



Arctic Bulletin



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Climate Change in the Arctic: A Reality

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WWF Arctic Bulletin

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Migrating beluga whales are sometimes trapped in sea ice in late fall. This situation is known as a "savssat".

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Dr. Malcolm Ramsey

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Editorial

Will we Lose the Colours of the Arctic?

The blue and green tones that distinguish many of WWF's Arctic Programme publications are representative of the Arctic region. For instance, inputs of glacial "milk" often impart blue and green tints to fresh and saltwater. But these colours are threatened! There are growing indications that climate change is progressing much faster than previously predicted. The rate of glacial retreat is likely to accelerate, and sea ice – the habitat of ringed seals and polar bears could disappear within 100–200 years. We would do well to remember that polar regions have been ice-covered for only a very brief period of the earth's long history. Polar ecosystems have evolved relatively recently, and for this reason alone are valuable and unique.

There is now a general acceptance among scientists and relevant institutions that global climate change is at least partly related to human activities and decisions. The threat and challenge posed by climate change is taken very seriously by arctic governments and indigenous people's organisations represented by the Arctic Council, which have established an independent climate change programme, the Arctic Climate Impact Assessment (ACIA; see page 6). WWF's Arctic Programme will co-operate closely with the ACIA in meeting its objectives, and climate change will also be an important focus of the Arctic Programme in coming years (see page 12). A recent offer by WWF-Netherlands to fund four Climate Change Focal Projects suggests that environmental problems are sooner realised by people living in densely populated countries than those living in sparsely inhabited regions. Such nations look with great interest to the Arctic because it is a barometer of environmental change and because changes in polar regions will have a major impact on the entire world. Rising sea levels, for example, may have devastating consequences on coastal areas globally.

The decisions made by economically and politically powerful countries often have a greater effect on the world than the decisions and actions taken by smaller nations. The United States is an obvious example. With this greater influence, however, comes a greater responsibility for the earth's inhabitants and ecosystems. The U.S. failed to demonstrate this responsibility during a recent conference at The Hague, Netherlands that aimed to reach an international agreement on levels of greenhouse gas

emissions (see page 10). The possibility of the new U.S. government adopting a much more positive position is very doubtful, particularly in view of the latest statements issued by the Bush administration on oil production and consumption policies. Of extremely high symbolic importance is the controversy surrounding Bush's plans to open the Arctic National Wildlife Refuge to oil and gas production. The refuge, which is a crucial calving ground for the Porcupine caribou herd, only contains enough oil to satisfy U.S. demands for 60 days. The *ARCTIC BULLETIN* will certainly continue to inform its readers about further developments concerning the refuge. In this issue, this task is taken up by the indigenous Gwich'in of the Yukon, who are directly affected by oil drilling on their land, and are represented, through their U.S./Canadian organisation, as a new Permanent Participant in the Arctic Council (see page 5, and AB 4/00). A positive development regarding climate change and the U.S. is the initiation of the ACIA under the U.S. chairmanship of the Arctic Council. Additionally, the ACIA is led by the U.S. Let's not give up all hope!

As the new Chair of the Arctic Council, Finland gives other reasons for hope. The program proposed by the Finnish government for 2000–2002 appears to be a promising one (see page 4). An objective of the program is to raise the Arctic Council's profile as a promoter of Arctic issues of global significance in relation to other international institutions. There will soon be an opportunity to test the Finnish government's commitment to this objective. Will the arctic countries present a united front in May, when further United Nations agreements on banning the most toxic substances, persistent organic pollutants (POPs) will be negotiated in Stockholm? Sheila Watt-Cloutier, president of the Canadian Inuit Circumpolar Conference (ICC), urges them to do so (page 8).

Though the colours of the Arctic may be threatened, we will continue to use them in the *ARCTIC BULLETIN* as they have come to symbolize WWF's Arctic Programme. Other colours, symbolic of the diversity of the Arctic region, will be used along with the blue and the green.

PETER PROKOSCH
WWF Arctic Programme



■ WWF has added colour to its redesigned Arctic Programme website, which is aiming to become the number one source of Arctic conservation news! The site can be found at www.ngo.grida.no/wwfap.



■ For up to date news about climate change and WWF's Climate Change Campaign, visit the WWF Climate Change Campaign website at www.panda.org/climate.

Program for the Finnish Chair of the Arctic Council in 2000–2002:

A Fresh and Promising Start

In October 2000, Finland announced that it would lead the Arctic Council to further progress in environmental protection by taking over the chairmanship from the United States. This is a particularly promising sign because the process that led to environmental co-operation among the eight Arctic nations began in Finland. In a famous speech in Murmansk, Russia in 1987, former Soviet leader Michail Gorbachev painted a vision of the Arctic as a

Arctic Council

“region of peace and environmental protection”. Today, this vision is within the realm of political reality – the Arctic is the only large

region on earth where environmental protection issues are driving co-operation among governments.

The road to international co-operation began in 1991 in Rovaniemi, Finland with the Arctic Environmental Protection Strategy (AEPS) and continued in 1996 with the establishment of the Arctic Council in Iqaluit, Canada. Finland plans to celebrate the 10th anniversary of this remarkable process on June 11th of this year in its birth-place, Rovaniemi. This event will provide an opportunity to review the past decade and the achievements of the different nations of the Arctic Council



Finnish Foreign Affairs Minister Erkki Tuomioja.

and its five circumpolar working groups. The working groups are: Conservation of Arctic Flora and Fauna (CAFF); the Arctic Monitoring and Assessment Programme (AMAP); Protection of the Marine Environment (PAME); Emergency, Preparedness and Response (EPPR) and Sustainable Development.

Finland made an early and promising start in its new role by publishing its priorities and objectives for its chairmanship over the two-year period. A *Program for the Finnish Chair of the Arctic Council 2000–2002*, produced by the Foreign Affairs Minister Erkki Tuomioja, is available both as a brochure and on the Arctic Council website. The ARCTIC BULLETIN would like to share some of the most important priorities and objectives proposed by the Finnish government for its two-year term with its readers. The following are direct excerpts from the Programme:

Making the Arctic Council a mouthpiece for the Arctic

So far, the Arctic Council has been a somewhat low-profile player in the international arena. It has not yet clearly adopted the role of mouthpiece for the Arctic circumpolar region ...

During its chairmanship Finland will aim at raising the Arctic Council's profile as a promoter of Arctic issues of global significance in relation to other international institutions.



Making the European Union an Arctic co-operation partner

[...]

As the Host Country of the Arctic Council, Finland will promote co-operation between the Council and the EU. The intention is to put this co-operation on a regular basis so that the Commission becomes a permanent Observer in the Council.

Rationalizing the Council's work

[...]

As the Host Country, Finland is responsible for making a review of the Council's organization, with recommendations for action to be taken. The review and the recommendations are to be presented to the Ministerial Meeting in 2002.

Intensifying the protection of the Arctic environment

[...]

In June 2001, ten years will have passed since the Rovaniemi Process started. The tenth anniversary will be celebrated in connection with the first Senior Arctic Officials meeting during Finland's chairmanship in June 2001 in Rovaniemi. This occasion provides a good opportunity to evaluate the environmental co-operation and analyse its future prospects.

[...]

Finland aims at ensuring the progress of the Environmental Protection Strategy by supporting various environmental programs. It is particularly important to implement more efficiently the recommendations based on environmental reports. Finland will actively support the ACIA Climate Program launched under the leadership of the previous Host Country.

Clarifying actions in support of sustainable development

Alongside environmental protection, "sustainable development" is another focus of the Arctic Council. It has been the most problematic area of co-operation in the four-year history of the Council, because disagreement about the right approach to this issue between the United States, on the one hand, and the Nordic countries and Canada, on the other, has hampered the Council's work ...

[...]

Finland aims at consolidating the Council's work on sustainable development. At the Rio+10 follow-up meeting of the UN in 2002, the Arctic Council should be able to present its activities to support sustainable development.

Arctic research and the University of the Arctic – central priorities

[...]

... The official opening of the University will be announced in connection with the first Senior Arctic Officials meeting during the Finnish chairmanship.

Projects promoting economic and social development

[...]

Finland aims at promoting diverse use of information technologies ...

In the health sector Finland will advance ongoing co-operation ...

... Finland will take up issues related to the position of women and gender equality in the work of the Arctic Council ...

... Finland will also take up transport issues ...

... Finland will promote knowledge of the Arctic cultures ...

... Finland aims at strengthening co-operation on tourism that supports sustainable development, by utilizing and co-ordinating the work done in this field

by other bodies, such as the WWF and the Northern Forum ...

... Finland aims at reactivating and expanding circumpolar co-operation in the field of forestry ...

... Finland contributes to basic industries in the Arctic by strengthening, inter alia, sustainable reindeer management ...

Consideration of indigenous peoples and strengthening of regional participation

[...]

... Finland, as the Host Country, aims at strengthening the participation of inhabitants and indigenous peoples of the Arctic in the development of Arctic co-operation ...

... Co-operation between the Council and the Northern Forum should be enhanced ...

Finland has certainly outlined an ambitious program right from the beginning of its chairmanship. The country itself admits that it has raised high expectations, which it will seek to fulfil by way of close co-operation with other member states of the Arctic Council and its Permanent Participants and Observers.

This nation's drive will hopefully encourage many others. As one of the longer-standing observers to the Council, WWF's Arctic Program is highly motivated to contribute to Finland's impressive program for its term as Chair.

PETER PROKOSCH
WWF Arctic Programme

Arctic Council Accredits New Observers and Participants

■ At the October 12–13, 2000 Arctic Council Meeting in Barrow, Alaska, Permanent Participant status was granted to two new organizations: the Gwich'in Council International and the Arctic Athabaskan Council. On the same date, nine new organizations were accredited the Observer status until the next Ministerial Meeting: the French Republic, the Advisory Committee on the Protection of the Sea, the Association of World Reindeer Herders, the Circumpolar Conservation Union, the International Federation of Red Cross & Red Crescent Societies, the International Arctic Social Science Association, the International Union for the Conservation of Nature (IUCN), the North Atlantic Marine Mammal Commission and the Nordic Council of Ministers.

Arctic Climate Impact Assessment (ACIA):

How Will Climate Change Affect the Arctic?

A new initiative, the Arctic Climate Impact Assessment (ACIA), was approved at last October's meeting of the Arctic Council in Barrow, Alaska. This project has been under preparation since the ministerial meeting in Alta, Norway in 1997 and is now at the implementation stage.

Meteorological observations over the last 30 years show differing changes in climate trends across the Arctic region. A clear warming trend, especially during wintertime, has been observed in Alaska and parts of northern Canada and Siberia (+ 2° C). Cooling temperatures have been documented around Hudson Bay and in southern Greenland, while no clear change has been detected in the northern Scandinavia/Svalbard area. There are also many other indications that the Arctic climate is warming. Indigenous residents of northern Alaskan villages have

reported thawing of previously frozen ground, melting permafrost has destroyed houses in Siberia, the extent and thickness of sea ice has been declining over the past few decades, and record ozone loss has been documented in recent years, among other phenomena. Do these changes reflect natural variability, the effects of human activities, or are they attributable to both?

The three organisations participating in the project, the Arctic Monitoring and Assessment Program (AMAP), Conservation of Arctic Flora and Fauna (CAFF) and IASC (International Arctic Science Committee) have been asked to design and implement an assessment that will hopefully provide answers to these questions. The assessment will be undertaken in close co-operation with the IPCC (Intergovernmental Panel on Climate Change) and include documentation of past and present indications of changes in climate and UV radiation, prehistoric variations, and scenarios for the near future, including potential impacts on ecosystems and humans and their activities.

Prehistoric variations, e.g. as revealed by ice core studies, will be covered by the assessment. Published data show huge variations in temperature and CO₂ over the last 400,000 years (200–300 ppmv CO₂), however; the present level of CO₂ in the atmosphere (380 ppmv CO₂) is far higher than levels in the past as indicated by ice cores. Scenarios for the next 30–100 years

will be an important part of the assessment and will help to set the stage for chapters that analyse the potential impact of changes in climate and UV radiation on marine, freshwater and terrestrial ecosystems and human populations and activities.

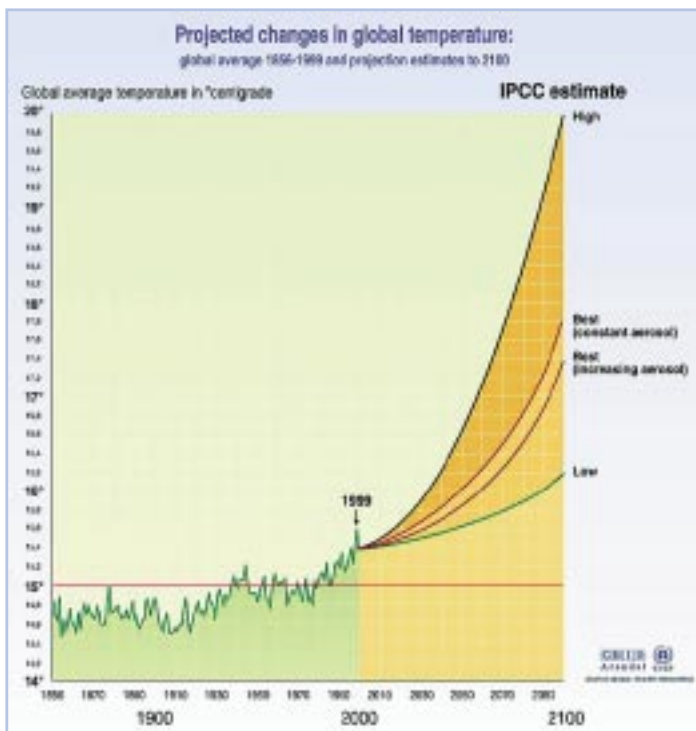
Scientists from the eight Arctic countries will take part in the assessment, although the process is also open to participation by scientists from all countries involved in arctic climate and UV research and monitoring. Of special importance to the project are the potential effects of climate change on the indigenous peoples of the Arctic. For this reason, indigenous representatives will play an essential role in the planning and implementation of the assessment. A principal author will lead and coordinate the work of assessment groups that will be comprised of a core group of experts. These groups will in turn call upon a much wider range of experts who will be requested to provide input such as preparing special contributions on their individual fields of expertise. Through AMAP, CAFF and IASC Arctic countries are pushing for financial support to implement national and international scientific programmes that can provide new scientific data for ACIA in the years to come.

The Assessment Steering Committee of ACIA has elected U.S. representative Robert Corell to the position of Chair of ACIA, and Pål Prestrud of Norway to the position of Vice Chair. The U.S.A. has allocated funding for a secretariat for ACIA, which is established at the University of Alaska Fairbanks. Gunter Weller has been selected as the Executive Secretary of the ACIA Secretariat. A first workshop on 'scenarios' was held in Sweden in January 2001 and several other workshops are planned. For further information, visit the homepage of ACIA (www.acia.uaf.edu/default.html); AMAP (www.amap.no); CAFF (www.grida.no/caff); or IASC (www.iasc.no).

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**Projected
Changes in
Global
Temperature
Resulting from
Climate Change.**



Source: UNEP

New Global POPs Treaty Will Help Protect Arctic Ecosystems

On 10 December 2000 in Johannesburg, South Africa, agreement was reached on a new global treaty with important implications for arctic wildlife and communities. The United Nations Environment Program (UNEP) – facilitated treaty on Persistent Organic Pollutants (POPs) contains robust provisions for the reduction and elimination of polychlorinated biphenyls (PCBs), dioxins and furans, and certain chlorinated industrial and agricultural chemicals. A diplomatic signing conference will be held in Stockholm, Sweden from 21–23 May 2001 that will result in the *Stockholm POPs Convention*.

The POPs treaty represents the most ambitious effort by the global community to address toxic chemicals to date. Its completion involved consensus among the 122 negotiating governments as well as support from the chemical industry and environmental organizations (NGOs) – including the more than 300 NGOs participating in the International POPs Elimination Network.

POPs pose a particular hazard to arctic wildlife and peoples because of four common characteristics: they are toxic; they are persistent, resisting normal processes that break down contaminants; they accumulate in body fat of people, polar bears, and other animals and are passed from mother to fetus; and they can travel great distances – typically from temperate and tropical regions to the poles – on wind and water currents. The following are highlights of the treaty.

■ **Precaution as a guiding principle.** Precaution, including transparency and public participation, is operationalized throughout the treaty, with explicit references in the preamble, objective, provisions for adding POPs, and determination of best available technologies. The objective states: “Mindful of the precautionary approach as set forth in Principle 15 of the Rio Declaration on Environment and Development, the objective of this Convention is to protect human health and the environment from persistent organic pollutants.”

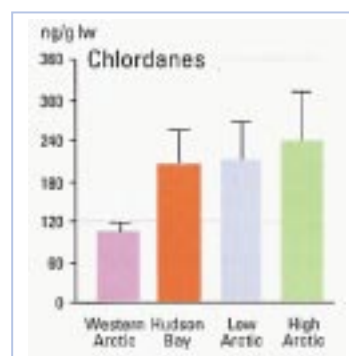
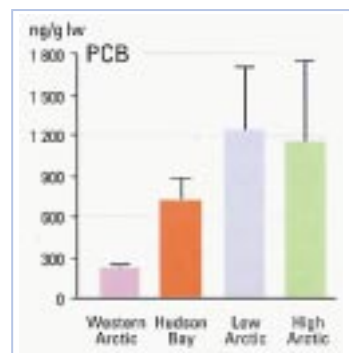
■ **Funding commitments enabling all countries to participate.** Developed country Parties commit to providing new and additional financial resources to developing

country Parties and Parties with economies in transition. On an interim basis, the Global Environment Facility (GEF) will serve as the treaty’s principal financial mechanism, subject to COP (Convention on Parties) review.

■ **Eliminating intentionally produced POPs.** Of 12 targeted POPs, eight are pesticides, most of which are slated for immediate bans once the treaty takes effect. A longer phase-out is planned for certain uses of polychlorinated biphenyls (PCBs). Provisions concerning the persistent pesticide DDT (dichlorodiphenyl-trichloroethane), include the goal of ultimate elimination, and limiting use to disease vector control in accordance with World Health Organization guidelines. Parties that have regulatory and assessment schemes for *new* chemicals are called on to “take measures to regulate with the aim of preventing” the production and use of new POPs.

■ **Ultimately eliminating byproduct POPs.** For dioxins, furans, and hexachlorobenzene (HCB), Parties are called on to reduce total releases “with the goal of their continuing minimization and, where feasible, ultimate elimination.” The treaty urges the use of substitute or modified materials, products, and processes to prevent the formation and release of byproduct POPs.

■ **Environmentally sound management and disposal of POPs wastes (including stockpiles, products, articles in use, and materials contaminated with POPs).** The POP content in waste is to be destroyed, irreversibly transformed, or otherwise disposed of in an environmentally sound manner



Levels of important POPs in four areas of the Arctic.

Source: AMAP Assessment Report: Arctic Pollution Issue, 1998

in co-operation with the Basel Convention.

■ **Strict limitations and bans on trade.** Trade of POPs is allowed only for the purpose of environmentally sound disposal or in other very limited circumstances. Delegates rejected a proposed World Trade Organization “supremacy clause” that could have encouraged States to challenge the treaty’s trade measures.

WWF, a lead NGO in the important and sometimes very contentious negotiations, welcomes the POPs treaty as a giant step forward. However, it is only a first step – vigilance must continue. Stakeholders need to work together to: a) expedite ratification by the 50 countries required for the treaty’s entry into force; b) examine additional chemicals for early inclusion in the treaty; and c) take national, regional, and private sector actions that go beyond treaty provisions.

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On May 21-31, representatives from 122 countries will meet in Stockholm, Sweden to sign the Stockholm Convention, a global agreement to minimise and ultimately eliminate the use of persistent organic pollutants (POPs). **Sheila Watt-Cloutier** is the president of the Canadian branch of the Inuit Circumpolar Conference (ICC) and has been a leading voice in the fight to eliminate POPs. During the global negotiations, Ms. Watt-Cloutier and ICC successfully highlighted the Arctic's position as a "sink" for POPs used far to the south, thus demonstrating both the long-range transport of these chemicals and the need for a global agreement. In an interview with **Samantha Smith** for the ARCTIC BULLETIN she discussed ICC's views on the Convention and the potential for international co-operation on other environmental issues.

Sheila-Watt Cloutier:

Indigenous Peoples Singled Out

Arctic Bulletin: *Is ICC satisfied with the Stockholm Convention, the end result of the global negotiations?*

Sheila Watt-Cloutier: We are certainly pleased with the fact that the convention singles out the Arctic and indigenous peoples; it is probably one of the first if not the

first international treaty to do so. The language of the convention itself is quite strong and robust but yet flexible enough to add other POPs, and that is very important to us. It also names the elimination of POPs as a goal, which is a big plus, and something that we have been pushing for for a very long time. The convention obliges developed countries to provide financial assistance and stresses pollution preven-

tion; so yes indeed, I think we are happy with it. Whether or not the convention achieves its objectives will certainly depend largely on the level of financing available, and of course the use of the capacity assistance network. But yes, we are pleased.

AB: *What will ICC do to followup on the Stockholm Convention and ensure that it is ratified and implemented?*

SWC: Certainly we are pressing Canada to ratify the convention as soon as possible because that is what we do here at ICC Canada and ICC International; we press the Canadian government on these issues. We expect to be in Sweden for the signing and will speak of the need for early ratification and the need to implement the United Nations ECE (Economic Commission for Europe) protocol on POP's. The ECE is the predecessor of this global convention, so we will be pressing the Global Environment Facility (GEF) to live up to its obligations and to establish a very well-funded POPs programme that is easily accessible by the developing world and economies in transition.

AB: *Mercury is another emerging contaminant issue in the Arctic, and now there are calls for a global agreement on this substance as well. Do you think a global agreement is achievable, and how long do you think it will take to get one in place?*

SWC: Well, mercury certainly is

an important substance that really should be addressed in an international agreement. Certainly we Inuit and other indigenous peoples

Certainly we are pressing Canada to ratify the convention as soon as possible

of the north have considerable experience with mercury because there have been high levels of methyl mercury in our rivers and lakes because of damming. So, we fully support the decision of the

Arctic Council to press for a global assessment of mercury and last month's decision by the United Nations Environment Programme (UNEP) governing council to undertake this assessment. It has taken a decade to make the case for an assessment and to negotiate this particular POPs convention, so we understand that international processes are often very slow and that it may now take some years to get a convention on mercury. But the work should at least get started.

AB: *Climate change is another global issue with disproportionately large impacts in the Arctic. What does ICC plan to do in the future on climate change?*

The convention obliges developed countries to provide financial assistance and stresses pollution prevention

SWC: Well, ICC certainly intends to take on the climate change file, we have to do so because the impacts of climate change in the Arctic are likely to be very severe. Our hunting and fishing and trapping patterns will

most likely change with differences in ice formation and ablation, in fact the Northwest Passage, which has always been impassable because



Sheila-Watt Cloutier.

first international treaty to do so. The language of the convention itself is quite strong and robust but yet flexible enough to add other POPs, and that is very important to us. It also names the elimination of POPs as a goal, which is a big plus, and something that we have been pushing for for a very long time. The convention obliges developed countries to provide financial assistance and stresses pollution preven-

of ice, may open to international shipping. I believe that it is going to be very difficult for any of us in the Arctic to adapt to these changes. We are now represented on the steering committee of the Arctic Climate Impact Assessment (ACIA) of the Arctic Council that was endorsed by ministers last year. When this assessment is complete it will certainly be our task to use it to press for international action in the same way that we used the Arctic Monitoring and Assessment Programme's (AMAP) 1997 contaminants report in the global POPs debate, which proved very useful. We will certainly press Arctic nations to address this issue as well as the observer nations to the Council including Germany and the U.K. We also intend to develop a traditional knowledge focus and will use this angle with the world's media. We believe that this will be key in addressing this whole issue.

AB: *ICC has worked with WWF on contaminants issues and a number of other projects. What is your view of WWF's work in the Arctic, and do you see opportunities for co-operation between ICC and WWF in the future?*

SWC: WWF certainly understands where we are coming from, when I say that we are really careful about working with other groups, particularly environmental groups. Two years ago, WWF-US issued quite an appalling press release that called upon Inuit to stop hunting bowhead whales, and this really was not sensitive to our way of life and to the Inuit. However, on the POPs issue our relationship with WWF has been good and we have worked together quite well, in fact, the support of WWF in this whole area has been appreciated. We have been able to draw upon your media savvy and technical assistance and we are certainly grateful for that. I suspect that we might be able to replicate that relationship in tackling climate change, but as I say we are always cautious because of the history of environmental groups and how they have devastated some of the issues in sustainability. Certainly, if there is a continued respect for our sustainable hunting ways then we could continue to work together on various issues such as climate change.

Who is Who

The International Arctic Research Center

Climate trend research suggests that the latter part of the twentieth century is anomalous in terms of warming. For example, over the last few decades air temperatures have been warming at a rate of 1°C per decade in winter and spring months, particularly in the continental areas of the Arctic – a rate much higher than the global average of 1°C per century.

All computer-generated models predict prominent changes in the climate of arctic regions in the future.

The International Arctic Research Center (IARC) was established by a joint effort of the U.S. and Japanese governments on the campus of the University of Alaska Fairbanks for the purpose of studying arctic climate change. The IARC is becoming an important focal point for research activities, and plays an important role in coordinating international arctic research projects. For example, the IARC co-ordinates the Arctic Climate Impact Assessment (ACIA) project. In particular, the IARC focuses on climate change and its global feedbacks and consequences through the integration and synthesis of past, present and future research.

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Northern Climate Exchange

The federal government of Canada and the Yukon territorial government have

joined forces to come up with solutions to possible impacts of climate change on the northern environment and way of life. The Northern Climate ExChange (NCE) was recently established at Yukon College's Northern Research Institute in Whitehorse, Canada.

Designed to facilitate local involvement in improving the current level of understanding of the impacts of climate change on the north, the NCE will also serve as a catalyst for multidisciplinary climate change research. The centre also aims to facilitate responses to climate and environmental change, increase science and research capacity among northerners, and promote local economic opportunities to develop resource efficient technologies and practices that contribute to the mitigation of climate change. The centre's work is directed by a steering committee with representatives from Yukon and federal governments, co-management boards, municipalities, the Council of Yukon First Nations, the energy sector and conservation groups.

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American Fisheries Society

The mission of the American Fisheries Society (AFS) is to improve the conservation and sustainability of fishery resources and aquatic ecosystems by advancing fisheries and aquatic science and by promoting the development of fisheries professionals.

Over the next two years, AFS and the National Wildlife Federation



➤ (NWF) will be combining their skills to work on a climate change and fisheries program. Goals of the program include:

- Encouraging research on the influence of climate change on fisheries and their associated resources;
- Educating policy makers and the public about these issues and current research; and
- Helping to develop effective strategies to deal with fisheries problems associated with climate change.



The program builds on a special symposium that will take place at the AFS 2001 Annual Meeting in Phoenix, Arizona, August 19–23, 2001. The two-day “Fisheries in a Changing Climate” symposium will include topics such as the short-term and long-term effects of climate on fisheries, climate model forecasts and assessments, evidence of climate change in aquatic systems, and the consequences of climate change on fisheries.

AFS and NWF are developing plans for a forum that will bring together key parties to address important issues surrounding climate change and fisheries to follow the symposium.

For more information on the climate change and fisheries program or the “Fisheries in a Changing Climate” symposium, please contact Nature McGinn, AFS/Sea Grant Fellow, at: nmcginn@fisheries.org or phone: (301) 897-8616 ext. 222. Ph: +301-897-8616 Fax: +301-897-8096 Email: main@fisheries.org Internet: www.fisheries.org

Intergovernmental Panel on Climate Change

Recognizing the problem of potential global climate change, the World Meteorological Organization (WMO) and the United States Environment Programme (UNEP) established the Intergovernmental Panel on Climate Change (IPCC) in 1988. It is open to all members of UNEP and WMO. The role of IPCC is to assess the scientific, technical and socio-economic information relevant to an understanding of the risk of human-induced climate change. The IPCC does not carry out new research or monitor climate-related data. It bases its assessment primarily on published and peer reviewed scientific technical literature.

The IPCC completed its First Assessment Report in 1990. The report played an important role in establishing the Intergovernmental Negotiating Committee for a United Nations Framework Convention on Climate Change (UNFCCC) by the United Nations General Assembly. The UNFCCC was adopted in 1992 and entered into force in 1994. It provides the overall policy framework for addressing the climate change issue.

The Third Assessment Report was released in late January, 2001. The report builds upon past assessments and incorporates new results from the past five years of research on climate change. Many hundreds of scientists from many countries participated in its preparation and review. The report concludes that climate change is already having a “widespread and coherent” impact on the planet, and that it is occurring in all environments and on all continents. A meeting of over 100 governments represented on the IPCC concluded a meeting in Geneva, Switzerland in February by accepting the findings of the 1,000 page report.

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 Internet: www.ipcc.ch/about/about.html

What Future

During the year 2000, many fine words were heard from world leaders acknowledging the devastating effects of human-induced changes to global climate. Melting arctic ice, forest fires in the U.S. and floods in the U.K. have all been linked to climate change. Yet, in spite of mounting evidence, real action to combat the problem remains elusive, as the failure of the November climate summit at The Hague, Netherlands serves to demonstrate.

Supposedly, the 160-odd nations that gathered at The Hague were united in their determination to fight climate change. After all, they had signed a landmark agreement in Kyoto only three years earlier. The Kyoto Protocol, while setting relatively modest reduction targets for greenhouse gas emissions (an average reduction of 5.2% below 1990 levels for developed nations) was nevertheless welcomed by WWF as an important first step in instituting a legally binding international climate change convention.

A look at emission trends since the signing of the protocol quickly reveals a lack of action to date, however. Since 1990, greenhouse gas emissions in almost all the western industrialised countries (except Germany and the U.K.) have grown rapidly. Carbon dioxide emissions in the U.S., the world's largest carbon polluter, have risen by more than 10% since the U.S. signed on to the United Nations Framework Convention on Climate Change (UNFCCC) or COP-6 at Rio in 1992. Not one industrialised country has ratified the Kyoto Protocol.

The purpose of the climate conference at the Hague (officially the 6th Conference of the Parties to the UNFCCC) was to set rules and guidelines for the implementation of the Protocol. Since Kyoto, negotiators have spent a total of 14 weeks at formal sessions, as well as countless days in informal and bilateral meetings to sort out the

for the World's Climate after the Hague?



Photo: Lella Mead, ISD

intricacies of the Protocol. By the time the summit was underway, negotiations had become so complex that many delegates from smaller countries were unable to keep track of what was going on. The key countries were steadfast in their refusal to meet reduction targets, resulting in sharp clashes between nations that have made strong advances in reducing greenhouse gases and those with poorer records. The talks collapsed after the U.K. attempted to broker a deal with the U.S. that was rejected by the rest of the European Union. By

the end of the negotiations, time had run out for the earth's climate.

The real blame lies with the U.S. and its allies (including Canada and Australia), for continuing to push for accounting loopholes such as carbon credit trading and using forests and farmlands as "sinks" to avoid reducing greenhouse gas emissions at home. WWF remained optimistic about a successful outcome in spite of the stand taken by these countries, and expected a compromise agreement. The reality is that without any agreement, emissions in the U.S. will continue

to rise and will likely increase by 25 to 30% by 2010 (compared to 1990 figures).

There are plans to restart COP 6 next year in May but it is not clear whether the momentum of the last hours of the Hague conference can be regained. In the meantime, strong public and corporate pressure will be necessary to force the laggard countries to act. In early December, a surprise meeting was held in Ottawa, Canada, which aimed to restart the negotiations. Not surprisingly, little progress was made during the two-day session. The U.S. is clearly a key player, and national leaders must be persuaded to make climate change a priority in their discussions with newly elected U.S. president George Bush, who has voiced strong reservations about reducing domestic carbon emissions. A global treaty *must* be ratified to deal with climate change. Hopefully, The Hague will only have been a temporary setback.

Activists stayed at the conference centre all night.

COP-6 President Jan Pronk tells delegates that an agreement was not reached.



Photo: Lella Mead, ISD

UTE COLLIER

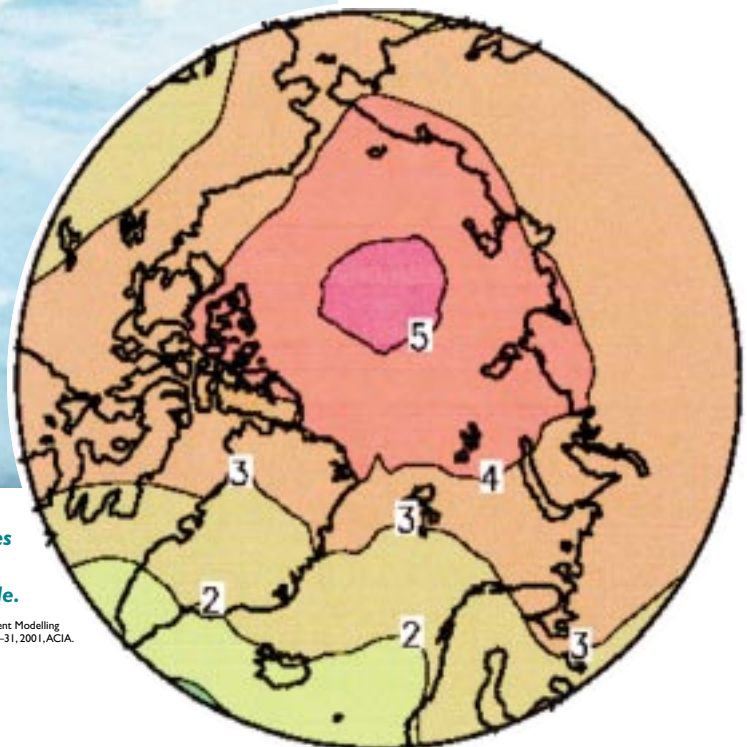
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W Climate

The scale and rate of climate change has been further brought to light by presentations of Working Group 1 and Working Group 11 contributions to the Third Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) in January, 2001. The world's leading experts on climate change (more than 120 lead authors, over 500 contributing authors, about 20 review editors and over 300 expert reviewers), as well as delegates from about 100 governments, unanimously approve and accept this report as the current state of knowledge regarding this issue. The assessment concludes that a process of climate change is underway that will continue well into the future, regardless of whether greenhouse gas emissions are stabilised in the near future or not. Further, the study has firmly established that human activity is a major factor contributing to global climate change. Although this is discouraging news, opportunities still exist for positive action, since there is still time to influence the scale and speed of the changes to come.

WWF's Climate Change Campaign

Climate change has been an issue of priority for WWF International since the early 1990's, and is presently one of



ABOVE: Polar bears depend on sea ice cover to hunt seals. The Arctic Climate Change Focal Project will support research on the effects of climate change on polar bears.

RIGHT: Simulated annual mean temperature changes for the year 2070 over the region north of 60° latitude.

Source: Report from the Arctic Climate Impact Assessment Modelling and Scenarios Workshop, Stockholm, Sweden January 29-31, 2001, ACIA.

WWF Initiates Arctic Climate Change Focal Project

According to leading scientists and policymakers, human-induced climate warming can no longer be dismissed as a theoretical, academic concept or a politically motivated doomsday prophecy. Climate change is a reality. Over the past century, the global average surface temperature increased by about 0.6°C, and the effects of this shift are becoming increasingly visible. Phenomena which have been attributed to climate change include: changes in precipitation and atmospheric circulation patterns, rising ocean temperatures and sea levels, an increase in the frequency of El Niño events, a reduction in the extent and thickness of sea ice in polar regions and impacts on terrestrial and marine ecosystems. Over large expanses of the Arctic, average temperature increases of up to 5°C have been recorded, along with a loss of permafrost due to surface warming. This in turn is causing soil erosion problems and severe disturbances to wetlands.

six major areas of activity. To date, most of WWF's efforts to limit climate change have concentrated on impacts assessments and political lobbying to reduce greenhouse gas emissions. Within the WWF network, national organisations often combine efforts to increase public awareness, establish innovative partnerships with progressive businesses and change government policies within their respective countries.

The WWF Climate Change Campaign was launched in 1996 to focus and co-ordinate climate change programs and initiatives within the WWF network. The main goal of the Campaign is to bring about a downward trend in carbon emissions by 2001, and substantial reductions in inputs by 2010. The Campaign has published a series of studies on the impacts of climate change globally, which encompass impacts on coral reefs, oceans, forests, national parks, bird migration, tourist destinations, public health and the Arctic.

WWF's Arctic Climate Change Initiative

In 2000, WWF Netherlands agreed to support the development of WWF International's Climate Change Campaign by funding four Climate Change Focal Projects. These projects will enhance the effectiveness of the Campaign by:

- Improving existing knowledge of the effects of climate change on a specific region, or theme (such as coral reefs);
- Developing adaptive strategies to enable communities and ecosystems to respond to climate change; and
- Communicating the results of focal

climate change research and other project work internationally.

The Arctic was selected by WWF as the first region to implement a Climate Change Focal Project for several reasons, including the following:

- The Arctic is a key indicator region for climate change. According to most climate change scenarios, the Arctic will be one of the first regions to show visible effects, and changes will be rapid and severe. Impacts on arctic biota and landscapes have already been documented;

- Key countries involved in the climate change debate (the USA, Canada, Russia and several European countries) have strong economic, social, and environmental interests in the Arctic; and

- The Arctic Council recently initiated an "Arctic Climate Change Impact Assessment (ACIA)" project, which aims to direct and co-ordinate climate change research in this region.

The Arctic Climate Change Focal Project will, among other things, support selected field-based projects relevant to the goals and objectives of WWF's Arctic Programme and Climate Change Campaign. The project will seek to establish close links to climate change programs administered by arctic governments, such as the ACIA, and by other fora.

Sea Ice, Polar Bears and the Taimyr

The selection of projects and activities for support by the Arctic Climate Change Focal Project will be an ongoing process, given that some projects will terminate and new projects will begin throughout the duration of the Focal Project. In its initial phase,

the Focal Project will support field-work in the following locations: Hudson Bay and the Beaufort Sea (Canada), the Barents Sea (Norway/Russia), the Bering Sea/Wrangell Island (Canada/Russia) and the Taimyr Peninsula (Russia). In the Barents Sea and Hudson Bay, emphasis will be placed on observed and projected changes in sea ice dynamics and cover and the implications of these changes on sea ice-dependent ecosystems and species, particularly polar bears, seals and walrus. In the Taimyr area, the Focal Project will primarily address climate change effects on arctic wildlife, particularly reindeer and migratory birds but will also concern impacts on tundra vegetation and the lifestyles of indigenous people.

The Focal Project will officially commence in July 2001. However, preparatory work will begin in May 2001, when WWF will also join ACIA in contributing to a workshop that will set an agenda for climate change research in Russia.

Through active involvement in research and other field activities supported by the Arctic Climate Change Focal Project, WWF will gain first-hand and up-to-date information about climate change in the Arctic. This information will be of great value to WWF and all other organisations working to limit the speed and scale of global climate change.

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Sea ice, the habitat of polar bears, has significantly decreased in recent decades.



Inuit Observations of Climate Change



Photo: Neil Ford



Photo: Graham Ashford

ABOVE: At a lake five miles from the coast of Banks Island, the melting of the permafrost is clearly evident.

ABOVE RIGHT: Sach's Harbour mayor Peter Esau explains the impact that climate change is having on the community and the island.

Like many other indigenous peoples, the residents of Sach's Harbour have a close relationship with nature, and continue to rely heavily on subsistence activities for their livelihood. Since the mid-1980's, Inuvialuit hunters and trappers in this tiny community, located on Banks Island in Canada's High Arctic, have noticed small but worrying changes in their environment. The climate has become unpredictable, and abnormalities in the health and behaviour of wildlife have been observed.

disturbing changes her community has witnessed to fellow board members at the International Institute for Sustainable Development (IISD). Subsequently, a yearlong project was initiated jointly by the community of Sach's Harbour and IISD to document the problem of arctic climate change through video and journal articles and communicate it to Canadian and international audiences. The following are some of the observations reported by the community.

sea ice is thinner and less extensive;

- Hot weather in the summer is melting the permafrost and causing large-scale slumping of the coastline and shores of lakes, creating difficult conditions for overland travel. A lake actually drained into the ocean, killing the freshwater fish it contained;

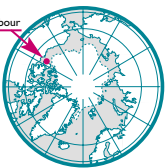
What's scary is the uncertainty ... We don't know when to travel on ice and our food sources are getting farther and farther away"

– Sach's Harbour resident
Rosemarie Kuptana

- Local people are encountering new health problems, such as skin rashes resulting from exposure to stronger winds and a more intense sun, and allergies to pollen released by white pine, a temperate tree that is migrating northwards;

- Changes have been observed in the distribution and abundance of certain land mammals, such as wolves, muskox and rabbits; and, the incidence of deformities in some species of wildlife has increased. Warming temperatures are causing polar bears to leave their dens earlier and move away from the area;
- New species have arrived on the island, such as robins, barn swallows, red foxes, beetles and sand flies. For the first time, salmon and herring have been caught in nearby waters. Mosquitoes and flies have increased in abundance and the mosquito season

Sach's Harbour



Rosemarie Kuptana, a resident of Sach's Harbour, conveyed the

- Hunting has become more difficult and dangerous, because the

Sila Alangotok: Inuit Observations on Climate Change

■ Climate-change related impacts witnessed by the Inuvialuit of Sach's Harbour in Canada's high Arctic are documented in this groundbreaking video released by the International Institute of Sustainable Development (IISD) last November. The video presents a powerful case for arctic climate warming and dramatically illustrates how related effects are making life increasingly difficult and unpredictable for the residents of this community. A shorter, 14-minute version of the full 42-minute

documentary can be viewed on-line by visiting the IISD website at <http://iisd.ca/casl/projects/inuitobs.html> Both versions of the video can be ordered from IISD at the following address:
IISD Reception
161 Portage Ave. East, 6th Floor
Winnipeg, Manitoba
Canada R3B 0Y4.
Ph: (204) 958-7700
Fax: (204) 958-7710
Email: info@iisd.ca

- has lengthened; and
- Thunder and lightning have been recently reported for the first time. Other changes in weather patterns include stronger winds, increased rainfall, summer hail, and a more intense summer sun. Seasonal changes include milder winters, warmer summers, a shorter fall and slower freeze-up and the earlier arrival of spring.

The Inuit Observations on Climate Change project has provided evidence, through the documentation of specific climate change-related phenomena, that global warming is not a distant threat but a present reality. During the yearlong initiative, the project team worked in partnership with specialists from five organisations to develop an innovative method of recording and sharing local observations of climate

change. The approach combined participatory workshops, semi-structured interviews, community meetings and fieldwork. During workshops, participants described changes in their environment (dating back

The weather, the animals, the migration patterns, the changes that we've seen is knowledge...It's our scientific knowledge."

— Sachs Harbour resident
Rosemarie Kuptana

to the 1930's), ranked climate change phenomena and created a circular chart that shows the time of year when significant traditional activities and climate change related phenomena occur.

The resulting video documentary, with its timely and compelling message of climate change communicated by residents of the Arctic, was premiered at a launch in Ottawa, Canada and at the United Nations Climate Change Conference (COP6) in The Hague, Netherlands, on November 16, 2000. By using both traditional and western knowledge, it will be possible to achieve a more complete understanding of the effects of human activities on the climate of arctic regions.

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High Arctic Lake Recovers from Sewage Dumping



Photo: M. Doughty

Diatoms are being used by scientists to track human-related changes in nutrient levels in arctic lakes.

Canadian researchers have reported that a high arctic lake has significantly recovered despite decades of sewage dumping.

Assessments of human-induced changes are rare in the Arctic, and this is the first paleoecological study of human-induced eutrophication (nutrient loading) in a high arctic lake.

Marianne Douglas, a University of Toronto geology professor, and her co-investigator, Queen's University biologist John Smol, analyzed assemblages of diatoms, or microscopic algae, in water and sediment samples taken from Meretta Lake near Resolute Bay, Nunavut, in 1999. "We were very pleased to see the quickness of the lake's recovery and found diatoms to be very effective biomonitors of the lake's condition", Douglas said. From 1949 to 1998, a Canadian Department of Transport base and other facilities dumped sewage into the lake. At its

peak in the early 1970's, the base supported a population of approximately 200 but has declined to 65 today. No waste has been dumped in the lake since 1998.

The researchers compared phosphorous levels with data from a 1970's study conducted during the peak of activity at the base. They found that levels had declined sharply since 1972, a trend coincident with further decreases in usage of the base. Their most recent data indicate that nutrient levels in Meretta Lake are now near "natural" background levels. Also observed were significant impacts on planktonic diatom assemblages, although the species changes were less striking than those recorded in temperate regions receiving similar inputs.

The researchers were optimistic about the potential application of diatom studies in future paleoecological studies. "We are eager to test the method on sites where archeologists suspect northern peoples camped 1,000 years ago", said ➤

► Douglas. Many native peoples relied heavily on marine resources, and are suspected to have butchered and cleaned the carcasses of whales and other animals in lakes. Diatom studies will be an important tool in tracking past nutrient inputs related to the presence of humans, according to Douglas. The study also provides

evidence that high arctic lakes may be more resilient to human influences than previously believed.

SUE TOYE

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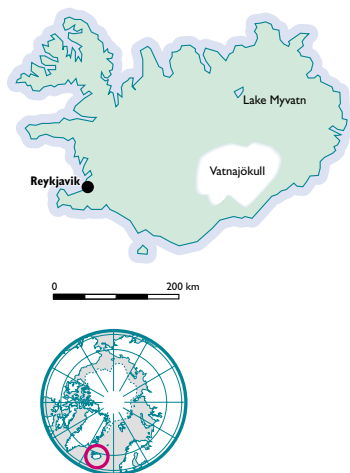


Photo: John P. Lindal

A Win-Win Decision for Lake Myvatn

As reported in AB 4/00, Iceland's Minister of the Environment, Siv Fridleifsdottir, made a very controversial ruling last November 1 to renew a license for diatomite mining in Lake Myvatn, even though an earlier statement had been made that mining would be discontinued once the present license expires. The Lake Myvatn area is a geologically active and stunningly beautiful part of Iceland that is renowned for its rich bird life, particularly its abundance of ducks. The status of the lake and its outflowing River Laxa as one of the most productive freshwater systems in the world led Iceland to its appoint the area as a Ramsar site over twenty years ago

The decision to renew the license was made in spite of strong opposition from scientists and conservation organizations (NGOs), who argued that it was a violation of Iceland's obligations under the Ramsar Convention, a treaty that provides the framework for the conservation and wise use of wetlands through international cooperation. In a surprising turn of events, plans to continue mining were recently dropped because the owners of the diatomite factory (i.e. the government of Iceland and

World Minerals) concluded that the operation is no longer economically viable. Diatomite is a silica-rich sediment formed when the shells of diatoms, or microscopic algae, accumulate on the floor of lakes and oceans. The diatomite was sold to Allied EFA, a company that intends to build a new factory in the area to produce precipitated silica, a product that is also useful for many industrial processes. The production of precipitated silica will not involve diatomite extraction in the lake basin because other silica-rich

deposits can be used. Consequently, there will be no need to continue dredging Lake Myvatn's north basin beyond another two years. The decision also ends a proposal to extend mining operations to the south basin of the lake to meet future production demands. Dredging of the lake disturbs fresh sediment layers, which affects nutrient budgets and the food supply for chironomid larvae and crustaceans, organisms that form the basis of the food chain in this internationally significant wetland.

It appears that the fight to protect Lake Myvatn has been secured without the loss of jobs that would have occurred if mining had stopped altogether. NGOs have urged the government to follow up on this new development by providing funding for a conservation plan for Lake Myvatn and the Laxa River as required by the Ramsar Convention; by supporting a full-time warden position; and finally, by investigating the potential for establishing an international scientific research station in the area.

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Preserving Gwich'in Culture and the Porcupine Caribou Herd

Norma Kassi is a WWF-Canada Board member who is leading initiatives to safeguard Gwich'in natural and cultural heritage, including joint campaigns to stop oil/gas developments in the Arctic National Wildlife Refuge, Alaska. She was interviewed by **Peter Ewins** of WWF-Canada during a recent oil and gas conservation workshop in Whitehorse, Canada, attended by representatives from aboriginal groups, non-governmental organisations (NGO's), industry and government.

Arctic Bulletin: *This weekend in Whitehorse Yukoners have been joined by a diverse gathering of Canadians and Alaskans to discuss the environmental and social challenges and opportunities presented by oil and gas developments in the western Arctic. What is your main concern as a Gwich'in, originally from Old Crow in the northern Yukon?*

Norma Kassi: I'm concerned about my people, the Gwich'in. We live on migratory resources that depend on more than one country – caribou, birds, etc. We have many growing problems here in the north: climate change, toxic chemicals, and mining and gas development. These all threaten the Gwich'in way of life. The Porcupine caribou herd has sustained my people for many, many generations, but is now threatened by proposed oil developments in the sacred caribou calving grounds in northeast Alaska called "The Arctic Refuge".

AB: *What steps do you think are necessary to secure the long-term survival of Gwich'in cultural traditions and ancestral lands?*

NK: First and foremost we must protect the Porcupine Caribou herd and all of its needs. Staying out of the sensitive calving areas is perhaps the most important thing

we must do – this is a sacred place for the caribou and my people.

AB: *The Canadian Prime Minister and the Minister of the Environment have both recently publicly underscored Canada's strong opposition to any oil/gas development in the coastal plain of Alaska's Arctic Refuge. What specifically do you feel will ensure that these critical caribou calving areas remain undisturbed and intact?*

NK: We are very pleased that the government of Canada has taken this approach, which will help to get our message across to the world. Both the United States and Canada have international responsibilities and commitments to conserve this resource. There is an agreement already in place to protect these caribou and their habitats – The International Porcupine Caribou Agreement. So, I would simply like to see this commitment honoured by our democratically-elected governments.

AB: *Given the eight-nation Arctic Council's core mandate to protect the arctic environment and its rich biological and cultural diversity, what should it do to ensure that the Arctic Refuge is protected?*

NK: The Arctic Council should help us to bring pressure on the United States to understand and respect how vitally important caribou are for the Gwich'in people and all indigenous arctic cultures. To allow oil development inside the calving area of the Porcupine Caribou herd would set a devastating precedent for the entire Arctic, and would fly in the face of the fundamental purpose of the Arctic Council and international commitments on human rights.

AB: *How important are the human rights aspects of the Porcupine Caribou case?*

NK: Certainly, preserving the core



Photo: Peter Ewins

Norma Kassi.

way of life of the Gwich'in, and many other arctic peoples who depend primarily on caribou is a fundamental human rights issue, a concern of the highest magnitude. We have the right to live within our own cultural lifestyle, which is tied closely to the land.

AB: *Many people outside the Arctic don't really know much about these cultural and wildlife conservation issues or understand them. How do you think we can bring a greater level of understanding into decision-making processes that affect the Arctic?*

NK: Here is a real opportunity to work together. The majority of U.S. citizens support full protection of the Arctic National Wildlife Refuge, so now we have to reach out to the international audience. I would like to invite President George W. Bush to come to the calving grounds of the Porcupine Caribou herd in early June when 40,000 caribou calves will be born. I will then introduce him to my people in Old Crow and Arctic Village, Alaska, and he can see for himself how our lives and our culture depend upon the Porcupine caribou.

I hope he will come and learn about the people with whom he shares this wonderful continent. Vadsih engit qwittrit gwinch'

AB: *Thank you Norma.*

NK: Mahsi-cho, shil luk kye.

Saltfjellet Saved from Hydropower Development:

Historic Decision Sets Example for Norway



Photo: Gaune Dahl

View of area proposed for hydropower development in the Saltfjellet – Svartisen National Park.

The first positive news from any prime minister so far in 2001 was heard during a speech on the first day of the year, when Prime Minister Jens Stoltenberg put an abrupt stop to plans for hydropower development in the vicinity of Saltfjellet – Svartisen National Park.

At last, all those whom had fought with great resolve to save the rivers and lakes surrounding this national treasure could enjoy a great victory. A public protest only four months earlier that stopped heavy machinery from continuing along a public road into the area was the final event that forced the Norwegian government to cancel

the project. Patient work, and the nurturing of strong opinion and support among the public and politicians in advance of the demonstration were critical to the overwhelming success of the campaign.

It is notable that when the Norwegian government established the park in 1987, it allowed for four hydropower projects in the immediate vicinity of the park's borders. Until permission to exploit the river systems in the Beiarn, Bjellaga and Melfjord regions is formally withdrawn, efforts should continue to raise awareness of the importance of conserving these regions in an undeveloped state.

Saltfjellet – Svartisen National Park covers 2, 105 km² and protects the unique and varied highlands found in Norway near the Arctic Circle. The park is located in one of the Global 200 Ecoregions identified by WWF, the *Fenno-Scandia Alpine Tundra and Taiga Ecoregion*. If the surrounding reserves, which have been designated at various levels of conservation status, are included (737 km²),

Ny-Ålesund — The “Greening” of a

Ny-Ålesund International Arctic Environmental Research and Monitoring Station is a modern polar research facility located in Norway's Svalbard archipelago. Six countries have now established monitoring stations at Ny-Ålesund, which identifies itself as the world's northernmost permanent settlement.

In 1996, concerns over environmental impacts resulting from high visitation levels and increasing research activity led the Ny-Ålesund Science Manager's Advisory Committee (NySMAC) to initiate an Environmental Impact Assessment (EIA) in Ny-Ålesund. The government-owned property manager, Kings Bay AS, acted on

the recommendations of the EIA by developing a 10-point Environmental Action Plan intended to minimise impacts and restore and maintain the area as an undisturbed reference site for future monitoring purposes (AB 1/98). Additionally, the Norwegian government intends to develop Ny-Ålesund into a model “green” centre for polar research. The following major projects are now underway:

Waste Management

In 1998, a waste management plan was developed for the Ny-Ålesund community, with the aim of recycling a minimum of 80% of the station's waste. Solid waste is now sorted into 16 different categories, and 50% of the total is sent to the mainland for recycling. Recycling centres have been established

throughout the community, and all departments and stations are required to follow especially adapted rules concerning waste management.

A pilot composting project has been initiated which aims to reduce food waste from 40% of the total waste generated to zero. In 1999, a small-scale in-vessel composting system was installed with a capacity of 10 tonnes/year. This is the first case of composting on such a scale in the far north.

Revegetation of Disturbed Areas

A pioneering restoration project began in the summer of 2000 to revegetate tundra damaged by construction activity. Approximately 4,000 plants consisting of four native species were planted in the centre of the

a representative portion of the regional landscape can be preserved. A landscape of fjords and mountains dominated by Svartisen, Norway's second largest glacier characterises the western part of this region, which is also known for its limestone caves. To the east, gently sloping, partly forested valleys extend into the area in a north-south direction. The mountain ranges of Saltfjellet function as a natural barrier to dispersal and a climatic refuge that is reflected in the region's plant communities. For instance, Saltfjellet is home to Norway's northernmost natural spruce forest.

The opportunity now exists to protect the entire Saltfjellet region by extending the boundaries of the park to encompass rivers and lakes in the regions of Bjellaga and Melfjord, two of the three areas that were targeted for hydropower development. The third area, the Beirn River system, winds its way through farmland and populated areas. Complete protection of this system will require its designation as a National Salmon River. The Beirn is one of the few remaining rivers that still supports healthy wild salmon populations.

Conserving Norway's desolate

highlands and remote river systems involves relatively little economic sacrifice. Much more difficult is persuading politicians of the importance of protecting other types of environments, such as diverse and productive forests. For this reason, the greatest challenges will lie in developing uses and management practices that will not diminish the ecological integrity of these natural areas.

When daunting conservation problems arise that are seemingly impossible to resolve, the Saltfjellet outcome will serve as a reminder that all is possible. Only the day before the demonstration, the Minister of Oil and Energy claimed that it would be impossible to prevent hydropower development from moving forward. Instead, an unprecedented decision was made. Norway produces virtually all of its electricity from hydropower sources and has never taken back an existing license for this type of project. With this landmark turnaround, history was re-written and wild salmon and Sami settlements, wilderness and unique landscapes were protected.

GAUTE DAHL

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■ A plan to develop the hydroelectric potential of three river systems in the Saltfjellet region of Norway fueled such strong public opposition that the Norwegian government was forced to cancel licenses it had already granted to operators. Clearly, public reaction to the Saltfjellet proposal indicates that the majority of Norwegians do not want to change the pristine nature of the few rivers that have not already been committed to hydroelectric dams. The case sets a precedent that is relevant to Iceland, where there has been a long-standing interest on the part of the government, and the Norwegian state-owned firm Norsk Hydro to develop the vast wilderness of the highlands region for hydropower (AB 4/00). The Icelandic government should pay close attention to recent events in Norway and take steps to protect the highlands area, which encompasses 20,000 km² north of the Vatnajökull Glacier, as a national park. The Saltfjellet decision should set a general principle to end the continuous development of Norway's rivers that has distinguished the past century and extend full protection to remaining wild systems.

The local conservation group Save Saltfjellet led the effort to raise public awareness in the months leading to the landmark decision and played a key role in bringing about this impressive victory for conservation. WWF would like to congratulate executive director Gaute Dahl and other members of Save Saltfjellet, and all others who joined in support of protecting the Saltfjellet wilderness, including Prime Minister Jens Stoltenberg. Let us hope that this reversal in official position, announced on New Year's day, portends a change in environmental policy that will continue through 2001 and in coming years.

High Arctic Research Centre

community. Compost produced from organic waste was used as fertiliser.

Visitor Management

The EIA recommended that all visitors receive information outlining acceptable conduct on Ny-Ålesund prior to their arrival. Kings Bay AS exceeded this recommendation by developing a visitor information program, establishing protected areas and developing a nature trail to restrict visitor activity. Experience so far indicates that these initiatives have helped to protect the fragile tundra and nesting birds.

Environmental Education

An information package about Ny-Ålesund's environment and waste management program is distributed to every person staying at the

station and to all visitors. During the 2000 season a seminar about the "greening" of Ny-Ålesund was held every 14 days. The purpose of the seminar was to motivate inhabitants and visitors to protect the natural environment.

Kings Bay AS has developed a set of rules and regulations applicable to its activities within Svalbard's unique setting. The environmental management program developed at Ny-Ålesund is an example of a sustainable approach taken by one company towards coordinating and managing the research activities of six nations.

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Emptying the composter.

Critical Habitat Designated for Specta

The U.S. Fish and Wildlife Service has designated critical habitat in Alaska for the spectacled eider and Alaska-breeding population of the Steller's eider. Both species are listed as threatened under the federal Endangered Species Act. The total area designated as critical habitat is 65,330 km².

For the spectacled eider, critical habitat has been designated in moulting areas in Norton Sound and Ledyard Bay, breeding areas in central and southern Yukon-Kuskokwim Delta, and wintering areas in waters south of St. Lawrence Island. A total of 62,386 km² has been designated for this species.

Critical habitat has been designated for Steller's eider in breeding areas on the Yukon-Kuskokwim

Delta, a staging area in the Kuskokwim Shoals, and moulting areas in waters associated with the Seal Islands, Nelson Lagoon, and Izembek Lagoon in south-western Alaska. The area designated totals 4,528 km².

Although the Service believes that some portion of the North Slope is essential for the conservation of both eider species and therefore meets the definition of critical habitat, a designation has not been made here. The Service believes that designating habitat on the slope would convey an inaccurate message about the size and location needed for recovery and may undermine ongoing co-operative efforts to carry out conservation efforts.

Under the Endangered Species Act, critical habitat refers to specific geographic areas that are essential for the conservation of a threatened



Spectacled eider.



Steller's eider.

New GEF Project on Wetlands for Sibe

Following a period of intensive preparation led by the International Crane Foundation (ICF), a Global Environment Facility (GEF) project on the Conservation of Wetlands and Migratory Corridors Required by Siberian Cranes and Other Waterbirds began in March 2000. A one-year project development grant (PDF B phase) that covers China, the Islamic Republic of Iran, Kazakhstan and the Russian Federation will be completed in September 2001 with the submission of a comprehensive five-year full project proposal.

The project is being implemented through the United Nations Environment Programme (UNEP), and is being co-ordinated by ICF and the Convention on the Conservation of Migratory Species (CMS). The

goal is to preserve a network of internationally important wetland ecosystems in central and eastern Asia that are critical to the survival of Siberian cranes and other rare species of migratory waterbirds. In addition, international flyway protection strategies are being developed. These efforts are being co-ordinated by CMS, the East Asia Crane Site Network under the Asia Pacific Migratory Waterbird Strategy and Wetlands International under its central Asian flyway proposal.

The project has proceeded well, and two successful steering committee meetings have been held to date. The first meeting, held in Moscow in March 2000 by the All-Russian Research Institute concerned habitat protection. A second meeting was held in Nanchang, China in December 2001 by the State Forestry Administration. Highlights for participants were opportunities to see the highly successful Rare Crane

Breeding Programme at the Okskii Biosphere Reserve, wild Siberian cranes and large numbers of rare and beautiful waterbirds at Poyang Lake. Representatives from Russia, Kazakhstan, Iran and China participated in both meetings.

Considerable progress was made during these meetings towards drafting a full project brief for a five-year project. Critical sites have been selected and threat analyses conducted. The national teams involved are actively developing strategic objectives to address these threats and priority conservation measures have been identified.

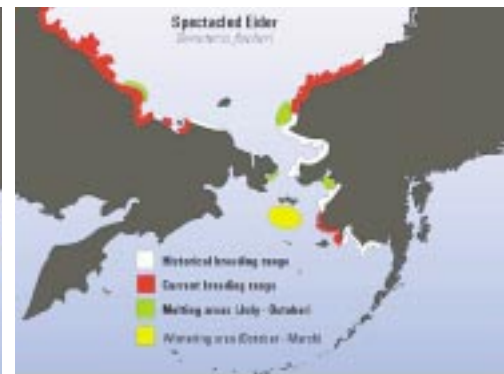
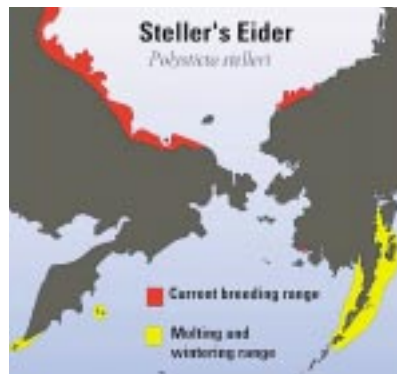
Draft copies of the full project proposal will be exchanged through the spring of 2001. A final review meeting will be held at ICF from May 20–24, 2001 in conjunction with the CMS Siberian Crane Meeting. The full project proposal will be submitted to the United Nations Environment Programme (UNEP) in June 2001 and to GEF in

bled and Steller's Eiders in Alaska

or endangered species that may also require special management considerations. A designation does not set up a preserve or refuge and only applies to situations where federal funding or a federal permit is involved. The Act requires federal agencies to consult with the Service to ensure that activities they fund, authorise or carry out do not jeopardise threatened or endangered species or adversely modify or destroy their critical habitat.

The Service will convene recovery teams in 2001 to continue the development of a draft Steller's Eider Recovery Plan and to begin revision of the Spectacled Eider Recovery Plan. Additionally, the Service will initiate or continue research to answer the many unresolved questions concerning these species.

Of the four eider species, the Steller's eider is the only species in



Source: USFWS

the genus *Polysticta*. This is the smallest eider, with individuals of both sexes averaging about 42.5 cm long. The Steller's eider occurs in such low densities in Alaska during the breeding season that it is currently impossible to estimate the population size precisely. In comparison, the spectacled eider is a large sea duck, and one of three species in the genus *Somateria* found

in the United States. The size of the breeding population in Alaska is uncertain, however, at least 150,000 birds, representing the majority of the world's population, winter in Alaska from the eastern Aleutian Islands to the Lower Cook Inlet.

U.S. FISH AND WILDLIFE SERVICE

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rian Cranes

September 2001. It is hoped that GEF will reach a positive decision by November of this year.

It is important to identify all stakeholders in the full Siberian crane habitat protection project. Organisations conducting projects that will benefit wetlands or rare birds at project sites are encouraged to contact the project leaders to discuss possible collaboration.

For further information, contact:

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Crawford Prentice, Regional Coordinator,
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The highly specialised Siberian crane depends on multinational efforts to preserve shallow wetland habitats.

Photo: International Crane Foundation

■ *A Naturalist's Guide to the Arctic*
Pielou, E.C.
University of Chicago Press,
1994, 327 pp.

This guide, written by world-renowned scientist and naturalist E.C. Pielou was intended as a comprehensive resource for naturalists who want to explore the natural world of the North American Arctic but do not want to be encumbered by books on every topic. Dr. Pielou achieved her goal; with this book alone the visitor is

ensured a whole arctic experience. A dense text, illustrated with black and white drawings, covers almost all aspects of the arctic environment: the sky, climate, seas, terrain, plants, birds, mammals, fish and insects. For each topic, Dr. Pielou poses and answers the question "...what information is needed at the time and on the spot to ensure that you see,

understand and appreciate what is there before you?"

The author's scientific background is reflected in the presentation of material in the "field guide" component of the book. Before glancing through the pages to identify a new botanical discovery, the reader must first work through a key to the family level. The sections on other organisms are also organised by family. One range map, divided into several broad areas suffices for the flowering plants featured, which are those most likely encountered or noticed by the observer. However, the time that Dr. Pielou aims to save the arctic

visitor is somewhat diminished by the need to flip back and forth between the text and the range map and decipher range and scarcity codes.

Sedges are given comparatively little attention because they are a difficult group to identify. This seems a little unsatisfactory given the importance of this group of plants to arctic ecosystems; at least this attribute deserves mention. Grasses are not even included, although several lichens are described. In spite of these minor criticisms, this guide is an invaluable resource for anyone interested in this wild and beautiful part of the world.

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WWF Arctic Programme

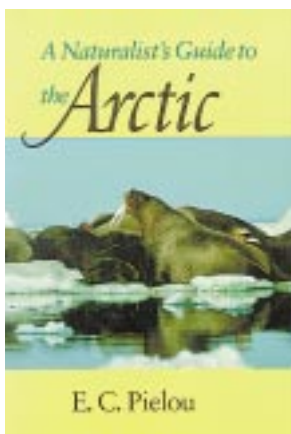
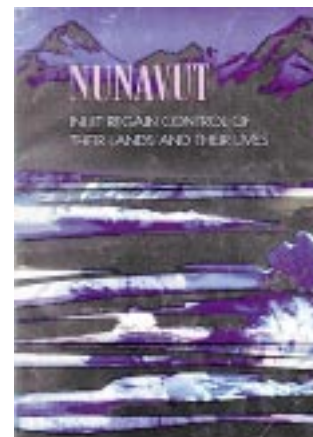
■ *Nunavut: Inuit Regain Control of Their Lands and Their Lives*
IWGIA Document No. 102
Copenhagen, 2000, 223 pp.

The story of the Inuit and their long struggle for self-government within Canada has finally been told in this remarkable new book. As the editors correctly note, clear and accurate information about Nunavut is not easy to find. Indeed, it is telling that many Canadians (and others) have a vague perception of where Nunavut is and what it represents, even though it involved a major reorganisation of the nation's geography. The intention of this book is to set the record straight, by addressing common ideas about Nunavut that "are simply wrong", as the editors put it. The contributors, all of whom have had a long experience in Nunavut, present the Nunavut story for what it is - a stunning achievement by a small and

scattered aboriginal society and an unprecedented step towards equality for indigenous peoples.

The editors have been careful to ensure that this book is not another dry chronicling of events written from an outsider's point of view, although an excellent account of the impressive political process leading to Nunavut is given in the second chapter. Inuit perspectives and experience infuse the text, and Nunavut, and the lives of its native peoples are brought to life in essays by John Amagoalik, the "father of Nunavut" and two other Inuit authors. Chapters about Inuit place names and writing systems, the role and influence of the Inuit Broadcasting Corporation and subsistence issues, including a chapter on the controversial bowhead whale hunt, also serve to bring clarity to the story. The book concludes with a chapter that compares Nunavut with other models of indigenous self-government, such the Home Rule arrangement developed by Greenland and Denmark. In summary, *Nunavut: Inuit Regain Control of Their Lands and Their Lives* is a major contribution that should not to be missed by anyone interested in Nunavut or aboriginal systems of self-government.

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Programme



Job Announcement

Publications Editor and Webmaster

■ WWF seeks a full-time Publications Editor and Webmaster for its Arctic Programme Coordination Office in Oslo, Norway. Responsibilities will include editing the WWF Arctic Bulletin and other English-language publications; developing and maintaining the Arctic Programme Web site; and maintaining the office's computer network. Desired qualifications include: a degree in communications, English, information technology or other relevant field; excellent written and spoken English skills; the

ability to work well in a team; a sincere interest in nature conservation; and ideally fluency in an arctic language other than English. Applicants should also have significant experience in editing and writing in English and experience in developing Web-based communications materials and computer networks. For more information, contact Marianne Lodgaard at WWF's Arctic Programme, arctic@wwf.no / +47 22 03 65 17. Applications must be received no later than June 1, 2001.

Forthcoming Arctic Meetings & Events

Title	Where	When	Contact
Meetings of the Arctic Council and the Rovaniemi Process			
Sustainable Development Working Group Meeting	Rovaniemi, Finland	5–6 April, 2001	Arctic Council Secretariat, Tel: +1 202 647 0241, Fax: +1 202 647 4353, Email: arctic@state.gov arctic-http://council.usgs.gov
ACIA/ASC Meeting	Reykjavik, Iceland	19–21 April, 2001	Gunter Weller, International Arctic Research Center, Tel: +1 907 474 7314, Fax: +1 907 474 1836, Email: gunter@gi.alaska.edu, http://gi.alaska.edu/IARC
ACIA Workshop on Climate Research in Russia	St. Petersburg, Russia	28–30 May, 2001	As above
10th Anniversary of Rovaniemi Declaration	Rovaniemi, Finland	11 June, 2001	Arctic Council Secretariat, Tel: +1 202 647 0241, Fax: +1 202 647 4353, Email: arctic@state.gov, http://arctic-council.usgs.gov
Senior Arctic Officials Meeting	Rovaniemi, Finland	12–13 June, 2001	As above
15th AMAP, ASG & MG Meeting	Stockholm, Sweden	September, 2001	Arctic AMAP Secretariat, Tel: +47 22 57 34 00, Fax: +47 22 67 67 06 Email: lars-otto.reiersen@amap.telemex.no, http://www.grida.no
CAFF Management, Joint CAFF/AMAP Meeting	Stockholm, Sweden	5–7 September, 2001*	CAFF International Secretariat, Tel: +354 462 33 50 Fax: +354 462 33 90, Email: Snorri@ni.is
Sustainable Development Working Group Meeting	Espoo, Finland	5 November, 2001	Arctic Council Secretariat, Tel: +1 202 647 0241, Fax: +1 202 647 4353, Email: arctic@state.gov, http://arctic-council.usgs.gov
Senior Arctic Officials Meeting	Espoo, Finland	6–7 November, 2001	As above
Senior Arctic Officials Meeting	Oulu, Finland	April, 2002	As above
3rd Arctic Council Ministerial Meeting	Inari, Finland	September, 2002	As above
<small>*Alternate dates are 30–31 August or 13–14 September</small>			
Tenth North American Arctic Goose Conference and Workshop	Quebec City, Canada	3–7 April 2001	Gilles Gauthier, Ph: + 1418 656 5507, Fax: +1418 656 2043, Email: gauthier@bio.ulaval.ca
Nenets and Their Society: Projects in the Nenets Autonomous Okrug	Groningen, The Netherlands	6 April 2001	Govert de Groot, Arctic Peoples Alert, Ph: +31 70 402 0943 Fax: +31 70 388 2915, Email: arctica@planet.nl, http://www.arctica.nl
Second International CHUM Meeting	As above	7 April, 2001	As above
Meeting of the Standing Committee of Parliamentarians of the Arctic Region	Spitsbergen, Norway	17–20 April, 2001	www.grida.no/parl
Arctic Science Summit Week – AASW	Iqaluit, Canada	22–29 April, 2001	International Arctic Science Committee, Ph: +47 23 24 16 00, Fax: +47 23 24 16 01, Email: iasc@iasc.no, www.iasc.no
The Arctic on Thinner Ice	Oulu, Finland	10–11 May, 2001	Nordic Arctic Science Committee, Ph: +47 23 24 16 00 Fax: +47 23 24 16 01, Email: kari.strand@oulu.fi, http://www.thule.oulu.fi/narp
The Myvatn Symposium on Arctic and Subarctic Freshwater Ecosystems	Lake Myvatn, Iceland	15–17 May, 2001	Arni Einarsson, Ph: + 1354 525 616, Fax: + 1354 525 4281 Email: myvatn@hi.is, www.hi.is/Hi/Stofn, Myvatn/twin/intro
Symposium on Climate Change and Variability in Northern Europe	Turku, Finland	18–28 June, 2001	University of Turku, Ph: + 358 23 33 60 09, Fax: + 358 23 33 57 30, Email: mieron@utu.fi, http://figure.utu.fi
Meeting and Event Information on the Web			
• Arctic Council – http://arctic-council.org		• ARCUS – http://www.arcus.org	
• SPRI – http://www.spri.cam.ac.uk/igs/others.html		• IASC – http://www.iasc.no	

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WWF – WORLD WIDE FUND FOR NATURE is the world's largest and most experienced independent conservation organisation with 4.7 million supporters and a global network of 27 National Organisations, 5 Associates, and 22 Programme Offices. WWF aims to conserve nature and ecological processes by preserving genetic, species, and ecosystem diversity; by ensuring that the use of renewable natural resources is sustainable both now and in the longer term; and by promoting actions to reduce pollution and the wasteful exploitation and consumption of resources and energy. WWF continues to be known as World Wildlife Fund in Canada and the United States of America.

