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Report of the
**Commissioner of the
Environment and
Sustainable Development**
to the House of Commons

FALL

Chapter 1
Oil Spills from Ships



Office of the Auditor General of Canada

The Fall 2010 Report of the Commissioner of the Environment and Sustainable Development comprises The Commissioner's Perspective, Main Points—Chapters 1 to 3, an appendix, and four chapters. The main table of contents for the Report is found at the end of this publication.

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Chapter

1

Oil Spills from Ships

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Oil Spills from Ships

Main Points

What we examined

Under federal legislation and international agreements, the federal government is responsible for implementing measures to prevent, detect, prepare for, and respond to spills from ships in Canada's marine environment. Transport Canada sets guidelines and establishes the regulatory framework for preparedness and response to ship-source spills. Transport Canada also certifies private sector response organizations. The Canadian Coast Guard is the lead federal agency for responding to spills and is responsible for ensuring an appropriate response takes place. Environment Canada is the federal authority for providing environmental advice when a spill happens.

Between 2007 and 2009, a total of about 4,160 pollution incidents involving spills of oil, chemicals, or other pollutants into Canadian waters were reported to the Canadian Coast Guard. About 2,000 of these incidents involved vessels ranging from pleasure craft and fishing boats to barges, cargo vessels, and tankers.

We examined how the federal government has managed spills of oil and chemicals from ships in Canada's Arctic, Pacific, and Atlantic Ocean waters and the Gulf of the St. Lawrence. Specifically, we looked at whether Transport Canada, the Canadian Coast Guard, and Environment Canada are prepared to respond to such spills. We also looked at how the three organizations monitor and assess responses to these spills. We focused on oil and chemical spills from ships and did not address other land-based and marine-based sources of pollutants.

Audit work for this chapter was substantially completed on 30 June 2010.

Why it's important

Bordered by three major oceans and home to the world's longest coastline, Canada is the steward of ocean regions that cover more than 7.1 million km², an area equivalent to about 78 percent of its landmass. Canada's ocean regions are a vital part of the country's economy, providing employment and a way of life for about seven million people. Oceans support activities such as aquaculture

and fisheries, tourism and recreation, shipping and transportation, offshore oil and gas development, and offshore mining.

Oceans also provide habitat for a variety of wildlife, including numerous species of fish, shellfish, seabirds, and mammals, all of which contribute to the economic, social, and environmental well-being of Canadians. Ship-source spills of pollutants such as oil and other hazardous substances are one of several sources of marine pollution.

What we found

- While Transport Canada and the Canadian Coast Guard have carried out risk assessments related to oil spills from ships, they have not used a consistent or systematic approach, nor are there formal processes for ensuring that risks are reassessed on an ongoing basis. As a result, knowledge of risks in Canada to spills from ships, which is important for effective emergency planning, is not complete or up to date. Furthermore, the emergency management plans of the Canadian Coast Guard and Environment Canada—both important players in the federal oil spill response system—are not all up to date.
- Transport Canada reviews private sector certified response organizations to verify that they remain ready to respond to spills. This includes ensuring that these organizations have up-to-date emergency management plans, conduct adequate training and exercises, and have the equipment necessary to respond to ship-source oil spills up to 10,000 tonnes. Similar procedures are not in place to verify the Canadian Coast Guard’s readiness. In other words, there is currently no process for providing assurance that the federal component of the oil spill response system is ready to respond effectively.
- The Coast Guard has not conducted a comprehensive assessment of its response capacity since 2000. Given the lack of any recent capacity analysis and current information on risks, the Coast Guard is unable to determine how much oil spill response equipment it should have and whether it has appropriate capacity to address the risks.
- The results of the Coast Guard’s response efforts—which range from identifying the source of pollution to full cleanup—are poorly documented. There are also limitations with the Coast Guard’s system for tracking oil spills and other marine pollution incidents. These gaps affect its ability to conduct reliable analysis of trends in spills and know how well it is achieving its objectives of minimizing the environmental, economic, and public safety impacts of marine pollution incidents.

- A public review panel recommended 20 years ago that the federal government establish a national regime to deal with ship-source chemical spills. Such a regime is not yet in place, and none is expected before 2013. In the meantime, Canada lacks a formal framework with clearly defined roles and responsibilities for responding to chemical spills.

The entities have responded. The entities agree with all of our recommendations. Their detailed responses follow the recommendations throughout the chapter.

Introduction

Impacts of oil and chemical spills

1.1 Oil spills. Marine ship-source oil spills can have significant impacts on both the environment and local coastal communities. Spills can occur as a result of accidents or operations, or from the intentional discharge of oily wastes into the water. Ships and vessels involved in spills can include oil tankers, bulk carriers, barges, fishing vessels, and pleasure craft.

1.2 Spills can range from large quantities of oil from oil tankers to smaller accidental discharges of oil and fuel from smaller craft in marinas. Some of the most serious oil spills result from accidents involving oil tankers, including the *Prestige* (63,000 tonnes of heavy fuel oil; Spain, 2002), the *Erika* (20,000 tonnes of heavy fuel oil; France, 1999), and the *Exxon Valdez* (41,000 tonnes of crude oil; Alaska, 1989). Although Canada has not encountered spills of the magnitude of the *Exxon Valdez*, it has experienced ship-source oil spills in the past: the *Arrow* (10,000 tonnes of bunker fuel; Nova Scotia, 1970), the *Golden Robin* (400 tonnes of bunker fuel; Baie-des-Chaleurs, Quebec, 1974), and the *Kurdistan* (8,000 tonnes of bunker fuel; Cabot Strait between Cape Breton Island and Newfoundland, 1979).

1.3 Ship-source oil spills can have immediate and long-term impacts on

- marine life (for example, seabirds and whales) and habitat (for example, wetlands and marshes);
- recreational activities such as boating, swimming, and fishing;
- economic activities such as tourism, commercial fishing, and aquaculture; and
- human welfare such as public anxiety over lost livelihoods.

1.4 Within Canada, maritime shipping is an important part of the economy, and increases in vessel traffic may bring a greater risk of oil spills that could damage the marine environment. Between 2007 and 2009, a total of about 4,160 pollution incidents from across Canada were reported to the Canadian Coast Guard, of which about 1,580 involved oil spills from ships. Although Canada has not experienced spills of the magnitude of the *Exxon Valdez*, the size of the spill is not the only important factor in determining the significance of a spill; where a spill occurs is also important.

Tonne—The equivalent of about 1,100 litres or about 7 barrels of oil (this may vary depending on the type and density of the oil).

For example, smaller-scale spills can have important impacts, especially in ecologically sensitive areas.

1.5 Canada's ocean regions total more than 7.1 million square kilometres—an area equivalent to about 78 percent of Canada's landmass. With the world's longest coastline of about 244,000 kilometres, Canada's coastal waters are ecologically diverse and rich in marine resources, and include numerous species of fish, shellfish, seabirds, and mammals, which contribute to our economic, social, and environmental well-being. The consequences of a ship-source oil spill in some of these waters could be extremely serious. A good example is the fragile Arctic, where extreme cold and ice conditions, coupled with geographic isolation, may impede recovery from an oil spill for many years.

Arctic Council—A high-level intergovernmental forum that provides a means for promoting cooperation, coordination, and interaction among the Arctic states on common Arctic issues—in particular, issues of sustainable development and environmental protection in the Arctic. Member states are Canada, Denmark (including Greenland and the Faroe Islands), Finland, Iceland, Norway, the Russian Federation, Sweden, and the United States of America.

1.6 The **Arctic Council** in 2009 published the Arctic Marine Shipping Assessment. The assessment highlighted that the Northwest Passage is not expected to become a viable transarctic route through 2020. Nonetheless, regional shipping within the Canadian Arctic (conducted for community resupply, natural resource development, or tourism) is anticipated to increase. The assessment noted that there is a general lack of marine infrastructure in the Arctic, including a lack of hydrographic, oceanographic, and meteorological data critical to safe navigation, and that, except in limited areas, there is a lack of emergency response capacity for pollution mitigation. The assessment also noted that there are serious limitations to communications and few systems to monitor or control the movement of ships. The assessment concluded that these deficiencies, coupled with the vastness and harshness of the environment, make conducting emergency responses significantly more difficult in the Arctic.

Hazardous and noxious substance—According to the Protocol on Preparedness, Response and Co-operation to Pollution Incidents by Hazardous and Noxious Substances, a substance other than oil that, if introduced into the marine environment, is likely to create hazards to human health, to harm living resources and marine life, to damage amenities, or to interfere with other legitimate uses of the sea.

1.7 Chemical spills. Certain chemicals, referred to as **hazardous and noxious substances**, are also transported by ship within Canada. Similar to oil, these substances spilling into the marine environment can have significant impacts on both the environment and local coastal communities. Between 2007 and 2009, about 30 pollution incidents involving chemical spills from vessels were reported to the Canadian Coast Guard. Although spills involving hazardous and noxious substances are much less frequent than oil spills, according to Transport Canada, the volume of hazardous and noxious substances transported in Canadian waters poses a risk that an incident involving these substances could occur. Because many of the properties of hazardous and noxious substances are different from oil, response plans designed for oil spills are ineffective for these substances.

Roles and responsibilities

1.8 Canada has a marine pollution preparedness and response system for ships that contains two equally important components: Canada's Marine Oil Spill Preparedness and Response Regime (which is regulated by Transport Canada), and the Government of Canada's operational response capacity, contained within the Canadian Coast Guard (part of Fisheries and Oceans Canada).

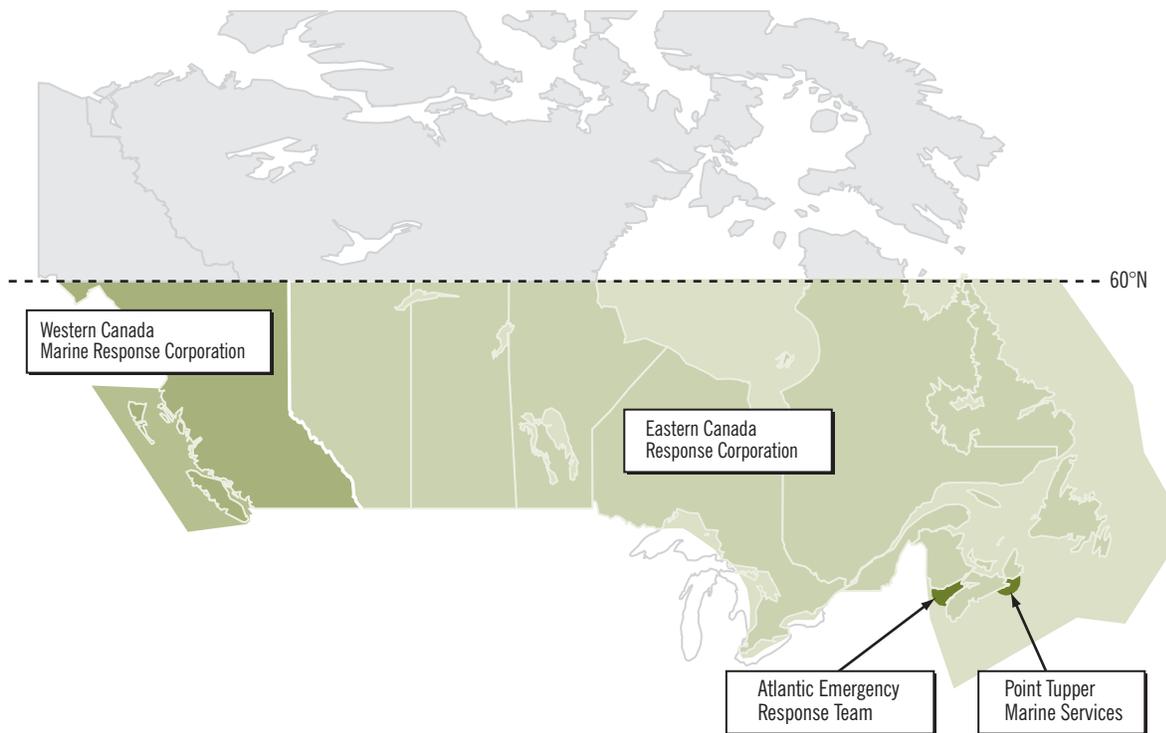
1.9 Canada's Marine Oil Spill Preparedness and Response Regime. In 1989, in response to growing public concern following the *Exxon Valdez* spill, the federal government established the Public Review Panel on Tanker Safety and Marine Spills Response Capability. Following the Panel's report in 1990 (Protecting our Waters: Final Report, known as the Brander-Smith Report), Canada's Marine Oil Spill Preparedness and Response Regime was established in 1995.

1.10 The Regime, which deals with ship-source oil spills, was developed in partnership with industry and is based on the principle that polluters are responsible for paying for damages caused by a spill (known as the polluter pays principle). Industry plays a key role in the regime. South of 60° N latitude, industry funds four private response organizations that maintain the capacity to respond to spills of up to 10,000 tonnes. This capacity can be bolstered by transferring (also referred to as cascading) resources from across the country as needed. Response organizations are certified by Transport Canada to ensure that the capacity to respond to different sizes of ship-source oil spills is maintained (Exhibit 1.1). Approximately 4,000 arrangements are currently in place between ships and one or more of the four certified response organizations in Canada. There are no certified response organizations north of 60° N latitude (Exhibit 1.2).

Exhibit 1.1 Response time requirements for certified response organizations

Quantity of oil spill	Response time requirements
150 tonnes	6 hours (for equipment to be deployed on-site)
1,000 tonnes	12 hours (for equipment to be deployed on-site)
2,500 tonnes	18 hours (for equipment to be on-site)
10,000 tonnes	72 hours (for equipment to be on-site)

Source: Marine Oil Spill Preparedness and Response Regime Report to Parliament, Transport Canada, 2004–2006

Exhibit 1.2 Areas covered by certified response organizations

Source: Adapted from Marine Oil Spill Preparedness and Response Regime Report to Parliament, Transport Canada, 2004–2006

1.11 Transport Canada. Transport Canada is the lead regulatory agency for the Regime. The Department sets guidelines and establishes the regulatory framework for preparedness and response to ship-source oil spills and is responsible for ensuring that the appropriate level of preparedness is available to combat these spills in waters under Canadian jurisdiction. Transport Canada also certifies the private sector response organizations.

1.12 Apart from the Regime, the Department is also responsible for setting guidelines and establishing the regulatory framework for ship-source spills of hazardous and noxious substances into Canada's marine environment. Transport Canada is also responsible for carrying out activities related to the prevention of pollution, such as inspections of Canadian and foreign ships in Canadian waters for compliance with environmental regulations and standards. This includes the inspection of all foreign tankers at first call and every 12 months thereafter as part of the Canadian tanker inspection program as per recommendations from the 1990 Brander-Smith Report. As well, the Department is the lead agency for decisions related to ships needing assistance and

requesting a place of refuge (a place where a vessel in need of assistance can be taken for safety and to minimize the impact on the environment).

1.13 Canadian Coast Guard. Fisheries and Oceans Canada's Canadian Coast Guard is the lead federal agency responsible for ensuring an appropriate response to ship-source spills in Canada. The objectives of the Coast Guard's Environmental Response Program are to minimize the environmental, economic, and public safety impacts of marine pollution incidents, including ship-source oil and chemical spills. The Coast Guard fulfills this role by acting as either

- the federal monitoring officer, by monitoring the polluter's response to spills (in this case, the polluter must ensure that damage to Canada's marine environment is minimized and must respond directly or with the assistance of a certified response organization); or
- the on-scene commander, by managing the response to spills. If the polluter is unknown or is unwilling or unable to take on all or some response obligations; declines to continue the management of the response; or responds in a manner that, in the opinion of the Coast Guard, is inadequate, the Coast Guard assumes the management of the pollution incident. This can include the Coast Guard taking cleanup measures itself, or directing a vessel or any person to take actions the Coast Guard considers necessary to repair, remedy, minimize, or prevent pollution damage.

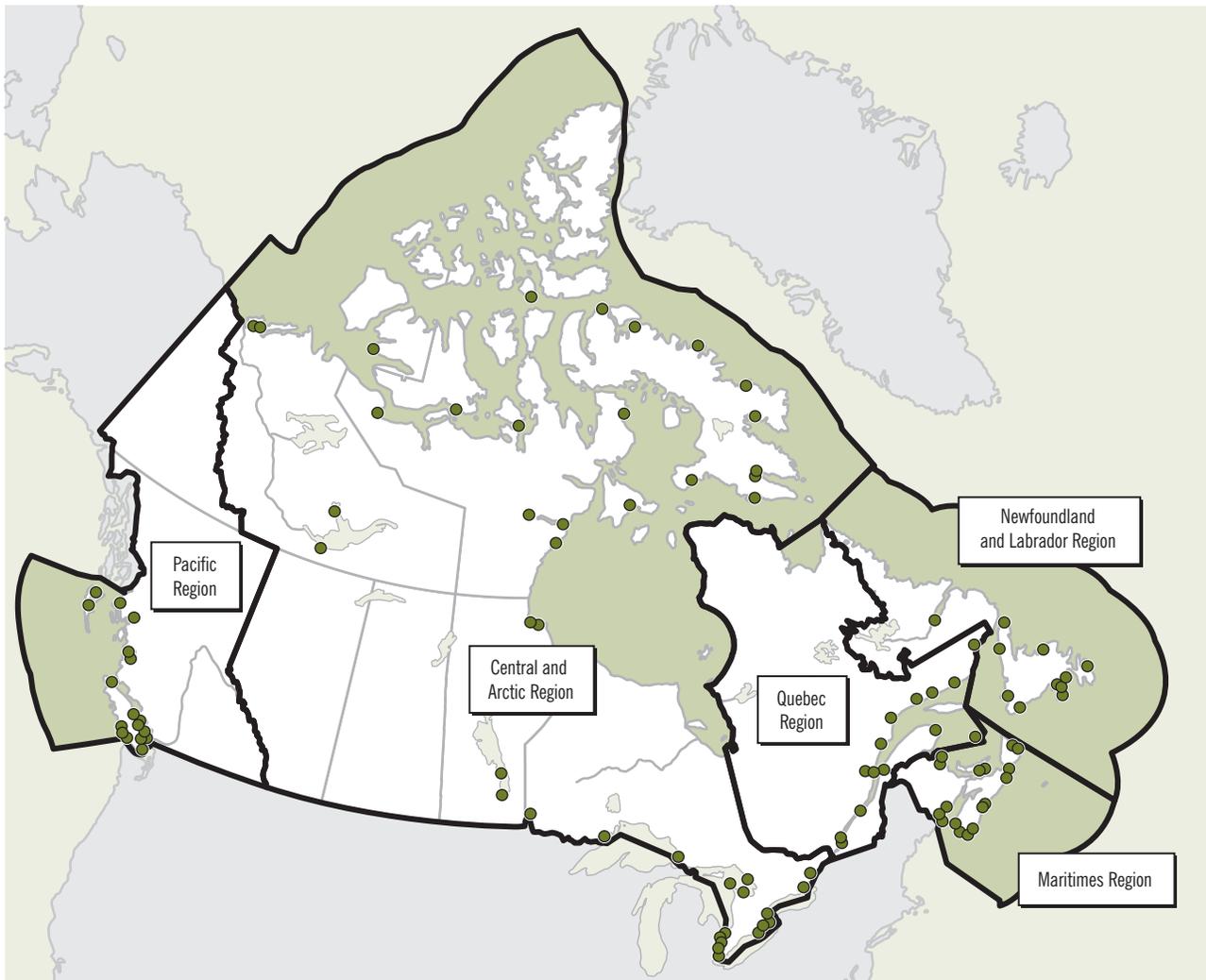
1.14 The Coast Guard may also act as a resource agency. For example, organizations such as provincial government ministries and offshore drilling operators may call on the Coast Guard to obtain their advice and/or equipment in the case of an oil spill.

1.15 To help fulfill its roles as on-scene commander and resource agency, the Canadian Coast Guard maintains depots of equipment at various locations across the country (Exhibit 1.3). We note that the Coast Guard's preparedness costs are not directly paid by industry but rather are supported by the Government of Canada and mandated under the *Oceans Act* and the *Canada Shipping Act, 2001*. The Coast Guard can, however, recover costs incurred during an oil spill response operation from the owner of the ship responsible for the spill, Canada's Ship-source Oil Pollution Fund, or the International Oil Pollution Compensation Fund.

1.16 Environment Canada. Environment Canada is the federal authority for providing environmental advice during a ship-source oil or chemical spill. The Department is responsible for establishing and

coordinating multi-stakeholder Regional Environmental Emergencies Teams (REET) composed of representatives from the federal, provincial, and territorial governments; industry; and other organizations in a region, such as Aboriginal groups. During a marine pollution incident, Environment Canada would support those involved by providing expert environmental advice directly, or through the Regional Environmental Emergencies Teams, particularly with respect to environmental priorities, resources at risk, and the most appropriate cleanup countermeasures. It would also provide advice on ways to reduce the impact on the environment, modelling of spill trajectories, marine weather warnings and forecasts, and the location of wildlife and sensitive ecosystems.

Exhibit 1.3 Location of Canadian Coast Guard equipment depots



Source: Adapted from Canadian Coast Guard documentation

Managing ship-source oil and chemical spills

1.17 Managing ship-source oil and chemical spills can be divided into the following phases: prevention, detection, preparedness, and response. Each phase is briefly described below.

1.18 Prevention. Pollution prevention includes any activity geared toward eliminating or reducing ship-source oil and chemical spills, which includes the enactment and enforcement of relevant legislation and regulations. Regulations under the *Canada Shipping Act, 2001* and the *Arctic Waters Pollution Prevention Act* set discharge limits for a variety of marine pollutants and require Canadian and foreign ships in Canadian waters to meet specified construction, equipment, reporting, and operational standards in order to prevent and control pollution. Likewise, the *Migratory Birds Convention Act, 1994* prohibits discharges from vessels into waters frequented by migratory birds, while the *Fisheries Act* prohibits the deposit of deleterious or harmful substances into waters frequented by fish. Transport Canada and Environment Canada are responsible for ensuring that spills from ships are prevented by promoting and enforcing compliance with actions such as ship inspections and prosecution of offenders.

1.19 Marine services can help improve the safety of marine transportation and prevent accidents and subsequent ship-source spills. For example, within the Canadian Coast Guard, Marine Communications and Traffic Services broadcasts information such as weather bulletins and ice information and regulates vessel traffic movement, which can reduce the probability of ships being involved in accidents. Another example of prevention is the requirement (since 1 January 2010) that tankers greater than 5,000 gross tonnes have a double hull, as per the International Maritime Organization's International Convention for the Prevention of Pollution from Ships. This design is considered to be more effective than single hull tankers in preventing pollution in the event of accidental grounding or collision.

1.20 Detection. Despite pollution prevention efforts, ship-source oil spills may occur. Internationally, aerial surveillance is widely adopted and considered to be an effective method for detecting oil spills. Transport Canada operates the National Aerial Surveillance Program for detecting oil spills at sea. Through partnership with Environment Canada's Canadian Ice Service, Transport Canada has created a Marine Aerial Reconnaissance Team. Since 2006, new technology allows Transport Canada's three surveillance aircraft to cover a much broader area than before, day or night, and in more challenging weather conditions.

1.21 Preparedness. Having emergency management plans in place, informed by an up-to-date knowledge of risks regarding ship-source spills and supported by training, exercises, and appropriate spill response equipment, are important aspects of being prepared to respond to ship-source oil and chemical spills.

1.22 Response. When a spill does occur, it is important to respond appropriately to minimize environmental and socio-economic impacts. Response activities can include containment and recovery of the pollutant, shoreline cleanup, and wildlife recovery, and can involve local communities, provincial governments, and international cooperation efforts. The specific response should be appropriate to the location, size, and nature of the incident. If necessary, environmental response equipment of certified response organizations and the Canadian Coast Guard may be transferred from across the country to respond to a marine pollution event, including oil spills from ships.

Focus of the audit

1.23 The audit focused on preparedness and response; we did not examine prevention or detection activities. We assessed whether Transport Canada, the Canadian Coast Guard, and Environment Canada have plans, systems, or protocols in place to prepare for and respond to ship-source oil and chemical spills. The three federal organizations were selected because of their roles and responsibilities in preparing for and responding to these types of spills. Other land- and marine-based sources of pollutants were not addressed in this audit. We did not examine preparedness and response activities related to offshore drilling, port authorities, or oil-handling facilities.

1.24 More details about the audit objectives, scope, approach, and criteria are in **About the Audit** at the end of this chapter.

Observations and Recommendations

Preparing for ship-source oil spills

1.25 While the ideal is to prevent ship-source oil spills from occurring in the first place, the federal government needs to be prepared to react should a spill occur. The *Emergency Management Act* requires that all federal ministers identify the risks that are within or related to their areas of responsibility; prepare emergency management plans based on those risks; maintain, test, and implement those plans; and conduct training and exercises related to those plans. We examined

whether Transport Canada, the Canadian Coast Guard, and Environment Canada were meeting these requirements in the *Emergency Management Act*.

Some risk assessments need updating

1.26 Risk assessments are important for determining the most likely location of potential ship-source oil spills, the likelihood of different sizes of spills occurring, and the potential impacts and consequences of spills. Risk assessments can provide the basis upon which appropriate prevention, mitigation, and preparedness measures can be planned. Conducting risk assessments and defining risk tolerance levels are also useful for informing decisions on the levels of resources required for responding to a spill (for example, spill response equipment) and where these resources should be located. Risk assessments also provide an opportunity for engaging local communities and informing them of the risks present in their environment resulting from oil shipments.

1.27 Transport Canada and the Canadian Coast Guard have conducted risk assessments regarding ship-source oil spills. These include two conducted for Transport Canada: an oil spill risk assessment for the south coast of Newfoundland (2007) and a risk assessment study of oil transportation on the coast of British Columbia (2002). The Coast Guard also completed a risk assessment in 2000 as part of an analysis of response capacity in Canada and conducted an update on the probability of oil spills from tankers in 2002. A variety of factors were considered in these risk assessments, such as shipping patterns and trends, types and amounts of oil shipped, and the likelihood of spills. In addition, some of the Coast Guard's regional emergency plans discuss risks. A good example of this planning is the Coast Guard's Central and Arctic Region, which analyzed risks in the North to help determine where to locate spill response equipment.

1.28 Transport Canada also conducts risk assessments as part of the Technical Review Process of Marine Terminal Systems and Transshipment Sites (TERMPOL Review Process). A voluntary process, TERMPOL examines risks and mitigation factors for proposed shipping activities in ports involved in the bulk carriage of oil, chemicals, or liquefied gas.

1.29 In 2009, the international Arctic Council released the Arctic Marine Shipping Assessment. The assessment included an analysis of the potential impacts of shipping in Canada's Arctic. Both Transport Canada and the Canadian Coast Guard were involved in developing the assessment.

1.30 An up-to-date and consistent baseline of risks is important for planning for emergencies, informing investment decisions regarding response equipment, and assessing whether the existing capacity of the oil spill response regime is appropriate. We found that while risk assessments related to ship-source oil spills have been conducted, the approaches to conducting these assessments have not been consistent or systematic, nor are there formal processes for ensuring that risks are being reassessed on an ongoing basis. As a result, the knowledge of risks for ship-source oil spills in Canada is not complete or up to date.

1.31 Risk factors that can influence the likelihood and impact of ship-source oil spills may change over time. Such factors can include the implementation of preventative measures, changes in shipping patterns, changes in the types and amounts of oil shipped, trends related to shipping accidents and oil spills, and coastal developments. As a result, it is important that risk factors be reassessed on an ongoing basis and that emergency management plans be adjusted as required.

1.32 Recommendation. Building on the risk assessments conducted to date, Transport Canada and the Canadian Coast Guard should conduct a risk assessment related to ship-source oil spills covering Canada's three coasts. The risk assessment should be conducted in consultation with Environment Canada and the shipping industry. Transport Canada and the Canadian Coast Guard should put in place processes so that risks are reviewed on an ongoing basis and the risk assessment is updated as required. The Canadian Coast Guard should ensure that the risk assessment considers the three roles that it plays (federal monitoring officer, on-scene commander, and resource agency).

Environment Canada's response. Agreed. The Department will assist Transport Canada and the Canadian Coast Guard by providing scientific expertise and knowledge.

Canadian Coast Guard's response. Agreed. The Canadian Coast Guard will work with Transport Canada to establish a framework facilitating the undertaking of risk assessment related to ship-source oil spills off Canada's three coasts.

Transport Canada's response. Agreed. Transport Canada has undertaken talks with the Canadian Coast Guard and Environment Canada with a view to reviewing Canada's national oil spill response regime. We will build on risk assessments of ship-source oil spill preparedness and response regimes of all Canadian waters, including

the three coasts. Scoping of this risk assessment will commence this year and be completed by the end of 2011–12.

Emergency management plans are not all up to date

1.33 Ship-source oil spills will likely continue to occur and affect local environments and economies. Emergency plans are important for decision-making authorities in directing response efforts, outlining response procedures, and identifying requirements for equipment and training and exercises. Up-to-date plans facilitate coordinated responses aimed at mitigating and minimizing the impacts of oil spills. The *Emergency Management Act* requires that all federal ministers prepare emergency management plans within their respective areas of responsibility. We found that the departmental emergency management plans for the Canadian Coast Guard (1998) and Environment Canada (1999) are out of date.

1.34 In June 2010, Transport Canada released a plan and a policy for preparedness and response in relation to Canada's Marine Oil Spill Preparedness and Response Regime. We found that Transport Canada's plan outlines roles and responsibilities of all parties in the event of a marine incident, including Transport Canada, the Canadian Coast Guard, Environment Canada, private sector certified response organizations, ships, and oil-handling facilities. The plan's purpose is to establish the national preparedness capacity of Canada's Marine Oil Spill Preparedness and Response Regime. However, the plan does not contain information on the state and expected levels of the preparedness relative to risks, or on mechanisms to ensure an adequate response, and therefore the plan does not fulfill its own purpose, which is to establish Canada's national preparedness capacity.

1.35 The Canadian Coast Guard's emergency management plan (called the Marine Spills Contingency Plan) dates back to 1998. Since the release of this plan, significant legislative and administrative changes have occurred that are not reflected in the plan. For example, in December 2003, several sections of the *Canada Shipping Act, 2001*, including some policy and all regulatory responsibilities for pollution prevention, were transferred from Fisheries and Oceans Canada to Transport Canada. Other changes include revisions to the *Canada Shipping Act* in 2001 and the enactment of the *Emergency Management Act* in 2007.

1.36 The Coast Guard's plan defines the scope and framework within which it will operate to ensure a response to marine pollution incidents. However, it does not contain an up-to-date response model and related

Major incident—According to the Canadian Coast Guard, a ship-source marine pollution incident that, due to its magnitude, complexity, and/or composition, has the potential to cause significant environmental, economic, public safety, and/or social impacts for which extraordinary coordination of resources and response efforts may be required.

procedures that would be used to manage the Coast Guard's response to a **major incident**. Nor does the plan mention Public Safety Canada, which could play an important coordinating role in the event of a significant incident.

1.37 The various Coast Guard regions have also prepared emergency management plans. Some of these plans have been recently updated (Quebec in 2009 and Central and Arctic in 2008), while the remaining plans date back to 2004 or earlier (Newfoundland and Labrador, 2004; Maritimes, 2004; and Pacific, 2001). These plans are based on the Canadian Coast Guard's 1998 plan, but because they have been updated at different times, they are not consistent across regions.

1.38 Given the Canadian Coast Guard's role as the lead responder to ship-source oil spills, the lack of an up-to-date national emergency management plan and model for responding to a major incident presents risks to the Coast Guard's ability to effectively coordinate and oversee a response to a major incident. The Coast Guard recognizes that its plan needs updating and is developing a National Environmental Response Strategy that is expected to be in place by March 2011. The strategy is to be followed by the development of a national response policy and plan for directing its efforts, including those related to a major incident.

1.39 Environment Canada's main responsibility related to ship-source oil spill response is to support the Canadian Coast Guard by providing advice received from Regional Environmental Emergencies Teams and by providing expert advice on potential risks and ecologically sensitive areas as well as key physical, biological, and cultural resources. The Department's environmental emergencies plan was released in 1999 and has not been updated since. The Department's regional emergency plans and plans for Regional Environmental Emergencies Teams vary by region in their format and content, and in the date they were last updated.

1.40 Emergency management plans are evolving documents; as such, they require regular reviewing and updating to take into account policy; legislative, organizational, and technological changes; and experience and lessons learned from responding to incidents and conducting exercises. We note that in order to maintain their certification, response organizations are required to notify the Minister of Transport of all substantive changes to their emergency management plans immediately after they are made, and at least annually, to update their response plans.

1.41 Recommendation. The Canadian Coast Guard and Environment Canada should update their national emergency management plans and review and update their regional emergency management plans as necessary.

Environment Canada's response. Agreed. The Department will update these plans after completing its Strategic Emergency Management Plan (SEMP). The SEMP will provide an overall framework for the review and update of all of the Department's emergency plans, including the national and regional environmental emergencies management plans.

Canadian Coast Guard's response. Agreed. The Canadian Coast Guard is currently developing its National Environmental Response Strategy. This Strategy will be supplemented by the development of a national response policy and associated plans for directing Canadian Coast Guard efforts, including those related to a major incident. The Canadian Coast Guard will establish a periodic review process to ensure its national and regional emergency management plans remain accurate and relevant.

1.42 Recommendation. To ensure that emergency management plans remain up to date, Transport Canada, the Canadian Coast Guard, and Environment Canada should establish processes for reviewing their national and regional plans on a regular basis and updating them as required (for example, due to changes in risks, legislation, roles and responsibilities, and/or lessons learned from significant incidents or exercises).

Environment Canada's response. Agreed. As part of the development of the Strategic Emergency Management Plan (SEMP), the Department will include a maintenance section for the SEMP, which will establish the process for its review/update as well as that of its referenced documents (emergency management plans, business continuity plans, etc.).

Canadian Coast Guard's response. Agreed. The Canadian Coast Guard will establish a periodic review process to ensure its national and regional emergency management plans remain accurate and relevant.

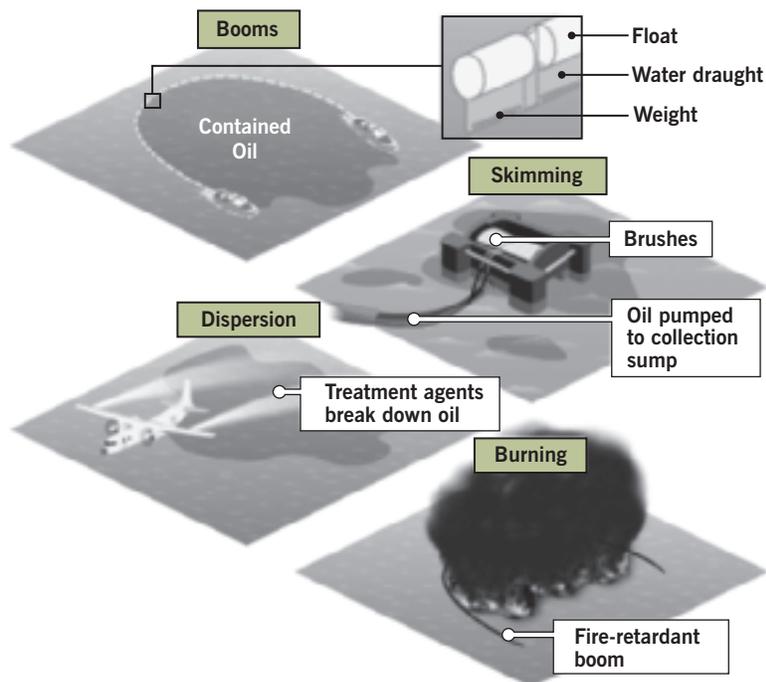
Transport Canada's response. Agreed. Transport Canada recognizes the need for up-to-date emergency management plans and, to this end, in 2010, updated its Environmental Prevention and Response National Preparedness Plan. Transport Canada will build on its current practice by reviewing and updating this plan annually.

The Canadian Coast Guard lacks a national approach to training, testing its plans, and maintaining its equipment

1.43 The *Emergency Management Act* requires that federal ministers conduct training and exercises as a means of testing their emergency management plans. Training and exercises are important for maintaining and testing readiness to respond to ship-source oil spills. Our examination focused on the Canadian Coast Guard, given its role as the federal government's lead responder. Factors such as the health and safety hazards that responders face when responding to an oil spill, the various techniques that can be adopted in cleaning up an oil spill (Exhibit 1.4), and the different types of equipment that can be used (booms, skimmers, absorbents, and treatment agents used to break down oil) make regular training and exercises important.

1.44 Training and exercises. The Canadian Coast Guard has committed to ensuring that its personnel dealing with ship-source oil spills are trained to function under a nationally consistent emergency management system. We found that training is being provided to Canadian Coast Guard personnel. However, the Coast Guard lacks an overall national training plan, and there are only two draft competency

Exhibit 1.4 Responders need to be familiar with the many techniques used to contain oil spills



Source: Adapted from BBC News documentation

profiles in place (for the federal monitoring officer and on-scene commander). Both a national training plan and competency profiles for all environmental response positions are important for outlining basic training requirements that need to be provided across regions and for ensuring that a nationally consistent training program is being delivered. As a result, training is delivered on an ad hoc basis across regions. While training that is tailored to the needs of individual regions is important, it is also important that staff from across regions have the same basic training to ensure a consistent response in the case of a major spill that requires multiple regions to respond.

1.45 In response to a recent (2010) internal audit of its Environmental Response Program, the Canadian Coast Guard has committed to taking several actions to help ensure that its employees receive the required training and that course content remains pertinent. In particular, the Agency has committed to developing competency profiles for all of the environmental response positions and functions that would be required to respond to a major pollution incident, a national training plan that defines training requirements, and a process for monitoring implementation of this plan. The target date for completing these actions is 31 March 2012.

1.46 Conducting exercises for responding to ship-source oil spills allows both government officials and other stakeholders, such as private sector certified response organizations, to test their response plans. Considered an essential element in the ongoing process of planning for ship-source oil spill response operations, these exercises allow for identifying gaps in responses, areas for improvement, and lessons learned. The exercises also foster continuous improvement and help organizations maintain their readiness for responding to oil spills. In the early 1990s, the Canadian Coast Guard developed a national exercise program that presented the principles, guidelines, and planning tools to be used in conducting oil spill response exercises. We note that the program has not been updated since it was first released.

Table-top exercise—A simulated paper-based exercise used to test the response capabilities of organizations.

1.47 In March 2010, the Coast Guard conducted a **table-top exercise** designed to test its ability to respond to a major oil spill of national significance. This exercise involved headquarters as well as selected regional staff. The exercise identified important lessons learned, including the Agency's lack of a response model and related procedures for responding to a major oil spill.

1.48 The Canadian Coast Guard also conducts exercises at the regional level, ranging from table-top exercises to on-the-ground exercises involving a variety of organizations. For example, it

participates on an ad hoc basis in exercises conducted by certified response organizations and in more formal joint exercises with the United States Coast Guard. However, except for the March 2010 table-top exercise, we found no evidence that inter-regional exercises are taking place. Inter-regional exercises are useful for testing the procedures necessary for transferring resources from one region to the next, or in areas where a spill may involve more than one region (for example, the Gulf of St. Lawrence, which involves three different administrative Coast Guard regions).

1.49 While the Canadian Coast Guard is conducting and participating in regional ship-source oil spill response exercises, Coast Guard headquarters does not have a process for overseeing exercises and cannot provide assurance that the Agency's regions are following and implementing its national exercise program. Furthermore, we found that the conduct, frequency, and documentation of exercises involving the Coast Guard varies, ranging from official post-exercise evaluation reports to notes prepared by the individual participating in an exercise. A database established to capture and share lessons learned and recommendations resulting from exercises is also no longer being supported or used; as a result, there is no consistent or systematic documenting of exercises or sharing of lessons learned.

1.50 Recommendation. The Canadian Coast Guard should update its program for conducting ship-source oil spill response exercises, including the type and frequency of exercises to be conducted (including inter-regional exercises), which organizations should be involved in the exercises, and requirements for documenting exercises. It should also establish procedures for ensuring that recommendations and lessons learned from these exercises are shared among regions and acted upon.

Canadian Coast Guard's response. Agreed. The Canadian Coast Guard is currently reviewing its program for response exercises, including ship-source oil response exercises, and will develop a revised exercise plan.

1.51 Management of response equipment. Having a consistent approach to managing response equipment can help the Coast Guard answer important asset management questions such as how well its equipment is functioning, how much equipment is beyond its useful life and at risk of failing, when equipment needs to be replaced, and whether there are cost-effective alternatives to replacing aging equipment.

1.52 To manage the life cycle of its oil spill response equipment, the Canadian Coast Guard relies on a system called the Integrated Response Capacity Management System. However, this system is not consistently used from region to region, and it has not been updated since the late 1990s. As a result, the Coast Guard's life-cycle management of its equipment is not consistent, making current and reliable information on its equipment difficult to obtain. The Coast Guard recognizes that it needs to improve the management of its equipment. It has committed to implementing a nationally consistent life-cycle management approach, assessing its current inventory of equipment to determine if assets are appropriate, and developing an integrated investment plan.

1.53 The Coast Guard has expressed concern that the age and condition of its oil spill response equipment is putting its preparedness and response capability at risk. For example, some equipment may no longer be fully functional and may not incorporate newer and potentially more effective cleanup technology.

1.54 During our interviews and document reviews, Coast Guard staff raised a number of concerns about the investment in the Canadian Coast Guard's equipment. For example, investment in equipment has been on an ad hoc regional basis and has been driven by the availability of funds rather than by a coordinated risk-based investment strategy.

1.55 We note that in 2007, the Canadian Coast Guard received funding of about \$2.3 million as part of Canada's Health of the Oceans Initiatives to purchase oil spill response equipment for various locations across Canada's North. The funding does not cover costs for operations and maintenance. Funding of \$5 million was also provided to the Coast Guard as part of Canada's Economic Action Plan. This funding, along with \$5 million of the Coast Guard's own funding, is earmarked for the replacement of 30 existing pollution response barges for use in all regions. Delivery of these vessels is expected to be completed by 31 March 2011.

1.56 In 2000, the Canadian Coast Guard completed an assessment of Canada's ship-source oil spill response capacity that identified gaps and duplication in oil spill response coverage; no update has been conducted since. Although it has concerns over the state of its equipment, due to the lack of current information on risks and a recent capacity analysis, the Coast Guard is not able to determine how much oil spill response equipment it should have. In addition, it

cannot determine whether the capacity that exists in Canada to respond to ship-source oil spills is appropriate to address risks.

1.57 Recommendation. The Canadian Coast Guard should assess its response capacity, taking into account the capacity of the private sector, against risks related to ship-source oil spills. This information should be used by the Canadian Coast Guard to inform future investment decisions.

Canadian Coast Guard's response. Agreed. The risk assessments discussed in recommendation 1.32 will necessarily inform the Canadian Coast Guard assessment of its response capacity in the Atlantic, Pacific, and Arctic regions, taking into account the existing response capacity of the private sector. Hence, Coast Guard response capacity assessments will be informed by the Atlantic, Pacific, and Arctic risk assessments related to ship-source oil spills.

Procedures for verifying preparedness of the Canadian Coast Guard are not in place

1.58 As we note in paragraph 1.8, Canada has a marine pollution preparedness and response system for ships that contains two equally important components: Canada's Marine Oil Spill Preparedness and Response Regime (which includes the private sector certified response organizations regulated by Transport Canada), and the Government of Canada's operational response capacity, contained within the Canadian Coast Guard.

1.59 Transport Canada ensures that the certified response organizations maintain the capacity to respond to ship-source oil spills of up to 10,000 tonnes. In particular, Transport Canada reviews these organizations every three years as a means of certifying that they meet criteria set out in the *Canada Shipping Act, 2001* and related response organization regulations. This includes ensuring these organizations have up-to-date response plans that describe in detail their procedures (including training and exercises), equipment, and resources that are in place to respond to ship-source oil spills.

1.60 Similar procedures and criteria for ensuring readiness are not in place for the federal government component of Canada's marine pollution preparedness and response system—namely the Coast Guard. In our opinion, similar procedures should be applied as a means of providing assurance that the federal component of the oil spill response system is ready to respond in an effective manner when needed.

1.61 Recommendation. In order to ensure the readiness of the Government of Canada's operational response capacity, the Canadian Coast Guard, with input from Transport Canada, should periodically verify its preparedness to respond to ship-source oil spills (based on predetermined procedures and criteria).

Canadian Coast Guard's response. Agreed. The Canadian Coast Guard will establish a periodic review process to verify its preparedness for ship-source oil spills. The risk assessments identified and discussed in recommendation 1.32 and the response capacity assessments identified in recommendation 1.57 will necessarily inform the Canadian Coast Guard verification of its level of preparedness for ship-source oil spills in the Atlantic, Pacific, and Arctic regions.

Responding to ship-source spills

1.62 When a ship-source spill occurs, it is important to respond appropriately to minimize environmental impacts. Monitoring and assessing responses to such spills are important for ensuring that responses are appropriate and effective. Treasury Board policies related to managing for results outlines the requirements for federal departments and agencies for monitoring and using performance information to support decisions on program management.

Responses to ship-source spills are poorly documented

1.63 Between 2007 and 2009, a total of about 4,160 pollution incidents involving spills of oil, chemicals, or other pollutants into Canadian waters were reported to the Canadian Coast Guard; about 2,000 were ship-source spills. These spills involved a variety of vessels, ranging from pleasure craft and fishing boats to barges, cargo vessels, and tankers. The remaining spills came from land-based sources (about 245), oil handling facilities (about 30), mystery sources (spills where the source could not be confirmed—about 1,630), and other sources (about 255). Pollution incidents are reported to the Canadian Coast Guard by a variety of sources, including the general public. Although they are reported as pollution incidents, in some cases they may not be caused by a spill. Rather, upon investigation, it may be determined that what was originally suspected to be pollution may in fact be something quite different (for example, pollen or algae). According to Coast Guard data, more than 75 percent of reported incidents occurred in Canada's marine environment.

1.64 The Marine Pollution Incident Reporting System. As either federal monitoring officer or on-scene commander, the Canadian Coast Guard monitors or responds to ship-source oil spills to ensure an

appropriate response takes place. In 2001, the Canadian Coast Guard implemented the Marine Pollution Incident Reporting System (MPIRS) to record and track marine pollution incidents and subsequent actions. We examined a random sample of 31 files from the system (from January 2007 to December 2009) to determine how the Coast Guard was monitoring and assessing responses to ship-source spills. Our sample was drawn from incidents that involved vessels and mystery sources and that required a mobilization of resources.

1.65 We found that the Canadian Coast Guard's responses to these spills were poorly documented and that information contained in the MPIRS was incomplete and of questionable quality. For example, the MPIRS reports do not clearly indicate the level of effort spent by the Coast Guard in responding to spills, or the results of the response efforts, such as the estimated amount of oil recovered and the environmental impacts resulting from the spills. We also noted some significant variations from year to year in terms of the estimates of the volume of spills. We were informed that these anomalies may be due to individual incidents or input errors. However, there is no quality assurance program for the MPIRS, which may otherwise have found these errors.

1.66 Conducting post-incident assessments, when appropriate, is useful for debriefing on how spill responses are conducted to identify problems encountered, lessons learned, and recommendations for improvement. Of the 31 files analyzed in our sample, none contained a post-incident assessment.

1.67 Environment Canada is the federal authority for providing environmental advice during a ship-source oil or chemical spill. Of the files that we examined, Environment Canada was involved in more than half of the incidents, and it provided advice in all of these cases. We found that Environment Canada, when requested, provided advice either directly to the Canadian Coast Guard or through the Regional Environmental Emergencies Team. This included advice on topics such as shoreline characteristics; sensitive areas such as habitat, species, and infrastructure in the vicinity of a spill that could be affected; and spill trajectories.

1.68 We found that there is no central repository where all pertinent information related to an incident, including environmental or socio-economic damages, is documented. For example, information on environmental impacts was often captured by Environment Canada and documented in its files; however, this information was rarely included in the Canadian Coast Guard's files.

1.69 The Canadian Coast Guard's objectives regarding environmental response are to minimize the environmental, economic, and public safety impacts of marine pollution incidents, including ship-source oil spills. Incomplete and unreliable documentation on responses to ship-source spills affects the Canadian Coast Guard's ability to know how well it is achieving its objectives. Limitations associated with the MPIRS also prevent the Coast Guard from conducting reliable trend analysis on ship-source spills, which in turn is important for conducting risk assessments and assessing the adequacy of equipment and capacity.

1.70 Recommendation. The Canadian Coast Guard should implement a quality assurance program for its Marine Pollution Incident Reporting System. The Coast Guard should also establish procedures so that the results of spill responses are consistently documented. The level of documentation on responses should be proportionate to the significance of the incident and, where applicable, contain information on contributions from other entities.

Canadian Coast Guard's response. Agreed. The Canadian Coast Guard will undertake a review to identify the required characteristics and parameters of a quality assurance program for its reporting systems for marine pollution incidents. The Coast Guard will strengthen its procedures so that the results of spill responses are consistently documented.

1.71 Incident response system. Using a common system for emergencies contributes to standard response and operational procedures, and a reduced potential for miscommunication when responding to incidents. Inconsistent use may be a concern in the event of a major ship-source spill where resources are shared among regions. The Canadian Coast Guard, certified response organizations, and other federal entities in Canada and the United States use response systems that are based on the Incident Command System, which was originally developed in the United States in the 1970s.

1.72 The Canadian Coast Guard's system is called the Response Management System. Concerns have been raised by some stakeholders that the Response Management System could affect coordination of a response to a major spill that requires a multi-party response.

1.73 Recommendation. The Canadian Coast Guard should review the differences between the Response Management System and Incident Command System, assess whether these differences could affect a multi-party response to a major spill, and address significant differences, if any.

Canadian Coast Guard's response. Agreed. The Canadian Coast Guard will endeavour to identify the differences between the Response Management System and Incident Command System. This will include whether these differences could affect a multi-party response to a major spill.

Preparing for ship-source chemical spills

1.74 Hazardous and noxious substances are regarded as a category of dangerous goods that comprises substances with dangerous properties. Hazardous and noxious substances are transported in bulk and in containers aboard ships, as well as by rail and in trucks. The multiple modes for transporting these chemicals, coupled with the wide variety and very large number of such substances, presents important policy challenges for the design of a response regime. This has been recognized both domestically and internationally with the separation of the two response regimes—one dealing with oil and the other with hazardous and noxious substances—under the International Maritime Organization's (IMO) International Convention on Oil Pollution Preparedness, Response and Co-operation.

There is no national regime for ship-source chemical spills

1.75 An emergency response regime for hazardous and noxious substances as well as for oil was recommended in the 1990 Brander-Smith Report. Some 20 years later there is no regime in Canada for dealing with hazardous and noxious substances that clearly outlines roles and responsibilities, including those of federal government departments and agencies and industry.

1.76 In March 2000, the IMO adopted the Protocol on Preparedness, Response and Co-operation to Pollution Incidents by Hazardous and Noxious Substances. Parties to the Protocol are required to establish measures for dealing with pollution incidents involving hazardous and noxious substances. This includes a national system to be put in place, including a designated national authority, a national operational contact point, a national contingency plan, as well as a minimum level of response equipment, communications plans, and regular training and exercises. The Protocol entered into force on 14 June 2007 after ratification by at least 15 IMO member states. Canada has not ratified the Protocol.

1.77 Transport Canada is responsible for developing the regime for hazardous and noxious substances. In our opinion, such a regime is important so that the entities who would typically be involved in responding to a spill—such as ports, private chemical response

companies, local fire departments, and the Canadian Coast Guard—know what role they would play. Better understanding their respective roles will allow them to make better and more informed decisions regarding (among other things) training, exercises, and equipment investments. Transport Canada officials told us that they have been consulting with various stakeholders on developing a Canadian regime and ratifying the Protocol on hazardous and noxious substances; the Department is planning to have the regime in place by 2013. In the interim, Canada lacks a formal framework for responding to ship-source chemical spills including clear roles and responsibilities.

1.78 Officials from Transport Canada informed us that one of the challenges they face in establishing a regime is that the data on the type and quantity of hazardous and noxious substances transported by ship is not at a level of detail appropriate for the Department's needs.

1.79 Recommendation. In order to facilitate the development of a hazardous and noxious substance regime in Canada, Transport Canada should take the necessary steps to ensure that it has adequate data on the type and quantity of hazardous and noxious substances transported by ship in Canada.

Transport Canada's response. Agreed. Transport Canada will work with key departments and agencies (including the Canada Border Services Agency, Statistics Canada, and the Canadian Coast Guard) to develop the necessary procedures and systems so emergency responders have access to near real-time information for all hazardous and noxious products transported by ships in Canadian waters. Considering that the Canada Border Services Agency and the Canadian Coast Guard already have systems and procedures in place for obtaining vessel cargo manifest and data, Transport Canada will initiate discussions no later than the spring of 2011 and seek their collaboration to adapt the data and make it available for the proposed Marine Hazardous and Noxious Substances Incident Preparedness and Response Regime.

Conclusion

1.80 We examined whether Transport Canada, the Canadian Coast Guard, and Environment Canada have taken reasonable actions to prepare for and respond to pollution incidents caused by ship-source oil and chemical spills in Canada's Arctic, Pacific, and Atlantic Ocean waters, and the Gulf of St. Lawrence.

1.81 We found that, while Transport Canada and the Canadian Coast Guard have done risk assessments related to ship-source oil spills, the approaches to conducting these assessments have not been consistent or systematic, nor are there formal processes for ensuring that risks are being reassessed on an ongoing basis. As a result, the knowledge of risks in Canada regarding ship-source oil spills, which is important for emergency planning, is neither complete nor up to date. Furthermore, the emergency management plans of the Canadian Coast Guard and Environment Canada, which are important federal players when responding to ship-source oil spills, are not all up to date.

1.82 While the Canadian Coast Guard is delivering training and conducting exercises for dealing with ship-source oil spills, it does not have the systems necessary to ensure that its training and exercise programs are being delivered in a nationally consistent manner.

1.83 The Canadian Coast Guard, the lead federal agency for responding to ship-source oil spills, has not conducted an assessment of its ship-source oil spill response capacity since 2000. While concerns have been raised regarding the state of the Coast Guard's oil spill response equipment, given the lack of recent capacity analyses and the lack of up-to-date knowledge on risks, the Coast Guard does not know if its ship-source oil spill response capacity is appropriate to address those risks.

1.84 Transport Canada assesses private sector certified response organizations to ensure that they meet criteria set out in the *Canada Shipping Act, 2001*. This includes verifying that these organizations have (among other things) up-to-date emergency management plans, adequate training and exercises, and the equipment necessary to respond to ship-source oil spills of up to 10,000 tonnes. Similar procedures do not exist for ensuring the Canadian Coast Guard's readiness to respond to spills.

1.85 The Coast Guard lacks complete and reliable documentation on responses to ship-source oil spills, which affects its ability to know how well it is achieving its objectives of minimizing the environmental,

economic, and public safety impacts of marine pollution incidents. Limitations associated with the system the Coast Guard has in place to track oil spills also prevents it from conducting reliable trend analysis on ship-source oil spills in Canada.

1.86 Recommendations were made by a public review panel to the federal government 20 years ago to put in place a national regime to deal with ship-source spills involving hazardous and noxious substances. Such a regime is not yet in place and is not expected to be implemented before 2013. In the meantime, Canada lacks a formal framework for responding to chemical spills, including clear roles and responsibilities.

1.87 We have identified a number of important gaps—ranging from emergency planning to documenting spill responses. Overall, we conclude that these gaps need to be filled by the federal government in order to provide assurance that its planning, systems, and procedures are reasonably supporting preparedness and response efforts regarding ship-source oil and chemical spills in Canada’s marine environment.

About the Audit

All of the audit work in this chapter was conducted in accordance with the standards for assurance engagements set by The Canadian Institute of Chartered Accountants. While the Office adopts these standards as the minimum requirement for our audits, we also draw upon the standards and practices of other disciplines.

Objectives

The objective of the audit was to determine whether Transport Canada, the Canadian Coast Guard (Fisheries and Oceans Canada), and Environment Canada have taken reasonable actions to implement legislated and other measures to prepare for and respond to pollution from ships in Canada's marine environment.

In support of this objective, the two sub-objectives for the audit are

- to determine whether Transport Canada, the Canadian Coast Guard, and Environment Canada have plans, systems, or protocols to prepare to respond to ship-source spills, including having appropriate emergency plans and the capacity to respond to ship-source spills involving oil and hazardous substances; and
- to determine whether Transport Canada, the Canadian Coast Guard, and Environment Canada have assessed the responses to ship-source spills, including ship-source spills involving oil and hazardous substances.

Scope and approach

The audit examined the federal government's management of pollution incidents caused by oil and hazardous and noxious substances in Canada's Atlantic, Pacific, and Arctic Ocean waters and the Gulf of St. Lawrence. The focus of the audit was on the federal government's responsibilities in these areas, as defined by the *Canada Shipping Act, 2001*, the *Arctic Waters Pollution Prevention Act*, the *Migratory Birds Convention Act, 1994*, the *Emergency Management Act*, and their relevant regulations. This legislation also incorporates Canada's obligations under various international agreements, including the International Convention for the Prevention of Pollution from Ships and the International Convention on Oil Pollution Preparedness, Response and Co-operation.

The majority of the work was conducted through interviews with entity officials and other stakeholders, as well as a review of relevant documentation. In carrying out the audit, the team met with headquarters staff and visited regional offices in order to conduct interviews and collect documentation as needed.

A sample of ship-source pollution incidents occurring in the marine environment was examined to assess how responses to incidents were being monitored and assessed. Incidents were selected between January 2007 and December 2009 and involved vessels or mystery sources (incidents where the source could not be confirmed); incidents from land-based sources, oil handling facilities, and other sources were excluded. Selection of this sample was based on information contained in the Canadian Coast Guard's Marine Pollution Incident Reporting System.

Criteria

To determine whether Transport Canada, the Canadian Coast Guard, and Environment Canada have plans, systems, or protocols to prepare to respond to ship-source spills, including having appropriate emergency plans and the capacity to respond to ship-source spills involving oil and hazardous substances, we used the following criteria:	
Criteria	Sources
Transport Canada, the Canadian Coast Guard, and Environment Canada have appropriate emergency plans for responding to ship-source oil and chemical spills.	<ul style="list-style-type: none"> • <i>Emergency Management Act</i>, section 6(1) (2) • <i>Canada Shipping Act, 2001</i> • <i>Arctic Waters Pollution Prevention Act</i> • 1973 Cabinet Directive 1175-73RD on environmental emergencies • International Convention for the Prevention of Pollution from Ships, International Maritime Organization, 1973 • International Convention on Oil Pollution Preparedness, Response and Co-operation, International Maritime Organization, 1990 • Our Waters, Our Future: Sustainable Development Strategy 2007–2009 (Outcome B.1), Fisheries and Oceans Canada, 2006
Transport Canada, the Canadian Coast Guard, and Environment Canada assess the adequacy of their emergency response plans.	<ul style="list-style-type: none"> • <i>Emergency Management Act</i>, section 6(1) (2) • <i>Canada Shipping Act, 2001</i> • <i>Arctic Waters Pollution Prevention Act</i> • 1973 Cabinet Directive 1175-73RD on environmental emergencies • International Convention for the Prevention of Pollution from Ships, International Maritime Organization, 1973 • International Convention on Oil Pollution Preparedness, Response and Co-operation, International Maritime Organization, 1990 • Our Waters, Our Future: Sustainable Development Strategy 2007–2009 (Outcome B.1), Fisheries and Oceans Canada, 2006
To determine whether Transport Canada, the Canadian Coast Guard, and Environment Canada have assessed the responses to ship-source spills, including ship-source spills involving oil and hazardous substances, we used the following criteria:	
Criteria	Sources
The Canadian Coast Guard and Environment Canada monitor polluter-led responses to ship-source oil and chemical spills, including the response of certified response organizations.	<ul style="list-style-type: none"> • <i>Canada Shipping Act, 2001</i>, section 180 • <i>Migratory Birds Convention Act, 1994</i>, section 5.1
Transport Canada, the Canadian Coast Guard, and Environment Canada assess the adequacy of the response to ship-source oil and chemical spills.	<ul style="list-style-type: none"> • <i>Canada Shipping Act, 2001</i>, section 180 • Policy on Management, Resources and Results Structures (section 5.2.1, Managing for Results), Treasury Board of Canada Secretariat, 2008

Management reviewed and accepted the suitability of the criteria used in the audit.

Period covered by the audit

This audit covers the period from January 2007 to the end of May 2010. Audit work for this chapter was substantially completed on 30 June 2010.

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Appendix List of recommendations

The following is a list of recommendations found in Chapter 1. The number in front of the recommendation indicates the paragraph number where it appears in the chapter. The numbers in parentheses indicate the paragraph numbers where the topic is discussed.

Recommendation	Response
<p>Preparing for ship-source oil spills</p> <p>1.32 Building on the risk assessments conducted to date, Transport Canada and the Canadian Coast Guard should conduct a risk assessment related to ship-source oil spills covering Canada's three coasts. The risk assessment should be conducted in consultation with Environment Canada and the shipping industry. Transport Canada and the Canadian Coast Guard should put in place processes so that risks are reviewed on an ongoing basis and the risk assessment is updated as required. The Canadian Coast Guard should ensure that the risk assessment considers the three roles that it plays (federal monitoring officer, on-scene commander, and resource agency). (1.26–1.31)</p>	<p>Environment Canada's response. Agreed. The Department will assist Transport Canada and the Canadian Coast Guard by providing scientific expertise and knowledge.</p> <p>Canadian Coast Guard's response. Agreed. The Canadian Coast Guard will work with Transport Canada to establish a framework facilitating the undertaking of risk assessment related to ship-source oil spills off Canada's three coasts.</p> <p>Transport Canada's response. Agreed. Transport Canada has undertaken talks with the Canadian Coast Guard and Environment Canada with a view to reviewing Canada's national oil spill response regime. We will build on risk assessments of ship-source oil spill preparedness and response regimes of all Canadian waters, including the three coasts. Scoping of this risk assessment will commence this year and be completed by the end of 2011–12.</p>

Recommendation	Response
<p>1.41 The Canadian Coast Guard and Environment Canada should update their national emergency management plans and review and update their regional emergency management plans as necessary. (1.33–1.40)</p>	<p>Environment Canada’s response. Agreed. The Department will update these plans after completing its Strategic Emergency Management Plan (SEMP). The SEMP will provide an overall framework for the review and update of all of the Department’s emergency plans, including the national and regional environmental emergencies management plans.</p> <p>Canadian Coast Guard’s response. Agreed. The Canadian Coast Guard is currently developing its National Environmental Response Strategy. This Strategy will be supplemented by the development of a national response policy and associated plans for directing Canadian Coast Guard efforts, including those related to a major incident. The Canadian Coast Guard will establish a periodic review process to ensure its national and regional emergency management plans remain accurate and relevant.</p>
<p>1.42 To ensure that emergency management plans remain up to date, Transport Canada, the Canadian Coast Guard, and Environment Canada should establish processes for reviewing their national and regional plans on a regular basis and updating them as required (for example, due to changes in risks, legislation, roles and responsibilities, and/or lessons learned from significant incidents or exercises). (1.33–1.40)</p>	<p>Environment Canada’s response. Agreed. As part of the development of the Strategic Emergency Management Plan (SEMP), the Department will include a maintenance section for the SEMP, which will establish the process for its review/update as well as that of its referenced documents (emergency management plans, business continuity plans, etc.).</p> <p>Canadian Coast Guard’s response. Agreed. The Canadian Coast Guard will establish a periodic review process to ensure its national and regional emergency management plans remain accurate and relevant.</p> <p>Transport Canada’s response. Agreed. Transport Canada recognizes the need for up-to-date emergency management plans and, to this end, in 2010, updated its Environmental Prevention and Response National Preparedness Plan. Transport Canada will build on its current practice by reviewing and updating this plan annually.</p>

Recommendation	Response
<p>1.50 The Canadian Coast Guard should update its program for conducting ship-source oil spill response exercises, including the type and frequency of exercises to be conducted (including inter-regional exercises), which organizations should be involved in the exercises, and requirements for documenting exercises. It should also establish procedures for ensuring that recommendations and lessons learned from these exercises are shared among regions and acted upon. (1.43–1.49)</p>	<p>Canadian Coast Guard’s response. Agreed. The Canadian Coast Guard is currently reviewing its program for response exercises, including ship-source oil response exercises, and will develop a revised exercise plan.</p>
<p>1.57 The Canadian Coast Guard should assess its response capacity, taking into account the capacity of the private sector, against risks related to ship-source oil spills. This information should be used by the Canadian Coast Guard to inform future investment decisions. (1.51–1.56)</p>	<p>Canadian Coast Guard’s response. Agreed. The risk assessments discussed in recommendation 1.32 will necessarily inform the Canadian Coast Guard assessment of its response capacity in the Atlantic, Pacific, and Arctic regions, taking into account the existing response capacity of the private sector. Hence, Coast Guard response capacity assessments will be informed by the Atlantic, Pacific, and Arctic risk assessments related to ship-source oil spills.</p>
<p>1.61 In order to ensure the readiness of the Government of Canada’s operational response capacity, the Canadian Coast Guard, with input from Transport Canada, should periodically verify its preparedness to respond to ship-source oil spills (based on predetermined procedures and criteria). (1.58–1.60)</p>	<p>Canadian Coast Guard’s response. Agreed. The Canadian Coast Guard will establish a periodic review process to verify its preparedness for ship-source oil spills. The risk assessments identified and discussed in recommendation 1.32 and the response capacity assessments identified in recommendation 1.57 will necessarily inform the Canadian Coast Guard verification of its level of preparedness for ship-source oil spills in the Atlantic, Pacific, and Arctic regions.</p>

Recommendation	Response
<p>Responding to ship-source spills</p> <p>1.70 The Canadian Coast Guard should implement a quality assurance program for its Marine Pollution Incident Reporting System. The Coast Guard should also establish procedures so that the results of spill responses are consistently documented. The level of documentation on responses should be proportionate to the significance of the incident and, where applicable, contain information on contributions from other entities. (1.63–1.69)</p> <p>1.73 The Canadian Coast Guard should review the differences between the Response Management System and Incident Command System, assess whether these differences could affect a multi-party response to a major spill, and address significant differences, if any. (1.71–1.72)</p>	<p>Canadian Coast Guard’s response. Agreed. The Canadian Coast Guard will undertake a review to identify the required characteristics and parameters of a quality assurance program for its reporting systems for marine pollution incidents. The Coast Guard will strengthen its procedures so that the results of spill responses are consistently documented.</p> <p>Canadian Coast Guard’s response. Agreed. The Canadian Coast Guard will endeavour to identify the differences between the Response Management System and Incident Command System. This will include whether these differences could affect a multi-party response to a major spill.</p>

Recommendation	Response
<p>Preparing for ship-source chemical spills</p> <p>1.79 In order to facilitate the development of a hazardous and noxious substance regime in Canada, Transport Canada should take the necessary steps to ensure that it has adequate data on the type and quantity of hazardous and noxious substances transported by ship in Canada. (1.75–1.78)</p>	<p>Transport Canada’s response. Agreed. Transport Canada will work with key departments and agencies (including the Canada Border Services Agency, Statistics Canada, and the Canadian Coast Guard) to develop the necessary procedures and systems so emergency responders have access to near real-time information for all hazardous and noxious products transported by ships in Canadian waters. Considering that the Canada Border Services Agency and the Canadian Coast Guard already have systems and procedures in place for obtaining vessel cargo manifest and data, Transport Canada will initiate discussions no later than the spring of 2011 and seek their collaboration to adapt the data and make it available for the proposed Marine Hazardous and Noxious Substances Incident Preparedness and Response Regime.</p>

Report of the Commissioner of the Environment and Sustainable Development to the House of Commons—Fall 2010

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