: public internet consultation process. Commission adopts the draft REACH proposal.

2004: detailed review of the proposal and impact assessments.

2005: European Parliament's first reading of REACH. Towards the end of the year the first reading should have been completed and a common position adopted.

2006: REACH will be voted on by the European Parliament and EU Council of Ministers.

2007: REACH will become law in all countries of the EU and European Economic Area.

In search of Pribilof past

Photo: Tim Remick

Students from St George Island High School help researchers conduct a site survey for bones at Staraya Artil in the Pribilof Islands, Alaska.

A unique graveyard of 4000-year-old seal, walrus and sea lion bones has opened a window on the ancient history of Pribilof sea life. Tim Remick **explains.**

"Here's one!" exclaimed Dr Michael Etnier, as he picked up a bone fragment. Dr Etnier is a paleontologist from the National Oceanic and Atmospheric Administration's National Marine Mammal Laboratory and the University of Washington's Department of Anthropology. "This is a nice example of a femur belonging to an adult female fur seal," he explained. "These bones will provide a unique window into the past history of the Pribilof Islands," he said as he continued down the beach looking at more bones.

I was in Staraya Artil, an ancient rookery located on the north shore of St George Island. The beach comprises round cobble stones and, due to its northerly aspect, is subject to the full force of waves born from storms off Russia's north-east coast.

A unique aspect of this high-energy beach is the presence of a small brackish lake. Separating Tanogtuckan Lake from the Bering Sea is a narrow cobble 'berm' (a terrace formed by wave action along the backshore of a beach) and it is from this berm that northern fur seal, walrus and sea lion bones are washing out.

Staraya Artil has long been recognized by the community of St George as a great place to go beach combing. According to local observations, the rate of erosion and the appearance of bones have increased over the years. Anthony Merculief, President of the St George Island Traditional Council, was concerned about the possible impacts of erosion to the site and the loss of important cultural information. He had several bones from the site radiocarbon dated and discovered that one of the bones was about 2000-years-old. This pre-dates the original village site by 1800 years. It should be noted that more bones from the site have been dated and the results reveal a rookery that existed at least 2685(+/-35) years ago. The recognition that this rookery has been around for at least that long and possibly longer has ensured the community of St George, WWF and Dr Etnier are interested in probing deeper into the secrets of Staraya Artil before the Bering Sea washes all evidence of the ancient rookery away.

Dr Etnier's excitement and curiosity reflect the unique nature of this place. "To my knowledge this is the only natural accumulation of pinniped bones in the north pacific that dates to the Late Holocene," he says. "That's about 4500 years ago."

St George is around 500 kilometres west of Alaska's mainland in the central Bering Sea and is one of five volcanic islands collectively known as the Pribilof Islands. These wind-swept islands host a tremendous abundance of wildlife. Two million sea birds of 12 different species nest on these islands each summer, and an estimated 800,000 northern fur seals (about 70 percent of the world's population) breed on the beaches around the Pribilof Islands. In recent years the Bering Sea region has been experiencing dramatic declines in populations of Steller sea lions and northern fur seals.

To address the concerns of St George regarding regional environmental changes and their impacts on the community, a team of scientists, educators and community members has assembled to implement an ambitious program entitled 'Coastal Communities for Science.'

This programme, funded by a grant from the National Science Foundation, is designed to bring scientists and communities in the Bering Sea region together to create a mutually beneficial connection in order to answer questions put forth by the community regarding natural resources and environmental changes important to their welfare.

The team comprises Dr Michael Smolen, myself from WWF, Dr Michael Etnier, Catherine Foster from University of Washington's Department of Anthropology, Max Malavansky, the community coordinator and Andy Malavansky, the community observer. Max and Andy are residents of St George and were selected by the community and WWF to assist in the implementation of the Coastal Communities for Science program in St George.

The community of St George, with Dr Etnier and WWF, determined that at least four different studies could be conducted that would provide valuable information on the late Holocene history of fur seals and sea lions in the Pribilofs. The research will evaluate bone samples by conducting radiocarbon dating to determine the overall age of the rookery, analyse ancient DNA to compare and contrast with genetic data generated from modern fur seal and sea lion populations of the Pribilof Islands, stable isotope characterisation of carbon and nitrogen for understanding the long term variability of oceanographic productivity, and tooth analysis to examine foraging behavior and dietary changes over time.

Under the guidance of Dr Etnier and Catherine Foster, the team and several students from St George High School conducted an intense two-day survey of the site and electronically mapped and catalogued nearly 400 bones for examination. As sea levels continue to rise and reveal more of Staraya Artil's secrets, it will be important to fully evaluate this unique site before the ancient rookery is lost to the Bering Sea.

With training from Dr Etnier and Catherine Foster, Max and Andy will continue to work over the next several years to prepare fur seal and sea lion bone samples for analysis. The results from this collaborative study will provide an opportunity to create a network for sharing scientific discovery between scientists and native communities and according to Dr Etnier: "The Staraya Artil site will provide a rare opportunity to examine the long term population dynamics and foraging behavior of two pinniped species that today are in serious decline."

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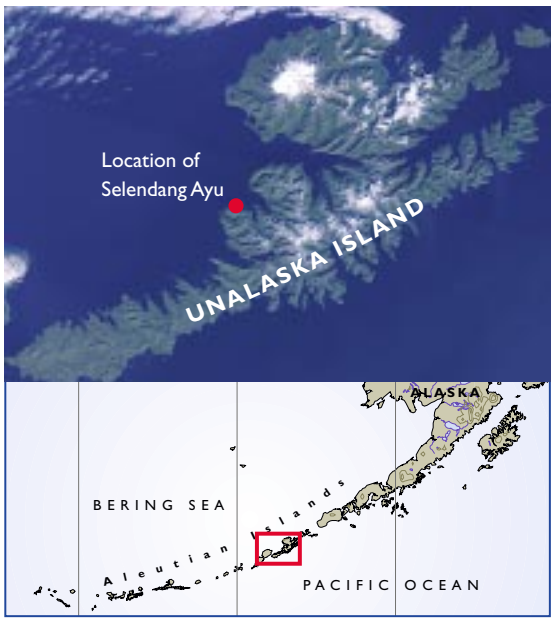
Aleutian Island spill

On December 8 last year, Alaska witnessed the worst oil spill in US waters since the 1989 Exxon Valdez spill. A Malaysian freighter Selendang Ayu, carrying soybeans from Seattle to China, ran aground 1300 kilometers south-west of Anchorage in the Aleutian Islands after its engine failed. The vessel broke in half, spilling more than 320,000 gallons of oil into the waters and onto the beaches of Unalaska Island, part of the 3.5 million acre Alaska Maritime National Wildlife Refuge, one of the world's most remote and ecologically rich wildlife marine habitats. WWF's Bering Sea **team reports.**

It will take years to fully assess the damage from the Selendang Ayu oil spill but we know from previous experience that this disaster will harm wildlife, their habitat and the fishermen and local subsistence users who depend on healthy fish stocks for their livelihood. Unalaska is home to the nation's largest commercial fishing port by volume and the second largest by value of annual catch. The nearby crab fisheries, salmon streams, and shellfish beds also are at risk from contamination.



Satellite photo: NASA Earth Observatory

Before this oil spill, the Bering Sea area was already witnessing the decline of many of its signature species such as the Steller sea lion, northern fur seal and sea otters. Such an incident symbolises just one of the many threats these and other species face – and one which, with better precautionary management, could be reduced significantly.

While there are no final tallies on wildlife impacts of the spill, seabirds, especially those that forage on the oil-slicked sea surface or soiled beaches, are certain to be affected. The most oil-vulnerable birds include bald eagles, crested auklets, guillemots, cormorants, ravens and several species of sea ducks. By mid-February this year, the US Fish and Wildlife Service had already recovered more than 1,500 seabirds and six dead sea otters but the true number of dead birds and others is likely to be many times that number.

In addition to oil, some 60,000 metric tons of soybeans also spilled from the tanker, and these now cover beaches, in some places in a four-foot thick layer.

Unlike the Exxon Valdez, the M/V Selendang Ayu was a cargo ship, proving that it's not just oil tankers which pose the greatest risk. She was one of thousands of vessels (about 3,000, although no exact number is available from state or federal agencies) a year that travel from the Gulf of Alaska to the Bering Sea through the Unimak Pass, making it one of the busiest shipping lanes in the world. More than 50 per cent of spills in the world from 1991 to 2001 were caused by cargo ships. Although these spills tend to be smaller than tanker spills, there have been two cargo vessel spills larger than ten million gallons of oil. To put these ➤

figures in perspective, the M/V Selendang Ayu was carrying half a million gallons of oil, while the Exxon Valdez was carrying 11 million gallons of oil.

So what needs to be done?
WWF is joining with a large group of conservationists, communities, fishermen's associations and individuals in a call for a Congressional investigation into the incident, and a rigorous set of measures to mitigate the impact of shipping on Alaska's vital resources.

Improvements needed include the installation of a constantly monitored vessel tracking system so that the US Coast Guard can monitor all vessel traffic in the Aleutians and Bering Sea. Rescue tugs should be positioned along the route so they can respond to incidents expeditiously, and be ready to tow a disabled vessel out of harm's way. Additionally, routing agreements should be put in place to require ships with potentially dangerous cargoes to stay as far away from sensitive habitats as possible. All of these safety measures, environmentalists argue, should be clearly identified in a comprehensive risk assessment for the region.

To more effectively advocate for these changes, the diverse coalition of interest groups has formed the Shipping Safety Partnership, which together will work to improve shipping policies and practices in Alaska.

Meanwhile, WWF's Bering Sea Programme is taking action at the local, national and international levels.

Locally, we are working with the people of Unalaska to establish a community monitoring program that will enable Unalaska residents to document contaminants in waters surrounding this remote but heavily trafficked area. We also plan to fund a fine-scale GIS analysis to document sensitive wildlife areas along the shipping route – areas which may be in need of special protection.

And we're tapping our Congressional Relations department in Washington to assist with Capitol Hill outreach on shipping safety in the Aleutians. With an international network of people who have dealt with oil spills, we're studying their experiences and hope to compile a comparative analysis on best practices for shipping and oil response.

Internationally, we will be participating in the development of an Arctic Shipping Assessment to be conducted by the Arctic Council. As climate change diminishes the arctic ice pack, the impact of shipping will only grow. Thus, the time to think about preventing future spills – such as the Selendang Ayu – is now.

Fortunately, there are some positive outcomes from tragic events such as the Selendang Ayu spill. Following the *Jessica* spill in the Galapagos Islands in 2001, WWF and Toyota have developed and are actively promoting the adoption and implementation of a Galapagos Energy Blueprint.

Developed with world-renowned experts, the blueprint is aimed at transforming all high pollution energy systems now in use in the archipelago to sustainable renewable energy sources and clean technologies. WWF hopes we can use this current catastrophe in the Aleutians to lead to some positive developments in Alaska and other parts of the Arctic.

■ This article was prepared with information compiled by Denise Woods, WWF Bering Sea research assistant, and Shelley Johnson, Alaska Oceans Programme officer, with additional editing by Margaret Williams, WWF Bering Sea Ecoregion Programme director.

Photo: U.S. Fish and Wildlife Service - Alaska

The Selendang Ayu, split in half and leaking soy beans and oil into the Bering Sea.

Oil spill

Some experts believe oil spills exploration and production and conservation specialist in Alaska, to discover his views (see pages 19–20).

Nigel Allan: *As a veteran of the Exxon Valdez oil spill, what do you think were the key lessons from that catastrophic event?*

Rick Steiner: The main lesson is that we have to become better at preventing catastrophic shipping accidents, because once they've occurred there is very little that can be done that's effective. Once a boat is on the rocks, on the reef or on the beach, you've basically lost the battle. When there is oil in the water, it is very difficult to recover it. It is difficult or virtually impossible to clean beaches, to rehabilitate injured wildlife, to restore an injured ecosystem, or to properly compensate people for the loss of economic activity.

NA: *Were those lessons implemented in the Selendang Ayu Aleutian Islands incident?*

RS: The answer is categorically 'no' as the Selendang Ayu spill wasn't prevented. It was a shipwreck and oil spill waiting to happen. We have known for some time that there is a lot of risk associated with the route the Selendang Ayu and thousands of other vessels follow, but, even though we knew how to reduce that risk cost-effectively, we didn't bother to do so.

Of course, you cannot reduce the risk to 'zero', because shipping is an inherently risky business, but we can do a lot better. It pays to put

challenge

are a greater threat to the arctic environment than oil itself. Nigel Allan **interviewed** Rick Steiner**, professor the Marine Advisory Programme at the University of on last year's Selendang Ayu oil spill in the Bering Sea**

prevention assets – such as rescue tugs and vessel tracking systems – in place.

Now there is a lot of interest in reducing the risk around the Aleutians. Unfortunately people tend to take action only once there has been a disaster like the Selendang Ayu.

NA: *What are the priority actions needed to step up protection in Alaska and stop similar shipwrecks in future?*

RS: I am cautiously optimistic that we will now be able to ramp up safety measures across the North Pacific as a result of this. The real shipwreck we need to focus on is the next one. To do that there are several things that need to happen.

Number one is a comprehensive, quantitative risk assessment of this particular traffic route in the Aleutians. We have called for this for the last seven years, and both the federal and state governments have now committed to it.

In the interim, we need a real-time vessel tracking system, which is possible using existing equipment on each of these vessels for virtually no cost. The only additional cost would be employing more coast guard personnel to monitor the vessels.

Secondly we need rescue tugs – emergency towing vessels – to be able to render assistance to a vessel if it breaks down or loses steerage. They should also have spill response equipment on board. And we need emergency towing gear on some of the large cargo vessels that would make it easier for a tug to hook up a tow in an emergency.

And, we need to consider establishing 'no-go' areas for these large vessels.

It was a shipwreck and an oil spill waiting to happen.

NA: *What do you think arctic communities, conservationists and decision-makers need to learn from the Selendang Ayu wreck?*

RS: Obviously that any time you have a significant pollution event in arctic and sub-arctic marine environments or terrestrial environments, you have a more serious problem than in temperate and tropical environments. The degradation rate for petroleum is so much slower in sub-arctic and polar environments than in warmer environments.

But beyond that, arctic and sub-arctic ecosystems seem to be particularly vulnerable to these large toxic shocks, such as a catastrophic oil spill. So we need to be a lot more cautious in arctic and sub-arctic ecosystems with regard to shipping, but we need to do better everywhere.

There are a lot of hydrocarbons that are going to be sucked out of the continental shelf and shipped across sub-arctic waters in the next few decades. The nation states around the Arctic need to get very, very serious about this issue now.

NA: *Do you think retreating summer sea ice and the possible opening of arctic shipping routes in future will be a major problem?*

RS: A lot of people are talking about a northern sea route opening up as a result of global warming. Of course this raises the spectre of catastrophic oil spills along the coast of the Arctic Ocean and this is frightening. Particularly one that might be difficult to respond to and impossible to clean up. There is no way you can respond effectively after a major incident.

If you are going to start opening up a lot of shipping lanes northward through the Arctic Ocean, you are going to have an increased risk of these sorts of catastrophic pollution events. What we have to do is build the best ships possible, have the best traffic systems possible and the best prevention systems in place before we even contemplate allowing such shipping lanes to open. This needs to be a condition of shipping through the Arctic Ocean.

Vitaly Kimstach (1941–2004)

Vitaly Kimstach was a dear friend and a respected colleague. His tragic and untimely death in the Tsunami disaster last year represents a great loss to us all, his colleagues at the Arctic Monitoring and Assessment Programme (AMAP) Secretariat, his friends and colleagues in Russia, and to members of the scientific community throughout the Arctic.

Vitaly Kimstach was born on August 12 1941, amid the turbulence of war, on a train leaving the Ukraine following the German invasion of the Soviet Union. His early life would have seen the difficulties of life in post-war Russia, but also the excitement associated with technological and scientific advances in that period. Perhaps that is what prompted him to follow a career in science.

Vitaly pursued an academic career that included education at the Saratov Polytechnical Institute, and Rostov State University, where he gained his PhD. This ultimately led, in 1989, to his appointment as Professor in Analytical Chemistry. During this time he helped guide and advise many students preparing theses and dissertations on their studies into the chemistry of terrestrial and hydrographic systems.

It was also during this period that Vitaly met and married Larissa, and that Natalia was born.

There are numerous landmarks in his long and distinguished academic career. On the international stage he worked on projects organised under the World Meteorological Organisation (WMO), the World Health Organisation (WHO), the United Nations Educational, Scientific and Cultural Organisation (UNESCO) and the United Nations Environment Programme (UNEP). Within Russia he was, for many years, a member of the North-Caucasus department of the Scientific Board of the Academy of Sciences of the USSR, and the Commission of Chemistry and Biology of the Scientific and Technical Board for the World Oceans in the USSR's Ministry for higher education. Between 1986 and 1990, Vitaly served as Chairman of the Commission on Environmental Chemistry of the USSR Academy of Sciences, and in 1991 he was elected a member of the Russian Federation Academy of Natural Sciences.

His CV lists more than 100 publications in the Russian and international scientific literature, many concerned with the development of methodologies and aspects of applied analytical chemistry in relation to monitoring of surface waters.

In addition to his academic career, however, Vitaly also made his mark by the practical application of his skills and knowledge.

As a member of the Russian Service for Hydrometeorology, Vitaly made invaluable contributions to improving the Russian environmental protection system. He played a major role in developing the network of observing systems for freshwaters, and establishing the methodologies that are still in use today to monitor the environment in the Russian Federation. The effective network for observation of surface water quality, and the methods of analyses applied following accidents and in situations of high levels of pollution are to a great extent based on the work of Vitaly Kimstach.

Vitaly rose to become the Deputy Director of the Hydrochemical Institute in Roshydromet – the Federal Service for Hydrometeorological and Environmental Monitoring of the Russian Federation. During his relatively brief period working in the central administration of Roshydromet, Vitaly contributed significantly to the development of scientific observing systems and the state network for pollution monitoring, but especially to the broadening of international cooperation. This last activity provides an indication of the direction that his work would take him in for the remainder of his life.

Vitaly joined the AMAP Secretariat in November 1993. It is impossible to exaggerate the contribution that Vitaly made to the work of AMAP over the past 11 years. He alone was responsible for much of the close cooperation that has been a feature of the relationship between AMAP and the scientific, governmental, and non-governmental organisations around the Arctic, and especially in Russia.

Throughout his long and distinguished career, there is one aspect that can always be found in the work of Vitaly Kimstach – and that is the desire to assist his country, Russia, to overcome its problems, develop its potential, and take its place in international efforts to improve and protect the environment.

Vitaly has worked tirelessly in recent years to facilitate the active participation of the Russian Federation in international agreements aimed at protecting the environment and the peoples of, in particular, the Arctic. Most recently, Vitaly successfully led a UN Global Environment Facility (GEF) funded project focusing on food security for the indigenous people of Russia's North.

His achievements over the years, as an outstanding scientist and a specialist who devoted his life to serving his country and society in general, are considerable indeed.

However, it is also as a fine companion, a true gentleman, and a unique individual that Vitaly will be most remembered, with great fondness, by his friends throughout the Arctic.

Vitaly had a story for every occasion; he will be sorely missed by all who knew him.

Vitaly's death was untimely and the circumstances tragic on a scale that is hard to grasp, however, one small consolation is the certain knowledge that the predominant concern for Vitaly would have been the safety of Larissa and Natalia.

Our thoughts are with Larissa and Natalia, for whom his loss is the greatest by far.

Lars-Otto Reiersen
Yuri Tsaturov
Simon Wilson

Forthcoming arctic meetings & events

Arctic Council events

Sustainable Development Working Group meeting
WHERE: Moscow, Russia • WHEN: April 3–4 • CONTACT: bfunston@nrcan.gc.ca

Senior Arctic Officials meeting
WHERE: Yakutia, Russia • WHEN: April 6–7 • CONTACT: ac-chair@mid.ru

ACAP Hg project Steering Group Meeting
WHERE: Ottawa, Canada • WHEN: June 2–3 • CONTACT: barley.carolyn@epamail.epa.gov

AMAP Oil and Gas Symposium
WHERE: St Petersburg, Russia • WHEN: September 13–15 • CONTACT: amap@amap.no

Conferences and workshops

CliC First Science Conference: Cryosphere – The "Frozen" Frontier of Climate Science: Theory, Observations, and Practical Applications
WHERE: Beijing, China • WHEN: April 11–15 • CONTACT: http://clic.npolar.no/meetings/first/index.html

Arctic Science Summit Week – ASSW 2005
WHERE: Kunming, China • WHEN: April 17–24 • CONTACT: http://www.chinare.gov.cn/artic/

ARCTIC HAZARDS – 2nd GENERAL ASSEMBLY OF THE EUROPEAN GEOSCIENCES UNION (EGU)
WHERE: April 24–29 • WHEN: Vienna, Austria • CONTACT: http://www.copernicus.org/EGU/ga/egu05/index.htm

GLOBEC Symposium – "Climate Variability and Sub-Arctic Marine Ecosystems"
WHERE: Victoria, B.C., Canada • WHEN: May 16–20 • CONTACT: http://www.globec.org

ARCUS Annual Meeting and Arctic Forum
WHERE: Washington DC • WHEN: May 18–20 • CONTACT: http://www.arcus.org/annual_meetings/index.html

International Tourism Conference: Creating Global Partnerships for the Sustainable Development of Tourism
WHERE: Vladivostok, Russia • WHEN: May 19–21 • CONTACT: http://russiapacific.org/en/

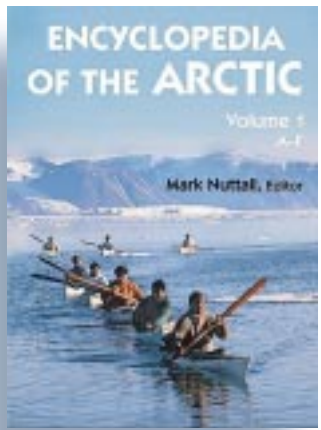
Greenland Culture Festival
WHERE: Washington, D.C. • WHEN: May 20–22 • CONTACT: mariannestenbaek@yahoo.ca

Yukon Conference – Rapid Landscape Change and Human Response in the Arctic and Sub-Arctic
WHERE: Whitehorse, Yukon, Canada • WHEN: June 15–17 • CONTACT: http://www.taiga.net/rapidchange/

2nd European Conference on Permafrost
WHERE: Potsdam, Germany • WHEN: June 12–16 • CONTACT: http://www.awi-potsdam.de/EUCOP

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

Encyclopedia of the Arctic
Mark Nuttall, editor
Routledge
pp 2278 – 3 volumes
ISBN: 1 579584365



The *Encyclopedia of the Arctic* is an excellent resource for any individual or organisation involved or interested in the arctic region. The three-volume set has more than 1200 entries written by over 375 international scholars and writers. In her forward, Sheila Watt-Cloutier, chair of the Inuit Circumpolar Conference, notes the importance of the *Encyclopedia of the Arctic* in helping people to better understand a region that is the subject of growing interest to the international community. As companies start moving in to extract resources and climate change and southern pollution threaten arctic people and species, it is more important than ever to understand the region.

The *Encyclopedia* brings together in one place anthropological, geographical, historical, political, and environmental information on the Arctic.

There are short biographies on the many different people who have had an impact on the Arctic, such as explorers, researchers, elders, artists and politicians. There are entries on the different indigenous groups around the North, including information on their history, culture and struggle for self-determination. There are also entries on the arctic nations and many arctic organisations including the Arctic Council and its respective working groups.

The volumes examine environmental and conservation issues, including development for oil and gas, climate change effects on snow and ice cover, and health issues related to transport of pollutants from the industrialized world.

The *Encyclopedia of the Arctic* is the most comprehensive and up-to-date information resource on the Arctic today. If you are interested in the Arctic for personal or professional reasons, then you will find these books both enjoyable and valuable.

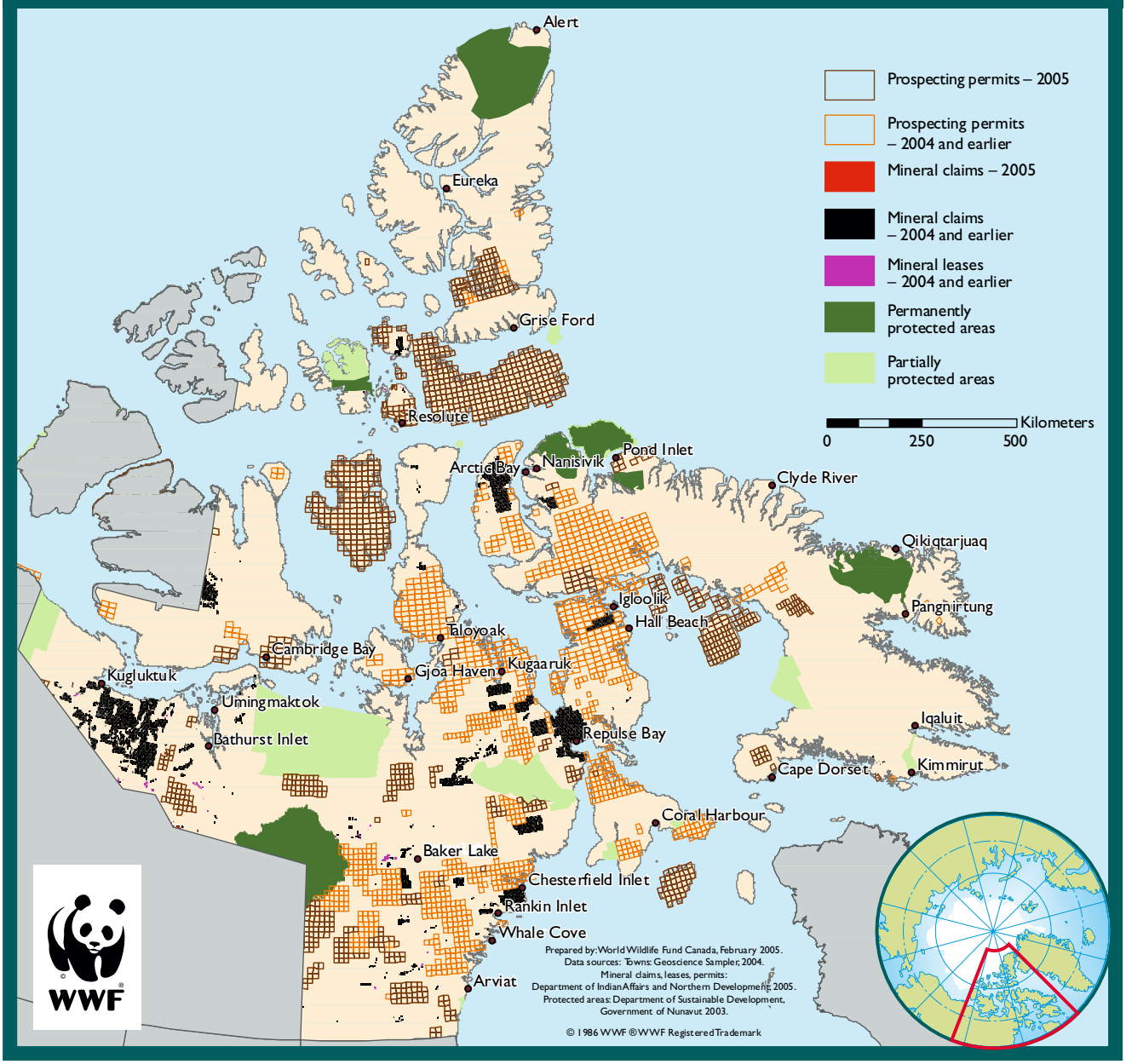
Nigel Allan, nallan@wwf.no

New intern: Geoff Rigby

Geoff Rigby began a six-month internship with WWF's International Arctic Programme in January. With a degree in environmental studies, Geoff is working as a research assistant with the Arctic Programme team in Oslo. He has spent most of his life in his hometown of Iqaluit in arctic Canada, but has also lived in the small community of Pangnirtung as well as Ottawa. Geoff's internship is funded by the Department of Foreign Affairs and International Trade, Canada and is organised by the International Institute of Sustainable Development in partnership with the WWF International Arctic Programme.

B-BLAD Retur WWF-Norge
PO Box 6784 St Olavs plass, N-0130 Oslo, Norway

New mineral activity in Nunavut as of February 2005



Map: World Wildlife Fund Canada, February 2005.

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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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