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Update

Vol. 4 no.1 May 1983

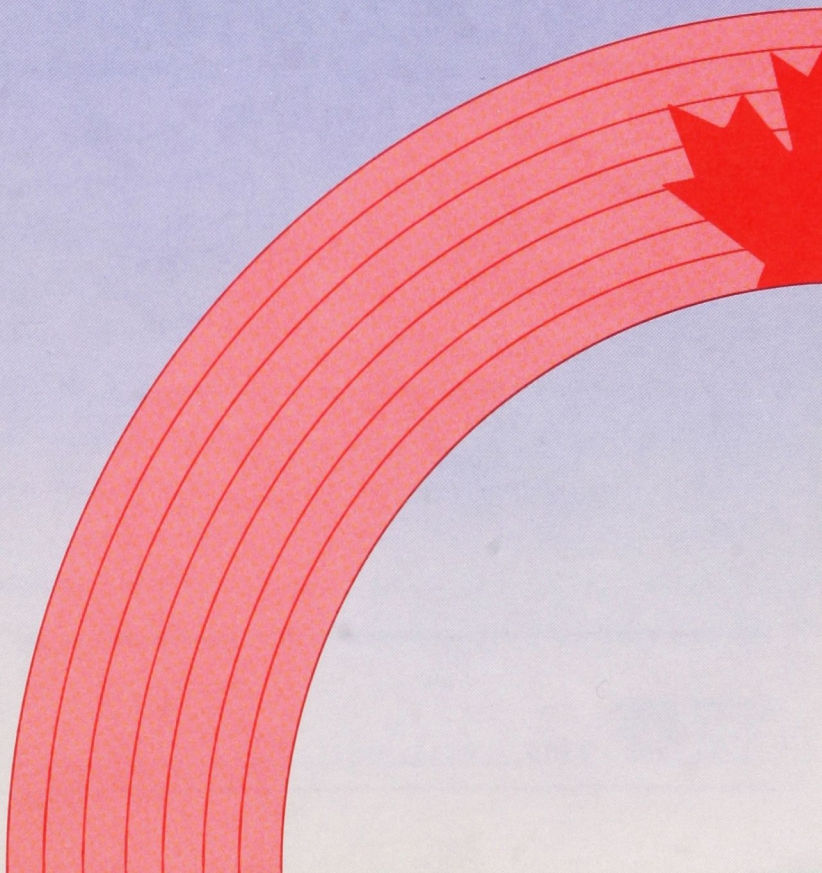
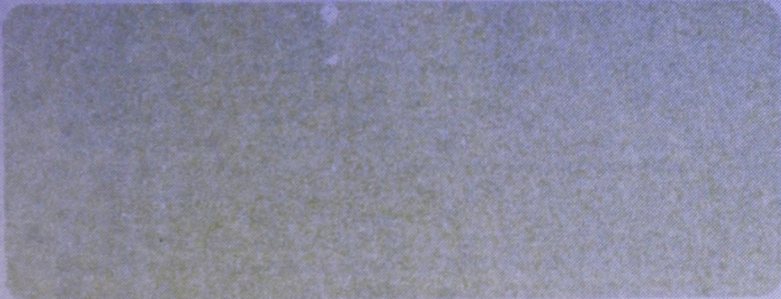
Getting the Lead Out

Beaufort Questions

Slave River Project

Toxics Study

Forest Accord



Environment Update

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The aim of *Update* is to generate a continuing dialogue on environmental issues between the department and

environmental groups, professional organizations and concerned individuals. Environment Canada has a commitment to inform the public of programs and activities which address these vital issues. Each publication features one specific topic and includes other articles from across Canada that reflect the full spectrum of services of the department.

Update is published under the authority of the Honorable John Roberts, Minister, Environment Canada.

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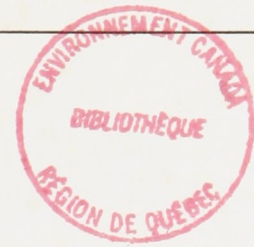
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ISSN 0714-9263

Lead in Gasoline



possible to further reduce the amount of lead in gasoline. By "further" I mean as much as necessary to eliminate the danger to our children's health, our own health and our environment.

No one wants to pay more for anything these days, and I can understand that unleaded gas is more expensive at the pumps. But you should know that leaded gas is corrosive and harder on your car's engine. Regular users of lead-free gasoline could tell you they are saving on car maintenance, with fewer tune-ups, oil changes and exhaust system changes. And there is something far more important than penny-pinching at stake here - the health of Canadians. That is the strongest, most convincing argument for improving leaded gas regulations.

There was a 60-day discussion period during which interested Canadians - consumers, environmentalists, medical experts and industry representatives - offered their comments and proposals for improving the regulations

governing leaded gas. I will study the suggestions with care before making my recommendations to my cabinet colleagues.

This is a matter that concerns each and every one of us. I know you would expect me to act swiftly to eliminate this health hazard. This is precisely what I intend to do.

John Roberts
Minister



Now we have scientific evidence of another threat to the quality of the air we breathe. It is no less frightening, but it is a problem we can resolve by ourselves, swiftly and permanently. And that is what I am asking Canadians to do.

I am talking about lead in the gasoline we buy to fuel our cars, the millions of cars on Canadian roads today. Those of us who fill our tanks with leaded gas are contributing to a frightening health hazard, a hazard to our children. The Department of National Health and Welfare has concluded in recent studies that children - particularly those who live in our cities across Canada - risk suffering serious effects from lead emissions: permanent damage like lower IQs, impaired hand-and-eye coordination, speech and hearing difficulties and a shorter attention span.

Potential danger from the widespread use of leaded gas in our cars is not new. Back in 1975 the government set a limit on the amount of lead that each litre of gas should contain. As a result of that action, lead emissions declined; but now, eight years later, we are seeing a disturbing reversal. Some car manufacturers are promoting the sale of lead-tolerant cars, claiming they are cheaper to run; and government officials who monitor the lead content of the gas we buy tell me it is rising again.

I am recommending to my government colleagues that Canada move as quickly as

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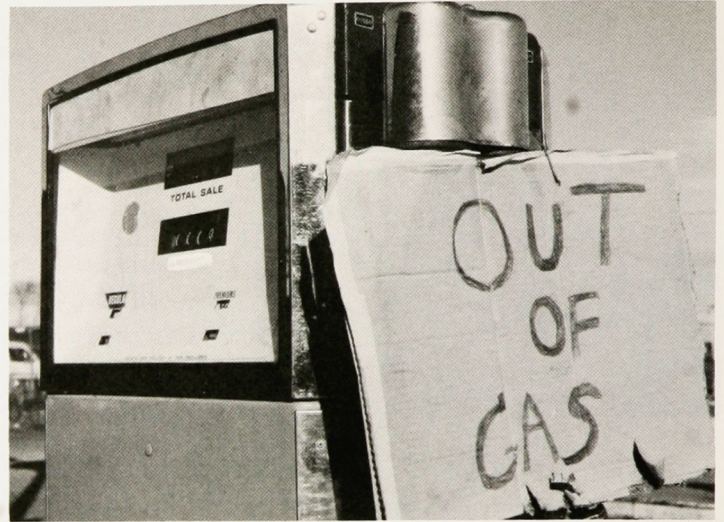
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Getting the Lead Out:

Lead in the Environment

Easy to obtain from ore by smelting, soft, malleable and not easily corroded, lead was one of the first metals to be widely used by man. World annual lead production has increased in the last 1000 years from 10 000 tonnes to more than 5 000 000 tonnes today. It is used in batteries, gasoline, ceramics, ammunition, solder, cable coverings, brass, bronze and even cosmetics.

Lead in natural deposits, if undisturbed by humans, is practically immobile in the environment. However, once released as aerosols from smelters, automobile exhausts and entrained dusts and smoke, it is globally dispersed. The occurrence of lead in the environment increased 400 times between 800 BC and the industrial revolution, then doubled by the time it was introduced into gasoline in the 1920s. Its occurrence then trebled during the next 30 years.



MAN-MADE SOURCES OF GLOBAL LEAD EMISSIONS

	Total produced *Mkg/yr	Emission rate gm/kg	Lead emissions Mkg/yr (%)
Lead alkyls (in gasoline)	400	700	280 (68)
Iron smelting	80 000	0.06	50 (12)
Lead smelting	4 000	6	20 (5)
Zinc and copper smelting	15 000	2.8	40 (10)
Coal burning	3 300 000	0.045	20 (5)
TOTAL	4 100 000		410 (100)

*Mkg = millions of kilograms

Currently, lead in gasoline accounts for 68 per cent of the global lead emissions of 410 million kg per year.

Lead In Gasoline

Before 1920 all gasolines were lead free. Engines ran as well and as durably as the technology of the day permitted. The discovery that the addition of tetraethyl lead to gasoline increased the octane rating and prevented "knocking" or "pinging" was made in 1921. Although there were some early problems with lead deposits, such as fouling spark plugs and valves, these were corrected by adding other chemicals and by modifying valve mechanisms.

The practice of adding lead to gasoline was rapidly taken up all over the world and became entrenched in the technology of both the car manufacturing and the petroleum industries.

In 1972, approximately 73 per cent of man-made lead emissions released to the Canadian atmosphere were from automobiles using leaded gasoline. However, to meet automobile emission standards for hydrocarbons and carbon monoxide, most manufacturers, since 1975, have been

equipping automobiles with a catalytic converter. As converters can operate effectively only with lead free gasoline -- lead damages the catalyst activity -- the demand for lead free gasolines led to a decrease in automotive lead emissions from 12 000 tonnes in 1975 to 8 000 tonnes in 1981. However, the latest national emission inventory shows that these emissions still account for 62 per cent of the total lead emissions in Canada.

Lead and Health

Lead is a highly toxic element to man and the environment. Acute health effects including convulsions, coma and death, were common during the late 1800s in metal processing mills. Fortunately advances in industrial hygiene have virtually eliminated acute lead poisoning.

But chronic exposure to low levels of lead in the environment has become a serious problem. This exposure is known to produce such symptoms as fatigue, headache, poor appetite, clumsiness and diminished mental capability. During the last 25 years there has been increasing evidence of neurological damage, affecting both intelligence and motor activity, caused by very small amounts of lead taken into the body over several years.

For a number of reasons children, from before birth to about three years, are more susceptible, to the adverse effects of lead than are adults. Lead crosses the placental barrier with ease, so that exposure may occur during prenatal development, a stage especially susceptible to the effects of toxic chemicals. Young children have a higher rate of lead absorption from the stomach, and this may be increased by calcium or iron deficiency--or even by high levels of milk in their diet. Children have higher metabolic rates than do adults, and rapidly growing tissue of children is often more easily affected by toxic substances than is slower growing tissue of adults.

Lead Control

Canada has taken some lead control measures to protect human health. These include the

Many Specific Advantages

reduction of lead content in paints, the control of emissions from secondary lead smelters and the elimination of lead from electric kettles and baby food containers.

Control action by Canada in 1974 was prompted by the large amount of lead released to the Canadian environment by vehicles using leaded gasoline. Environment Canada promulgated a regulation under the Clean Air Act restricting maximum lead content in gasoline to 0.77 grams of lead per litre.

Convinced of the adverse effect of lead on public health many other nations have put in place limitations on the amount of allowable lead in gasoline which are more stringent than Canada's. The United Kingdom and the other Common Market countries, Switzerland, Sweden and Austria have all moved or are moving to a maximum allowable lead content of 0.15 grams per litre. In the United States, since November of 1982, the limit has been 0.29 grams per litre. In Japan, a limited number of vehicles can use a premium blend with 0.19 grams per litre; otherwise, cars must run on unleaded gasoline.

Lead in the '80s

In Canada the straight-line decrease in emissions between 1974 and 1980 has levelled off, and is expected to remain between 6 000 to 8 000 tonnes until the year 2000. But there are indications that lead emissions may again begin to rise.

Present Canadian emission standards, which are less stringent than those in the United States, can often be met without the use of catalytic converters. Consequently, these converters are not being installed in new cars to the extent first predicted. Chrysler Corporation has continued to produce lead tolerant cars, and has used the fact that their vehicles run on cheaper leaded gas to maintain their market share. In reaction, General Motors, which had led the way in equipping most of its cars with catalysts, has recently decided to market a lead tolerant vehicle in Canada to regain its market share, and may follow up with several more such models.

Another development is the harmful practice of misfuelling, whereby uninformed customers buy leaded gasoline for use in catalyst-equipped cars. Misfuelling quickly destroys the catalytic converter, and soon does serious harm to the engine itself. It damages the car, harms the environment, and costs the owner.

Close monitoring of the use of lead additives indicates that in the past 12 months the average lead content of gasoline has been edging up significantly from 0.44 grams per litre a year ago to as much as 0.58 grams per litre. This points to a reversion to adding lead instead of changing the refining process to increase octane.

The Department of National Health and Welfare has recently completed a detailed study of all literature on the effects of lead on health. It concludes that the exposure to lead in the atmosphere could and should be significantly reduced by cutting down or eliminating lead in gasoline.

The Government's Response

Mounting evidence from recent studies points to an increase of lead emissions into the Canadian environment and a potential threat to public health, particularly the health of young children. The government is convinced that the existing Clean Air Act regulation limiting the lead content of leaded grades of gasoline to 0.77 grams per litre is inadequate.

The regulation, promulgated in 1974, combined with the introduction of lead free gasoline brought about an almost 50 per cent reduction in lead emissions. However, recently completed studies of trends in the oil refining and car manufacturing industries indicate that market forces alone are not enough to continue this reduction in the use of leaded gasoline. In fact, there are indications that its use could increase over the next decade.

The problem of lead in gasoline is complex and multi-faceted, and its management will affect a broad range of public interests. Refinery capital costs to convert to new processes are estimated at \$43 million (1982) with an annual operating cost of \$32 million. This represents an increased refining cost of about 0.5 cents per litre of gasoline.

The impact on jobs in the automotive parts and service industry as well as in the fuel additives industry will be offset by new jobs created during refinery construction and through refinery changes.

But significant economic benefits in the phasing down of lead in gasoline for the motorist have been identified. First, catalyst-equipped vehicles requiring lead free gasoline are at least 4 per cent more fuel efficient than non-catalyst or lead tolerant vehicles. Second, spark plug changes and exhaust system replacements are less frequent, thus reducing automotive maintenance costs.

These specific advantages, along with health and environmental benefits to Canadians, will outweigh the costs incurred by phasing down lead in gasoline.

Still to be decided is the pace at which new regulations will achieve that phase-down. The Minister of the Environment's intent to change existing regulations was published in the Canada Gazette on March 12, 1983.

The results of Environment Canada studies of the control options, and the Health and Welfare study on the health aspects of the issue, are available for inspection at Environment Canada headquarters and in all its regional offices. Concerned groups and citizens, including industry, labor, car owners and commuters, consumers and environmentalists were invited to examine these studies and submit comments. A socio-economic impact analysis will also be prepared.

Further information:
Marcel Thérien
(819) 997-6555

Beaufort Development Questioned

A federal Environmental Assessment Review Panel has identified four major deficiencies in an environmental impact statement by three major companies concerning proposed oil and gas development in the Beaufort Sea.

The panel has asked the proponents--Dome, Petroleum, Esso and Gulf --to provide more information on:

- the social and economic effects of oil and gas production and transport on the northern native communities, including changes in employment patterns, disruption of native economies, and alcoholism
- the overall environmental impact of the project and the measures proposed to mitigate its cumulative effects on caribou, seals, narwhal and other species
- the size and nature of potential oil spills and the effectiveness of various methods of cleaning them up.

At the same time, the panel has requested separate summaries of project impacts for three zones: the Beaufort Sea-Mackenzie delta, the Mackenzie valley and the Northwest Passage. It directed that each should be in plain language, with the Northwest Passage volume also in Inuktitut, so that residents in each zone may understand clearly how the project may affect them.

The panel also asked for more information on industry and government responsibilities in oil spill cleanups, the effects of more ship movements on ice, the sharing of shore bases by the three oil companies, and the problems of small-diameter pipeline construction in ice-rich soils.

These requests came after a 90-day review of the companies' statement, submitted last November. The panel expressed its appreciation of the extensive comments on the document provided by northern communities, native organizations, federal and territorial



government agencies, special interest groups and the general public.

It also commended the three oil companies for their efforts in dealing with so vast a project with the limited amount of northern research available.

Their response to the panel's request will be made public, and interested parties will be allowed 30 days to offer their comments. The panel will then determine whether the revised statement provides a sufficient basis for a full and fair discussion of the proposals. If it does, the panel will schedule three months of public hearings in northern and southern Canada.

PROCEDURES ANNOUNCED

The environmental assessment panel has announced procedures for its community and general public meetings to discuss the Beaufort Sea oil and gas proposal. These aim for:

- a balance between order and efficiency and informality; an organized but flexible structure, for cooperative and constructive discussion
- accommodation of the

views and concerns of the members of communities who might be affected, of the public, technical experts, the proponents and the government

- a uniform manner of making presentations to the panel, which will not put any group at a disadvantage.

Community sessions will be informal and non-technical, so that members of smaller communities will be encouraged to talk with the panel members.

General sessions will be more structured and normally held in larger centres. They will be open to anyone who wishes to make a presentation on either technical or non-technical subjects.

Further information:

Douglas Parkinson
(819) 997-2725

Slave River Controversy

A large hydroelectric project proposed for the Slave River, still only in the study stage, has already generated controversy and debate. Born in the Peace-Athabasca delta in northern Alberta, the Slave River flows northwesterly into the Northwest Territories and Great Slave Lake.

Last August the Alberta government released a \$10 million study showing that development of the Slave River for hydro power was technically feasible and economically attractive. It then launched a \$40 million preliminary engineering and design study for the proposal.

The project would require construction of a huge, rock-filled dam at one of three proposed sites, to back the Slave River into a reservoir. It calls for a series of up to 10 spillways and a generator power house to produce some 2000 megawatts of power, transmitted 700 km south to

Edmonton by two transmission lines.

There could be far-reaching environmental effects from flooding behind the dam and alteration of river flows below it. Environmental groups are especially concerned about the white



pelican, an endangered species which has been nesting on the Slave River for over 300 years.

A federal Environmental Assessment Review panel, appointed by Environment Minister John Roberts, has held public hearings in Alberta and the Northwest Territories on the probable impact of the project. Presently the panel will lay down final guidelines to be followed if the project goes ahead.

Environment Canada's primary concern is to ensure that the full range of social, economic, and environmental issues is thoroughly examined, and that any significant adverse environmental effects are mitigated. It is especially concerned about the effects of such a project on the Peace-Athabasca delta, an area of international importance for waterfowl. Other concerns are the flooding of lands within Wood Buffalo National Park; potential danger from transmission lines to whooping cranes that migrate annually through Wood Buffalo National Park; and the project's cumulative effects on the entire Mackenzie River system.

Downstream of the dam there could be changes to the river channel, flow patterns, water levels and temperature. Upstream effects could include the accumulation of toxic substances and sedimentation in the reservoir.

The Slave River hydro proposal will also be reviewed by the Alberta Energy Resources Conservation Board and the Alberta environment ministry, and possibly also by the Northwest Territories Water Board. Jurisdictional questions, native land rights, socio-economic considerations and environmental effects will make the Slave River proposal a centre of controversy for some year to come.

Further information:

Garth Norris
(403) 420-2546

Aquatic Toxicity Workshop

Acid rain is among the topics to be discussed at the 10th Annual Aquatic Toxicity Workshop in the Lord Nelson Hotel, Halifax, next November 7-10. Other topics will include aquatic toxicology, hazard assessment and the control of toxic substances.

The workshop will focus on basic research as well as practical applications, including environmental monitoring, establishing regulations, guidelines and water quality criteria. Papers are also invited on other topics and concepts, especially summary papers.

Sessions will be marked by an informal exchange of ideas and information by representatives from industry, government, universities and consulting firms. The program will also feature visits to local laboratories.

Further information is available from the co-chairmen of the organizing committee:

R.F. Addison and P.G. Wells,
Marine Ecology Laboratory,
Bedford Institute of
Oceanography, Dartmouth, N.S.
B2Y 4A2. Their telephone
numbers are respectively (902)
426-3279 and 426-3276

Water Conference

The proceedings of the 1982 Resource Management Conference at Banff have been published in a new brochure, *Water Policy for Western Canada: The Issues of the Eighties*. Now available from the University of Calgary Press, the brochure was produced by the conference sponsors, the Banff Centre School of Management.

Further information:

Susie Washington
(403) 762-6137

Renewed Forest Accord

The federal government is exploring the possibility of a new agreement on forest sector development with Quebec. The current agreement, signed in 1974, will expire next year.

Main objectives of the agreement are to make Quebec wood products more competitive in cost, to develop the province's forest road network, to replant forest areas near processing mills, and to implement silvicultural systems in private and public forests.

The federal government is paying 60 per cent of all expenditures under the agreement, expected to total \$322 million.

The forest industry is vital to Quebec's economy, and more than 100 Quebec municipalities entirely owe their existence to it. The province produces about half of Canada's newsprint, or about 16 per cent of the world's total. Quebec's lumber production has more than tripled in the past 20 years, and now ranks second after British Columbia's output.

Successive amendments to the federal-provincial agreement have left its main objectives unchanged. Last September 3, however, federal responsibility for administering the agreement was transferred from the Department of Regional Economic Expansion to the Canadian Forestry Service (CFS) of Environment Canada.

Consequently, to carry out its new responsibilities, CFS has strengthened its regional organization.

Environment Minister John Roberts indicated the federal government's forest sector objectives in the *Forest Renewal Summary Plan* published last year. The overall target is at least a 40 per cent increase in Canadian wood production by the year 2000.

The summary plan noted the problem of supplying mills with wood, and outlined how the federal government would assist forest renewal efforts in Canada. In cooperation with the Quebec government and forest industry, the Canadian Forestry Service hopes to achieve forest development, better circulation of research findings and greater attention to small woodlots.

CFS now has a new group in Quebec responsible for forest sector development in the province. Besides administering the current agreement with Quebec, it coordinates the implementation of the federal job creation program in the province's forest sector.

Jointly directed by Environment Canada and Employment and Immigration Canada, this program is aimed especially at creating jobs in silviculture, reforestation and forest protection. Since it was launched last June, 18 projects in Quebec have been approved under the plan, providing nearly 1 000 jobs.

Projects currently under way are focused on renewing stands devastated by the spruce budworm, building forest roads, experimenting with plant production, applying herbicides, silvicides and fertilizers, and maintaining plantations. Most activities were considerably reduced over the winter, but this year the program is continuing.

Promoters of job creation projects receive a grant from CFS to cover part of their operating costs. Employment and Immigration Canada pays each employee a maximum unemployment insurance benefit of \$240 a week, since the program is intended for

workers receiving such benefits. The promoter pays them a weekly wage supplement.

Environment Canada has contributed more than \$1 300 000 to the 18 projects in Quebec. Employment and Immigration Canada has contributed some \$200 000.

Promoters wishing to take part in the program should submit their proposals in writing to:

CE/AC Coordinator
Laurentian Forest Research
Centre
Canadian Forestry Service
1080 route du Vallon
P.O. Box 2800
Ste. Foy, Quebec
G1V 4C7
(418) 694-3957

Further information:

Marcelle Girard
(418) 694-7204

Caribbean Network

Environment Canada is helping to finance construction of an improved meteorological and disaster-preparedness telecommunications network in the Caribbean area. Several countries are participating in this pilot project, sponsored by the International Telecommunication Union in observance of World Communications Year.

Further information:

Raymond Lepage
(613) 995-1323

Skagit Valley Saved

Environmentalists are rejoicing over a new settlement announced by the International Joint Commission, to save British Columbia's Skagit River valley from flooding.

This ends a dispute that began some 40 years ago, when the IJC authorized a hydroelectric power project south of the United States border. This called for raising the Ross Dam, with the resultant flooding of some 2 000 hectares of wilderness in Canada.

Instead, the new settlement calls for an alternative project to supply more power to Seattle, involving the flooding of a much smaller area elsewhere.

Further information:

Paul Mitchell
(604) 666-6058

Niagara Toxics Study

At least 300 landfill dumps, industries and municipal storm and sanitary sewers are suspected or known to be polluting the Niagara River. This is the finding of the first intensive study of its kind on the 60 km long river.

Members of the Canada-U.S. Niagara River Toxics Committee released their status report in February, after two years' work on the project. Federal scientists from both countries, together with their counterparts from Ontario and New York State, are taking part in the study.

"A continuing effort is now being directed at solving the more complex problems of toxic substance contamination in the Niagara River," the committee reported. "In many cases, the scientific basis for understanding the environmental and human health significance of these chemical compounds does not exist and will have to be developed before appropriate actions can be taken. This is by no means an easy or inexpensive task."

The investigation was prompted by the concern of governments and the public about toxic pollution in the Niagara, and their common interest in restoring the river's health and vitality. The joint study is the first thorough and integrated look at the nature and extent of toxic pollution in the river.

Besides identifying the sources of toxic substances entering the river, the team will recommend control programs where necessary, along with long-term water quality monitoring programs for evaluating their effectiveness.

Thirty-nine separate subprojects make up the investigation. They include the evaluation of existing data and the monitoring of river water, waste discharges and pollution from such diffuse sources as agricultural runoff and landfill sites. Scientists from the four agencies are checking such things as fish, sediments and the migration of dissolved substances in the soil.



The team's final report, to be issued in December, will

include recommendations for an overall control strategy, as well as specific steps to improve the effectiveness of toxic chemical control. Copies of both reports can be ordered from the Regional Director General's Office, Environment Canada, 55 St. Clair Avenue East, 7th Floor, Toronto, Ontario M4T 1M2.

Further information:

Jeanne Jabanoski
(416) 966-6406

Acid Rain Negotiations

Environment Minister John Roberts is ready to resume negotiations with the United States on measures to control acid rain, on the basis of the latest Canada-U.S. studies.

Mr. Roberts has released the final reports of the Canada-U.S. work groups established under the 1980 memorandum of intent. The reports were prepared by scientists from both countries, who agreed on the following essential points:

- . Both long and short-term damage is occurring in areas vulnerable to acid rain, as a result of sulphur deposition.
- . There is damage in vulnerable areas where wet sulphate deposition exceeds 20 kilograms per hectare per year; there is no recorded damage where the deposition is less than that amount.
- . Sulphur deposition is the cause of the damage, which can be prevented by reducing the deposition.
- . Acid rain occurs in eastern North America in and downwind from the major industrial areas.
- . Technology exists to reduce emissions by substantial amounts.
- . Unless present abatement programs are revised, emissions will increase throughout the rest of this century.

Mr. Roberts said these conclusions strongly support the Canadian position that most vulnerable areas could be protected with wet sulphate deposition rates of less than 20 kg/ha/yr, and that sulphur dioxide emissions must be reduced by some 50 per cent to achieve this objective.

A year ago, from earlier reports by the work groups, Mr. Roberts and his provincial counterparts in Ontario, Quebec, Manitoba and New Brunswick concluded that acid deposition was causing serious environmental damage in Canada and the United States. Without remedial action, they agreed, this damage would become more serious and more widespread.

The ministers then committed themselves to reduce sulphur dioxide emissions east of the Saskatchewan-Manitoba border by 50 per cent by 1990, contingent on parallel action in the United States. This would mean a doubling of the unilateral cutbacks previously initiated.

This was the position then taken by Canada in its negotiations with the United States. In view of the final reports from the work groups, Mr. Roberts is urging the U.S. to reconsider that proposal.

Further information:

Brenda O'Connor
(819) 997-6555

Snow Goose Hunt

In mid-June 264 lucky hunters will be chosen by lot to take part in next fall's annual snow goose hunt at the Cap Tourmente National Wildlife Area, some 32 km northeast of Quebec City. A computer will select them at random from applicants all across Canada who relish a unique experience in a picturesque setting.

Applicants must obtain an official registration form from a local hunting and fishing association affiliated with the Quebec Wildlife Federation. This can be done by writing to the Cap Tourmente National Wildlife Area, P.O. Box 130, Beauport, Quebec G0A 1E0, or by telephoning (418) 827-3776.

The forms, each accompanied by a non-refundable \$3 registration fee, must be received at the Cap Tourmente office before May 25. Cheques should be payable to the Receiver General of Canada.

Successful applicants will each be allowed to take along one companion on the hunt. The \$160 hunting licence, valid for two half days, will give them the right to shoot snow geese and other wildfowl up to two daily bag limits. The licence fee, which is non-refundable, includes the cost of blinds, guides and transport in the wildlife area.

Organized by the Canadian Wildlife Service, this year's hunt will take place from September 27 to October 28. A feature of the event is the use of horse-drawn sleighs and other traditional hunting methods.

This controlled hunt is the result of studies by CWS scientists, which indicated that migrating flocks of greater snow geese were over-using the area's food resources--mainly bulrush rhizomes. The hunt was organized to disperse the geese throughout the region, thus reducing the pressure on these resources.

Last October 18 Environment Minister John Roberts opened a new wildlife interpretation centre at Cap Tourmente. The wildlife area was previously developed in cooperation with

Ducks Unlimited, a non-profit private agency. A number of artificial ponds, created as part of the project, provide waterfowl with a high-quality congenial environment.

Many forms of wildlife, including the greater snow goose, have benefited from this development. Since 1916, the geese have increased a hundredfold--from 2 000 to 200 000.

Further information:

Pierre Normand
(418) 694-7204

Problem Solved

The migration of landfill gas, dangerously flammable because of its methane content, is no longer a threat to Kitchener residents living near the city's Ottawa Street landfill site. An innovative system which collects the gas through a series of wells, then pumps it to a nearby manufacturer for use as a fuel, has solved the problem.

Development of this system was jointly funded by three levels of government - the Region of Waterloo, the Ontario Ministry of Energy and Environment Canada - and by the manufacturer, Bestpipe Limited. Environment Canada provided a grant of \$200 000 under its DRECT (Demonstration and Development of Energy Conservation) program. This program funds innovative projects that reduce pollution while recovering energy from municipal and industrial wastes.

Projects using landfill gas have been successful in California, but this is the first full-scale effort in Canada under markedly different climatic conditions. The system is designed to provide up to 15 million BTU/hr of gas to Bestpipe Ltd., which manufactures concrete pipe. It is estimated the conversion of Bestpipe's boiler to landfill gas will save 26 million standard cubic feet of natural gas each year.

Further information:

Geoff Rathbone
(416) 966-5840

Environment Week:

June 5-11, 1983

June 5-11 will be Canadian Environment Week. The week containing World Environment Day June 5 is set aside each year to stress the importance of an environmental ethic in today's industrialized society.

Readers of *Environment Update* need not be reminded of the need for environmental awareness in everyday life. But Canadian Environment Week highlights this need and fosters interest, where none may have previously existed, in protecting and enhancing our natural heritage.

Environment Week celebrations will take many forms. In Ottawa and Moncton, for example, major conferences will promote the recycling of waste paper, glass and metals. Environmental groups in Toronto are organizing an arts festival to mark the week, and Vancouver will have a film festival.

No less important are the actions we all can take to demonstrate our personal commitment to environmental enhancement. Are we taking advantage of recycling programs in our own communities? Do we use public transit where possible, and keep our automobiles well tuned for peak fuel efficiency?

There are many environmental and wildlife conservation organizations across Canada, actively working for a better environment. Join one of these groups, and support community and political leaders clearly committed to environmental protection.

At work or at home, we can keep alive the spirit of Canadian Environment Week all year long. To find out how you can share in the action, contact your regional Environment Canada information office. See page 1 for the address and telephone number.

Further information:

Richard Pratt
(819) 994-1410

New Strategic Plan

Environment Canada's Strategic Plan is its long-range plan of action. It addresses two basic questions:

- . What does the department wish to achieve over the longer term?
- . What principles should it follow in obtaining the desired results?

The directions, priorities and operating principles thus established set the department's future course.

Last year's Strategic Plan was discussed at the first headquarters public consultation meeting and several of the regional meetings. Participants were provided with copies of the 1982 plan, and put forward many recommendations in a half-day plenary session devoted to the subject. This year they will have a chance to provide advance input into the 1983 plan, still in its early stages of development.

Among last year's recommendations:

- . increased responsibilities for Environment Canada in energy projects and related economic planning strategy, in the transport of dangerous goods and other environmental affairs in the North
- . clarification of Environment Canada's relations with other departments and agencies, as well as its relations with the industrial sector
- . retention of section 33 of the Fisheries Act as an instrument for controlling water pollution
- . pressure on provincial governments to preserve our agricultural land base.

All the recommendations received were given careful consideration. Wherever feasible they will be incorporated in the 1983 Strategic Plan.

At this year's headquarters public consultation meeting in May, participants will address specific issues related to the

Video Intro for D.M.

Jacques Gérin, new deputy minister of Environment Canada, used modern technology to send personal greetings to the department's 12 000 employees. In a videotaped message, he shared with them his thoughts about the department and its mission.

He paid tribute to his predecessor, Blair Seaborn, who left the department last December to become Canadian chairman of the International Joint Commission.

"Thanks to his patience, his good judgment, his diplomacy

and this dedicated commitment to the objectives of the department," said Mr. Gérin, "he assembled a management team able to work together for the same objectives."

Mr. Gérin noted a deepening sense of public responsibility within the department. Increased consultation with the public, he said, would enable Environment Canada to do a better job.

"Our department is a down-to-earth service-oriented organization," he said, "which provides Canadians with such things as weather services, our national and historic parks system, protection against toxic substances, promotion of resources management and a high-quality environment."

At the same time, Mr. Gérin emphasized, Environment Canada is a development-oriented department: "Whether we're concerned with forest, water, northern affairs or energy, we promote healthy, long-term development--development that respects our resources and anticipates our future needs."

Finally, he said, Environment Canada is "a department of the future," concerned with such things as climatic change, water management in the 1990s, and the development of new technologies to generate jobs for tomorrow.

"Our mandate, in a nutshell, is about life on our planet--helping human beings live in harmony with their environment."

Public Consultation

This year's headquarters public consultation meeting will be held May 3-5 in Ottawa.

Atlantic regional meetings are scheduled as follows:

September 13 - Charlottetown
September 19 - Halifax
October 14 - St. John's, Nfld.
October 12 - Fredericton

Schedules of meetings in other regions will be published in future issues of *Environment Update*.

plan. These will include sustainable economic development and issues and strategies for the 1980s.

The input from this meeting will be considered in formulating the 1983 Strategic Plan, to be placed before the department's senior management in June.

Further information:

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Weather Station Hits 35

One of Environment Canada's most isolated northern weather stations celebrates its 35th anniversary this spring. Operated by the Atmospheric Environment Service (AES), the Mould Bay station is on lonely Prince Patrick Island in the Arctic Archipelago.

It was established April 11, 1948, as one of five Joint Arctic Weather Stations (JAWS) operated in collaboration with United States observers. A plane landed on sea ice to bring in the first three personnel, and a two-week airlift subsequently landed 170 tons of equipment and supplies.

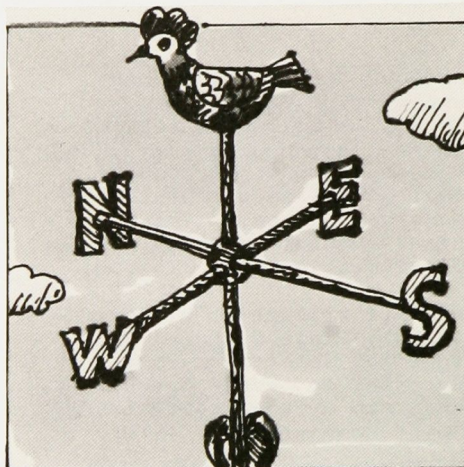
Prince Patrick Island was discovered in 1853 by two explorers travelling by sledge. Today it is accessible only by air, because of thick year-round coastal ice.

When they arrive in Mould Bay in mid-May, an AES planning team will present commemorative certificates to seven AES and four other personnel. Last year there were similar ceremonies for the 35th anniversaries of the Eureka and Resolute stations, and in 1985 it will be the turn of the world's most northerly weather station at Alert. Since the United States withdrew from JAWS in 1971, all the stations now are wholly Canadian-operated.

Despite its remoteness, five months' total darkness each year and temperatures dipping as low as -50°C , Mould Bay has long been associated with key scientific projects. Some of them, like the 1963-68 Polar Continental Shelf Project and more recent seismological and geological surveys, were not concerned with the weather. But others have included ongoing weather programs such as hourly and synoptic weather observations, upper air soundings, carbon dioxide sampling, sunshine recording, ice thickness surveys and precipitation and pollution measurements.

These meteorological programs were prompted by a need to study the movements of arctic air masses. They should soon become more important because of the proximity of off-shore

oil drilling and natural gas exploration in these remote regions.



Mould Bay is also celebrating completion of a major heat recovery program. Heat produced by the station's diesel generators for heating water is circulated through the buildings and air-handling units similar to car radiators, and heated air is forced through building ducts. Savings are estimated at \$100 000 a year, roughly 10 percent of the station's \$1 million-plus annual operating budget.

Further information:
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Weather Watchers Honored

A 91-year-old retired optometrist is Canada's oldest weather observer--still on the job come rain or shine, snow or sleet.

Vernon Tuck of Grimsby, Ont., is one of more than 2 000 volunteer weather observers all across Canada, honored on International Weather Observers' Day, March 23. Thirty-three of them received special plaques--the first Morley K. Thomas Awards--for more than 30 years' continuous service.

The plaques were presented by James Bruce, assistant deputy minister for Environment Canada's Atmospheric Environment Service. They were named for the director general of the Canadian Climate Centre in Downsview, Ont., who has worked with volunteer observers for 35 years.

Drawn from many different age groups and occupations, the volunteers take regular readings of temperature and precipitation in their backyards, work places or other open spaces. Some of them help Environment Canada track severe thunderstorms.

The instruments and other supplies they use are provided by the department.

Although they take readings once or twice a day, most volunteers file reports with their regional climate centre only once a month. But the information they supply is the backbone of Canada's climate data base, used by decision-makers in government and the private sector.

Environment Minister John Roberts notes with satisfaction that the department's weather service is one of the few federal agencies with more volunteers than paid employees carrying out its work. Moreover, the volunteers are invaluable human elements in a field increasingly dominated by impersonal technology.

Further information:

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Okanagan Basin Agreement

A continuous and concentrated effort is needed to maintain improvements made in water resource management in British Columbia's Okanagan basin. This is the conclusion of the summary report on the Okanagan Basin Implementation Agreement, jointly released by federal Environment Minister John Roberts and B.C. Environment Minister Stephen Rogers.

Action taken on 45 recommendations

The report describes the action taken on 45 recommendations resulting from the \$2 million Okanagan Basin Study conducted between 1969 and 1973. The cost was shared by the Canadian and British Columbia governments.

Study recommendations were aimed at maintaining and improving water quality, water supply, water-based recreation and recreational fishing. The implementation agreement also provided for upgrading the Okanagan flood control system and transferring the works, their operating and maintenance costs to the province. To meet the study recommendations, a number of projects were undertaken from 1976 to 1982 at a cost of \$5 million, also shared by the provincial and federal governments. They included lowering intakes along the Okanagan River to conserve water during drought years, and modifying the Kelowna floating bridge to allow its operation over a range of lake levels.

The agreement also provided for the establishment of phosphorus removal facilities at major waste treatment plants in the basin, and the construction of such other facilities as rearing ponds and on-site small-scale hatcheries for rainbow trout and kokanee.

Other programs involved the drafting of zoning regulations and guidelines to minimize nutrient inputs from forestry and farming practices, and regulations to minimize nutrient inputs from septic tanks.

Copies of the summary and a report on its highlights are available in both official languages.

Further information:

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Focus on Wildlife

The story of Canada's wildlife heritage is vividly presented at five interpretation centres run by the Canadian Wildlife Service in different parts of the country.

The centres are open from spring through fall, at no cost to the visitor. Each includes a display hall introducing the area through exhibits, films and publications. Outside, guided and self-guiding activities help visitors explore the land and observe its numerous creatures and their habitat.

Experienced naturalists lead activities such as nature hikes and evening talks for families or larger groups. Washrooms are available at each centre.

Creston Valley Wildlife Interpretation Centre

Near Creston, southeastern British Columbia.
P.O. Box 1849,
Creston, B.C. V0B 1G0;
(604) 428-9383.

Operating Season

Exhibit hall, naturalist-led events, guided canoe trips. Open from May 1 to October 31; campground open from July 1 to Labor Day.

Naturalist-led activities open to schools and groups by appointment October 31 to May 1.

Prairie Wildlife Interpretation Centre

29 km west of Swift Current on Highway #1. P.O. Box 10,
Webb, Sask. S0N 2X0;
(306) 674-2288.

Operating Season

Open from May 15 to Thanksgiving weekend.

Exhibit hall and naturalist-led activities

open to schools and other groups by appointment until October 31.

Wye Marsh Wildlife Interpretation Centre

Near Midland, 150 km north of Toronto. Box 100,
Midland, Ont.; (705) 526-7809.

Operating Season

Exhibit hall, guided canoe trips and naturalist-led events, open from mid May to mid October; trails open year round. Exhibit hall and naturalist-led activities. Open to schools and other groups by appointment only, from September to June.

Cap Tourmente Wildlife Interpretation Centre

50 km east of Quebec City on the St. Lawrence River. St. Joachim, P.Q. GOA 3X0;
(418) 827-3776.

Operating Season

Exhibit hall and naturalist-led events. Open from early May to the end of October; trails open year round. Exhibit hall and naturalist-led activities open to schools and groups by appointment only.

Percé Wildlife Interpretation Centre

At the tip of the Gaspé Peninsula. Box 190, Percé, P.Q. G0C 2L0; (418) 782-2240.

Operating Season

Exhibit hall and naturalist-led events. Open from June 24 to September 1.

Off-season activities for schools and groups can be organized by appointment.

Pilot Plant for Waste

Environment Canada officials are pleased with the success of a pilot project to improve wastewater treatment for the Montreal Urban Community (MUC). But Ronald Zaloum, a program engineer with the department's Environmental Protection Service, says he hopes to achieve still further improvement.

In 1981 MUC decided to include physico-chemical treatment facilities in its new wastewater disposal plant, then already under construction. This would increase the plant's efficiency and reduce the amount of phosphorus in the effluent to a level acceptable for the St. Lawrence River. Consequently MUC got help from Environment Canada in setting up a project to optimize the plant's operating conditions, thus ensuring an economical use of chemicals.

A small pilot plant was designed and built jointly by EPS' Quebec region Wastewater Technology Centre and MUC's water treatment service (WTS).

The technical plant division of WTS directed a study of physico-chemical treatment by four working groups from WTC, the EPS regional office in Montreal, the WTS laboratory and operations division, and the Quebec Department of the Environment.

Physico-chemical treatment is the injection of a coagulant into a grit-removal chamber with a high-speed mixing zone. Another substance is thoroughly mixed with the wastewater to assist coagulation. Flocculation -- the trapping of foreign matter in sticky masses -- then occurs in the lagoons that feed the settling tanks.

The study sought to determine which chemicals to use in the treatment process, how often to use them, the best mix concentration and their maximum effectiveness without making the effluent lethally toxic. The study was based on laboratory flocculation tests, test bench flocculation trials, scale-model tests in the pilot plant and laboratory disinfection

tests on treated water from the pilot plant.

This was built on MUC's north collector, chosen as typical of the area in both population and wastewater quality. The plant was designed to reproduce the main characteristics of each treatment process on a smaller scale.

The study determined the specific levels of coagulant, coagulant aid and chlorine required in the treatment process. Environment Canada has since donated the grit-removal chamber to the adult education service of the Vaudreuil Soulange Regional School Board, for the training of wastewater plant operators.

Further information:

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Recycling Conference

A two-part conference on resource recovery, recycling and conservation will be held in Moncton on June 10 and 11. Its purpose is to bring together everyone involved or interested in the subject, "to exchange information on the present and future state of the art and to encourage resource conservation."

The first day's program will be designed for people actually involved in the recycling industry. The second day will focus on the role of public interest and environmental groups, educators, sheltered workshops and private citizens in resource recovery, recycling and conservation. The conference will be held at the University of Moncton, where accommodation and meals will be available at reasonable prices. The registration

fee will be modest, the organizers say.

The conference is being organized by the four Atlantic provincial environment departments and Environment Canada's Atlantic Region in conjunction with the Canadian Association of Recycling Industries, the Atlantic provincial Women's Institutes and the Secondary Resource Development Council.

Look for further details in the next issue of *Environment Update*.

Further information:

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Facing India

Seventy per cent of India's available water is polluted, according to a report published by a group of volunteer environmental agencies and individuals there. The report, *The State of India's Environment - 1982*, was edited by Anil Aggarwal, Ravi Chopra and Kalpana Sharma of the Centre for Science and Environment.

The rest of India's environmental scene, as presented in the report, is similarly depressing. It says the country's forests are rapidly being stripped bare, depleting its firewood supplies and increasing the hazards of flooding and soil erosion. Another grave threat is air pollution, which now has reached dangerous levels.

Further information:

Centre for Science and Environment
807 Vishal Bhawan
95 Nehru Place
New Delhi, India 110 019

Canada / U.S. Work Together

by Robert A. Jantzen
Director, U.S. Fish and
Wildlife Service

Director General Bert Tétreault of CWS recently addressed employees of the U.S. Fish and Wildlife Service through our employee publication, Fish and Wildlife News. I feel this spirit of cooperation between our two agencies should and will continue.

I want to discuss joint efforts to solve problems of long standing. My meeting and contacts with Mr. Tétreault and other senior administrators in CWS suggest the time is ripe to find solutions to difficult and complex matters, of interest to both nations.

SUBSISTENCE HUNTING

On January 30, 1979, the Secretary of the Interior and the Minister of the Environment signed a protocol to amend the subsistence hunting provisions of the 1916. Convention for the Protection of Migratory Birds.

The amendment, from our standpoint, would make the subsistence hunting provisions of this treaty consistent with the 1976 U.S.-U.S.S.R. Migratory Bird Treaty. It provides, in essence, that residents of rural Alaska may take migratory birds for their own essential needs in accordance with seasons set by the Secretary of the Interior. Any subsistence hunting allowed must provide for preservation and maintenance of stocks of birds being hunted.

A number of organizations and individuals expressed concern about how subsistence hunting would be regulated. Thus, in 1982, the Department of the Interior proposed to develop an agreement with Canada to address these concerns in detail. There is general support for this approach because a negotiation report would become part of the protocol and this binding on both parties.

Action was deferred, at the request of Canadian officials, pending the conclusion of the first Constitutional Conference on Native rights re-

quired under the Canada Constitution Act of 1982. The Department of the Interior has notified the American public of its intention to develop an agreement with Canada, and drafting is now under way with Canadian Wildlife Service officials. It will be subject to public review, and public hearings will be held in Alaska to assure opportunity for input from residents of that state, including native groups.

The Interior Department plans to complete development of this agreement this year and to submit it to the U.S. Congress during deliberations or ratification of the protocol.

WATERFOWL MANAGEMENT PLANS

A national waterfowl management plan for the United States and a similar plan for Canada was completed in March 1982. Canadian and United States officials will now be able to lay out an international goal for waterfowl, identify problems of mutual concern, and develop cooperative strategies within agreed-upon policies. It will dwell in some measure on the problems associated with populations, habitat preservation, and use of this important shared resource. We look forward to working with Bert Tétreault and his staff to develop a draft document, and with Mexico's federal wildlife agency to assure a truly continental perspective.

Good progress is being made in the United States to implement our domestic management plans. Our States, through the four waterfowl flyway councils, and the Service have expended a good deal of effort to develop cooperative species and population management plans. More than 30 of these planning documents are either in preparation or have been completed. Where the need exists, goals have been identified for manageable groups of waterfowl, and strategies jointly developed. To insure it meets its commitments, the Service has drawn

upon its regional resource planning system to fix responsibilities and lay out specific tasks.

POLAR BEARS

Under authority of the Marine Mammal Protection Act, the Fish and Wildlife Service is responsible for restricting the import of certain marine mammals, including polar bears, into the United States -- a matter of great interest and concern to Canadians.

Last year, the Safari Club International petitioned the Service to allow the import of sport-hunted marine mammals from Canada. Canadian officials have been most cooperative in providing us with biological data to assist in determining if we should proceed with recommendations to waive the moratorium and allow the import of legally taken polar bears. We must first determine that populations will not diminish below certain numbers, that the health and stability of the ecosystems will be maintained, and that the country of origin has a management plan for the species that is consistent with these requirements.

The act determines the biological and legal steps we must take to allow the import of polar bears. We are well along in the process but it is premature to speculate of the outcome.

I would like to thank the Canadian Wildlife Service for the opportunity to address the employees of Environment Canada and its constituents, and would welcome the chance to do so again as other issues develop.

Canada / U.S. Work Together

THE CANADIAN
DEPARTMENT OF
INDUSTRY

The Department of Industry is pleased to announce the results of the 1988-89 survey of Canadian business and industry. The survey was conducted by the Canadian Business and Industry Survey (CBIS) and is the largest and most comprehensive survey of its kind in Canada. The survey covers a wide range of business and industry activities, including manufacturing, wholesaling, retailing, and services. The results of the survey are presented in this report, which provides a detailed analysis of the current state of Canadian business and industry, and identifies key trends and challenges. The report is intended for use by government officials, business leaders, and researchers. It is available in both English and French. For more information, please contact the Canadian Business and Industry Survey at (416) 957-2222.