Summary

A Legacy Worth Protecting

A Legacy Worth Protecting

Introduction to the Basin and Our Audit

A unique and threatened home

1. To 16 million Canadians, from Thunder Bay to Quebec City, Severn Sound to Trois-Rivières, the Great Lakes and St. Lawrence River basin is home. We depend on the basin's rich resources for clean air and drinking water, food and shelter, good health, employment, sport, and recreation. The basin is a natural wonder and the envy of the world, holding some 20 percent of the Earth's fresh water.

2. The basin is also a major economic force for Canada. Its lakes, rivers, and streams support the highest concentration of industry in the country. In 1998 the basin supplied $11.8 billion of Canada's agricultural products, feeding not only Canadians but also people around the world.

3. And yet we, together with 25 million Americans who share the basin, subject its environment to a lot of stress: industrial, municipal, and agricultural pollution of water; invasive species of plants and fish; air pollution, acid rain, and smog; the loss of valuable species and areas of biodiversity; and climate change. The health of the basin's inhabitants is subject to bacterial, viral, and parasitic diseases; toxic contaminants; and endocrine-disrupting chemicals. And the social well-being of communities in the basin is affected by beach closings, limits on fish consumption, and drinking water advisories.

What our audit examined

4. As federal legislative auditors, we have a mandate to report to the House of Commons "matters of significance" that we note in the way the government manages environmental and sustainable development issues. With the importance of the basin and the concerns of Canadians in mind, we conducted this audit to answer three questions.

- What is the state of the Great Lakes and St. Lawrence River basin? This question is addressed in the State of the Basin section of this summary.
- What role does the federal government play in protecting and preserving this key ecosystem, and how is it performing in that role? In examining the role and performance of the federal government in each of the subject areas, our objective was to answer the following questions:
  - Has the federal government fulfilled its mandate, legislative responsibilities, and other policy commitments?
  - Has the government applied good management practices?
  - Has the government established good governance structures?

These questions are addressed in the section of this summary dealing with our subject findings. The criteria we used to arrive at the answers are presented in Exhibit 1.

- How can the federal government do better and advance the sustainable development of the basin for generations to come? This question is addressed in the recommendations at the end of this summary.

Geographic coverage

5. The geographic scope of our audit was the freshwater system of the Great Lakes and St. Lawrence River basin, extending from Thunder Bay in the west to Quebec City in the east. We focussed largely on the Mixedwood Plains ecozone (Exhibit 2).

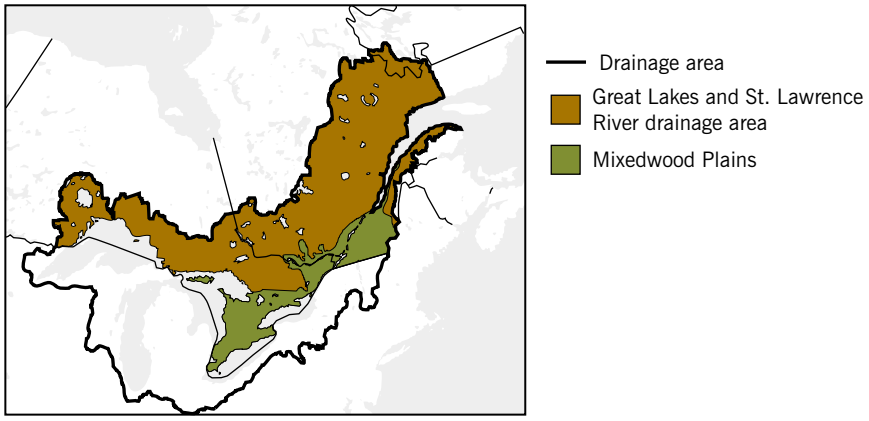
Exhibit 1 **Audit objectives and criteria**

Objectives	Criteria
❶ Has the federal government fulfilled its mandate, legislative responsibilities, and other policy commitments?	We expected that the federal government was fulfilling the responsibilities and commitments it has made in legislation, international agreements, departmental policies and plans, sustainable development strategies, and similar documents. This includes a commitment to use an ecosystem approach to managing.
❷ Has the government applied good management practices?	We expected that the government was using good management practices in the areas we examined. These practices include the following: • Understanding existing risks, emerging threats, and opportunities. • Establishing clear and consistent priorities for programming. • Translating priorities into plans that define expected results. • Evaluating and applying appropriate tools to achieve the expected results. • Obtaining and using the necessary information (environmental, social, and economic) for decision making. • Establishing indicators of progress. • Using those indicators to measure progress. • Sharing information and lessons learned.
❸ Has the government established good governance structures?	We expected that the government was using appropriate institutions and mechanisms to manage the issues we examined. Specifically, we expected to find the following: • Credible reporting. • Effective accountability arrangements within and among departments and, where appropriate, between departments and other jurisdictions or organizations. • Adequate transparency. • Protection of the public interest.

Other matters

6. We intended to develop a comprehensive and consolidated picture of federal spending on environmental and sustainable development issues in the basin. That proved impossible, in part because federal departments don't record their financial transactions region-wide. Where financial information was available on a specific program or activity we audited, we have discussed it in the pertinent subject section.

Exhibit 2 **Mixedwood Plains ecozone and Great Lakes and St. Lawrence River drainage area**



7. We looked at the federal government's most recent sustainable development strategies (released in February 2001) and found very few references to the Great Lakes and St. Lawrence River basin. However, the strategies do include commitments that we discuss in the chapter under the related subject areas.

Subject matters

8. Many issues have a bearing on sustainable development in the Great Lakes and St. Lawrence River basin. Over the past decade, several of them have been the subject of audits and studies by the Office of the Auditor General and the Commissioner of the Environment and Sustainable Development. They include climate change, toxic substances, smog, environmental assessment, biodiversity, and contaminated sites, among others, and are described in Appendix A. In our audit work for the chapter, we focussed on four subject areas: water, agriculture, fisheries, and species at risk.

9. We also examined selected governance and management practices of the federal government's regional ecosystem initiatives: Great Lakes 2000 and St. Lawrence Vision 2000. Because of its substantial influence on federal programming in the basin, we also audited the federal government's relationship with the International Joint Commission.

Organizational and jurisdictional setting in the basin

10. By any standard, the organizational, jurisdictional, and legal framework in the basin is complex. The political boundaries of this massive watershed do not correspond to the natural ones. Many levels of government are involved in managing the basin's environment and sustainable development: two federal, two provincial, eight state, and hundreds of regional and municipal governments. Our audit examined only the performance of Canada's federal government. The key agreements, organizations, and programs that affect the issues we examine in this chapter are charted in Appendix B (foldout).

Two federal governments

11. The international border between Canada and the United States bisects all of the Great Lakes except Lake Michigan, which lies wholly in the U.S. Our neighbour to the south has a significant impact on the lakes. The United States accounts for roughly three quarters of the population around the Great Lakes, over 80 percent of its municipal water consumption, and about 90 percent of its industrial water consumption. Actions taken (and not taken) by governments in both countries affect the health of the lakes. To manage their actions and the impacts, Canada and the United States signed the Boundary Waters Treaty (1909) and the Great Lakes Water Quality Agreement (1972, 1978, 1987), and created the International Joint Commission to assist in administering both.

12. **Authority for international matters.** Parliament has authority to act on all environmental concerns that Canada shares with the United States (however, Canada cannot use its international treaty-making powers to give itself legislative powers it does not have under the Constitution).

Separating federal and provincial jurisdictions

13. Canada's responsibility for protecting the basin is further complicated by the constitutional split in legislative powers. The federal and the provincial levels of government both have authority to protect the environment. Both levels share jurisdiction over most of the subjects we examined for this report—water, agriculture, species and spaces, and fisheries.

The Great Lakes Water Quality Agreement

14. The federal governments of Canada and the United States signed the first Great Lakes Water Quality Agreement in 1972. It remains a dominant influence on federal activities in the Great Lakes. It has been updated and amended several times, and each amendment created new obligations.

15. Initially, the Agreement focussed on the presence of excess nutrients in the lakes. Revisions in 1978 shifted the emphasis of the Agreement toward a call for the "virtual elimination" of persistent toxic substances from the lakes. These substances were increasingly associated with damage to the health of fish and wildlife in the basin.

16. The 1978 revisions broadened the goals of the Agreement from restoring and enhancing "water quality in the Great Lakes system" to restoring and maintaining the "chemical, physical and biological integrity of the waters of

the Great Lakes basin ecosystem." This shifted the focus of the Agreement from protecting the lakes to protecting the ecosystem.

17. The Agreement was amended again in 1987 to require remedial action in heavily degraded locations or "areas of concern" around the lakes. The 1987 amendments mandated the development and implementation of lakewide management plans. The 1987 amendments also revised existing annexes to the Agreement and committed Canada and the U.S. to control pollution from non-point sources, identify the nature and extent of sediment pollution, and develop methods to evaluate the impact of contaminated sediments and the technological capabilities of programs to clean them up.

The federal government's presence in the basin

18. Today, the federal presence in the basin takes many forms. There are national policies and department-wide programs that are applied regionally. Examples are the Federal Water Policy, the Policy for the Management of Fish Habitat, scientific research and monitoring, stewardship of species, and agricultural income support programs. The efforts of the federal and provincial governments are co-ordinated through the Canada–Ontario Agreement and the Canada–Quebec Agreement. And there are regionally based ecosystem initiatives: the Great Lakes 2000 program and the St. Lawrence Vision 2000 partnership. Some national policies are delivered through the ecosystem initiatives; others are not. The ecosystem initiatives share many similarities but also have important differences.

19. In recent years there have been significant changes in the way our society frames environmental issues, what people and institutions expect of governments, and how governments have responded in their policies, approaches, and institutions. Our work has given us a new appreciation of the challenges facing the federal government. These challenges include a crowded and shifting environmental agenda, the need to cope with multiple expectations and priorities, a shift to volunteerism and prevention, increased demands for public involvement and transparency, and the promotion of partnerships and effective public accountability.

State of the Basin

20. What is the state of the Great Lakes and St. Lawrence River basin? There is no single answer to this question; it can be answered from many viewpoints. We have chosen three: historical, science-based, and international.

21. **Historical perspective.** Looking back at the basin over the past 100 years, we see how dramatically it has changed as a result of our growing presence. According to the International Joint Commission in its Ninth Biennial report, "The Great Lakes environment has improved dramatically over the past quarter-century." This is evident in pollution abatement, the emergence of more sustainable agricultural practices, recovery of some species, and efforts to protect wetlands and vital remaining habitats.

22. We have also seen more types and a changing mix of industrial, agricultural, and other human activities, with consequences both anticipated and unanticipated. And while we have seen their impacts on the basin multiply, we have also seen some issues persist over time. Others that we thought were being managed effectively appear to be recurring.

23. Local conditions—a growing population, continued urban and industrial growth, current agricultural practices, and increasing recreational demands—continue to pose a significant challenge to the health of the basin. So do global influences, such as climate change and long-range transport of air pollution.

24. It is important to note that the successes of the last 30 years were hard won, through targeted and sustained attention. They were based on a significant scientific capacity that grew out of the environmental awareness of the 1970s. That scientific capacity will continue to be needed as new issues emerge—such as climate change and endocrine disrupters (chemicals that may have an adverse effect on human and ecological health by disrupting normal hormonal systems)—and as urban development and technological advances continue to change the face of the basin.

25. **Scientific assessment.** Scientists in both Canada and the United States are working to understand the state of the basin. At SOLEC 2000 (an environmental conference), the state of the lakes as measured by 33 indicators was reported, using five qualitative ratings: poor, mixed deteriorating, mixed, mixed improving, and good. The state of the St. Lawrence River and lakes Superior, Michigan, Huron, and Ontario was found to be "mixed." Lake Erie was considered "mixed deteriorating." Overall, while drinking water was rated "good," and fish consumption advisories and swimming advisories "mixed improving," many indicators raised concerns about the state of the Great Lakes and St. Lawrence River basin (exhibits 3 and 4).

26. **International perspective.** The Great Lakes and St. Lawrence River basin is one of the most famous freshwater resources in the world. Many of the threats it faces are encountered throughout the world. From the Rhine River and the Baltic Sea in Europe to Lake Victoria and Lake Chad in Africa, from the Rio Grande in North America to the Aral Sea in Central Asia, human activity is leaving its footprint. Some of the problems in these other watersheds are more serious than those in the Great Lakes and St. Lawrence River basin. Many are expected to get worse—not better—over time.

27. One of the most infamous is the Aral Sea. It is perhaps the most graphic example of the serious impacts that mismanagement and poor planning can have on a body of water.

Exhibit 3 **State of the Great Lakes—rated by indicator**

← decreasing ✦ steady
→ increasing ? unknown

	Indicator	Poor	Mixed deteriorating	Mixed	Mixed improving	Good
COASTAL WETLANDS	Amphibians		←			
	Snapping turtles			✦		
	Bird diversity and abundance		←			
	Area by type		←			
	Effects of water levels		←			
HUMAN HEALTH	Air quality			✦		
	Swimming advisories				→	
	Drinking water					✦
	Fish consumption advisories				→	
LAND	Alvars			✦		
	Hardened shoreline		←			
	Bald eagles				→	
	Urban density			?		
	Brownfields					✦
	Mass transit			?		
	Sustainable agriculture			✦		
OPEN AND NEARSHORE WATERS	Walleye			✦		
	Hexagenia				→	
	Preyfish			✦		
	Sea lamprey			✦		
	Lake trout				→	
	Scud		←			
	DELT (Lake Erie)	✦				
	Phytoplankton			?		
	Phosphorous concentration / loads			✦		
	Contaminants in water birds					✦
	Zooplankton			?		
	Atmospheric deposition				→	
	Toxic chemicals in offshore waters			✦		
SOCIETAL UNBOUNDED	Acid rain			✦		
	Non-native species (aquatic)		←			
	Water use			?		
	Economic prosperity			✦		

Source: SOLEC Indicators, Issue Number 1

Exhibit 4 **State of the St. Lawrence River—rated by indicator**

↔ mixed → increasing ✦ stable ? unknown

Indicator	Deteriorating	Mixed	Improving
Sediment quality			→
Water quality (river)			→
Water quality (tributaries)			→
Biodiversity		?	
Natural spaces and protected species		?	
State of biological resources		↔	
Marine transportation		↔	
Modification of bottom and hydrodynamics			→
Modification of shorelines		?	
Urban waste water emissions			→
Industry waste water emissions			→
Commercial fisheries		↔	
Recreational hunting and fishing		✦	
Access to shoreline and river		?	
Human health		?	

Most of the data are for the period ending in 1996 or 1995.

Source: L'État du Saint-Laurent, rapport technique, Mise à jour des indicateurs environnementaux, SLV 2000

Role and Performance of the Federal Government: Subject Findings

Water

28. Water is the dominant feature of the Great Lakes and St. Lawrence River basin. Canada has an extraordinary wealth of water resources. We have more lakes than any other country and more water per person than any other large country. Despite being one of the world's biggest users of water, we use less than two percent of the fresh water that our national watercourses renew each year.

29. The waters of the basin provide our drinking water, support our recreation, and drive our industries and agriculture. The lakes and rivers provide habitat for terrestrial and aquatic species alike. In the basin, industrial, municipal, and agricultural pollution affects the quality of this vital resource and affects our health and quality of life. And the interest in removing water in bulk from the Great Lakes could have serious consequences for local supplies and uses of water in the future. We must ensure that our use of it can be sustained.

What we audited

30. We looked at federal efforts to reduce water contamination by industrial and municipal effluents and to clean up contaminated sediment, particularly in 17 areas of concern around the Great Lakes.

31. We examined the federal government's role in safeguarding drinking water and its performance in monitoring surface water and the quantity of groundwater in aquifers. We also looked at what it is doing to curb large-scale withdrawals of water for export and at its activities to encourage more efficient use of water by Canadians.

32. We then assessed the federal government's performance at a broader level. How has it planned for its activities in the watersheds of the basin? How does it set priorities for fresh water and how has it carried out its 1987 Federal Water Policy?

What we found

33. **Overall.** The federal government and its partners have been active in the basin for several decades, with some positive results. Federal and provincial regulations to curb toxic emissions from industry, investments in sewage treatment plants, and actions to prevent the bulk removal of water from the basin are all examples of actions that have made a difference. But the job is far from complete: recent trends show that some aspects of water quality in the basin may be deteriorating.

34. With this in mind, our overarching concern is the ambiguity of federal commitments. We often saw federal departments doing things without having clearly articulated what they wanted to achieve. Cleaning contaminated sediment, getting areas of concern delisted, promoting realistic water pricing, and protecting public health by ensuring that people know when it may not be safe to drink the water or eat the fish—all are areas where the federal commitment is unclear. Indeed, federal departments often define their role as supporting the priorities of others rather than their own.

35. The government does not have some of the basic information it needs to develop priorities and action plans. For example, it has no overall picture of the many contaminants in the basin or the contribution of groundwater to the basin. Consequently, it is involved in many remedial actions with no way to determine which are the most important and what they will contribute.

36. **Contaminants.** Ongoing federal commitment and action over the past 30 years to ensure that industry reduces its contamination of the basin have helped to improve water quality throughout the basin.

37. Effluents from municipalities, however, remain a serious source of contamination. Municipal systems that are not properly designed to treat the range of substances found in effluents allow them to flow into our waters without adequate treatment. After 30 years of improvements, 40 percent of municipal effluents of the cities considered continue to receive only primary treatment. This progress may not be sufficient to realize the federal government's objectives.

38. The federal government's approach to effluents from municipal treatment plants and outfalls has been strikingly different from its approach to industrial effluents. It has not used its regulatory powers, but instead has focussed on providing financial support to municipalities. Environment

Canada has been working with the provinces recently to develop a national strategy on municipal wastewater effluents.

39. **Contaminated sediment.** Contaminated sediment is the legacy of years of government inaction while industrial plants and municipalities released high volumes of untreated or poorly treated effluents directly into the basin's lakes, rivers, and streams. It has been present in all areas of concern and at dozens of sites along the St. Lawrence River. The federal government has conducted studies of contaminated sediment and has assisted in the cleanup of some sites. However, it has neither clear commitments nor a long-term game plan for remediating contaminated sediment. Many sites still await action.

40. **Areas of concern.** In 1985, the International Joint Commission and the Canadian and U.S. federal governments, the Ontario government, and some state governments in the U.S. identified 42 geographic areas of concern along the shores of the Great Lakes; another was added to the list in 1991. These were areas that were severely degraded. Twelve were in Ontario, and five others along connecting rivers were shared by Canada and the U.S. The federal government has been active in setting up structures for action in areas of concern. It has generally managed its cleanup fund well in assisting projects in areas of concern, although a clearer rationale is needed for financing actions in the future.

41. Of the 17 areas of concern identified in Canada in 1985, 16 are still on the list. The federal government has not decided what it wants most to accomplish in areas of concern. It is not clear how or when it plans to restore the remaining areas of concern and see them delisted. The federal government needs to provide greater leadership and support—setting priorities, clearly linking proposed actions to criteria for delisting, and brokering co-ordinated action by other governments and organizations.

42. **Drinking water.** Generally, the state of Canada's drinking water is considered good, but recent events have shaken the public's confidence. Drinking water is primarily a provincial responsibility. Since 1968, Health Canada has played a key role in the development of drinking water quality guidelines to protect Canadians' health. But it does not know the quality of drinking water across the country or whether the provinces are applying the guidelines.

43. **Monitoring and planning for water quality.** Environment Canada is meeting its basic obligations to monitor water for the presence of contaminants listed in the Great Lakes Water Quality Agreement. The federal government's understanding of changes in water quality, however, is based on a limited number of substances that are known to be harmful to human health. Many substances are not monitored at all.

44. The federal government, with its partners, needs to do much more to understand the risks to water quality in the Great Lakes and the St. Lawrence River and to focus its efforts more effectively. The presence of critical contaminants is generally known, but not always their sources. Almost

14 years after the federal commitment to develop lakewide management plans, most of them are still in their early stages of development. The plans that do exist for the basin tend to be weak. It is not evident when the plans will be completed or whether the government will use them for strategic direction of its own and others' actions to restore the Great Lakes.

45. **Bulk water removal.** The bulk export or diversion of water is a major concern of Canadians. The federal government has taken steps to carry out a strategy on bulk removals of water, in collaboration with the provinces. But we note that the government took more than a decade to take action after its 1987 policy commitment. The strategy was not yet complete by the end of our audit, and it is not clear whether it will be enough to prevent large-scale exports of Canada's fresh water.

46. **Groundwater.** Groundwater aquifers are the prime source of drinking water for 28 percent of Ontario and Quebec residents. In 1987, noting that knowledge of groundwater in the basin was incomplete, the federal government committed to improving its understanding of groundwater aquifers. However, it has gained little understanding of groundwater in the basin since then. Its knowledge has remained fragmented and incomplete.

47. **The Federal Water Policy.** In 1987 the federal government released its water policy. But the policy was set adrift because funds and specific departmental responsibilities were not allocated. It became unclear which of the five strategies or 25 policy statements and related activities in the water policy were still priorities. Through the years, the government has lacked a consistent and clear strategy for updating the Federal Water Policy. The timetable for updating the policy and the associated departmental roles and responsibilities, whether as part of a national strategy or not, is unclear.

48. Its 1987 Federal Water Policy committed the federal government to promoting and applying realistic pricing and user pay principles. The federal government has not effectively implemented its policy to reduce domestic consumption of water through demand management and realistic pricing. The design of its funding programs does not specifically encourage water pricing as stated in its water policy.

Agriculture

49. Agriculture in Ontario and Quebec accounts for the largest single use of land in the basin and contributes about 40 percent of the value of agricultural output in the Canadian economy. Over 100,000 farms produce a wide range of crops that help to feed the more than 16 million consumers in the region and contribute to Canada's exports.

50. Farming also has a substantial impact on the environment. It accounts for 5 to 20 percent of all water consumption. It causes soil erosion, water pollution, and loss of biological diversity, which affect the long-term sustainability of the watershed.

What we audited

51. We examined the impacts of manure and fertilizer on soil and water and how the federal government contributes to managing soil erosion. We then

looked at how well Agriculture and Agri-Food Canada assesses the environmental impacts of its policies and programs that support economic goals but that may have unintended consequences for the environment. Next, we looked at how effectively the federal government works toward achieving environmentally sustainable agriculture in the basin.

52. We examined the different roles of the federal government—promoting stewardship, establishing regulations, conducting and co-ordinating research, and monitoring the state of the basin. We looked at how well it has established its own roles and responsibilities and helped to define those of other players.

What we found

53. **Overall.** The federal government is attempting to manage the environmental impacts of agriculture. It is confronting long-standing problems and must also respond to new demands. It has laid part of a foundation for effective management, such as the clear priority it assigns to improving the environmental sustainability of agriculture. But it has left some critical gaps. It has not sorted out who is going to do what. Information is out-of-date. Some action plans have not been developed. Results of key programs are not measured. And federal programs and policies are not working well together.

54. These are important gaps. Some of agriculture's impacts are growing and damaging the basin's environment. Effective management is needed to reverse the trends.

55. **Manure and fertilizer management.** Livestock operations in Ontario and Quebec generate enough manure to equal the sewage from over 100 million people. And the problem of how to manage it safely is getting worse. The misuse of manure and fertilizer on farmland has damaged the ecosystem of the basin.

56. Despite the efforts of Agriculture and Agri-Food Canada, Environment Canada, the provinces, and agricultural organizations over the last decade, nutrients are accumulating in soil on farms in the basin. Their environmental impacts are increasing. Roughly 70 percent of Ontario and Quebec farmland had much higher nitrogen levels in 1996 than in 1981. On more than 30 percent of farmland, the levels of residual nitrogen pose a risk of water contamination.

57. Many producers need to improve their farming practices. Agriculture and Agri-Food Canada and Environment Canada have offered financial incentives and promoted good practices to encourage good management of manure. The federal government has not determined what effect these measures have had on the quality of the environment. There are federal objectives for controlling nitrogen and phosphorus but not bacteria. There is no plan that sets out clear responsibilities for achieving the objectives. It is time for the federal government to rethink its approach, recognizing that this is a long-term problem.

58. Agriculture and Agri-Food Canada has supported several initiatives for research and technology transfer, including the Hog Environmental Management Strategy. It is not clear yet whether this mix of initiatives will produce the strategic, well-co-ordinated research effort that is needed.

59. **Soil erosion.** Close to half of Ontario's agricultural soil is at risk of washing away faster than new soil can form. More than 10 years of federal and provincial government intervention has slowed soil erosion somewhat, but at a rate that could take 90 years to bring soil loss down to sustainable levels. Agriculture and Agri-Food Canada has identified overall objectives for reducing soil erosion, but has no action plan detailing how it expects to achieve them.

60. Baseline soil information is essential to good land management decisions, but the present data are becoming more outdated and less useful as time passes. Today, little or no new soil data are being collected. The federal and provincial governments have no formal mechanism for co-ordinating data management.

61. **Assessing the environmental impacts of policies and programs.** Agriculture and Agri-Food Canada spends far more money on agricultural programs in the basin such as crop insurance and disaster assistance than it spends directly to reduce the impacts of agriculture on the environment. Faced with potentially conflicting goals, the Department needs to carefully and explicitly consider the environmental implications of its policies and programs. The Department has failed to fully meet its commitments to evaluate the environmental consequences of existing and planned policies and programs.

62. In 1996, the federal government made a commitment to Parliament to have departments assess the environmental impacts of their existing tax measures, grants, and subsidies. Agriculture and Agri-Food Canada has made limited progress in the study of its existing measures, and has not completed it. Nor has it reported on the status of this review.

63. In 1990, Cabinet directed federal departments to assess the environmental impacts of their new policies and programs. Agriculture and Agri-Food Canada has no systematic, formal process to conduct the assessments. As a result, the Minister cannot be assured that the Department is complying with the Cabinet directive.

64. The *Farm Income Protection Act* requires Agriculture and Agri-Food Canada to carry out environmental assessments of its income support programs for farmers, which include the most costly programs in the basin. Several major programs are excluded from the requirements, but there are gaps nonetheless in the Department's compliance with the requirements. The Department does not attempt to monitor the actual impacts of its policies on the environment to determine whether its predictions in its assessments have been accurate.

65. Agriculture and Agri-Food Canada does research to increase animal and crop production. But it has not evaluated its research enough to know the

impact on environmental sustainability. The information used to select individual research projects does not have enough details on the potential environmental effects. We also found that evaluations of some of the Department's broad research areas applicable in the basin did not take account of the possible environmental effects. Evaluations of its research centres focus on the economic impacts of research and whether its needs of the agriculture industry have been met.

66. **Working toward environmentally sustainable agriculture.** Farming practices in the Great Lakes and St. Lawrence River basin are having effects on the environment that cannot be sustained. While some impacts such as soil erosion are improving slowly, others such as water contamination and loss of wildlife habitat are getting worse. In addition to soil erosion and pollution from manure and fertilizer, the federal government must manage issues such as the risks in using pesticides, the loss of biodiversity, and greenhouse gas emissions.

67. The federal government has used financial incentives and promoted good farming practices to influence the way farmers manage the environmental impacts of their operations. It has met with some success—practices such as conservation tillage that reduce soil erosion and can benefit farmers economically are now widely used. But it has not evaluated the impact of its environmental programs on the quality of the environment in enough detail to say whether the programs are making sufficient progress.

68. The federal government shares responsibility with the provinces for achieving sustainable agriculture and, increasingly, with private industry. There is no up-to-date framework of roles and responsibilities for use in working with the provinces to set and achieve environmental objectives for agriculture in the basin. Agriculture and Agri-Food Canada has not integrated its policies and programs in the basin effectively with those of its federal and provincial partners.

69. Over the last decade, funding for agricultural environmental programs has dropped, and the focus has changed to educating the public and supporting voluntary groups. It is not clear who is responsible for what long-term outcomes.

70. Agriculture and Agri-Food Canada needs to improve the way it sets priorities in agricultural research, one of its prime tools. It also needs to do a better job of directing program funds to where they will do the most good. The Department could make its policies and programs more effective by coupling them—for example, linking income support programs to environmental programs.

71. The Department has developed agri-environmental indicators that are an impressive synthesis of several years' work; they play a key part in managing environmental issues. At the end of our audit, the Department had not allocated the resources and expertise needed to sustain this reporting framework.

72. The federal government has not said how it will achieve sustainable agriculture in the basin. It has identified some measurable objectives for the sector, with clear deadlines, but has not said how its own activities will contribute to those objectives.

Species and spaces at risk

73. Plants, mammals, and fish and their habitat are important parts of the biological diversity of Canada and the basin. Protecting and recovering species at risk and practising stewardship of wildlife habitat, including wetlands, are integral to sustaining the biological diversity and environmental health of the basin.

What we audited

74. We examined three aspects of the federal government's efforts to conserve species and spaces at risk: to protect and recover species at risk; to conserve wetlands habitat, including the management of national wildlife areas and migratory bird sanctuaries; and to promote stewardship—voluntary actions undertaken to conserve habitat.

75. One theme these aspects have in common is the importance of habitat. The loss and degradation of habitat, including wetlands, is one of the main reasons why species are at risk—without habitat, they cannot survive. Stewardship means preserving the habitat we still have.

What we found

76. **Species at risk.** In theory, once a scientific determination is made that a species is at risk, the recovery process is straightforward. A lead agency is identified, a recovery plan developed, the plan's actions carried out by various stakeholders, the results tracked, and the plan adjusted. In practice, the scientific process is overburdened. In some cases, there is a need to clarify who leads what; the lead party cannot force unwilling partners to act; and, until recently, recovery efforts have been underresourced and results not measured and reported adequately.

77. There are 50 species in the basin under federal jurisdiction that are threatened or endangered. These are rough estimates; there is no comprehensive inventory of all species on federal lands. Almost half of these species do not have recovery plans, despite federal commitments to prepare them. Historically, Fisheries and Oceans has not managed freshwater species at risk in the basin. However, as it gets more involved in recovery efforts, it will need to clarify its role in relation to provincial roles, especially where a province has already been active in recovering or protecting a freshwater fish species.

78. Only 10 percent of the species under the federal government's jurisdiction in the basin have stable or improving populations; trends for the remaining 90 percent are either declining or not reported. Recovery plans and actions do not guarantee the recovery of a species. Recovery plans are not binding; recovery teams have no authority to ensure that they are carried out.

79. The federal government recognizes the need for federal species-at-risk legislation. However, meeting its commitments to pass such legislation continues to be a challenge. In 1997, its proposed *Canadian Endangered Species Protection Act* died on the order paper when a federal election was announced, as did Bill C-33 (the proposed *Species at Risk Act*) when the fall 2000 election was called. In February 2001, Bill C-5 (a revised version of the proposed Act was introduced in the House of Commons.

80. In its February 2000 Budget, the federal government announced $180 million in national funding over five years for a new species-at-risk program, including stewardship initiatives. Despite this major increase in funding, the federal departments and agency involved in the program are concerned that there will be serious gaps.

81. Reporting of recovery actions has been incomplete and inconsistent. However, the federal government has developed comprehensive performance indicators for its new species-at-risk program. If progress measured by the indicators is reported consistently, it will be a significant improvement over current reporting.

82. **Wetlands.** The federal government has participated in restoring and protecting wetlands. While these activities are encouraging, there is not enough information on the current status of wetlands to say whether it is improving or getting worse. Environment Canada and Fisheries and Oceans are involved in efforts to improve the information on wetlands in both the Great Lakes and the St. Lawrence River.

83. National wildlife areas and migratory bird sanctuaries are important biological assets that are the responsibility of Environment Canada. Many of the national wildlife areas and migratory bird sanctuaries in the basin contain wetlands, some of international significance. However, Environment Canada lacks the personnel and financial resources to manage them effectively. Most management plans for national wildlife areas have not been updated since the early to mid-1980s. There is limited monitoring of public access to and use of national wildlife areas, and the federal government undertakes limited scientific research in them. Moreover, Environment Canada does not sufficiently enforce its regulations under the *Canada Wildlife Act* and the *Migratory Birds Convention Act* as they pertain to national wildlife areas and migratory bird sanctuaries.

84. There is no single federal department or agency formally responsible for wetlands. Designating a lead department or agency would strengthen accountability for monitoring, evaluating, and reporting federal action on wetlands.

85. **Stewardship**. Given the little amount of land it owns in the basin, the federal government needs to influence what happens on the land it does not own. To do this, it has made stewardship one of the three priorities of its national strategy to protect species at risk.

86. To that end, it is involved in 15 programs and initiatives that support stewardship in the basin; they offer financial support and incentives, rewards

and recognition, and education and outreach services. However, it delivers these programs without a cohesive stewardship strategy. A strategy would ensure that the individual programs were focussed on complementary goals and their results could be reported consistently. Further, the federal government does not produce summary reports of its efforts, their costs, or the results they achieve.

87. The performance of federally funded stewardship projects is measured and reported, but there is limited reporting of their longer-term outcomes. There is also limited reporting of habitat losses and the extent to which they offset the gains made by stewardship projects. This makes it difficult to determine the net benefits of stewardship projects and to know whether the state of habitat in the basin is getting better or worse.

Fisheries

88. People in the basin rely on fish for food, a livelihood, or recreation. Each year, the basin's lakes and rivers supply more than $40 million in commercial fish landings and support economic activity worth over $100 million. Recreational angling in the Canadian portion of the basin provides a further $350 million a year in economic benefits.

89. The health of fish and fish populations is a barometer of the condition of the lakes. Chemical pollution in the water has contaminated the fish; consumption advisories have been issued for each of the Great Lakes and for the St. Lawrence River. The stocking of sport fish and the presence of invasive exotic species have had enormous impacts on the ecosystem.

What we audited

90. We examined four different aspects of the federal government's responsibilities for fisheries in the basin. We looked at what the federal government is doing to prevent and control invasive aquatic species. We asked whether the federal government is doing enough to protect, restore, and enhance fish habitat. We looked at whether Fisheries and Oceans gets and uses the scientific information it needs in making its decisions. Finally, we looked at the bigger picture—whether the federal government is fulfilling its responsibilities to conserve and protect the fish of the basin for their sustainable use by present and future generations.

What we found

91. **Overall.** Fisheries and Oceans is the lead federal department for aquatic ecosystems. Cuts in departmental funding and the federal decision to retain its freshwater fish habitat management responsibilities have had a pervasive effect on the Department's ability to carry out its mandate in the Great Lakes and St. Lawrence River basin.

92. **Defining the federal role.** While Fisheries and Oceans has the overall responsibility for protecting and conserving the fisheries resource, it relies on related programs carried out by provinces and other federal agencies. But it does not look regularly at the effects of those programs on the aquatic ecosystem. Furthermore, it has not clearly defined its role in freshwater

fisheries or clearly stated what it expects to achieve in its activities to protect the aquatic ecosystem and thereby the fish of the basin. Fisheries and Oceans has not evaluated whether it is contributing in the most effective way to the activities of the Great Lakes Fishery Commission.

93. The Department has no formal vision of the aquatic ecosystem it wants to promote in the basin. It has no criteria for determining when it should intervene to protect fish. And it has not kept Parliament informed of its plans in the basin or the results of its programs to date. Work with the provinces is under way to develop a national freshwater fisheries strategy, which is needed to establish clear accountability relationships. It remains to be seen whether the government will make this strategy a priority and provide the funds needed to carry it out and produce lasting results.

94. **Invasive aquatic species.** Invasive species are a serious and growing threat to the ecosystem of the Great Lakes and St. Lawrence River basin—a threat the federal government is ill prepared to counter, despite its commitments. There is no federal policy, no recognized lead department, and no plan to co-ordinate federal action to counteract the environmental, economic, and social impacts of these species. The government is doing little to prevent the arrival of additional invasive species.

95. A major pathway for invasive species to enter the basin is the ballast water carried by commercial ships. But Canada relies on ships' compliance with U.S. regulations and has only voluntary guidelines for ballast water exchange, through the *Canada Shipping Act* administered by Transport Canada. The guidelines do not provide enough protection.

96. Sludge at the bottom of empty ballast tanks can contain not only invasive species but also diseases such as cholera. Foreign ships with no ballast water on board pose a more significant threat than ballast water exchange, as neither the U.S. regulations nor the Canadian guidelines apply to them. Overall, the voluntary guidelines together with the ballast water regulations are only 3 to 17 percent effective.

97. The Sea Lamprey Control Program of the Great Lakes Fishery Commission has proved to be effective. Through this program, Fisheries and Oceans has helped the Commission control sea lamprey populations for more than 40 years. However, since the government cutbacks of the mid-1990s, Canadian funding for the program has been unstable.

98. **Protecting fish habitat.** One of the biggest reasons for declines in fish populations is damage to their habitat. The federal government's 1986 Policy for the Management of Fish Habitat addresses the government's obligations under the *Fisheries Act*—the protection and enhancement of fish habitat by Fisheries and Oceans and the Act's provisions for pollution prevention, administered by Environment Canada. Fifteen years have passed since the policy was adopted and it has not yet been applied fully. The Department does not know whether it is progressing toward its ultimate objective of a net gain in fish habitat.

99. Fisheries and Oceans has struggled to strengthen its habitat management program in Ontario since 1997, when the Province withdrew from administering fish habitat management activities on the federal government's behalf. Staff of Fisheries and Oceans have tried to keep up with the increased workload, but the delays have brought complaints from those seeking advice, guidance, or authorizations.

100. Fisheries and Oceans has no fisheries officers in Quebec and no formal agreement with the Province to monitor habitat protection or enforce the *Fisheries Act* in fresh water. The Province has its own program to protect fish habitat, but unlike the federal program, it does not apply to private land. Fisheries and Oceans believes that freshwater fish habitat in Quebec is being lost.

101. The Department recognizes the problems in its habitat management program. In 1999 it received an annual increase of $28 million to strengthen the program and promote consistency across the country. However, only some of the improvements will be made in Quebec.

102. Environment Canada administers the provisions of the *Fisheries Act* that prohibit pollution of water used by fish. However, Fisheries and Oceans is still ultimately responsible for those and all other provisions of the Act. It has not determined whether its actions, combined with those of Environment Canada, meet the requirements of the *Fisheries Act*. Specifically, it has not stated clearly how Environment Canada is to apply the Act's provisions for pollution prevention.

103. **Scientific information for decision making.** Scientific information is the basis of informed decisions. The Department lacks scientific information that it needs to carry out its mandate effectively. It lacks information on fish stocks, quantity and quality of fish habitat, contaminants in fish, and the presence of invasive aquatic species. At the same time, new legislation such as the *Oceans Act* is placing more demands on the Department for science.

104. In the early 1990s, federal funding levels for the Department's scientific research in Ontario were unstable. Since then, the situation has deteriorated. Federal cuts coincided with provincial cutbacks, widening the existing gaps in knowledge and research and creating new ones. In Quebec, the Department has conducted almost no freshwater science. Projects that provide key information currently lack a long-term commitment by the federal government to their funding.

105. Fisheries and Oceans has not yet developed a strategy that would guide it in determining what science it needs to do itself, what it should do in partnership with others, and what it can obtain from other organizations.

Ecosystem initiatives in the basin

106. Most of the environmental issues and threats discussed in this chapter are addressed through national or department-wide policies and programs of the federal government. Some of the policies and programs are brought together under the government's regional ecosystem initiatives. Great Lakes 2000 (now Great Lakes 2020) and St. Lawrence Vision 2000 are two programs among six current ecosystem initiatives of the federal government.

What we audited

107. We looked at whether the programs are structured effectively to achieve their objectives. We also assessed whether the federal government has followed good management practices. We did not evaluate whether St. Lawrence Vision 2000 and Great Lakes 2000 are working on the right problems. Nor did we assess the quality of the actions undertaken in the programs.

What we found

108. **Roles, actions, and accountabilities.** In St. Lawrence Vision 2000, most of the funds committed by the federal government were actually spent. In Great Lakes 2000, however, most federal departments other than Environment Canada significantly reduced their financial commitments and involvement after the budget reductions of 1995. Of $125 million in new funds announced by the Minister of the Environment, only $14.9 million was distributed to the departments participating in Great Lakes 2000. Although both programs carried out a number of actions, neither achieved all of the results it had planned.

109. The key roles and responsibilities of both the federal and the provincial partners in St. Lawrence Vision 2000 are clear, and the key results expected of all parties are specified. The program managers have established strong accountability mechanisms as well as management systems capable of tracking actions toward established targets.

110. The initial design of Great Lakes 2000 clearly identified the role of each participating federal department. But when budget reductions substantially curtailed their participation, their planned actions, targets, and associated accountabilities were never revised accordingly. The companion Canada–Ontario Agreement did not clearly identify the respective roles and responsibilities of the federal and provincial departments involved. The Agreement expired in 2000; at the end of our audit it had not been renewed.

111. **Local communities.** Both programs tried to set up structures that would involve the local communities, though for different reasons. Both have learned valuable lessons about the challenges of mobilizing volunteer community groups, and both have encountered difficulties. In the Great Lakes, a key challenge will be to develop a sense of the permanence—or sustainability—of local structures set up to act on environmental issues. Communities need support from governments to get started but also ongoing support to carry out actions that are beyond local resources or expertise. St. Lawrence Vision 2000 formed ZIP (zones d'intervention prioritaires) committees as forums to build consensus for action on local issues between the governments and community representatives. It gives these groups stable funding and effective oversight.

112. **Reporting results.** St. Lawrence Vision 2000 progress reports, published every two years, provide information on actual spending by each partner and on results achieved toward each key target of the program. Great Lakes 2000 reports its results in the progress reports of the Canada–Ontario Agreement.

These reports summarize progress toward targets but do not show federal spending. Reporting by Great Lakes 2000 is out-of-date. We are very concerned that neither program was able to demonstrate a link between the achievement of its planned results and changes in the state of the environment.

113. **The broad ecosystem approach.** One of the principles underlying both these programs is the ecosystem approach. Both have features of such an approach; they both deal with not just one aspect of the environment but a series of interrelated environmental and sustainable development issues.

114. An ecosystem approach considers the effects that a program's activities in one part of the ecosystem may have on other parts. Recognizing that roughly 40 percent of the pollution in the St. Lawrence River originates upstream in the Great Lakes, we expected to find some form of co-ordination between Great Lakes 2000 and St. Lawrence Vision 2000.

115. **Basin-wide perspective.** In 1997, departmental officials from both programs identified several areas where better integration of upstream and downstream activities would benefit the environment, among them the following:

- toxic substances;
- water levels, including environmental criteria and regulation;
- technologies for cleaning up contaminated sediment and soil; and
- indicators of the state of the environment.

We found, however, that there has been limited co-ordination between the two programs.

116. We are particularly concerned that the two programs have done little to co-ordinate their use of indicators of the state of the environment. Common indicators would make it easier for managers, Parliament, and the public to understand the evolution of the whole Great Lakes and St. Lawrence River basin ecosystem.

117. Finally, we found no formal means of sharing information and lessons learned. At the community level, Quebec ZIP committees and the Ontario public advisory committees have little knowledge of what their counterparts have achieved. For example, the Haut Saint-Laurent and Jacques-Cartier ZIP committees were both involved in projects to clean up contaminated sediment. They were not aware that the public advisory committee in the Collingwood area of concern had succeeded with similar cleanup activities in 1994.

The International Joint Commission

118. Established under the 1909 Boundary Waters Treaty between the United States and Canada, the International Joint Commission has an important role in protecting the shared waters of the Great Lakes. The International Joint Commission holds both governments accountable for progress toward their commitments under the Great Lakes Water Quality Agreement. It is in Canada's interests to use the Commission and ensure that it can fulfil its role.

What we audited

119. We did not audit the work of the International Joint Commission but the federal government's relationship with it, and the federal support for the Commission's activities in protecting the waters of the basin.

What we found

120. The federal government has not provided the International Joint Commission with enough information to properly assess Canada's progress under the Great Lakes Water Quality Agreement. It has delayed answering the Commission's requests for information and responding to its recommendations. The federal government does no formal follow-up to ensure that it will complete the actions it identifies in its responses to the Commission's recommendations.

121. Over the years, federal officials have provided technical expertise to the Commission's boards and study teams. However, the loss of scientific and technical capabilities as a result of budget cuts is putting this support at risk. Finally, the government has delayed its share of funding for the Commission's reference studies.

Conclusion

The trip began long ago

122. Charting and navigating a sustainable course through the Great Lakes and St. Lawrence River basin presents a formidable challenge to governments in Canada. Over many decades, the state of the basin and the performance of governments have been the subject of intense study and debate, especially the Great Lakes portion. A diverse range of stakeholders, including international institutions, academics, scientists, industry, environmentalists, labour, and First Nations, have produced hundreds of reports containing hundreds more recommendations.

123. In this audit, we wanted to see how the federal government has managed major threats to the environment in the Great Lakes and St. Lawrence River basin. The purpose of this concluding section is to summarize key findings, highlight common patterns, and tell Parliament what we consider to be matters of special importance.

The trip so far: Remarkable achievements

124. Historically, the basin has seen remarkable achievements and has been the genesis of many innovations. We identified several strengths in federal activities and specific areas of progress:

- A complex infrastructure of institutions, legislation, policies, and programs has been developed.
- Agreements have been negotiated, partnerships forged, and communities mobilized.

- Our scientific understanding of the threats facing the basin and of ecosystems in general has increased.
- Amounts of some chemical and biological contaminants entering the air, waters, and land have been reduced.
- Lake Erie, once considered "dead," has been revived.
- Some threatened species and some fish populations are recovering. Wetlands and landscapes have been restored and protected.
- Soil losses have slowed, in part as conservation tillage has become widespread.
- The amount of active ingredient used in pesticides has declined, especially in Ontario.

125. While it is difficult to say precisely what the federal government has contributed to this progress, it deserves credit for its positive influence. Federal officials, scientists, and others have demonstrated significant leadership and dedication. In some cases, the federal contribution is directly observable—developing policies, negotiating agreements, funding projects, and assisting communities. In other cases it is less obvious, in part because many other organizations and individuals also play a role.

Key findings and concerns

126. Exhibit 5 summarizes at a higher level the weaknesses of the government's approach as well as strengths that provide a good foundation for future efforts. As challenging as the past has been, the future will be a far greater challenge. We have come through relatively still waters compared with the whitewater rapids we are quickly approaching. With this in mind, we highlight here our major concerns.

Important matters left to drift

127. The federal government is generally aware of the threats the basin faces, now and in the future. Over time, it has responded with hundreds of commitments to Canadians, in many forms. Some are grounded in international agreements or federal legislation, or stated in government policies. Others originate in departments' sustainable development strategies, ministers' speeches, and government responses to various reports. In each of the subject areas and issues we examined, we set out to determine whether the federal government was doing what it had said it would do. Was it meeting its commitments to Canadians?

128. **It is not always clear what the government stands for.** Overall, we have serious concerns about the lack of transparency and clarity of the government's commitments and priorities. Many of the commitments are stated in vague and general terms that cannot be measured. Other commitments are outdated—though they still exist on paper, in practice they have long since been abandoned.

129. **Commitments not met, policies not implemented.** Our audit found that the federal government's record of meeting its commitments is mixed. Some have been met, but many key ones have not. Faced with multiple priorities and greatly diminished funding, departments are spreading their

efforts thin. The pace of progress in many respects is slow. In some cases, this lack of progress is not news: the government itself has reported it.

130. **Too many priorities for the resources given.** The impacts of declining and unstable funding are too clear to ignore. As we describe in our observations on Great Lakes 2000 and St. Lawrence Vision 2000, funding cuts made it hard for departments to meet their obligations. This was especially obvious in Great Lakes 2000—much of the promised funding never arrived and existing budgets were slashed. The carefully developed plan of action unravelled as departments simply withdrew from the program. St. Lawrence Vision 2000 also suffered some cuts, but not as large as those in the Great Lakes 2000 program. Cuts in federal budgets affected programming outside the ecosystem programs, too.

Exhibit 5 **Holding the federal government to account**

Area	Strengths	Weaknesses
Planning	Developed a good understanding of many threats facing the basin. Established plans and identified priorities for many issues.	Many commitments and priorities to deal with key threats to the basin's sustainability are general and vague, and results are difficult to measure. Many specific long-term outcomes desired for the basin have not been identified, and related plans have not been developed. Funding has declined, is unstable, and is insufficient to meet all commitments.
Using tools	Developed and implemented a range of tools to address specific issues in the basin.	Only some tools in the federal tool box are being used. Whether the tools used are sufficient to manage threats to the basin has not been assessed. A consistent, co-ordinated basin-wide approach to issues that span the basin is lacking. Federal science activity is weakened. There are significant gaps in scientific knowledge needed to understand and manage threats to the basin.
Working with others	Established effective partnerships at the local, provincial, federal and international levels. Engaged local citizens.	Roles and responsibilities—who is responsible for what—are often unclear. Accountability arrangements with partners to make sure federal objectives are met are weak.
Getting results	Achieved gains in several areas.	Many key commitments have not been met; many key initiatives have not been completed; departments are spreading their efforts thin.
Monitoring and reporting	Collected and disseminated information on a variety of topics. Developed some environmental indicators. Developed some indicators for measuring performance.	Data gathered to understand the nature and trends of key threats to the basin are insufficient and inconsistent. Development of indicators of the state of the Great Lakes and the St. Lawrence River is unco-ordinated. How federal activities have improved the basin's sustainability has not been analyzed or demonstrated. Information to Parliament and others does not afford a clear understanding of federal progress.

131. Although the federal government has been successful with its agenda of deficit reduction, our audit found many significant gaps between the commitments it has made and the resources it has allocated to meeting them. Clearly, federal commitments are out of step with the resources given; one or the other needs to change.

132. But diminished funding is not the only reason why the government is not meeting key commitments. The limited use of federal powers, weaknesses in basic management and accountability, and the politics of federal–provincial relations have all played a part.

133. **Reporting to Parliament and others.** Our audit found several examples of incomplete reporting to the public, international organizations (such as the International Joint Commission), and parliamentarians. Information needs to improve significantly on a variety of fronts, including budgetary allocations and expenditures, progress made toward specific commitments, and the state of the basin. Integrated reporting of this information could be valuable.

No federal strategies for key issues

134. Many of the threats to the basin today have been present for decades, and many of the pressures will not go away; people place demands on their environment. Past experience demonstrates the need for constant vigilance, a long-term view, sustained actions, research and monitoring, and stable funding in line with commitments. Much of this is missing from federal programming.

135. Instead, we found a short-term approach to most of the issues on the agenda. The government takes incremental steps to demonstrate its forward momentum—a bit more research, another study, a new regulation, another species recovery plan. These are all necessary actions, but it is hard for Canadians to know where they are all heading, what ends they are meant to achieve. Many programs we looked at do not take a long-term view of the issues.

136. We do not suggest that the government can develop an all-encompassing solution that will end the need for action; for some problems, that kind of solution cannot be found. We do suggest the need for a long-term plan for living within the carrying capacity of the ecosystem—a plan with a sense of vision, concrete steps, clearly defined roles, dedicated resources, and follow-through. Today, even where the federal government's commitment to a specific activity or result is clear, its long-term role and those of its partners in managing the issue are not always so clear.

137. **A basin-wide perspective.** The Great Lakes and the St. Lawrence River form a single hydrologic basin whose natural boundaries defy political distinctions. The federal government is uniquely positioned to identify broad threats and select priorities from a basin-wide perspective, but it has not done so. On key issues there is no co-ordinated and consistent federal voice in the two regions. The regional ecosystem programs are relatively isolated from one another. Officials of both ecosystem programs have identified activities that could be integrated better to benefit the environment.

Scientific research, monitoring, and measurement systems are impaired

138. **If we meander off course, will anybody know?** One species lost, soil washed from one farm, untreated effluent from one city, one more wetland lost, one invasive species altering the ecosystem, a stretch of shoreline eroded—each alone may not be a crisis. But their cumulative impact on the basin is what concerns many scientists.

139. Our ability to detect and measure changes in the environment has a direct bearing on the quality of the decisions we make. Good scientific information is needed to understand the basic functioning of ecosystems. And further, it is needed to determine how effective past actions have been and to identify emerging trends and issues that may warrant future action.

140. Several of our audits in the past have pointed to problems in the government's ability to conduct needed scientific research and monitoring. Our work on biodiversity, climate change, toxic substances, and urban smog have reached similar conclusions. Despite repeated assertions by the government that it will provide scientific leadership to support decisions, our present audit reached the same conclusion: there are major gaps in essential information.

141. This isn't news. Several reports and reviews by the International Joint Commission, the State of the Lakes Ecosystem Conferences (SOLEC), scientific research organizations, and the government's own publications (such as the 2001 interim report of the Task Force on a Canadian Environmental Information System) have identified and lamented the weakened state of federal science. Indeed, most scientific assessments of the state of the basin are qualified by a note on the incomplete and inconsistent data that support them. Cuts in funding for scientific research and monitoring have made an already bad situation worse.

142. **Indicators are part of the solution, but co-ordination is needed.** Part of the scientific challenge is to identify what we need measured. This is behind the recent drive to develop basic indicators of environmental health and sustainable development in the basin and in other parts of Canada—indeed, around the world. As we note in this chapter, even after years of activity a lot of this work is still in its formative stages. We are concerned about the lack of progress.

143. But we are more concerned that the federal government lacks a uniform approach. Separate activities are under way in the Great Lakes and the St. Lawrence River ecosystem programs. Though their challenges are basically the same, each program is "doing its own thing," with not enough co-ordination between them.

144. **Basic measurement is missing.** Not enough information is collected for the public and the government to know whether the state of the basin is getting better or worse overall. Most critically, the federal government has trouble demonstrating the links between its activities and actions and their impacts on the state of the basin.

145. **A long way to go to understand how ecosystems work.** In the latter part of the 20th century, science ushered in a new awareness of how different components of natural environments relate to each other. Leading-edge science by Canadians and others substantially improved our understanding of how aquatic and terrestrial ecosystems function. This understanding helped in developing science-based solutions such as controls on phosphorus and persistent pesticides. But today, when basic science is needed more than ever—to understand, for example, the significance and implications of climate change, endocrine disruption, and genetic diversity—it is being eroded. In some areas, such as groundwater and fish habitat, basic mapping is fragmented and incomplete because of years of indecision and uncertainty inside the federal government over who is responsible for what. In still other areas, such as fisheries, the government has not clarified what science it needs.

The changing and waning federal role

146. Concerted actions by many governments, industries, and individuals are required to manage sustainability in the basin. The federal government cannot be expected to do it all. But it should be expected to focus on its distinct role, to be explicit and open about what it is accountable for, and to use the various tools and authorities at its disposal.

147. The federal role is limited, in part, by constitutional constraints. But the government has chosen to limit its role further. It is not using the legislative powers and tools it could use. In the past few decades, especially the last one, the federal government's role changed and it retreated from many areas where it once was active. It is shifting the emphasis from leading to facilitating, from deciding to consulting, from acting to studying, from intervening directly to relying on others.

148. **The growing reliance on partnerships: More work to be done.** The importance of making and maintaining links is a recurring theme in the work of our Office. Links are needed between the federal government and other players in the basin and among federal departments and programs.

149. In the Great Lakes and St. Lawrence River basin, the federal government has worked hard to make the needed links with outside partners, both domestic and international. Many effective partnerships are now in place. But this in turn has raised fundamental questions about the federal government's role in overseeing its partners' actions and providing assurance that federal and national objectives are being met.

150. **There is a need for fuller engagement by all departments active in the basin.** The federal government has more to do to forge internal links. Although it has made significant progress in recognizing the relationships between individual issues and programs, it has yet to truly integrate or cross-link them. Programs are still fragmented and compartmentalized. Though federal departments acknowledge the need for a concerted effort to manage "horizontal" issues, in our opinion there is a prevailing sentiment that protecting the basin is primarily up to Environment Canada.

151. Tackling the tough issues: Where the government fears to tread. Principles such as "the polluter pays," the "precautionary principle," "prevention vs. remediation," and "pollution prevention" are common themes the federal government articulates in many of its important plans and policies. It leaves the impression that it is committed to doing all of these things. But is it doing them? Is it using the tools it has to ensure that the job gets done?

152. Our audit found in many cases that the federal government was not fully exercising its legislative authorities. Where it does use legislative tools, the government is not looking at how different programs interact—how different economic and environmental policies and programs could support and complement each other more effectively. In other respects, the federal government has not yet equipped itself with the scientific or policy tools to do the job.

153. The federal government's inaction on many of the issues our audit raised begs the fundamental question, What is its role? What is the value of making domestic and international commitments when, in some cases, there is no capacity to deliver? When the federal government signed the Great Lakes Water Quality Agreement, for example, it assumed an obligation to ensure that action would be taken. The government decided to rely on others, and when others failed to deliver, it did not assume the lead. In our view, the federal government remains accountable for its obligation to ensure that the job gets done. The time has come for it to either take responsibility for its commitments or change them.

The future: Charting a course for sustainability

154. That the basin is a critical resource for Canadians is beyond dispute. That the basin is subject to ongoing, growing, and changing threats and pressures is also beyond dispute. But is there an environmental crisis in the basin? That is largely a matter of perspective.

155. At one level, the state of the lakes and rivers—especially compared with other threatened watersheds around the would—is a testament to the determination and ability of Canadians to manage the basin for the future. Governments have built an elaborate array of important institutions, laws, and programs designed to manage the present and safeguard the future. Past experience offers evidence of our ability to resolve crises as they appear.

156. Other perspectives show a different view. The leadership, innovation, science, and diligence that served the basin in the past have diminished. There is a sense of complacency, not urgency; resignation, not inspiration.

157. The basin our children will inherit will be much different from today's. Part of the challenge of sustainable development is to ensure that their future is secure. In our view, the federal government is not keeping pace with future needs. While achieving sustainability in the basin is not up to the federal government alone—actions are needed by many other governments and organizations—it does have a crucial and distinct role to play. We look to the federal government, as the leader of this trip, to chart the destination and course (vision, policies, and plans), properly map the approaching rapids and

obstacles (robust science and monitoring), obtain the right equipment (policy instruments and integrated programs) and, working together and with partners, mobilize the expertise and teamwork it needs.

Recommendations and Government's Responses

158. In the following sections of the chapter, we include our subject-based recommendations. We believe that at a higher level, the following are things that the federal government can do better:

- Provide clear-cut federal commitments to deal with key threats to the basin's sustainability.
- Adequately fund its commitments.
- Articulate the long-term outcomes it seeks for the basin, translating them into concrete plans that drive its actions.
- Apply a consistent basin-wide approach, where appropriate, for issues that span the entire basin.
- Reassess whether the legislative and other tools it uses are sufficient to manage threats to the basin.
- Rebuild or acquire the scientific knowledge needed to understand and manage threats to the basin.
- Set-up consistent data gathering to understand the nature and trends in key threats to the basin.
- Analyze and demonstrate how federal activities have improved the basin's sustainability.
- Strengthen accountability arrangements with partners to make sure federal objectives are met.
- Clarify responsibilities within the federal government about who is responsible for what.
- Report information to Parliament and others that provides a clear understanding of federal progress.

Joint interdepartmental response

The following joint response represents a collaborative effort among the departments most impacted by the recommendations of the audit (Environment Canada, Fisheries and Oceans, Agriculture and Agri-Food Canada, Health Canada, Natural Resources Canada, Parks Canada Agency, and the Department of Foreign Affairs and International Trade). Detailed responses to individual recommendations have also been prepared by specific departments as identified in the chapter.

The Commissioner's Office has provided an analysis of the complex issues and institutional arrangements involved in developing and undertaking government programs focussed on the Great Lakes and St. Lawrence River basin ecosystem, and the multitude of interests and pressures that influence it. The chapter identifies the challenges of managing the basin and the need for continuation of an integrated management approach, which involves both domestic and international governments along with key stakeholders.

The Great Lakes and St. Lawrence River basin is cleaner now than it has been in the last 50 years. The vision adopted by the federal government through the ecosystem approach to managing the threats to the basin contributed to these results and continues to be used as a model worldwide. This vision recognizes the direct and indirect correlation between the health of our ecological systems, the health of our communities, and the strength of our economy. It is cross-sectoral and multi-jurisdictional, and it continues to challenge organizations to chart a common path, share information and resources, adopt integrated decision-making processes, and collectively implement policies and programs. Experience to date has demonstrated that this has resulted in greater efficiency in meeting federal commitments and greater effectiveness in achieving environmental results.

At the same time, however, the growing population and economic activity in the area, combined with the threat of climate change, higher consumption of water, increased waste, intensive land use, and the introduction of invasive species, continue to put severe stress on the ecosystem. These factors challenge federal government departments to continue to increase their understanding of the issues facing the Great Lakes and St. Lawrence River basin. Water policy and strategies to protect and conserve fresh water will continue to evolve, based on strengthened partnerships, community-based action, and ensuring that Canadians are provided with information on objectives, actions, and progress in addressing priority issues. Federal departments will continue to build on the ecosystem initiatives. We will work toward a basin-wide approach in partnership with the provinces of Ontario and Quebec, who have major responsibilities, and with stakeholders, to achieve our vision of sustainability for the basin.

The goal of the new Canada–Ontario Agreement, as well as the collaboration underway with the Province of Quebec, is to establish the necessary intergovernmental mechanisms and enhance the federal government's ability to deal with the issues and threats facing the ecosystem. Maintaining and building on these initiatives will address many of the recommendations put forth by the Commissioner to improve and strengthen the management and accountability regimes supporting the Great Lakes and St. Lawrence River basin programs. Ecosystem threats will continue to be examined in terms of the effectiveness of the current legislative and policy framework; scientific capacity, research, data and monitoring implications; and the fiscal framework.

Water — What we recommend

159. Our findings show that the federal government needs to decide its priorities for fresh water and clarify its commitments to achieving them. Working with its partners, it needs to develop realistic, scheduled plans with clear accountability; stick to its plans; and provide open and transparent information on results.

160. Recommendation. Environment Canada should reassess its role and clearly articulate its responsibilities and commitments for freshwater management in the Great Lakes and St. Lawrence River basin, and clarify the

commitments expected from other federal departments, especially but not limited to the following:

i. completing the actions needed for delisting areas of concern;

ii. remediating contaminated sediment in areas of concern and elsewhere in the basin where it is a significant environmental concern;

iii. developing lakewide management plans for the Great Lakes; and

iv. promoting the concept of "a fair value for water" as stated in the Federal Water Policy.

Environment Canada's response

Agree. Water policy and strategies to protect and conserve fresh water will continue to evolve based on strengthened partnerships, community-based action, and ensuring that Canadians are provided with information on objectives, actions, and progress in addressing priority issues. The new Canada-Ontario Agreement (COA) Respecting the Great Lakes Basin Ecosystem provides a clear identification of the five-year commitments of the federal and provincial governments, including Environment Canada (EC). The Department is developing memoranda of understanding (MOU) with its federal partner departments that define the roles and responsibilities of individual departments. Detailed annexes to the Agreement provide an articulation of the specific commitments of each government in relation to the achievement of goals and results. Detailed five-year work plans, which will be developed and updated annually, will provide a fuller description of the roles and responsibilities of the federal and provincial governments.

Over the past few months, Environment Canada has undertaken consultation with other federal departments as part of a process to pursue an action plan for the St. Lawrence in 2003, after the present Phase 3. Further consultations with Quebec government departments are planned for fall 2001.

i. Agree. The Areas of Concern Annex to the Canada–Ontario Agreement will provide an articulation of the specific commitments of each level of government for actions required to delist areas of concern.

ii. Agree. The Areas of Concern Annex includes specific results pertaining to contaminated sediment. Remediation of contaminated sediments outside Great Lakes areas of concern elsewhere in the Great Lakes and St. Lawrence River basin will not be undertaken directly by Environment Canada. The Department will, however, identify contaminated sediments in the basin that act as a source of harmful pollutants and will develop sediment management strategies.

iii. Agree. The Lakewide Management Annex provides an articulation of the specific commitments of each level of government for actions required to develop lakewide management plans.

iv. Agree. Given provincial and municipal responsibility for setting prices for water and sewage, Environment Canada will continue to promote "a fair value for water" by providing information on water pricing, water use, and the associated benefits of wise use and conservation, as well as working with provincial and non-government partners to incorporate these objectives into co-operative programs.

161. Recommendation. Environment Canada, enlisting the participation of others where possible, should develop clear action plans to carry out its commitments for management of fresh water. It should develop initiatives to implement these plans, especially for the following:

i. remediating contaminated sediment, with the provinces and industry, where possible;

ii. promoting realistic water pricing, managing water demand, and treating municipal sewage (this could include support from funding programs administered by the Treasury Board Secretariat or other federal government departments); and

iii. improving water quality in the Great Lakes and St. Lawrence River basin through lakewide management plans or other comprehensive management plans as specified in the Canada Water Act.

Environment Canada's response

i. Agree. The remediation of contaminated sediments is not the responsibility of Environment Canada alone, however. Specific action plans for contaminated sediment remediation initiatives will be developed and implemented where it is possible to obtain the agreement and necessary funding among the federal and provincial governments, industry and, as appropriate, the local community.

Under the Areas of Concern Annex of the new Canada–Ontario Agreement, annual work plans will be developed that will address the identified high-priority contaminated sediments in areas of concern requiring remediation.

ii. Agree. Environment Canada will continue public education and outreach programs to provide information and tools that can be used by individuals and communities to promote realistic water pricing, as an instrument of water efficiency. Pricing and metering will continue to be promoted in the selection criteria for granting project funds under the Canada Infrastructure (administered by the Treasury Board Secretariat) and Federation of Canadian Municipalities Green Funds programs. Environment Canada will also support future work of the Canadian Council of Ministers of the Environment (CCME) in examining the issue of water demand and use.

iii. Agree. Under the Lakewide Management Annex of the new Canada–Ontario Agreement, annual work plans based on existing funding levels will be developed. These will include point and non-point source trackdown and reduction initiatives for identified critical pollutants. Canada–U.S. biennial progress reports will be prepared for each lakewide management plan; they will include updated binational action plans.

Improving water quality in the Great Lakes and St. Lawrence River basin requires a concerted Canada–U.S. multi-jurisdictional approach, and cannot be achieved by Environment Canada alone. Enhanced actions to improve water quality in the Great Lakes and St. Lawrence River basin are dependent on additional funding applied by all levels of government, in both Canada and the U.S.

162. Recommendation. The federal government should develop the information needed to manage fresh water, as follows:

i. Natural Resources Canada, together with Environment Canada, should develop enough knowledge of groundwater in the basin to understand its contribution to the availability of surface water—in particular, knowledge of key aquifers, their geology, potential yields, and current withdrawals.

ii. Environment Canada should develop enough information on the key contaminants in the Great Lakes and St. Lawrence River basin, and on their sources, to set priorities for action.

Environment Canada and National Resources Canada joint response

i. Agree. Natural Resources Canada (NRCan) and Environment Canada have initiated projects to improve our understanding of groundwater issues within the Great Lakes basin. Natural Resources Canada, through the Geologic Survey of Canada (GSC), has carried out groundwater research in key areas of the basin, such as the Oak Ridges Moraine, and further studies are planned. Additionally, there are plans at NRCan to inventory and delineate other regional aquifers in the Great Lakes and St. Lawrence River basin, in co-operation with provincial partners. These plans are part of the National Groundwater Strategy currently under development by the national ad hoc committee on groundwater.

Environment Canada also conducts groundwater research through its Regions and National Water Research Institute (NWRI). This past year, the NWRI and GSC entered into a memorandum of understanding to co-operate on groundwater resources research. Groundwater is an important water supply within the basin and is also critical to aquatic ecosystems. Research conducted within the basin will address both of these functions. Effective monitoring and surveillance programs are key to good and sufficient information on the key contaminants in the water bodies.

Environment Canada's response

ii. Agree. Environment Canada is currently reviewing the state of its monitoring programs on a national basis, with a view to ensuring that the monitoring network is adequately designed and resourced to meet its stated goals. Great Lakes monitoring is included as part of this review. Monitoring initiatives to track down sources of identified critical pollutants will be carried out under the Lakewide Management Annex of the new COA. The need for all jurisdictions to enhance monitoring programs to provide better information on Great Lakes/St. Lawrence River key contaminants and to improve decision making and prioritization for remedial actions will be assessed in this national review.

163. Recommendation. Health Canada should clearly articulate its responsibility for protecting human health in the basin from potential contaminants in drinking water. As part of this it should undertake, in conjunction with the Federal–Provincial–Territorial Subcommittee on Drinking Water if possible, a review of the status of drinking water quality, including its adherence to the guidelines for drinking water quality; the

public's access to information on drinking water quality; and the need for nationally enforceable drinking water standards.

Health Canada's response

Agree. Health Canada will update its existing It's Your Health *fact sheet on the Drinking Water Guidelines to explain to Canadians the shared relationships and responsibilities in Canada for drinking water. Health Canada will also document its responsibilities for protecting human health from potential contaminants in waters in the basin. The Federal–Provincial-Territorial Subcommittee on Drinking Water, for which Health Canada acts as technical secretariat, has undertaken a review of drinking water quality in Canada. In addition, the Subcommittee has initiated the development of a national framework on drinking water quality, which will include issues such as the adherence of drinking water to the drinking water quality guidelines and the public's access to information on drinking water quality. Health Canada has also initiated consultation with provinces and territories, through the Subcommittee, regarding the need for nationally enforceable drinking water standards.*

Agriculture

What we recommend

164. Our findings show that the federal government, with those who share responsibility, must take greater action to make agriculture environmentally sustainable in the basin. Better evaluation, clearer roles, targeted action, and clearer and measurable commitments are needed.

165. Recommendation. Agriculture and Agri-Food Canada and Environment Canada should evaluate the impact of their agri-environmental programs on the basin's environment, particularly in areas where environmental damage is increasing or progress is slow. They should use this information to re-evaluate the current mix of policies and programs, including whether activities should be more integrated with the basin ecosystem initiatives.

Agriculture and Agri-Food Canada's response

Agree. Agriculture and Agri-Food Canada acknowledges the recommendation, and will continue to evaluate the performance of its agri-environmental programs. One challenge faced is the identification and reporting of environmental impacts not directly related to departmental programs. Through its agri-environmental indicator work, Agriculture and Agri-Food Canada will continue to monitor the environmental impact of agricultural activity. Moreover, agri-environmental indicator work will assist in the development and assessment of both current and new departmental policies and programs.

Environment Canada's response

Agree. Environment Canada will improve its program interfaces with Agriculture and Agri-Food Canada, and will collaborate with it on specific initiatives aimed at better understanding and/or addressing environmental impacts resulting from agricultural activities in the basin.

166. **Recommendation.** Agriculture and Agri-Food Canada should ensure that clear roles and responsibilities are established, and measurable commitments and clear action plans spelled out, for achieving environmentally sustainable agriculture in the basin. It should involve Environment Canada and the provincial governments in doing this.

Agriculture and Agri-Food Canada's response

Agree. Agriculture and Agri-Food Canada is working with its provincial, territorial and other partners to establish a comprehensive agricultural policy framework that, among other priorities, will focus on environmental protection. At their meeting in Whitehorse, Yukon, on 29 June 2001, federal, provincial, and territorial ministers of Agriculture reached an agreement in principle on an Action Plan for an Agricultural Policy Framework. The action plan aims to accelerate adoption of sound environmental practices on farms and will include detail on indicators, targets, timetables, and approaches to achieving environmental protection goals. Developing and implementing this framework will involve co-ordination with environmental and health ministries. A copy of the action plan is available at www.agr.ca/cb/news/2001/n10629be.html.

Also, Agriculture and Agri-Food Canada is working with Environment Canada to establish a memorandum of understanding to clarify Agriculture and Agri-Food Canada's responsibilities in the implementing of the Canada–US Great Lakes Water Quality Agreement and the Canada–Ontario Agreement Respecting the Great Lakes Basin Ecosystem and delivering the objectives of the Canadian federal Great Lakes Basin 2020 program.

167. **Recommendation.** Agriculture and Agri-Food Canada should ensure that adequate information, including agri-environmental indicators and soil data, is available to guide action and measure progress toward sustainable agriculture in the basin.

Agriculture and Agri-Food Canada's response

Agree. Agriculture and Agri-Food Canada has established a National Agri-Environmental Health Analysis and Reporting Program (NAHARP) Working Group. Its objective is to explore the continuation of agri-environmental indicator work aimed at evaluating progress of the sector in protecting the environment and to ensure the continued provision of strategic information for policy making.

Additionally, Agriculture and Agri-Food Canada, in collaboration with its partners, will lead the development and maintenance of an Internet-based National Land and Water Information System. This initiative will provide access to information that will assist municipalities and other land users and planners in making environmentally sound land management decisions.

168. **Recommendation.** Agriculture and Agri-Food Canada should ensure that its research priorities correspond to its environmental objectives and support the development of its policies. It should also ensure that its environmental objectives are considered in selecting and evaluating its research.

Agriculture and Agri-Food Canada's response

Agree. Agriculture and Agri-Food Canada has established across-branch national teams. Four teams are in line with the environment priority of the Department. They include Integrated Environment Strategy Development, State of the Environment, Impact of Agriculture on the Environment, and Management and Stewardship of the Environment. Through these teams and other established mechanisms, Agriculture and Agri-Food Canada will regularly review its research activities to ensure that they contribute to the environmental objectives of the Department and support the development of its policies.

Furthermore, to ensure that departmental environmental objectives are considered in the evaluation and selection of research projects, Agriculture and Agri-Food Canada has implemented a new Study Management System (SMS). This system will assist in the assessment, approval and reporting of research projects. Through SMS each study is evaluated using a defined set of criteria, such as "attractiveness" and compliance with regulations. Attractiveness measures the likely benefit of successful research, including the potential environmental benefits; neutral or positive environmental impact; and the acceptance of the technology from social, political, and environmental perspectives. Compliance with regulations indicates if environmental assessment is required.

169. Recommendation. Agriculture and Agri-Food Canada should periodically review the environmental impacts of federal–provincial income support programs and conduct environmental assessments before putting new programs into effect.

Agriculture and Agri-Food Canada's response

Agree. In keeping with the requirements of the Farm Income Protection Act (FIPA), *Agriculture and Agri-Food Canada will review the environmental impacts of federal–provincial income support programs on a periodic basis. More important, Agriculture and Agri-Food Canada's 2001 Sustainable Development Strategy,* Agriculture in Harmony with Nature II, *commits the Department to establishing a formal process to ensure the analysis and review of existing and new policies, programs and initiatives from the perspective of sustainable development by 31 March 2004.*

As stated in the program principles outlined in the current federal–provincial Framework Agreement on Agricultural Risk Management, "… all programs under the Agreement (which includes NISA and the Canadian Farm Income Program should not be adverse to environmental stewardship."The operation of this Agreement requires an evaluation of programs by Canada and the signatory provinces. The evaluation must include an assessment against the environmental stewardship principle and be completed by March 31, 2002. Work on the evaluation of programs is currently under way.

Species and spaces at risk

What we recommend

170. Our findings show the need for better baseline information; clearer roles, commitments, and strategies; and better reporting on trends and results.

171. Recommendation. The federal government should develop better baseline information on species and spaces at risk, in the following ways:

i. Environment Canada, Fisheries and Oceans, and Parks Canada Agency, with input from other federal landholding departments and agencies, should develop a comprehensive inventory of all species at risk under their jurisdiction, including those on federal lands in the basin. Where this information will not pose a threat to the protection of the species, they should make it publicly available.

ii. Environment Canada should comprehensively assess the environmental state and management of national wildlife areas and migratory bird sanctuaries in the basin.

Environment Canada, Fisheries and Oceans, and Parks Canada Agency joint response

i. Agree. Data on species at risk are collected by federal departments, provinces, and other organizations and agencies. Environment Canada, Fisheries and Oceans, and the Parks Canada Agency will continue to work with holders of this information to develop a database of existing information on species at risk and to make this information more widely available. A more comprehensive database could be developed should additional resources become available. Where the information will not pose a threat to the species, will be made publicly available.

Environment Canada oversees the preparation of a report entitled Wild Species 2000: General Status of Species in Canada *every five years, the first of which was produced in co-operation with Fisheries and Oceans, the Parks Canada Agency, and the provinces and territories in April 2001.*

Environment Canada's response

ii. Agree. A comprehensive assessment of the state of national wildlife areas and migratory bird sanctuaries in the basin will take time and the reallocation of resources. Environment Canada will conduct such an assessment in phases over the next five years.

172. Recommendation. The federal government should outline responsibilities and commitments and establish strategies for species and spaces in the following ways:

i. Environment Canada, Fisheries and Oceans, and Parks Canada Agency should ensure that recovery strategies developed for species at risk are implemented within a specified time frame. They should reassess the adequacy of funding provided for recovery actions and preventive measures, and present clear commitments consistent with the funding provided.

ii. Fisheries and Oceans, in consultation with other parties, should clarify its role and establish clear commitments for recovery of freshwater fish species at risk.

iii. With advice from the Federal Wetlands Forum, the federal government should identify a lead department for monitoring, evaluating, and reporting on federal actions relating to wetlands.

iv. Environment Canada should prepare a strategy for effectively managing national wildlife areas and migratory bird sanctuaries in the basin.

v. Environment Canada, with participation from other federal organizations, should develop a federal strategy for all federal habitat stewardship programs delivered in the basin.

Environment Canada, Fisheries and Oceans, and Parks Canada Agency joint response

i. Agree. Environment Canada, Fisheries and Oceans, and Parks Canada Agency have adopted a Co-operative Management Framework for implementation of the federal strategy on species at risk, including recovery actions. Regular meetings of senior officials are held to consider management strategies for species at risk initiatives. Strategic discussions of the adequacy of funding, priorities, and commitments will continue under this umbrella. Federal departments will be providing response statements regarding species at risk under their jurisdiction, which will formalize commitments regarding protection and recovery, including time frames for recovery.

Parks Canada Agency's response

i. Agree. The Parks Canada Agency will work to ensure a co-ordinated approach through the development of recovery strategies that will clearly outline its responsibilities and commitments to be carried out in a specific time frame. The Parks Canada Agency, together with other federal departments, has adopted a co-operative management strategy to co-ordinate and integrate the implementation of recovery and other conservation plans, particularly with respect to habitat conservation.

iii. Agree. The Parks Canada Agency will be responsible for monitoring, evaluating, and reporting on federal actions related to wetlands in national parks and will provide relevant information to the lead federal department.

v. Agree. The Parks Canada Agency will participate with other federal organizations in the development of a more integrated federal strategy for federal habitat stewardship programs delivered In the basin.

Fisheries and Oceans' response

ii. Agree. Fisheries and Oceans is participating actively in the development of bilateral agreements with provinces that will outline respective roles and responsibilities with respect to protection and recovery of species at risk, under the umbrella of the Canadian Endangered Species Conservation Council. These agreements will clarify roles regarding freshwater species. Discussions of freshwater fisheries strategy under the Canadian Council of Fisheries and Aquaculture Ministers will also help to clarify roles for species at risk in fresh waters. Fisheries and Oceans, in co-operation with other jurisdictions, will be issuing response statements outlining commitments for protection and recovery of species at risk, including freshwater species.

Environment Canada's response

iii. Agree. Environment Canada will bring this recommendation to the Federal Wetlands Forum for advice.

iv. Agree. Environment Canada will develop a strategy for the management of national wildlife areas and migratory bird sanctuaries in the Basin. However, the rate at which such a strategy will be implemented must reflect the level of resources available and the support and collaboration of landowners and other partners.

v. Agree. Environment Canada will consult with other federal organizations with the objective of achieving a more integrated approach for federal habitat stewardship programs delivered in the Basin.

173. Recommendation. To improve its reporting to Parliament and the public on the status of species and spaces at risk, the trends in their status, and the targets and results of its programs for their protection and recovery, the federal government should ensure the following:

i. The department identified as the lead for wetlands should expand reporting on wetlands in the basin to include information on federal funding for wetlands conservation, the status of wetlands, and trends in their status.

ii. Environment Canada should report regularly to the public on the state of national wildlife areas and migratory bird sanctuaries in the basin. Areas for reporting would include the state of their environmental health, public access and use, scientific research, and enforcement activities.

iii. Environment Canada, with the participation of other federal departments and agencies, should produce an annual report on all federal habitat stewardship activities in the basin. The report should contain information on progress toward targets, the state of habitat and related trends, and longer-term outcomes so the net benefit of federal stewardship programs can be determined.

Environment Canada's response

i. Agree. Environment Canada will support expanded reporting on wetlands in the basin.

ii. Agree. Environment Canada will develop a strategy for reporting on the status of national wildlife areas and migratory bird sanctuaries in the Basin. Such a strategy will take into account resource considerations. However, the rate at which this can be accomplished must reflect the level of resources available.

iii. Agree. Habitat monitoring, evaluation and reporting, and the assessment of habitat conservation programs is most effective when organizations and agencies work together. Environment Canada has gained considerable experience in reporting and assessment through the North American Waterfowl Management Plan, a stewardship program for migratory birds. Environment Canada is applying this experience to recently established stewardship programs, such as the federal Habitat Stewardship Program for Species at Risk, established in 2000–01, and will report annually on results.

Parks Canada Agency's response

i. Agree. The Parks Canada Agency will provide the lead department with expanded reporting on wetlands within national parks.

iii. Agree. Habitat monitoring, evaluation and reporting, and the assessment of habitat conservation programs will be most effective if federal, provincial, non-government, and other organizations and agencies work together. The Parks Canada Agency will work with partners to improve the co-ordination and integration of these activities to ensure that the net benefit of all conservation programs (stewardship and protected areas) can be determined. To the extent that additional funding is available, this approach will include reporting on the state of protected areas.

Fisheries

What we recommend

174. Our audit found that Fisheries and Oceans needs to develop a vision of the aquatic ecosystem it wants to promote in the basin. It needs to define its role and responsibilities for conservation and protection of the fisheries, provide better protection against harmful invasive species, protect and manage fish habitat more effectively, and ensure that it has the scientific information it needs.

175. Recommendation. Fisheries and Oceans should take the following actions to ensure that the objectives of the *Fisheries Act* are achieved:

i. Develop its own vision of the freshwater fisheries it wants to promote in the basin.

ii. Clarify its role in conserving and protecting freshwater fisheries in the basin.

iii. Establish clear commitments and adequate funding for its activities.

iv. Develop suitable accountability arrangements with its partners—the federal departments, provinces, and others it relies on to achieve the objectives of the *Fisheries Act*.

v. Monitor the results of its activities and those of its partners and report them to Parliament.

Fisheries and Oceans' response

i. Agree; however, while it is essential for Fisheries and Oceans to develop its vision of freshwater fisheries for the basin, it is appropriate to work collaboratively with its federal and provincial partners. To that effect, Fisheries and Oceans is working under the auspices of the Canadian Council of Fisheries and Aquaculture Ministers (CCFAM) on a federal–provincial freshwater fisheries strategy to improve priority setting and co-ordination between federal and provincial governments in fisheries management, fish habitat protection, and freshwater fisheries science. In addition, Fisheries and Oceans shares the vision of a healthy aquatic ecosystem with the Great Lakes Fishery Commission and the International Joint Commission. Fisheries and Oceans has implemented a strengthened fish habitat protection program in the basin, and is working with the provinces to co-ordinate its delivery.

ii. *Agree. The responsibilities of Fisheries and Oceans extend to the conservation of fisheries resources and fish habitat in the basin. Provincial governments share the responsibility for the management of freshwater fisheries resources in the basin. Fisheries and Oceans ensures that its role is clearly articulated and mutually understood through the work undertaken within CCFAM and in agreements such as the Great Lakes 2020 and the Canada–Ontario Fisheries Agreement.*

iii. *Agree. Fisheries and Oceans has placed a priority on identifying additional resources to devote to issues such as exotic species, ballast water, and monitoring activities as well as to the sea lamprey control program, and will do so depending on availability of funding.*

iv. *Agree. Given the joint responsibility for freshwater fisheries, accountability arrangements need to be developed co-operatively with the provinces. Fisheries and Oceans will take the recommendation into consideration as we work through CCFAM, which has provided the forum to improve accountability arrangements and reporting to Canadians. With respect to the fish habitat management program in particular, Fisheries and Oceans either has, or is developing, agreements with the Province of Ontario, with conservation authorities, and with other groups. These agreements include accountability arrangements.*

v. *Agree. Fisheries and Oceans will integrate the work of partners in implementing habitat management agreements into future reports to Parliament on the administration and enforcement of the provisions for fish habitat protection and pollution prevention. We will take the recommendation into consideration for reporting on other activities, as we work with our partners through CCFAM.*

176. Recommendation. Fisheries and Oceans should take the following actions to ensure that fish and fish habitat are protected as required by the *Fisheries Act* and the Policy for the Management of Fish Habitat:

i. Measure progress toward its ultimate objective of a net gain in fish habitat. This should include, as a first step, monitoring the effectiveness of its advice and decisions on individual projects.

ii. Ensure that it completes the renewal of its habitat management program and apply it consistently across the basin

iii. Clearly define the actions it requires of Environment Canada to protect fish and fish habitat effectively and carry out the *Fisheries Act* provisions for pollution prevention.

Fisheries and Oceans' response

i. *Agree. Fisheries and Oceans is establishing a performance management framework within its habitat management program to measure progress toward the objective of a net gain in fish habitat. Individual proponents measure the effectiveness of mitigation and conservation measures and the impacts of individual projects on fish habitat. The Department evaluates the results of such studies and makes any necessary adjustments.*

ii. *Agree. Fisheries and Oceans is working with provincial government agencies, other federal departments, industry groups, non-government organizations and the Canadian public to implement its strengthened Habitat Protection Program in a consistent manner. This initiative has led to increased Fisheries*

and Oceans capacity in Ontario and, to a lesser extent, in Quebec. Fisheries and Oceans is integrating the results of its review of the habitat program into ongoing operations.

iii. Agree. Fisheries and Oceans is working with Environment Canada to increase capacity for fish habitat protection. The Memorandum of Understanding with Environment Canada that was signed in 1985 will be reviewed in the near future to further clarify the respective roles and expectations of the two departments in administering the pollution prevention provisions.

Environment Canada's response

iii. Agree. Environment Canada will work with Fisheries and Oceans and other federal, provincial and non-government organizations and agencies to clearly define what actions are required to effectively protect fish habitat through memoranda of understanding with Fisheries and Oceans and other organizations.

177. Recommendation. Fisheries and Oceans should significantly expand its efforts in the following ways to control and prevent the introduction of invasive aquatic species and meet its stated commitments:

i. Where feasible, develop programs to eradicate or prevent the further spread of invasive aquatic species already in the basin.

ii. Identify the threats posed by aquatic species that could invade the basin and assess the risks they pose to the aquatic ecosystem. Where there is significant risk, it should develop action plans to respond, with other parties, to an incursion.

iii. Conduct further research and propose alternative methods of preventing the release of invasive aquatic species in ballast water discharged by ships.

iv. Develop, with Transport Canada's participation, proposed changes to legislation to control or prevent the introduction of invasive aquatic species. (This should be done in consultation with the United States to ensure co-ordinated action.)

Fisheries and Oceans' response

i. Agree. Fisheries and Oceans agrees that this is a serious issue that requires further attention and the Department is currently working to identify issues such as exotic species and ballast water by leading a federal initiative to fund a ballast water control/treatment program in collaboration with Transport Canada and Environment Canada.

ii. Agree. Fisheries and Oceans believes prevention is the best approach to controlling exotic species. Determination of significant risk will be made on the basis of scientific assessment, and funding will be sought to implement any necessary action plans.

iii. Agree. Fisheries and Oceans is a co-author with the United States Coast Guard and Transport Canada of the last three biennial reports to the International Joint Commission on Great Lakes Water Quality, identifying exotic species as a significant risk to the Great Lakes. Fisheries and Oceans has also participated in the development of the Binational Research Strategy

and the Ballast Water Management Policy of the Aquatic Nuisance Species Task Force. Alternative methods of preventing the release of invasive aquatic species in ballast water include exchange zone areas, development of identifying and monitoring technology, and studies regarding foreign ships with no ballast on board.

iv. Agree. Transport Canada, Fisheries and Oceans, and the United States Coast Guard convened a Ballast Water Working Group as part of the Great Lakes Waterways Management Forum to make recommendations on proposed regulatory action. Transport Canada and Fisheries and Oceans are members of the Canadian Marine Advisory Council (CMAC) National Ballast Water Working Group and act as Co-Chairs of the Great Lakes/St. Lawrence CMAC Regional Ballast Water Working Group. Both forums have addressed specific agenda items with regard to proposed regulations. In regard to regulatory action under the Canada Shipping Act, *drafting instructions were provided to the Department of Justice in July 2001 for ballast water for ships entering the Great Lakes/St. Lawrence system.*

Transport Canada's response

iv. Agree.

178. Recommendation. Fisheries and Oceans should do the following to ensure that it has the scientific information it needs to carry out its mandate in the basin:

i. Clarify its responsibilities for research.

ii. Develop a strategy to guide its research activities and its acquisition of information from others.

iii. Ensure that it has adequate and stable research funding commensurate with its needs for scientific information.

Fisheries and Oceans' response

i. Agree. Fisheries and Oceans will take the recommendation into consideration while identifying priorities for research to be undertaken by Fisheries and Oceans and by the provinces through the Canadian Council of Fisheries and Aquaculture Ministers. Specific activities will be further defined by the Canada–Ontario Subsidiary Science Agreement under the Canada–Ontario Fisheries Agreement.

ii. Agree. Fisheries and Oceans has developed documents that together serve as a strategy to address the need for scientific research and related activities. Fisheries and Oceans has mechanisms in place to co-ordinate efforts in science activities to address other high-priority issues such as species at risk, aquatic nuisance species, fisheries management in freshwater, impact of toxic contaminants, and climate change, in many cases involving U.S. federal and state governments and multi-federal, multi-provincial agencies. Fisheries and Oceans will continue to work with provinces and other sources of scientific information (universities, private sector, etc.) to ensure that such information is available and used to assess ongoing scientific activities and to set priorities for these, taking into account available funding.

iii. Fisheries and Oceans will continue efforts to ensure that priority science activities are adequately funded, and submissions for funding in support of new requirements will be prepared and presented as appropriate.

179. Recommendation. Fisheries and Oceans should establish stable funding to support the Great Lakes Fishery Commission. The Department should review its past performance and determine how it can participate most effectively in the Commission's activities.

Fisheries and Oceans' response

The Department agrees that funding to support the Great Lakes Fishery Commission is important. Fisheries and Oceans already provides funding to the Great Lakes Fishery Commission for research and administration, with the primary role of facilitating control of sea lamprey by co-ordinating a program between Canada and the United States. The Great Lakes Fishery Commission also received funding from the U.S.

Ecosystem initiatives in the basin

What we recommend

180. Our findings suggest the need to provide clear and specific descriptions of federal roles, actions, and accountabilities; report better how program results contribute to improving the environment; and co-ordinate activities better across the basin.

181. Recommendation. Environment Canada, possibly in collaboration with its partners, should develop and adopt key common indicators of the state of the environment in the basin. It should also use program performance indicators to report publicly how the results of the renewed Great Lakes 2020 program and St. Lawrence Vision 2000 contribute to environmental changes.

Environment Canada's response

Agree. Since 1997, Environment Canada has worked with its federal and provincial partners in developing and implementing ecosystem health indicators to assess the state and the evolution of the Great Lakes and the St. Lawrence River environment. While these programs were put in place independently in the two regions, they do share some common indicators, recognizing that the environmental characteristics of the two sections of the basin impose limitations on the use of the same biological species or physical variables. Both the Great Lakes and the St. Lawrence initiatives aim to improve the identification and integration of the common indicators in the basin. The Great Lakes basin indicators reported through the biennial State of the Lakes Ecosystem Conference, as well as those defined in the newly developed St. Lawrence ecosystem monitoring program, will be reviewed in order to optimize their integration.

Parks Canada Agency's response

Agree. The Parks Canada Agency will work with other federal departments to clearly identify federal roles, actions, and accountabilities and to better report on how program results contribute to improving the environment. The Parks Canada Agency will continue to participate in co-ordinated activities across the basin in

support of its mandated requirements. The Parks Canada Agency will participate in the development of common indicators of the state of the environment in the basin.

182. Recommendation. Before they measure changes in the environment, Environment Canada and its partners should allocate enough permanent resources to monitor the state of the environment in the basin.

Environment Canada's response

Agree. Environment Canada is currently reviewing its monitoring programs nationally to ensure that resources dedicated to monitoring activities provide maximum return on investment, and to identify gaps in monitoring activities should they exist. Under the COA Annex on Monitoring and Information Management, the eight federal departments and three Ontario ministries will regularly review current and emerging monitoring needs in relation to existing programs, and work co-operatively to address gaps where possible.

Parks Canada Agency's response

Agree. The Parks Canada Agency is currently delivering on programs through its existing A-Base.

183. Recommendation. Environment Canada should ensure that Great Lakes 2020 and a renewed Canada–Ontario Agreement clearly identify the respective roles and responsibilities of the federal departments and provincial ministries and the resources needed to carry them out.

Environment Canada's response

Agree. In the new Canada–Ontario Agreement, the five-year commitments of the federal and provincial governments will be clearly identified. Resources are not included in this Agreement. Five-year work plans, which will be prepared for each annex and updated annually, will reflect activities of the federal and provincial governments that are resourced, including those of the federal departments falling under the Great Lakes 2020 program.

Parks Canada Agency's response

Agree. The Parks Canada Agency will work with Environment Canada to clearly identify its role in the Great Lakes 2020 program and a renewed Canada–Ontario Agreement.

184. Recommendation. In the renewed Great Lakes 2020 program, Environment Canada should report the spending of each federal partner at least every two years, and relate the spending to the results achieved.

Environment Canada's response

Agree. Environment Canada is developing a memorandum of understanding with its federal partner departments that defines the roles and responsibilities of individual departments. One of the key elements of each memorandum of understanding is reporting, and departments will be asked to commit to provide information on annual progress, achievements, and spending. This reporting will be

in accordance with formats, mechanisms, and schedules established by the Great Lakes 2020 program management committees.

Parks Canada Agency's response

Agree. Each department or agency will have to report on its own allocations, expenditures, and results as they relate to approved goals and objectives for the department or agency.

The International Joint Commission

What we recommend

185. Our findings show the need to provide the International Joint Commission with better and more timely information, follow up on the Commission's recommendations, and ensure adequate resources.

186. **Recommendation.** The federal government, through the Department of Foreign Affairs and International Trade and with the support of Environment Canada and all other federal departments participating in the Great Lakes ecosystem program, and other partners as required, should comprehensively review Canada's progress under the Great Lakes Water Quality Agreement and report this to the International Joint Commission as the Agreement requires.

Department of Foreign Affairs and International Trade and Environment Canada joint response

Agree. The federal government, in consultation with the United States federal government and the International Joint Commission, is currently reviewing the reporting requirements and practices under the Great Lakes Water Quality Agreement, with a view to improving linkages to the requirements of the Agreement and ensuring that Canada's water quality reporting is comprehensive.

187. **Recommendation.**The Department of Foreign Affairs and International Trade should establish a formal means to ensure the systematic consideration and follow-up of the Commission's recommendations.

Department of Foreign Affairs and International Trade's response

Agree. The Department of Foreign Affairs and International Trade recognizes that past procedures regarding the development of responses to Commission recommendations under the Great Lakes Water Quality Agreement have been sometimes ad hoc and informal. The Department will work with other federal departments to ensure that a more formal, transparent, timely, and co-ordinated process is established for the purpose of assessing and responding to recommendations submitted by the Commission.

188. **Recommendation.** Before the Department of Foreign Affairs and International Trade refers an issue to the Commission, it should ensure that the federal government can deliver the needed funds without delay.

Department of Foreign Affairs and International Trade's response

Agree. Either country may engage the International Joint Commission pursuant to the 1909 Boundary Waters Treaty to investigate and report on questions or matters of difference along the boundary. This is known as the reference function. Depending on the nature of the issue before the governments of Canada and the United States, the need to resolve these questions or differences through a reference could evolve over time or may be immediate. The Department of Foreign Affairs and International Trade agrees that when the need for a reference evolves over time, adequate funds should be allocated by the Government of Canada before proceeding with a reference. However, in instances where a prompt decision is required to initiate a reference in order to address an immediate bilateral concern, the full appropriation of funds before proceeding with a reference may not always be feasible.

Therefore, recognizing that references are an important means of addressing environmental issues in an independent and impartial manner, and recognizing that federal departments do not receive annual appropriations for undertaking references, the Department of Foreign Affairs and International Trade is assessing the nature of how Canada funds references in partnership with other departments. From this assessment, the Department will work to develop appropriate solutions to ensure that the Commission has the capacity to adequately address issues as and when they arise.