2004

Report of the

Commissioner of the Environment and Sustainable Development

to the House of Commons

Chapter 1

International Environmental Agreements

Office of the Auditor General of Canada

The 2004 Report of the Commissioner of the Environment and Sustainable Development comprises six chapters, and The Commissioner's Perspective—2004. The main table of contents is found at the end of this publication.

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Chapter

1

International Environmental Agreements

The audit work reported in this chapter was conducted in accordance with the legislative mandate, policies, and practices of the Office of the Auditor General of Canada. These policies and practices embrace the standards recommended by the Canadian Institute of Chartered Accountants.

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International Environmental Agreements

Main Points

1.1 International environmental agreements reflect key government policies on important environmental issues, and Canadians should know what has, or has not, been achieved as a result of these agreements. We looked at five international environmental agreements to determine if the responsible federal departments know to what extent specific objectives of the agreements are being achieved. We noted that the departments have varying degrees of information on whether they are achieving the environmental objectives and results of their respective agreements.

1.2 We observed that for both the Montreal Protocol on Substances that Deplete the Ozone Layer and the Ozone Annex to the Canada-U.S. Agreement on Air Quality, the expected environmental results were defined and Environment Canada measures actual results against these expectations. In these two cases, the Department knows the extent to which it is achieving the environmental objectives we examined.

1.3 In the case of the International Convention on the Prevention of Pollution from Ships, the various federal pollution prevention programs and activities do not provide Transport Canada sufficient information on the status of ship oil pollution in Atlantic waters within Canadian jurisdiction. The issue with the United Nations Fish Stock Agreement is that although Fisheries and Oceans Canada knows the status of the fish stocks we looked at, it cannot always clearly demonstrate if stock conservation or rebuilding objectives are being achieved or if they are at the desired or sustainable level. The key challenge with the Ramsar Convention on Wetlands of International Importance is that Environment Canada has not clearly translated the Convention's conservation objective into what is expected to be achieved for Canada's 36 designated wetland sites.

1.4 Setting clear and quantifiable results expectations and then measuring results against those expectations can be a daunting challenge when dealing with complex environmental issues. Nevertheless, our examination of five international environmental agreements illustrates that

- where results expectations are well defined, departments are better positioned to know the extent to which agreement objectives and desired results are being achieved;
- where there are significant constraints or challenges to achieving the desired environmental results, better transparency is required in defining and communicating what results can reasonably be achieved; and

- while setting performance expectations and measuring results with respect to environmental issues can be difficult, it is nonetheless possible.

Background and other observations

1.5 International environmental agreements are important because they enable countries to work together to address vital environmental issues that are transboundary or global in nature, such as air pollution, climate change, protection of the ozone layer, and ocean pollution. In Canada, the quality of our environment depends not only on what we do at home but also on activities outside our borders. Our domestic actions alone are often insufficient to protect our environment, our resources, and our health. We need to work with other countries to develop common solutions to international environmental problems that impact us directly.

1.6 In recent years, the federal government embarked on an agenda to improve the effectiveness of public sector management and accountability, and committed to focus more on the results achieved through the use of public funds. Consistent with this, we looked at accountability for results in the context of five international agreements.

The departments have responded. The departments concerned—Environment Canada, Transport Canada, and Fisheries and Oceans Canada—accept our recommendations. The responses of each department, which follow the recommendations in the chapter, indicate what future action they plan to take to address these recommendations.

The Government of Canada has responded. As well, the Government of Canada accepts our recommendation pertaining to the accountability of lead federal departments for international environmental agreements. The government's response is presented following this recommendation (paragraph 1.130).

Introduction

International environmental agreements

1.7 **Importance of environmental agreements.** Because many environmental issues such as air pollution, deterioration of the ozone layer, climate change, and ocean pollution are transboundary or global in nature, countries cannot achieve desired results by acting alone. Countries have increasingly recognized this and have developed a wide range of international environmental agreements to enable them to work together on global environmental issues.

1.8 In Canada, the quality of our environment depends not only on what we do at home but also, increasingly, on activities outside our borders. Our domestic actions are often insufficient to protect our environment, our resources, and our health. We need to work with other countries to develop common solutions to international environmental problems that have a direct impact on us. As one of the largest countries in the world, rich in natural resources, Canada has much to gain from the environmental commitments made by its neighbours and the international community.

Did you know?

In 2001, the United Nations Environment Programme reported that "there were over 500 international treaties and other agreements related to the environment…. Nearly 60 percent date from 1972, the year of the Stockholm Conference, to the present."

1.9 **Historical context.** International agreements on boundary waters and commercially valuable wildlife such as whales, seals, and fish date back to the late 1800s. However, there were few such agreements until the second half of the 20th century. In 1972, the United Nations Conference on the Human Environment, held in Stockholm, marked the beginning of a comprehensive international effort to protect, preserve, and enhance the environment. Several important environmental agreements have been negotiated since then.

1.10 In addition to their growing number, international environmental agreements have also increased in scope and complexity. While earlier agreements focussed on a limited number of topics, recent agreements address a much broader range of issues. As well, the terms and conditions of recent agreements are generally more comprehensive and rigorous and cover a wider range of obligations.

1.11 Since 1972, Canada has often played a key role in shaping the international environmental agenda and has endorsed a growing number of international agreements and similar instruments dealing with various environmental issues. Canada's environmental commitments to the international community have grown, and the number and complexity of our agreements have increased.

1.12 **Management challenges.** Governments around the world face the challenge of managing a growing body of increasingly complex international environmental agreements. According to other national audit offices, the assessment of the implementation, compliance, and effectiveness of these agreements is complicated and often plagued by various problems. Despite their growing importance, little is known about many countries' implementation of, and compliance with, these agreements.

1.13 In Canada, adequate information is not always available to Parliament and to Canadians on the progress achieved under our agreements. In our 1998 Report, Chapter 2, Working Globally—Canada's International Environmental Commitments, we reported that Canada did not always have an overall picture of how good a job it was doing at meeting the international environmental obligations it had undertaken.

Accountability for results

1.14 **Results for Canadians.** Historically, management within the federal government has primarily focussed on resources and what it spends (inputs), what it does (activities), and what it produces (outputs). While these are important, it is not sufficient to report on only these elements. Being able to measure and report on results achieved (outcomes) from government policies, programs, and services is essential in order to be accountable to Parliament and Canadians.

1.15 In recent years, the federal government has embarked on an ambitious agenda to improve the effectiveness of public sector management and accountability. This agenda is reflected in several significant initiatives, including *Results for Canadians*, which set out the government's management framework. In *Results for Canadians*, the government emphasized its commitment to focus on results achieved through the use of public funds.

Accountability. A relationship based on obligations to demonstrate, review, and take responsibility for performance, both the results achieved in light of agreed expectations and the means used.

1.16 Since international environmental agreements reflect federal government policy on important environmental issues, Canadians should know what has, or has not, been accomplished as a result of these agreements. Consistent with the federal agenda and commitments, we set out to look at accountability for results of selected international environmental agreements.

1.17 **Responsibility of lead departments.** For each agreement, a federal government department is identified as the lead department primarily responsible for that agreement. Normally, the lead department is identified as part of the consultation process leading up to Canada's ratification of an agreement. Publications such as Environment Canada's *Compendium of International Environmental Agreements* and Foreign Affairs Canada's database of international environmental agreements (available through the Department's Web site) list lead departments.

1.18 Despite the designation of a lead department for each international environmental agreement, there are no common mechanisms to formally define and delegate the responsibilities of lead departments. The essence of the lead department's role is normally grounded in the mandate of the department and in the related responsibilities of the minister. Also, the federal cabinet documents that authorize the negotiation and ratification of agreements (such as memoranda to cabinet and records of decisions) may identify the lead department and, to some extent, describe its role. However, cabinet documents are, by law, not accessible to the public or to members of Parliament and therefore are not transparent enough for accountability purposes.

1.19 **Performance expectations.** Setting clear, quantified, and time-bound performance expectations is an essential cornerstone of effective accountability. Departments cannot be held accountable for achieving results unless those results are adequately defined to begin with. However, setting expectations, and then measuring actual results against those expectations, can be a daunting challenge when dealing with complex environmental issues.

1.20 As mentioned previously, the federal government has been working to improve its management effectiveness and accountability. It has developed a number of management frameworks and other tools that could assist lead departments in defining the results expected under international environmental agreements and in managing to achieve those results.

1.21 The results-based management accountability framework is an example of such a tool. It provides a blueprint for measuring and reporting on outcomes of individual policies, programs, and other initiatives. This framework helps to describe clear roles and responsibilities; to ensure a logical design that links activities, outputs, and outcomes; to determine appropriate performance measures and measurement strategy; and to ensure adequate reporting on outcomes. It also provides for the development of an evaluation strategy.

1.22 The government's policy on transfer payments requires the use of a results-based management accountability framework as a component of any federal grant or contribution funding program. Also, the government generally encourages its use for major policies, programs, and initiatives. However, there are no other formal requirements to use this framework or similar tools. The onus is on the responsible lead departments to use the means or tools necessary to define the expected environmental results and performance for their agreements.

1.23 **Reporting on results.** Effective accountability requires that actual results achieved be measured, compared with expectations, and reported. Departmental reports on plans and priorities and departmental performance reports are the two principal means through which federal departments report to Parliament on planned results and results achieved. Departments may report on the results achieved in relation to their international environmental agreements through other means, such as periodic reports to the convention secretariats, other publications, or their Web sites. However, departmental performance reports are the primary and most commonly recognized vehicle for reporting results and performance to Parliament.

1.24 Departmental performance reports must also strive to be concise and well understood by Canadians. Given that, they are not intended to be comprehensive or to present exhaustive information on everything a federal department does. Competing priorities often make it difficult to report on all noteworthy programs and initiatives. Accordingly, there is no assurance that lead departments will use their departmental performance reports to report on results of international environmental agreements. Nonetheless, the Treasury Board of Canada Secretariat encourages departments to direct

readers, through their departmental performance reports, to other publications or Web sites where they can find more complete performance information.

1.25 **Review and oversight.** Measuring and reporting environmental results are very important, but do not necessarily ensure that Canada is achieving the environmental outcomes desired under international agreements. There must also be proper management oversight to review results against expectations, identify difficulties and constraints to meeting those expectations, and take any necessary corrective action.

1.26 Responsibility for review and oversight of Canada's performance under an international environmental agreement rests primarily with the minister responsible for the agreement, consistent with ministerial responsibilities and accountability. In practice, senior management under the responsible minister would normally perform these functions.

1.27 In addition, the Treasury Board of Canada and its Secretariat are the federal government's management board. The Secretariat has a central oversight role for government-wide management practices and for ensuring value for money. The Secretariat also supports the activities of the Expenditure Review Committee of Cabinet, which is conducting an ongoing review of all government expenditures, management and operations. This is intended to provide a better understanding of program results and services that can be delivered with existing resources, and identify opportunities to realign resources to higher priorities. Treasury Board Secretariat officials indicated that the expenditure review process will likely include all departmental activities, including those pertaining to international environmental agreements. After completion of our audit, the Secretariat informed us that, following the 2004 federal election, the Privy Council Office was given the task to provide support to the Expenditure Review Committee, which is now a sub-committee of the Treasury Board.

1.28 Ultimately, Parliament has the primary role in overseeing government policies, activities, and resources, including the fulfilment of ministerial responsibilities. This oversight is exercised largely through the work of various House and Senate committees. However, Parliament needs appropriate results-based information in order to effectively oversee and hold the government to account for results. The government acknowledges that improved reporting to Parliament remains an ongoing challenge.

Focus of the audit

1.29 This audit was based on the principles of accountability to Parliament and results for Canadians, and examined how the Canadian federal government is accountable for the results of its international environmental agreements. We selected five agreements to use as audit case studies. We chose agreements that reflect different and important environmental topics and embody clear environmental objectives. We also focussed on agreements that have clear repercussions for the Canadian environment and for which the federal government is primarily responsible within Canada. The

Titles of agreements

The full titles of the five international environmental agreements appear in their respective case study sections, under Observations and Recommendations.

international environmental agreements selected (and responsible lead federal departments) are the following:

- The Montreal Protocol on Substances that Deplete the Ozone Layer (Environment Canada)
- The Ozone Annex to the Canada–U.S. Agreement on Air Quality (Environment Canada)
- The International Convention for the Prevention of Marine Pollution from Ships—MARPOL (Transport Canada)
- The United Nations Fish Stocks Agreement—UNFA (Fisheries and Oceans Canada)
- The Convention on Wetlands of International Importance Especially as Waterfowl Habitat—Ramsar (Environment Canada)

1.30 Knowing whether the agreements' environmental objectives and desired results are being achieved is a prerequisite for effective accountability. Thus, we set out to determine whether the responsible lead federal departments know the extent to which specific objectives of the selected international environmental agreements are being achieved. In order to do so, we examined whether the departments have information on the environmental results achieved relative to the objectives the government committed to, and whether they could demonstrate adequate assurance on the quality of this information. For each of the five international environmental agreements, we chose one key environmental objective of the agreement to examine.

1.31 The scope of the audit was limited to what is described in the preceding paragraph. We did not audit the government's compliance with the international environmental agreements, the effectiveness of the programs or means used to achieve its objectives, the pace or progress in addressing environmental issues, or the accuracy or quality of the information used by the departments. As well, the context and difficulties of each agreement we examined differ, and for this reason care should be taken not to generalize our findings to all of Canada's international environmental agreements.

1.32 For additional information on the objectives and scope of the audit, see **About the Audit** at the end of this chapter.

Observations and Recommendations

Montreal Protocol

Protecting the ozone layer

1.33 **The issue.** The ozone layer in the Earth's stratosphere is crucial to life on this planet. It protects living things from the harmful effects of the sun's ultraviolet radiation. Located 15 to 35 kilometres above the Earth's surface, the ozone layer absorbs all but a small fraction of harmful ultraviolet radiation from the sun. Because of this, stratospheric ozone is considered good ozone. In contrast, ozone closer to the Earth's surface is considered bad because it can be harmful to humans, plants, and animals.

Ozone-depleting substances

- chlorofluorocarbons (CFCs)
- halons
- carbon tetrachloride
- methyl chloroform
- hydrochlorofluorocarbons (HCFCs)
- methyl bromide

1.34 Today there is scientific consensus that certain manufactured chemicals, known as ozone-depleting substances, are responsible for reducing the ozone layer. Ozone depletion results in increased levels of ultraviolet-B (UV-B) radiation at the earth's surface and can cause substantial health problems. UV-B radiation causes skin cancers, and other potential health risks include eye diseases and immune system deficiencies.

1.35 The effects of ozone-depleting substances emissions do not respect geographic or jurisdictional boundaries. Emissions from abroad affect the ozone layer over Canada in the same manner as emissions at home. Solutions require international collaboration and actions on a global scale.

1.36 **The agreement.** In 1987, Canada signed The Montreal Protocol on Substances that Deplete the Ozone Layer (Montreal Protocol). The Montreal Protocol seeks to protect the ozone layer by taking measures to control, and ultimately eliminate, substances that deplete it. Since it came into force in 1989, 187 countries have become parties to the Montreal Protocol. It also has been modified on several occasions by adding new ozone-depleting substances and by accelerating the phase-out of existing ones. Although most governments have ratified the Montreal Protocol, ratification of the subsequent amendments and their stronger control measures lags. Canada has ratified all the amendments.

1.37 **The lead department.** In Canada, the federal and provincial governments share responsibility for protecting the ozone layer. Environment Canada is the lead federal department responsible for putting into place the regulations and controls needed to meet Canada's obligations under the Montreal Protocol. The provinces and territories are mainly responsible for the recovery and recycling of ozone-depleting substances.

1.38 Environment Canada implements the provisions of the Montreal Protocol through the Ozone Depleting Substances Regulations under the *Canadian Environmental Protection Act*. These regulations, administered and enforced by Environment Canada, include controls on the manufacture, import, and export of various ozone-depleting substances.

Phasing out ozone-depleting substances

1.39 **What we looked at.** We set out to determine whether Environment Canada knows to what extent Canada is achieving the targeted consumption phase-out of hydrochlorofluorocarbons (HCFCs) and methyl bromide. In addition, we looked at the information Environment Canada has on the environmental results of reducing the consumption of ozone-depleting substances.

Consumption—The production plus imports minus exports of a controlled substance.

Production—The amount of a controlled substance produced, minus the amount destroyed by approved technologies and minus the amount used in the manufacture of other chemicals.

1.40 Under the Montreal Protocol, Canada's obligations to reduce the consumption of ozone-depleting substances include

- HCFC levels frozen in 1996, reduced by at least 35 percent by 2004, by 65 percent by 2010, 90 percent by 2015, 99.5 percent by 2020, and 100 percent by 2030; and

- methyl bromide levels frozen in 1995 (at 1991 base level), reduced at least 25 percent by 1999, 50 percent by 2001, 70 percent by 2003 and 100 percent by 2005.

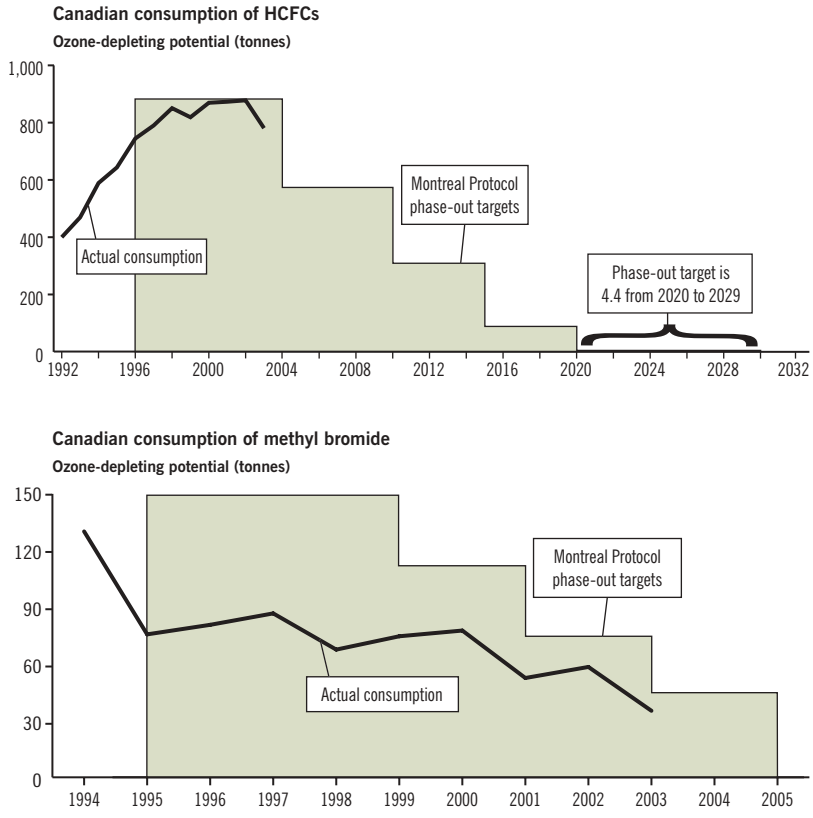
Did you know?

Hydrochlorofluorocarbons (HCFCs) are chemicals that have been increasingly used as replacements for chlorofluorocarbons, mainly in refrigeration and foam-blowing applications. Although both are ozone-depleting substances, HCFCs are much less damaging to the ozone layer.

Methyl bromide is a chemical used in soil fumigation and in the fumigation of some food storage and production facilities.

1.41 Ozone-depleting substances consumption. Environment Canada gathers information on HCFCs and methyl bromide consumption in Canada through the reporting requirements of the Ozone-Depleting Substances Regulations. Environment Canada has processes and controls in place to assure the accuracy of the consumption data it collects and reports annually to the United Nations Environment Programme. The Department has stated that it believes the information to be of adequate quality and free of any important errors. According to the 2003 data that Environment Canada submitted to the Programme, Canada has, to date, met all its consumption reduction obligations for HCFCs and methyl bromide (Exhibit 1.1).

Exhibit 1.1 Canadian consumption of hydrochlorofluorocarbons (HCFCs) and methyl bromide



Source: UNEP and Environment Canada

1.42 Impacts of ozone-depleting substances reductions. Environment Canada also obtains information from international sources on different environmental aspects and impacts of reduced consumption of ozone-depleting substances. Scientific information comes from reports of the Scientific Assessment Panel of the Montreal Protocol. The Panel is comprised

of international experts from countries, including Canada, that are parties to the Montreal Protocol. These reports are peer reviewed and are used by the parties as a basis for decisions. According to these reports:

- **Levels of ozone-depleting substances in the atmosphere.** The total combined effective abundance of ozone-depleting compounds in the lower atmosphere continues to decline slowly from their peak in 1992–1994.
- **Stratospheric ozone.** The ozone layer has not yet begun to recover. Scientists predict the ozone layer will slowly recover over the next 50 years as concentrations of ozone-depleting compounds decline. Failure to comply with the Montreal Protocol would delay, and could prevent, the recovery of the ozone layer.

Achieving targets

1.43 Environment Canada knows the extent to which HCFCs and methyl bromide are being phased out in Canada, and Canada is meeting the current targets of the Montreal Protocol. We also observed that Environment Canada has information on related environmental results, including data on the concentration of ozone-depleting substances in the atmosphere and the status of the ozone layer.

Ozone Annex

Air pollution and smog

1.44 **The issue.** Although ground-level ozone is the same substance as stratospheric ozone, its effect on Earth's population and environment is harmful rather then beneficial. Ground-level ozone, which occurs in small amounts just above the Earth's surface, can cause serious respiratory problems in humans and animals. Ground-level ozone also can damage plants, field crops, and forests. When combined with fine airborne particles, ground-level ozone creates smog, which is harmful to human health. (For more information on smog, see our 2000 Report, Chapter 4, Smog—Our Health at Risk.)

1.45 Ground-level ozone is a secondary-source pollutant. It is produced when two primary pollutants or precursors—nitrogen oxides (NOx) and volatile organic compounds (VOC)—react in sunlight and stagnant air. These pollutants come from human activities as well as from natural sources. NOx in the atmosphere comes mainly from sources such as burning coal, gas, and oil in motor vehicles, homes, industries, and power plants. VOC emissions result mainly from gasoline combustion, the evaporation of liquid fuels and solvents, and from oil and gas refineries. NOx, VOC, and ground-level ozone can be transported over many hundreds of kilometres, depending on weather conditions.

1.46 **The agreement.** In December 2000, Canada signed the Protocol between the Government of Canada and the Government of the United States of America Amending the Agreement between the Government of Canada and the Government of the United States of America on Air Quality, simply referred to as the Ozone Annex. The Ozone Annex aims to reduce

Quebec with smog—10 September, 2002 at 3:32 p.m.

Quebec without smog—24 September, 2002 at 3:45 p.m.

Photos: Roger Lemire, Quebec Ministry of the Environment

transboundary air pollution through the reduction of emissions of ozone precursors in its designated area—in Canada: central and southern Ontario and southern Quebec. The long-term objective of the Ozone Annex for Canada is that ground-level ozone concentrations not exceed the Canada-Wide Standards for ozone.

1.47 **The lead department.** The federal government and the provinces of Ontario and Quebec share responsibility for implementing the Ozone Annex. Environment Canada is the lead federal department responsible for the emissions regulations and controls required by the Ozone Annex. Implementation of the Annex requires that the three governments develop or amend several regulations. Currently, 9 of the 12 required federal regulations have been put in place or amended, and the remainder are under development.

Reducing ground-level ozone

1.48 **What we looked at.** We examined whether Environment Canada knows the extent to which Canada is achieving the estimated reduction in emissions of NOx and VOC, as specified in the Ozone Annex. In addition, we looked at the related information Environment Canada has on the environmental impacts or results of the emissions reductions.

1.49 **Emissions estimates.** The obligations set out in the Ozone Annex focus on the measures and regulations to achieve reductions in emissions of NOx and VOC. The Ozone Annex also presents initial quantitative estimates of the emissions reductions to be achieved. These initial reductions were not intended to be binding, and the Department indicated the related emissions inventory and methods were intended to be improved and the

estimates updated over time. The estimated reductions, from 1990 levels, predicted for Canada are

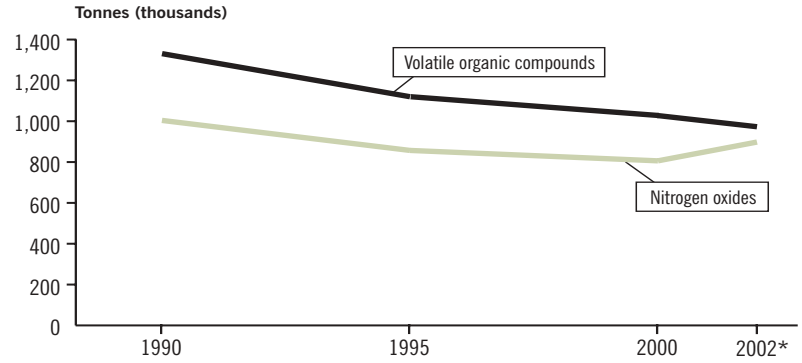
- NOx emissions by 39 percent in 2007 and 44 percent in 2010, and
- VOC emissions by 18 percent in 2007 and 20 percent in 2010.

However, Environment Canada also presented the 2010 reduction estimates as targets in its 2003–04 Report on Plans and Priorities. In addition, in the agreement it was initially expected that actual emissions reductions achieved would be greater than these estimates.

1.50 Environment Canada maintains a detailed inventory of NOx and VOC emissions sources, organized by several categories and sectors. The inventory categories are industrial sources, non-industrial fuel combustion, transportation, incineration, open sources, and miscellaneous. These categories break down into numerous sectors. For example, the transportation category includes sectors such as heavy- and light-duty diesel and gasoline trucks, air transportation, marine transportation, and motorcycles.

1.51 The Department uses the emissions inventory as the basis for compiling estimates of actual emissions, using different methods and source data for the different categories and sectors. The most recent complete emissions estimates are for the year 2000, and the Department is completing the 2002 estimates. The following exhibit shows the estimated emissions of NOx and VOC for 1990 to 2000 and the projection for 2002 (Exhibit 1.2).

Exhibit 1.2 Emissions of nitrogen oxides and volatile organic compounds for the area in Canada designated by the Ozone Annex



* projected emissions

Source: Environment Canada

1.52 The compilation of the emissions estimates is well documented. Environment Canada publishes an emissions inventory guidebook that provides detailed information on the sectors, methods used, and data references. Many of the methods used by Environment Canada are comparable with those used by the U.S. Environmental Protection Agency or

the member countries of the United Nations Economic Commission for Europe. As well, the two parties to the Ozone Annex are obliged to develop common definitions of emission categories and common levels of aggregation for reporting emissions. Environment Canada has stated that it believes the information on estimated emissions of NOx and VOC is of adequate quality and free of important errors.

1.53 Using the emissions inventory and estimates, Environment Canada also produces projections of future NOx and VOC emissions. The most recent projections available at the time of our audit did not include all the reductions expected to result from implementing the Ozone Annex. Environment Canada indicated it was working to update its projections to reflect the impacts of all reductions.

A National Air Pollution Surveillance Network station

Photo: Anthony Scullion Photography

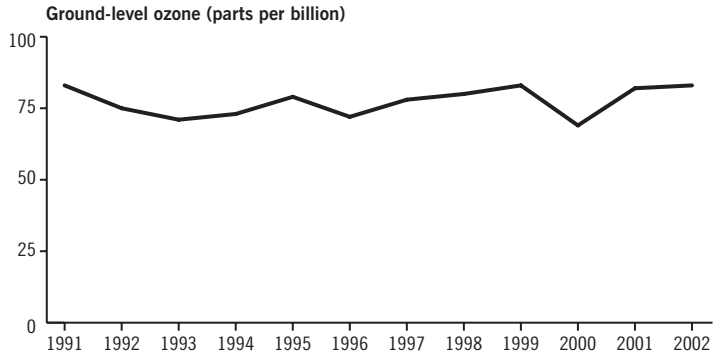
1.54 Environment Canada's current emissions estimates and projections are based on changing emissions inventory and methods that reflect evolving knowledge of emissions of ozone precursors. The current emissions projections suggest that the initial reduction targets will be exceeded for VOC but will not be met for NOx. However, the Department confirmed that these differences with past targets are partly caused by the necessary changes in the emissions inventory and methods. Department officials indicated that their primary focus is on estimating the impacts of the various emissions reduction measures, and not on meeting the reduction targets presented in the Report on Plans and Priorities, which were intended as initial estimates.

1.55 **Air quality monitoring.** The key environmental objective of the Ozone Annex is for Canada to achieve the Canada-Wide Standards for ozone concentration by the year 2010. These environmental standards, approved by the Canadian Council of Ministers of the Environment, provide for average concentrations of ground-level ozone not exceeding 65 parts per billion, calculated according to an agreed method. The Ozone Annex represents only part of the measures by which Canada strives to meet the Standards.

1.56 Environment Canada and the provinces and territories have over 250 air monitoring stations across Canada that measure air quality through two networks—the National Air Pollution Surveillance Network and the Canadian Air and Precipitation Surveillance Network. The stations, located in urban and rural environments, provide hourly data on NOx and ground-level ozone levels in the air. VOC data are gathered on a 24-hour basis. These data are analyzed and compiled into an annual report. While the Ozone Annex came into force in December 2000, there has been no noticeable change in the amount of ground-level ozone in the air between 1991 and 2002 (Exhibit 1.3).

1.57 The Department indicated that the provincial, territorial, and municipal agencies, which are part of the networks, use various data quality assurance programs. These are supplemented by federal controls that include verifying instrument calibration and performance. Environment Canada provides assurance on the accuracy of the air monitoring data collected and reported, and has stated that it believes the information on ozone concentration to be of adequate quality.

Exhibit 1.3 **Concentration of ground-level ozone for the area in Canada designated by the Ozone Annex**



Source: Environment Canada

Emissions and ozone concentration are known

1.58 The audit determined that Environment Canada knows the estimated emissions of NOx and VOC, as well as the resulting concentration of ground-level ozone in the air. There is a clear target for the desired environmental outcome—reduction in ground-level ozone concentration—as well as estimated emissions reduction targets needed to help achieve that outcome. Furthermore, the Department is measuring results for both ground-level ozone concentration and estimated emissions of NOx and VOC. Given that there are clear and comparable measurements against the desired environmental outcome, in our opinion, this demonstrates reporting against the results and objective of the Ozone Annex.

1.59 However, Environment Canada has not adequately explained the intended purpose of its emissions reduction targets presented in its Report on Plans and Priorities, nor clearly explained how its current estimated emissions and projections differ from these targets.

1.60 **Recommendation.** Environment Canada should clarify its emissions reduction objectives and expected results, and clearly explain why its estimated emissions and projections differ from established targets.

Department's response. Environment Canada accepts the recommendation.

Environment Canada's emission reduction objectives for the Ozone Annex are to implement the measures to reduce emissions of nitrogen oxides (NOx) and volatile organic compounds (VOC) that are outlined for Canada in the international agreement. Decreases in levels of ozone in the ambient air in eastern Canada are expected to result from the implementation of the Canadian measures in combination with the implementation of the emission reduction measures agreed to by the United States in the Ozone Annex.

Because emissions information from industry and other sources of emissions has become more accurate and complete, Canada has been able to revise its estimates of NOx and VOC emissions reductions expected in 2007 and 2010 as measures outlined in the Ozone Annex are implemented. Although the

revision of the estimates in 2004 was a requirement in the Ozone Annex, Canada will review and update its estimates for the emissions reductions likely to result from the actions in the Ozone Annex and report these revised projections regularly in the biennial Canada-U.S. reports on progress to implement the Air Quality Agreement.

Prevention of pollution from ships

Ocean pollution

1.61 **The issue.** Canada borders three oceans, has the world's longest coastline, and has an ocean area equivalent to over 30 percent of its landmass. As a result, our economy, history, and social fabric are inextricably linked to the oceans and their resources. Canada's ocean jurisdiction extends to its exclusive economic zone, 200 nautical miles from its coasts.

Did you know?

The federal government estimates that Canada's oceans generate over $20 billion in annual economic activity, and that over $85 billion in ocean trade passes through Canadian waters every year.

1.62 Accordingly, maritime shipping is of crucial importance to the country. However, maritime shipping produces various forms of pollution that impact on and damage the environment. Oil discharged from ships is one important type of marine pollution. Assessing the full impact of oil in the marine environment is a complex task. While oiled seabirds are one highly publicized casualty of marine oil pollution, particularly in Atlantic Canada, there are many other, less obvious, detrimental effects on marine animals, plants, and ecosystems.

Did you know?

Normal ship operations generate different types of operational waste, including garbage, sewage, machinery run-offs, engine room bilges, and oily wastes.

1.63 **The agreement.** The International Convention for the Prevention of Pollution from Ships (the MARPOL convention) seeks to eliminate intentional pollution of the marine environment resulting from ship operations and to minimize accidental discharges of pollutants. Through six annexes, the MARPOL convention deals with pollution from oil, chemicals, packaged goods, garbage, sewage, and air emissions. The convention includes requirements for ship construction, certificates and inspection, equipment, record keeping, and in-port procedures. The convention came into force internationally in 1983. Canada became a party to MARPOL in 1993 and has since accepted and implemented the annexes dealing with oil pollution, chemicals, and packaged goods.

Suspected oily discharge from a ship within Canadian jurisdiction

Source: Transport Canada National Aerial Surveillance Program

1.64 **The lead department.** Transport Canada is the lead federal department responsible for the MARPOL convention. The Department administers and enforces the convention through the *Canada Shipping Act* and its related regulations. Transport Canada is also responsible for some of the key programs and activities required under MARPOL, such as ship inspections. In December 2003, Transport Canada assumed responsibility for the National Aerial Surveillance Program from Fisheries and Oceans Canada (Canadian Coast Guard). Environment Canada is involved in related enforcement aspects with respect to the protection of migratory birds.

Preventing oil pollution

1.65 **What we looked at.** We examined whether Transport Canada knows the extent to which marine oil pollution from ships is being minimized or eliminated in waters within Canadian jurisdiction. Our audit focussed on the Atlantic coast, where marine oil pollution is recognized as a significant

problem and federal efforts are concentrated. We reviewed the information available to Transport Canada from key federal government programs and activities related to the prevention or surveillance of marine oil pollution from ships.

Aerial surveillance aircraft

Source: Transport Canada National Aerial Surveillance Program

1.66 **Aerial surveillance.** The National Aerial Surveillance Program established in 1991 serves to detect pollution violations and enforce the convention. The program conducts aerial surveillance in five regions of the country—Newfoundland, the Maritimes, Quebec, Central and Arctic, and Pacific—using three patrol aircraft. It documents the number of patrol hours, vessel over-flights, pollution sightings, sightings per vessel over-flight, and volume of oil discharges observed. The program reports that for Atlantic Canada—the Newfoundland and Maritime regions combined—pollution sightings decreased significantly from 1992–93 to 2002–03.

1.67 However, because the Canadian ocean areas are immense and contain many maritime shipping routes, ensuring adequate pollution surveillance presents a considerable challenge. In Atlantic Canada, the National Aerial Surveillance Program performed 644 hours of surveillance flights in 2002–03 and overflew 1,782 vessels. According to Transport Canada, this represents only about one percent of the known vessel traffic in Atlantic waters within Canadian jurisdiction. Known vessel traffic includes ships destined for, or originating from, Canadian ports. It excludes vessels passing through Canadian waters—ships destined for, and originating from, foreign ports. Transport Canada does not have traffic information on vessels under such passage and thus does not know the total maritime traffic for the purposes of managing the National Aerial Surveillance Program.

1.68 Additionally, federal government reports suggest that a significant portion of intentional oil discharges from ships occurs during periods of darkness or reduced visibility. The National Aerial Surveillance Program is currently unable to perform surveillance in such situations, which markedly hinders its ability to detect those discharges. For all these reasons, the information provided by the program has important limitations and cannot serve to demonstrate the extent of oil pollution from ships.

1.69 As an added consideration, we also found little evidence that Transport Canada has made any significant progress toward its 2001 Sustainable Development Strategy commitment to review the effectiveness of the National Aerial Surveillance Program. For instance, it has not conducted a formal analysis of the risks or patterns of marine oil pollution from ships as a step to better understand the scope of the problem and assess the effectiveness of the program.

1.70 The Integrated Satellite Tracking of Polluters pilot program, started in 2002, is a multi-agency government initiative that evaluates the potential usefulness of radar satellite imagery in helping to detect marine oil discharges off the Atlantic coast. Although the technology is still being tested and developed, it may eventually serve as an aid to the aerial surveillance program.

1.71 **Pollution incident reports.** The Canadian Coast Guard, Transport Canada, and Environment Canada each maintain different pollution incident databases on marine spills, reports on pollution incident investigations, and significant environmental emergencies. However, the information in these databases is limited mainly to reported incidents of various types. Transport Canada was not able to demonstrate how the information is, or could be, used to provide a description of the status of, or trends in, marine oil pollution from ships.

1.72 **Ship inspections.** Transport Canada's Port State Control is a program whereby inspections of foreign vessels are carried out at major Canadian ports to ensure compliance with major international maritime conventions, including the MARPOL convention. Transport Canada reports that the proportion of ship deficiencies related to marine pollution, including inadequate certificates, log books, oil record books, or pollution control equipment, has decreased from 1998 to 2002. In 2002, 525 inspections uncovered deficiencies and 4.4 percent of these deficiencies related to marine pollution (compared with 587 inspections and 6 percent of deficiencies related to marine pollution in 1998). While the inspection results may provide a good indication of compliance with the convention, the Department cannot adequately demonstrate whether the decrease in deficiencies has resulted in fewer ship discharges occurring at sea.

Oiled bird found on a beach in Atlantic Canada

Photo: Pierre Ryan, Canadian Wildlife Service, Environment Canada

1.73 **Oiled bird surveys.** Oil on the sea surface can kill any seabird that it touches and can significantly affect bird populations. This is of particular concern in Atlantic Canada, where ship traffic passes through areas that provide suitable habitat for tens of millions of seabirds of different species. Many dead seabirds wash ashore in southeastern Newfoundland, and Environment Canada has overseen regular beached bird surveys there since 1984.

1.74 Assessing the significance of beached bird surveys is difficult in Atlantic Canada because several factors can influence their results such as location of oil discharges, currents, weather, and seabird migratory patterns. While the surveys provide the best available indication of the number of seabirds killed by oil at sea, they provide only indirect and incomplete information on the extent, frequency, and location of ship oil discharges in the area. Beached bird surveys also lack the frequency and geographical coverage required to provide a reasonable picture of the overall oil pollution problem.

Based on its surveys, Environment Canada estimates that

- oil pollution kills about 300,000 seabirds each year off the coast of Atlantic Canada;
- oil pollution along the coast of southeastern Newfoundland is among the highest in the world, and the problem has persisted from 1984 to 1999 (based on the latest available information); and
- most oil on seabirds is typical of the mixture found in the engine room bilges of ships.

Extent of the problem is not known

1.75 We found that Transport Canada is not able to determine the extent of oil pollution from ships in Atlantic waters within Canadian jurisdiction, either from its own information and activities or in collaboration with other federal departments. Officials of Transport Canada, Environment Canada, and Fisheries and Oceans Canada agreed with our assessment.

1.76 The different information we looked at does not provide an adequate indication of the status of marine oil pollution. As well, while Transport

Canada has made efforts to compile information from the various marine pollution prevention programs, it provided limited evidence that it has analyzed the problem, assessed the effectiveness of existing prevention and surveillance programs, or clearly defined what environmental results could be expected from those programs.

1.77 We recognize that major challenges exist for setting expectations and measuring environmental results with respect to pollution from ships, particularly given the vastness of the ocean areas involved. The Department indicated that, although the U.S. has provided estimates of the effectiveness of MARPOL, they are not aware of any other countries that have been successful in assessing the impacts of MARPOL on the actual quantities of oil being discharged in their waters, intentionally or otherwise. In this context, the government needs to be more transparent and clearly communicate to Canadians what progress it reasonably expects to achieve.

1.78 **Recommendation.** Transport Canada should define the environmental performance and results expectations that ocean oil pollution prevention and surveillance programs can reasonably achieve.

Department's response. Transport Canada accepts the recommendation.

Transport Canada recognizes that it does not have the ability to monitor all ships at all times while in waters under Canadian jurisdiction, and is therefore not capable of calculating the actual total quantities of pollutants being discharged intentionally or otherwise. Instead Transport Canada will use the results of existing inspection investigation and aerial surveillance programs as indicators of environmental performance by the shipping industry. Transport Canada does intend to provide better reporting on the programs that are in place to implement the oil pollution prevention regulations. Reporting for the 2004 season to be completed by the fall of 2005.

United Nations Fish Stocks Agreement

Conserving and managing our fisheries

1.79 **The issue.** Bordered by three oceans and with historical links to fishing, Canada has a large stake in ensuring the conservation and sustainable use of its fisheries. In recent years, Canada's East coast has experienced declines in many fish stocks. Several factors contributed to this decline, including the growth in the size and capacity of fishing fleets and environmental factors such as changes in water temperature.

1.80 Overfishing inside and outside the 200-mile limit has contributed significantly to declines in fish stocks. Canadian conservation measures inside its 200-mile limit have usually been stricter than measures outside the limit. Less stringent measures outside the 200-mile limit undercut coastal countries' conservation measures and inhibit the recovery and rebuilding of fish stocks that straddle or migrate through this boundary.

1.81 **The agreement.** The United Nations Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks,

commonly referred to as the United Nations Fish Stocks Agreement or UNFA, provides a framework for international co-operation in the conservation and management of those fish stocks.

200-mile limit or exclusive economic zone—An area extending 200 nautical miles (or 370 kilometres) seaward from the coast and in which a country has sovereign rights for the purposes of exploring and exploiting marine resources.

Fish stock—A grouping of fish usually based on genetic relationship, geographic distribution, and movement patterns.

Straddling fish stocks—Fish stocks that are located both within and outside the 200-mile limit.

Highly migratory fish stocks—Fish that carry out extensive migrations that can occur within and outside the 200-mile limit.

1.82 Countries that ratified UNFA committed to implement a precautionary approach to managing straddling and highly migratory fish stocks. A precautionary approach involves exercising caution, given that fisheries are difficult to control, not completely understood, and subject to change. A precautionary approach also includes clearly identifying conservation objectives and targets. Under the Agreement, countries are responsible for meeting the Agreement's conservation objective both within and outside their respective 200-mile limits. The Agreement came into force in December 2001. Canada, the United States, and more recently the European Union are among the 52 parties to UNFA.

1.83 According to UNFA, countries should pursue co-operation through the appropriate international fisheries management organizations to ensure effective conservation and management of straddling and highly migratory fish stocks. The organizations principally responsible for such fish stocks in the northwest Atlantic are the Northwest Atlantic Fisheries Organization (NAFO) and the International Commission for the Conservation of Atlantic Tunas (ICCAT).

1.84 NAFO manages 14 straddling fish stocks in the area outside Canada's 200-mile limit. ICCAT collects data or establishes management measures for about 30 species of highly migratory fish in the Atlantic Ocean and its adjacent seas. Both organizations co-ordinate scientific research and provide fish stock assessments and management advice on behalf of member countries. They also establish allowable fish catches and quotas, minimum fish sizes, and other conservation management measures.

1.85 **The lead department.** Fisheries and Oceans Canada is the lead federal department responsible for UNFA. The Agreement is implemented in Canada primarily through the *Coastal Fisheries Protection Act* and its regulations, the legislative means for controlling fishing vessel access to, and activities in, Canadian waters. Key federal programs and activities that support the agreement include fisheries science, integrated fisheries management plans, offshore surveillance programs, enforcement programs, and international negotiations to assert Canadian interests in internationally managed fish stocks.

Information on fish stocks

1.86 **What we looked at.** We examined whether Fisheries and Oceans Canada knows the extent to which the long-term conservation and sustainable use of the selected straddling fish stocks and highly migratory fish stocks is being achieved.

1.87 To examine what information the Department has, we selected four fish stocks to look at in more detail. We looked at three straddling stocks—3NO cod, 3KLMNO Greenland halibut (also known as turbot), and 3L northern shrimp—and one highly migratory stock, bluefin tuna west of 45

degrees longitude. The code before the stock names identifies the specific stock and refers to its geographic location in the northwest Atlantic Ocean (henceforth we refer to the stocks by species name only).

1.88 **State of the stocks.** Fisheries and Oceans Canada has data on the state of the three straddling stocks that we looked at, including **biomass**, **spawning stock biomass** and **abundance**. These data are based on peer-reviewed stock assessments carried out by the NAFO Scientific Council, comprised of stock assessment scientists from the member countries, using data from member countries.

Abundance—The number of fish that make up a stock.

Biomass—Abundance of a stock in units of weight.

Spawning stock biomass—The weight of fish in a stock that are old enough to reproduce.

Recruitment—The number of fish added to the exploitable stock each year through growth or migration.

By-catch—The catch of species other than the intended species being fished.

1.89 The Department also has information on the state of the bluefin tuna, including abundance, spawning stock biomass, and **recruitment**. Scientists rely primarily on data collected from the commercial fishery. ICCAT's Standing Committee on Research and Statistics conducts stock assessments in a manner similar to the NAFO process.

1.90 Fisheries and Oceans Canada has stated that it believes the information presented in the following graphs (Exhibit 1.4) to be of adequate quality and free of important errors, and that it has been peer reviewed by either NAFO Scientific Council or the ICCAT Standing Committee on Research and Statistics.

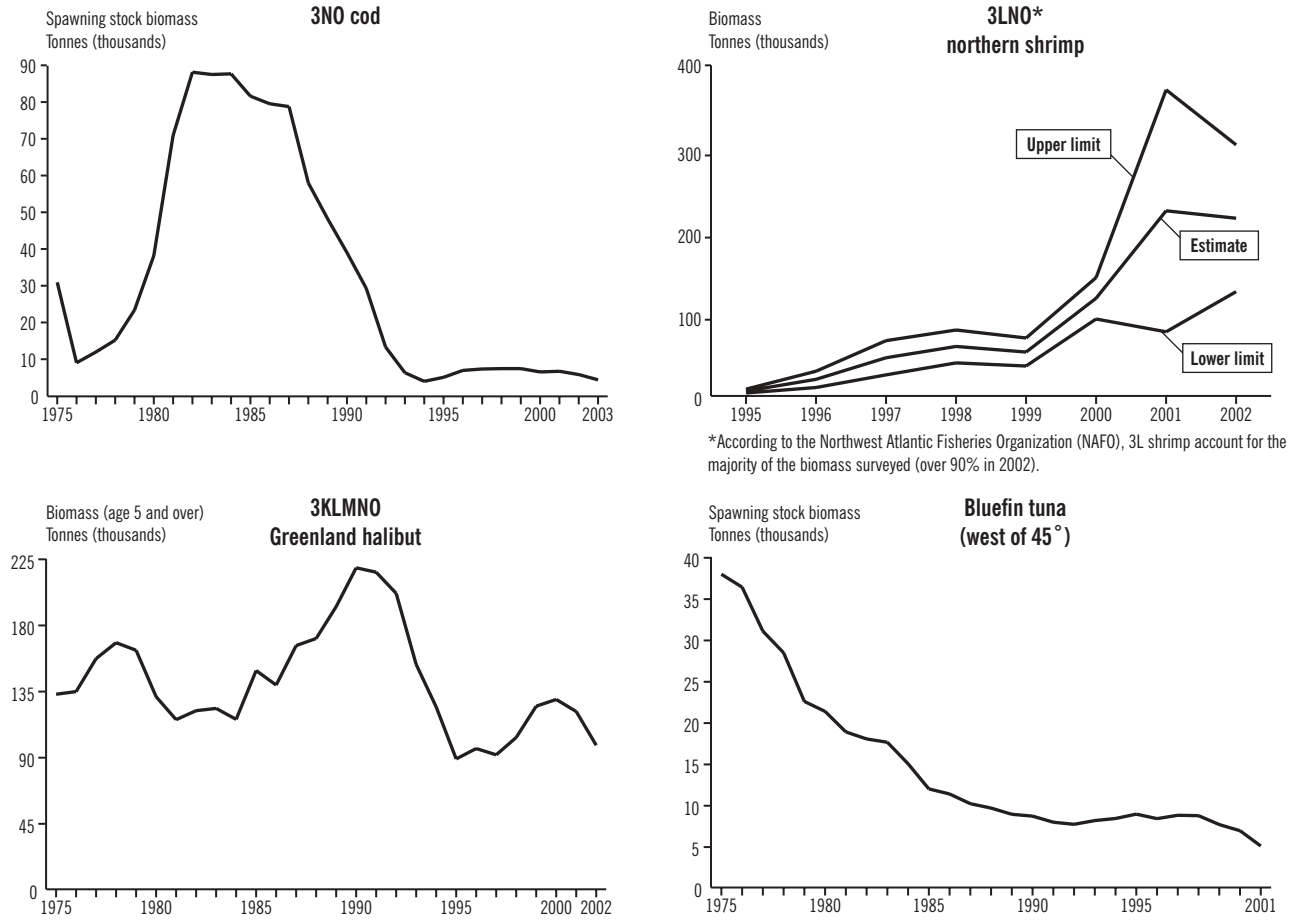
1.91 However, the oceans' ecosystems and the environmental and human impacts on fish stocks are highly complex and only partially understood. As a result, fisheries science is challenging and most often reflects considerable uncertainties, particularly in assessing fish stocks and expected conservation outcomes.

1.92 **Conservation targets.** The process of setting conservation targets for straddling and highly migratory fish stocks involves considerable bilateral and multilateral negotiation with other NAFO and ICCAT members. Not all members have ratified UNFA and are formally committed to all its principles, such as setting conservation targets. Fisheries and Oceans Canada indicated that it intends to pursue the adoption of the precautionary approach and clear conservation objectives and targets by NAFO and ICCAT.

1.93 Domestically, in its sustainable development strategy and reports on plans and priorities, the Department also affirmed its commitment to develop clear and measurable fisheries management objectives. The Department uses integrated fisheries management plans as the primary tool to manage fisheries in Canada, and these are intended to include specific and measurable objectives for fish stocks.

1.94 We examined documentation including integrated fisheries management plans, NAFO and ICCAT stock assessments, guidance on conservation and enforcement measures, and annual reports to determine what conservation objectives and measurable targets were established for the four selected stocks. We found that conservation objectives and measures differ depending on the state of the stocks.

Exhibit 1.4 **State of fish stocks selected for this audit**



*According to the Northwest Atlantic Fisheries Organization (NAFO), 3L shrimp account for the majority of the biomass surveyed (over 90% in 2002).

Source: NAFO (for cod, shrimp, and halibut) and ICCAT (for bluefin tuna)

1.95 **3NO cod.** Due to historically low numbers of cod, there has been a fishing moratorium on the stock since 1994. The objective is to keep cod **by-catch** at the lowest possible levels. The NAFO Scientific Council has estimated a precautionary limit of 60,000 tonnes, as the level of biomass at which no fisheries should take place. However, neither the NAFO Fisheries Commission nor the Department has accepted this estimate as a formal conservation target.

1.96 **3KLMNO Greenland halibut.** This stock has been declining in recent years. As a result, NAFO implemented a 15-year rebuilding program. In 2003, NAFO established a rebuilding target of 140,000 tonnes average exploitable biomass. Although this target has been accepted, the last integrated fisheries management plan was developed in 2000 and does not reflect this more recent target.

1.97 **3L northern shrimp.** The biomass of the northern shrimp stock has been increasing in recent years. Fisheries and Oceans Canada manages the

Fish species we looked at in our audit

Atlantic cod

Bluefin tuna

Greenland halibut

Northern shrimp

Source: Fisheries and Oceans Canada

portion of the stock that is within the 200-mile limit through an integrated fisheries management plan. However, the plan does not specify any conservation or management targets. The Department stated that scientific data are insufficient to set proper management targets, because the northern shrimp fishery is relatively new. For instance, scientists cannot confirm if the current high biomass level will continue or why it has increased.

1.98 **Bluefin tuna.** Past assessments indicate that the spawning stock biomass declined between 1970 and 1990, but has remained stable since. In 1998, ICCAT adopted a 20-year program aimed at rebuilding the stock. The Department indicated that a component of the program includes rebuilding the spawning stock biomass to 1975 levels by 2018. Currently, the best estimate of the 1975 spawning stock biomass is approximately 38,000 tonnes.

Conservation targets not always set

1.99 We found that Fisheries and Oceans Canada knows the state of the straddling and highly migratory fish stocks examined through information such as abundance, biomass, and spawning stock biomass. However, based on our selected fish stocks, we also found that measurable conservation objectives or targets have been set and accepted only for the Greenland halibut and bluefin tuna. Accordingly, the Department or the international management organizations have not always set the level at which stocks should be conserved or maintained. In such instances, the actual state or level of these stocks cannot be reviewed in relation to their desired or expected state, and it is not possible to determine to what extent the UNFA conservation objective is being achieved.

1.100 However, Fisheries and Oceans Canada indicated that establishing conservation targets is a complex process based on international negotiations, and UNFA only came into force in 2001. In addition, the Department has stated that its management priority has been to halt and reverse the significant and worsening trend of overfishing of straddling fish stocks in waters outside Canada's jurisdiction in recent years, and in this respect, it has been premature to set management targets, objectives and reference points for re-opening fisheries for stocks currently under moratoria.

1.101 Nonetheless, because the Department committed to implement a precautionary approach to fisheries management, we expected to find measurable conservation targets for all four fish stocks we looked at. We found the Department's overriding priority to halt overfishing was not clearly articulated in accountability documents such as its reports on plans and priorities. Fisheries and Oceans Canada needs to be more transparent and to better communicate to Canadians its conservation priorities and expectations.

1.102 **Recommendation.** Fisheries and Oceans Canada should clearly articulate its position in terms of the priorities, process, and timeframes to set sustainable conservation targets for straddling and highly migratory fish stocks.

Department's response. Fisheries and Oceans Canada accepts the recommendation.

The Department of Fisheries and Oceans has implemented a comprehensive conservation and management regime aimed at conserving and making sustainable use of Canada's fisheries resources and their habitats for the benefit of present and future generations. Canadian fisheries legislation and management policies conform with the general principles of the United Nations Fish Stocks Agreement.

Actions being taken:

- The Department will more clearly reflect its position, in terms of the priorities, process and timelines, to set sustainable conservation targets for straddling and highly migratory fish stocks in its domestic reports including the Report on Plans and Priorities, the Fisheries Management Business Plan, and revisions to the relevant integrated fisheries management plans to reflect performance measures, the monitoring of performance and adaptive actions to stay on course. The Department's performance report will report on progress towards the expected results. Its position also will be reflected, as appropriate, in its intradepartmental and public Web sites.
- The Department is continuing consultations with Canadian industry advisors on a precautionary approach framework for application to domestic fisheries, including the straddling fish stocks, for discussion at the annual meeting of the Northwest Atlantic Fisheries Organization, September 2004. A pilot application of the precautionary approach framework to selected straddling stocks in 2005 will be proposed. Consultations on the highly migratory fish stocks are expected in 2004–2005.

The revisions to domestic reports will be made in the normal time periods for their updates in the fall of 2004 and during 2005. The Department's Web sites will be updated as a result of revisions to the domestic reports. Pilot application of the precautionary approach to selected straddling stocks will be proposed in 2005.

Wetlands of international importance

Conserving wetlands

1.103 **The issue.** Wetlands are one of the key life support systems on Earth, and they cover about four percent of the planet. They provide critical habitat for many species of fauna and flora, play an important role in filtering and providing water, and are among the most productive ecosystems in the world. With almost 150 million hectares of wetlands, Canada is estimated to have about one-quarter of the world's total.

Wetlands—Areas of land covered with water for a part of the day or year. In Canada, the term wetland refers to marshes, swamps, sloughs, bogs, fens, or shallow waters. Wetlands may also include the freshwater edges of lakes and rivers, the marine waters of estuaries, and the tidal ocean shore zone.

1.104 The survival of wetlands depends on their preservation and the conservation of their ecological functions. In Canada, wetlands have historically been threatened by drainage, land reclamation, pollution, and competing land uses. During the last two centuries, Canadian wetlands have suffered continued loss and degradation.

1.105 **The agreement.** The Convention on Wetlands of International Importance especially as Waterfowl Habitat (the Ramsar convention) was adopted in Ramsar, Iran in 1971. The convention came into force internationally in 1975, and Canada became a party to it in 1981. The convention's member countries total 138 as of May 2004 and represent all geographic regions of the planet.

1.106 The objectives of the Ramsar convention are to stem the progressive encroachment on and loss of wetlands and to ensure their conservation and sustainable use. Member countries have agreed to designate at least one site for inclusion in the List of Wetlands of International Importance (the Ramsar list) and to conserve and maintain the ecological character of designated wetland sites. As of May 2004, there were 1,367 designated Ramsar wetland sites worldwide.

1.107 **The lead department.** Environment Canada, through the Canadian Wildlife Service, is the lead federal department responsible for the convention. The first Ramsar site designated in North America was at Cap Tourmente, Quebec, in 1981. As of May 2004, Canada had designated 36 Ramsar sites across the country (Exhibit 1.5), comprising over 13 million hectares—an area roughly twice the size of New Brunswick.

1.108 Federal departments and agencies, including Environment Canada, Indian and Northern Affairs Canada, Parks Canada, and the National Capital Commission, manage about 77 percent of the Canadian wetland areas designated as Ramsar sites. The provinces manage another 22 percent, and non-government groups manage the remaining 1 percent.

Did you know?

Canada has the most surface area designated as Ramsar wetland sites.

- Canada—13,051,501 hectares
- Russian Federation—10,323,767 hectares
- Australia—7,371,873 hectares
- Botswana—6,864,000 hectares
- Peru—6,777,414 hectares
- Bolivia—6,518,073 hectares
- Brazil—6,434,086 hectares

Source: The Ramsar Convention Secretariat

Incomplete information on wetland sites

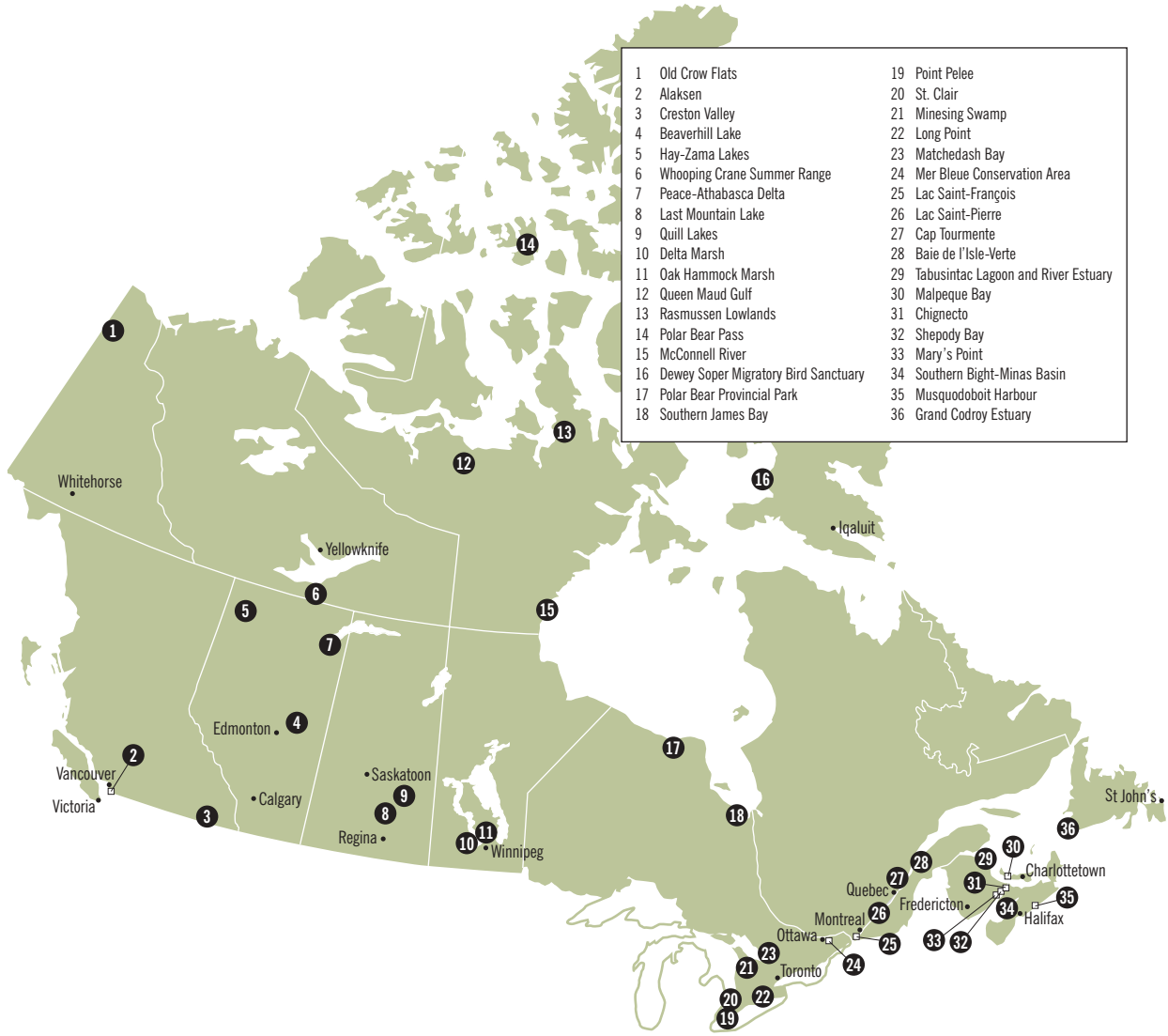
1.109 **What we looked at.** We examined whether Environment Canada knows to what extent Canada's designated Ramsar wetland sites are being conserved.

1.110 **Objectives and expectations.** During our audit, Environment Canada could not identify specific conservation objectives and expected results for most of Canada's 36 Ramsar sites and, hence, define what conservation actually means for these sites.

1.111 To help ensure the long-term conservation of Ramsar sites, member countries called for the development of management plans for each designated wetland. They adopted management planning guidelines that indicate that achieving outcomes is the purpose of management planning, that objectives and performance indicators must be measurable, and that established performance indicators must be monitored.

1.112 Environment Canada provided evidence that management plans have been developed for only 14 of Canada's 36 Ramsar sites, and plans for half of these 14 sites date back to the early- to mid-1980s. Department officials indicated that the plans were deemed appropriate at the time they were developed. Nonetheless, the majority of the management plans provided

Exhibit 1.5 **Ramsar wetland sites in Canada**



Source: Adapted from Wetlands International map of Ramsar sites in Canada.

include only generic conservation objectives, and very few identify measurable performance or results expectations.

1.113 **Results information.** We noted that Environment Canada does not know the conservation progress or results of Ramsar sites, mainly because it does not collect or compile such information on individual sites. While centrally the Department has some descriptive information on each site, this information does not include conservation results achieved.

1.114 We also found that site managers are not required to provide periodic information on the status or results of their sites, and Environment Canada has not otherwise compiled such information. Consequently, the Department does not know how well these wetlands are being conserved, what gaps

remain, and what lessons it can learn. There is no clear picture of Canada's overall progress in achieving the Ramsar conservation objective for its 36 designated sites.

1.115 **Site-specific information.** To get a better indication of the information on results that individual sites have, we looked in detail at four sites: Cap Tourmente, Quebec; Last Mountain Lake, Saskatchewan; Polar Bear Pass, Nunavut; and St. Clair, Ontario. Environment Canada manages these four sites.

Canadian Ramsar wetland site–Last Mountain Lake, Saskatchewan

Source: Canadian Wildlife Service, Environment Canada

1.116 Two of the four sites could not provide documentation on conservation results achieved. The two other sites provided results information on the dynamics of key animal and vegetation populations and on the status of wetland habitats. One of these two sites had recently compiled its results information to identify gaps and guide the future update of its management plan.

Conservation results are not known

1.117 We determined that Environment Canada does not have adequate information on the extent to which most Canadian Ramsar sites are being conserved.

1.118 **Recommendation.** Environment Canada should ensure that expected conservation results are specified for each Ramsar site and that conservation results and performance are periodically monitored and reported.

Department's response. Environment Canada accepts the recommendation.

Within its resource capacity, Environment Canada will update all the management plans for Ramsar sites designated on its lands in accordance with the Ramsar convention's management planning guidelines. The Department will encourage the managers of Ramsar sites that are not on land owned by the Department to prepare management plans following the Ramsar convention's management planning guidelines. These are to be completed no later than Ramsar's 10th Convention of the Parties (2008).

Within its resource capacity, Environment Canada will evaluate and report the conservation results and performance for all Canadian Ramsar sites on its lands, every three years as part of Canada's National Report to the Ramsar Convention of the Parties. Environment Canada will encourage managers of Ramsar sites that are not on land owned by the Department to evaluate and report the conservation results and performance of those sites every three years as part of Canada's National Report to the Ramsar Convention of the Parties.

Accountability observations

1.119 Our five case studies provided additional insights on the lead departments' accountability for the results of their agreements. We observed that, overall, there are no notable differences between how the federal government manages and accounts for the environmental policies and objectives defined in international environmental agreements and those defined elsewhere. There are no management policies, procedures, or other mechanisms that apply exclusively to international environmental agreements. Related results are basically accounted for in a manner similar to

those of other government policies, programs, or initiatives. In our view, this is neither unexpected nor a problem, provided accountability principles are applied. However, we observed that key elements of accountability are not always present.

Responsibilities of lead departments

1.120 The three departments responsible for implementing the five agreements we examined—Environment Canada, Transport Canada, and Fisheries and Oceans Canada—unanimously asserted that their lead responsibilities are well defined and delegated. These include responsibilities for defining performance expectations, monitoring and reporting, and reviewing performance and taking necessary actions to ensure that the environmental results and outcomes of the agreements are achieved.

1.121 Although they may be clear to the lead departments themselves, we could not determine precisely how and where these responsibilities are delegated and defined. We confirmed that there are no overarching government requirements or commonly used mechanisms to ensure that the specific role and responsibilities of lead departments are formally defined and communicated.

1.122 This may be less a concern where the objective of an agreement is clearly aligned with the mandate and responsibilities of the department, as there is less potential for uncertainty about its role as lead department. However, where the objective and obligations of an agreement involve more than one federal department or agency, or necessitate co-ordination with other jurisdictions (for example, provinces and territories), the potential consequences of unclear roles and responsibilities are much greater.

Performance expectations

1.123 Of the five agreements we looked at, environmental performance expectations (or targets) were clearly identified in the case of the Montreal Protocol, the Ozone Annex, and partially in the case of UNFA depending on the fish stock examined.

1.124 In the case of the Montreal Protocol and the Ozone Annex, we also observed that Environment Canada has defined the essential elements of a results or accountability framework. As well, the Department has identified key elements of a data collection strategy to help determine how it defines, collects, and analyzes performance information. We found the use of such tools was not evident for the other three cases studies.

Reporting to Parliament and Canadians

1.125 We found that environmental results are measured and readily available only for the Montreal Protocol, the Ozone Annex, and UNFA. For instance, results under the Montreal Protocol are reported through the United Nations Environmental Programme reports and Canada's National Environmental Indicator Series. For the Ozone Annex, air quality results are identified in the joint Canada-U.S. biennial reports as well as in Environment Canada's departmental performance reports. For UNFA, information on the

state of various straddling and migratory fish stocks can be obtained from NAFO and ICCAT.

1.126 Despite no specific requirements to report to Parliament or Canadians on the achievement of the environmental outcomes of the five agreements, in some instances the lead departments did use their departmental performance reports to report on international environmental agreements. In most cases, however, the reporting centred on the activities or initiatives of the departments rather than on the environmental results or outcomes achieved. We noted one exception: for the Ozone Annex, Environment Canada provided information in its performance reports on levels of ground-level ozone in major cities and concentrations of related air pollutants.

Review and oversight

1.127 In all cases except the MARPOL convention, the lead departments reported that they conducted periodic performance reviews to assess environmental results achieved against expected results. However, none of the departments had clear documentation on the conclusions of such reviews.

1.128 We also asked the lead departments to identify any significant operational constraints that affect the achievement of the agreements' performance expectations or objectives. As well, we asked them to identify any corrective measures required to ensure that the environmental expectations or objectives of their agreements will be met. For three agreements, the lead departments identified the following constraints:

- **UNFA.** Fisheries and Oceans Canada identified overfishing and wilful non-compliance with international fisheries rules by some states.
- **MARPOL**. Transport Canada identified a lack of responsibility for assessing the state of Canadian ocean waters and difficulties in assessing the agreement's impact on the state of ocean waters.
- **Ramsar**. Environment Canada identified resources as a key constraint.

Only Fisheries and Oceans Canada identified potential corrective measures. These included initiatives underway to obtain additional resources and to increase co-operation with the Department of National Defence.

1.129 Overall, we observed that the lead departments could not properly demonstrate how they carry out their management oversight and review responsibilities. This is of particular significance where the departments are not achieving, or do not clearly know, their environmental results or performance. In such instances, it was not readily apparent how they planned to ensure that the objectives and desired results of the agreements would be achieved.

1.130 **Recommendation.** When assigned responsibility for international environmental agreements, the lead federal departments or agencies should clearly specify and document the environmental results they expect to achieve; how they will measure and report results achieved; and how they will oversee and review results to improve performance.

Government's response. The Government accepts the recommendation (response co-ordinated by Environment Canada on behalf of the Government of Canada).

The Government of Canada will continue to work to improve reporting provisions under international environmental agreements. The lead federal department or agency with responsibility for each key international environmental agreement will report on results and expected results; and if not contained in these reports, will provide additional specifications on how results are measured and reported; what results are achieved; and how it will oversee and review results to improve performance.

Conclusion

1.131 In our view, for the federal government to demonstrate to Canadians the environmental results achieved in relation to Canada's international environmental agreements, two elements of accountability are indispensable—setting performance expectations, and measuring and reporting results. Departments that are accountable for results clearly specify the results they expect, and then measure and report the results achieved.

1.132 In our audit case studies we noted that the lead departments have varying degrees of information and knowledge about whether they are achieving the environmental objectives and results of their agreements. We found that the departments know the environmental results for two agreements (the Montreal Protocol and the Ozone Annex), do not know results for two others (MARPOL and Ramsar) and have partial knowledge for one agreement (UNFA). We observed that for the Montreal Protocol and the Ozone Annex, the expected environmental results were clearly defined and results were measured.

1.133 We recognize that setting quantifiable results expectations and then measuring results against those expectations can be a daunting challenge when dealing with complex environmental issues. As well, the context and difficulties surrounding each agreement we examined differ, and for this reason, care should be taken not to generalize these findings to all Canada's international environmental agreements. Nonetheless, the audit findings illustrate that

- where results expectations are better defined, departments are better positioned to know the extent to which agreement objectives and desired results are being achieved;
- where there are significant constraints or challenges to achieving the desired environmental results, better transparency is required in defining and communicating what results can reasonably be achieved; and
- while setting performance expectations and measuring results for complex environmental issues can be difficult, it is nonetheless possible.

About the Audit

Objective

The objective of the audit was to determine whether the federal lead departments know to what extent specific key objectives of selected international environmental agreements are being achieved.

Scope and approach

We selected the following five international environmental agreements as audit case studies:

- The Montreal Protocol on Substances that Deplete the Ozone Layer (Environment Canada)
- The Ozone Annex to the Canada–U.S. Agreement on Air Quality, (Environment Canada)
- The International Convention for the Prevention of Marine Pollution from Ships—MARPOL (Transport Canada)
- The United Nations Fish Stocks Agreement—UNFA (Fisheries and Oceans Canada)
- The Convention on Wetlands of International Importance Especially as Waterfowl Habitat—Ramsar (Environment Canada)

Our audit examination work was conducted mainly from January to May 2004, and focussed primarily on the three lead federal departments responsible for the five agreements: Environment Canada, Transport Canada, and Fisheries and Oceans Canada. We reviewed the performance and results information lead departments had available on specific key environmental objectives of the selected agreements. We also asked departments to indicate and describe how they applied elements of accountability in the context of their agreements and to provide supporting evidence and documentation. In carrying out our audit, we interviewed department officials and other selected stakeholders and reviewed departmental files, reports, and other documentation.

In addition, we interviewed officials at the Privy Council Office, the Treasury Board Secretariat, and Foreign Affairs Canada to identify and better understand the key government processes and mechanisms available to help ensure accountability for results once the agreements are in force.

The audit assessed whether the lead departments had the necessary information to know what environmental results the government had achieved for the specific objectives it committed to. We did not audit the government's compliance with the agreements, the effectiveness of the programs or the means used to achieve its objectives, the pace or progress in addressing environmental issues, or the accuracy or quality of the information used by the departments.

The quantitative information we presented in this chapter is based on data drawn from various federal and other sources indicated in the text. We are satisfied with the reasonableness of the data, given their use in this chapter. However, the data have not been audited.

Criteria

As a means of assessing whether the federal lead departments know to what extent specific key objectives of the selected agreements are being achieved, we expected lead departments to

- have information on actual outcomes achieved in order to determine to what extent specific key objectives of the international environmental agreements are being fulfilled.
- demonstrate how adequate assurance is provided on the quality of the information used to determine whether specific key agreement objectives are being achieved.
- demonstrate how the government's activities (outputs) contribute to achieving the specific key objectives (outcomes) of the selected agreements.

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